

Research Publications in the Journals

Session: 2019-20

S.N.	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Link to article / paper / abstract of the article
1	Conventional and microwave assisted synthesis some substituted chalcones and their biological study	Y. K. Meshram, R. R. Dharamkar	Chemistry	Vidyabharati international interdisciplinary research journal special issue may 2020	2019-20	2319-4979	https://drive.google.com/file/d/1VrCDNGvvgfSxksqK_LM5-o0cSj4n26Ds/view?usp=drive_link
2	Studies of some substituted dihydropyrimidinones by refractrometrically	Y. K. Meshram, R. R. Dharamkar	Chemistry	Vidyabharati international interdisciplinary research journal special issue may 2021	2019-20	2319-4980	https://drive.google.com/file/d/18oH0i2hbMw-taxNkx1lf7Go8nKr8wm60/view?usp=drive_link
3	Redox-Annulations of Cyclic Amines with ortho-Cyanomethylbenzaldehydes. 2020, 22(3), 976-980	Anirudra Paul, Hemant S. Chandak, Longle Ma, and Daniel Seidel*	CHEMISTRY	Organic Letters	2019-20	1523-7060	https://pubs.acs.org/doi/10.1021/acs.orglett.9b04506
4	In vitro apoptotic effect on human lymphatic filarial parasite by piperidine derivatives and thymidine reversal study, 2020, 119(1), 165-175.	Dr. Hemant S. Chandak	CHEMISTRY	Parasitology Research	2019-20	0932-0113	https://link.springer.com/article/10.1007/s00436-019-06492-7
5	Studies of some substituted imine's by Refractrometrically in different solvents	Dr.Y.K.Meshram Dr.Kirtiwardhan R.Dixit J . M . LagheR . M.Mahalle	CHEMISTRY	Journal of Emerging Technologies and Innovative Research (JETIR) January 2019, Volume 6, Issue 1	2019-20	2349-5162	https://drive.google.com/file/d/1fkifDyjxiwBG9wJA49GeYj3soWLSBF5/view?usp=drive_link
6	Opportunities & Challenges in Start Up	Dr. A.D. Bhosale	Commerce	B. Aadhar's International Multidisciplinary Research Journal	2019-20	2278-9308	https://drive.google.com/file/d/1J9DitFtRiO5tXxUe8W1Gz3jLylPn5Ql/view?usp=sharing
7	GST impact on Indian Economy	Dr. A.D. Bhosale	Commerce	Excel's International Journal of Social Science & Humanities	2019-20	2277-7539	https://drive.google.com/file/d/1xS1UjLbCMxxgTmaTKL-39hG4BwBY8IP/view?usp=sharing
8	मोबाईल बँकींग : आधुनिक तंत्रज्ञान	Dr. J. D. Porey	Commerce	Research Journey, International Conference	2019-20	2348_7143	https://www.researchjourney.net/special-issues
9	ऑनलाईन व्यापार व त्याचे परिणाम	Dr. J. D. Porey	Commerce	scholars impact international multidisciplinary multilingual journal special issue vol 6 oct to dec 2019	2019-20	2394-7632	https://drive.google.com/file/d/1ccLp2JHo_Kbo7KfmwtzckRqIICPUSSRd/view?usp=sharing
10	भारतीय जळ सिंचनाचा अभ्यास	Dr. J. D. Porey	Commerce	B. Aadhar	2019-20	2278_9308	https://drive.google.com/file/d/1ccLp2JHo_Kbo7KfmwtzckRqIICPUSSRd/view?usp=sharing
11	"The problem of rising NPA in Banking sector in banking sector in India: Comparative analysis of public & private sector banks"	Dr. M. S. Gaikwad	Commerce	Scholars Impact	2019-20	2394-7632	https://drive.google.com/file/d/1IAGko16PSBJx7ieJ1RadW9MnLokWkRg/view?usp=sharing

12	"Economic Recession and Remedies on it." Page No. 35-37	Dr. M. S. Gaikwad	Commerce	Vidyawarta Research Journal	2019-20	2319-9318	https://drive.google.com/file/d/1IAGko16PSBJx7ieJ1RadW9MnLokWkRg/view?usp=sharing
13	"Role of Services sector in Indian Economy in 2019" Page No. 37-39	Dr. M. S. Gaikwad	Commerce	B. Aadhar Research Journal	2019-20	2278-9308	https://drive.google.com/file/d/1IAGko16PSBJx7ieJ1RadW9MnLokWkRg/view?usp=sharing
14	"Online Shopping Ki Dokedukhi" Page No. 144-146	Dr. M. S. Gaikwad	Commerce	B. Aadhar Multidisciplinary International Research Journal	2019-20	2278-9308	https://drive.google.com/file/d/1IAGko16PSBJx7ieJ1RadW9MnLokWkRg/view?usp=sharing
15	A Study on Entrepreneurship Development Process in India Page No. 77 – 81	Dr. M. S. Gaikwad	Commerce	Ajanta Publication, Aurangabad	2019-20	2277-5730	https://drive.google.com/file/d/1IAGko16PSBJx7ieJ1RadW9MnLokWkRg/view?usp=sharing
16	Issues and challenges in 21st century related Commerce education Page No. 94-97	Dr. M. S. Gaikwad	Commerce	B. Aadhar Multidisciplinary International Research Journal	2019-20	2278-9308	https://drive.google.com/file/d/1IAGko16PSBJx7ieJ1RadW9MnLokWkRg/view?usp=sharing
17	"Impact of GST on Indian Economy" Pg. No. 07-10	Dr. V. R. Gawhale	COMMERCE	Global Economic Research Vol - II Issue – XVII April-Sept 19	2019-20	ISSN – 2249-4080	https://drive.google.com/file/d/1Q0w3EvL8vn8uooRBW-abCnkbVeKdtxm/view?usp=sharing
18	"Customer Relationship Management in Banking Sector" Pg. No.01-06	Dr. V. R. Gawhale	COMMERCE	Interlink Research Analysis Vol - I Issue – XX July- Dec 19	2019-20	ISSN – 0976-0377	https://drive.google.com/file/d/1Q0w3EvL8vn8uooRBW-abCnkbVeKdtxm/view?usp=sharing
19	"Women Entrepreneurship and Sustainable Economic Development" Pg. No. 01-06	Dr. V. R. Gawhale	COMMERCE	Indo Western Research Journal Vol – I Issue –XII	2019-20	ISSN – 2349-1027	https://drive.google.com/file/d/1Q0w3EvL8vn8uooRBW-abCnkbVeKdtxm/view?usp=sharing
20	"E-Commerce: Prospects, Challenges & Government Role"	Dr. A. K. Dhanagare	COMMERCE	Scholars Impact	2019-20	ISSN-2394-7632	https://drive.google.com/file/d/1Q0jQtptHzoSmK0oJgs99gcSJ036IJNaz/view?usp=sharing
21	"Indian Accounting Standards & International Accounting Standards at a Glance from Indian Prospects"	Dr. A. K. Dhanagare	COMMERCE	Scholars Impact	2019-20	ISSN-2394-7633	https://drive.google.com/file/d/1TVI_VVKqJsAagcfHClzloM0cZqbgSujP/view?usp=sharing
22	Printed Devanagari Character Standard Dataset having different font size and styles variations.	A.A. Tayade	Computer Science	OUR HERITAGE	2019-20	0474-9030	https://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=BsvBk44AAAAJ&citation_for_view=BsvBk44AAAAJ:2osOgNQ5qMEC
23	Analytical Study of Statistical Features Extraction of Characters for Verification of CAPTCHA in Devanagari Script	P E Ajmire	Computer Science	INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS - IJCRT	2019-20	2320-2882	https://www.ijcrt.org/papers/IJCRT2002203.pdf

24	Recognition of Off-Line Handwritten Rajasthani Characters using Generalized Feed Forward Classifier.2019	P E Ajmire	Computer Science	International Journal of Innovative Technology and Exploring Engineering (2019-20	2278-3075	https://www.ijitee.org/wp-content/uploads/papers/v9i2/B7884129219.pdf
25	A Survey on IoT Elements, Layered Architectures and Security Issues.Sept,2019	P E Ajmire	Computer Science	International Journal of Advanced and Innovative Research	2019-20	2394-7780	http://iaraedu.com/pdf/ijair-volume-6-issue-3-v-july-september-2019.pdf
26	A Survey On Various Character Recognition Methods Of Identification Of Different Types Of Character July 2018	P E Ajmire	Computer Science	International Journal of Renewable Energy Exchange	2019-20	2321-1067	https://www.isindexing.com/isi/journaldetails.php?id=7408
27	Analytical Study of Statistical Features Extraction of Characters for Verification of CAPTCHA in Devanagari Script	Prof. P. S. Bodkhe	Computer Science	International Journal of Creative Research Thoughts (IJCRT) October-2019	2019-20	2320-2882	https://www.ijcrt.org/papers/IJCRT2002203.pdf
28	Maharashtratil Audhyogik Shetratil Pradeshik Ahsamtol (39-44)	R. R. Gawhale	Economics	Global Economic Research National Journal	2019-20	2249-4081	https://drive.google.com/file/d/1vo640uP4iOCCvoPmJePvLdT_FdYzlaWM/view?usp=sharing
29	Swastha Prashashan ani Niyojan kalatil Arogyacha Vikas (42-46)	R. R. Gawhale	Economics	Interlink Research Analysis International Journal	2019-20	0976-0377	https://drive.google.com/file/d/1vo640uP4iOCCvoPmJePvLdT_FdYzlaWM/view?usp=sharing
30	Jagtik mukt bazar va WTO che yeshyapresh (204-207)	R. R. Gawhale	Economics	Research Journey International Journal (Arthbharti-VAP)	2019-20	2348-7143	https://drive.google.com/file/d/1vo640uP4iOCCvoPmJePvLdT_FdYzlaWM/view?usp=sharing
31	Khandeshyatil Kumbhar Samajachya Samajik Sthithiche Adhyan (87-90)	R. R. Gawhale	Economics	Research Journey International Journal	2019-20	2348-7141	https://drive.google.com/file/d/1vo640uP4iOCCvoPmJePvLdT_FdYzlaWM/view?usp=sharing
32	Bhartache Aodhogik Dhoran, Vikas va Adchani, pp-195-201	S. T. Warade	Economics	B. Aadhar	2019-20	2278-9308	https://drive.google.com/file/d/1Ag5IEHEjrH8yAYS6ypJeFSSH_uFAGnNo/view?usp=sharing
33	Talebandicha Bhartiya Arthavyastevaril Parinam, pp-45-50	S. T. Warade	Economics	B. Aadhar	2019-20	2278-9308	https://drive.google.com/file/d/1Ag5IEHEjrH8yAYS6ypJeFSSH_uFAGnNo/view?usp=sharing
34	Trend Analysis with Respect to Area, Production and Yield of Cotton in Maharashtra	H. A. Bhosale	Economics	International Journal of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/sep2019/Trend-Analysis-With-Respect-To-Area-Production-And-Yield-Of-Cotton-In-Maharashtra.pdf
35	Translation in Maharashtra: An Overview of the Past Two Hundred Years	P P Thakur	English	Translation Today	2019-20	0972-8740	https://ntm.org.in/download/tvol/volume13-1/article20.pdf
36	माझा प्रवास च्या इंग्रजी भाषांतरातील समाज भाषाशास्त्रीय समस्यांचे अध्ययन	P P Thakur	English	Bhasha Ani Jeevan	2019-20	2231-4059	https://drive.google.com/file/d/1FODRe9e939P7CKiaFxtpg_1koQij4noE/view?usp=sharing

37	Racial Discrimination : A Crucial Problem In Richard Wright's Autobiography 'Black Boy'	Dr. V. M. Deshmukh	English	Printing Area Issue-62, VOL-01, March 2020	2019-20	2394-5303	https://drive.google.com/file/d/17YAxR4pLAPr4CjwiZ43SFMdNvYDm154/view?usp=sharing
38	"Kath Sahitya main stree vimarsh" Page No. 64 - 66	Dr. S. N. Khadse	Hindi	Scholars Impact	2019-20	2394-7632	https://drive.google.com/file/d/1XN_6sZmkQ6zAMI-S4vdKdDDDiOTYcxS3/view?usp=sharing
39	प्रमाणभाषा आणि बोली परस्पर संबंध	Dr. H.D.Akotkar	Marathi	Scholar Impact	2019-20	2394-7632	https://drive.google.com/file/d/1_G1k0pgOYVi3LDG6iAIQv-M9MYS0qq2-/view?usp=sharing
40	वारी-अध्यात्मिक लोकशाहीचा आविष्कार	Dr. H.D.Akotkar	Marathi	Scholar Impact	2019-20	2394-7632	https://drive.google.com/file/d/14oKN0-b050cUSQLBAesF9BfuuykvFlx/view?usp=sharing
41	Panchatantra aur Kalila Dimna Ka Taqabuli Mutalea January to March 2020	A Z Taji	Persian	Sahmahi Alami Urdu Adab	2019-20	2394-7616	https://drive.google.com/file/d/1AoGWR71aGlgA4hiS4XmZVFKMNumMsbRz/view?usp=sharing
42	Abdullah Ibne Muqaffa April 2020	A Z Taji	Persian	B. Aadhar	2019-20	2278-9308	https://drive.google.com/file/d/138JeTSLaDpghH2pwVz9GUz77npBeULR5/view?usp=sharing
43	Amir Hasan Sijzi Ke Qasaid Par Tahqiqi Nazar April 2020	A Z Taji	Persian	B. Aadhar	2019-20	2278-9308	https://drive.google.com/file/d/1OVkc1qEIEHa5oGwSSZE5B22VhTH8-Bb5/view?usp=sharing
44	Sol-Gel Synthesis and Photo-Luminescence Study of NaSr _{1-x} PO ₄ :xDy ³⁺ Phosphor for Use in PC-WLED Pages 2852-2856	Sanjay P. Hargunani ¹ , Pranita Patil ² , Rajkumar Sonekar ³	Physics	International Journal for Research in Applied Science & Engineering Technology (IJRASET) Volume 7 Issue V, May 2019- Available at www.ijraset.com	2019-20	ISSN: 2321-9653; IC Value: 45.98; SJ	https://www.ijraset.com/files/erve.php?FID=23227
45	Luminescence study of UV-C to UV-A converting Sr ₃ Y _{1-x} (BO ₃) ₃ :xPb ²⁺ (x = 3,4,5,6,7 mole %) phosphor, pages 617-625	Sanjay P. Hargunani ^{1*} , Rajkumar P. Sonekar ¹ , Shriniwas K. Omanwar ²	Physics	Pramana Research Journal, Volume 9, Issue 6, 2019 ISSN NO: 2249-2976 https://pramanaresearch.org/ 617	2019-20	ISSN NO: 2249-2976	https://www.pramanaresearch.org/gallery/prj-p1067.pdf
46	Blue Luminescent Phosphor Sr ₃ Y _{1-x} (BO ₃) ₃ :xBi ³⁺ for WLED Applications, pages 1800184 (1 of 5)-1800184 (5 of 5)	Sanjay P. HargunaniRajkumar P. SonekarRitesh S. Palaspagar	Physics	Macromol. Symp. 2019, 387, 1970018, © 2019 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim	2019-20	ISSN:1521-3900	https://doi.org/10.1002/masy.201800184
47	Photo-luminescence study of red borate phosphor Sr ₃ Y _{1-x} (BO ₃) ₃ :xEu ³⁺	S. P. Hargunani	Physics	American Institute of Physics (AIP)Conference Proceedings 2104, 030027 (2019); Published Online: 07 May 2019	2019-20	ISBN: 978-0-7354-1836-3	https://doi.org/10.1063/1.5100454
48	Sol-Gel Synthesis and Photo-Luminescence Study of NaSr _{1-x} PO ₄ :xDy ³⁺ Phosphor for Use in PC-WLED Page No. : 2852-2856	S. P. Hargunani	Physics	International Journal for Research in Applied Science and Engineering Technology (IJRASET) Volume 7, Issue V	2019-20	ISSN 2321-9653	https://www.ijraset.com/files/erve.php?FID=23227

49	Blue Luminescent Phosphor Sr3Y1-X(BO3)3:XB3+ For WLED Applications Volume 387 Issue 1 Pages 1800184	S. P. Hargunani	Physics	Macromolecular Symposia © WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim Publication date 2019/10	2019-20	Online ISSN:1521-3900	https://doi.org/10.1002/masy.201800184
50	Luminescence study of UV-C to UV-A converting Sr3Y1-x(BO3)3:xPb2+ (x = 3,4,5,6,7 mole %) phosphor Pages 617_625	S. P. Hargunani	Physics	Journal pramana research journal Volume 9 Issue 6	2019-20	ISSN NO: 2249-2976	https://www.pramanaresearch.org/gallery/prj-p1067.pdf
51	Nava Yuva Aamdar ani Yuva Matar: Ek Chikitsak Adhyayan	Dr. P. A. Taori	Political Science	International Research Fellows Associations Research Journal: Analysis of Maharashtra State Legislative Assembly Election 2019 sp issue 240(B) Feb 2020	2019-20	ISSN - 2348-7143	https://drive.google.com/file/d/1WhlzFey8Evr7YaRjUveZTwOeUKNGJE99/view?usp=sharing
52	Bhartatil Dharmnirpeksh Lokshahi	Dr. P. A. Taori	Political Science	An International Multidisciplinary Research Journal: Ajanta Vol IX Issue 1 Jan-Mar 2020	2019-20	ISSN 2277-5730	https://drive.google.com/file/d/1Yqzi8HWPFHFR8TNrn5mAXDouDqL1MbEA/view?usp=sharing
53	Sarch Sobat Muktipath te Talebandhi Sobat Madyapath: Ek Samiksha	Dr. P. A. Taori	Political Science	Navjoyt: International Interdisciplinary Research Journal Vol IX Issue III Sep 2020	2019-20	ISSN 2277-8063	https://drive.google.com/file/d/1Upt-SRVC_ir_ZDXQCTGf2Rdydd8qM3Qv/view?usp=sharing
54	Role of Technology based higher education in Nation's success	P.V.Ubale	Statistics	IOSR Journal of Research and Methods in Education	2019-20	e-ISSN 2320-7288 p-ISSN 2320-737X	DOI:10.9790/1959-0904020107
55	Trend And Forecasts Analysis Of Yield Of Jowar In India Using Sarima Method Of Time Series	M O WANKHADE	Statistics	International Journal Of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/jan2020/Trend-And-Forecasts-Analysis-Of-Yield-Of-Jowar-In-India-Using-Sarima-Method-Of-Time-Series.pdf
56	Trends in Gross Enrolment Ratio of Male Female Enrolment and Expenditure on Higher Education as Percentage of Gross Domestic Product India	M O WANKHADE	Statistics	International Journal of Engineering and Advanced Technology	2019-20	2249 – 8958	https://www.ijeat.org/wp-content/uploads/papers/v9i2/B3349129219.pdf
57	Multiple Regression Model for Optimization of Yield of Cotton in Rain Fed Zone of Maharashtra, India	M O WANKHADE, U V KALE	Statistics	International Journal Of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/dec2019/Multiple-Regression-Model-For-Optimization-Of-Yield-Of-Cotton-In-Rain-Fed-Zone-Of-Maharashtra-India.pdf
58	A Study of Gender Parity with Respect to Education of Scheduled Tribes in India	M O WANKHADE	Statistics	International Journal Of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/dec2019/A-Study-Of-Gender-Parity-With-Respect-To-Education-Of-Scheduled-Tribes-In-India.pdf
59	Analysis of Gender Wise Trend in Higher Education in India	M O WANKHADE	Statistics	International Journal Of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/nov2019/Analysis-Of-Gender-Wise-Enrolment-Trend-In-Higher-Education-In-India.pdf
60	Trend Analysis With Respect To Area, Production And Yield Of Cotton In Maharashtra	M O WANKHADE, H A BHOSALE	Statistics	International Journal Of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/sep2019/Trend-Analysis-With-Respect-To-Area-

							Production-And-Yield-Of-Cotton-In-Maharashtra.pdf
61	A Study Of Use Of Smokeless And Smoking Forms Of Tobacco Among Agriculture Workers Of Villages In Murtizapur India	M O WANKHADE, H S LUNGE	Statistics	International Journal Of Scientific & Technology Research	2019-20	2277-8616	https://www.ijstr.org/final-print/sep2019/A-Study-Of-Use-Of-Smokeless-And-Smoking-Forms-Of-Tobacco-Among-Agriculture-Workers-Of-Villages-In-Murtizapur-India.pdf
62	Effect of 3-Sigma and Six Sigma in Banking Sector: A Case Study	V S Athawar	Statistics	International Journal of Agriculture and Statistical Science	2019-20	ISSN:0973-1903	https://www.connectjournals.com/toc2.php?abstract=2979001H_67-72a.pdf&&bookmark=CJ-033252&&issue_id=01&&yaer=2019
63	"Urdu Afsana Aaghaz-O-Irteqa" Page No -16-22	DR. MOHD. RAGHIB DESHMUKH	URDU	Quarterly Aalami Urdu Adab	2019-20	ISSN No-2394-7616	https://drive.google.com/file/d/1Y6ue_623INGDSvE03j37gr-kPGoLxgoH/view?usp=sharing
64	"Sir Syed Ahmed Khan Shakhsiyat Aaqaid Aur Nazriyat" Page No -44-49	DR. MOHD. RAGHIB DESHMUKH	URDU	Quarterly Aalami Urdu Adab	2019-20	ISSN No-2394-7616	https://drive.google.com/file/d/1qs-Tzc9-CompXDzeFyMrPA-81zPnknKU/view?usp=sharing
65	"Hali Aur Musaddas-e-Hali" Page No -85-90	DR. MOHD. RAGHIB DESHMUKH	URDU	Bi Monthly Chronicle Of Humanities And Cultural Studies (CHCS)	2019-20	ISSN No-2454-5503,	https://drive.google.com/file/d/1oamXzdt5AnpKewT51x_clVNWugcR-v1R/view?usp=drive_link
66	Study of Snake Species Diversity in Rural and Semi Urban Areas of Buldana district of Maharashtra, India.	Dr G.B.Kale	Zoology	<i>International Journal of Biology and Life Sciences</i> , Special Issue A 13,	2019-20	2320-7817(p) 2320-964X(0).	https://oaji.net/articles/2020/736-1579025328.pdf
67	Indian Rural Economy: Issues and Solutions for Sustainable Development Page 1197-1203	Dr G.B.Kale	Zoology	<i>Special Issue-38 OUR HERITAGE</i>	2019-20	ISSN: 0474-9030 Vol-68,	https://www.ourheritagejournal.com/index.php/oh/article/view/7609
68	Survey of sickle cell anemia at Satgaon Bhusari Maharashtra India. (API not claimed before)	Dr G.B.Kale	Zoology	International Journal of Applied Research, 4 (10),369-371.	2019-20	ISSN Print: 2394-7500 ISSN Online: 2394-5869	https://www.allresearchjournal.com/archives/2018/vol4issue10/PartE/4-10-42-760.pdf
69	Study of Ant Diversity in Various Localities of Akola, Maharashtra, India.	Dr G.B.Kale	Zoology	International Journal of Science and Healthcare Research Vol.3; Issue: 4;	2019-20	ISSN: 2455-7587	https://ijshr.com/IJSHR_Vol.3_Issue.4_Oct2018/IJSHR002.pdf
70	The Role of GST in the Upliftment of Indian Economy, Issue- Volume on Neo Indian Economical Issues and Developments	Devendra N. Vyas	Commerce	Aadhar Publication	2019-20	ISSN -2278-9308	https://drive.google.com/file/d/1BJq0diW8K9WtT1gEzk0RQVw7KIKyTpJE/view?usp=sharing
71	Vision 2020 Special Schemes for Economic Upliftment of Agriculture Sector, Solarisation, Agri Logistic, PM-KUSUM, E-Nam	Devendra N. Vyas	Commerce	Aadhar Publication	2019-21	ISSN -2278-9308	https://drive.google.com/file/d/1Qb6ZkCKGZS9CWxun5p1rj51gBRdumVZ/view?usp=sharing
72	A Study of Consumer Behavior - Registration & Opting Online Mobile 184 Applications Services (Special Context MSEDCL in Akola City)	Devendra N. Vyas	Commerce	Swatidhan Publication	2019-22	ISSN : 2348-7143	https://drive.google.com/file/d/1qslEXOhe_sQA_kVadyrfzqoZ4_bB92Cx/view?usp=sharing

Studies of some substituted Schiff bases with Nd(III),Pm(III),Sm(III),Eu(III) metal ion,s at 0.1M ionic strength.

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Abstract-

The interaction of Nd(III), Pm(III), Sm(III),Eu(III),metal ions and 3,4,5, trihydroxy-benzoamido-4-methyl Schiff base investigated in DMF as a solvent at 0.01M ionic strength.The data obtained used estimate the value of proton ligand stability constant (pK),& Metal-ligand constant log K.It is observed that 1:1 & 1:2 complex with all ligands.

Keywords- Metals,ligands ,solvents,Schiff base ,polarisibility constant.

Introduction-

Schiff bases plays an important role in organic chemistry due to presense of (C=N).Schiff bases are extensively used as analytical reactant.Since they allow simple and inexpensive determination of several organic and inorganic substances¹.On others hand Schiff bases have been accimilated for their medicinal value.carbonyl compounds and primary amines² have wide varity of applicationsin many fields, such as co-odination chemistry^(3,4) Analytical chemistry⁵ pigments and dye's⁶Schiff base is promising reaserch interest owing to wildspread antibacterial resistance of the medical science.Moreover the revival of research is essential to generate new Schiff base metal complexes have been used as drugs and have valuable antibacteria^(7,8).

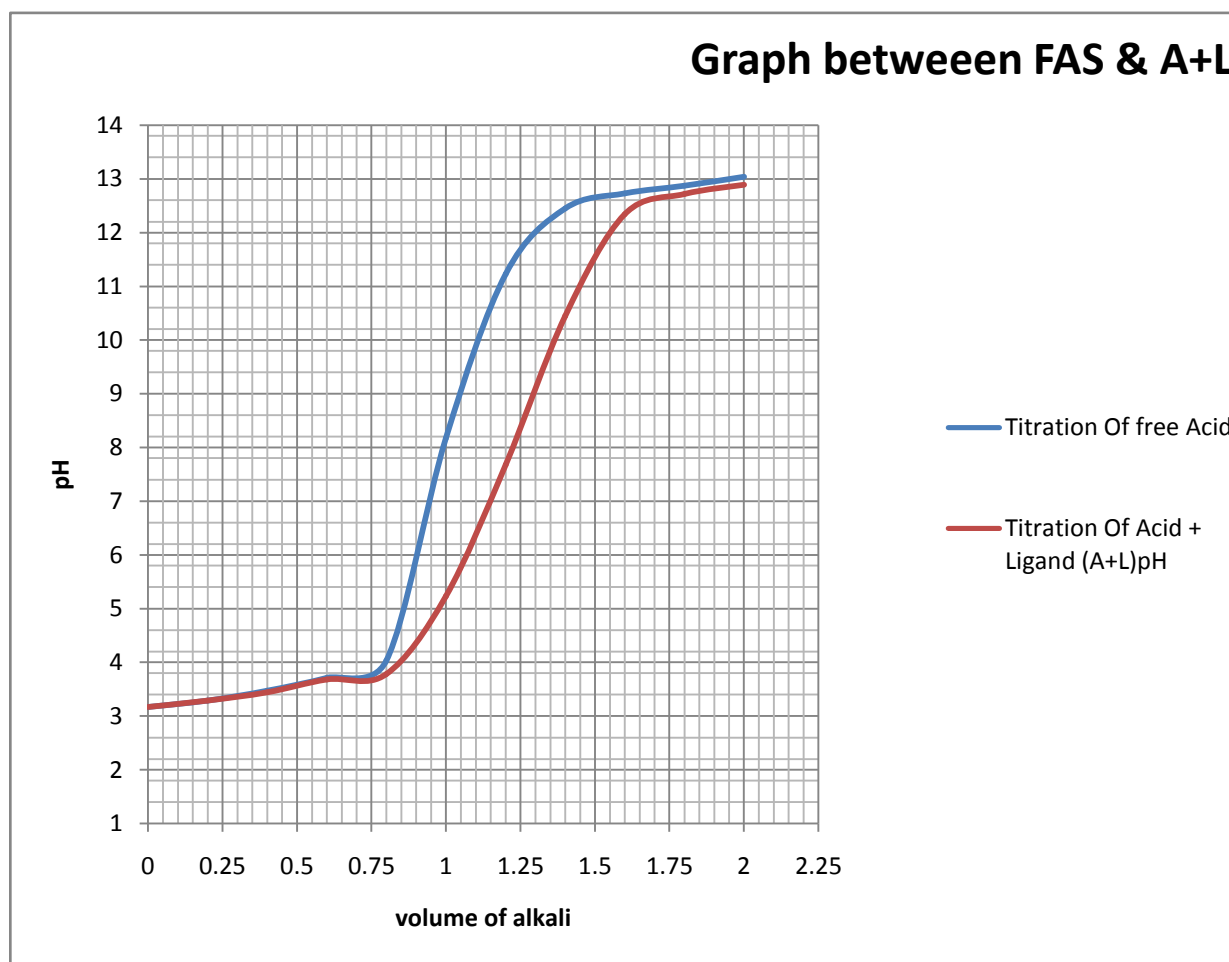
Several workers having investgated the metal ligand stability constant of the several metal ion,s with new Schiff bases. In the view of analytical application the effect of substituent on proton ligand stability constant.

Experimental work-

In present work chemical,s such as perchloric acid, sodium hydroxide, sodium perchlorate,were used are ARgrade.Ligands were prepared to literature method.All ligands were recrystallised and purity were checked by TLC before use.The solution of ligands were prepared in pure solvent.

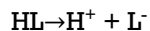
pH metric titration were carried out with Elico(L-1-613)pHmeter using combined glass and calomel electrode assembly having accuracy of ± 0.1 Ph unit.The instrument was calibrated by using 0.05M potassium hydrogenphthalate solution (pH=4)and standered buffer tablet (pH=9).

All titrations were carried out at room temp. having $\mu=0.1$ M ionic strength.Nd(III),Pm(III), Sm(III),Eu(III) metal ions and ligands are kept constant at beginning of at each titration.Each titration was repeated at least twice.



Result and Discussion-

Proton ligand stability constant- substituted Schiff bases may be considered as acid having only one replaceable H⁺ ions from –OH group hydroxyl group dissociate completely above pH = 9 and can be therefore be represented as HL.



The graph is constructed depending on the titration data. The curves in between volume of NaOH Vs pH. There are three curves Free Acid (FA), Acid+Ligand (A+L), Acid+Ligand+Metal (A+L+M).

It is observed from titration curves for all system that ligands curves to start's deviating from 3.51 and deviated continuously upto 13. The deviation shows that dissociation of –OH groups in substituted Schiff bases.

The value of nA at various pH values were calculated from the acid titration curves (F+A) and Ligand titration curves (A+L), by using formulas of Irving and Rossotti's. Proton ligand stability constant were calculated from the plotted graph nA Vs pH. The value of pK were determined (Half integral method). The pH at which nA = 0.5. The accurate value of pK were estimated by pointwise calculation method in Table-1

Table – 1
Determination of proton ligand stability constant (pK) of substituted 3,4,5, trihydroxy benzoamido -4-bromoimine at 0.1M ionic strength

Sr.No	System	Constant pK	
		Half integral	Point wise calculation
L ₁	3,4,5 trihydroxy-benzoamido-4-chloro-imine	8.22	8.22
L ₂	3,4,5 trihydroxy-benzoamido-4-hydro-imine	7.72	7.72

From Table-1 It can be seen that the dissociation constant of substituted imines in present investigation found to be below pH 13. This shows that the dissociation of (H⁺) ions.

The pK value of L₁ is found to be greater than pK value of L₂ i.e. L₁ > L₂. The pK value of different Schiff bases is different i.e. greater or smaller is due to the electron withdrawing group that reduce the pK value but increases the dissociation, while in case of electron releasing group that decreases the dissociation constant pK.

Metal-Ligand stability constant-

The metal ligand stability constant of Nd(III), Pm(III), Sm(III) Eu(III) complexes with some substituted drugs were determined by employing Berrum-Calvin pH titration technique analytical by Irving and Rossotti. It was observed that metal-ligand curves is

well separated from the ligand curves suggesting from the ligand titration curves suggesting there by that the liberation of proton is due to ring formation from the formation curves the value of stability constant $\log K_1$ and $\log K_2$ were determined which corresponds to pK values of $n = 0.5$ and 1.5 respectively.

Table-2

System	LogK ₁	LogK ₂
Nd(III)-L ₁	5.57	5.96
Pm(III)-L ₁	6.42	6.35
Sm(III)-L ₁	6.48	7.18
Eu (III)-L ₁	5.18	6.33
Nd(III)-L ₂	6.36	7.51
Pm(III)-L ₂	6.42	6.52
Sm(III)-L ₂	5.74	6.78
Eu (III)-L ₂	5.53	7.13

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CONVENTIONAL AND MICROWAVE ASSISTED SYNTHESIS SOME SUBSTITUTED CHALCONES AND THEIR BIOLOGICAL STUDY**R. R. Dharamkar¹, Y. K. Meshram² and R. R. Dharamkar²**Department of Chemistry, G.S. Science, Arts And Commerce College Khamgaon (MS) India
rohinidharamkar@gmail.com, yuvrajmeshram@gmail.com, roshanidharamkar@gmail.com**ABSTRACT**

9/37

Chalcones are prepared by Claisen-Schmidt Condensation method, which involves cross-aldol condensation of different aldehydes and different ketones by the acid catalyzed or the base catalyzed reaction followed by dehydration. Chalcone is an important intermediate in the biosynthesis of flavonoids also Chalcone is the common natural pigment. By microwave assisted synthesis, a considerable greater increase in rate of reaction has been observed and that also gives a better yield of the product. All the synthesized compounds have been screened for the antibacterial activity.

Keywords: Microwave irradiation, Chalcones, Claisen Schmidt Condensation, Antibacterial Activity etc.

Introduction

The Chalcone derivatives or 1,3-diphenyl-2-propen-1-ones are known for their multiple anti-infective activities. Chalcones are also known as 1,3-diphenyl-2-propene-1-one, in which two aromatic rings are joined together by a three carbon α, β -unsaturated carbonyl system^{1,2}. Abundantly these are found in the most of the edible plants and they are considered to be the precursors of the isoflavonoids and flavonoids. It is a common natural pigment and one of the most important intermediates in the biosynthesis of the flavonoids³. The Chalcones are synthesized by well known Claisen Schmidt condensation, which involves cross-aldol condensation of appropriate aldehydes and ketones by the acid or the base catalyzed reaction followed by the dehydration reaction. Different Chalcone derivatives are studied for their cardiovascular diseases⁴, also for their anti-inflammatory activity⁵, anticancer activity⁶, antimalarial activity⁶, anti-viral activity⁷, chemopreventive activity⁸, cytotoxic activity⁹, anti-proliferative activity¹⁰ also the anti-HIV activity¹¹. Synthetic and the naturally occurring Chalcones have been extensively studied and developed as one of the most important pharmaceutically important compounds. Therefore, in the present study of investigation, it has been considered to synthesize some new chalcone derivatives by microwave irradiation method and conventional methods and a comparison also has been made for the same methods.

The Microwave-induced organic reaction enhancement chemistry is getting popularity as the non-conventional technique for the rapid synthesis of organic compounds. Most important thing of this technique is the reaction can be carried to very high temperature, and gives higher yield of the products. Also it is the rapid synthesis of organic molecules.

The synthesized compounds were purified by the recrystallization and chromatography. The compounds were characterized by ¹H NMR and IR Spectral analysis. Also the synthesized compounds are tested for their antibacterial activity by standard methods.

Experimental

General Procedure for the synthesis of the substituted Chalcones by Claisen-Schmidt condensation reaction¹²⁻¹⁷.

Synthesis of Chalcones (1a-1e)

a) **Microwave Irradiation method:** Equimolar quantities of 2-acetyl-thiophene heterocyclic compounds (10mmol) and respective different aldehydes (10 mmol) were mixed and dissolved in minimum amount of alcohol (3-5ml). To this, aqueous potassium hydroxide solution (30mmol) was added slowly and mixed. The entire reaction mixture was microwave irradiated for about 2-8 minutes at 180watts. Completion of the reaction was identified by observing on pre-coated TLC plates of Merck. After completion of the reaction, the reaction mixture was poured into the crushed ice, if necessary then add dil. HCl and it is acidified. The Solid

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Redox-Annulations of Cyclic Amines with *ortho*-Cyanomethylbenzaldehydes

Anirudra Paul, Hemant S. Chandak, Longle Ma, and Daniel Seidel*

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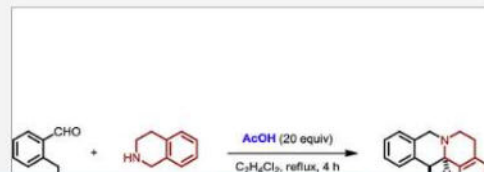
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SUBJECTS: Amines, Annulations, Mixtures, Molecular structure, Redox reactions

Abstract

Amines such as 1,2,3,4-tetrahydroisoquinoline undergo redox-neutral annulations with *ortho*-cyanomethylbenzaldehydes. These amine α -C–H bond functionalization reactions are promoted by acetic acid. The resulting β -aminonitriles can be converted to the corresponding β -aminoalcohols in diastereoselective fashion.



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Studies of some substituted imine's by Refractometrically in different solvents

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ABSTRACT

Refractive index and Molar polarisibility of an imines's such as 3,4,5-trihydroxy-benzoamido-nitro imine have been studies in Acetone and THF at different concentration at room temperature.The value of molar refraction and polarisibility constant are decreasing with decrease in concentration of solute in solvents.

Keywords – solvents,Schiff bases,refractometer,density

INTRODUCTION

The refractive index is an most important addetive properties of liuid.The major use of refractometry is an pharmaceutical,oil industries, and beverage,and agriculture also.Actulay refractometry mainly involves the measurement of concentrations of one substance is dissolved in another.It gives an idea about the aromatic content in it.

When a beam of light passes from one medium to another.It suffer's refraction that is,the beam of light bending ,it travels in different direction.If the light is passes from less dencer medium to higher dencer medium then it is refracted towards medium then it is refracted towards normal.So that angle of refraction(r) is less angle than the angle of incident(i).The ratio of the velocity of light in vaccum to that in medium is the refractive index(n) of medium.Refractive indices measured easily with accuracy.The value is depend on the concentration as well as wavelength of light used.Generally,the D-light sodium is used for standerd measurements.

The extent of refraction depend's on –

i)The relative concentration of atom and molecule.

ii)The structure of atom or molecule.

So refractive index gives an idea about structure and geomentry of molecule.some times this can be used to determine the structure of unknown molecule.

It the present work, Refractive index of liquid's, Mixture's were measured with the help of Abbe's refractometer from literature .It was found that much work have been done over many of the substituted heterocyclic drugs,chalcone's ,pyrozone's is oxazpine and various ketone's.

REFRACTOMETRICALLY

Physico-chemical properties of solution gives complementary information about interaction between's their component's. Surface tension dielectric permeability and use of refractive index to calculate the molecule composition of hydrogen bonded complex.

Thomus Young was presumably the person who first used and invented ,the name "index of refraction" in 1807.

The refractometric study of substituted aminopyrimidine in polar sovents were performed¹ imines's are flexible ligand's also known as Schiff base having spacious application in various fields of human interests.They are widely used for the industrial purposes and also exhibit a broad range of biological

activities². A.N Sonar³ and N.S.Powar have studied the molar refraction and polarisability constant of substituted Heterocyclic compounds (Schiff bases) J.D.Pandey et al⁴ have studied the refractometric and dielectric studies of binary liquid mixture at different temperature. R.A.Synowiki et al⁵ implemented two different fluid measurement technique to determine the refractive index of fluid on a commercial spectroscopic ellipsometer system even though many Schiff bases using salicylaldehyde and amines had been studied⁶⁻⁹. The property of liquid such as viscosity, refractive index, ultrasonic velocity of binary mixtures are studied by many mixtures¹⁰⁻¹⁶

EXPERIMENTAL WORK -

The solution of Schiff base prepared in different solvent like Ethanol and THF. by dissolving the appropriate amount by weight. The compound is synthesized by reflux method and purity is checked by M.P., T.L.C., I.R., N.M.R. All the weights were made on mechanical accuracy Gdansk Balance made in Poland (+ 0.001 gm)

The densities of solution were determined by a bi-capillary pycnometer (+0.2 %) having a bulb volume of about 10 cm³ and capillary having an internal diameter of 1 mm. The refractive indices

Table- 1 Refractometry data,

system- 3,4,5, trihydroxy benzoamido 4-Nitroimine L₁

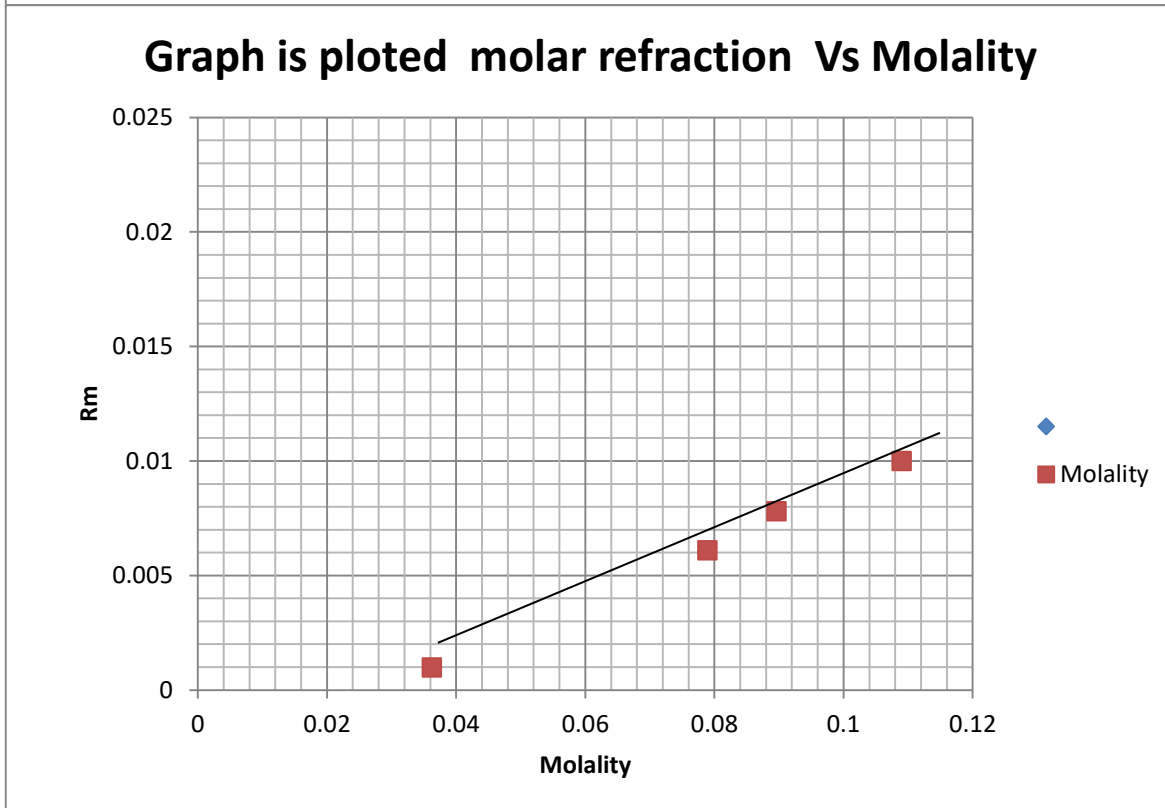
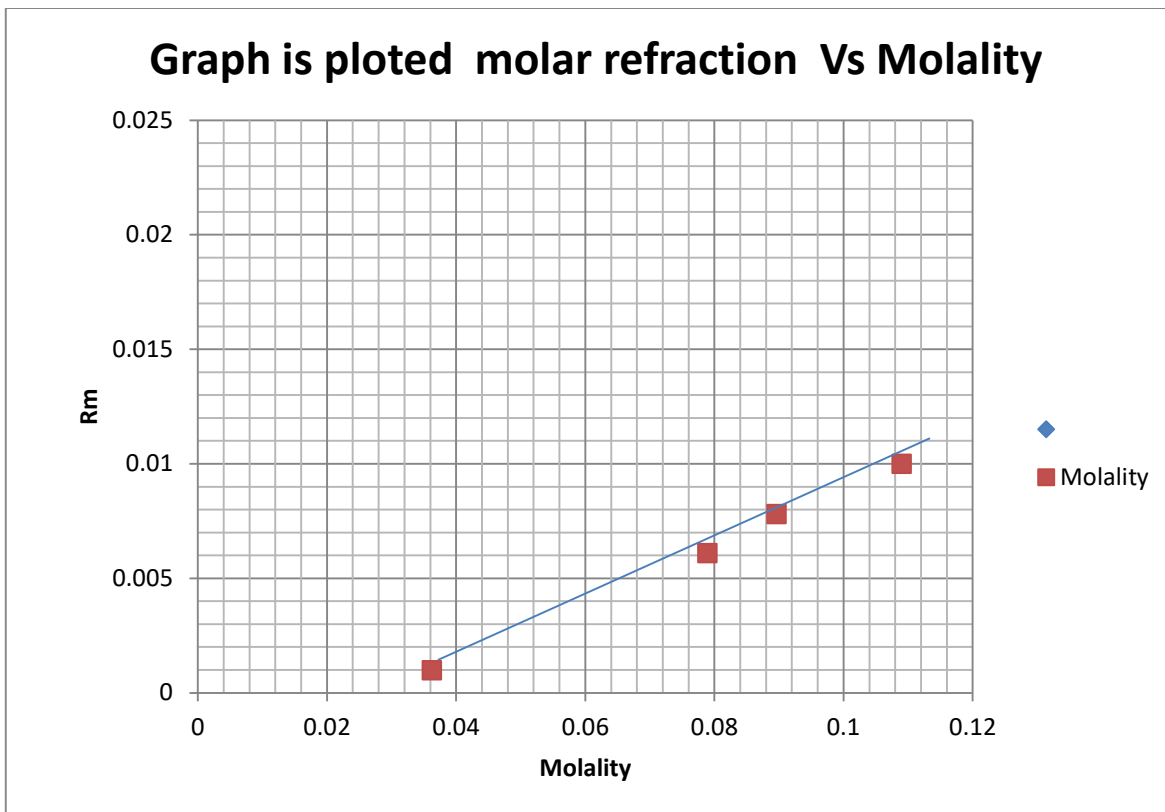
Solvent- THF

Sr.No	Molality	Refractive Index (n)	Density (d)	Molar Refraction (R _m)	Polarisability (α)
1	0.01	1.4410	1.7791	10.8524×10 ⁻³	1.2197×10 ²⁰
2	0.05	1.4400	1.7789	5.4043×10 ⁻³	0.6729×10 ²⁰
3	0.0025	1.4390	1.7777	2.6823×10 ⁻³	0.3340×10 ²⁰
4	0.00125	1.4360	1.7769	1.3387×10 ⁻³	0.1666×10 ²⁰
5	0.00063	1.4330	1.7766	0.6579×10 ⁻³	0.0819×10 ²⁰

Table – 4 Refractometry data 3,4,5, Trihydroxy Benzoamide 4-Bromoimine L₁

Solvent – ACETONE

Sr. No	Molality	Refractive Index (n)	Density (d)	Molar Refraction R _m	Polarisability (α)
1	0.01	1.3900	1.4752	11.7291×10 ⁻³	1.4605×10 ²⁰
2	0.05	1.3870	1.4736	5.8301×10 ⁻³	0.7268×10 ²⁰
3	0.0025	1.3820	1.4714	2.8783×10 ⁻³	0.3584×10 ²⁰
4	0.00125	1.3700	1.4679	1.4016×10 ⁻³	0.1745×10 ²⁰
5	0.00063	1.3620	1.4649	0.6810×10 ⁻³	0.0847×10 ²⁰



Result and Discussion.

The value of molar refraction(R_m) and molar polarisability constant(α) of polar solvents,like ACETONE is found to be greater than non polar solvents like THF . because polar solvents contains H-bonding may form complex with solute,but may form complex with solute ,but non polar sovents does not contains H-bonding and does not form complex with solute.

The dipole in compouted lies perpendicular to the longer axis of the molecule shows intermolecular attraction takes place.Which will be companied by decrease the value of molar refraction and polarisibility constant with decreasing concentration of solution because of mutual compensation of dipoles.

The value of molar refraction and polarisability constant of imines are presented in Table-I & Table II. The graph between the molar refraction versus concentration are plotted. It could be seen that there is linear relationship between molar refraction and concentration of unknown solution of imines calculated.

It is also observed that refractive index is linearly related to percentage of dissolved imine's in a solution in different solvents. It is observed that substances containing more polarisability (soft) group will normally have higher refractive index than normally have higher refractive index that substance containing (hard) groups.

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pH metric study of substituted derivative with La(III) Ce(III) and Eu(III) metal ions at 0.1 molar ionic strength.

Key words:- pH meter, Ethanol.

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Abstract:- the interaction of La(III), Ce(III) and Eu(III) with substituted quinoxaline derivative have been studied at 0.1 molar ionic

Opportunities and Challenges in Start-Up

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Start-up India is an initiative of the government of India. The event was inaugurated on 16th January 2016 by former Finance Minister Arun Jaitley. This concept Start-Up India is a revolutionary scheme that has been started to help the people who wish to start their own business. It is a unique idea generation and different types of capabilities so that government will give them support to make sure they can implement their ideas and grow their own businesses.

This programme is a big start to enable start up through financial support so that the general public can use their own innovative ideas in a right direction and create their own businesses. According to the report released in 2017 by National Association of Software and Services Commission, the number of start up ventures in India grew by some 1000 new enterprises during the financial year 2016-2017. India is home to estimated 5500 start ups according to figures available from various sources. While most start ups scattered from Mumbai, Bangalore and New Delhi, over 20% such ventures were reported from tier II and tier III cities, report added.

Conditions for Start-Ups

Following are some conditions for Start-Ups. Its as follows:

1. It must be an entity registered / incorporated as a:
 - Private limited company under the Companies Act 2013 or
 - Registered partnership firm under the Indian Partnership Act 1932 or
 - Limited liability partnership under the Limited Liability Partnership Act.
2. Five years must not have elapsed from the date of incorporation / registration.
3. Annual turnover in any preceding financial year must not exceed Rs. 25 crore.
4. Start up must be working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property.
5. The start up must aim to develop and commercialize:
 - A new product or service or process or
 - A significantly improved existing product or service or process that will create or add value for customers or work flow.
6. The start up must not merely be engaged in:
 - Developing product or services or processes which do not have potential or commercialization or
 - Undifferentiated products or services or processes.

Opportunities and Challenges

It is a difficult task to start up in India but here are an opportunity for it such as India having a huge population, Indian telecom industry has nearly 100 crore subscribers mobile connectivity has made inroads in the rural and urban population. Change of mind set of working classes well as the key areas like textile, media, health sector, event planner, tourism and automobile sector. Though the India has the world's third largest start up ecosystem, most ventures focus on advanced technology including artificial intelligence, virtual reality, augmented reality and analytics. Health care and financial technology enterprises also constitute a bulk of Indian start up. The diversity of start up in India appears limited, considering NASSCOM statistics.

One of the main reason for limited growth of Indian start ups is the uncountable challenges they encounter. Fortunately, none of these issues are uncountable. With little planning and tax, our start ups can also overcome every challenges.

There are two ways to overcome funding problems. The first is by launching a unique start up. It means that, a start up base on business models that have no precedent world wide. A great example of unique Indian start up is Redbus. Other ventures like OYO Rooms and Flipkart were based on America's Airbib and Amazon respectively. The second way to overcome funding problem



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Dr. A. D. Bhosale

is the biggest tax reform in India on the basis of the principal "ONE NATION, ONE TAX". The moment that the Indian government was waiting for a decade has finally arrived. The single biggest indirect tax raising has kicked into the force removing all the inter-state barriers with respect to trade. The government of India has taken a major step in tax reform, which is India's biggest tax reform in 70 years of Independence. The goods and service tax was launched from 30th June, 2017. It is a indirect tax which is applicable throughout the India replacing multiple tax system levied by the central and state government. A single GST replaced existing taxes and charges which includes,

- | | |
|---------------------------|--------------------|
| 1. Central Excise Duty | 2. Service Tax |
| 3. Additional Custom Duty | 4. State Level VAT |
| | 5. Octroi |

Now-a-days, one question arises particularly in the year of 2019-20, what's the impact over Indian economy of GST? Actually, GST is a multistage and destination based tax that is levied on every value addition to the goods. The basic idea of GST was to create a single, cooperative and undivided Indian market and to make economy stronger and powerful. GST has divided goods and services into various category and applied the tax from 5% to 28% which are scatter in various slabs.

GST will promote more exports thereby creating more employment opportunities and thus will boost the growth of the economy. Experts are predicting a 15 Billion Dollar a year in financial gains post implementing the GST bill as it has created split of burden between the manufacturing and services / retails in taxes. Individuals will also get benefits as the prices will come down and lower prices means more consumption, and more consumption means more production. So it will faster the growth of the companies too.

Positive and Negative Impact of GST

There are both impacts of GST on Indian economy because every coin has its own two sides. One is positive and second one is always negative. GST is not count it as a exceptional one. So that, GST also having some positive impact as well as negative impact too.

Reduces tax burden on producers and fosters growth through more production. The current taxation structure pumped with myriad tax clauses, prevents manufacturer from producing to their optimum capacity and appropriate growth. GST will take care of this problem by providing tax credit to the manufacturers. Different tax barriers, such as check post and toll plazas, lead to wastage of unpreserved items being transported. This penalty transform into major cost to higher needs of buffer stock and warehousing cost. A single taxation system will eliminate this roadblock. There is more transparency in the system as the customers will know exactly how much taxes they re being charged and on what base. GST is add to the government revenues by extending the tax base. GST is provide credit for the taxes paid by the producers in the goods and services chain. This is expected to encourage producers to buy raw materials from different registered dealers and is hoped to bringing more vendors and suppliers under the preview of taxation.

Increase in Foreign Investment:

With the effect of GST, India is now a unified market and with that effect, foreign investments are increased. The goods that are manufactured within India because of there reduced cost have become more competative in international market leading to growth in exports. The

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implementation of goods and services tax put India in the line of the international tax standard, making it easy for Indian business to sell their product in a global market. Lower Tax: GST has two constituents, the central GST and state GST. The central GST is replaced service tax, central excise duty and custom duty as well as the state GST is replaced state VAT, central sales tax, tax on advertisement, luxury tax, purchase tax and entertainment tax. Before GST, there were so many taxes. Now they have reduced all such tax so that prices will be reduced.

Reduce the Operating Cost of Business: GST has changed Value Added Tax all over India. Now we do not need to pay different structure of VAT tax in different states of India. Hence, we have already got rid of various taxes and duties of our business.

Transparency: The structure of GST provides better transparency for both factors such as government and customers. It has a totally corruption-free tax structure. Also, enabling sales invoices to show the tax applied as resulted in transparency.

Negative Impact of GST over Indian Economy

There are some negative impacts of Goods and Service Tax on our Indian economy. It is as follows.

Dual Control: Goods and Service Tax is being referred to as a single taxation system. But in fact, it is a dual tax structure because at a time, on a same transaction, state government as well as central government is collecting separate taxes independently. So, it creates a dual impact on a single tax transaction. Ultimately, it creates an overburden on the pocket of customers.

Incumbent Increase of the Cost of Some Commodities: The tax structure has been increased on many products at a time. All products are not pertained to entertainment goods. Some belong to basic needs products. So, it is not convenient for the common man of our country.

On priority, it is up to the government to address the capacity building amongst the lesser participants, such as small-scale manufacturers and traders. Ways have to be found for lowering the overall compliance cost, and necessary changes may have to be made for the good of the masses. GST will become good and simple, only when the entire country works as a whole towards making it successful.

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मोबाईल बँकींग : आधुनिक तंत्रज्ञान

जयंत डी. पोरे

वाणिज्य अधिव्याख्याता, गो.से. विज्ञान, कला व वाणिज्य महाविद्यालय
खामगांव, जि. बुलढाणा

प्रस्तावना

आजचे युग हे मोबाईल तंत्रज्ञानाचे युग आहे. जागतीकीकरणाच्या या युगात सर्व क्षेत्रात बदल होत आहे. इंटरनेटच्या वापरामुळे सर्व जग जवळ आले आहे. यामध्ये बँकींग क्षेत्रातही अनेक बदल झाले आहेत. कॅशलेस व्यवहार पध्दती आता समाजात रुढ होत आहे. दिवसेंदिवस मोबाईलची संख्या वाढत आहे त्याच बरोबर मोबाईल बँकींगचा विस्तार पण होत आहे. विज बिल भरणे, मोबाईल बिल भरणे, पैसे हस्तांतरण करणे इ. मोबाईल बँकींग सर्वासाठी फायदेशीर आहे.

खोज शब्द : मोबाईल बँकींग, कॅशलेस व्यवहार, समस्या.

आजचे युग हे माहिती तंत्रज्ञानाचे युग आहे. म्हणजेच मोबाईल तंत्रज्ञानाचे युग आहे. माहिती तंत्रज्ञानामुळे सर्वच क्षेत्रात बदल होत आहे. इंटरनेटच्या माध्यमातून सर्व जग जवळ आले आहे इंटरनेट बँकींग क्षेत्रात अनेक बदल झालेले आहेत. मोबाईल बँकींग व्दारे ग्राहकांना चांगल्या सेवा प्राप्त होत आहेत. बँकेला आपले दैनंदिन व्यवहार पार पाडणे शक्य झाले आहे व त्या आपल्या ग्राहकांना चांगली सेवा देत आहे. मोबाईल बँकींग व्दारे ग्राहक एका ठिकाणाहून दुस-या ठिकाणी पैसे सहज पाठवित आहेत. तसेच ग्राहकांच्या खात्यातील शिड्डक व कर्जखात्याची माहिती त्यांना ताबडतोब प्राप्त होत आहे. विज बील, टेलीफोन बिल, विम्याचे हमे यांचा भरणे ऑनलाईन व्दारे करता येतो.

प्रत्येक बँक ही देशातील तसेच विदेशातील बँकांनी जोडली गेली असल्याने ग्राहकांना विदेशात सुद्धा बँकींग सेवेचा लाभ प्राप्त होत आहे. मोबाईल बँकींगने व्यक्तीला जास्त पैसे जवळ बाळगण्याची आवश्यकता राहिलेली नाही. पूर्वीप्रमाणे पारंपारीक पध्दतीने बाजारत जावुन वस्तुची खरेदी विक्री करणे आता कालबाहय झाले आहे. आज ग्राहक मोबाईल बँकींगच्या माध्यमातुन घरीबसुन वस्तु प्राप्त करीत आहे. तसेच रक्कमेचे शोधनही करीत आहे. भारतीय अर्थव्यवस्थेत मोबाईल बँकींगचे योगदान फार मोठे आहे. मोबाईल बँकींगमध्ये मुख्यता पेटीएम, गुगल पे (G-Pay), फोन पे, भिम अॅप यासारखे अॅप प्रमुख असुन याव्दारे पेमेंट केल्यास यावर काही सुट सुद्धा ग्राहकांना प्राप्त होते.

मोबाईल बँकींग एक प्रकारे कॅशलेस व्यवहार अधिक होत असुन या व्यवहारात पादर्शकता निर्माण होत आहे. मोबाईल बँकींगने व्यवहार जलदगतीने पुर्ण होत आहे. कॅशलेस व्यवहार म्हणजेच रोखमुक्त व्यवहार होय.यासाठी स्वाईप मशीन क्रेडीट कार्ड, ई-पॅकेट, इंटरनेट बँकींग, मोबाईलचा वापर करता येतो. कॅशलेस व्यवहाराचे अनेक फायदे आहेत. रोख रक्कम जवळ ठेवण्याची आवश्यकता राहत नाही तसेच घरात जास्त कॅश असेल तर चोरीची भीती जास्त असते. हाच पैसा बँकेत असेल तर अधिक व्यवहार करता येतील. भविष्यात एटिएम कार्ड देखील कालबाहय होईल कॅशलेस व्यवहाराचे वस्तु व साठवणुक बंद होईल थेट व्यवहार सुरु हेतुन काळा बाजार बंद होण्यास मदत होईल.

मोबाईल बँकींगने सर्व व्यवहाराची नोंद अद्यावत होणार आहे. व्यवहारात पारदर्शकता, भ्रष्टाचाराला आळा बसेल दलाल एजंटंचे उच्चाटन होईल व वस्तु स्वस्त होतील. त्याच प्रमाणे ग्राहकांचा वेळ वाचेल. भारतात डिजिटल व्यवहार पिओएम व एटीएम व्दारे होतात. याविषय पेटीएम, गुगल पे, फोन पे, भिम अॅप यासारखे ई-वॉलेट व्दारे व्यवहार होतात. या व्यवहारांची संख्या ७० ते ८० टक्के आहे. भारताची लोकसंख्या १३०+ कोटी आहे तर देशात १४ लाख पिओएस व २.२५ लाख एटीएम आहेत या व्दारे हे व्यवहार होत आहेत. व टारगेट मोबाईल बँकींग लोकप्रिय होत आहे. देशातील लोक जर स्मार्टफोन वापरू शकतात तर ते निश्चितच कॅशलेस व्यवहार करू शकतात.

कॅशलेस व्यवहार करतांना प्रत्येकाला काही बाबींची काळजी घेणे आवश्यक असते. कॅशलेस व्यवहारात पैसा जवळ नसतो त्यामुळे पैसे जास्त खर्च होण्याची शक्यता असते तसेच मोबाईल बँकींग करतांना सायबर चोरीचे प्रमाणे वाढेल. कोणीही कोटूनही कोणाचेही अकॉउंट हॅक करू शकतो, मोबाईल बँकींगच्या जगात कोणत्याही ठिकाणी बसून कोणाचेही पैसे चोरता येतात.

भारतीय बाजारपेठेत आजही पैसा जवळ बाळगणे हे एक आकर्षण आहे. त्याच प्रमाणे छोटे व्यवहार, शेतातील व घर काम करणाऱ्या मजुरांची मजुरी, किराणा टुकानातून साहित्य खरेदी, वर्तमान पत्र विकत घेणे, चहा टपरीवरून पेय घेणे या सह अनेक व्यवहार असे आहेत की ज्या ठिकाणी कॅशलेस व्यवहार करणे शक्यच नाही. त्याच प्रमाणे ग्रामीण भागात मोबाईल बँकींगची माहिती नसल्यामुळे त्याचा जास्त उपयोग होत नाही. तसेच भारतात मोबाईल नेटवर्कचा प्रश्न नेहमी असतो. ह्या उणिवा मोबाईल बँकींगमध्ये आहेत. त्याचप्रमाणे भारतातील



ग्रामीण भागात आजही ६० टक्के जनतेसाठी मोबाईल बँकिंग पोहचविण्यासाठी पुरेशा उपाययोजना कराव्या लागतील. सर्व भागात इंटरनेट पोहचविण्याकरीता तसेच पिओएम व एटिएम उपलब्ध करून द्यावे लागतील. शहरी भागात राहणाऱ्या ४० टक्के लोकांसाठी मोबाईल बँकिंग शक्य असले तरी ग्रामीण भागात पाहिजे तो विकास झालेला नाही.

निष्कर्ष

आजच्या आधुनिक दुगात प्रत्येक क्षेत्रात इंटरनेटचा उपयोग होत आहे. मोबाईल बँकिंगचा सुध्दा वाढत आहेत, कॅशलेस आर्थिक व्यवहार होत आहेत. ऑनलाईन शॉपिंगच्या क्षेत्रात मोबाईलचा वापर मोठ्या प्रमाणात वाढला आहे. केवळ मोबाईल अॅपचा वापर करून खरेदी केल्यास विशेष सवलती दिल्या जातात. आज मोबाईल बँकिंग ही एक गरज झाली आहे.

सिफारशी

१. भारतातील प्रत्येक गावात बँक असावी व त्या बँके मार्फत मोबाईल सेवा देण्यात याव्यात
२. ग्राहकांना मोबाईल बँकिंग वापरण्या करीता योग्य मार्गदर्शन करावे.
३. नेटवर्कचा प्रश्न निर्माण होणार नाही याची खबरदारी घ्यावी.
४. मोबाईल बँकिंगचा व्यवहार करणाऱ्याला काही सुट देण्यात यावी

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ऑनलाईन व्यापार व त्याचे परिणाम

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प्रस्तावना -

आजचे युग हे जागतीकरणाचे युग आहे. जागतीकीकरणाच्या या युगात सर्व क्षेत्रात बदल होत आहे रोज नवीन नवीन शोध लागत आहेत. इंटरनेटच्या वापरामुळे सर्व जग जवळ आले आहे. वेळेनुसार व्यापारातही अनेक बदल आज अनुभवास मिळत आहेत. पूर्वी वस्तु विनीमयाच्या माध्यमातून व्यापार होत होता. त्यानंतर लहान व्यापारापासून तर मोठ्या व्यापारापर्यंत एक चेन तयार झाली व आज वेळेनुसार ऑनलाईन व्यापार होत आहे. ऑनलाईन व्यापाराचे जसे फायदे आहेत तसेच काही नुकसान पण होत आहे.

शोध शब्द - ऑनलाईन व्यापार, आर्थिक विकास, परिणाम

आजचे युग हे माहिती तंत्रज्ञानाचे युग आहे. म्हणजेच विज्ञानाचे युग आहे. या आधुनिक युगामध्ये व्यापारातही अनेक बदल झाले भारताची बाजार पेट ही जगातील दोन नंबरची बाजार पेट आहे. भारतातील लोकसंख्येचा विचार केल्यास भारतीय बाजारपेट ही सहज उपलब्ध होत आहे. तसेच या व्यापारातील अनेक रोजगार उपलब्ध होत असतात. या ऑनलाईन व्यापाराचे नेमके फायदे कोणते ? अशा अनेक प्रश्नांची उत्तरे शोधण्यासाठी या विषयाची निवड करण्यात आली आहे.

अभ्यासाची उद्दिष्टे -

- ऑनलाईन व्यापाराचा अर्थ व स्वरूप स्पष्ट करणे
- ऑनलाईन व्यापाराचा भारतीय अर्थव्यवस्थेवर होणा-या परिणामाचा अभ्यास करणे.
- भारताच्या आर्थिक विकासाला ऑनलाईन व्यापाराची आवश्यकता आहे.

संशोधन पध्दती -

वस्तुस्थिती जाणून घेण्यासाठी एखाद्या विषयाचा बारकाईने समिक्षत्मक अभ्यास करणे होय. या संशोधनासाठी प्रमाणित केलेल्या पध्दतीला संशोधन पध्दती असे म्हणतात. प्रस्तुत शोध निबंधासाठी द्वितीयक सामुग्रीवर आधारीत असून त्यामध्ये प्रामुख्याने पुस्तके, शासकीय अहवाल, वर्तमान पत्रातील माहिती व इंटरनेट इत्यादीचा आधार घेण्यात आला आहे.

पूर्वाप्रमाणे पारंपारीक पध्दतीने बाजारात जावून वस्तुची खरेदी विक्री करणे आता कालबाहय झाले आहे. आज ग्राहक ऑनलाईनच्या माध्यमातून घरीबसून वस्तु प्राप्त करीत आहे. तसेच रकमेचे शोधन सुध्दा करीत आहे. भारतीय अर्थव्यवस्थेत ऑनलाईन व्यापाराचे मोठे योगदान आहे. ऑनलाईन व्यापारामध्ये मुख्यतः

Amazon, Flipkart, Snapdeal, Clothing Website, Jabong, Myntra, Club Factory या द्वारे व्यापार होत आहे.

ऑनलाईन व्यापाराने वस्तु वितरण क्षेत्रातील साखळी दूर होवून त्याचे फायदे ग्राहकांना होत आहे. साधारणता खालील फायदे होतात.

- किंमतीवर नियंत्रण - साधारणतः उत्पादक ते ग्राहक या प्रवासामध्ये अनेक मध्यस्त येत असल्या कारणाने वस्तु महाग होत होत्या परंतु ऑनलाईन व्यापारामध्ये मध्यस्थांचे उच्चाटन होत असल्यामुळे किंमतीवर नियंत्रण राहते.
- रोजगार संघीत वाढ - ऑनलाईन व्यापारामध्ये वस्तु ग्राहकांपर्यंत पोहचविण्याकरीता कुरीअर सारख्या सेवेचा विस्तार होवून रोजगाराच्या नवीन संघी निर्माण होतील व बेरोजगारी कमी होण्यास मदत होईल.
- सरकारी उत्पन्नात वाढ - टोक व किरकोळ व्यापारी हे देशभर विखुरलेले असतात तसेच ते आपल्या व्यापाराचा हिशोब व्यवस्थीत ठेवीत नाहीत. त्या कारणाने त्यावर योग्य कर आकारला जात नाही. व सरकारचे नुकसान होते. परंतु ऑनलाईन व्यापारामध्ये सर्व व्यवहार हे संगणकीकृत असल्याकारणाने त्यांच्या व्यवहारात पारदर्शकता असते. त्याने कर आकारणी करणे सोपे जाते. पर्यायाने सरकारी उत्पन्नात वाढ होते.
- व्यापार क्षेत्राचा विकास - विविध वस्तु ह्या ऑनलाईन दिसत असतात तसेच त्यांचे मुल्य व सवलती ग्राहकांना माहित होवून त्या खरेदी करण्याकरीता ग्राहक आकर्षित होत असतो. विशिष्ट दिवशी म्हणजेच दिवाळी दसरा या सारख्या उत्सवाला विशेष सवलती जाहीर केल्या जातात. त्याने ग्राहक वस्तु खरेदी करतो. व व्यापार क्षेत्राचा विकास होतो.

वरील प्रमाणे ऑनलाईन व्यापाराचे फायदे असले तरी त्याचे काही तोटे सुध्दा आहेत.

- लघुउद्योगावर संकट - भारतीय बाजारपेठेत अनेक वस्तु ह्या छोट्या उद्योगकाकडून तयार होत असतात. परंतु त्या वस्तु ऑनलाईन व्यापारामध्ये माध्यमातून विकल्या जातील याची खात्री नसते. या कारणाने लघुउद्योग संकटात येवू शकतो.
- बेरोजगारीत वाढ - भारतीय बाजारपेठेतील छोटे व्यापारी यांना ऑनलाईन व्यापाराशी स्पर्धा करणे शक्य नसते. ऑनलाईन व्यापारातील किंमती, त्यांच्या सवलती ह्या बाजारपेठेतील व्यापार-यांना देणे शक्य नसते. ऑनलाईन व्यापार वाढीस लागला तर अनेक दुकाने बंद पडतील त्याच प्रमाणे या व्यवसायावर अवलंबून असणारे व्यक्तीसुध्दा बेरोजगार होतील.

- खर्चाचे प्रमाण वाढण्याची शक्यता - ऑनलाईन व्यापार करतांना पैसे जवळ असणे आवश्यक नसते नेट बँकिंग द्वारे सुध्दा पैसे दिल्या जावु शकतात या कारणाने ग्राहकांचे खर्चाचे प्रमाण वाढण्याची शक्यता जास्त असते.
- आर्थिक विषमता वाढेल - ऑनलाईन व्यापार करणारे व्यापारी जास्त नफा प्राप्त करतील व छोटे व्यापारी डबघाईस येतील. या कारणाने आर्थिक विषमता वाढेल.

निष्कर्ष :- आजच्या आधुनिक युगात ऑनलाईन व्यापार एक गरज आहे. तरी पण भारतीय बाजारपेठेत प्रत्यक्ष जावुन वस्तु खरेदी करणे हे आकर्षन आहे. प्रत्यक्ष वस्तु पाहणे व त्या खरेदी करणे ही आजही होत आहे. तसेच मजुर वर्ग, वृध्द व्यक्ती यांना ऑनलाईन व्यापार करणे शक्य होत नाही कारण त्यांना इंटरनेट द्वारे वस्तु मागविता येत नाही. तरीसुध्दा आज भारतीय बाजारपेठेत ऑनलाईन व्यापार आवश्यक आहे. लोकांना चांगल्या वस्तु कमीत कमी किंमतीत प्राप्त होतील. त्यांचे जिवनमान उंचावेल तसेच सरकारने ऑनलाईन व्यापाराला परवानगी देतांना देशातील किरकोळ व्यापारी यांना स्वतंत्ररित्या संरक्षण दिल पाहीजे.

शिफारशी -

- ऑनलाईन व्यापार विकसीत करतांना देशी उद्योगांना संरक्षण देण्यात यावे
- छोट्या व्यापा-यांकरीता वेगळे नियम तयार करण्यात यावे.
- ऑनलाईन व्यापार करण्याकरीता योग्य मार्गदर्शन करावे.
- ऑनलाईन व्यापार करतांना काही सुट देण्यात यावी.

संदर्भसुची

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- ई-कॉमर्स - विवेक मेहेत्रे
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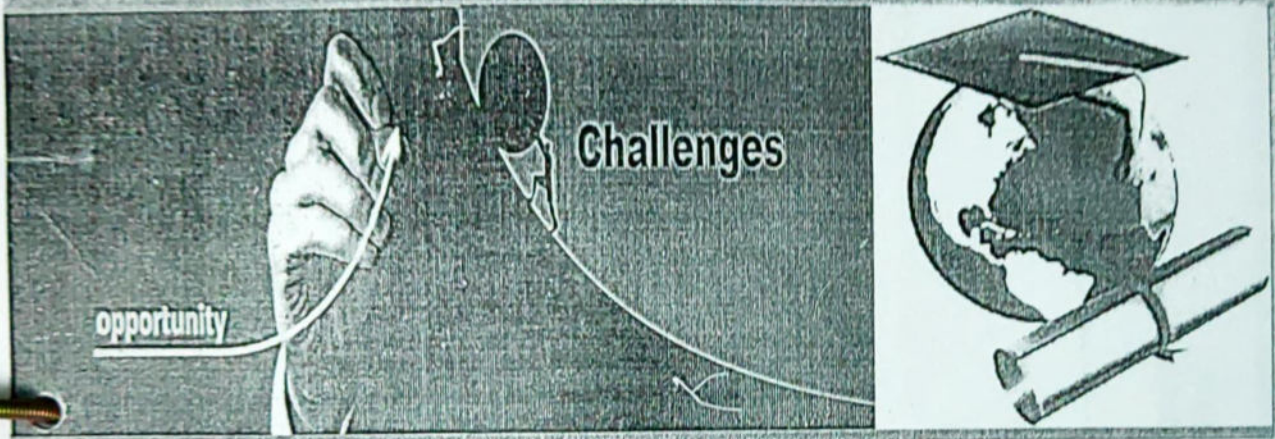
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भारतीय जल सिंचनाचा अभ्यास

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प्रस्तावना -

भारतीय अर्थव्यवस्थेत शेती व्यवसायाला अत्यंत महत्वाचे स्थान आहे. भारतातील शेती व्यवसाय म्हणजे भारतीय अर्थव्यवस्थेचा कणा होय. भारतातील सुमारे ७० टक्के लोक शेती व्यवसायावर अवलंबून आहे. गेल्या काही वर्षात औद्योगीकरण करण्याचे प्रयत्न केले गेले असले तरी भारतातील शेती व्यवसायाचे स्थान महत्वाचे राहिले आहे. शेती व्यवसायासाठी अत्यंत निकटचे संबंध असलेले दोन घटक म्हणजे लागवडीस योग्य जमीन व पाणी भारतीय शेती पावसावर अवलंबून असल्यामुळे निश्चित स्वरूपाचे उत्पादन देवू शकत नाही. शेतीसाठी उपलब्ध होणारे पाण्याचे प्रमाण कमी होत आहे. बदलते हवामान, वाढती लोकासंख्या, वाढते तापमान या सर्वांचा परिणाम निसर्गावर होत आहे त्यामुळे पावसाची अनिश्चितता वाढत आहे. जलसिंचना द्वारे पाण्याचा वापर करणे आवश्यक आहे.

शोधशब्द - जलसिंचन, आर्थिक विकास, समस्या.

महत्त्व -

भारत हा कृषीप्रधान देश आहे व पाणी म्हणजे शेतीचे जीवन आहे. शेती पाण्यावर जगते व पाण्याविना नष्ट होते. भारतात शेती व्यवसाय हा मुख्य असूनही आजपर्यंत म्हणजे सन १९५१-५२ पासून सन २०१८-१९ पर्यंतच्या काळात सिंचनाची कार्यवाही होवून ही अद्यापही भारतात सिंचनाचा अनुशेष बाकी आहेच. भारतातील काही भागात पिण्याच्या पाण्याची सतत टंचाई भासत असते. तर काही भाग पावसाच्या पाण्याच्या प्रचंड पुरामुळे जलमय झालेले दिसून येते. पावसाच्या पाण्याचे योग्य नियोजन झाल्यास जलसिंचनाचा प्रश्न काही प्रमाणात कमी होवू शकतो. स्वातंत्रोत्तर काळात नियोजनाद्वारे जलसिंचनाच्या विकासाकडे लक्ष देण्यात आले. त्यामुळे जलसिंचनाच्या क्षेत्रात वाढ झालेली आहे. ज्या भागात जलसिंचन सुविधा उपलब्ध आहेत त्या भागात शेतीचा विकास मोठ्या प्रमाणात झालेला आहे. भारतामध्ये विशेषतः पंजाब, हरियाणा या राज्यात सिंचनाचे परिक्षेत्र जास्त आहे. भारतातील शेती क्षेत्रातील उत्पादकता वाढविण्यासाठी सिंचनसोयी मोठ्या प्रमाणात उपलब्ध करून देणे आवश्यक आहे.

उद्देश -

१. जलसिंचनाचे महत्त्व व सिंचनाच्या स्रोताचा अभ्यास करणे
२. जलसिंचनाच्या संबंधीत समस्यांचे अध्ययन करणे.

संशोधन पध्दती -

वस्तुस्थिती जाणून घेण्याकरीता प्रस्तुत शोध निबंधासाठी द्वितीयक सामुग्रीवर आधारीत संदर्भग्रंथ, पुस्तके, शासकीय अहवाल, वर्तमान पत्रातील माहिती व इंटरनेट इत्यादीचा उपयोग केला आहे.

जलसिंचन हे शेती क्षेत्राशी संबंधीत आहे पावसाचे ८० ते ९० टक्के पाणी कोणत्याही प्रकारे न वापरता समुद्रात मिळत आहे तर उन्हाळ्यात ३ ते ४ महिने पिण्याच्या पाण्याची टंचाई अनेक भागात असते. भारतातील जल संपत्ती विषयाचा अंदाजानुसार भारतात प्रतीवर्षी एकुण १६९ दशलक्ष हेक्टर मीटर जलसामुग्री उपलब्ध आहे. त्यापैकी एक तृतीयांश पाण्याची नैसर्गिक वातावरणात वाफ हावून जाते. व सुमारे २० टक्के पाणी नैसर्गिकरित्या जमीनीत शिरपत जाते. म्हणजेच एकुण पाण्याच्या ७६ दशलक्ष हेक्टर मीटर इतके पाणी नद्यांमध्ये उपलब्ध असते. परंतु हे सर्व पाणी सिंचनासाठी उपलब्ध होवू शकत नाही. भारतातील फार मोठ्या प्रमाणावरील शेती क्षेत्रावर वर्षातून एकच पीक काढले जाते. त्याऐवजी वर्षातून दोन किंवा तीन पिके काढता येणे शक्य होण्याकरीता सिंचन सोय उपलब्ध करून देणे आवश्यक आहे.



जलसिंचनाचे स्रोत -

ज्या साधनाद्वारे शेतीला पाणीपुरवठा केला जातो त्याला सिंचनाचे स्रोत म्हणतात.

विहीर - कमी खर्चात पाणी पुरवठा करण्याचे महत्वाचे साधन जमीनीच्या आत असलेल्या पाण्याच्या साठ्याचा चापर करण्याकरीता विहीर खोदून शेतीला पाण्याचा पुरवठा केला जातो.

तलाव - ज्या प्रदेशामध्ये जमीनीतील पाण्याचे साठे अतिशय खोल आहेत तेथे तलावाद्वारे सिंचन केले जाते. यामध्ये पाणी साठवून आवश्यक त्यावेळी त्याचा पुरवठा करण्यात येतो.

कुपनलिका - ज्याठिकाणी जमीनीतील पाण्याची पातळी खोल असते त्या प्रदेशात कुपनलिकेद्वारे पाणी पुरवठा केला जातो.

कालवे - कालव्यामध्ये नदीचे पाणी अडवून जलाशय तयार केले जातात व त्यातील पाणी आवश्यकतेनुसार शेती करीता सोडले जाते.

सिंचनाचा विकास

सिंचनसोयी पुरविल्या जाणा-या शेती क्षेत्रात सातत्याने वाढ होत आहे. भारत सरकार सिंचनाची क्षमता वाढविण्या करीता सार्वजनिक निधी आणि शेतक-यांच्या निधीतून लहान व मोठे सिंचन प्रकल्प निर्माण करीत आहे. १९५०-५१ मध्ये देशात २२.६ मिलीयन हेक्टर सिंचन क्षमता होती तर १९९४-९५ यामध्ये वाढ होवून ३२.७ मिलीयन हेक्टर इतकी झाली सन २०११-१२ मध्ये हाच आकडा ४६.९ टक्क्यापर्यंत वाढला. स्वातंत्र्यानंतर पंचवार्षिक योजनाद्वारे भारतातील सिंचन क्षेत्रात वाढ झाली आहे.

भारतातील जलसिंचनाच्या समस्या -

१. अपुरा , अनिश्चित व अनियमित पाउस - वर्षातून चार महिनेच पाउस राहतो व उरलेले आठ महिने कोरडेच जातात तर मान्सून मध्ये पाउस पडेल याचा भरवसा नसतो. त्यामुळे पाहिजे त्या प्रमाणात पाण्याची साठवण करुन ठेवता येत नाही
२. अपूर्ण प्रकल्प - भारतामध्ये अनेक सिंचन प्रकल्प अपूर्ण आहेत एकतर प्रचंड पैसा व बराच कालावधी लागतो. त्यामुळे अंदाजीत खर्च वाढत जातो त्या कारणाने भारतात बरेच प्रकल्प अपूर्ण आहेत.
३. पाण्याचा अपव्यय - पाण्याचे योग्य नियोजन भारतामध्ये होत नाही. पावसाचे पाणी साठवून ठेवल्या जात नाही. त्या कारणानं हे पाणी समुद्रात मिळते. शेतामध्ये खाजगी कालवे केल्या गेले तर हे पाणी साठवून ठेवले जावू शकते.
४. बाष्पीभवनाची समस्या - वातावरणातील बदलामुळे व औद्योगीकरणाने तापमानात वाढ होत आहे या तापमानाने पाण्याचे बाष्पीभवनात वाढ झालेली आहे. तसेच हवेतील प्रदूषणाने बाष्पीभवन मोठया प्रमाणात होत आहे.
५. प्रकल्प बांधणीत भ्रष्टाचार - भारताला भ्रष्टाचाराचा शाप लागलेला आहे. स्वातंत्रकाळानंतर आज पर्यंत अनेक सिंचन प्रकल्प निर्माण करण्यासाठी घेतल्या गेलेत परंतु त्यातील भ्रष्टाचाराने या प्रकल्पांचे काम पूर्ण होवू शकले नाही किंवा निष्कृष्ट दर्जाचे झालेले आहेत.

निष्कर्ष -

भारतातील कृषी क्षेत्राचा विकास जलसिंचनावर अवलंबून आहे शासकीय स्तरावर अनेक योजना आखण्यात आलेल्या आहेत. पंचवार्षिक योजनेद्वारे जल सिंचनावर अधिक निधी खर्च करण्यात येतो. अनेक प्रकल्प पूर्ण होत आहेत तरीपण आजही अपेक्षीत अशी शेतजमीन सिंचनाखाली आलेली नाही. तसेच अपुरा निधी व भ्रष्टाचाराने अनेक प्रकल्प अपूर्ण आहेत. शिफारशी -

१. सिंचन क्षमता वाढविण्याकरीता विशेष प्रयत्नांची आवश्यकता आहे.
२. पाण्याचा चापर योग्य प्रकारे कसा करावा यासाठी विशेष कार्यक्रम आखण्यात यावा.
३. शेतक-यांना आधुनीक सिंचन पध्दतीचा अवलंब करण्याकरीता प्रोत्साहन द्यावे.
४. जलसिंचन सामुग्री शेतक-यांना कमी किंमतीत किंवा अनुदानावर उपलब्ध करुन द्यावी
५. सिंचनप्रकल्प वेळेत पूर्ण करावेत जेणे करुन त्यावरील खर्च वाढणार नाही



संदर्भसूची-

१. भारतीय अर्थव्यवस्था- कै.डॉ.स.श्री.मु.देसाई, डॉ.सौ.निर्मल भालेराव
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THE PROBLEM OF RISING NPA IN BANKING SECTOR IN INDIA: COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE SECTOR BANKS

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Abstract

The growth of the economy depends upon the efficiency and stability of the banking sector. The most important factor which measures the health of the banking industry is the size of NPAs. Non-Performing assets have direct impact on the financial performance of banks i.e. their profitability. It denotes the efficiency with which a bank is optimizing its total resources and therefore, serving as an index to the degree of asset utilization and managerial effectiveness. NPAs affects the profitability of the banks in terms of rising cost of capital, increasing risk perception thereby affecting liquidity position of banks. This paper attempts to first examine the level of NPAs in the banking sector in India and then analyze the causes for increasing NPAs. In the final part of the paper, measures which banks can take to reduce their NPAs have been suggested. The study also compares the performance of the public sector banks with the private sector banks. The secondary data collected from different sources has been used in the study. The study shows that the magnitude of NPAs is increasing in public sector banks as compared to the private sector banks. Therefore banks need to effectively control their NPAs in order to increase their profitability and efficiency.

Keywords: Bank, Performance, Efficiency, Non-performing assets, Profitability

Introduction:

The banking system is the heart of the financial system. The major function of the financial system is the mobilization of the public savings and its allocation in different sectors of the economy as an investment. The conversion of financial savings in to investment is known as the process of capital formation in the economy. How this process of financial intermediation (i.e. collecting scattered savings and using it in to productive purposes) is carried out shall reflect the efficiency of the financial institutions and their role in socio-economic transformation of the nation. The Narasimham Committee (1991) on "Financial System Reforms" introduced the concept of non-performing assets. The status on non-performing assets constitute the best indicator of judging the health of the banking industry. The problem of NPAs is linked with the lending procedure of banks as these are an inevitable burden on the banks. A bank gives out money upfront and earns income over a time on the promise of a borrower to repay. When loans are not repaid, the bank loses both its income stream, as well as its capital. Lending is always accompanied by the credit risk arising out of the borrower's default in repaying the money. The major problem today faced by all the commercial banks is the increasing risk of non-performing assets, which poses challenge to their ultimate survival.

The NPAs have been classified under four categories:

- (i) Standard Assets: A standard asset is a performing asset. Standard assets generate continuous income and repayments as and when they fall due. Such assets carry a normal risk and are not NPAs in the real sense.
- (ii) Sub-standard Assets: All those assets which are considered as non-performing for a period of 12 months.
- (iii) Doubtful Assets: Those assets which are considered as non-performing for period of more than 12 months.
- (iv) Loss Assets: All those assets which cannot be recovered. These assets are identified by the Central Bank or by the auditors.

As compared to private sector banks, public sector banks have shown a better performance as far as financial operations are concerned. The biggest problem however, in case of public sector banks is the increasing level of non-performing assets year after year. NPAs hurts the profitability of the banks as it results in non-recovery of loan installments along with the interest amount due to which banks have to use more owned funds by way of increased capital and also in the form of reserves and surplus to provide a cushion for the loss due to loan. The efficiency of the banks is also reflected by the level of return on its assets which is deteriorated by the

... of the banks. Therefore, this paper examines the issue of NPAs in the financial stability is the level of NPAs in the banking sector. Undoubtedly, strong banking sector is important for a flourishing economy. Various studies have been conducted in the past to address the issue of NPA's in the Indian banking industry.

Literature Review:

A brief review of the different studies is given below: Bhavani Prasad, G. and Veena, V.D (2011) in their paper titled "NPAs in Indian banking sector: trends and issues," found that public sector banks accounted for 71 percent of NPAs and is the main reason for their falling revenues. The RBI has also conducted a study to examine the factors contributing to the growth of NPA's. The study covered 800 top NPAs accounts in 33 banks (RBI Bulletin, July 1999).

The study showed that the proportion of problem loans in the banks has always been very high which was at 17.91% of their gross advances on 31st March, 1989. After the introduction of prudential norms it came down to 17.44% as on 31st March, 1999. The study also showed that the major factors which result in NPA's include diversion of funds for modernization, expansion, diversification, undertaking new projects etc. The report concluded that the reduction in non-performing assets in the banking sector should be taken as a nation's priority to make the banking sector stronger.

Research Method:

The study is primarily analytical and descriptive based on secondary data collected from various publications, journals, reports and websites of public and private sector banks in India. The time period covered for the study is from 2010 to 2018. To analyze the growth in NPAs among public sector banks and private sector banks, different statistical tools like figures, bar graphs have been used. Compound annual growth rate (CAGR) has been calculated to identify the percentage increase in NPAs over the selected period under study.

The specific objectives of the present study are:

1. To find out the quantum of NPAs in public sector and private sector banks in India.
2. To analyze the impact of NPAs on banks' performance.
3. To analyze the reasons for mounting NPAs in banks in India.
4. To suggest ways to reduce the level of NPAs in banks in India.

Causes for NPAs

A robust banking sector is the backbone of the economy, therefore to improve the health of the banking system we must look into account all the likely causes which can hinder its smooth performance. No doubt, NPAs are a menace to the efficient working of the overall banking industry. In order to reduce the problem of NPAs in banks can work efficiently, we must first be aware of all the reasons which cause problem of bad loans. The causes accountable to borrowers. It has been observed that the large borrowers are the biggest defaulters in a bank. The top 30 NPAs of PSBs were found to account for 40.2 percent of their GNPA's. Apart from these are some macro-economic causes which affect the whole industry and cause changes in NPAs.

Impact of NPAs on banks

NPAs directly affect the profitability of the banks. Below mentioned are the ways through which profitability is affected:

- (i) Liquidity position: NPAs affects the liquidity position of the banks, thereby creating a mis-match between assets and liability and force the banks to raise resources at high cost.
- (ii) Undermine bank's image: High level of NPAs shadows the image of banks both in domestic and international markets. This ultimately leads to lower profitability.
- (iii) Effect on funding: Increasing level of NPAs in banks results in scarcity of funds in the Indian capital market as there will be only few banking institutions who will lend money.
- (iv) Higher cost of capital: It shall result in increasing the cost of capital as banks will now have to raise more funds for the smooth working of its operations.
- (v) High risk: NPAs will affect the risk-bearing capacity of the banks.
- (vi) Effect on income: NPAs will reduce the net interest income of the banks as interest is not charged on these accounts.

(vii) Declining productivity: It will also cost in terms of time, money and manpower which will ultimately result in declining profitability, since the staff is primarily engaged with preparing papers for filing law cases to recover principal amount and interest rather than devoting time for planning mobilization of funds.

(viii) Effect on ROI and profitability: It reduces the earning capacity of the assets thereby negatively affect the ROI. All NPAs need to be prudentially provided for which shall have a direct impact on the profitability of the banks.

(ix) Ultimate burden on society: It will ultimately affect the consumers who now will have to fetch out more money for paying higher interest.

Suggestions to reduce NPAs in banks:

(i) Revision of existing credit appraisal and monitoring systems by RBI

(ii) Regular follow-up of customers by the banks to ensure that there is no diversion of funds. (iii) Review of all loan accounts at fixed interval.

(iv) Proper training to bank employees and staff to overcome the weakness of credit appraisal and credit monitoring.

(v) Banks may resort to one-time settlement scheme or compromise settlement scheme. Recovery through Debt Recovery Tribunals and Lok Adalats are other ways. Banks these days are resorting to SARFAESI Act for the management of NPAs.

(vi) Establishing a rigorous screening process before granting credit.

(vii) The bank should rephrase or reschedule the account for reasons that are beyond the borrower's control.

Conclusion

Non-performing assets have always been a problem for the Indian banking sector as it is having a direct impact on the profitability of the banks. The failure of the banking sector may have an adverse impact on other sectors. Thus, there is a need to ensure that the banks take proper steps to resolve it, thereby ensuring fair and efficient recovery of loans so that banking sector continue to function without stress. The study reveals that the extent of NPAs is comparatively more in public sector banks as compared to private sector banks. The government is taking many steps to reduce the problem of NPAs but banks should also have to be more proactive to adopt a structured NPAs policy to prevent the non-performing assets and should follow stringent measures for its recovery. Bankers should also consider the ROI on a proposed project and provide loans to customers who have better credit worthiness as prevention is always better than cure.

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Literature is essentially the enhancement of life and propagating humane values. Form and content in literature must be fused in an organic way, so that one grows inevitably from the other. Humanism talks about organic form. This implies truthfulness to experience, honesty towards the self and the capacity for human empathy and compassion is a rare quality which resides within the language of literature.

If we take problematic nature of humanist ideals into consideration, it is found that the concept of timelessness that was ascribed to god is now bestowed upon concept of good literature. Humanism replaces the idea of timeless divinity. But, on the other hand, it bestows centrality/divinity upon certain concepts, that is, good literature is of timeless significance. The earlier focus on god is now fixed upon human essence and individuality.

A reader is warned against sticking any contexts while reading a text. It is because a text is self-sufficient and has its own meaning within itself. In fact, a reader provides a text with meaning, otherwise a text is meaningless.

Humanistic assertions of each one having unique essence and that transcends social milieu are pathetic ones. It implies that there is almost always an inherent dichotomy between human essence and social conditions. This connotes that man is unnecessarily born on this planet if his so-called essence transcends the milieu in which he lives.

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Economic Recession And Remedies On It

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ABSTRACT

Recently, India resolved that it would be a \$5-trillion economy in 2024. However, GDP growth slowed to a six-year low of 5 % during the first quarter of 2019. According to NITI Aayog, the present economic crisis is the worst crisis India is facing since Independence.

A recent Intergovernmental Panel on Climate Change report had warned India of the seriousness of climate change and its severe adverse impact on the environment and the livelihood of masses. Given all these issues and a severe economic slowdown, reaching the aim of a \$5-trillion economy by 2024 would be very difficult, unless we focus on human capital formation and address the real reasons for the slowdown.

The Indian economy has huge potential; the current slowdown must be dealt with a bottom-up strategy, which may include boosting agriculture, food processing, tourism, MSME, automobiles and pharmaceuticals.

Keywords: Indian economy, wealth, Government, human capital, slowdown
Introduction

Recently, India resolved that it would be a \$5-trillion economy in 2024. However, GDP growth slowed to a six-year low of 5 % during the first quarter of 2019. According to NITI Aayog, the present economic crisis is the worst crisis India is facing since Independence.

Reduction in growth automatically leads to hampering of development goals and poor development indices contribute to slow economic development.

It is important to understand the nature and composition of growth in order to address its impact on major development goals like improvement in education, health and overall human development/human capital formation; expansion in productive employment for all and environmentally sustainable development.

Nature of Economic Growth

- **Non-inclusive growth:** 1% of the wealthiest in India increased their share in wealth 60% in the last five years, and the richest 10% in India own more than four times wealth than the remaining 90%.

- This marks the prevalence of high inequality in the Indian socio-economic paradigm.

- **Jobless growth:** With increasing economic growth, the rate of growth of employment has declined.

- According to NSSO, unemployment in India is highest in 45 years.

- With rising population and, consequently, the labour force, India will soon experience demographic disaster rather than a demographic dividend.

- **Inadequate spending on social infrastructure:** On comparison with similarly placed emerging economies, India spends way too low in education and health sector.

- India spends 3% on education and 1.5% on health.

- This low expenditure can be reflected in the observations noted by the United Nations that, India's literacy was 71.1% in 2015, far behind that of many African countries such as Rwanda, Morocco and Congo.

- Also, according to the Annual Status of Education Report (ASER) 2018: The quality of education is far from satisfactory.

- **Unsustainable development:** In the

process of growth in India, there has been a severe depletion and degradation of environmental resources.

- A recent Intergovernmental Panel on Climate Change report had warned India of the seriousness of climate change and its severe adverse impact on the environment and the livelihood of masses.

Given all these issues and a severe economic slowdown, reaching the aim of a \$5-trillion economy by 2024 would be very difficult, unless we focus on human capital formation and address the real reasons for the slowdown.

Reasons for the Slowdown in the Economic Growth

The slowdown in the Indian economy is partly cyclical and partly structural.

- Two cyclical factors are Shadow banking stress (NBFC crisis) and weaker global demand.

- Structural factors may include:

- The rates of savings and investment in the Indian economy have declined, as also exports and total credit.

- This has led to a slowdown among the major industries, like the automobiles, diamond, textiles industry, and several Micro, Small and Medium Enterprises (MSME) are experiencing a continuous decline, which has led to the retrenchment of 3.5 lakh workers so far.

- Agriculture is in crisis today on account of rising costs of inputs and low prices of produces, and low public investments in this sector.

- Apart from it, there is income stagnation in urban areas.

- The slowdown in consumption is the major worry for India's economic slump (consumption has been the main driver of India's growth).

- There is a sharp fall in Private Consumption and as well as Public Expenditure.

- Externally, the US-China trade war is the leading dampener in India's growth story.



• In addition to this, the bearing of some of the policy changes, the goods and services tax, demonetization, measures to curb corruption, and the move to flexible inflation targeting led to a combination of lower inflation, higher real rates, and lower nominal growth.

Remedies for the Economic Growth

• Government need to follow a Keynesian approach (increasing public expenditure to spur demand).

• Increase public expenditure in investing in agriculture — in infrastructure, inputs, extension, marketing and storage and training — and in providing profitable prices to farmers.

• It should also raise funds for the Mahatma Gandhi National Rural Employment Guarantee Act to push up demand.

• Investment in SHE (Skill, Education and Health): Increasing additional jobs for ensuring basic health and good quality education up to the secondary level to all so that any meaningful skill formation is possible should be another aim.

• It should raise public employment by filling all vacant sanctioned posts in the Central and State Governments, which would be around 2.5 million jobs.

• The government should also focus on promoting labour-intensive sectors such as gems and jewellery, textiles and garments and leather goods.

• The human capital formation will give a big push to start-ups and MSMEs.

• Cyclical fix: Cyclical slowdown can be dealt with counter-cyclical policy response.

• Counter-cyclical policy means encouraging spending during downturns and tightening credit during inflationary periods.

• Liquidity crisis that was at the centre of IL&FS crisis, must be dealt as soon as possible.

• India, unlike the Asian tigers, cannot rely on exports alone, given anti-globalization trends. Instead, a multi-pronged strategy is necessary.

• Fast tracking infrastructure investments
• Raising the export market share via competitiveness

Conclusions

The Indian economy has huge potential; the current slowdown must be dealt with a bottom-up strategy, which may include boosting agriculture, food processing, tourism, MSME, automobiles and pharmaceuticals.

Give auto sector incentives to invest and shift to electric vehicles. An incentive to auto sector employees to up skill on electric vehicles. Change GST collection to quarterly for companies below Rs 1 crore. Reduce the GST slab rates. Adopt the Direct Tax Code, cut income tax for the bottom slab. Improve credit flow to both consumer and industry. Reduce real interest rates by 135 basis points as cost of capital has to come down.

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Role Of Services Sector In Indian Economy In 2019

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ABSTRACT

The services sector is not only the dominant sector in India's GDP, but has also attracted significant foreign investment flows, contributed significantly to exports as well as provided large-scale employment.

The services sector is the key driver of India's economic growth. The sector has contributed 54.17 per cent of India's Gross Value Added at current price in 2018-19¹. Net service exports stood at US\$ 60.25 billion in April-December 2018.

The Government of India recognizes the importance of promoting growth in services sectors and provides several incentives in wide variety of sectors such as health care, tourism, education, engineering, communications, transportation, information technology, leasing, finance, management, among others.

Services sector growth is governed by both domestic and global factors. The Indian facilities management market is expected to grow at 17 per cent CAGR between 2015 and 2020 and surpass the US\$19 billion mark supported by booming real estate, retail and hospitality sectors.

Key words: services sector, economic growth, GDP

Introduction

The services sector is not only the dominant sector in India's GDP, but has also attracted significant foreign investment flows, contributed significantly to exports as well as provided large-scale employment. India's services sector covers a wide variety of activities such as trade, hotel and restaurants, transport, storage and communication, financing, insurance, real estate, business services, community, social and personal services, and services associated with construction.

Market Size:

The services sector is the key driver of India's economic growth. The sector has contributed 54.17 per cent of India's Gross Value Added at current price in 2018-19¹. Net service exports stood at US\$ 60.25 billion in April-December 2018 (P).

Major India Services Purchasing Managers' Index (PMI) stood at 50.2 in May 2019. The expansion in services activity was driven by boost in capacity and demand along with favourable public policies.





Investments:

Some of the developments and major investments by companies in the services sector in the recent past are as follows:

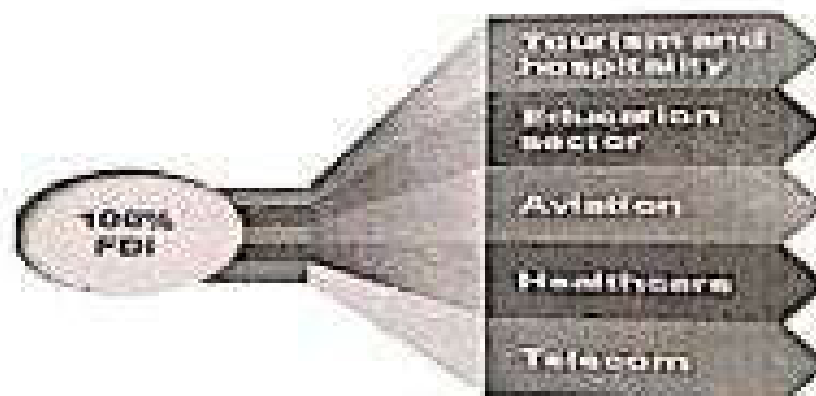
- Leisure and business travel and tourism spending are expected to increase to US\$ 214 billion and US\$ 129 billion in 2018, respectively.
- India's earnings from medical tourism could exceed US\$ 9 billion by 2020.
- Indian healthcare companies are entering into merger and acquisitions with domestic and foreign companies to drive growth and gain new markets.

Government Initiatives:

The Government of India recognizes the importance of promoting growth in services sector and provides several incentives in wide variety of sectors such as health care, tourism, education, engineering, communications, transportation, information technology, banking, finance, management, among others.

The Government of India has adopted a few initiatives in the recent past. Some of these are as follows:

- Under the Mid-Term Review of Foreign Trade Policy (2015-20), the Central Government increased incentives provided under Services Exports from India Scheme (SEIS) by two per cent.
- Government of India is working to remove many trade barriers to services and tabled a draft legislative Trade Facilitation in Services to the WTO in 2017.



Achievements:

Following are the achievements of the government in the past four years:

- India's rank jumped to 74 in 2018 from 137 in 2014 on World Bank's Ease of doing business - "Getting Electricity" ranking.
- Five times more growth in major port traffic between 2014 to 18 compared to 2010-14.
- Six-fold increase in Government spending on telecommunications infrastructure and services in the country - from Rs. 9,900 crores (US\$ 1.41 billion) during 2009-14 to Rs 60,000 crore (US\$ 8.55 billion) (actual + planned) during 2014-19.
- A total of 11 projects worth Rs. 824.80 crore (US\$ 127.98 million) were sanctioned under the Swadesh Darshan scheme.
- Highest ever revenue was generated by Indian IT firms at US\$ 167 billion in 2017-18.



Conclusion:

Services sector growth is governed by both domestic and global factors. The Indian facilities management market is expected to grow at 17 per cent CAGR between 2015 and 2020 and surpass the US\$19 billion mark supported by booming real estate, retail, and hospitality sectors.

The implementation of the Goods and Services Tax (GST) has created a common national market and reduced the overall tax burden on goods. It is expected to reduce costs in the long run on account of availability of GST input credit, which will result in the reduction in prices of services.

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सहयोगी प्राध्यापक, गो. से. महाविद्यालय, खामगाव.४४४३०३

सारांश

जेव्हापासून घरबसल्या ऑनलाइन शॉपिंगचा सिलसिला सुरू झाला आहे दुकानदाराची उरलीसुरली रया कमी होत आहे पूर्वी होळी दिवाळी क्रिसमस ईद मोहरम सारख्या सणाच्या निमित्ताने आसपासच्याच नव्हे तर दूरवरच्या प्रसिद्ध बाजारात लोकांची गर्दी व्हायची मात्र आता अशा खास दिवसांसाठी सेलच्या नावावर डिजिटल दुकाने अशा आकर्षक ऑफर देत आहेत की ज्यामुळे खऱ्या बाजाराची रया कमी होत आहे अशा खास दिवसांसाठी वृत्तपत्र मी रेडिओ इंटरनेट अशा डिजिटल दुकानांमधील सेलच्या जाहिरातींनी भरून जातात.

प्रमुख शब्द: ऑनलाइन शॉपिंग, वेबसाइट, डिजिटल दुकान, इंटरनेट

प्रस्तावना

एखादी वेबसाईट इलेक्ट्रॉनिक वस्तूवर मोठी सवलत जाहीर करते तर कुठे बूट कपडे घड्याळे सत्तर ते ऐंशी टक्के सवलतीत दिली जातात काहीजण तर मोबाईल टीव्ही फ्रिज जवळपास प्रत्येक वस्तू मोठ्या सवलतीत घरबसल्या देण्याचा दावा करतात.

इथे एक असा प्रश्न निर्माण होतो की सवलतीच्या नावाखाली बहुसंख्य ग्राहक अनावश्यक सामान तर खरेदी करित नाहीत ना ज्यांची त्यांना प्रत्यक्षात गरज नसते शिवाय ऑनलाईन सामान खरेच त्याच ब्रँडचे असते का मराठी यांचे असल्याचे सांगून घेतले जाते प्रत्यक्षात सवलतीच्या नावाखाली असे बरेचसे सामान ऑनलाइन शॉपिंग वेबसाईटवर विकले जाते जे बनावट असते

पण एका अभ्यासानुसार ५० ते ७० किंवा ८० ते ९० टक्के सवलतीत सामान मिळत असल्याचा मोह लोकांना गरजेचे नसलेले सामान घेण्यासही प्रोत्साहन देतो. न्यूरोमार्केटिंगच्या विश्लेषकांच्या मते सेल मोठ्या सवलती आपल्या डोक्यात खरेदीचा विचार प्रवृत्त करतो. अशा स्थितीत लोक हा निर्णय विचारपूर्वक घेत नाहीत की त्यांना प्रत्यक्षात काय खरेदी करायचे आहे? आणि काय नाही? अशावेळी असा विचार करून खरेदी केली जाते की आता खरेदी केलेल्या वस्तू नंतर उपयोगी पडतील मात्र अनेकदा अशा बिनकामाच्या वस्तू शेवटी जवळच्यांना वाढदिवस किंवा लग्नाच्या वाढदिवसाला भेट म्हणून दिल्या जातात.

स्मार्ट बेइमानी

स्मार्टफोन वेबसाईटवर असे खरेदी केले जातात कि कधी केले नाही तर आयुष्यभर त्यासाठी बसावे लागेल दावा केला जातो की अमुक एका कंपनीच्या मोबाईलचे नवे मॉडेल विक्रीची सुरुवात होताच दोन सेकंदात विकले गेले प्रत्यक्षात हे दावे पूर्णपणे कुठेही नसतात कारण मोबाईल बनविणाऱ्या चीनच्या एका कंपनी शाओमी चा झटपट विस्तार अशाच काही क्षणात झालेल्या विक्रीमुळे झाला पण खरेदीच्या या उत्सवात विचारा ठरतो तो ग्राहक जो अशा मोबाईलचे नवनवे मॉडेल एकानंतर एक खरेदी करत जातो.

रिकामा होणारा ग्राहकांचा खिसा

मोबाईलवरील इंटरनेट वेगाने वापरले जाऊ लागल्यानंतर आपल्या देशात ऑनलाइन खरेदीच्या इच्छुकांची फौज तयार झाली नोकरी अशा धावपळीच्या जीवनात थकलेल्या वेड नसलेल्यांनी असलेल्या लोकांना खरेदीची डिजिटल सोय म्हणजे मनातील खरेदीची इच्छा पूर्ण झाल्या सारखे वाटते मोबाईल कम्प्युटर किंवा लॅपटॉप द्वारे डिजिटल दुकान शोधून हव्या त्या वस्तू मनासारख्या किमतीत घरबसल्या ऑर्डर देणे लोकांना आवडते सोबतच याच्या जोरावर ई.कॉमर्स पोर्टल ही भरघोस कमाई करित आहे.

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14. A Study on Entrepreneurship Development Process in India

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Abstract

The concept of entrepreneurial development involves equipping a person with the required information and knowledge used for enterprise building and polishing his entrepreneurial skills. In these days, entrepreneurial development programmes are treated as an important tool of industrialization, and a solution of unemployment problem of India. In the present paper an attempt has been made to study the entrepreneurship development (ED) process in India and the role of entrepreneurship development programme in the economic growth of a nation. The data used for the purpose of study are mainly from secondary source.

Keywords : Entrepreneurship, Entrepreneurship development, Entrepreneurship development programmes, Economic growth.

Introduction

Entrepreneurs shape economic destiny of nations by creating wealth and employment, offering products and services and generating taxes for government because of which entrepreneurship has closely been linked to economic growth of a country. Entrepreneurs convert ideas into economic opportunities through innovations which are considered to be major source of competitiveness in an increasingly globalizing world economy. Therefore, most governments in the world strive to augment supply of competent and globally competitive entrepreneurs in their respective countries. Entrepreneurial development is a systematic and an organized development of a person to an entrepreneur. The development of an entrepreneur refers to inculcate the entrepreneurial skills into a common person, providing the needed knowledge, developing the technical, financial, marketing and managerial skills, and building the entrepreneurial attitude. Entrepreneurial development programmes may be defined as a programme designed to help an individual in strengthening his entrepreneurial motive and in acquiring skills and capabilities necessary for playing his entrepreneurial role effectively.

Objective of the Paper

The objective of the paper is:

- 1) To study the Entrepreneurship development process in India
- 2) To highlight the role of Entrepreneurship development programmes in the economic growth of a nation.

Methodology of the Study

The data for the purpose of the study has been collected through secondary sources, which mainly include websites.

Entrepreneurship Development Process in India

This programme which began as an experiment by Gujarat State Industrial Corporation started gaining momentum at the national level in the early seventies. There was a need to spread the programme to all the districts of Gujarat which ultimately led to the creation of the Centers for Entrepreneurship Development (CED) in Ahmedabad in 1979. It was the first specialized institute of its kind in the country, exclusively devoted to the task of entrepreneurship development. Encouraged and impressed by the success of CED, All India Financial Institution, viz., Industrial Development Bank of India (IDBI), Industrial Financial Corporation of India (IFCI), Industrial Credit and Investment Corporation of India (ICICI) and State Bank of India (SBI) with active support of the Government of Gujarat, sponsored a national resource organization, viz., Entrepreneurship Development Institute of India (EDI-I) in 1983. It was entrusted with the task of spreading and institutionalizing ED activities in the country. The Government of India has set-up three national-level Entrepreneurship Development Institute in India. These are, the National Institute for Micro, Small and Medium Enterprises (NI-MSME), Hyderabad; the National Institute of Entrepreneurship and Small Business Development (NIESBUD) in NOIDA and the Indian Institute of Entrepreneurship (IIE) Guwahati. Subsequently, some of the state governments, with the support of all Indian financial institutions also took initiative in establishing state-level Institutes of Entrepreneurship Development (IEDs), like IED Lucknow, IED Bhubaneswar (Orissa), IED Patna (Bihar) or state Centers such as Maharashtra Centre for Entrepreneurship Development, Centre for Entrepreneurship Development of Dharwad (Karnataka) in order to take the ED activities down to grass-roots level. Further, in order to improve the success rate of the EDP trainees in the establishment of new enterprises, the Ministry has recently launched a new scheme, namely, Rajiv Gandhi

Udyami Mitra Yojana. The main objective of this scheme is to provide handholding support to first generation entrepreneurs, through designated lead agencies i.e, 'Udyami Mitras'. Under this scheme, the 'Udyami Mitras' would provide guidance and assistance to the potential entrepreneurs registered with them, in preparation of project report, arranging finance, selection of technology, obtaining various approvals, clearances and NOCs etc.

National Institute for Micro, Small and Medium Enterprises (Ni – Msme) Hyderabad Ni – Msme

Formerly, known as National institute of small industry Extension training (NISIET), was set up in 1960 at New Delhi as a Department of Central government under the Ministry of Commerce and Industry and was initially known as Central Industrial Extension training Institute (CIETI). Subsequently, in 1962, it was shifted to Hyderabad and converted into an autonomous society. In 1984, the institute was renamed as National Institute of small Industry Extension training (NISIET). After enactment of the MSMED Act, 2006, the institute has been renamed as National Institute for Micro, Small and Medium Enterprises (NI – MSME), w.e.f. 11th April 2007, the institute is constantly evolving in accordance with the changing times, modifying its focus with the emerging needs of MSMEs and providing solutions in the form of consultancy, training, research, and education. NI–MSME's programmes are designed to have universal relevance for successfully training the entrepreneurs to face challenges and emerging competition in the era of globalization. NI – MSME has always been conceiving specialized need based programmes, workshops and seminars in tune with the changing policy and economic scenario. The primary aim of these activities has been to enable the enterprises and the supporting systems to deal effectively with aspects that directly or indirectly affect the success of enterprises.

Role and Relevance of Entrepreneurial Development Programme in the Economic Growth of A Nation

Role and relevance of Entrepreneurial Development Programme (EDP) in the process of economic development and growth of a nation is immense. It is the EDP through which the entrepreneurs learn the required knowledge and skill for running the enterprise successfully which ultimately contribute towards economic progress in the following ways:

- Creates employment opportunities: EDPs help solving the problem of unemployment by creating adequate employment opportunities through setting up of small and big

industrial unit where the unemployed can be absorbed. Various programmes, schemes like Prime Minister's Rozgar Yojana, National Rural Employment Programme and Integrated Rural Development Programme etc. have been initiated by Government of India to eliminate poverty and solve the problem of unemployment.

- **Helps in achieving Balanced Regional Development:** Successful EDPs assist in accelerating the pace of industrialization in the backward areas and helps in reducing the concentration of economic power in the hands of an individual. The various concessions subsidies offered by the State and Central Governments prompted the entrepreneurs to set up their own small and medium industrial units in the rural and backward areas.
- **Through EDPs more and more industrial units in the backward areas are set up which lead to the development of rural sector which finally helps in achieving balanced regional development.**
- **Prevents industrial slums:** Entrepreneurial development programmes help in removal of industrial slums as the entrepreneurs are provided with various schemes, incentives, subsidies and infrastructural facilities to set up their own enterprises in all the non-industrialized areas.
- **Use of Local Resources:** Plenty of locally available resources remain unutilized due to absence of initiative and lack of adequate knowledge by the entrepreneurs. Proper use of these resources will help to starve out a healthy base for rapid industrialization and sound economic growth. EDPs can help in the proper use of locally available resources by providing proper training, guidance and education to the potential entrepreneurs.
- **Economic Independence:** The entrepreneurs through EDPs are able to achieve economic independence of a country by producing a wide variety of better quality goods and services at competitive prices. The entrepreneurs also through export promotion and import substitution are able to earn and save urge amount of foreign exchange which is essential for the growth and development of any economy.
- **Improves the standard of living and per-capita income:** EDPs provide the necessary support to entrepreneurs by educating them about the test innovation and techniques of production to produce a large variety of quality goods and services at competitive prices. EDPs also help in establishing more enterprises which aid to provide more

employment opportunities and help in increasing the earning of the people. It will result in increase in per-capita income and thus helps in the improvement of standard of living of the people.

Conclusion

The entrepreneur with his vision and ability to bear risk can transform the economic scene of the country. They play a vital role in initiating and sustaining the process of economic development of a nation. The overall aim of an entrepreneurial development programme is to stimulate a person for adopting entrepreneurship as a career and to make him able to identify and exploit the opportunities successfully for new ventures.

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Issues And Challenges In 21st Century Related To Commerce Education

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Abstract

The present paper is an attempt to highlight the issues and challenges before commerce education in India. Since last two decades a numbers of changes and developments have taken place in the social and political arena and as a consequence, India being a developing country is facing new challenges to cope with, which put high demand on the educational system of the country. At present India is in a juncture of evolution involving social, cultural and economic changes etc. On one hand, the number of employment opportunities is declining, whereas on the other hand Industry doesn't find commerce graduates up to the marks in terms of skills and knowledge. Thus, Commerce education need to be holistic, targeted and customized with aim to remove the gap that exist between industry requirements and academic curriculum focusing on attitude, corporate awareness, grooming and developing managerial skills. Therefore, it is the need of hour to re-orient and redesigning the commerce education in such a way that it will be relevant for society. Therefore, the government should try to establish the new drifts to improve the educational system of the country.

Keywords- Commerce Education, Higher Education, Business, and E-commerce.

INTRODUCTION

Education is natural, harmonious and progressive development of man's innate powers. Education should be a three-fold process of imparting knowledge, developing skills, and inculcating proper attitudes and values towards life and society. It must enable the individual to develop the activity and skill to earn and carry on reasonable standard of living and it must also enable him to develop his creative potential to utmost so that he enrich his personality, intellectually, morally, physically and spiritually. At present, commerce education is suffering from terminal diseases and there is a tremendous sense of frustration not only in the minds of students, but also in the minds of commerce teachers about future of this education. Commerce graduates and commerce colleges have grown in number in very significant way in the last 70-80 years. Every years thousands of students complete their graduation & post-graduation in Commerce. Most of them are underemployed and many remain unemployed.

The growing phenomenon of globalization, liberalization and privatization has been immensely influencing the Commerce Education. The technological revolution has further provided new dimensions 'E-banking, E-marketing, E-commerce, E-finance, E-investment, and governance has been gaining importance all over the world. At the same time, the outsourcing business, call Centre, small business operation, IT based services etc. are expanding very fast. These developments demands paradigm shift in teaching and learning process. The new skills and training are required to cope up with these changes. Modern Business commerce Education cover diversified fields of education and research in different aspects of business environment. It includes Finance, Marketing, Accounting, Human Resource Management, Entrepreneurship Development, Commercial and Business Law etc. In order to attain Economic Growth of a region or a country, one needs professional Economists and Accountants either advanced practical knowledge to enable to evaluate and analyze the complexities of the large scale business and other.



ISSUES AND CHALLENGES BEFORE COMMERCE EDUCATION IN INDIA

Commerce education is the backbone of the business and serial development of the nation and considered as one of the most popular career options in India, it covers wide area of business and economy. Commerce education gives to the people for democratic living, good citizenship and proper utilization of resources. It provides skill oriented education to students and society. But quality of the education system in India has been lagging for quite some times now in comparison to the quantity.

ISSUES BEFORE COMMERCE EDUCATION IN INDIA

- a) Multiple Core Level Subjects: Commerce education is a sum total of variety of courses combined together. It basically heterogeneous in nature as it does not focus on one particular discipline and covered multiple subjects but without giving thorough and specialized knowledge.
- b) Limited Exposure to any Particular Subject: The concept of specialization is not yet adopted in commerce education to its fullest extent. Though at post graduate level there are certain specialization however the course content and proportion of specialization does not match with the overall syllabus and total course structure.
- c) Lack of Practical Pedagogical Method: The pedagogical and teaching method presently used emphasis more on lectures. There is absence of practical base and creative teaching methods. This effects relevance and utility of the knowledge offered to the students.
- d) Lack of Training and Hands of Exposure: The present day business education emphasis more on conceptual knowledge without offering as phenomenon or activity actually functions. This becomes hurdles in developing a required popularity and acceptance of commerce education.
- e) The Present Commerce Education is not covered in Professional Educational Domain: Management Education as a new branch of learning is highly appreciated and acknowledge as professional education with higher industrial and business relevance. Unless and until commerce education is brought in professional education domain it cannot have a right positioning and acceptance in industrial and business sector.
- f) Obsolete: The course is outdated and has lost relevance to the present circumstances.
- g) Loss of Cream: The cream of commerce education is being hijacked by professional courses, particularly by ICWA, ICA and ICS.
- h) Traditional Outlook: The course is bogged down by traditional outlook with little emphasis on specialization.
- i) Emphasis on Teaching than Learning: The course is over-burdened by theoretical orientation with little scope for imparting practical training.
- j) End of the Road: The commerce graduates face end-of-the -road 'situation with limited alternatives either to continue his/her studies or to look for the employment. He/she is at a competitive disadvantage in the examinations conducted by UPSC and KPSC. Job prospects for postgraduates are squeezed with the establishment of new colleges reaching a point of saturation and dwindling enrolment of students to B.Com. Degree course.
- k) Absence of a Body to promote Commerce Education: In spite of a large number of commerce graduates and postgraduates, establishment of a strong body to promote and revive commerce education has never been thought of.
- l) Lack of proper infrastructure: It is sometimes remarked that many colleges are virtually academic slums.
- m) Commerce teacher is a jack of all trades: Perhaps he is the only person who is expected to teach all the subjects. Like commerce, banking, entrepreneurship, business management or some time economics as compulsory subject even if he or she may be interested in accountancy; and
- n) Inadequate teaching aids like commerce lab, CTV-Video films
- o) Untrained and ill-equipped teachers.
- p) It is more content oriented rather than skill and practice oriented.



q) Even the content (syllabus) is not up-to-date with latest scenario, availability of E-finance, etc. need to keep pace with the changing business environment with latest technology to every students. So many a time commerce graduates are found lacking communication and decision making.
r) High student low teacher ratio.

Challenges before Commerce Education in India

(i) Large scale expansion (ii) Replacement of obsolete faculty (iii) Curriculum redesign (iv) To overcome the problems of resource crisis (v) Library and infrastructure up Gradation (vi) Industry-institute interaction (vii) Management transformation (viii) Stress on Quality above Quantity (ix) Adoption of new education technology Indian education industry lacks both in quality and quantity when it comes to administrative staffs and faculty members. This might pose severe threats regarding the availability of good faculty members; and the expansion of the educational institutes as announced by the Government of India would demand for more faculty members. If the shortage of talented and efficient faculty members continues, then quality of education will suffer immensely. Although the ways of education is witnessing a change, the old conventional situation of the education system has definitely not changed. Rigid curriculums and huge syllabus still characterize the educational scenario in India. Some of the greatest challenges are being posed by the online educational system towards the traditional way of learning. IV Overcoming teaching challenges.

RESOURCE AVAILABILITY

The availability of resources in institutions varies widely. When interviewing, it is helpful to ask about teaching resources that are of importance to your style of teaching. These may include technology, space, laboratory supplies, models, simulations, specimens, library materials, support for writing/math/technology skills, and many others. Know the budget available to support your teaching, and how to order needed materials. Look for teaching support in the form of grants, equipment, mentoring, and professional development activities. If your campus does not provide them, there may be community, professional or governmental organizations or associations that may help. Being an accomplished instructor can be a bit like being a scavenger, collecting materials over a lifetime of teaching to develop a comprehensive set of teaching support materials. New faculty members should begin developing a wish list of materials and thinking about ways to go about procuring them.

STUDENT SKILLS

All faculty face students with a wide range of skills, abilities, and experiences. Being aware of the range and how to support students to help them each learn is a characteristic of an accomplished instructor. There are external supports on each campus in the form of centers for writing, math, and computer skills. There are counseling centers to help students address emotional issues that may interfere with learning. Some skills are discipline specific and need to be explicitly taught. These can be incorporated into course content, or required as modules to be completed outside of class, as appropriate. Accomplished faculty address the diverse needs of their students by becoming aware of the needs, locating resources to support students and making referrals, and teaching those skills that are critical to student learning success.

STUDENT BEHAVIOUR

In spite of college students being adults, their expectations for what is appropriate in a college classroom varies widely. New faculty members need to address behavior directly. Most often appropriate behavior is addressed in the form of policies outlined in the course syllabus and discussed when going over the syllabus. If issues still arise, it is most effective to address them quickly and directly. Issues may include: plagiarism, ethical dilemmas, rudeness, disrespect, attendance, lack of preparation for class, interruptions or inattentiveness, among others.

CLASSROOM ENVIRONMENT

College classrooms are shared by many people and this multiuse situation can create challenges. Classrooms may be occupied when class is scheduled to begin, tables and desks may be

dirty, trash left behind by previous students, trash cans overflowing, whiteboards may be filled with writing from other classes, equipment broken or malfunctioning, or furniture may have been rearranged. Some classes have more enrolled students than chairs, others are awkwardly arranged for the style of teaching planned. Many campuses are overcrowded leaving few options, but new faculty members can be prepared by looking at the space assigned and finding out if there are alternative spaces available, alternative ways to arrange the room, replacement equipment or repair personnel available, or alternative equipment types to support their teaching. You will never know unless you ask, and do a bit of investigation. Sometimes the squeaky wheel does get the grease.

ISSUES OF DIFFERENCE

University faculty members have long noted particular challenges faced by individuals who differ from their colleagues and community in any of a number of ways. This may include gender, race, ethnicity, sexual orientation, religion, urban / rural, or political commitments, among others. While typically a university community better addresses these issues of difference than other settings, there remain some particular challenges for instructors, and these may be particularly acute for new faculty members. These situations are best addressed directly, openly and early on to minimize the impact on an individual's career.

CONCLUSION AND SUGGESTIONS

Commerce education plays pivotal role in equipping our future dynamic managers with the emerging trends of Commerce skills to face the challenges of dynamic business world. Globalization and liberalization of our economy with privatization and technological revolution have posed the most unprecedented challenges before the commerce education. With trade and commerce assuming innovative dimensions in the context of growing international business, the curricula for commerce faculty should be adapted and re-structured to meet the future challenges of the economic, manufacturing and service sectors. The syllabus of commerce education must contain knowledge component skill component of practice component. Placement is the ultimate goal of any business education. To place the students in industries, colleges can arrange campus recruitment & placement. The educational policy makers need to think about this matter seriously. Thus, commerce education is facing numerous problems today. These problems have a direct bearing on the course objectives, course content and course conduct. These issues need serious attention and close scrutiny. It is high time for soul searching for an objective appraisal which will provide the basis for evolving a new strategy for giving a better deal to commerce education in the years to come. For the benefit of teachers and students at different level specific seminars and workshops should be conducted from time to time. There should be SWOT analysis of the institutions, initiation for interaction between industry and institute for placement and the curriculum for commerce education must be practical and skill oriented and syllabus should include more on drafting of reports and minutes, conducting case studies undertaking project work and field survey etc. Commerce education need to be holistic, targeted and customized with aim to remove the gap that exist between industry requirements and academic curriculum focusing on attitude, corporate awareness, grooming and developing managerial skills. Therefore, it is the need of hour to re-orient and re-designing the commerce education in such a way that it will be relevant for society.

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Impact of GST on Indian Economy

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2

RESEARCH PAPER - COMMERCE

ABSTRACT

Taxes in India are levied by the Central and the state government. Some minor taxes are also levied by the local authorities such as the Municipality. To merge all this taxes GST come in to existence. GST is defined as Goods and services Tax, which was a replacement to existing indirect taxes like excise duty, service Tax, Vat etc. It will be levied all over India on the supply of goods and services. Introduction of GST will also make Indian product competitive in the domestic and international market. GST rapidly effect on Indian economy.

Key Words: Tax, GST, Indian economy, Benefits.

Introduction:

The introduction of Goods and services Tax on the 1st July 2017 was a very significant step in the field of indirect Tax reforms in India. By amalgamating a large number of central and state taxes into one single tax. The idea of moving towards the GST was first mooted by the union finance minister in his budget for 2006-07. Initially it was proposed that GST would be introduced from 1st April 2010. As per constitutional provision four GST Bill was passed on 12 April 2017.

Central GST (CGST) Bill



Integrated GST (IGST) Bill
Union Territory (UTGST) Bill
The GST (Compensation to states) Bill

Objective:

- 1) To study benefits of GST in detail
- 2) To study impact of GST on Indian economy
- 3) To study issue and challenge of GST

Methodology:

The study focus on the secondly sources of data collection from various books, websites and journals. The accessible secondly data is used only for the purpose of the study.

Need for GST:

GST will unity the whole nation and taxes will be divided among central and state Government which will make easier to provide services and goods across country. Introduction of GST in Indian Tax system improve the economics growth and it will bring whole nation to one national market. As per the report there are number of taxes that the consumer have to pay, Because of GST it will be single Tax payment, accounting complexities will reduce and save time and money. Due to GST tax structure become very simple, tax revenue will increase for Govt. GST eliminate all other indirect Taxes.

Definition of GST:

New Article 366(2A) of the Indian Constitution defines Goods and Services Tax (GST) to mean, a tax on supply of goods or services or both. In the Indian economy, the services sector contributes to over 55%. Separate taxation of goods and services in neither viable nor desirable. GST introduce to reduce Tax burden on both companies and consumers.

Benefits of GST

- Removal of bundled indirect taxes such as, VAT, CST Service tax, CAD, SAD & Excise.
- To create a unified common national market for India.
- Increased demand and Consumption of goods.



- Boost to the Indian economy in the long run.
- Burden has been decreased on the final tax payer i.e. consumer at the end.
- Reduction in multiplicity of taxes.
- Simple Tax regime with fewer exemptions.
- Control of Black money circulations as the system normally followed by traders and shopkeepers will be put to a mandatory check.

Impact of GST on Indian Economy:

GST is a game changing reform for the Indian Economy. It will bring the net appropriate price of the goods and services. The various factors that have impacted Indian economy are:

1) Simple Tax Structure:

Calculation of taxes under GST is simpler. GST is one single Tax for business accounting complexities will reduce and will result in less paper work which save both time and money.

2) Tax Revenue will increase :

Simple Tax structure will bring more Tax payer under the preview of the taxation, and in return it will increase revenue for Government.

3) Competitive Pricing :

GST will eliminate all other indirect Tax and this will effectively reduce the Tax amount paid by consumers.

4) Boost to Exports :

In Indian market will be competitive in pricing, then more and more foreign Investor will enter the market which will result in more number of exporters and benefits to Indian market.

5) Tax Cascading effect :

GST will take away cascading effect of various taxes that are charged on sale/ production/ purchase. Product reaches to customers at very high rate as compared to manufacturing, so with GST there will be only Tax and it reduce burden of Tax

Challenges & Issue:

- Impact on pricing of goods & services due to subsumed taxes.



- To keep a check on the rates of GST. If the rates of GST over 15% then the goods would be costlier.
- There are still a few states in India which lack IT Infrastructure.
- A separate law must be drafted.
- Entertainment and hospitality rates over 28% which is costlier.
- Transfer of goods from one state to other all over the country. Constitution of specific exemptions on central GST & state GST.
- Constitutional amendment to enable levy of GST on impacts.

Conclusion:

The introduction of GST was a very significant step in field of indirect Tax Reform in India. By merging a large number of central & state tax into a single Tax. GST is most beneficial in term of reduction in the overall tax burden on goods & services. GST have some challenges and issues which reasonably increased after implementation of the GST but GST implemented proposed taxation system which lead sustaining growth for the Indian economy.

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Customer Relationship Management in Banking Sector

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1

Research Paper - Commerce

ABSTRACT

CRM is a human function than a technology application. Banks need to continually acquaint their customer and vendors towards holding of the customer, technology can be applied to enable the human aspect to function more effectively. Customer are the core point in the development of successful marketing strategy customer withholding deems important in revenue breakdown of various organization. The achievement of CRM process depends on the functional involvement of all managers and employees in the banking sector a distinct 'Relationship' exist among the customer and the bank. Number of banks are still using traditional methods of marketing because of different reason and apprehension like financial burden risks of failure, marketing inertia etc. Only few banks are making attempt to adjust CRM. Bank assumed that CRM is best instrument to accomplish the job of giving good services. Since rendering services to customers has been found as the central responsibility of the bank. The want of understanding of CRM is constantly a concern between the service providers especially banks. Maintaining relation with the customer, banks have their own methods. However, CRM practices in banks must be taken into consideration.

Keywords: CRM, Relationship, Services, Customer, Bank.

Introduction

CRM can be defined as the process of predicting customer behavior and



selecting actions to influence that behavior to benefit the company (Jenkin, 1999) usually leveraging on information technology and database related tools. The relationship between firm and its customer is grappled by CRM. For improving and continuously delivering good services to customers CRM and knowledge management are conducted. Customer relationship and their management are three constituent which is to be understand prior. It is important to have integrated solution across all customer information system, typing together the front and front offices for a complete review of the customer to realize the benefits of CRM and to serve the customer better. Many companies and businesses like bank, insurance and other service providers realize the importance of CRM and its capability to support them to acquire new customer and maintain the old ones. Banking organizations are customer oriented services where the customer is the important focus.

The understanding of different needs of customer at different stages help developing effective relationship between customer and banks. The available data about the customer must be analyzed which helps a firm to make a judgement of customer's going and implicit profitability, satisfaction and loyalty. CRM is a good business strategy to distinguish the bank's most profitable customer and to give time and special attention to grow account relationships with the customer.

Objectives

The main objective of the study is to analyze the significance of CRM in banking unit, and its effect on the customer satisfaction. The other objectives of the study are to examine the sensitivity of customer on CRM as an instrument of banking unit in keeping of customers and to give suggestion depending on the finding of the study.

Customer Relationship Management

To describe CRM there are many definition in literature. Business dictionary - a management philosophy according to which a company's goal can be achieved through identification and satisfaction of the customers stated and unstated needs and wants.

CRM aggressiveness generally search to fulfill distinct objectives. The basic objective of CRM is to understand customer's need in advance and satisfy them with their need by analyzing and examining the data hidden in enterprise databases. It will help



the businesses to market the right product, to the right units at the right time.

Introduction to technology has highly influenced the banking sectors. Cashier teller are replaced by ATM, the bank branch replaced the telephone representative by call Centre, mails are replaced by internet traditional cash transaction replaced by credit cards and electronic cash. In some happening years, bank shifted towards adopting relationship banking principle and marketing orientate. Bank tries to imprint customer behavior to understand their customer better. In this strategy they tries to protect customer relationship increase customer profits, get accurate picture of customer categories, develop customer oriented firms, understand to attract and retain the best customers.

Current status of e-CRM in Indian Bank

Internet has permitted banking a click of the mouse. On line brochure centre, interactive bank, email, calculation and cyber banks are the five operational classes for online banking sites which gives customers permission to account details, inter-branch funds transfer and payment of utility bills. Banks have binded up with service providers in power and telecom sectors like BSNL, MTNL and other cellular service providers for enabling their customer to make payments of bill online and online recharges. In e-banking many private banks like ICICI bank, HDFC bank, global trust bank and UTI bank have stepped on in India. Among foreign bank Citibank, federal bank, HSBC bank, Deutsche bank and ABN Amro bank are moving towards e-banking as a big player in e-banking. The benefits of such services have also realized by other banks such as SBI and Union Banks.

Industrial Credit and Investment Corporation of India (ICICI) bank was the first abnk to provide e-banking services in India. It has not less than one lakh frequent internet user accounts and out of which 25% are of NRIs. It also became the first abk to present payment of utility bill over internet. ICICI tied up with overriding, telecom companies such as MTNL, VSNL, Tata and mobile operators such as BPL mobile, Airtel and Usha Martin. Also bind up securely with BEST & BSES for payment of electricity bill in Mumbai. Through this services one can transfer fund to other account holders of the banks.

Unit Trust of India (UTI) bank had binded up with Cosmat Max to bring a



communication network for its customer. Very small aperture terminal (VSAT) of this network at necessary location will help in ATM servicing and internal management information system. To influence its database for 3-commerce and other action with data warehousing and data-mining where details of the customer shell out habits, the UTI signed a memorandum of understanding with equity master.com for e-broking activities of the site.

Data warehousing and data mining.

This technique is used to unfold and use customer details to examine their profile, retention and fealty patterns. They provide high inputs for keeping customer and improving product and service for the future. Data mining must be intelligent and provide information about the customer in real-time. It is the collection of information that keeps the customer details and offers as the core collective memory of the organization. In particular data mining is efficiently used by the organization to increase the sales and service staff. (On-line Application Programming) OLAP introduced by means of Business object in its web version.

This tool is applied by CRM analyst to give complex SQL queries on the Data warehouse or on the analytical DataMart and to bring out mono and bivariate statistics on the total customer's population or an handpicked groups. The analytical DataMart is deduce from Data Warehouse by following steps.

- (a) Raw data : data selection, data extraction and data verification, rectification
- (b) Data modeling and variable pre-processing: Variable selection, new variable creation, variable statistics, variable discretization.

The said processing is based on traditional data evaluating which is highly dependent on analyzing process or new variable creation. The analytical DataMart is customer central and hold the data such as demographic, holding of banks product/ services, usage of product/services, global variable relationship with banks.

There are several basic steps of data mining for CRM analytics.

- 1) Defining the business problem
- 2) Building a marketing database



- 3) Exploring the data
- 4) Preparing data for modelling
- 5) Building data mining model
- 6) Evaluating results.
- 7) Incorporating data mining in CRM solution.

Other techniques used by Banks in India

Internet Banking: Internet is used by banks to spread information to customer about banks product and services through their websites. Internet banking gives many benefits to banks - (vast research reduced transaction cost, direct marketing and cross-selling, building bank's brand, etc. and to customer - convenience, transfer of fund with ease, time saving, banking from anywhere by internet access.

ATMs:

Automated teller machine have been interned to deposits and withdrawal from bank account by customer. It helps customer to view details of his account such as balance enquiry, transaction, etc. At present in India there are more than 1,05,000 ATMs in India. Telebanking or mobile banking: These services enable the customer with an immediate access to daily queries, transaction and account information.

Conclusion:

In today's business, CRM is extremely important to face off efficiently, same as of banks at it is a profit motive organization. The more efficient use of information of your customer to satisfy their wants, the more profitable it will be. By overall argument it can be said that the bank is so far to evolve an assimilative avenue which eye on customer wants and to redeem to it. As by the study, the bank is away from evolving a customer centric avenue for customer as well as for the employees. Thus, for customer relationship management to deliver to its anticipation the recommendation that can be adopted are implementing a customer centric process in banks, increase customer experience through website, evolve channel assimilation for efficient customer relationship management, continuous relationship with customer, to maintain the enthusiasm of the employees and customer. Retaining customer is a big challenge in marketing avenue, giving the facilities satisfying the wants without delay in time, giving varying needs, creating the database,



employee avenue to customer, customer oriented will have a huge impact of CRM relationship which helps bank to achieve their objective. CRM is an necessary instrument of marketing that can be accounted as critical liability with the view to bank in present environment. The marked crusade by internet and the call center for customer lively using of one or both the innovative medium for their banking operations. The said avenue is being extended to small and medium market place and also to corporate customer.

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Women Entrepreneurship and Sustainable Economic Development

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Introduction:-

Developing Countries like India, women entrepreneurship is vital necessity to achieve rapid, all-round and regionally and socially balanced economic growth. Women in India, constitute 48% of the total population. But their participation in economic activities is only 38%. The development of women as entrepreneurs will generate multifaceted socio-economic benefit to the country. Participation of women in economic activities is now emerging as a universal phenomenon. It is now widely accepted that if national development has to be purposeful and relevant, women have to be full-fledged participation in economic activities.

Objectives of the Study:-

- 1) To study the concept of women entrepreneurs.
- 2) To study challenges before women entrepreneurs.

- 3) To study the institution supporting women entrepreneurship India.
- 4) The study the measures for the promotion of women entrepreneurship.

Methodology:-

The data has been collected through secondary sources like Books, Journals, Periodicals and other published Sources.

Concept of Women Entrepreneurs:-

1. Women entrepreneurs are the women or group of women who initiate, organize and operate a business enterprise.
2. According to Government of India:- An enterprise owned and controlled by a women having minimum financial interest of 51% of the capital and giving at least 51% of the employment generated by the enterprise of women.

Importance of Women Entrepreneurs:-

The emergence of women entrepreneurs

Indo Western Researchers (IWR)

and women owned firms and their significant contributions to the economy is visible in India. These businesses are ready for continued growth in the future.

Women entrepreneurship is relatively the recent concept which came into late the 1970s. Due to the spread of education, favorable government policies towards development of women, entrepreneurship awareness and new kind of avenues, more and more women are venturing as entrepreneurs in all kind of business, economic and other activities. Women entrepreneurship in India has come a long way from Papad and pickles to engineering and electronics. Now a day's elite women cities are making a mark in non-conventional fields such as consultancy services, garment exporting, interior designing, textile printing, food processing, crafting tailoring, chemicals and pharmaceuticals etc.

The New generation of women-owned enterprises is actively seeking capital for their businesses, using modern technology to find and create a niche in both the domestic and export markets. While women-owned businesses possess the potential and are capable of contributing much more, it is essential to formulate strategies to invigorate, support and sustain their efforts in the right direction.

Common Features of Women Entrepreneurs in India:-

- 1) Majority of women entrepreneurs are married as their wedding ceremony celebrated early age up to 18 years.
- 2) Lot of women entrepreneurs belong to the

low income group.
Unmarried women face difficulties getting financial support to launch their business.

Women with small families are more likely to become entrepreneurs.
Limited working capital and low margin of profit.

Generally hard work of women is responsible for the launch and sustainability of the business.
There is no effective support system to handle their important need for vision and confidence building and developing the business orientation and skills.

Gender discrimination is encountered every stage of business development.
Lack of freedom in making the decision to start business who suffer from other constraints.

Women prefer diversification and specification.
A large number of women with higher illiterate enter into business without training. Most of these women entrepreneurs lack of vocational education.

Women prefer stabilization of income and minimization of risk over maximization of income.
Women
income.

- 10) Women prefer diversification and specification.
 - 11) A large number of women with higher illiterate enter into business without training. Most of these women entrepreneurs lack of vocational education.
 - 12) Women prefer stabilization of income and minimization of risk over maximization of income.
Women
income.
- Supporting Institutions Entrepreneurship in India:-**
Central Government as well as the state Government designed a number of schemes

and programmes for the support of entrepreneurs in general and for women entrepreneurs in particular. The schemes of the Government of India are:

- 1) Support for Training and Employment Programme (STEP).
- 2) Development of Women and Children in Rural Areas (DW CRA).
- 3) Integrated Rural Development Programme.(IRDP).
- 4) Training of Rural Youth for Self-employment (TRYSEM).
- 5) JawaharRozgarYojana (JRY).
- 6) Trade-Related Entrepreneurship Assistance and Development (TREAD).
- 7) Indira MahilaYojana (IMY).
- 8) National Small Industries Corporation (NSIC).
- 9) Small Industries Development Organization (SIDO).
- 10) Small Industries Development Bank of India.
- 11) National Alliance of Young Entrepreneurs.

12) National Association of Women Entrepreneurs and Executives.

13) State Bank of India.

14) IFCI Scheme of Interest for Women Entrepreneurs.

15) Prime Minister's Employment Generation Programme (PMEGP).

16) Small Industrial Development Bank of India (SIDBI).

Following are the institution which are provide indirect finance to women entrepreneurship.

17) National Small Industries Corporation.

18) Industrial Development Bank of India.

19) Industrial Finance Corporation of India.

20) National Bank for Agriculture and Rural Development.

New industrial policy and recent schemes are helping to the poor women and women entrepreneurs to generate employment opportunities, income and to improve their socio-economic status. Definitely, the socio-economic condition of women entrepreneurs would improve, if these schemes or programmes and policies are implemented strictly both by the Central and State Government and it goes a long way for the growth and development of women entrepreneurs and the industrial sector of the Indian economy.

Challenges before Women Entrepreneurship:

- 1) Problem of finance and working capital.
- 2) Production problem.
- 3) Problem of product marketing.
- 4) Limited space to women.
- 5) Lack of confidence.

- 6) No independence existence.
- 7) Negative social attitude.
- 8) Low literacy.
- 9) Low risk bearing capacity.
- 10) Socio-cultural barriers.
- 11) Limited Mobility.
- 12) Dual responsibility.
- 13) Gender discrimination.

These are the challenges before women entrepreneurs.

Measures for the Promotion of Women

Entrepreneurship:-

Due to limited sources, majority of the functions have to be performed by the owners of enterprise themselves in small and medium enterprises. But in case of women entrepreneurs, the problem get compounded because certain functions have gender dimensions attached to them. Domestic commitment and child care support are the two main responsibilities of women. This, along with the still narrow outlook of society in accepting a woman as an entrepreneur makes her life more difficult. But some measures to meet these challenges and to encourage women entrepreneurship are as follows:

1) Strong will Power:-

To overcome the resistance from husband and family members at the time of setting up of their venture, prospective women entrepreneurs are advised to maintain their cool and persistently convince them, without confronting them, regarding the benefits of setting up of an enterprise. For this women requires to have a strong will power under this situation. The inflow of money

will eventually solve this problem.

2) Dual Responsibilities:-

Women has shouldering the dual responsibilities of an entrepreneurs and household can be effectively undertake through better time management. The member of family also be involved in the business to help in sharing the burden of entrepreneurial work. Moreover, the women entrepreneur must try to make her husband and children self-sufficient at home with tact and diplomacy.

3) Home Based Business:-

Women entrepreneurs can set up home based business by operating her business from home. Women can better co-ordinate her household and business responsibilities.

4) Group Entrepreneurship:-

The group entrepreneurship is a viable option for the weaker sections of the society and it helps women to overcome their poverty empowers women and provide the necessary confidence for entrepreneurship. NGO's, various women's organizations, women's co-operative should be promoted to help self-employment of poor women.

5) Enough Time to Child Care:-

A women entrepreneurs can state their business when their children are grown up enough by take care of their own small needs. This gives the women enough time to manage their enterprise.

6) Acquire Technical Training:-

Women entrepreneurs should acquire relevant training in technology and details of their plant and machinery. They should be knowledge about the

functioning of machines and process. They should employ more women worker in their enterprise.

7) To Acquire Communication and Management Skills:-

Women entrepreneurs must undergo training in management skills to handle human resources as well as training in effective communication skills and practices and the legal aspects of running a business.

8) Maintain Target of Loan & Give Subsidies:-

Bank and other financial institutions must maintain target of loan to be disbursed to women entrepreneurs collateral security should be dispensed with in the case of women entrepreneurs because many women hardly have any property or other assets in their rate to keep as guarantee. Subsidies should be given to women entrepreneurs at the initial stage and also margin money for project to be undertaken for women entrepreneurs should not exceeds 10%.

9) Marketing of Product:-

Women entrepreneur must establish her credibility in term of quality and competitiveness of product and service for marketing of product. Women entrepreneur should acquire relevant techniques and skills to win customer's loyalty. E-commerce business will help greatly in this regard. The women entrepreneur can work on alternatives like Cable T.V., Pamphlets, Leaflets, Slides in Cinema hall, Banners at strategic location for the publicity and advertisement.

10) Effective Use of Information Technology in Enterprise:-

Women entrepreneurs should use

information technology effectively and efficiently. E.g. Internet can help in assimilating information about the variety, range and quality of say competing products for publicity and marketing of product and service.

11) Provide Easy Loan Facility:-

The Government financial institution and Banks are adopt to provide easy loan facilities to women entrepreneurs. There are complicated and lengthy procedures acquiring loan from formal and informal sources of finance.

12) Simplified Financial Assistance:-

Procedures for financial assistance by bank and government organizations must be simplified.

13) Organized Workshop and Seminars:-

Seminars and workshops should be organized frequently for the official of financial and support agencies and for women entrepreneurs to make their relations more cordial.

Conclusion:-

In modern days, women entrepreneurs are playing a very important role in business, trade and industry. Their entry into business is a recent phenomenon in India. It is extension of Kitchen activities. In certain businesses, women are successful not only in law, science, medical, aeronautics and space exploration and even in police, military services and driving bus, but now they are showing their might even in business and industry. They have proved that they are no less than men in the efficiency, hard work intelligence, provided they are given proper scope.

The recent trends indicate that women

entrepreneurs are sensitive to changing socio-economic conditions in the country. They are keen to take advantages of such positive changes. They also want to prove their mettle in dual role of work at home and participation in entrepreneurial activities. It is expected that the negative attitude towards women entrepreneurs by the family and society will fall off in future. This marks only the beginning of an arduous journey ahead for the Indian women entrepreneurs.

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E-COMMERCE: PROSPECTS, CHALLENGES & GOVERNMENT ROLE

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ABSTRACT

E-commerce simply means electronic commerce which deals with selling & buying of services & products exclusively through electronic channels. Online shopping is increasing rapidly as consumers take benefit of lower prices offer by retailing their products. These days E-commerce has become the essential main street of the world. Backed by increased online user base & mobile phone presentation, Indian e-commerce has seen impressive growth in the last few years. Considering India's demographic dividend & rising internet accessibility, the sector is slated to scale greater heights. Although, India's overall retail opportunity is substantial, the sector is beset with some serious challenges. In this paper we will look towards the role of government in ecommerce industry and also look towards the various barriers of e commerce in Indian aspects. E-Commerce is great platform not only to develop infrastructure but also increase employment rates in India and thus overall impact in increasing economic and social growth in Indian economy."

Keywords: Online, Challenges, E-Commerce.

Introduction

E-commerce also called electronic commerce. E-Commerce can be define as "buying & selling of goods & services by shoppers & businesses over and done with electronic channels without using any paper

document". It is the kind of section of a larger business model, which allows an individual to conduct business over electronic channels typically the internet. E-commerce signifies an entirely new way of exploit business over a typical that alterations the identical system of doing business. E-commerce is the buying & selling of goods & services or the transmitting of funds or data. over an electronic network, primarily the internet. E-commerce plays an important role in selling products & services directly to the customer from internet using the digital shopping cart, for instance, E-mail is the best option on how people communicate on the internet to exchange information & find solutions to problems.

The effects of e-commerce are already appearing in all areas of business, from customer service to new product design. In now days E-commerce uses the WWW at least some point in transaction lifecycle. It can also reduce costs in managing orders and interacting with a wide range of suppliers and trading partners, areas that typically add significant overheads to the cost of products and services. For developing countries like India, e-commerce offers considerable opportunity. Online shopping is escalating quickly as consumers take benefit of lower prices offer by wholesalers retailing their products. The popularity of E-commerce is tremendously improved both globally & regionally due to the quick & suitable way of exchanging goods & services in the la decades. E-commerce has reached to extent that the cow dung patties are al

selling like hot cakes online in India. India's e-commerce market is likely to touch \$38 billion mark in 2016, a massive jump over the \$23 billion revenues clocked by the industry in 2015.

What is E-commerce?

There is no universal explanation of electronic commerce, however in general e-commerce is defined as E-commerce (electronic commerce or EC) is the buying and selling of goods and services, or the transferring of funds or data, over an electronic network, first and foremost the internet but likewise wholly further activities which are supplementary with any operation such as:

- Delivery
- Payment facilitation,
- Supply chain and
- Service management, can also be categorized or put under this section of economy. E-commerce increases the growth of online business. It can be categorized under
- Online promotion
- Online advertising
- Online sales
- Product delivery
- Product service
- Online billing
- Online payments

Features of E-commerce to Consumers

Consumers have a much wider choice available on the cyber market.

They bear lower costs for products due to increased online competition among sellers. Because of wide-scale information dissemination, consumers can compare products, features, prices and even look up reviews before they select what they want.

They enjoy wider access to assistance and to advice from experts and peers.

They enjoy saving in shopping time and money.

Consumers also avail of fast services and delivery of products and services.

They also have the convenience of having their orders delivered right to the door step. Finally, consumers are driven to e-shopping in hordes.

Literature Review

(Affreenara and Dr Kishore Kumar Das in their paper "Growth of E-Commerce in India" talked about Ecommerce one of the highest growing business, with India having great market potential for investments. There has been huge surge in investment since; last year and more, is expected in coming years. The rapid growth in use of mobile and internet users has facilitated ecommerce business in both urban and rural cities.

"Shebazbano Salim Khan, S. N. Borhade, and Mainuddin S. Shaikh in their paper "Impact of e-Commerce on Indian Market: Social and Economic Impact" study show Electronic commerce (e-commerce) as share of IT revolution became key part in the world deal in general and Indian economy in exacting. The Paper discovers E-commerce is currently rising at 30%.

"Devendera Agarwal in research paper entitled "E-Commerce: True Indian Picture" talked about the insight of e-commerce and highlights the present scenario of e-commerce in India. It presents the surfing pattern of Indian public, to give the critical review on truth of various reports being published from time to time.

Objective of Study

India is one of the largest growing economy of the world. There is heavy use of internet among Indian citizens. The main basic objective of this research paper are -

- To analysis the present trends of e-commerce in India.
- Government initiatives and different scheme in growth of e-commerce in India.
- To study the India's prospects in e-commerce.

Methodology

Research methodology: The Process used to collect information & data for the purpose of making business decisions. The methodology may include publication research, interview, surveys & other research techniques & could include both present & historical information.

Research design: The researcher has used only secondary data that has been collected from various articles, journals, books, websites etc. It have been used to study the evaluation, conceptual framework, definition, key players, present trends, future prospectus & barriers of e-commerce.

Trends & Growth in Indian E-commerce

Indian e-commerce industry has been an upward growth trajectory and is expected to surpass U.S to become largest e-commerce market in the world by 2034. India is at cusp of digital revolution."

Internet has become important part of major population mainly because

Change in urban India's changing lifestyle.

Convenience of online shopping

Decrease in the subsequent price of broadband subscription price.

E-commerce in India is growing at very high rate and is expected to account around 1.61% of global GDP by 2018. During study found out that some of significant no. related to e-commerce in Indian market they were

- 100+ retail clients
- 1.4+ million purchases
- 2+ million transaction

The above number not only shows not only how good their contribution is Indian market, but also talked about their high degree of dependence in Indian economy and its contribution in India GDP.

Government Initiatives Supporting the E-Commerce Growth in India

The role of government in increasing the growth of e-commerce is very important and plays huge role in the growth of e-commerce in Indian market. It is the government policies and reforms which not only affects the foreign investment and mindset of investors across the globe, but it is the people who also affects from the governmental policies. Since 2014 government of India has announced various initiatives namely

Digital India

Make in India

Start-up-India

Skill India

Innovation fund

The proper functioning of and effective implementation of these program will certainly boost the growth trend of e-commerce in India.

Government of India has put lot of money and reforms which have impacted in growth of e-commerce in India. Not only growth but also has increased the standard of living of people. With the unemployment rate decreasing and rate of literacy is increasing over time, one thing which Gov. of India is currently focusing is on growth of entrepreneurs in India. Thus start up India is encouraging growth young entrepreneurs. Thus government of India has also launched various initiatives like UDAAN, UMANG, and START-UP INDIA PORTAL etc.

Challenges in the e-commerce sector

While the growth in this sector excited entrepreneurs & financial investors alike, some serious challenges are beginning to weight down on the sector. E-commerce players in India need address eight key aspects of their business, both internal & external.



Conclusion

Through the study of research paper we came to know how important e-commerce industry currently in the world is. With context of India we also try to find the upward trend of growth of e-commerce in India. E-commerce is future of shopping. Due to E-commerce the gap has been reduced between manufacturer & consumer. Government policies and initiatives has also lead to increase of e-commerce in India over years. A lot have been done and a lot has to be done when it comes to e-commerce industry in India. With need of more allocation of money towards cybercrime and strict law's need to be made, not only to make this process more secure but also reliable. In this research paper we went through the trend of e-commerce in India which is rising significantly and also how service provider like 4G, 3G helped to increase the digital penetration in India which thus helped to increase the e-commerce and m-commerce

sales in Indian economy. Likewise government had also played huge role through different laws and policies towards the growth of sales via internet. The expansion of e-commerce has been developed in rural as well as urban area in reign able cost for consumption, because of that more people are getting linked with e-commerce & the ratio of that is getting increase day by day.

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& practices with a view to eliminate to the extent the non-comparability of financial statements & add the reliability to the financial statements. The rapid growth of international trade & Internationalization of firms create need of global harmonization of accounting standards as a company having presence in different countries has to prepare financial reports as per GAAP of the country where it operates. Under this global business environment, companies are in need of common accounting language in the form of harmonized accounting standard across the world. From 1973 to 2000 International Accounting Standard Committee (IASC) was the body upon which the responsibility was set to issue International Accounting Standards. In 2001 IASC was replaced by International Accounting Standards Board (IASB). In India the Institute of Chartered Accountants of India (ICAI) has formed Accounting Standards Board (ASB) in 1977, upon which the responsibility was set to develop accounting standards to be issued and revised in the country from time to time. Though ASB is shaped by ICAI, it is independent in the formulation of accounting standards. ASB comprises members from various fields and organization and it also takes in to consideration customs, usages and business environment prevailing in the country while formulating the standards.

Literature Review

Kaushik datta did study entitled of "similarities and differences a comparison of IFRS, US GAAP and India GAAP" in the year of May 2009. The main objective of this study recognizes that there are indeed many advantages arising from convergences to various stakeholders. Santanu Kumar Das, did study entitled of "Indian Accounting Standards and IFRS" in the year of 2014. The main aim of this study is to thus; global accounting standards would remove a frictional element to capital flows and lead to wider and deeper investment in markets with IFRS is also in the interest of the industry

since compliance with them would be able to create greater confidence in the mind of investors and reduce the cost of raising foreign capital.

Dr. Mahender k. Sharma, did work in the field of "IFRS and India -Its problems and challenges in 2013. The main objective of this study is to analyze the information available on IFRS adoption process in India. It also focuses on the IFRS adoption procedure in India and the utility for India in adopting IFRS.

Objectives of the Study

To study of International Financial Reporting Standard & Indian Accounting Standard.

To understand the procedure for issue of International Financial Reporting Standard & Indian Accounting Standard.

Research Methodology

The present work is blends of descriptive and exploratory research work where the reasons and challenges will be find out to follow the IFRS procedures. The data will be purely secondary and will be collected through various websites and journals, as well as published books.

Indian AS and IFRS at A Glance

The entities' general purpose financial statements give information about performance, position and cash flow that is useful to a range of users in making financial decisions. These users include shareholders, creditors, employees and the general public. A complete set of financial statements under Indian AS includes the following:

Balance sheet at the end of the period

Statement of profit and loss for the period

Statement of changes in equity for the period

Statement of cash flows for the period; notes, comprising a summary of significant accounting policies and other explanatory information

Comparative financial information in respect of the preceding period as specified

Balance sheet as at the beginning of the preceding period when an entity applies an accounting policy retrospectively or makes a retrospective restatement of items in its financial statements, or when it reclassifies items in its financial statements having an impact on the balance sheet as at the beginning of the preceding period.

significant challenges in converging to the changing financial reporting framework for Indian corporate. The drivers of these challenges are diverse, interlaid:
 Accounting policy choices available under the transition standard;
 Increasing size and complexity of business transactions;
 Increasing pressure to publish financial information quickly;
 Continuously evolving accounting standards, guidance and references;
 Multiplicity of accounting practices and standards across subsidiaries and segments;
 Quality of accountants available for data processing and validation.
 Accordingly, it is imperative for a company to define a process whereby the following is achieved:

India has chosen a path of International Financial Reporting Standards (IFRS) convergence rather than adoption. Hence, Indian AS is primarily based on the IFRS issued by the International Accounting Standards Board (IASB). However, there are certain carve-outs from the IFRS. There are also certain general differences between Indian AS and IFRS:

The transitional provisions given in each of the standards under IFRS have not been given in Indian AS, since all transitional provisions related to Indian AS, wherever considered appropriate, have been included in Indian AS101, 'First-time adoption of Indian Accounting Standards', corresponding to IFRS 1, 'First-time adoption of International Financial Reporting Standards'.

Different terminology is used in Indian AS when compared to IFRS, e.g. the term 'balance sheet' is used instead of statement of financial position' and 'statement of profit and loss' is used instead of 'statement of comprehensive income'.

Indian AS shall apply to both standalone and consolidated financial statements, except that the overseas subsidiaries, associates, joint ventures and other similar entities of an Indian company may prepare their standalone financial statements in accordance with the local requirements. Companies falling within the thresholds above (including their holding, subsidiary, joint venture or associate companies) shall not be required to prepare financial statements as per the Companies (Accounting Standards) Rules, 2006.

The dynamic business landscape and growing business complexities pose

- Choice of appropriate accounting policies and consistency in application thereof, across subsidiaries, segments, jurisdictions and sectors.
- Well-defined systems for timely and accurate financial reporting.
- Reliance on processes rather than on people.

Difference between Indian -AS and Indian Accounting Standards:

Area	Indian Accounting Standards	Indian-AS (Indian Accounting Standards as converged with IFRS)
Conceptual Differences	AS contains subjectivity at quite a few places	There are specific guidance's on various matters like depreciation or revenue recognition
New Standards	These guidance were not existing in AS	Indian-AS provide guidance on various transactions like agriculture, business combinations etc
Applicability	AS applicable to not only the companies, but to other entities as well. In the companies, notified standards under company rules are applicable and for other entities, AS	Published by ICAI are applicable Indian-AS will be applicable in phases to mainly large companies (see table given above in this article)
Substance	Indian Accounting Standards ('AS') are generally rule based and are less flexible	Indian -AS are generally substance based
Interpretations	Various guidance notes and other publications are available along with AS in existing scenario	Indian-AS has incorporated various interpretations which are part of IFRS, thus making it comprehensive
Guidance	AS generally use the word 'Should' which is more advisory in nature	Indian-AS generally use the word - "Shall" in its guidance, which makes it more strict

Conclusion:

Every country stipulates a method for companies to report financial data based on rules called accounting standards. India has so far followed Indian Generally

Accounting Principle (GAAP). However, from FY 2017, it will follow Indian-
 IS whose principles are closely based on
 international accounting system called
 IFRS. This will increase comparability of
 Indian companies with their international
 counterparts. The new accounting standards
 recognize substance over form and
 importance of the fair value to compute
 financial statements. This means accurate
 reporting will gain importance over just
 complying with legal provisions and it
 should reflect the most current picture of
 financials. The transition will have a
 considerable impact on the computation of
 revenue, operating profit, net profit, and
 net worth of the listed companies. Sectors
 including metals, telecoms, oil & gas, and
 real estate are likely to be impacted most.
 According to analyst estimates, the new
 norms will increase revenues by 1-5%,
 while overall EBITDA may drop by 1-3%.
 International Financial Reporting Standard
 focuses on quality, reliability & relevancy
 aspects of the information to all its users all
 over the globe while setting a new standard.
 Harmonization of Accounting Standard is a
 need to create & develop global economy.
 Harmonisation will result into true & fair
 presentation of financial statement that can
 be easily accessible to all the potential
 users including potential investors. IFRS
 provided detailed guideline for presentation
 of financial statement & it gives more
 insights about the financial information of
 the entity, so that investor can compare it
 with other entity to find out best investment
 option. For MNC's adoption of IFRS will
 result into reduction in the cost of
 preparation of financial statement & also
 to overcome the difficulty of consolidation of
 financial statements working in different
 country.

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Analytical Study of Statistical Features Extraction of Characters for Verification of CAPTCHA in Devanagari Script

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Abstract :

Internet registration usually requires one sort of the Completely Automated Public Turing test to inform Computer and Human Apart (CAPTCHA) to avoid illegal registration through computer programs called bots. The CAPTCHA script is formed of distorted or noised characters. This paper presents an analytical study of extraction of varied statistical features for recognition of every character in CAPTCHA image. OCR (Optical Character Recognition) is generic process in area of pattern recognition and is aimed to recognize each character in CAPTCHA image. OCR system involves basic four stages: preprocessing, segmentation, feature extraction, classification which is followed by actual recognition. The technique of feature extraction plays an important role in character recognition. The CAPTCHA character recognition depends on the extracted features. The various statistical feature extraction techniques have been applied over character image. Here, the various types of statistical feature extraction methods are discussed for the application of character recognition for CAPTCHA verification.

Keywords: CAPTCHA, OCR, Bots, Feature extraction, Pattern recognition.

1.Introduction

In the recent time Internet has become a part of life for web users and CAPTCHA has become an integral part of the communication and financial transactions on Internet. CAPTCHA (Completely Automated Public Turing test to tell Computer and Human Apart) are the challenges given by online service providers to its users to distinguish human and automated computer programs called bots. It is a defensive mechanism to prevent automated registration, spamming and web bots. CAPTCHA tests can protect web services and resources such as e-mail services, online voting, surveys, chat systems, grievance redressal system, and password authentication. CAPTCHA which acts as a gatekeeper which monitors the entry and check whether it is a process by human being or computer controlled automated system. The researchers are studying the techniques, how to keep these spammers away. The character images are used as CAPTCHA script. These images consist of random combination of characters. A randomly generated text image is taken as CAPTCHA image so that a human user can read it easily while a computer cannot. A number of internet sites like Gmail, FaceBook, Hotmail, Twitter, Yahoo and so on offer free registration to the users to guard against auto-registration, these websites has incorporated CAPTCHA so that all the registrations are done by humans and not by automated computer programs or bots.

OCR is employed for pattern recognition and is targeted to recognize each character in CAPTCHA image. In offline OCR system, raster image of character is taken as an input and then it is taken as an input and then it is processed. Recognition of character starts after generation of character. While in online system, (x , y) coordinates and pressure of electronic tablet is continuously measured on digital pad [1]. The general process for character recognition involves four main steps given in figure 1 [2].

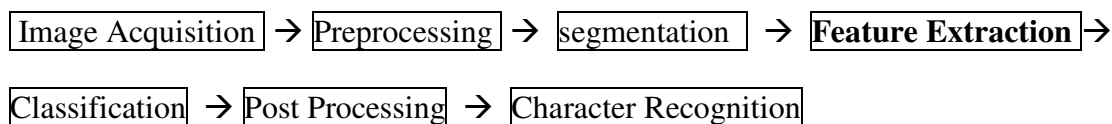


Fig. 1 : General Character Recognition Process by OCR

Each character in CAPTCHA image has unique features that determine its shape, size and orientation. Thus, the technique of feature extraction plays a vital role in character recognition. The CAPTCHA characters recognition depends on the extracted features. There are various statistical features extraction methods which are studied and analyzed in this paper.

2.Devanagari Script

India is a multilingual country. There are more than 1.2 billion populations with 22 official languages and 10 different scripts. Devanagari, an alphabetic script, is used by a number of Indian Languages. Initially it was developed to write Sanskrit but was later used to write many other languages such as Marathi, Hindi, Konkani and Nepali and Rajasthani [3, 4]. Hindi is the third most spoken language in the world. Other Indian languages like Gujarati, Bengali and Punjabi use scripts similar to Devanagari. Devanagari has 34 consonants and 13 vowels. In addition to consonants and vowels, there are compound characters which are formed by combining two or more of basic characters in most of Indian scripts including Devanagari.

3. Feature Extraction Techniques

Feature extraction can be defined as a process of extracting the most representative information from the raw data. Feature extraction is the process of extracting different features from the matrices of digitized characters image. The characters are recognized on the basis of these features. Features of a character can be classified into two categories: Global or statistical features and Structural or topological features [5].

3.1 Structural Features

Structural features are based on topological and geometric properties of the character. Examples of structural features are: number of horizontal lines, number of vertical lines, number of cross points, number of end points, horizontal curves at the top and bottom etc. These features are then used to identify the shape or structure of the character.

3.2 Statistical Features

Statistical methods are used to identify statistical features of a character. The statistical features are derived from the statistical distribution of pixels. These are obtained from the collection of points representing the matrix of character. These features can be easily detected as compared to structural features. Statistical features are less affected by noise or distortions as compared to structural features. These features can be easily obtained as compared to topological or structural features [5].

Representation of a document image (e.g. CAPTCHA image) by statistical distribution of points takes care of style variations to some extent . Although this type of representation does not allow the reconstruction of the original image, it is used to reduce the dimension of the feature set which results in less computing time and low complexity. The major statistical features are used for character representation [6].

3.3 Statistical Feature Extraction Methods

The purpose of the statistical methods is to determine to which category the given pattern belongs There are number of methods used for statistical feature extraction; such as zoning, projection, histograms, crossing and distances, moments, profiling etc [7].

3.3.1 Zoning

Zoning is one of the most popular feature extraction methods. The character image is divided into predefined number of zones and a feature is computed from each of these zones. The frame containing the character is divided into several overlapping or non-overlapping zones and the densities of object pixels in each zone are calculated. The density is calculated as a number of object pixels in each zone divided by total number of pixels [8].

In this method of zoning, four types of statistical features are extracted, namely, intersection and open endpoints, centroid, horizontal peak extent and vertical peak extent, for Devanagari ancient character recognition. A pixel that has more than one pixels in its neighborhood is known as intersection point. A pixel that has only one pixel in its neighborhood is known as open endpoint. The centroid is the point that can be considered as the centre of a two-dimensional image. A character is usually divided into zones of predefined size. These predefined sizes are typically of the order $1*1$, $2*2$, $4*4$, $8*8$ is given in figure 2 [9].



Fig. 2 : A character image : a) one zone b) 4 zones c) 16 zones and d) 64 zones.

3.3.2

Histogram Projections

These features are derived from histograms of horizontal and vertical projections of black pixels in some particular areas of the character. They are extracted from the normalized image of the character so as to obtain normalized histograms of black pixels both on the X-axis as well as on the Y-axis. In order to locate the larger strokes of the character, relative maxima of the histograms could have been extracted. However, extracting maxima from histograms is quite difficult when the number of maxima is not known a priori. One way to tackle this problem is to derive the cumulative histogram of the original one, assuming that each important gap on the Y-axis of the cumulative histogram corresponds to a relative maximum on the Y-axis of the original histogram. Yet, when there is a gap on the Y-axis of the cumulative histogram, the corresponding abscissas are closer than in the case of a slow variation on the Y-axis. Therefore, dividing the Y-axis in enough equal parts and storing as features the corresponding abscissas allows to get information about the location of some structural properties of the character like its larger strokes [10].

The feature extraction principle is illustrated on a basic example in Figure 3 and 4. In the present case, dividing the Y-axis in 11 parts – 10 abscissas are thus retained as features from each cumulative histogram – has been found experimentally to provide the most precise description of the characters [10].

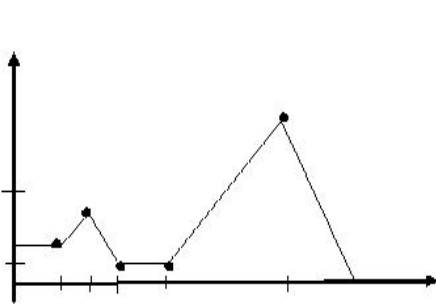


Fig. 3 : An original histogram of projection

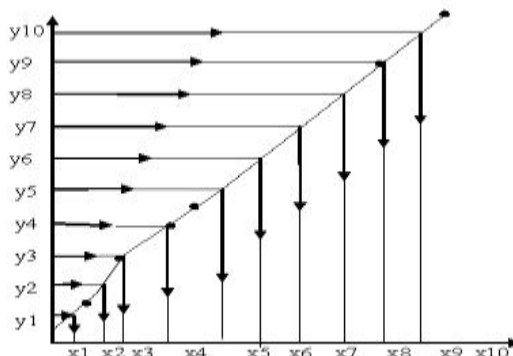


Fig. 4 : The Cumulative Histogram

3.3.3 Crossing and Distances

It refers to the number of crossings of a contour by a line segment in a specified direction. Distance of line segment from a given boundary can be used as one of the features. A horizontal threshold can be established above, below and through the centre of the script. The feature value is the count, the number of times the script crosses the threshold [11]

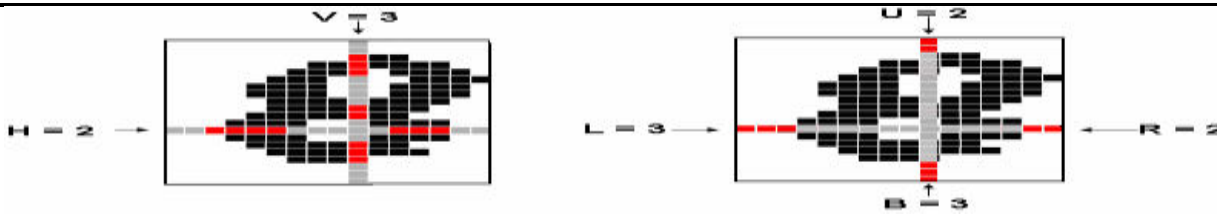


Fig. 5 : Example showing Crossing and Distance

3.3.4 Moments

The moment invariant is an appropriate measure for tracing the noise free image pattern. The features that are invariant to scaling, translation and rotation transformation of a character are useful in order to recognize many variations of the same character. Invariance means that visual properties stay consistent under specific transformations. Rotation invariant should be used to distinguish between such characters as 'u' and 'n'. Size invariant should be used to distinguish between such characters as '0' and 'o' [12]. A set of seven 2-D 72 moment invariant features are insensitive to translation, scale change, mirroring, and rotation. These can be derived from seven equations. It computes the moment invariants of an image and obtained seven-element row vector. Using these features a high degree of invariance is achieved. Hu's Seven Moment Invariants are invariant under translation, changes in scale, and also rotation. So it describes an image irrespective of its location, size, and rotation. The 2-D moment of order $(s + t)$ of a digital image $f(x, y)$ of size $m \times n$ is define as follows.

$$m_{st} = \sum_{x=0}^{m-1} \sum_{y=0}^{n-1} x^s y^t f(x, y) \quad \text{where } s=0,1,2,\dots \text{ and } t=0,1,2,\dots \text{ are integers.}$$

The corresponding central moment of order $(s + t)$ is define as follows.

$$H_{st} = \sum_{x=0}^{m-1} \sum_{y=0}^{n-1} (x - x^-)^s (y - y^-)^t f(x, y) \quad \text{where } s=0,1,2,\dots \text{ and } t=0,1,2,\dots$$

$$\text{Where } x^- = m_{10} / m_{00} \quad y^- = m_{01} / m_{00}$$

The moments that are computed with their centroid being about the origin are called central moments, denoted by μ_{st} .

The normalized central moment of order $(s + t)$ is define as follow.

$$\eta_{st} = \mu_{st}^\gamma \quad \text{where } \gamma = (s + t) / 2 + 1$$

The set of seven moment invariants are derived from these equations, as follows:

$$\Phi 1 = \eta_{20} + \eta_{02}$$

$$\Phi 2 = (\eta_{20} - \eta_{02})^2 + 4 \eta_{11}^2$$

$$\Phi 3 = (\eta_{30} - 3\eta_{12})^2 + (3\eta_{21} - \eta_{03})^2$$

$$\Phi 4 = (\eta_{30} + \eta_{12})^2 + (\eta_{21} + \eta_{03})^2$$

$$\Phi 5 = (\eta_{30} - 3\eta_{12})(\eta_{30} + \eta_{12})[(\eta_{30} + \eta_{12})^2 - 3(\eta_{21} + \eta_{03})^2] + (3\eta_{21} - \eta_{03})(\eta_{21} + \eta_{03})[3(\eta_{30} + \eta_{12})^2 - (\eta_{21} + \eta_{03})^2]$$

$$\Phi 6 = (\eta_{20} - \eta_{02})[(\eta_{30} + \eta_{12})^2 - (\eta_{21} + \eta_{03})^2] + 4\eta_{11}(\eta_{30} + \eta_{12})(\eta_{21} + \eta_{03})$$

$$\Phi 7 = (3\eta_{21} - \eta_{03})(\eta_{30} + \eta_{12})[(\eta_{30} + \eta_{12})^2 - 3(\eta_{21} + \eta_{03})^2] + (3\eta_{21} - \eta_{03})(\eta_{21} + \eta_{03})[(\eta_{30} + \eta_{12})^2 - (\eta_{21} + \eta_{03})^2]$$

The seven features of moment invariant are extracted from an image. The value of moments are usually small, so to reducing their dynamic range, \log_{10} transformation is used and sign of original value is also preserve to detect if an image has been mirrored. Figure 6 shows the seven features were extracted from the handwritten characters. Three same characters with different scale, orientation, and transformation, give almost same moment features. Figure 7 shows the features extracted from the printed characters. Examples of same character with different sizes computed almost same moment features. From the experiment it was cleared that Hu's moments features were invariant with scale in printed characters and invariant in rotation for handwritten characters [12].

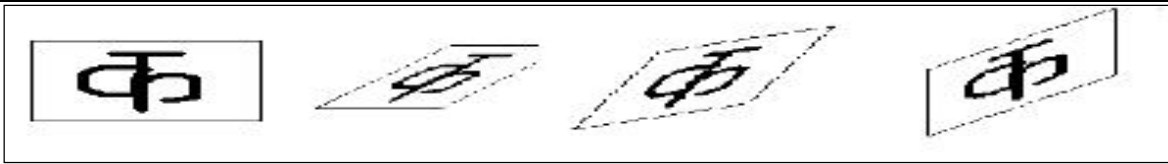


Fig.6 : Moment Invariant features for handwritten characters



Fig. 7 : Moment invariant features for printed characters

3.3.5 Zernike Moments

Moment functions are defined on images as the weighted sums of the image intensity function. Moment functions of order $(p + q)$ are generally defined as

$$\Phi_{pq} = \int_x \int_y \Psi_{pq}(x, y) f(x, y) dx dy, \quad (1)$$

Where $\Psi_{pq}(x, y)$ is called the moment weighting kernel.

When applying moment functions to digital images it is often desirable to write them out using the following discrete notation:

$$\Phi_{pq} = \sum_x \sum_y \Psi_{pq}(x, y) f(x, y) \quad (2)$$

Some properties of the weighting kernel are passed onto the moments themselves, such as invariance features, and orthogonal. Depending on the function chosen for the weighting kernel, the calculated moments can capture different aspects of the input image [13].

Zernike moments are a class of orthogonal moments and have been shown effective in terms of image representation. The orthogonal property of Zernike polynomials enables the contribution of each moment to be unique and independent of information in an image. A Zernike moment does the mapping of an image onto a set of complex Zernike polynomials. Zernike Moments are defined over the unit disk instead of the real plane and exhibit the orthogonal property. Zernike polynomials are mainly used in optometric, where they arise as the expansion of a wave front function in optical systems with circular pupils [14]. Zernike introduced a set of complex polynomials which form a complete orthogonal set over the interior of the unit circle, i.e., $x^2 + y^2 = 1$. Let the set of these polynomials be denoted

by. $\{V_{nm}(x, y)\}$ The form of these polynomials is:

$$V_{nm}(x, y) = V_{nm}(\rho, \theta) = R_{nm}(\rho) \exp(jm\theta) \quad (3)$$

$R_{nm}(\rho)$ Radial Polynomial defined as

$$R_{nm}(\rho) = \sum_{s=0}^{n-|m|/2} (-1)^s \frac{(n-s)!}{s! \left(\frac{n+|m|}{2} - s\right)! \left(\frac{n-|m|}{2} - s\right)!} \rho^{n-2s} \quad (4)$$

Note that

$$R_{n,-m}(\rho) = R_{nm}(\rho).$$

These polynomials are orthogonal and satisfy

$$\iint_{x^2 + y^2 \leq 1} [v_{nm}(x, y)] [v_{pq}(x, y)] dx dy = \frac{\pi}{n+1} \delta_{np} \delta_{mq}.$$

With

$$\delta_{ab} = \begin{cases} 1 & a = b \\ 0 & \text{otherwise} \end{cases} \quad (5)$$

Zernike moments are the projection of the image function onto these orthogonal basis functions. The Zernike moment of order n with repetition m for a continuous image function $f(x, y)$ that vanishes outside the unit circle is

$$A_{nm} = \frac{n+1}{\pi} \iint_{x^2 + y^2 \leq 1} f(x, y) V_{nm}^*(\rho, \theta) dx dy \quad (6)$$

For a digital image, the integrals are replaced by summations to get.

$$A_{nm} = \frac{n+1}{\pi} \sum_x \sum_y f(x,y) V_{nm}^*(\rho, \theta), x^2 + y^2 \leq 1 \quad (7)$$

To compute the Zernike moments of a given image, the center of the image is taken as the origin and pixel coordinates are mapped to the range of unit circle, i.e. $x^2 + y^2 \leq 1$. Those pixels falling outside the unit circle are not used in the computation. Therefore $|A_{nm}|$ can be used as a rotation invariant feature of the image function. Since $A_{n,-m} = A_{nm}$, and therefore $|A_{n,-m} = A_{nm}|$, we can use only $|A_{nm}|$ for features [15].

Moment based features are extracted from the each zone of the scaled character bitmapped image. The image is partitioned into zone and features are extracted from each zone. In this paper Zernike moments based feature extraction is proposed for off-line Devnagari Handwritten Basic and Compound Character. The image can be partitioned in various ways and it is given in figure 8 [16].

Feature set i : Figure 8 (i) is considered as a whole character image.

Feature set ii : Figure 8 (ii) shows the image divided into four equal zones.

Feature set iii : Figure 8 (iii) shows the image divided into three vertical equal zones.

Feature set iv : Figure 8 (iv) shows the image divided into three horizontal equal zones.

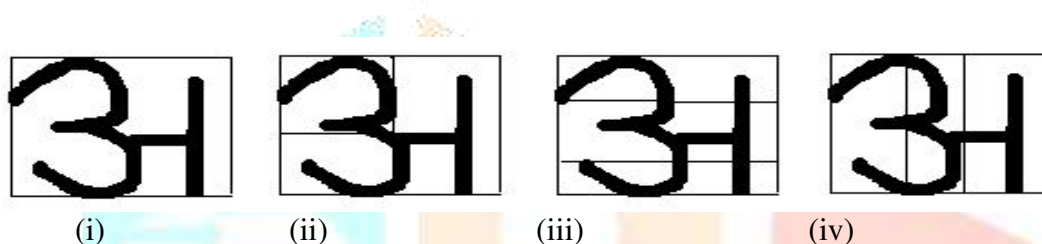


Fig. 8. Partition of Devanagari Character into feature set

3.3.6 Profiling: Distance Profile Feature

The profile based features are partly inspired by (Shridhar and Badreldin, 1984), in this technique, profile computes the distance (pixels) from bounding box of character image to outer image of character. The distance is traced horizontal and vertical. Author used four profiles of the character which are left, right, bottom and top. Left profiles are computed by traversing horizontally in forward direction and right profiles are computed by traversing backward direction. Similarly, top and bottom profiles are computed. Features derived from profiles of the character [17]. The four profiles are shown in figure 9.

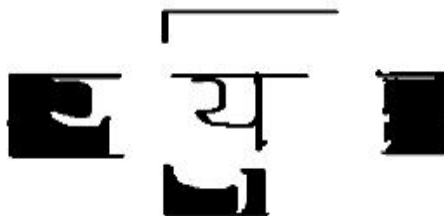


Fig.9. Shows the distance profile features

5. Earlier Work

Feature extraction methods can satisfy this requirement based on specific recognition problem and the input data for recognition. Different feature extraction methods are used according to the suitable domain. A survey of various feature extraction techniques is given in [12, 18]. In [19], Raghuraj et al, presented a scheme to develop complete OCR for five different fonts and sizes of Devanagari characters. Authors used three statistical features: mean distance, histogram of projection based on the spatial position of pixels and the histogram of projection based on pixel value. They used artificial neural network (ANN) approach for classification. Holambe et al [20] presented a review of feature extraction and selection methods for recognition of numerals and characters of the Devanagari script. They used Zernike moment for feature extraction and - KNN classifier based on Euclidean distance. They computed the accuracy recognition rate for vowels, consonants without modifiers as 98%. Yadav et al [21], proposed an OCR system for printed Hindi recognition, using ANN. They used projection profiles for segmentation and histograms of projection based on mean distance, histogram of projection based on

pixel value, vertical zero crossing for feature extraction and back-propagation neural network with two hidden layers for classification. They achieved a recognition rate of about 90.0%. Sethi and Chatterjee [22] proposed a decision tree based approach for recognition of constrained hand printed Devnagari characters using primitive features. In [23], R. Jayadevan et al. encompassed the comparative study of different feature extraction methods proposed by various researchers. They also have discussed some statistical feature extraction methods for recognition of printed Devanagari characters which are summarized in the following table 2 :

Table 2 : Accuracy of Devanagari Printed characters Recognition

Sr.No.	Method proposed by	Type of Feature	Classifier	Data set (size)	Accuracy in %
1	Jayanthi et al. [25]	Statistical	Binary Tree	4863 characters	95.08
2	Choudhuri et al. [26]	Statistical	Tree classifier & template matching	10000 characters	95.42
3	U.Pal et al. [24]	Statistical	Tree classifier and template matching	Unspecified	83.67
4	Divakar et al. [27]	Mean distance, Pixel value and vertical zero crossing	Neural Network	1000 characters	98.5
5	Holambe et al [20]	Zernike moment	KNN classifier based on Euclidean distance	Unspecified	98
6	Divakar et al [27]	Histogram of projection based on mean distance and pixel value , vertical zero crossing	Back-propagation neural network with two hidden layers	650 : word level	90

6. Conclusion:

The analytical study of the methods mentioned in Table 2 concludes the statistical methods used for feature extraction such as: zoning, histogram projections, profiles, crossing and distances, moment invariants, standard deviation, density and mean and feature classification techniques such as SVM, Template matching, Binary tree and Neural Network (KNN) are used for recognition of character. The devanagari CAPTCHA script characters are generally presented with different dimension and size, slanted or rotated to left or right direction, distorted by addition of noises. The statistical feature extraction methods such as Moment invariant and Zernike moments are mostly used to extract the features of characters which are slanted or rotated and dimensioned with varied size. These features can be easily detected as compared to structural features. Statistical features are less affected by noise or distortions as compared to structural features. They are also used to reduce the dimension of the future set. These features can be easily obtained as compared to topological or structural features.

From the above table the accuracy of Devanagari printed characters is 98.5% for Neural Network. The accuracy depends on the features extracted from the image database. In this study, it is found that the use of statistical methods for feature extraction and Neural Network classifier gives better result.

The study shows that the accuracy of recognition of character depends on selection of features and proper classifier. The different statistical feature extraction techniques discussed in this paper are very effective and useful for new researchers. Still the work is going on to improve the accuracy of the above techniques.

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Recognition of Off-Line Handwritten Rajasthani Characters using Generalized Feed Forward Classifier



S E Warkhede, S. K. Yadav, V M Thakare, P E Ajmire

Abstract: The offline handwritten identification in the area of pattern recognition was a heavy and difficult task. Because of its application in different areas, a set of work is being done and the results are continuing to be strengthened by different methods. We suggested in this paper a handwritten model for individual character recognition using generalized neural networks for feed forward. We take 17 character samples handwritten in scanned image format for experimental purposes; Rajasthani knows 850 different samples of handwritten characters. HOG extraction methods are used to construct pattern vectors for all training sets. These features are recognition classifier for generalized feed forward. We obtained an overall classification with GFF classifier accuracy rate of 85.21% from the proposed scheme for the identification of Rajasthani characters.

Keywords: Handwritten character recognition, feature extraction, GFF, classifier

I. INTRODUCTION

Handwritten recognition has already been a prominent field for several years due to its future applications. Some of the potential areas of application are postal automation, processing of bank checks, automated data entry, etc. There are many working sections to handwritten recognition in Japanese, Chinese, Roman, and Arabic scripts and different approaches to handwriting recognition have been suggested by the researchers [1]. These days, computers have penetrated more accurately in all areas and work at higher speeds. Pattern recognition computer is a difficult task and if the curves of reasons in written texts in hand, this task becomes even more important. The text conversion process handwritten in machine-readable format is the handwritten character recognition. Some of the most popular relevant fields of research and stimulating in the field of pattern recognition were handwritten character recognition.

It makes an enormous contribution to the advancement of an automation process and in various applications can improve the human-machine interface. Most of the literature on Indian scripts recognition of transactions with printed materials and very few articles discuss scripting problem handwritten.

Using a special pen and a digital surface, the data are collected in recognition of virtual handwriting through the writing process. Offline files are digitized pre-written text images, generally on a piece of paper [2].

Handwritten recognition systems are generally classified into two types, namely the recognition online and off line manuscript. In the online approach, the two-dimensional coordinates of consecutive points are symbolized with time. Also the sequence of moves made by the writer is at hand. While in the case of handwriting recognition approach offline written script is captured with the help of devices like scanner and the entire script is available as an image [3].

The approaches to handwriting recognition online and offline are compared; it was found that due to time information available with the online approach, it is higher than the offline approach. In addition, in offline systems, neural networks were used to produce good results at relatively high levels of accuracy in recognition. An amount of applications, for example, document analysis, interpretation of the mailing address, treatment, etc. bank require a handwriting recognition system offline. Thus, recognition of handwritten offline recognition has the first preference of many researchers to analyze and discover new methods to achieve better accuracy in recognition. It is used extensively in the area of pattern recognition, artificial intelligence and image processing [4]. In this paper we recommend the framework based on GFFNN classifier for the handwritten character recognition. This is used for training the neural network. The Rajasthani character consists of 38 letters. When to recognize out of these 18 characters, we need to divide them into classes. Through the experiments, the character recognition and classification is carried out and the recognition accuracy is described in the experimental result in section. There are 38 basic characters in Rajasthani script which are shown in figure 1.1.

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Fig.1.1: Rajasthani Characters

The handwritten recognition of Rajasthani characters has following applications:

1. In the field of automated letter sorting in postal services
2. In automatic processing of different handwritten forms in different departments and institutes of government
3. In old manuscripts digitization
4. In banks for automated customer signatures validation

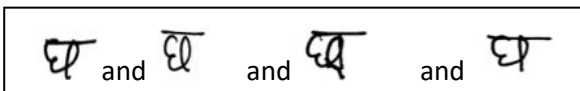
In case of Rajasthani characters there are some problems which lead to reduction in recognition accuracy. These problems have been discussed below.

1. There is always variation in the shapes of characters and variation in writing styles of different writers as shown in figure 1.2.



Fig. 1.2: Few Samples of Rajasthani Characters

2. Difference is being shown below among various characters that lead to incorrect recognition:



3. During scanning, it may be possible to manipulate images, to add noise during image acquisition, etc.

The organization of this paper is as follows: previous work was discussed in Section 2, proposed recognition systems were given in Section 3, and experimental results and conclusions were written in Section 4.

II. RELATED WORK

A P Jane et al. recommend a novel mechanism for recognizing handwritten marathi characters of similar shape that use Artificial Neural Network and recording 70 to 90

percent average accuracy [5]. A new Eigen space model method was proposed by Akhil Deshmukh et. al. using the theory of Gerschgorin theorems to identify and extract characters [6]. Mahesh Jangid et. al. suggested new algorithm of correlation characteristics of local Gradients extraction Neighbors for handwriting recognition. They obtained 95.38 percent accuracy for handwritten Devanagari character recognition in order to use this function method and SVM classifier [7]. J. Praddep et.al. developed a model on handwritten character recognition that used a neural network extraction method focused on diagonal feed forward network and back propagation algorithm with two hidden layers in the 54-100-100-38 framework that can be used to distinguish both horizontal, diagonal and vertical orientation characteristics and found 92.69% [8]. P. E. Ajmire et.al., Handwritten character has significant variation in the type of a group of characters. This variability focuses on the font type, the document noise, the photometric effects, the document's oblique and poor image quality. Large variations in shape makes it difficult to determine the number of convenient features before building models. Character recognition system performance depends heavily on what features are being used [9]. P.E.Ajmire et.al. presented the work on the recognition of manuscripts Marathi vowels. The system was tested on 12 Handwritten Marathi vowels and 10 images for each vowel. The overall average recognition rate of vowels before the combination is 59% and after the consolidation of 62%. Therefore the combination improves the recognition rate [10]. Arjun Singh et.al. proposed an offline recognition system Handwritten Devanagari characters. It uses classifiers ANN and SVM. An experiment is performed on the image sizes: 30x30, 40x40 and 50x50 Matlab. The recognition accuracy is 97.61% using SVM [11]. Dineshkumar R. et.al. proposed a recognition framework handwriting offline using the network of neurons before feeding. A Sanskrit manuscript character is recognized by the use of training the neural network. The system proposed recognizing the names written by hand, reading documents and converting any document handwritten shaped structural text. The accuracy rate obtained is 98% [12].

III. DATABASE PREPARATION

We have developed our own database. The preparation of database, which are collected from the special design sheet. The A4 size data sheet is designed for the handwritten character recognition system and the characters were written by the various Rajasthani people of different age groups. After data collection from various person data sheets are scanned with the help of Cannon Lide 110 with 300 dpi and stored as jpg file.

IV. PROPOSED METHODOLOGY

The proposed method designed 17 characters database out of 38 characters. The database contains in all 850 samples datasets.

a) **Block Diagram:** The following figure shows the complete handwritten character recognition system.



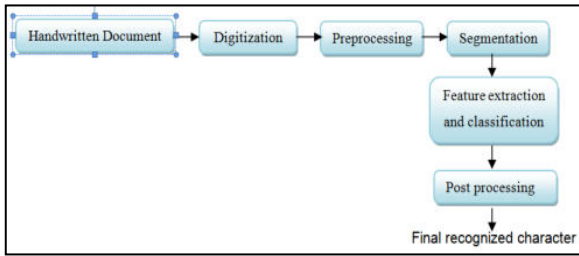


Fig. 1.3 : Complete handwritten character recognition system

b) **Algorithm:** The following algorithm has been performed in order to preprocess the image before feature extraction:

1. Read Datasheet file (Scan file)
2. Intensity value of an image were adjusted
3. Images were converted and save into gray scale image
4. All gray images were converted to binary
5. Take compliment of this data file
6. Crop each Line and then each character
7. Finally all images resize to 40 x 40 pixels size

In this way the individual characters are available in the form of image in database. Some sample characters in the database are as shown in the figure 1.4.



Fig. 1.4: Labeled Database of Rajasthani Character

V. RESULTS AND DISCUSSION

The gradient-oriented characteristics of the histogram for research work were taken. For classification, the extracted characteristics are selected. HOG features define the image form with the distribution of intensity or gradient to the edges. A HOG feature vectors that represent a relative object's local shape. In all 81 features are extracted for each character image. In this way the total database contains 850 X 81 data values. This paper focuses on Generalized Feed Forward Neural Network (GFFNN) for recognition of handwritten characters. The extracted features vector of all database images is first randomized and then fed to the GFFNN for training of neural network. To identify them, the GFFNN was used to check the proposed vector of various character images. These features are classified using GFF classifier and results for training is given in Table 1, 2 and 3 as well as the result of testing in Table 4, 5 and 6.

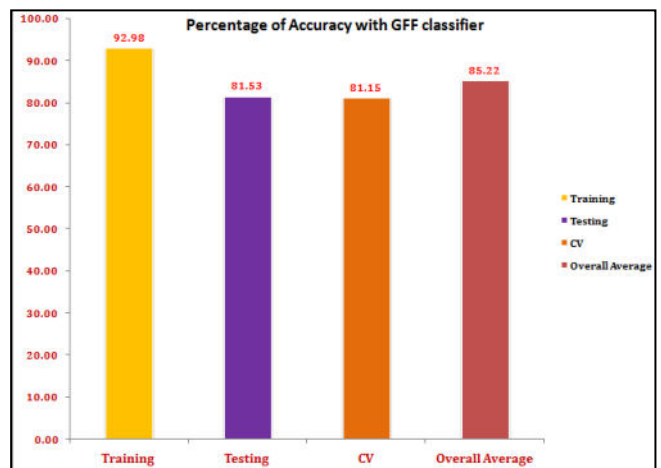
Table 1		Table 2		Table 3	
For Training		For Training		For Training	
Classifier : GFF		Classifier : GFF		Classifier : GFF	
Characters	% of Accuracy	Characters	% of Accuracy	Characters	% of Accuracy
Eee	100	ba	93.75	Naa	58.62
Ee	100	Fa	96.77	Wa	84.38
Ka	100	Gha	90.32	dnya	87.50
bha	100	Sa	96.77	Ya	86.67
Tra	100	Sha	96.67		
Ga	100	Taa	93.33		
		Na	95.83		

From the result observed above, it is found that the handwritten recognition using GFF classifier on training data, Table 1 shows a recognition accuracy of six characters out of 17 characters is 100% whereas Table 2 shows an accuracy rate of seven characters above 90% and the remaining four characters with an accuracy rate of below 88%.

Table 4		Table 6	
For Testing		For Testing	
Classifier : GFF		Classifier : GFF	
Characters	% of Accuracy	Characters	% of Accuracy
Eee	100	Naa	46.67
bha	100	Ee	81.82
Ga	100	Wa	73.33
		Ka	83.33
		Gha	76.92
Table 5		dnya	72.22
For Testing		Sa	72.73
Classifier : GFF		Sha	80
Characters	% of Accuracy	Taa	85.71
ba	92.31	Ya	64.29
Fa	93.33	Na	73.33
Tra	90		

On Testing, three characters with a recognition rate is 100% and three characters with an accuracy of recognition above 90% and the remaining eleven characters with an accuracy of less than 80%.

The graphical representation of average accuracy on sets training, testing and cross validation is 92.97, 81.52, and 81.15 respectively as shown below.



VI. CONCLUSION

This paper proposes an algorithm of recognition of handwritten Rajasthani characters. The average accuracy of recognition of all handwritten Rajasthani characters in training, testing and CV using GFF is 85.21%. This accuracy may be enhanced by taking into consideration a broader set of data while training a classifier. This work can also be applied to other scripts in India for character recognition with offline handwritten language.

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A SURVEY ON IOT ELEMENTS, LAYERED ARCHITECTURES AND SECURITY ISSUES

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ABSTRACT

The use of the Internet is growing rapidly, so another area has developed to use the Internet, called Internet of Things (IoT). It facilitates the machines and objects to communicate, compute and coordinate with each other. It is an empower for the intelligence related to several essential features of the modern world, such as homes, hospitals, buildings, transports and cities. The security and privacy are some of the key issues related to the wide application of IoT. Therefore, these issues prevent the wide usage of the IoT Applications. This paper represents an overview about different layered architectures of IoT and attacks regarding security from the perspective of layers. Also, a review of mechanisms that provide solutions to these issues. Furthermore, a new secure layered architecture of IoT is suggested to overcome these issues.

Keywords: Internet of Things (IoT); layered architectures; security; privacy; security attacks; Protection methods; secure architecture

I. INTRODUCTION

The Internet has become a basic need of millions of people who use it for many purposes according to their needs. People not only use the Internet from the entertainment (movies, songs and games) purposes but also to fulfil their daily activities, and needs that cannot be done without it. It is surveyed that around 48 percent of the world's population use the Internet [1,2]. This means number of the people use the Internet due to its popularity and benefits that are provided to them by the Internet. Another aspect of increasing the users of the Internet is that people can communicate and synchronize to other people all over the world via the Internet.

Since there are number of benefits of the Internet, another field is growing, that allows objects and machines to connect and communicate to each other with the presence of the Internet, called the Internet of Things (IoT)[3]. The main purpose of this new technology is to automate the work and connect the devices via the Internet that users use in daily life. Special types of sensors are attached to each object to capture the information from the physical world to virtual world. Information is analysed by processing methodology to remove the unnecessary data and store the information into local storage. Information is sent from local storage to cloud storage where all objects send their collected and interconnected information. Finally, using the collected information, an appropriate action is taken. It is not compulsory that action is always performed by using this information, but one can also manage and control the objects and machines remotely and use the information to maintain the records for the future use.

There are different technologies and sensors are used to implement the idea of IoT. The communication technologies which are used to implement the idea of IoT are radio frequency identification (RFID)[4], near field communication (NFC)[5] and wireless sensor network (WSN)[6] etc. There are a lot of applications in which IoT has deployed as shown in Figure 1 The first one is the health care domain where sensors are used to check human's body temperature, blood pressure and heart beat rate [7]. Second application is smart home because humans use many electronic things like refrigerators, microwave ovens, fans, heaters and air conditioners at home. The sensors are used to detect the problem and tell about the problem to the manufacturing company in order to solve it[8]. The third application of IoT is animal tracking, with the help of GPS sensors to trace them easily [9]. Another IoT application is smart robotics grippers that contact an object directly to collect the sensing information. There are number of sensors and instruments installed in a smart gripper such as touch, motion, vision, optical and force sensors. The smartness level of a smart gripper depends on the equipped sensors because they collect information in a real-time mode and collected information is used to make decisions. Therefore, they must be used by design criteria such as cost, weight and compactness [10]. In addition, there are numerous applications of IoT such as smart transportation, infrastructure management (highways, bridges and railway tracks), manufacturing, smart building, smart agriculture and smart retail, etc.

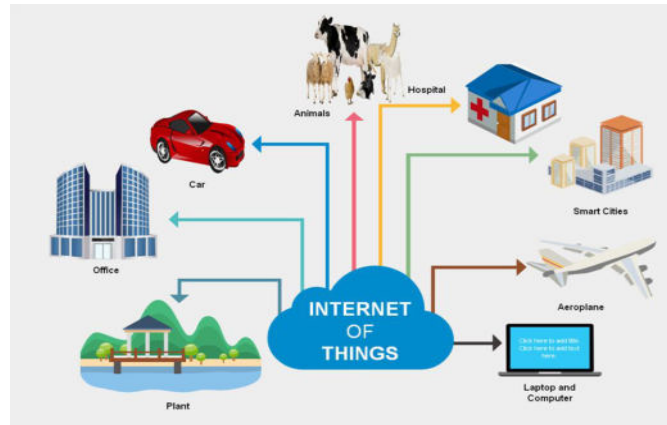


Figure-1: IOT Applications

II. PROBLEM DEFINITION

There are many benefits provided by IoT, but, on the other side, it also has some challenges such as no proper management, energy efficiency, identity management, security and privacy [11]. Security and Privacy are the most critical key issues facing in the development of IoT. In IoT, all devices are connected to the Internet because, without the Internet, they cannot perform their tasks. There are many possibilities to attack the confidential information of objects via the internet. The attackers can misuse information in any illegal way according to their needs, which can result in a great loss for users[12]. Privacy has also become an issue for IoT. This means that the information of users must be in secure hands and not be accessible to anyone except authentic users. Therefore, security and privacy should be ensured by preventing unauthorized identification, access and user's data is under control and no one else can misuse it[13].

III. PROPOSED METHODOLOGY

IoT provides many benefits and facilities for users to use them properly, so there is a need for some elements. In this section, elements of IoT are discussed. Figure2 shows the elements needed to deliver the functionality of IoT. The names and details of these elements are as follows.

D. IOT Elements

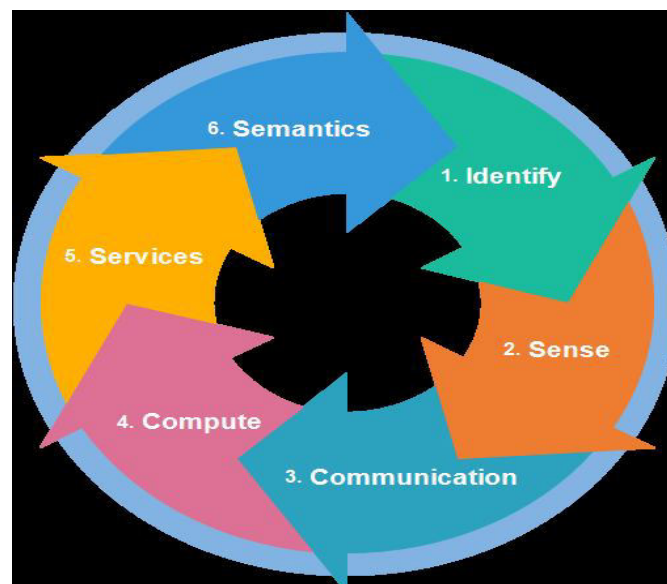


Figure-2: IOT Elements

1. Identification: It identifies each object within network. Identified by two processes; naming and addressing. Naming represents name of the object while addressing is the unique address of specific object. These both terms are very different from each other because two or more objects may have same name but always have different and unique address. The methods available that provide the naming facility to the objects in the network such as electron products codes (EPC) and ubiquitous codes[14].IPv6 is used to assign the unique address to each object,. Earlier, IPv4 was used to assign the address but it could not fulfil the need of addressing due to large amount of IoT devices. Therefore, IPv6 is used because it uses 128 bit number addressing scheme.

2. Sensing: The information is collected from objects with a process called as sensing. The collected information is forwarded to the storage media. The sensing devices are used to collect the information from objects such as actuators, RFID tags, smart sensors, wearable sensing devices, etc.
3. Communication: It is one of the key component of IoT where different devices are connected to each other and communicate, send and receive messages, files and other information. The technologies that provide facility of communication like Radio Frequency Identification (RFID)[15], Near Field Communication (NFC)[5], Bluetooth, Wi-Fi[6] and Long Term Evolution (LTE)[7].
4. Computation: The sensors are used to perform computation on collected information from objects to remove unnecessary information that is not needed. Different hardware and software platforms are developed to perform the processing in applications of IoT. For hardware platforms, Audrino, Rasperry Pi and Intel Galileo are used, while, for software platforms, the operating system plays an important role to perform the processing. There are many types of operating systems that are used like Tiny OS, LiteOS, Android, etc.
5. Services: The IoT applications consist of four types of services. The first one is an identity-related service, to identify the objects that have sent the request. Second service is Information aggregation service whose purpose is to collect all the information from objects. Processing is also performed by the aggregation service. The third service is a collaborative service that makes decisions according to the information from storage area and sends appropriate responses to the devices. The last service is ubiquitous service that is used to respond the devices immediately without any rigidity about time and place.
6. Semantics: The users are facilitated according to their performance for assigned tasks. It is the most important element of IoT to fulfil its responsibilities. It acts like the brain of IoT. It provides all information and makes appropriate decisions to send responses to the devices.

E. IoT Layered Architectures with Security Attacks

The hierarchy of all proposed layered architecture of Internet of Things (IoT) is shown in Figure,3 which shows the layer architectures of IoT consisting of three layers, four layers and five layers respectively.

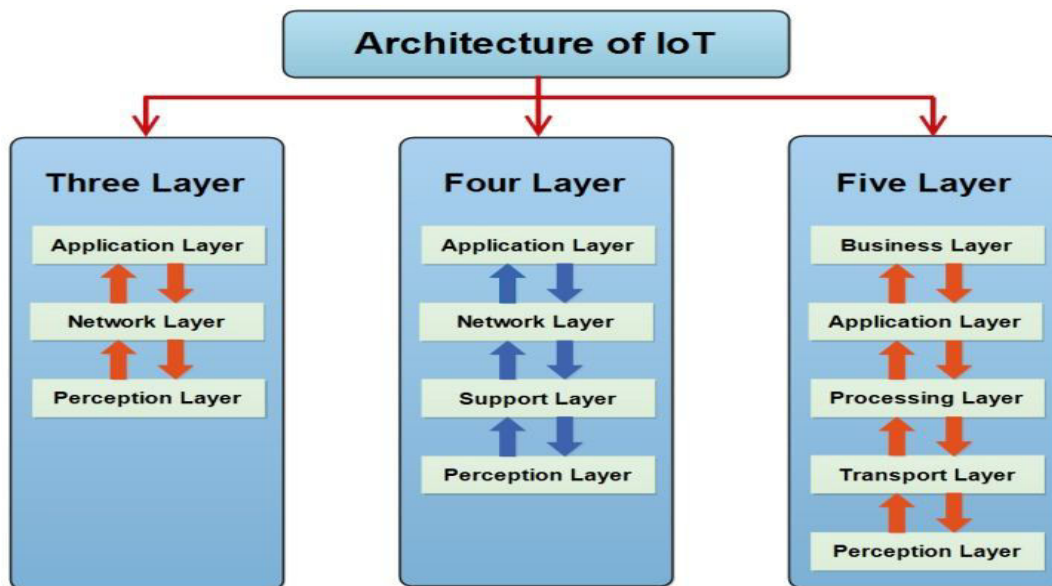


Figure-3: The layered architectures of IoT (three, four and five layers).

1. Perception Layer: It is also known as a sensor layer. It works like people’s eyes, ears and nose. Its main functionality is to identify things and collect the information from them. There are different types of sensors attached to objects to collect information such as RFID, 2-D barcode and sensors. The sensors are selected according to the requirement of applications. The information that is retrieved by these sensors can be about location, changes in the air, environment, motion, vibration, etc. They are the main target of attackers who wish to utilize resources to replace the sensor with their own [13]. Therefore, the majority of threats are possible on sensors. Common security threats of perception layer are:
 - i. Eavesdropping: It is an unauthorized real-time attack where private communications, such as phone calls, text messages, fax transmissions or video conferences are intercepted by an attacker. It attempt to steal information that is transmitted over a network. Likewise it takes advantage of unsecure transmission to access the information being sent and received.

- ii. Node Capture: It is one of the dangerous attacks faced in the perception layer of IoT. Where attacker gains full control over a key node, such as a gateway node. It may also leak all information including communication between sender and receiver, a key used to make secure communication and information stored in memory.
 - iii. Fake Node and Malicious: In this type of attack an attacker adds a node to the system and inputs fake data. Its main purpose is to stop transmitting real information. A node that is added by an attacker consumes precious energy of real nodes and potentially control in order to destroy the network.
 - iv. Replay Attack: It is also called as a play back attack. Where an intruder eavesdrops on the conversation between sender and receiver and takes authentic information from the sender. An intruder forward same authenticated information to the victim that had already been received in his communication by showing proof of his identity and authenticity. The message is in terms of encrypted form, so the receiver may treat it as a correct request and take action desired by the intruder.
 - v. Timing Attack: It is usually used in devices that have weak performance computing capabilities. It permits an attacker to discover vulnerabilities and extract secrets maintained in the security of a system by observing how long it takes the system to respond to different queries, input or cryptographic algorithms.
2. Network Layer: It is also known as transmission layer. It acts like a link between perception layer and application layer. It transmits the information collected from the physical objects through sensors. The medium for the transmission of data can be wireless or wire based. It also takes the responsibility for connecting the smart things, network devices and networks to each other. Therefore, it is highly sensitive from the attacker's point of view to attack the data. In terms of security issues such as integrity and authentication of information that is being transported in the network [14]. The following are common security threats and problems to network layers are:
1. Denial of Service (DoS) Attack: A DoS attack is an attack to prevent authentic users from accessing devices or other network resources. It is performed by flooding the targeted devices or network resources with redundant requests in an order to make it impossible or difficult for some or all authentic users to use them.
 2. Man-in-The-Middle (MitM) Attack: MitM attack is an attack where the attacker secretly intercepts and alters the communication between sender and receiver who are under assumption that they are directly communicating with each other. Since an attacker controls the communication, therefore participants can change messages according to their needs. It causes a serious threat to online security because it gives the attacker the facility to capture and manipulate information in real time.
 3. Storage Attack: The user store information either on storage devices or the cloud. The attacker will try to attack both storage devices and cloud to retrieve user's information and try to change into incorrect details. There are more chances of attack by different types of people on the replication of information associated with the access of other information.
 4. Exploit Attack: An exploit is any immoral or illegal attack in a form of software, chunks of data or a sequence of commands. It mainly focus on security vulnerabilities applicable in an application, system or hardware. Its main purpose is to gain control of the system and steals information stored on a network.
3. Application Layer: It defines all applications that use the IoT technology or in which IoT has deployed. The applications of IoT can be smart homes, smart cities, smart health, animal tracking, etc. The main responsibility is to provide the services to the applications. Each application contain different service because services depend on the information that is collected by sensors. There are number of issues in the application layer in which security is one of the key issue. In particular, when IoT is used in order to make a smart home, it introduces many threats and vulnerabilities from the inside and outside. For an IoT based smart home to implement strong security, one of the main issues is that the devices used in smart homes have weak computational power and a low amount of storage such as ZigBee[14].The following are common security threats and problem of application layer are:
1. Cross Site Scripting: It is also known as an injection attack. It permits an attacker to insert a client-side script, such as java script in a trusted site viewed other users. By doing so, an attacker can completely change the contents of the application according to its needs and use original information in an illegal way.

2. **Malicious Code Attack:** It is intended to cause undesired effects and damage the system with the help of a code in any part of software. It is not be blocked or controlled by anti-virus tools. It can either requiring a user's attention to perform an action or be like a program requiring a user's attention to perform an action.
3. **The ability of dealing with Mass Data:** It has no ability to deal with data processing according to the requirements due to a large number of devices and a massive amount of data transmission between users, As a result, it leads to network disturbance and data loss.
4. **Support Layer:** The main purpose to make a fourth layer is the security in architecture of IoT. Because information is sent directly to the network layer in three-layer architecture. Since the information is directly sent to the network layer, the chances of getting threats increase. Due to certain flaws that were available in three-layer architecture, a new layer is proposed. But in four-layer architecture, information is sent to a support layer that is obtained from a perception layer. It has two responsibilities. First it confirms that information is sent by the authentic users and protected from threats. There are different ways to verify the users and the information. The most commonly used method is the authentication. It is implemented with the help of pre-shared secrets, keys and passwords. The second responsibility is sending information to the network layer. The information is transmitted from the support layer to network layer can be wireless and wire based. There are various attacks that can affect this layer such as DoS attack, malicious insider, unauthorized access, etc.
 1. **DoS Attack:** It is related to the network layer. Where an attacker sends a large amount of data to make network traffic inundated. Therefore, the massive consumption of system resources exhausts the IoT and makes the user not capable of accessing the system.
 2. **Malicious Insider Attack:** It happens from the inside of an IoT environment to access the personal information of users. Where an authorized user access the information of other users. It is a very different and complex attack as it requires different mechanisms to prevent the threat.
5. **Processing Layer:** It is also known as a middleware layer. Its main functionality is to collect the information that is sent from a transport layer. Where it performs processing onto the collected information. It has the responsibility to extracts the useful information while eliminating extra information that has no meaning, it also removes the problem of big data in IoT. Because in big data, a large amount of information is received which can affect performance of IoT[10][15]. The following are numerous attacks that can affect the processing layer and disturb the performance of IoT. Such as:
 - i. **Exhaustion:** It is to be used to disturb the processing of IoT structure. It occurs as an after-effect of attacks, such as DoS attack in which an attacker sends the victim many requests to make the network unavailable for users. The aim is to exhaust the system resources, such as battery and memory resources. As IoT has a distributed nature; therefore, it does not have a high amount of hazards. It is comparatively easier to implement protecting procedures against it.
 - ii. **Malwares:** Its main focus is on an attack on the confidentiality of the information of users. It refers to the application of viruses, spyware, adware, Trojans horses and worms to interact with the system. In the form of executable codes, scripts and contents to affect the confidentiality.
6. **Business Layer:** It refers to an intended behaviour of an application and acts like a manager of an entire system. The main functionality of this layer is to manage and control applications, business and profits models of IoT and also manage the privacy of users. It also has the capability to determine how information can be created, stored and changed. In this layer vulnerability permits the attackers to misuse an application by avoiding the business logic. The problems regarding security are weaknesses in an application that result from a broken or missing security control. Common problems regarding security of business layer are:
 - i. **Business Logic Attack:** It takes advantage of a faults in a programming. The exchange of information between a user and a supporting database of an application can be managed by this layer. There several common flaws in the business layer, such as improper coding by a programmer, password recovery validation, input validation, and encryption techniques.
 - ii. **Zero-Day Attack:** It uses a security hole or a problem in an application that is unfamiliar to a vendor. Where the security hole is exploited by the attacker to take control without user's consent and without their knowledge.

IV RESULT

Security is a critical issue that exists in IoT. user cannot use the IoT properly and cannot be able to attain all the benefits that are provided by IoT without security. Therefore the following are some of the existing security mechanisms used to protect the IoT applications from intruders. Security Mechanisms for IoT[11]

1. **Encryption and Hashed Based Security:** One of the most important part of IoT is Internet .The information flows through a network during the communication where attackers also exist. Therefore, user's information is not secured on the network. So there should be a mechanism to protect information from the attackers. To make user's information more secure, a researcher proposed a method whose name is Encryption and Hashed based Security. Its functionality is to provide a facility of encryption in which a message is converted into an unknown form, called cipher text. The message is sent from a sender, it is converted into another form by using a key that cannot be understood to anyone except authentic users. Where key is to be generated according to the length of the message. Hence it is not easy task to break a key because it always contain a key of double length from the message. The key is also forwarded to the receiver. The receiver has the ability to convert the cipher text into an original message by using the key. This method greatly helps with making the user's information secure, but, due to development in information technology, it is possible to change the contents of cipher text for the attackers. There is a possibility the attacker tries to make a message corrupt for the receiver. Therefore, this method also provides a facility of hash function as a solution. It is used to know and recover the contents of the message that have been changed by the attacker. It is used along with encryption. Which ensures the user that a message has not been altered by an intruder, virus, or by other means with the help of a digital fingerprint and a digital watermark of a message's contents.
2. **Lightweight Cryptographic Algorithms:** It is a mechanism that is used to meet the security requirements in Smart devices. There are three types of lightweight cryptography mechanisms such as Symmetric key lightweight cryptographic algorithm, public key lightweight cryptographic algorithm and hash functions. Algorithms are to be used according to the requirements of users and messages that have to be transmitted. The details of these algorithms are as follows:
 - i. **Symmetric Key Lightweight Cryptographic Algorithm:** It provides an encryption system in which the sender and receiver of a message share a single and common key. It is used to convert the message by a sender into an unknown form, called cipher text. It is also used to convert the message by a receiver from cipher text to the original message. So, the message can only be understood by authentic users. There are various examples of symmetric key cryptography algorithm such as Blowfish, Advanced Encryption Standard (AES), Data Encryption Standard (DES) and Rivest Cipher or Ron's Code, but the most widely used algorithm is AES. In order to provide security as well as improve efficiency and performance for numerous applications the AES encryption algorithm has become the optimal choice of users. The work presented in proposes a distributed system in order to make data communication of the whole network secure. The communication occurs in two segments: IoT devices to the IoT gateways and IoT gateways to the Internet. So the communication in these segments is secured by applying a symmetric key cryptography algorithm by AES. The main disadvantage of this encryption scheme is that both parties (sender and receiver) have to exchange the key used to encrypt the data between them before they can decrypt it.
 - ii. **Public Key Lightweight Cryptographic Algorithm:** It is also called as an asymmetric lightweight cryptographic algorithm. It uses both keys: a public key and a private key. A public key converts the messages into cipher text while a private key decrypts them. A Public key represents unique identification of a node that is provided by the certification authority (CA). Instead of symmetric key encryption it requires high processing, high energy consumption and long keys .It has two types: RSA (Rivest, Shamir, and Adleman) and ECC (Elliptic Curve Cryptography). The RSA requires a 1024-bits long key to encrypt the messages. ECC is more effective than RSA. It requires less bits to encrypt the messages than RSA. There is no difference between the RSA and ECC in terms of security because both encryptions provide the same security levels. Thus ECC is considered better and more effective than RSA while having low processing and low energy consumption.
 - iii. **Cryptographic Hash Functions:** It plays a different role than other cryptographic algorithms. Typically used in many aspects of security, such as digital signature and data integrity checks. Where it take messages, blocks of data or electronic files and generate a digital fingerprint of the contents, called a hash value. The key property of a hash function is that when an attacker changes the input, then it affects the output. Thus, the receiver finds changes in the message. The secret key must be exchanged before using

an encryption method. Otherwise distribution of secret keys has been problematic until recently. It included face-to-face meetings, use of a trusted messenger or sending the key through an existing channel. The first two are always unsafe while the third depends on the security of a previous key exchange. There are different key agreement protocols that can be used for distribution like polynomial based key distribution protocol, a possible alternative Protocol, etc.

V. CONCLUSION

The emerging idea of Internet of Things (IoT) is quickly finding its path throughout our modern life, aiming to enhance the quality of life by connecting various smart devices, technologies and applications. Generally, the IoT would allow for the automation of everything around us. This paper presented an overview of the premise of this concept and its applications. It articulated different research about layered architectures of IoT and also described security attacks based on the layers that can affect the performance of IoT. It is surveyed that literature on the existing mechanisms to protect the IoT infrastructure and summarized these security methods on how they address the security issues in the IoT. Paper proposed a new layered architecture having six layers to make secure the infrastructure of IoT[16].

The names of layers of the new proposed architecture of IoT are:

- Perception Layer
- Observer Layer
- Processing Layer
- Security Layer
- Network Layer
- Application Layer

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Analytical Study of Statistical Features Extraction of Characters for Verification of CAPTCHA in Devanagari Script

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Abstract :

Internet registration usually requires one sort of the Completely Automated Public Turing test to inform Computer and Human Apart (CAPTCHA) to avoid illegal registration through computer programs called bots. The CAPTCHA script is formed of distorted or noised characters. This paper presents an analytical study of extraction of varied statistical features for recognition of every character in CAPTCHA image. OCR (Optical Character Recognition) is generic process in area of pattern recognition and is aimed to recognize each character in CAPTCHA image. OCR system involves basic four stages: preprocessing, segmentation, feature extraction, classification which is followed by actual recognition. The technique of feature extraction plays an important role in character recognition. The CAPTCHA character recognition depends on the extracted features. The various statistical feature extraction techniques have been applied over character image. Here, the various types of statistical feature extraction methods are discussed for the application of character recognition for CAPTCHA verification.

Keywords: CAPTCHA, OCR, Bots, Feature extraction, Pattern recognition.

1.Introduction

In the recent time Internet has become a part of life for web users and CAPTCHA has become an integral part of the communication and financial transactions on Internet. CAPTCHA (Completely Automated Public Turing test to tell Computer and Human Apart) are the challenges given by online service providers to its users to distinguish human and automated computer programs called bots. It is a defensive mechanism to prevent automated registration, spamming and web bots. CAPTCHA tests can protect web services and resources such as e-mail services, online voting, surveys, chat systems, grievance redressal system, and password authentication. CAPTCHA which acts as a gatekeeper which monitors the entry and check whether it is a process by human being or computer controlled automated system. The researchers are studying the techniques, how to keep these spammers away. The character images are used as CAPTCHA script. These images consist of random combination of characters. A randomly generated text image is taken as CAPTCHA image so that a human user can read it easily while a computer cannot. A number of internet sites like Gmail, FaceBook, Hotmail, Twitter, Yahoo and so on offer free registration to the users to guard against auto-registration, these websites has incorporated CAPTCHA so that all the registrations are done by humans and not by automated computer programs or bots.

OCR is employed for pattern recognition and is targeted to recognize each character in CAPTCHA image. In offline OCR system, raster image of character is taken as an input and then it is taken as an input and then it is processed. Recognition of character starts after generation of character. While in online system, (x , y) coordinates and pressure of electronic tablet is continuously measured on digital pad [1]. The general process for character recognition involves four main steps given in figure 1 [2].

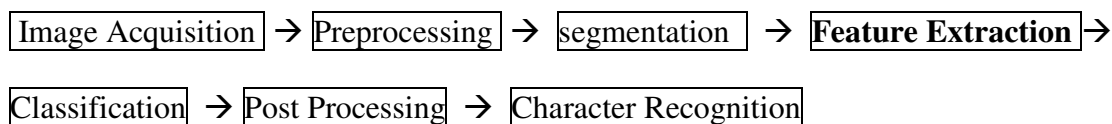


Fig. 1 : General Character Recognition Process by OCR

Each character in CAPTCHA image has unique features that determine its shape, size and orientation. Thus, the technique of feature extraction plays a vital role in character recognition. The CAPTCHA characters recognition depends on the extracted features. There are various statistical features extraction methods which are studied and analyzed in this paper.

2.Devanagari Script

India is a multilingual country. There are more than 1.2 billion populations with 22 official languages and 10 different scripts. Devanagari, an alphabetic script, is used by a number of Indian Languages. Initially it was developed to write Sanskrit but was later used to write many other languages such as Marathi, Hindi, Konkani and Nepali and Rajasthani [3, 4]. Hindi is the third most spoken language in the world. Other Indian languages like Gujarati, Bengali and Punjabi use scripts similar to Devanagari. Devanagari has 34 consonants and 13 vowels. In addition to consonants and vowels, there are compound characters which are formed by combining two or more of basic characters in most of Indian scripts including Devanagari.

3. Feature Extraction Techniques

Feature extraction can be defined as a process of extracting the most representative information from the raw data. Feature extraction is the process of extracting different features from the matrices of digitized characters image. The characters are recognized on the basis of these features. Features of a character can be classified into two categories: Global or statistical features and Structural or topological features [5].

3.1 Structural Features

Structural features are based on topological and geometric properties of the character. Examples of structural features are: number of horizontal lines, number of vertical lines, number of cross points, number of end points, horizontal curves at the top and bottom etc. These features are then used to identify the shape or structure of the character.

3.2 Statistical Features

Statistical methods are used to identify statistical features of a character. The statistical features are derived from the statistical distribution of pixels. These are obtained from the collection of points representing the matrix of character. These features can be easily detected as compared to structural features. Statistical features are less affected by noise or distortions as compared to structural features. These features can be easily obtained as compared to topological or structural features [5].

Representation of a document image (e.g. CAPTCHA image) by statistical distribution of points takes care of style variations to some extent . Although this type of representation does not allow the reconstruction of the original image, it is used to reduce the dimension of the feature set which results in less computing time and low complexity. The major statistical features are used for character representation [6].

3.3 Statistical Feature Extraction Methods

The purpose of the statistical methods is to determine to which category the given pattern belongs There are number of methods used for statistical feature extraction; such as zoning, projection, histograms, crossing and distances, moments, profiling etc [7].

3.3.1 Zoning

Zoning is one of the most popular feature extraction methods. The character image is divided into predefined number of zones and a feature is computed from each of these zones. The frame containing the character is divided into several overlapping or non-overlapping zones and the densities of object pixels in each zone are calculated. The density is calculated as a number of object pixels in each zone divided by total number of pixels [8].

In this method of zoning, four types of statistical features are extracted, namely, intersection and open endpoints, centroid, horizontal peak extent and vertical peak extent, for Devanagari ancient character recognition. A pixel that has more than one pixels in its neighborhood is known as intersection point. A pixel that has only one pixel in its neighborhood is known as open endpoint. The centroid is the point that can be considered as the centre of a two-dimensional image. A character is usually divided into zones of predefined size. These predefined sizes are typically of the order $1*1$, $2*2$, $4*4$, $8*8$ is given in figure 2 [9].



Fig. 2 : A character image : a) one zone b) 4 zones c) 16 zones and d) 64 zones.

3.3.2

Histogram Projections

These features are derived from histograms of horizontal and vertical projections of black pixels in some particular areas of the character. They are extracted from the normalized image of the character so as to obtain normalized histograms of black pixels both on the X-axis as well as on the Y-axis. In order to locate the larger strokes of the character, relative maxima of the histograms could have been extracted. However, extracting maxima from histograms is quite difficult when the number of maxima is not known a priori. One way to tackle this problem is to derive the cumulative histogram of the original one, assuming that each important gap on the Y-axis of the cumulative histogram corresponds to a relative maximum on the Y-axis of the original histogram. Yet, when there is a gap on the Y-axis of the cumulative histogram, the corresponding abscissas are closer than in the case of a slow variation on the Y-axis. Therefore, dividing the Y-axis in enough equal parts and storing as features the corresponding abscissas allows to get information about the location of some structural properties of the character like its larger strokes [10].

The feature extraction principle is illustrated on a basic example in Figure 3 and 4. In the present case, dividing the Y-axis in 11 parts – 10 abscissas are thus retained as features from each cumulative histogram – has been found experimentally to provide the most precise description of the characters [10].

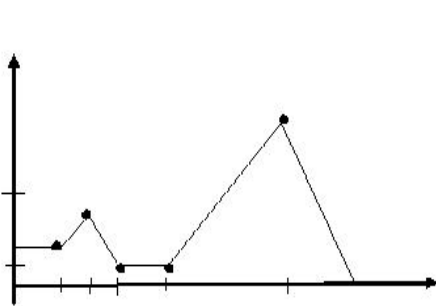


Fig. 3 : An original histogram of projection

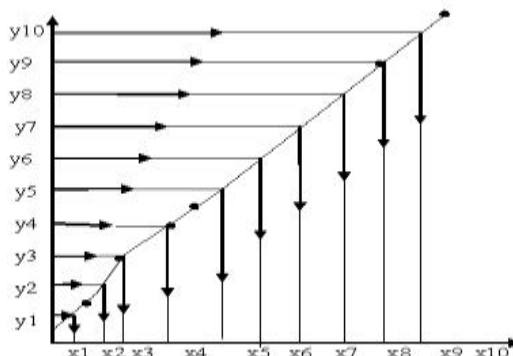


Fig. 4 : The Cumulative Histogram

3.3.3 Crossing and Distances

It refers to the number of crossings of a contour by a line segment in a specified direction. Distance of line segment from a given boundary can be used as one of the features. A horizontal threshold can be established above, below and through the centre of the script. The feature value is the count, the number of times the script crosses the threshold [11]

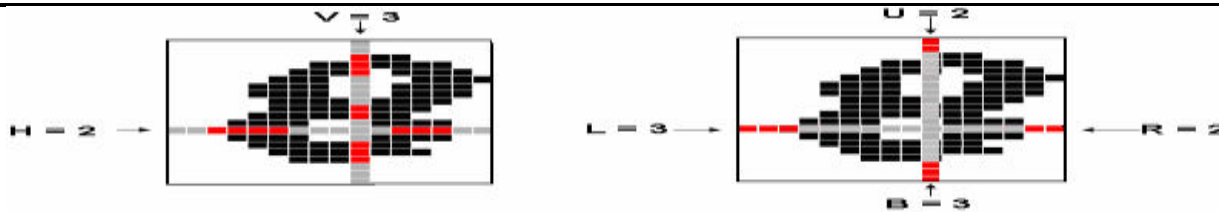


Fig. 5 : Example showing Crossing and Distance

3.3.4 Moments

The moment invariant is an appropriate measure for tracing the noise free image pattern. The features that are invariant to scaling, translation and rotation transformation of a character are useful in order to recognize many variations of the same character. Invariance means that visual properties stay consistent under specific transformations. Rotation invariant should be used to distinguish between such characters as 'u' and 'n'. Size invariant should be used to distinguish between such characters as '0' and 'o' [12]. A set of seven 2-D 72 moment invariant features are insensitive to translation, scale change, mirroring, and rotation. These can be derived from seven equations. It computes the moment invariants of an image and obtained seven-element row vector. Using these features a high degree of invariance is achieved. Hu's Seven Moment Invariants are invariant under translation, changes in scale, and also rotation. So it describes an image irrespective of its location, size, and rotation. The 2-D moment of order $(s + t)$ of a digital image $f(x, y)$ of size $m \times n$ is define as follows.

$$m_{st} = \sum_{x=0}^{m-1} \sum_{y=0}^{n-1} x^s y^t f(x, y) \quad \text{where } s=0,1,2,\dots \text{ and } t=0,1,2,\dots \text{ are integers.}$$

The corresponding central moment of order $(s + t)$ is define as follows.

$$H_{st} = \sum_{x=0}^{m-1} \sum_{y=0}^{n-1} (x - x^-)^s (y - y^-)^t f(x, y) \quad \text{where } s=0,1,2,\dots \text{ and } t=0,1,2,\dots$$

$$\text{Where } x^- = m_{10} / m_{00} \quad y^- = m_{01} / m_{00}$$

The moments that are computed with their centroid being about the origin are called central moments, denoted by μ_{st} .

The normalized central moment of order $(s + t)$ is define as follow.

$$\eta_{st} = \mu_{st}^\gamma \quad \text{where } \gamma = (s + t) / 2 + 1$$

The set of seven moment invariants are derived from these equations, as follows:

$$\Phi 1 = \eta_{20} + \eta_{02}$$

$$\Phi 2 = (\eta_{20} - \eta_{02})^2 + 4 \eta_{11}^2$$

$$\Phi 3 = (\eta_{30} - 3\eta_{12})^2 + (3\eta_{21} - \eta_{03})^2$$

$$\Phi 4 = (\eta_{30} + \eta_{12})^2 + (\eta_{21} + \eta_{03})^2$$

$$\Phi 5 = (\eta_{30} - 3\eta_{12})(\eta_{30} + \eta_{12})[(\eta_{30} + \eta_{12})^2 - 3(\eta_{21} + \eta_{03})^2] + (3\eta_{21} - \eta_{03})(\eta_{21} + \eta_{03})[3(\eta_{30} + \eta_{12})^2 - (\eta_{21} + \eta_{03})^2]$$

$$\Phi 6 = (\eta_{20} - \eta_{02})[(\eta_{30} + \eta_{12})^2 - (\eta_{21} + \eta_{03})^2] + 4\eta_{11}(\eta_{30} + \eta_{12})(\eta_{21} + \eta_{03})$$

$$\Phi 7 = (3\eta_{21} - \eta_{03})(\eta_{30} + \eta_{12})[(\eta_{30} + \eta_{12})^2 - 3(\eta_{21} + \eta_{03})^2] + (3\eta_{21} - \eta_{03})(\eta_{21} + \eta_{03})[(\eta_{30} + \eta_{12})^2 - (\eta_{21} + \eta_{03})^2]$$

The seven features of moment invariant are extracted from an image. The value of moments are usually small, so to reducing their dynamic range, \log_{10} transformation is used and sign of original value is also preserve to detect if an image has been mirrored. Figure 6 shows the seven features were extracted from the handwritten characters. Three same characters with different scale, orientation, and transformation, give almost same moment features. Figure 7 shows the features extracted from the printed characters. Examples of same character with different sizes computed almost same moment features. From the experiment it was cleared that Hu's moments features were invariant with scale in printed characters and invariant in rotation for handwritten characters [12].

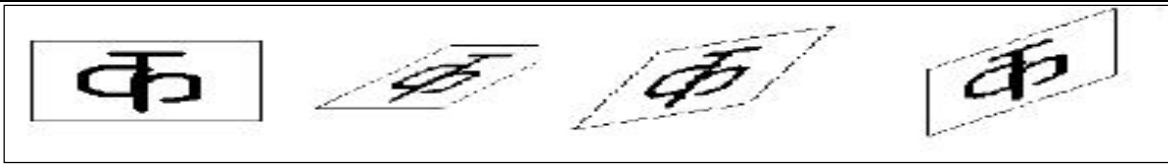


Fig.6 : Moment Invariant features for handwritten characters



Fig. 7 : Moment invariant features for printed characters

3.3.5 Zernike Moments

Moment functions are defined on images as the weighted sums of the image intensity function. Moment functions of order $(p + q)$ are generally defined as

$$\Phi_{pq} = \int_x \int_y \Psi_{pq}(x, y) f(x, y) dx dy, \quad (1)$$

Where $\Psi_{pq}(x, y)$ is called the moment weighting kernel.

When applying moment functions to digital images it is often desirable to write them out using the following discrete notation:

$$\Phi_{pq} = \sum_x \sum_y \Psi_{pq}(x, y) f(x, y) \quad (2)$$

Some properties of the weighting kernel are passed onto the moments themselves, such as invariance features, and orthogonal. Depending on the function chosen for the weighting kernel, the calculated moments can capture different aspects of the input image [13].

Zernike moments are a class of orthogonal moments and have been shown effective in terms of image representation. The orthogonal property of Zernike polynomials enables the contribution of each moment to be unique and independent of information in an image. A Zernike moment does the mapping of an image onto a set of complex Zernike polynomials. Zernike Moments are defined over the unit disk instead of the real plane and exhibit the orthogonal property. Zernike polynomials are mainly used in optometric, where they arise as the expansion of a wave front function in optical systems with circular pupils [14]. Zernike introduced a set of complex polynomials which form a complete orthogonal set over the interior of the unit circle, i.e., $x^2 + y^2 = 1$. Let the set of these polynomials be denoted

by. $\{V_{nm}(x, y)\}$ The form of these polynomials is:

$$V_{nm}(x, y) = V_{nm}(\rho, \theta) = R_{nm}(\rho) \exp(jm\theta) \quad (3)$$

$R_{nm}(\rho)$ Radial Polynomial defined as

$$R_{nm}(\rho) = \sum_{s=0}^{n-|m|/2} (-1)^s \frac{(n-s)!}{s! \left(\frac{n+|m|}{2}-s\right)! \left(\frac{n-|m|}{2}-s\right)!} \rho^{n-2s} \quad (4)$$

Note that

$$R_{n,-m}(\rho) = R_{nm}(\rho).$$

These polynomials are orthogonal and satisfy

$$\iint_{x^2 + y^2 \leq 1} [v_{nm}(x, y)] [v_{pq}(x, y)] dx dy = \frac{\pi}{n+1} \delta_{np} \delta_{mq}.$$

With

$$\delta_{ab} = \begin{cases} 1 & a = b \\ 0 & \text{otherwise} \end{cases} \quad (5)$$

Zernike moments are the projection of the image function onto these orthogonal basis functions. The Zernike moment of order n with repetition m for a continuous image function $f(x, y)$ that vanishes outside the unit circle is

$$A_{nm} = \frac{n+1}{\pi} \iint_{x^2 + y^2 \leq 1} f(x, y) V_{nm}^*(\rho, \theta) dx dy \quad (6)$$

For a digital image, the integrals are replaced by summations to get.

$$A_{nm} = \frac{n+1}{\pi} \sum_x \sum_y f(x, y) V_{nm}^*(\rho, \theta), x^2 + y^2 \leq 1 \quad (7)$$

To compute the Zernike moments of a given image, the center of the image is taken as the origin and pixel coordinates are mapped to the range of unit circle, i.e. $x^2 + y^2 \leq 1$. Those pixels falling outside the unit circle are not used in the computation. Therefore $|A_{nm}|$ can be used as a rotation invariant feature of the image function. Since $A_{n,-m} = A_{nm}$, and therefore $|A_{n,-m} = A_{nm}|$, we can use only $|A_{nm}|$ for features [15].

Moment based features are extracted from the each zone of the scaled character bitmapped image. The image is partitioned into zone and features are extracted from each zone. In this paper Zernike moments based feature extraction is proposed for off-line Devnagari Handwritten Basic and Compound Character. The image can be partitioned in various ways and it is given in figure 8 [16].

Feature set i : Figure 8 (i) is considered as a whole character image.

Feature set ii : Figure 8 (ii) shows the image divided into four equal zones.

Feature set iii : Figure 8 (iii) shows the image divided into three vertical equal zones.

Feature set iv : Figure 8 (iv) shows the image divided into three horizontal equal zones.

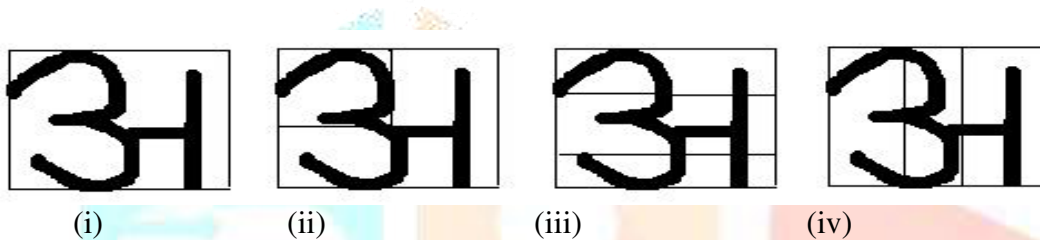


Fig. 8. Partition of Devanagari Character into feature set

3.3.6 Profiling: Distance Profile Feature

The profile based features are partly inspired by (Shridhar and Badreldin, 1984), in this technique, profile computes the distance (pixels) from bounding box of character image to outer image of character. The distance is traced horizontal and vertical. Author used four profiles of the character which are left, right, bottom and top. Left profiles are computed by traversing horizontally in forward direction and right profiles are computed by traversing backward direction. Similarly, top and bottom profiles are computed. Features derived from profiles of the character [17]. The four profiles are shown in figure 9.

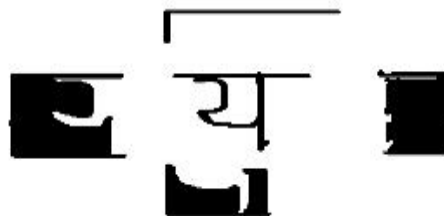


Fig.9. Shows the distance profile features

5. Earlier Work

Feature extraction methods can satisfy this requirement based on specific recognition problem and the input data for recognition. Different feature extraction methods are used according to the suitable domain. A survey of various feature extraction techniques is given in [12, 18]. In [19], Raghuraj et al, presented a scheme to develop complete OCR for five different fonts and sizes of Devanagari characters. Authors used three statistical features: mean distance, histogram of projection based on the spatial position of pixels and the histogram of projection based on pixel value. They used artificial neural network (ANN) approach for classification. Holambe et al [20] presented a review of feature extraction and selection methods for recognition of numerals and characters of the Devanagari script. They used Zernike moment for feature extraction and - KNN classifier based on Euclidean distance. They computed the accuracy recognition rate for vowels, consonants without modifiers as 98%. Yadav et al [21], proposed an OCR system for printed Hindi recognition, using ANN. They used projection profiles for segmentation and histograms of projection based on mean distance, histogram of projection based on

pixel value, vertical zero crossing for feature extraction and back-propagation neural network with two hidden layers for classification. They achieved a recognition rate of about 90.0%. Sethi and Chatterjee [22] proposed a decision tree based approach for recognition of constrained hand printed Devnagari characters using primitive features. In [23], R. Jayadevan et al. encompassed the comparative study of different feature extraction methods proposed by various researchers. They also have discussed some statistical feature extraction methods for recognition of printed Devanagari characters which are summarized in the following table 2 :

Table 2 : Accuracy of Devanagari Printed characters Recognition

Sr.No.	Method proposed by	Type of Feature	Classifier	Data set (size)	Accuracy in %
1	Jayanthi et al. [25]	Statistical	Binary Tree	4863 characters	95.08
2	Choudhuri et al. [26]	Statistical	Tree classifier & template matching	10000 characters	95.42
3	U.Pal et al. [24]	Statistical	Tree classifier and template matching	Unspecified	83.67
4	Divakar et al. [27]	Mean distance, Pixel value and vertical zero crossing	Neural Network	1000 characters	98.5
5	Holambe et al [20]	Zernike moment	KNN classifier based on Euclidean distance	Unspecified	98
6	Divakar et al [27]	Histogram of projection based on mean distance and pixel value , vertical zero crossing	Back-propagation neural network with two hidden layers	650 : word level	90

6. Conclusion:

The analytical study of the methods mentioned in Table 2 concludes the statistical methods used for feature extraction such as: zoning, histogram projections, profiles, crossing and distances, moment invariants, standard deviation, density and mean and feature classification techniques such as SVM, Template matching, Binary tree and Neural Network (KNN) are used for recognition of character. The devanagari CAPTCHA script characters are generally presented with different dimension and size, slanted or rotated to left or right direction, distorted by addition of noises. The statistical feature extraction methods such as Moment invariant and Zernike moments are mostly used to extract the features of characters which are slanted or rotated and dimensioned with varied size. These features can be easily detected as compared to structural features. Statistical features are less affected by noise or distortions as compared to structural features. They are also used to reduce the dimension of the future set. These features can be easily obtained as compared to topological or structural features.

From the above table the accuracy of Devanagari printed characters is 98.5% for Neural Network. The accuracy depends on the features extracted from the image database. In this study, it is found that the use of statistical methods for feature extraction and Neural Network classifier gives better result.

The study shows that the accuracy of recognition of character depends on selection of features and proper classifier. The different statistical feature extraction techniques discussed in this paper are very effective and useful for new researchers. Still the work is going on to improve the accuracy of the above techniques.

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महाराष्ट्रातील औद्योगिक क्षेत्रातील प्रादेशिक असमतोल

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8

RESEARCH PAPER - ECONOMICS

प्रस्तावना:

प्रादेशिक असमतोल ही अतिशय व्यापक संकल्पना आहे, ज्याचा संबंध विषमता किंवा फरक यांच्याशी आहे. औद्योगिक क्षेत्रही याला अपवाद नाही. जगाच्या आरंभापासूनच हा असमतोल एक प्रमुख समस्या यास्वरूपात संपूर्ण जगासमोर उभा राहिला आहे. गरिबी, दारिद्र्य, बेरोजगारी, बेसुमार लोकसंख्या या विविध समस्या ज्यातून जन्म घेतात त्यांचे प्रमुख कारण म्हणजे प्रादेशिक असमतोल होय.

एकंदर अर्थव्यवस्थेचा विचार करता आपल्या डोळ्यासमोर असे चित्र उभे राहते की, देशातील जे विविध प्रदेश किंवा भाग आहेत, त्यापैकी काही प्रदेशाचा खुप जास्त विकास झाला आहे, तेथे मोठ्या प्रमाणावर औद्योगिक विकास झालेला दिसून येतो. आणि ज्या प्रदेशामध्ये औद्योगिक विकास झाला आहे तेथे शहरीकरण सोयी-सुविधा इ. मध्ये प्रचंड प्रमाणात वाढ झाली तर काही भाग बरेच मागासलेले व दुर्लक्षित आहेत, जेथे औद्योगिक विकासाचा गंधही नाही. जेथे अशी परिस्थिती निर्माण झाली कि तेथे प्रादेशिक असमतोल निर्माण होतो.

आज भारतात प्रादेशिक असमतोलाच्या प्रश्नाने उग्र रूप धारण केले आहे. प्रगत राज्याच्या व प्रदेशाच्या तुलनेने भारतातील अनेक राज्यांचे व प्रदेशांचे मागासलेपणामुळे मागास राज्यातील व प्रदेशातील लोकांमध्ये असंतोषाची लाट पसरलेली दिसून येते. यातूनच वेगळ्या राज्यांच्या मागण्या

होतांना दिसून येतात.

महाराष्ट्रातील औद्योगिक असमतोल व कारखान्यांची संख्या
१ मे १९६० रोजी स्वातंत्र्यमिळाल्या पासूनच महाराष्ट्राने औद्योगिक विकास साध्य करण्याच्या उद्दीष्टांवर मार्गक्रमण सुरु केलेले आढळून येते. महाराष्ट्रातील चालू कारखान्यांची माहिती देणारा तक्ता पुढीलप्रमाणे-

तक्ता क्र. १ महाराष्ट्रातील चालू कारखान्यांची व रोजगारांची संख्या

अ. क्र.	वर्ष	कारखान्यांची संख्या	रोजगारांची संख्या
१	१९६१	८२३३	७८७
२	१९७१	१०२४१	९९८
३	१९८१	१६५९४	११९२
४	१९९१	२४११९	१२०१
५	२००१	२८३२४	१२८१
६	२००३	२९०५९	११६९
७	२००६	३०६९७	१३९२
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१०	२०१०	३४८८८	१६४७
११	२०११	३५९४८	१८५०

(स्रोत- औद्योगिक संख्या संघनालस, (२०१२) महाराष्ट्रशासन, मुंबई.)

वरील तक्त्यात महाराष्ट्रातील चालू कारखान्यांची व रोजगारांची संख्या अभ्यासली आहे. या अध्ययनावरून स्पष्ट होत की, १ मे १९६१ मध्ये महाराष्ट्राची चालू कारखान्यांची संख्या ८२३३ होती तर रोजगार ७८७ हजार होता. ती २०११ मध्ये (५० वर्षांच्या कालावधीत) ३५९४८ तर रोजगार १८५० हजारपर्यंत वाढली ह्या वाढीवरच महाराष्ट्रात औद्योगिक विकास सातत्याने होत असल्याचे निर्देशनास येते.

विभागीय औद्योगिक अनुशेष :

महाराष्ट्र राज्य शासनाने १९६० पासून विभागीय समतोल औद्योगिक विकासासाठी आपल्या धोरणांची रचना अशारितीने केली की, जेणेकरून पूर्णे, मुंबई, पारिसरात केंद्रित झालेले उद्योग राज्याच्या अविकसित विभागामध्ये जावेत. याकरिता शासनाने काही विशेष सवलती उद्योजकांना दिल्यात. शिवाय औद्योगिक विकास साधण्यासाठी त्या स्वरूपाच्या संस्थांची उभारणी देखील केली. यामध्ये प्रामुख्याने महाराष्ट्र औद्योगिक विकास महामंडळ, महाराष्ट्र राज्य वित्तीय महामंडळ, महाराष्ट्र राज्य लघुउद्योग विकास महामंडळे जसे, विदर्भ विकास महामंडळ शिवाय उद्योजकांच्या विविध संघटनांची निर्माती देखील झाली या सर्व संस्थांच्या निर्मातीमधून औद्योगिक विकासासाठी गती निश्चितपणे मिळाली. राज्याच्या औद्योगिक विकासात वाढ देखील झाली. परंतु विदर्भासारखे प्रदेश जे अविकसित होते, ते ह्या प्रयत्नानंतर देखील अविकसितच राहिले. असा निष्कर्ष महाराष्ट्र शासनाने डॉ. वि.म. दांडेकर यांच्या अध्यक्षतेखाली नेमलेल्या सत्यशोधन समितीने पुढील सांख्यिकीयवरून काढला आहे.

१) महाराष्ट्र औद्योगिक विकास महामंडळ उद्योजकांना स्वस्त दराने भुखंड आणि गाळे व उद्योगासाठी लागणाऱ्या अनुषांगिक सुविधा व इतर सोयी उपलब्ध करून देते. महामंडळाने पाडलेल्या भुखंडांपैकी वाटप झालेल्या जागांचे प्रतिशत प्रमाण ३१ मार्च १९८३ रोजी पुढीलप्रमाणे होते. मुंबई महानगर प्रदेश ७७.६३, पश्चिम महाराष्ट्र मुंबई महानगर प्रदेश वगळून ८९.८३, कोकण ८३.६६, मराठवाडा ८१.२४ आणि विदर्भ केवळ ७५.५० प्रतिशत होते. सध्यास्थितीमध्ये (२०११-२०१२) वरील प्रमाणे मिळते. मुंबई महानगरामध्ये ३६८ भुखंडांपैकी ३६५ भुखंडाचे वितरण झालेले दिसून येते. म्हणजेच (९९.२%) भुखंडाचे वितरण झालेले आहे पश्चिम महाराष्ट्रामध्ये हेच प्रमाण १७७७६ भुखंडांपैकी १५९१७ म्हणजे ९१.१% चे वितरण झालेले आहे. विदर्भाचा विचार करता ७७७७ भुखंडांपैकी ३५२६ म्हणजेच ७४.३% भुखंडाचे वितरण झालेले दिसून येते. म्हणजेच अजूनही भुखंडाच्या वाटपाबाबत विषमता निर्दर्शनात येते.

२) १९७४ ते १९८३ ह्या कालावधीत महामंडळाने केलेल्या विभागवार खर्चाकडे लक्ष दिल्यास, १९८३ अखेरपर्यंत १५०.२८ कोटी खर्च केला गेला. १९७४ पर्यंत खर्च करण्यात आलेल्या ३७.६२ कोटी रूपयांपैकी ७२.०२ प्रतिशत राशी केवळ मुंबई महानगर प्रदेशामध्येच खर्ची पडली मात्र १९८३ अखेरपर्यंत महामंडळाने कोकण विभागवार रु. ३५.०२ कोटी, पश्चिम महाराष्ट्रावर रु.३०.४४ कोटी, मराठवाडाव्यार ७.२१ कोटी आणि विदर्भाच्या बाबतीत हा

खर्च केवल १.८७ कोटी होता. ह्या खर्चाचे प्रत्यक्षित प्रमाण कोकण विभागबाबत मुंबई महानगर प्रदेश वगळता रु. ५०.३९, पश्चिम महाराष्ट्रात रु. १२.९४, मराठवाड्यात रु. ७.४१ तर विदर्भात सर्वात कमी म्हणजे केवळ रु. ६.९५ एवढेच होत.

महाराष्ट्र औद्योगिक विकास महामंडळाने केलेल्या सध्यास्थितीतील विभागवार खर्चाचा विचार करता २०१२ पर्यंत ८९६९४ रु. कोटी खर्च केला गेला असून विभागवार खर्चाचा विचार करता पश्चिम महाराष्ट्रातील एकूण खर्च ३८७७१ कोटी असून तो एकूण खर्चाच्या ४३.२३% झालेले आढळते. तर पश्चिम विदर्भामध्ये हेच खर्चाचे प्रमाण ३०७९ कोटी रु. असून तो एकूण खर्चाच्या केवळ ३.४३% करण्यात आला.

- 3) महामंडळाच्या औद्योगिक वसाहतीमध्ये प्रत्यक्षित व प्रतिकामगार झालेली गुंतवणूक १९७४ ते १९८३ ह्या काळात मुंबई वगळता कोकणात प्रत्यक्षित रु. २६६ तर प्रतिकामगार रु. १.३४ लाख गुंतवणूक झाली. पश्चिम महाराष्ट्राबाबत ही आकडेवारी अनुक्रमे रु. २५५ व रु. ८८७४८ होती. मराठवाड्यामध्ये प्रमाण रु.१०५ व रु. ७०९६२ असून विदर्भाच्या बाबतीत सर्वात कमी रु. ४१ व रु. ४४४०८ होती. मार्च १९८३ पर्यंत महामंडळाच्या औद्योगिक वसाहतीमध्ये दर एक लाख लोकसंख्येच्या मागे कामगारांचे प्रमाण वृहन्मुंबईत १२४३, कोकण २१३, पश्चिम महाराष्ट्र ३३५ मराठवाडा २०३ व विदर्भात केवळ १०९ होते.
- ४) महाराष्ट्रातील औद्योगिक वसाहतीची सध्यास्थिती अग्रासता रोजगाराच्या बाबतीत अनुकरण झालेले आढळून येत नाही. महाराष्ट्रातील (१,३७,०८२) रोजगारापैकी पश्चिम महाराष्ट्रात ५७१५० (४१.६९%) आणि विदर्भात केवळ ६७७ म्हणजेच (०.४९%) रोजगार प्राप्त झालेला आढळून येतो.
- ५) औद्योगिक रोजगाराबाबत देखील कोकण व पश्चिम महाराष्ट्राच्या तुलनेत विदर्भ अती मागासलेला दिसतो. राज्यातील एकूण रोजगाराशी प्रत्येक विभागातील रोजगाराचे प्रतिशत प्रमाण असे होते, कोकण विभाग वृहन्मुंबई वगळता १२.५४ प्रतिशत, पश्चिम महाराष्ट्र २५.३२ प्रतिशत, मराठवाडा ३.४९ प्रतिशत आणि विदर्भात कोकण, पश्चिम महाराष्ट्र व मुंबई ह्यांचेपेक्षा बऱ्याच प्रमाणात कमी म्हणजे ८ प्रतिशत होते तर मुंबईमध्ये मात्र ५०.६५ प्रतिशत होते.
- ६) महाराष्ट्रातील सद्यस्थितीतील (२०११-१२) सुक्ष्म, लघु, मध्यम आणि मोठ्या उपक्रमात निर्माण रोजगाराचा विचार करता सुक्ष्म, लघु व मध्यम उद्योगातील एकूण रोजगार हा २०.९७ लाख असून यापैकी पश्चिम महाराष्ट्रातील रोजगार हा ७.८६ लाख म्हणजेच ३७.७



टक्के तर पश्चिम विदर्भात हा रोजगार ०.८९ लाख म्हणजेच ४.३ प्रतिशत इतका कमी आहे.

- ७) मोठ्या उपक्रमात निर्माण होणाऱ्या रोजगाराबाबत सुध्दा अशीच परिस्थिती पहावयास मिळते. महाराष्ट्र राज्या सद्यस्थितीत निर्माण रोजगार हा ११.२५ लाख असून यापैकी सर्वाधिक रोजगार पश्चिम महाराष्ट्रात निर्माण झाला असून तो एकूण रोजगाराच्या ४.०७ लाख म्हणजेच ३६.२ प्रतिशत होता, तर सर्वात कमी रोजगार हा पश्चिम विदर्भात निर्माण झाला असून तो ०.३२ लाख म्हणजेच २.८ प्रतिशत होता.
 - ८) महाराष्ट्र शासनाने अधिक गुंतवणूक आकर्षित करण्यासाठी व देशाच्या औद्योगिक क्षेत्रातील आपले स्थान कायम ठेवण्यासाठी केंद्र शासनाच्या धोरणास अनुसरून महाराष्ट्र शासनानेही पावले उचचली आहेत. याचाच एक भाग म्हणून सन १९९१ मध्ये नवीन आर्थिक धोरणाचा पुरस्कार केल्या नंतर महाराष्ट्र शासनाने नवीन आर्थिक बदल म्हणजे विशेष आर्थिक क्षेत्र (SEZ) च्या रुपात सन २००७ मध्ये महाराष्ट्रामध्ये स्वीकारण्यात आला. या धोरणामध्ये सुध्दा प्रादेशिक विषमता दिसून आलेली आहे.
 - ९) राज्यातील विशेष आर्थिक क्षेत्राची संख्या अग्रासता ही संख्या २००७ अखेर १४४ लाख होती, यापैकी पश्चिम महाराष्ट्रात ४२ म्हणजेच एकूणाच्या ३४.४३ प्रतिशत तर विदर्भात केवळ ९ लाख म्हणजेच एकूणाच्या ७.३८ प्रतिशत होती.
 - १०) विशेष आर्थिक क्षेत्राचे हेक्टरी प्रमाण अग्रासता महाराष्ट्रात हे क्षेत्र ४९,८८० हेक्टर होते, त्यापैकी पश्चिम महाराष्ट्रात १०२२८ हेक्टर म्हणजेच एकूणाच्या २०.५१ प्रतिशत तर विदर्भात ६००४ हेक्टर १२.०३ प्रतिशत होते.
 - ११) विशेष आर्थिक क्षेत्रातील गुंतवणूकीचा विचार करता महाराष्ट्र राज्याकरीता झालेली गुंतवणूक ही १,३२,५७८ कोटी रुपये होती, यापैकी पश्चिम महाराष्ट्रात २२.६०७ म्हणजेच एकूणाच्या १७.०५ प्रतिशत तर विदर्भातील गुंतवणूक ही १०४०९ म्हणजेच ७.८५ प्रतिशत झालेली आढळते.
 - १२) विशेष आर्थिक क्षेत्रात निर्माण होणारा रोजगार विचारात घेता, महाराष्ट्रातील एकूण रोजगार हा ५३.४८ लाख होता यापैकी पश्चिम महाराष्ट्रात १०.७३ म्हणजेच एकूणाच्या २०.०६ प्रतिशत तर विदर्भात ५.८४ प्रतिशत म्हणजेच एकूणाच्या १०.९१ प्रतिशत रोजगार निर्माण झालेला आढळतो.
- यावरून स्पष्ट होते की, मुंबई, कोकण, नाशिक, औरंगाबाद विभागापेक्षा पश्चिम विदर्भ



आणि पश्चिम महाराष्ट्रातील रोजगार वाढविणाऱ्या भर द्यावा ही दांडेकरांनी सुचविलेली शिफारस पश्चिम महाराष्ट्राच्या बाबत जरी लागू झाली असली तरी पश्चिम विदर्भाच्या बाबतीत मात्र त्यात म्हणावी तशी वाढ झालेली दिसून येत नाही. म्हणजेच एकंदरीत दांडेकरांनी सुचविलेल्या अविकसित भागाच्या विकासासाठी आवश्यक ८५ टक्क्यांच्या तरतुदीपेक्षा कमीच होते.

संदर्भ सूची :-

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ज्योतीचंद्र पब्लिकेशन, लातूर.

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वैशिष्ट्ये :-

- १) विद्यार्थी, संशोधक, प्राध्यापक व इतर लेखकांचे पुस्तक 'ना नफा ना तोटा' या तत्त्वावर ISBN नंबर नुसार प्रकाशित करणे.
- २) संशोधक, प्राध्यापक यांच्या M.Phil, Ph.D. संशोधनात्मक पुस्तकांना विशेष प्राधान्य.
- ३) यु.जी.सी. च्या नवीन मार्गदर्शक तत्त्वानुसार उच्च शिक्षणामध्ये कार्यरत संशोधनार्थी व प्राध्यापक यांना आपले पुस्तक ISBN नुसारच प्रकाशित करणे आवश्यक आहे. तरी, संशोधनार्थी व प्राध्यापक यांनी आपले मौलिक साहित्य ISBN नुसार प्रकाशित करून घ्यावे, ही विनंती.

- संपर्कासाठी पत्ता -

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ज्योतीचंद्र पब्लिकेशन

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स्वस्थ प्रशासन आणि नियोजन काळातील आरोग्याचा विकास

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Research Paper - Economics

6

प्रस्तावना

भारत हा खेड्यांचा देश आहे. एकूण लोकसंख्येच्या जवळपास ७० टक्के लोकसंख्या ग्रामीण भागात निवास करते. आज एका बाजूने शहरांचा तीव्र गतीने विकास होत आहे तर दुसरीकडे ग्रामीण भागात गरीबी, निरक्षरता, बेरोजगारी, आरोग्य सुविधांचा अभाव, कुपोषण, सुरक्षित आणि पर्याप्त शुध्द पिण्याच्या पाण्याचा अभाव इत्यादी समस्या विक्राळ रूप धारण करीत आहेत. देशातील ग्रामीण भागामध्ये निर्माण झालेली आरोग्य समस्या ही तेथील सामाजिक, आर्थिक तसेच अन्य परिस्थिती यामुळे वाढत जातांना दिसत आहे. ग्रामीण भागातील आरोग्य विषयक समस्या सोडविण्यासाठी केंद्र आणि राज्य शासन अनेक प्रकारचे कार्यक्रम राबवित आहे. परंतु स्वास्थ किंवा आरोग्य वर्धक कार्यक्रमांना लागू करण्याच्या निती आणि धोरणाच्या आधारे असे लक्षात आले की, या कार्यक्रमांना प्रभावी करण्यासाठी पर्याप्त तांत्रिक प्रगतीची आवश्यकता आहे. आरोग्य मानवी जीवनाची एक मूल्यविहीन संपत्ती आहे. कोणत्याही देशाच्या आर्थिक प्रगतीसाठी आरोग्य हा महत्त्वाचा निर्देशक घटक समजला जातो. कोणतीही व्यक्ती किंवा समाज आरोग्याच्या दृष्टीने मागासलेला असेल तर तो विकासाच्या आणि प्रभावी जीवनमूल्याच्या शर्यतीत सुद्धा मागे पडेल. योग्य आरोग्याच्या अभावी व्यक्ती आणि व्यक्तिद्वारे निर्मित समाज आपल्या गुणांच्या अनुरूप आणि सर्वश्रेष्ठ प्रदर्शन करण्यास असमर्थ ठरतो. मानवी जीवनात आरोग्याच्या या महत्त्वाला स्विकारत आरोग्य हा विषय राज्य सूचीमध्ये समाविष्ट करण्यात आला आहे. कारण, राज्य हे सामान्य मानवाशी संबंधीत असल्याने केंद्राच्या तुलनेत जास्त प्रभावी होऊ शकते. तेव्हा राज्य शासनाने हे दायित्व आहे की, सर्व आरोग्य सुविधा या प्रत्येक व्यक्तिपर्यंत पोहचू शकतील तसेच कोणत्याही व्यक्तीला केवळ त्याच्या आर्थिक स्थितीमुळे आरोग्य सुविधांपासून वंचित ठेवता कामा नये.



स्वातंत्र्यापूर्वी देशातील ग्रामीण क्षेत्रामध्ये प्रतीवर्ष संक्रामक रोगांनी जवळपास १३ लाख लोक ग्रस्त होत असत. स्वातंत्र्यानंतर भारतातील ग्रामीण भागातील हे दृश्य मोठ्या प्रमाणात बदलले आहे. असे असले तरी या दिशेने आणखी प्रयत्न होणे आवश्यक आहे. ग्रामीण आरोग्य विकासामध्ये निरक्षरता आणि अंधश्रद्धा यामुळे अडथळे येत आहे. निरक्षरता आणि अंधश्रद्धेच्या विळख्यात सापडून सुद्धा ग्रामीण भागात अनेक मृत्यू घडून येतात. आधुनिक काळात ग्रामीण भागात साक्षरता वाढली असून लोक आरोग्याप्रती जागृकता वाढली असली तरी अदिवासी समुदाय, गलिच्छ वस्त्यांमधील वाढती संख्या यामुळे ग्रामीण आरोग्य विषयक समस्या संपल्या असे नाही. असे असले तरी सरकारी योजनांचा सकारात्मक प्रभाव मात्र पडतांना दिसत आहे.

देशातील लोकसंख्येच्या पर्याप्त आरोग्य अभावी देशाचा आर्थिक आणि औद्योगिक विकास होऊ शकत नाही. लोकसंख्येतील उत्तम आरोग्याचा अभाव अनेक सामाजिक, आर्थिक, सांस्कृतिक आणि आध्यात्मिक समस्यांना जन्म देतो. म्हणून योग्य विकासासाठी उत्तम आरोग्य काळाची गरज आहे. म्हणून आधुनिक काळात विकासाची एक निती म्हणून स्वास्थ नितीकडे पाहिले जाते. म्हणून आरोग्य हा पंचवार्षिक योजनांचा एक प्रमुख भाग आहे.

स्वास्थ्य प्रशासनाचे उद्देश

1. जीवन प्रत्याक्षा वाढवून आरोग्य स्तर आणि सुविधा यात वाढ करणे.
2. लहान बालके, शिशु, अर्भक मृत्यूदरामध्ये घट करणे.
3. महिला, माता मृत्यूदराला घट करणे.
4. आरोग्य उपाय आणि औषधांच्या नवीन व्यवस्थांबद्दल जागृकता निर्माण करणे.
5. लोकांसाठी प्राथमिक आरोग्य सुविधा उपलब्ध करून देणे.
6. आरोग्य सुविधा प्रदान करण्यासाठी भर्ती, प्रशिक्षण आणि मानवी शक्तीचा विकास करणे.
7. आरोग्य सुविधांमध्ये वाढ करणारे जाळे निर्माण करणे.

स्वास्थ्य प्रशासनाचा विकास

स्वातंत्र्यपूर्व काळात भारतात आरोग्य सुविधांची स्थिती फारशी चांगली नसल्याकारणाने उपचाराच्या योग्य सुविधा नसल्यामुळे लोकांना विविध समस्यांचा सामना करावा लागत असे. म्हणून स्वातंत्र्य प्राप्तीनंतर आरोग्य वाढविण्याच्या दिशेने प्रयत्न सुरु झाले. केंद्र तसेच राज्य सरकार यांनी अनेक योजनांच्या माध्यमातून आरोग्य सेवांमध्ये वाढ करण्यासाठी तसेच आरोग्य संवर्धन करण्यासाठी प्रयत्न सुरु झाले आहेत. असे असले तरी या दिशेने अनेक प्रयत्न करणे गरजेचे आणि आवश्यक आहे. शासकीय प्रयत्नांच्या श्रृंखलेतील चिकित्सा सुविधा उपलब्ध करून देण्याचा पहिला प्रयत्न हा इंग्रजी शासनव्यवस्थेत झाला. १९४० मध्ये राष्ट्रीय काँग्रेसच्या छोखे उपसमितीड ने एक हजार लोकसंख्येमागे एक प्रशिक्षित सामुदायिक कार्यकर्ता नियुक्त करण्यात यावा ही शिफारस

केली होती परंतु याकडे ब्रिटीश शासन व्यवस्थेकडून कोणतेही लक्ष देण्यात आले नाही. यानंतर १९४६ मध्ये भूरे समितीची स्थापना करण्यात आली. या समितीने यथायोग्य आरोग्य सेवा संचालित करण्यासाठी इंग्रजी शासनाला एक उपाय सुचविला. स्वातंत्र्यापूर्वी आरोग्याकडे लक्ष देण्याच्या दृष्टीने हे चांगले पाऊल समजण्यात आले. परंतु तत्कालिन शासनाने याकडे कोणतेही लक्ष दिले नाही.

१९४७ मध्ये देशाला स्वातंत्र्य प्राप्त झाले आणि स्वास्थ विकासाकडे लक्ष देण्यात आले किंबहुना आरोग्य विकासासाठी योजना तयार करण्यात आल्या. १९५२ मध्ये स्वास्थ मंत्रालयाने आरोग्याच्या विविध पैलूवर लक्ष केंद्रित करण्यास सुरुवात केली. प्रथम पंचवार्षिक योजना काळाच्या दरम्यान ग्रामीण भागात उघडण्यात आलेल्या प्राथमिक स्वास्थ केंद्रामध्ये अनेक दोष आढळून आले. त्यामुळे ग्रामीण आरोग्यात उल्लेखनीय सुधारणा घडवून आणणे शक्य झाले नाही. परंतु १९६२ मध्ये स्थापित मुदालिया समिती. १९६३ चट्टा समिती, मुखर्जी समिती-१९६५, जांगावाला समिती-१९६७, करतार सिंह समिती-१९७३, श्रीवास्तव समिती-१९७५ तसेच बजाज समिती-१९८७ इत्यादीच्या शिफारशीमुळे ग्रामीण क्षेत्रातील प्रत्येक जिल्ह्यात एक सामान्य रुग्णालय, खंड पातळीवर सामुदायिक स्वास्थ केंद्र, २५ हजार लोकसंख्येमागे आरोग्य केंद्र तसेच पाचहजार लोकसंख्येमागे एक उपकेंद्र कार्यरत आहे या समित्यांनी प्रत्येक जागी किमान दोन कार्यकर्ता पद स्थापित करण्याची शिफारस सुट्टा केली.

नियोजन काळातील आरोग्यविकास

२५ व्या शतकात सर्वांसाठी आरोग्य या जागतिक आरोग्य संघटनेच्या उद्दिष्टापर्यंत पोहचण्यासाठी आरोग्य मंत्रालयाने इ.स. २००२ मध्ये राष्ट्रीय आरोग्य धोरण जाहीर केले. या धोरणानुसार आरोग्याच्या एकूण गुंतवणुकीपैकी ५५ प्रतिशत प्राथमिक आरोग्य क्षेत्रावर व १० प्रतिशत तृतीय आरोग्य क्षेत्रावर खर्च करण्याचे ठरविण्यात आले. प्राथमिक आरोग्य क्षेत्रासाठी खर्च हा प्रामुख्याने सध्या अस्तित्वात असलेल्या सुविधांचे मजबुतीकरण व मोठ्या प्रमाणावर सार्वजनिक आरोग्य सेवांच्या उभारीकरणावर करण्यात येतो.

मार्च १९५० मध्ये भारत सरकारने नियोजन मंडळाची स्थापना केली. देशातील साधनसामग्रीचा कोशल्यान वापर करून लोकांच्या राहणीमानात सुधारणा करणे, देशाची उत्पादनक्षमता वाढविणे तसेच समाजाच्या संवसाठी रोजगाराच्या संधी उपलब्ध करून देणे नियोजन मंडळाचे मुख्य ध्येय होते. राष्ट्रीय विकासात आरोग्याचे महत्त्व अनन्य साधारण आहे. त्यामुळे नियोजन मंडळाने पंचवार्षिक योजनेत विविध आरोग्य कार्यक्रम समाविष्ट करण्यासाठी एक स्वतंत्र विभाग स्थापन केलेला असून केंद्र व राज्य सरकारच्या नियोजनात सुसवाद राखण्यासाठी १९६५ मध्ये केंद्रीय आरोग्य मंत्रालयाने नियोजन ब्युरोची खास स्थापना केली आहे नियोजनाच्या सुरक्षिततेसाठी आरोग्य विभागाचे सात

उपविभाग करण्यात आले आहेत. ते पुढीलप्रमाणे

1. पाणीपुरवठा व स्वच्छता
2. संसर्जन्य रोगांचे निवंत्रण
3. वैद्यकीय शिक्षण, प्रशिक्षण आणि सशोधन
4. इरिपतळे, दवाखाने आणि प्राथमिक आरोग्य केंद्र
5. सार्वजनिक आरोग्य सेवा
6. कुटुंबनियोजन
7. परंपरागत उपचार पध्दती, इत्यादी

भारताच्या पंचवार्षिक योजनांमध्ये वरील सर्व आरोग्य उपविभागांना योग्य ते महत्त्व देण्यात आले. भारतात राबवलेल्या पंचवार्षिक योजना कालावधीत आरोग्यावर करण्यात आलेली वार्षिक तरतूद अभ्यासणारा तक्ता पुढीलप्रमाणे

तक्ता क्र.१.१

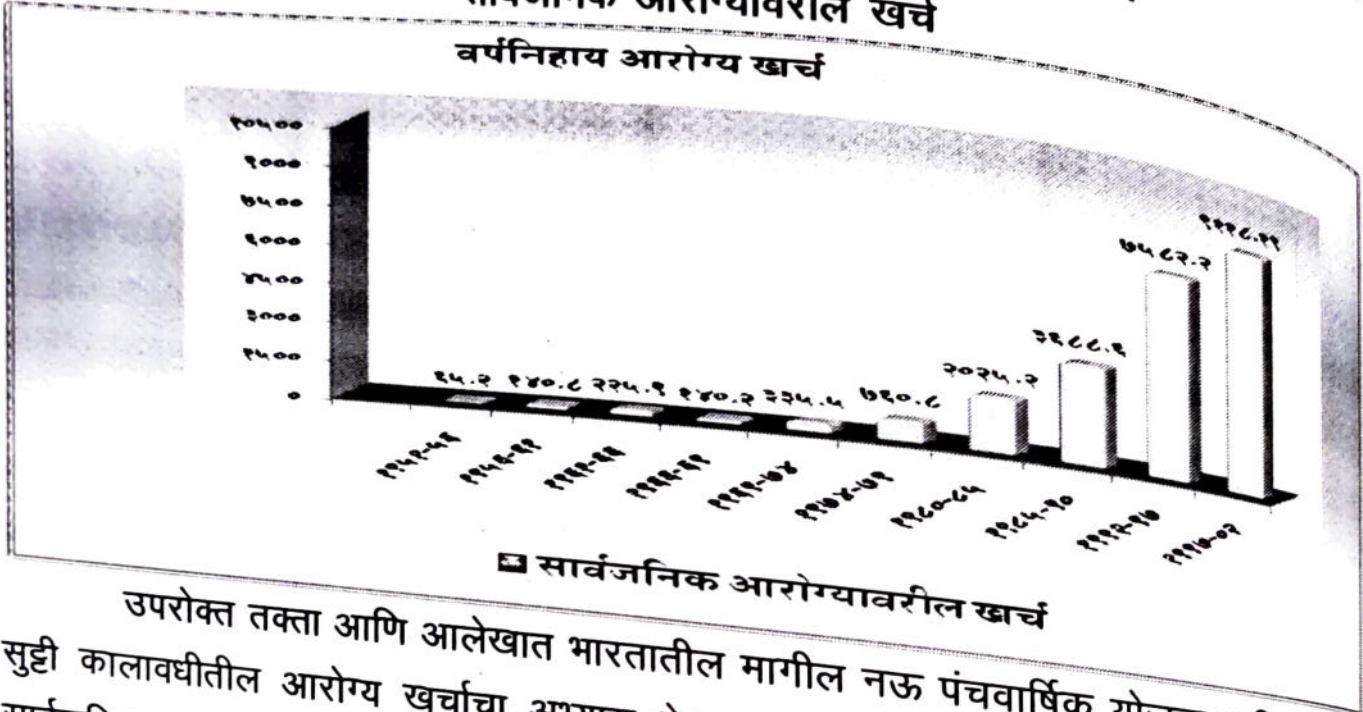
भारतातील मागील दहा पंचवार्षिक योजनाकालावधीतील सार्वजनिक आरोग्यावरील खर्च (१९५१ ते २००२)

अ.क्र.	योजना कालावधी	एकूण सार्वजनिक खर्च	सार्वजनिक आरोग्य खर्च	सार्वजनिक आरोग्य खर्चाचे एकूण खर्चाशी प्रमाण
१	१९५१-५६	१९६०.००	६५.२०	३.३३
२	१९५६-६१	४६७२.००	१४०.८०	३.०१
३	१९६१-६६	८५७६.५०	२२५.१०	२.६३
४	१९६६-६९	६६२५.४०	१४०.२०	२.१२
५	१९६९-७४	१५७७८.८०	३३५.५०	२.१३
६	१९७४-७९	३६४२६.२०	७६०.८०	२.०९
७	१९८०-८५	१०९२९१.७०	२०२५.२०	१.८५
८	१९८५-९०	२१८७२९.६०	३६८८.६	१.६९
९	१९९२-९७	४७४१२१.००	७५८२.२०	१.६०
१०	१९९७-०२	४८९३६१.००	९११८.१९	१.६६

रुपये कोटी

स्त्रोत: भारत सरकार, माहिती व जनसंपर्क मंत्रालय, नवी दिल्ली.

भारतातील मागील दहा पंचवार्षिक योजनाकालावधीतील
सार्वजनिक आरोग्यावरील खर्च
वर्षानिहाय आरोग्य खर्च



उपरोक्त तक्ता आणि आलेखात भारतातील मागील नऊ पंचवार्षिक योजना आणि योजनेच्या सुट्टी कालावधीतील आरोग्य खर्चाचा अभ्यास केला आहे. त्याचप्रमाणे योजना कालावधीत एकूण सार्वजनिक खर्चापैकी आरोग्य सेवांवर झालेल्या खर्चाचे प्रमाण अभ्यासले आहे. पहिल्या पंचवार्षिक योजनेत एकूण खर्चापैकी आरोग्यावर झालेला खर्च हा ६५.२० कोटी रुपये होता. परंतु एकूण सार्वजनिक खर्चातील सार्वजनिक आरोग्यावरील खर्चाचे प्रमाण अभ्यासात यात विरोधाभास पहायला मिळतो. पहिल्या पंचवार्षिक योजनाकाळात आरोग्यावरील खर्चाचे एकूण खर्चाशी असणारे प्रमाण ३.३३ टक्के होते. हे प्रमाण प्रत्येक योजनाकाळात कमी होत जाऊन नवव्या पंचवार्षिक योजना काळात एकूण सार्वजनिक खर्चाच्या केवळ १.६० टक्के झालेले दिसून आले.

संदर्भ सूची :-

१. पार्क जे.ई. (१९९३), सामाजिक आरोग्य परिचर्या, बनारसी दास, भुनोज पब्लिशिंग हाउस, जबलपूर.
२. हेल्थ अॅण्ड फॅमिली वेलफेअर अॅक्टिव्हिटीज् इन महाराष्ट्र, द सोसायटी, फॉर सर्व्हीस टू व्हाॅटरी, एजन्सीज्, बॉम्बे.
३. महाराष्ट्र शासन (२००५), बहुउद्देशीय आरोग्य कर्मचारी पुस्तिका.
४. सार्वजनिक आरोग्य संस्था, नागपूर.
५. महाराष्ट्र शासन (१९९९-२०००), आरोग्य दिन माहिती पुस्तिका, आरोग्य सेवा संचालनालय, राज्य आरोग्य व शिक्षण संपर्क विभाग, औंध, पुणे.

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विदर्भ अर्थशास्त्र परिषद ४४ वे वार्षिक अधिवेशन विशेषांक

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SWATIDHAN PUBLICATIONS

जागतिक मुक्त व्यापार व WTO चे यशापयश

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सार :-

1991 मध्ये भारत सरकारने अर्थव्यवस्थेचे जागतिकीकरण करण्यासाठी आर्थिक सुधारणांची एक मालिकाच सुरु केली. याचा कल बाजार अर्थव्यवस्था व देशाच्या जागतिकीकरणकाडे असून भारतीय अर्थव्यवस्थेचे जागतिक अर्थव्यवस्थेशी एकात्मिकरण होण्याच्या उद्देशाने ही निती अवलंबण्यात आली होती. या नितीचे " भारतीय अर्थव्यवस्थेवर होणाऱ्या परिणामांचा " विचार सदर शोध निबंधात मांडण्याचा प्रयत्न केला आहे.

प्रस्तावना :-

दि 24 जुलै 1991 रोजी भारताचे अर्थमंत्री पंतप्रधान अर्थमंत्री होते त्यांनी हे " नवे आर्थिक धोरण " स्विकारतांना मिश्र अर्थव्यवस्थेची वाट सोडली जी अर्थव्यवस्था स्विकारून तिचे इ.ट.अ.नि.ट. परिणाम देशावर, लोक मानसावर होतच असतात. याच चांगल्या वाईट परिणामांचा विचार मांडण्याचा थोडक्यात प्रयत्न शोध निबंधकाराने या प्रस्तुत " जागतिक मुक्त व्यापार व WTO चे यशापयश " संशोधन पर शोधनिबंधात करण्याचा प्रयत्न केला आहे.

जागतिक मुक्त व्यापाराचे महत्व :- जागतिक मुक्त व्यापारामुळे उत्पन्न व मागणीत वाढ होऊन जिवनमानात वाढ होऊन देशातील रोजगार वाढून उत्पादकतेत वाढीला चालना मिळते संसाधनांचा पूर्ण क्षमतेने वापर करणे शक्य होऊन व्यापार वाढीला चालना मिळेल. व्यापारातील अडथळे दुर करता येतील. जागतिकीकरणच स्पर्धला प्रोत्साहन मिळून शाश्वत विकासाला प्रेरणा मिळून पर्यावरणाच्या संरक्षणाला चालना मिळण्याची आशा होती. जागतिक मुक्त व्यापारामुळे WTO चे यशापयशांचा शोध घेण्याचा हाय संशोधनपर शोध निबंधात प्रयत्न केला आहे. त्यासाठीच हा विचार मांडला आहे. व ह्या अभ्यासाचे महत्व मांडले आहे.

संशोधन अभ्यासाची उद्दिष्ट्ये :-

1. जागतिक व्यापारासमोरील आव्हानांचा अभ्यास करणे.
2. देशासमोर असणाऱ्या संधीचे विश्लेषण करणे.
3. देशासमोरील व्यापारातील समस्याच्या सोडवणुकीसाठी उपाय योजना सुचविणे .

- अभ्यासाचे गृहीतके :-
1. भारताची लोकसंख्या सतत वाढत असल्याने जागतिक व्यापारातही सतत वाढ होणार आहे.
 2. WTO चा विकासावर परिणाम होणार आहे.
 3. भारताच्या व्यापार विकासातील वाढ मंद आहे.

संशोधन पध्दती :-

सदर संशोधन शोध निबंध तयार करण्यासाठी दुय्यम साधन सामुग्रीचा वापर करण्यात आला असून त्यासाठी विविध पुस्तके ग्रंथ, वर्तमान पत्रे, मासिके, वार्षिकांक, साप्ताहिके, विविध अहवाल इत्यादी संदर्भ म्हणून वापरण्यात आलेले आहे. संबधीत माहिती वरील संदर्भातून घेण्यात आलेली आहे.

सद्यस्थिती :- भारत WTO चा संस्थापक सदस्य आहे. नियमाचे व धोरणाचे पालन करणेसाठी व संरक्षणालाक धोरणात स्थितीला आणण्यासाठी भारताने पुढीलप्रमाणे वचनबध्दता जाहीर केली.

- 1) जकात रेषा :- 67 टक्के महत्तम केली. शैतीतील उपभोग वस्तुंवर 40 टक्के व मध्यम वस्तुंवर 25 टक्के दर निश्चित करण्यात आला.
- 2) संस्थात्मक निर्बंध :- आठ आकडी स्तरावर 2714 जकात रेषा सूचित केल्या. भारताने 1429 वस्तुवरील निर्बंध काढले सध्या सार्व वस्तुवरील संस्थात्मक निर्बंध काढण्यात आले आहेत.
- 3) व्यापार संबंधी बौध्दिक संपदा अधिकार :- पेटंट, कॉपीराईट, ट्रेडमार्क संरक्षणाची तरतूद करून त्यानुसार 2004 पासून पेटंट कायदा लागू करण्यात आला तसेच सेवांनाही ट्रेड मार्क देण्यात आले.
- 4) व्यापार संबंधी गुंतवणूक उपाय :- भारतासारख्या देशांनी व्यापारावरील निर्बंध दुर करून उदार धोरणाचा स्विकार केला आहे.
- 5) सेवांच्या व्यापारासंबंधी करार :- यात सरकारने 33 क्क्याबाबत वचन बध्दता व्यक्त केली.
- 6) जकात मूल्यांकन नियम :- भारताने WTO च्या नियम पूरक ठरला असा जकात नियम तयार करण्यात आला.

WTO चे यश / फायदे

- 1) निर्यात पध्दती :- भारताला या मुळे 145 देशांशी मुक्त व्यापाराची गुमा मिळाली. आयात निर्यात वाढली. जागतिक व्यापारात 3000 को. डॉ. वाढ होऊन निर्यात व्यापारात 200 को. डॉ. रू.ची पध्दती झाली. निर्यात भारताच्या 86 टक्के पर्यंत तर आयात 0.99 पर्यंत वाढली.
- 2) तयार करण्याच्या निर्यातीत वाढ :- 2005 मध्ये तयार कापडावरील निर्बंध समाप्त झाले. 20002-03 मध्ये 5690 व शलम डॉ. पर्यंत निर्यात वाढली.
- 3) सेवा क्षेत्राला लाभ :- भारताची संगणक सॉफ्टवेअरची निर्यात वाढली.
- 4) अवयुजन विरोधापासून लाभ :- अवयुजने बाजारपेठ दुसऱ्या देशाने काबीज करणेचा प्रयत्न केल्यास त्या विरोधात विवाद समितीकडे तक्रार करता येते. त्यामुळे अवयुजन त्याच भाव कमी होईल.
- 5) सकारित व्यवस्थेचा लाभ :- रोपे प्रजनन मध्यांतून सुचारित बियाणे मिळून कृषी संशोधनाचा लाभ होईल. त्यामुळे संशोधन व विकासात गुंतवणूक वाढीला चालना मिळेल.
- 6) परकीय चलन साठा :- भारताचा परकीय चलन साठा 2004 मध्ये 111648 दशलक्ष डॉ. पर्यंत वाढला.

याशिवाय रोजगार, परकीय, गुंतवणूकीत वाढ होऊन परकीय वस्तु उपभोक्त्यांना उपलब्ध होत आहे. भांडवल व नविन तंत्रज्ञानाचा लाभ मिळाले. भांडवली व विदेशी विनिमय बाजारपेठेच विकास होऊन आंतरराष्ट्रीय व्यापाराचे सामर्थ्य वाढले, सांस्कृतीक देवाण घेवाण व औद्योगिक विकासास



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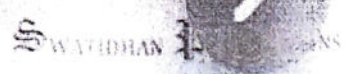
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खान्देशातील कुंभार समाजाच्या सामाजिक स्थितीचे अध्ययन

संशोधक

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प्रस्तावना :-

व्यक्ती हा समाजाशील प्राणी आहे समाजात राहूनच तो आपल्या सामाजिक जबाबदाऱ्या पूर्ण करत असतो. समाजातील अनेक गोष्टी ह्या नकळत तो आपल्या आचरणात आणतो स्वतःला घडवतो व आपला सामाजिक विकास साधण्याचा प्रयत्न करतो त्यामुळे समाज ही व्यक्तीची पहिली शाळा समजली जाते कारण समाजात वावरत असतांना चांगल्या वाईट गोष्टीचे ज्ञान हे त्या व्यक्तीला येते व त्यातून तो घडत जातो आणि आपले समाजातील स्थान हे बळकट करतो भारतात विविध समाजाचे लोक हे समुहाने राहतात व आपला उदरनिर्वाह करतात, अशाच अभ्यास संशोधकाने आपल्या संशोधनात केला आहे आणि त्यातून ज्याची सामाजिक रूढी परंपरा त्याचे राहणीमान समाजा विषयीची माहिती आपल्या संशोधन विषयक तयार केलेल्या प्रश्नावलीत सामाजिक जीवनाशी निगडित माहिती विचारलेली आहे यात जात पंचायत विषयक माहिती आणि जात पंचायतीने दिलेले निर्णय त्याच बरोबर जात पंचायतीची कामे याची माहिती घेतली आहे. त्याच आज ही समाजात रूढी-परंपरा याचे पालन करून नवस केले जात का याची ही माहिती घेतली आहे व आपण धार्मिक कार्यक्रमात सहभागी होतात का? आणि आपणास इतर समाजाच्या व्यक्तीकडून योग्य अशी वागणूक मिळते का? यासारखे अनेक प्रश्न संशोधकाने कुंभार समाजातील व्यक्तींना विचारले आहेत. त्यांच्या सामाजिक प्रश्नाची माहिती करून घेण्याचा प्रयत्न संशोधकाने केला आहे त्यामुळे संशोधकाने सदर लेखात स्वतंत्र पणे मांडणी ही केली आहे.

संशोधनाची उद्दिष्ट्ये :-

१) खान्देशातील कुंभार समाजाचे सामाजिक स्थितीचे अध्ययन करणे.

संशोधनाची गृहितके :-

१) कुंभार समाजाचे सामाजिक परिवर्तन घडून आले आहे.

संशोधन पध्दती :-

संशोधक संशोधनासाठी प्राथमिक अशा तथ्य संकलन पध्दतीचा वापर केला आहे.

प्राथमिक स्रोत :-

सदर संशोधनासाठी आवश्यक व वस्तुनिष्ठ ठरेल अशी माहिती मिळविण्याकरिता संशोधकाने प्राथमिक स्वरूपात माहिती ही पुढील प्राथमिक स्रोताच्या आधारे मिळविलेली आहे.

अ) अनुसूची :-

सदर संशोधकाने नमुना म्हणून निवड केलेल्या खान्देशातील कुंभार समाजाच्या सामाजिक, स्थितीचे अध्ययन या विषयोची माहितीचे संकलन करण्यासाठी अनुसूची केली. अनुसूची तयार करतांना सदर संशोधन विषयासाठी आवश्यक असलेली उद्दीष्ट्ये विचारात घेऊन महत्त्वपूर्ण ठरेल अशी सर्व माहिती मिळेल असे अनेक प्रश्न अनुसूचित समाविष्ट केले आणि ही अनुसूची संशोधकाने खान्देशातील नमुना म्हणून निवडलेल्या कुंभार समाजात वापर केले आहे. अशा माध्यमात जाऊन प्रत्यक्ष भेट घेऊन भरून घेतलेली आहे.

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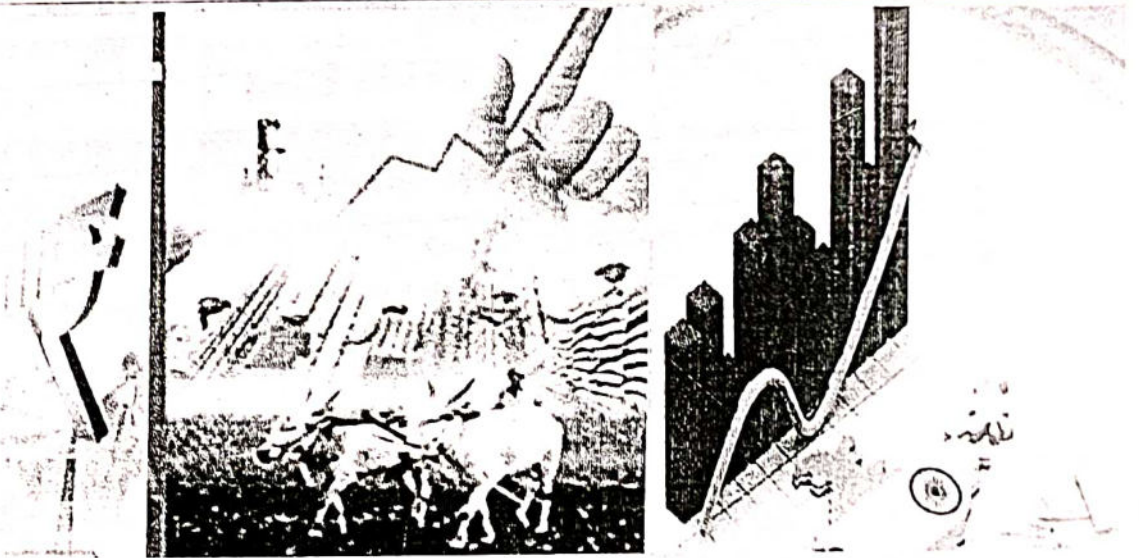
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डॉ.एस.टी. वराडे

सहयोगी प्राध्यापक अर्थशास्त्र विभाग जी.एस. कॉलेज खामगांव

सारांश :-

भारताच्या औद्योगिक विकासाचा विचार करतांना साधारणतः दोन कालावधीमध्ये वर्गीकरण करून करण्यात येतो. एक म्हणजे सुधारणापूर्व कालावधीमधील औद्योगिक विकास व दुसरा म्हणजे सुधारणेनंतरच्या कालावधीमधील बदलती धोरणे व औद्योगिक विकास भारत स्वतंत्र झाल्यानंतर निविध पंचवार्षिक योजनेद्वारे देशाने विकास साधण्यास सुरुआत केली. मात्र प्रथम पंचवार्षिक योजनेमध्ये उद्योगांकडे दुर्लक्ष केल्याचे दिसते, मात्र द्वितीय पंचवार्षिक योजनेमध्ये उद्योगांच्या उभागणीमध्ये व विकासाकडे अग्रक्रमाने लक्ष दिल्याचे जाणवते. सुधारणापूर्व कालावधीमध्ये ८० च्या दशकातील मंदी सोडल्यास औद्योगिक विकासदर साधारणतः उच्च राहिला याचे मुख्य कारण उद्योगांना विदेशी स्पर्धेपासून मिळालेले संरक्षण, बंदीस्त अर्थव्यवस्था हे होय. १९९१ च्या उदारीकरणानंतर किंवा सुधारण कालवधीनंतर जागतिकीकरणामुळे अर्थव्यवस्था विदेशी उद्योगांना खुली झाली. आयात कर व प्रशुल्कांचे प्रमाण घटले यामुळे भांडवली वस्तु म्हणजेच मशीनरी इ. आयात करणे सुकर झाले. ह्याचा दीर्घावधी परिणाम भारतीय भांडवली वस्तु उद्योगांवर झाला.

प्रस्तावना :

भारतीय अर्थव्यवस्था सद्यस्थितीत संक्रमण अवस्थेतून जात आहे. सध्या भारतीय अर्थव्यवस्था सौम्य मंदी अनुभवत आहे. भारतीय अर्थव्यवस्थेचा वृद्धीदर क्रमाक्रमाने घटत गेलेला आहे. २०१६ मध्ये अर्थव्यवस्थेचा वृद्धीदर ८.२५ टक्के होता तो २०१८ मध्ये ७ व २०१९ मध्ये ६ टक्के झाला. सांख्यिकी विभागाच्या अंदाजानुसार वर्तमान कालामध्ये वृद्धीदर ५ राहिल. गेल्या पन्नास वर्षातील सर्वात कमी वृद्धीदर नोंदला जाईल. भारतासारख्या जगातील दोन नंबर वरील सर्वाधिक लोकसंख्या असलेल्या व सर्वात जास्त तरुणांचे प्रमाण असलेल्या लोकसंख्येला घटलेल्या विकासदर परवडण्यासारखा नाही. यामुळे बेकारीचे प्रमाण सातत्याने वाढत आहे.

भारताच्या औद्योगिक विकासाचा विचार केल्या जाता द्विटीश सत्ता भारतामध्ये येण्याअगोदर भारत जगामधील नंबर दोन आर्थिक महासत्ता होता. अनेक लघु तसेच कुटीर उद्योग विकसीत झालेले होते. कृषीमाला मधील अनेक घटकांच्या उत्पादनामध्ये आघाडीवर होता विशेषतः मसाल्याचे पदार्थ व इतर कृषी उत्पादीत माल युरोपीय देशांना निर्यात होत होता. द्विटीश कालावधीमध्येसुद्धा ज्युट व कापूस उत्पादनामध्ये भारताने आघाडी घेतली होती. ज्युट व कापसापासून कापड तयार करण्याचे उद्योगस्थापन झाले होते. देशामध्ये ग्रामीण कुटीर उद्योग होते जे ग्रामीण भागातील सर्व गरजा भागवत होते. शहरी गृहउद्योग होते ते अतिशय उच्च दर्जाचे वस्त्रप्रावरणे व कलात्मक वस्तु तसेच घरगुती सुबक वस्तु बनविण्यात प्रसिद्ध होते वा आघाडीवर होते. कालांतराने द्विटीशांच्या बदललेल्या औद्योगिक नितीमुळे बरेचशे भारतीय उद्योग नामशेष झालेत तसेच युरोपमधील आधुनिक उद्योगांमुळे त्यांना येणाऱ्या कमी उत्पादनामुळे भारतीय उद्योग किंमतस्पर्धेत टिकाव धरू शकले नाही भारत स्वतंत्र झाल्यानंतर भारत सरकारने औद्योगिक विकासासाठी स्वतंत्र्य औद्योगिक धोरण राबविले.

संशोधनाचे उद्देश

१. भारतातील सुधारणापूर्व व सुधारणेनंतरच्या कालावधीमधील अभ्यास करणे.

२. औद्योगिक विकासातील अडचणींचे विश्लेषण करणे.

कार्यपद्धती :-

या अभ्यासाठी द्वितीय सामग्रीचा वापर केला आहे, यामध्ये लेख, पुस्तक, जर्नलच्या रिसर्च पेपरचा समावेश आहे.

भारतातील औद्योगिक धोरण :

भारतातील औद्योगिक धोरणाचा विचार दोन भागामध्ये विभागून करावा लागेल १९९१ पूर्वीचे औद्योगिक धोरण व १९९१ नंतरचे औद्योगिक धोरण.

१९९१ पूर्वीचे औद्योगिक धोरण :

भारत सरकारने औद्योगिक क्षेत्रांच्या विकासासाठी १९४८ मध्ये, सर्वप्रथम औद्योगिक धोरण जाहीर केले. यानंतर १९५६ चे औद्योगिक धोरण, १९७७ चे औद्योगिक धोरण, १९८० चे औद्योगिक धोरण इ. महत्वपूर्ण औद्योगिक धोरणे घोषित करण्यात आलीत. या धोरणांमध्ये साधारणात: तीन विभागांमध्ये विभाजित करण्यात आली यामध्ये

अ. सरकारचा एकाधिकार असलेले क्षेत्र यामधील उद्योगांमध्ये फक्त सरकारी मालकीहक्क राहणाऱे हे उद्योग म्हणजे अस्त्र, शस्त्र व युद्ध सामग्री, परमाणू ऊर्जा तसेच रेल परिवहन यांचा समावेश होता.

ब. मिश्रित क्षेत्र : यामध्ये उद्योगांचे उत्तरदायित्व सरकारद्वारे निश्चित केले गेले. काही जुने उद्योग खाजगी मालकीचे असलेले सुट देण्यात आलेले होते. सरकारने सार्वजनिक क्षेत्रामध्ये राखून ठेवलेल्या उद्योगांमध्ये कोळसा, इस्पात व लोह, विमान निर्मिती, जहाजबांधणी, टेलीफोन, टेलीग्राम वायलेसचे यंत्रे व उपकरणे खनिज तेल इ. होते.

क. खाजगी उद्योग क्षेत्र : यामधील उद्योग हे खाजगी क्षेत्रांद्वारे स्थापित व विकसित करण्यावर भर देण्यात आला. परंतु या क्षेत्रातील उद्योगांची प्रगती जर समाधानकारक नसली तर सरकारच्या हस्तक्षेपाचा अधिकार देण्यात आला होता.

१९९१ पूर्वीचे औद्योगिक धोरणाचे पुनरावलोकन :

१९९१ पूर्वीच्या औद्योगिक धोरणांना लायसेंसींग राज किंवा परमीट राज असेही म्हटले जात असे. यामुळे उद्योगांद्वारा परवाना मिळवूनही पूर्ण क्षमतेने वापर न होणे, काही मोजक्या उद्योजक घराकण्यांकडे सत्तेचे केंद्रीकरण होणे उदा. वीर्ला, टाटा, वालचंद समूह इत्यादी मोठ्या औद्योगिक घराण्यांकडेच आर्थिक शक्तीचे केंद्रीकरण झालेले होते. क्षेत्रीय असमानतेमध्ये वाढ झाली. उत्पादन साधनांचा अपव्यय झाला, अयोग्य घटकांना परवाना दिला कारण परवाना वाटपाची चुकीची पद्धत. यामध्ये प्रथम येणाऱ्यास प्राधान्यक्रम असे ठरविण्यात आले होते. यावर उपाय म्हणून केंद्र सरकारने १९६७ मध्ये सुबिमल दत्त यांच्या अध्यक्षतेखाली एक समिती स्थापन केली. या समितीने पहाळ रिपोर्ट सादर केलेत.

- परवाना मिळवून पूर्ण उत्पादन क्षमतेचा वापर न करणे.
- परवाना धोरण व औद्योगिक शक्तीचे केंद्रीकरण
- परवाना पद्धतीमुळे एकाधिकार पोषक धोरण.
- परवाना व क्षेत्रीय असमानता

१९९१ चे औद्योगिक धोरण किंवा उदारीकरणाचे धोरण :

२४ जुलै १९९१ ला नवीन औद्योगिक धोरण जाहीर करण्यात आले यालाच आर्थिक उदारीकरणाचे धोरण असेही म्हणतात. यामध्ये अनेक महत्वपूर्ण बदल सुचविण्यात आले. अनेक द्वांतीकारक निर्णय घेण्यात आले ते पुढीलप्रमाणे :-

१. औद्योगिक परवान्यापासून मुक्ती :-

१.८ महत्वपूर्ण उद्योगांना सोडून बाकी सर्व उद्योगांना उद्योगिक परवान्यापासून मुक्त करण्यात आले. या १.८ पैकी बऱ्याच उद्योगांना लायसन्सपासून मुक्त करण्यात आले. फक्त ५ उद्योगांनाच आता परवान्याची आवश्यकता आहे यामध्ये दारु, सिगरेट, खतरनाक रसायने, संरक्षण व विस्फोटक इत्यादींचा समावेश आहे.

२. सार्वजनिक क्षेत्रांचे महत्व कमी :-

१९५६ मध्ये १७ उद्योग सार्वजनिक क्षेत्रासाठी राखीव ठेवण्यात आली होती. नवीन धोरणामध्ये ही संख्या घटवून आठ करण्यात आली. कालांतराने ही घटून तीनच क्षेत्रे सार्वजनिक क्षेत्रासाठी राखीव ठेवण्यात आली. यामध्ये अणुऊर्जा, अणुऊर्जा वापर व उत्पादन, रेल परिवहन हे आहेत.

३. एमआरटीपी परिसम्पती सीमा :-

नवीन औद्योगिक धोरणामध्ये एमआरटीपी परिसीमा सम्पती सीमा समाप्त करण्यात आली. यामुळे उद्योगांच्या स्थापनेसाठी, विस्तारासाठी, सम्मीलन, विलीनीकरण तसेच निदेशकांच्या नियुक्ती यासाठी सरकारच्या परवानगीची आवश्यकता राहिली नाही.

४. उद्योग स्थाननिर्धारण धोरण :

उद्योगांचे स्थान निर्धारण धोरण बदलविण्यात आले. आता उद्योगांना स्थान निर्धारणासाठी परवान्याची आवश्यकता राहिली नाही. फक्त प्रदुषण विषयक मानके यांचा विचार करण्यात आला.

५. विदेशी गुंतवणुक व तंत्रज्ञानाला प्रोत्साहन :

नवीन औद्योगिक धोरणानुसार विदेशी भांडवलाला उद्योगांमध्ये ५१ टक्के गुंतवणुकीला परवानगी देण्यात आली. नंतर यामध्ये बदल करून हे प्रमाण ७४ टक्के करण्यात आले. वर्तमान काळामध्ये हे प्रमाण १०० टक्के करण्यात आले आहे.

१९९१ नंतरच्या औद्योगिक धोरणाचे पुनरावलोकन :-

१. अस्थिर औद्योगिक विकास व उच्चावचने :-

नवीन औद्योगिक धोरणामुळे औद्योगिक विकासदर वाढेल अशी अपेक्षा होती परंतु औद्योगिक विकासदर हा अस्थिर झाला दहाव्या पंचवर्षीक योजनेमध्ये औद्योगिक विकासदर हा ८.२ टक्के प्रतिवर्षी होता हा अकराव्या पंचवर्षीक योजनेमध्ये घटून प्रतिवर्षी ६.९ टक्के झाला. तसेच उदारीकरणामुळे अर्थव्यवस्थेचे सातत्याने उच्चावचने निर्माण झालीत.

२. उत्पादन संस्थेमध्ये विसंगती :-

उत्पादनाच्या संरचनेमध्ये विसंगती निर्माण झाल्यामुळे म्हणजेच असंतुलनामुळे औद्योगिक वार्षिक वृद्धीदर हा घटून ४.७ प्रतिवर्ष राहिला.

३. विदेशी प्रतिस्पर्धेमध्ये वाढ :-

भारत पहिले अत्याधिक संरक्षण याकडून जवळपास शुन्य संरक्षण धोरण याकडे वळला उदारीकरण व जागतिकीकरणाचा धोरणामुळे देशी उद्योगांना संरक्षण राहिले नाही त्यामुळे बहुराष्ट्रीय कंपन्यासोबत देशी उद्योगांना स्पर्धा करावी लागत आहे. यामुळे



स्पर्धामध्ये देश उद्योगांना टिकाव न लागल्यामुळे सम्मिलीकरण, विलीनीकरण इत्यादी प्रकार तपावयास मिळत आहेत.

४. व्यावसायिक उपनिवेशवादाचा धोका :-

उदारीकरणानंतर विदेशी भांडवलालाल गुंतवणकण्यासाठी प्रोत्साहन देण्यात आले. परंतु कालांतराने या विदेशी बहुराष्ट्रीय निगमांनी भारतीय ब्रॅन्डलाच खरेदी करणे चालू केले तसेच, ज्या बहुराष्ट्रीय निगमांनी भागीदारीमध्ये व्यवसाय सुरु केले त्यापैकी बहुतेकांनी भारतीय भागीदाराचे भागभांडवल खरेदी करून संपूर्ण मालकीहक्क प्रस्थापित केले.

सुधारणपूर्वक व सुधारणेनंतरच्या कालावधीमधील औद्योगिक उत्पादन वाढ :-

स्वतंत्र मिळाल्यापासून आजपावेतो भारताचा औद्योगिक निर्देशांक वाढ मगसरी ६.६ टक्के राहिला आहे. १९५१ ते १९५५ पर्यंत ५.७ टक्के वार्षिक वाढ होती. १९५५ ते १९६० पर्यंत वार्षिक वाढ ७.२ टक्के, १९६० - १९६५ पर्यंत वार्षिक वाढ ९.० टक्के, १९६५ - १९७६ पर्यंत वार्षिक वाढ सरासरी ४.१ टक्के, १९७४ - ७९ पर्यंत वार्षिक सरासरी वाढ ६.१ टक्के १९८० - १९८५ मध्ये वार्षिक सरासरी वाढ ६.४ टक्के, १९८५ - ९० मध्ये वार्षिक सरासरी वाढ ८.५ टक्के इतकी होती.

खालील तक्त्यामध्ये नव्वदच्या दशकापासूनचे वार्षिक वाढ दर्शविलेली आहे.

औद्योगिक घटक	१९८०-८१ ते १९९१-९२	आठवी योजना १९९२-९३ ते १९९६-९७	नववी योजना १९९७-९८ ते २००१-०२	दहावी योजना २००२-०३ ते २००६-०७	टकरावी योजना २००७-०८ ते २०११-१२ आधारवर्ष २००४-०५-१००	बारावी योजना २०११-१२ ते २०१६-१७ आधारवर्ष २००४-०५-१००
मुल उद्योग	७.४	६.८	४.१	६.६	५.४	३.५
भांडवली वस्तु उद्योग	९.४	८.९	४.७	१४.४	१४.३	-३.७
मध्यवर्ती वस्तु उद्योग	४.९	८.५	५.८	६.२	४.०	२.०
उपभोक्ता वस्तु उद्योग	६.०	६.६	५.५	९.६	७.८	-०.५
१. टिकाऊ उपभोक्ता वस्तु	१०.८	१३.४	१०.७	८.८	१५.६	-१.०
२. गैर टिकाऊ उपभोक्ता वस्तु	५.३	४.८	३.८	१०.०	३.४	१.१
सामान्य निर्देशांक	७.८	७.४	५.०	८.२	६.९	१.६

❖ IIP/ministry of Statistics and Programme Implimentation

❖ वी के पुरी, एस के मीश्र, भारतीय अर्थव्यवस्था

सुधारणपूर्व कालावधीतील १९८०-८१ ते १९९१-९२ दशकांमध्ये औद्योगिक उत्पादन सरासरी वार्षिक वृद्धीदर ७.८ टक्के होता. आठव्या योजनाकाळात ही वाढ थोडी घटली व ७.४ टक्के इतकीच राहिली कारण आर्थिक उदारीकरणामुळे भारतीय औद्योगिक क्षेत्राचा विदेशी स्पर्धेना सामना करावा लागला. नवव्या योजना काळात औद्योगिक उत्पादन सरासरी वार्षिक वृद्धीदर

हा ५.० टक्के इतका राहिला. या योजनेचा कालावधीमध्ये हा औद्योगिक उत्पादन निर्देशांक वाढ अगोपजनक राहिला. दहाव्या पंचवर्षीक योजनेच्या काळामध्ये औद्योगिक उत्पादन सरासरी वार्षिक वृद्धीदर ८.२ टक्के राहिला. अकराव्या पंचवर्षीक योजनेच्या कालावधीमध्ये औद्योगिक उत्पादन वाढ सरासरी वार्षिक वृद्धीदर हा ६.४ टक्के इतका राहिला. तर बाराव्या पंचवर्षीक योजनेच्या काळामध्ये हा वृद्धीदर १.४ टक्के इतका राहिला. म्हणजेच उदारीकरणाच्या अंगादरच्या दशकांमध्ये वार्षिक वृद्धीदर हा चांगला होता. कारण भारतीय उद्योगांना विदेशी स्पर्धेपासून संरक्षण देण्यात येत होते. याऊलट सुधारणे नंतरच्या कालावधीमध्ये संरक्षण बदलण्यात आले. विदेशी स्पर्धेला सुरुवातीच्या दशकांमध्ये तोंड द्यावे लागले व त्याला भारतीय उद्योगव्यावसाय तयार नसल्यामुळे औद्योगिक विकासदर मंदावला मात्र कालांतराने दहाव्या पंचवर्षीक योजनेच्या कालावधीमध्ये औद्योगिक निर्देशांकमध्ये वाढ झालेली दिसते. परंतु नव्वदच्या दशकापासून आजपर्यंतच्या औद्योगिक निर्देशांकाचा विचार केला असता औद्योगिक उत्पादनावर वाढीमध्ये गतव्याची अभाव दिसतो. औद्योगिक उत्पादन वृद्धीदराचा विचार करता नोव्हेंबर २००६ मध्ये १९.९० टक्के सर्वात जास्त वृद्धीदर नोंदविला गेला तर फेब्रुवारी २००९ सर्वात कमी -७.२० टक्के वृद्धीदर राहिला होता. म्हणजेच आर्थिक उदारीकरणानंतर औद्योगिक विकासाचा वृद्धीदर कायम राखण्यात अपयश आले किंवा सातत्य नव्हते.

औद्योगिक उत्पादन विकासदर असंतोषजनक असण्याची कारणीमीमांसा :-

१. विदेशी स्पर्धा :-

उदारीकरणाच्या पहिले चार दशकांपर्यंत औद्योगिक क्षेत्र आंतरिक व बाह्य प्रतिस्पर्धेपासून मुक्त होते. उदारीकरणानंतर आयात शुल्क घटले त्यामुळे भारतीय उद्योगांना विदेशी उद्योगाशी स्पर्धा करावी लागली व अशाप्रकारच्या स्पर्धेला भारतीय उद्योग पूर्ण तयारच नव्हते तसेच जे देशी उद्योग विदेशी स्पर्धेला तोंड देण्यास सक्षम नव्हते त्यामुळे ते उत्पादनामध्ये माघारले. विदेशी स्पर्धेचा सर्वात जास्त विपरीत परिणाम भांडवली वस्तूंच्या उत्पादनावर झाला कारण भारतातील मशीनी व उपकरणे खरेदी करण्याऐवजी विदेशातून स्वस्त मशीनी व उपकरणे आयात करणे शक्य झाले आहे.

२. कमी भांडवल निर्मिती :-

भारतीय उद्योगांनी भांडवलाची गरज भागविण्यासाठी मोठ्या प्रमाणावर इतर बाह्य घटकांवर अवलंबून रहावे लागले. या उद्योगांची स्वतःची पुनःभांडवल निर्मिती अतिशय निम्न व हळूहळू आहे. यामुळे उद्योगांच्या आधुनिकीकरणाला तसेच विस्ताराला मर्यादा येतात.

३. राजकीय घटक :-

भारतामध्ये ज्या वेळेस सत्ताबदल झाला त्या वेळेस, प्रत्येक सरकारने औद्योगिक धोरणांमध्ये बदल केलेला आहे. औद्योगिक धोरणामध्ये सातत्याचे अभाव राहिला असल्यामुळेसुद्धा त्याचा दुरगामी परिणाम औद्योगिक विकासावर झालेला जाणवतो.

४. गुंतवणुकीतील घट :-

आर्थिक उदारीकरणाचा पश्चात औद्योगिक वृद्धीदरामधील घट्टीचे प्रमुख कारण म्हणजे औद्योगिक क्षेत्रातील गुंतवणुकीत झालेली घट होय. सार्वजनिक व खाजगी क्षेत्रांमध्ये भांडवलाची निर्मिती औद्योगिककरणाला तेजीने चालना देणारी ठरते परंतु देशामध्ये या कालावधीमध्ये भांडवलाची निर्मिती मंदावली होती. तसेच जागतिक मुद्रा निधीच्या अटीमुळे सरकारला सार्वजनिक खर्चामध्ये मोठ्या प्रमाणात घट करावी लागली हेही एक महत्त्वपूर्ण कारण गुंतवणुकीतील आलेल्या कमीचे आहे.

५. अपुन्या पायाभूत सुविधा :-

भारत हा पायाभूत सुविधांच्या बाबतीत अजूनही मागासलेला आहे. अपुरे रस्ते, रस्त्यांची खराब स्थिती, रेल्वे व रस्ते यांची खस्ता हालत, अपूर्ण परिवहन व्यवस्था, अत्याधुनिक बंदरांची कमी, बंदरांवर मालाची दुलाई करण्यासाठी आधुनिक यंत्रगामग्रीची कमतरता उद्योगांना पुरेशी विज व पाणी न मिळणे या सर्व घटकांचा औद्योगिक उत्पादनावर विपरीत परिणाम झाल्या तसेच जमीन व वीजेचे वाढते दर यामुळे एकंदर उत्पादनव्यवसायवर झालेला परिणाम या सर्व घटकांना उत्पादन वाढीवर विपरीत परिणाम झाला.

६. कर संरचनेमध्ये विसंगती :-

नवव्या पंचवर्षीक योजनेनुसार कर शुल्क संरचनेमध्ये विसंगती असल्यामुळे देशी उद्योगांवर कर व शुल्कांचा अधिभार अत्याधिक होता तर त्याच वस्तु विदेशातून वीना आयात शुल्क भरून आयात करण्याची सुट होती यामुळे विदेशातून मोठ्या प्रमाणात जूनी यंत्रसामग्री कमी किंमतीमध्ये देशांतर्गत उद्योगांनी आयात केल्यात. यामुळे याचा विपरीत परिणाम देश उद्योगांवर झाला.

७. सार्वजनिक क्षेत्रातील उद्योगांची घटती कामगिरी :-

सार्वजनिक क्षेत्रातील उद्योगांची कामगिरी झपाट्याने खालावली. या उद्योगांना आपल्या वृद्धीदरामध्ये सातत्य राखता आले नाही. एकेकाळी नवरत्न असलेल्या या सरकारी कंपनी वर्षानुवर्षे तोट्यात गेल्यात किंवा उत्पादनाचा वृद्धीदर घटला.

कंपनी	१०वर्षे अगोदरची किंमत	Current Price	Stock loss (%)	M.cap १०वर्षे अगोदरचे (Rs.Cr.)	सध्याचे M.cap (Rs.Cr.)	M.cap loss (Rs.Cr.)
MMTC	९९८.७५	२३.२०	-९८ %	१४९८१२	३४८०	-१८६३३२
NMDC	३५८.२५	१०९.८०	-६९ %	१४२०३९	३३६१९	-१०८४२०
BHEL	२८४.४३	७३.७०	-७४ %	१०४४२४	२५६६३	-७८७६२
SAIL	१४८.०५	४९.१५	-६७ %	६११५१	२०३०२	-४०८४९

बीएसई इंडिया

अशाप्रकारे सार्वजनिक क्षेत्रातील उद्योगांच्या घटत्या कामगिरीचा आलेख वरील उदाहरणामध्ये दिसतो आहे.

यावरील कारणांसोबतच निर्यातीमध्ये शिथिलता, औद्योगिक आजारीपण, उपभोगाच्या मागणीमध्ये घट, क्षेत्रीय असंतुलन, कुशल कामगारांची कमतरता इत्यादी घटकामुळेच सुरुवात औद्योगिक विकासदर असंतोषजनक राहिला.

समारोप:-

भारतीय अर्थव्यवस्थेसमोर असलेले मोठे आव्हान म्हणजे सातत्यपूर्ण औद्योगिक विकासदराना अभाव, औद्योगिक विकासदर गेल्या तीन वर्षांमध्ये झपाट्याने घटला आहे. देशामधील आलेल्या सौम्य मंदीमुळे वेरोजगारीचे प्रमाण गेल्या पन्नास वर्षांमध्ये सर्वात जास्त आहे. भारतीय अर्थव्यवस्था गभ्या सुस्तीच्या अवस्थेत आहे. या अवस्थेवर उपाय शोधले नाही तर अर्थव्यवस्था गुन्नीकडून मंदीकडे वाटचाल करेल. औद्योगिक उत्पादनातील घट, कृषी क्षेत्रातील घसरण, वाढती वित्तीय तुट, बँकांचा वाढता एनपीए, बँकांची अस्वस्थ करणारी धोरणे, मुडीज तसेच आंतरराष्ट्रीय

मद्रा निभीने भारतीय अर्थव्यवस्थेबद्दल व्यक्त केलेली चिंता यावर लवकर सरकारला गांभीर्यपूर्ण व दीर्घकालीन उपाययोजना करणे जरूरी आहे जेणेकरून औद्योगिक क्षेत्रामध्ये सुधारणा होऊन विकासादर वाढेल.
संदर्भसूची :-

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टाळेबंदीचा भारतीय अर्थव्यवस्थेवरील परिणाम
डॉ. एस.टी. वराडे
अर्थशास्त्र विभाग, गो.से. महाविद्यालय खामगांव

सारांश :-

कोरोना महामारीमुळे अचानक लागू केलेली टाळेबंदी म्हणजेच कोणतीही पूर्वसुचना नसताना टाळेबंदी जाहीर झाली. यामुळे वाहतुक व्यवस्था, सार्वजनिक वाहतुक व्यवस्था, जिल्हाबंदी तसेच आंतरराज्य बंदी यामुळे कृषी क्षेत्रावर विपरीत परिणाम झाला. उत्पादन क्षेत्र ठप्प झाले. दुर्स अॅण्ड ट्युरिझम, हॉस्पिटॅलीटी, शिक्षण क्षेत्र, फायनान्सशिअल इन्स्टीट्युशन व व्यावसायिक संस्था या अंशतः किंवा पुर्णतः ठप्प झाल्यात. शहरातील छोटे छोटे फेरीवाले, स्ट्रीटवेंडर्स वेरोजगार झालेत व अनिश्चितता निर्माण झाली. भारतीय स्वातंत्र्यानंतर सर्वात मोठे स्थलांतरण या कोविड १९ च्या टाळेबंदी मध्ये दिसून आले. महाराष्ट्र, गुजरात, तेलंगाणा, आंध्रप्रदेश इत्यादी उद्योगप्रधान राज्यांमधून मोठ्या प्रमाणात मजूर वर्ग उत्तरेकडे आपल्या गावांकडे स्थलांतरीत झाला बर्ड वॅकनुसार ४० मिलीयन मजूर आपल्या गावांकडे स्थलांतरीत झाला. ही एक दुःखादायक घटना आहे. कारण हे स्थलांतरीत मजूर स्थानिक अर्थव्यवस्थेमध्ये ३० ते ४० टक्के योगदान देत असतात. जागतिक वॉकने टाळेबंदीमुळे भारताचा जीडीपी ०.५ टक्के ते १.५ टक्के इतकाच राहिल असे जाहीर केले. आरबीआयच्या मौद्रीक धोरणात आरबीआय गव्हर्नर शक्तीकांता दास यांनी ऋणात्मक जीडीपी राहिल यावर जोर दिलेला आहे. कृषी क्षेत्राच्या सर्वांगीण विकासासाठी सरकारला अनेक स्थायी सुभारणा कराव्या लागतील उद्योग क्षेत्र, सेवा क्षेत्र तसेच निर्यात वाढीसाठी विविध प्रोत्साहने द्यावी लागतील. तसेच मौद्रीक व राजकोषीय धोरणांमध्ये योग्य समन्वय साधुन आर्थिक विकासाचे आव्हान स्विकारावे लागेल.

प्रस्तावना :-

आजपावेतो च्या इतिहास पाहू गेल्यास गेल्या शतकात जेव्हा नैसर्गिक किंवा मानवनिर्मित आपत्ती ओढवली आहे त्यावेळेस संपूर्ण जगावर त्याचा अमुलाग्र व दुरगामी परिणाम होऊन आर्थिक, राजकीय बदल झालेले होते. पहिल्या महायुद्धानंतरच इंग्लंडचे जागतिक आर्थिक साम्राज्य संपुष्टात येऊन अमेरिका एक आर्थिक महासत्ता म्हणून उदयास आली. कोरोनासारख्या जागतिक महामारीमुळी सुद्धा संपूर्ण जगावर विपरीत परिणाम होत आहे. अमेरिकेसारख्या विकसीत व जागतिक महासत्ता असणारा देश सर्वात जास्त या महामारीने संकमीत आहे. कोरोना महामारीचा परिणाम दुरगामी व अनेकांगी होणार आहे. यामध्ये आर्थिक परिणामाबरोबरच सामाजिक व राजकीय परिणाम सुद्धा होतील. त्यामुळे देशातील राजसत्ता आर्थिक निर्णय घेत असतांना आर्थिकेतर घटकांचाही विचार करते. बऱ्याच देशातील राजसत्ता या आपत्तीला तोंड देत असतांना, निर्णय घेतांना राजकीय परिणाम काय संभवतात याचाच विचार करतात. काही देशांमध्ये सत्ताबदल होते. नजीकच्या काळातील निवडणुकांमध्ये या महामारीचा प्रभाव प्रकटाने जाणवून सत्ताबदल होत असतो. या महामारीचा विविध देशांतील मध्यवर्ती सरकार स्थापनेवर काय परिणाम होतो हे अभ्यासने उदबोधक ठरेल. तसेच समाजाची एक काळी बाजू म्हणजे वंशवाद, जातीयवाद मुद्दे अनानक नव्याने टळकपणे, ठसठसितपणे समोर आलेले असतात. उदा. अमेरिकेमध्ये काळे, नेटिव्हज यांच्याबद्दल वाद चिघटून आहे. नेटिव्हज वर अत्याचार तसेच त्यांच्यावरील कोरोनाच्या उपचारामुळे हेल्थसाईड यामुळे भावनांचा उद्रेक होऊन कोरोनासारख्या काळातही अमेरिकेत व जागतिक पातळीवर मोठ्या प्रमाणात निदर्शने सुरू आहेत. म्हणजे कोरोना महामारीचे आर्थिक, सामाजिक व

राजकीय पैलू हे तिन्ही घटक महत्वाचे आहेत. परंतु आज या शोधनिबंधामध्ये आर्थिक पैलूंना विचार केलेला आहे.

भारतामध्ये चार टप्प्यांमध्ये २५ मार्चपासून टाळेबंदी अंमलात आली. नंतर आता जुन्या अनलॉक बीगिन १ लागू करण्यात आले म्हणजे टाळेबंदीमध्ये हळूहळू बदल करण्यात आले येऊन काही प्रमाणात दैनंदिन व्यवहारांना परवानगी देण्यात येत आहे. मात्र टाळेबंदीच्या प्रथम चरणाच्या सुरुवातीला ५०० संक्रमित होते ते आता वाढून ३.५ लाख लोक संक्रमित झालेले आहेत. अनलॉक च्या पहिल्याच टप्प्यात मोठ्या प्रमाणात संक्रमित व्यक्ती आढळत आहेत. जागतिक स्तरावर युएसए, ब्राझील, रशिया, यु.के., स्पेन, इटली इत्यादी देश मोठ्या प्रमाणात या संक्रमणांना बाधित झालेले आहेत. जगातील बहुतांशी देशांना या महामारीचा फटका कमी-अधिक प्रमाणात बसला आहे.

भारताचा संदर्भात विचार करतांना भारत हे मुळातच विकसनशील राष्ट्र आहे तसेच जगातील दुसऱ्या क्रमांकाची लोकसंख्या व लोकसंख्येची घनता असलेले राष्ट्र आहे. लोकसंख्येचे दारिद्र्य मोठ्या प्रमाणात आहे. यामुळे या संक्रमणाचा प्रादुर्भाव रोखणे इतर विकसन देशांच्या तुलनेत कठीण व किचकट झाले आहे. यासोबतच अपुऱ्या सार्वजनिक क्षेत्रातील आरोग्य सुविधा व सरकारचा आरोग्य सुविधांवर एकंदर जीडीपी पैकी जेमतेम ४ टक्के खर्च यामुळे संक्रमण रोखणे मोठे दिव्यच ठरणार आहे. महाराष्ट्रामध्ये सर्वात जास्त प्रादुर्भाव दिसून येत आहे. एकूण रूग्णांपैकी ३२ टक्के रूग्ण एकट्या महाराष्ट्रात आढळून आले आहेत. देशामध्ये मुंबई शहरामध्ये संक्रमणाचे प्रमाण सर्वात जास्त आहे. मुंबई ही देशाची आर्थिक राजधानी म्हणून ओळखली जाते. मुंबईमध्येच विविध वित्तियसंस्था, बँका तसेच भांडवली बाजाराशी संबंधित अनेक मुख्य कार्यालये स्थित आहेत. यांचे व्यवहार मंदावने म्हणजे अर्थव्यवस्थेचे आर्थिक चक्र अडखळणे हे होय.

प्रस्तुत शोधनिबंधामध्ये भारतीय अर्थव्यवस्थेवरील विविध परिणामांचा विचार करताना मुख्यतः कृषी क्षेत्र, औद्योगिक क्षेत्र एवं उत्पादकता क्षेत्र आणि सेवा क्षेत्र यांचा विचार केलेला आहे. प्रस्तुत शोधनिबंधासाठी प्रामुख्याने द्वितीयक सामग्रीचा वापर केलेला आहे. तसेच मागील तीन महिन्यांमध्ये अर्थव्यवस्थेतील विविध क्षेत्रांवर झालेल्या परिणामांची सत्यता पडताळून पाहणे किंवा तीन महिन्यातील परिणामांची सत्यता दिसून येत नसल्यामुळे काही महत्वाच्या परिणामांचा विचार प्रस्तुत शोधनिबंधात केला आहे. यामध्ये औद्योगिक क्षेत्र, कृषी क्षेत्र व सेवा क्षेत्र यावरील परिणाम तसेच छोटे व्यावसायिक, पर्यटन व हॉस्पिटॅलीटी, वाहतूक वा दळणवळण, आयात-निर्यात, रोजगार, हंगामी तसेच अस्थाई कामगार असे इतर अनेक घटकांवरील परिणामांचा विचार सविस्तरपणे केलेला आहे.

कृषी क्षेत्रावरील परिणाम :-

भारत हा कृषीप्रधान देश आहे, एकूण लोकसंख्येच्या ६२ टक्के लोक शेती व संबंधित क्षेत्रावर उदरनिर्वाह करतात, बहुतांश शेतकरी हे अल्पभुधारक वा सीमांत शेतकरी आहेत. या क्षेत्रामध्ये मुख्यतः असंघटीत क्षेत्रातील रोजगार दिसून येतो. तसेच हा रोजगार हंगामी स्वरूपाचा असतो. कोविड १९ महामारी येण्यापूर्वी किंमतीच्या वाढत्या निर्देशामुळे, भाज्यांच्या वाढत्या किंमतीमुळे महागाई वाढली होती. सन २०१९-२० यामध्ये अति पावसामुळे बऱ्याच भुभागावरील कृषी उत्पादनावर (खरीप) विपरीत परिणाम झाला होता. यानंतर रब्बी पिकांचा हंगाम चांगला असतानाच पिके कापणीवेळी टाळेबंदी लागू करण्यात आली यामुळे तयार झालेली पिकांनी मळणी व विपणन करतांना अडचणी आल्यात.

सन २०१९:२० मध्ये भारतातील अन्नधान्याचे उत्पादन २९२ दशलक्ष टन हंगामाचा अंदाज आहे हे प्रमाण २.४ टक्के आधिक्य स्वरूपाचे आहे. आरबीआयच्या अहवालानुसार भारतीय अन्नधान्य महामंडळाकडे (एफसीआय) १ मार्च २०२० रोजी गहू व तांदळाचा गाठ ७७६

एम्पगटी इतका होता. तो बफर स्टॉकच्या तीन पट अधिक आहे. याचबरोबर राष्ट्रीय कृषी सहकारी विपणन महामंडळाकडे तेलवीया व डाळींचा सुद्धा गरजेइतका साठा उपलब्ध आहे.

- ❖ रब्बी पिकांची कापणी व मळणी, साधारणतः मार्च-एप्रील महिन्यामध्येच रब्बी पिके काढणीला येतात व याच कालावधीमध्ये टाळेवंदीमुळे, मजुरांच्या अनुपलब्धतेमुळे गहू, तांदुळ, तूर, हरभरा उन्हाळी उडीट, मुग, भुईमुग व इतर तेलवीया यासारख्या महत्वाच्या पिकांची वेळेवर काढणी व मळणी करणे शक्य झाले नाही.
- ❖ नाशवंत कृषी माल :- भाजीपाला फळफळावळे इत्यादी नाशवंत घटक जिल्हावंदी तसेच वाहतुकवंदी तसेच वाहतुक साधनांची अनुपलब्धता यामुळे विपणन करण्यात अनेक अडचणी आल्यात. तयार मालाला योग्य भाव मिळाला नाही. तसेच फुलउत्पादक शेतकरी मागणी अभावी अडचणीत आला. निर्यात बंद असल्यामुळे आंबा, द्राक्षे, डाळींब, मोसंबी व इतर फळांना स्थानिक बाजारपेठेचा सहारा घ्यावा लागला मात्र यामुळे भाव घसरलेत व उत्पादक शेतकऱ्यांचे आर्थिक नुकसान झाले.
- ❖ पुरक उद्योग :- दुग्ध व्यवसाय, कुक्कुटपालन हे दोन्ही व्यवसाय शेतकरी जोडधंदा म्हणून करीत असतात. टाळेवंदी व सोशल डीस्टसींग या कारणामुळे व समाजमाध्यमातील चुकीची माहिती पसरविल्यामुळे या क्षेत्रामध्ये मागणी अचानक घटली व शेतकऱ्यांना व इतर उद्योजकांना मोठी हानी सहन करावी लागली.
- ❖ विपणन समस्या :- कापूस हे पिक मुख्यतः रोख पिक म्हणून घेतले जाते. मान्सूनच्या पावसाला सुरुवात होऊन व पेरणीची लगभग सुरु झालेली असताना लाखों क्विंटल कापूस अजून शेतकऱ्यांच्या घरांमध्येच पडलेला आहे. टाळेवंदीमुळे सरकारने कापूस खरेदीची व्यवस्थाच केली नाही तसेच कापूस पणन महामंडळाकडे पुरेशा प्रमाणात खरेदी यंत्रणा नसल्यामुळे अडचणी आल्यात हि गोष्ट कमी अधिक प्रमाणात मका, हरभरा, तूर, तेलवीया इत्यादींच्या विपणातील अडचणींमध्ये आहे.
- ❖ टाळेवंदीमुळे विस्कळीत झालेल्या कृषी पुरवठ्याच्या साखळीमुळे शेतमाल अजूनही शेतकऱ्यांच्या घरांमध्ये आहे. त्यामुळे शेतकऱ्यांना पैशांची चणचण भासत आहे. पिककर्ज मिळवण्यास अडचणी जात आहे. त्यामुळे मान्सून सुरु होऊनही शेतकऱ्यांकडे पेरणीसाठी आवश्यक भांडवल नाही. यासाठी सरकारने आघाडीवर प्रयत्न करणे गरजेचे आहे. तसेच टाळेवंदीमुळे आलेल्या अडचणींना मात करून कृषी उत्पादनाचे विपणन नाविन्य पद्धतीने कसे करता येईल, विपणनातील संधी शोधाव्या लागतील नवीन वाटा निर्माण कराव्या लागतील.

औद्योगिक क्षेत्रावरील परिणाम :-

भारतामध्ये टाळेवंदीच्या काळांमध्ये सुरुवातीला सरसरकट सर्व उद्योग व्यवसाय बंद करण्यात आलेत. जगामध्ये बहुतांशी देशांमध्ये हीच परिस्थिती होती. ही टाळेवंदी कोणत्याही नियोजनाअभावी अचानक करण्यात आली. याचा भारतातील सूक्ष्म, लघु व मध्यम उद्योगांवर विपरीत परिणाम झाला. या क्षेत्रातील ८५ टक्के उद्योग बंद पडलेत. मोठ्या उद्योगांना होणारा कच्चा मालाचा पुरवठा त्यामुळे बंद झाला. यामुळे मोठे उद्योग अडचणीत आलेत. याचा परिणाम एकंदर उत्पादन साखळी विस्कळीत झाली.

गृहबांधणी उद्योग :-

टाळेवंदीमुळे बांधकाम ठप्प पडली आधीच मंदीमध्ये असलेले गृहबांधणी क्षेत्र साधारणतः १३ ते ३० टक्के इतकी मागणी मध्ये घट अनुभवेला अशी अपेक्षा आहे. आज देशातील मोठ्या मंडी सीटीजमध्ये फ्लॉट तयार होऊन मागणीच्या प्रतिक्षेत आहेत. परंतु मागणीची कमी आहे. याचा



तंत्रज्ञानाचा सहाय्याने शिकविण्यास सुरुवात केली आहे. खाजगी क्लासेसमध्ये दरवर्षी कोट्यावधी रुपयांची उलाढाल होते ती व्यवस्था मंदावलेली आहे.

अर्थात या महामारीचा सकारात्मक परिणाम सुद्धा शैक्षणिक क्षेत्रावर होऊ शकतो. उदा., नवीन तंत्रज्ञानाच्या सहाय्याने कौशल्य आधारित अभ्यास क्रम पुढे येतील व कमी खर्चात विद्यार्थ्यांना शिक्षणाची संधी उपलब्ध होईल. नवीन तंत्रज्ञानाचा सहाय्याने उच्च शिक्षणात संधी शोभता येईल.

या टाळेबंदीच्या कालवधीतही काही क्षेत्र असे होते त्यांनी वाढ नोंदवली व येणारा काळ त्यांच्यासाठी चांगलाच राहिल. यामध्ये औपधनिर्माण क्षेत्र व उगभोग क्षेत्र हे होय. यामध्ये औपधनिर्माण क्षेत्र जगामध्ये मोठ्या प्रमाणावर औपधन निर्यात करते. कोरोनामुळे देशांतर्गत व जागतिक पातळीवर बऱ्याच औपधांची मागणी मोठ्या प्रमाणात वाढल्यामुळे औपधनिर्माण कंपन्यांनी गेल्या तीमाही मध्ये वाढ दर्शविली. तसेच उपभोग क्षेत्रामधील खाद्यान्न वस्तूंच्या व दैनंदिन उपभोग वस्तू निर्माण करणाऱ्या कंपन्यांची कामगिरीमध्ये सुधार दिसून आला. हिंदुस्थान युनिलिक्व्हर कंपनीने आपल्या कामगारांच्या पगारामध्ये यावर्षीसुद्धा वाढ केलेली आहे.

निष्कर्ष :-

१) लॉकडाऊन वा टाळेबंदीमुळे देशातील तसेच महाराष्ट्रातील शेतकऱ्यांवर विपरीत परिणाम झाला आहे. बाजार समित्यांमधील विस्कळीतपणा, जिल्हाबंदी, वाहतुक व्यवस्थेचा अभाव यामुळे आंबे, द्राक्ष, मोसंबी, संत्री, केळी, टरबुज व भाजीपाला उत्पादक शेतकऱ्यांचे विपणनाअभावी मोठे नुकसान झाले.

२) टाळेबंदीमुळे बाजारसमित्या बऱ्याच काळ बंद राहिल्यामुळे कापूस, तूर, हरभरा, मका, गहू इत्यादी अनेक पिके तयार होऊनही बाजारपेठेमध्ये विकता आली नाहीत.

३) शेतकऱ्यांना शेतामध्ये खरिपाची लागवड करण्यासाठी पिक कर्ज हवे आहे मात्र मान्सून सुरू होऊनही शेतकऱ्यांना पिक कर्ज मिळताना अडचणी येत आहेत.

४) लघु व कुटीर उद्योग टाळेबंदीमुळे बंद पडलेत यापैकी बहुतांशी उद्योग दोन महिन्यांच्या टाळेबंदीमुळे कायमस्वरूपी बंदी होण्याचा धोका निर्माण झाला आहे.

५) पर्यटन, हवाईवाहतुक, हॉटेल्स, रेस्टॉरंट्स व इतर अनेक निगडीत व्यवसायीक व टाळेबंदीमुळे अडचणीत आलेले आहेत.

६) शहरी व ग्रामीण भागातील छोट, छोटे व्यवसायीक हे व्यवसायातील अनिश्चिततेमुळे अडचणीत आले आहेत.

पुर्वीच्या काळातील बारा बलुतेदारांपैकी त्याप्रकारे किंवा इतर असे व्यवसाय करणारे छोटे व्यवसायिक बंदीमुळे अडचणीत आले आहेत. टाळेबंदीमुळे नाभीक समाजाच्या व्यवसायीक केंद्रांवर सरकारने बंदी घातल्यामुळे अनेक प्रकारच्या अडचणींना तोंड द्यावे लागत आहे. बहुतांशी घटकांचा व्यवसाय ठप्प झाल्यामुळे बँकांकडून घेतलेल्या कर्जाचे हप्ते भरणे मुश्कील झाले आहे.

अशाप्रकारे टाळेबंदीचा भारतीय अर्थव्यवस्थेमधील विविध क्षेत्रांवर विपरीत परिणाम झालेला आहे. नुकत्याच आरबीआय ने जाहीर केलेल्या मौद्रीक धोरणात जीडीपी वृद्धीदर ऋणात्मक असे शक्यतांकांता दास यांनी स्पष्ट केले आहे. तसेच स्वातंत्र्यानंतरचे सर्वात जास्त स्थलांतरण लॉकडाऊनच्या काळात मजुरांचे झालेले आहे. यामुळे भविष्यात उद्योगधंदे सुरू केल्यानंतर मजुरांची समस्या प्रकर्षाने जाणवेल, उद्योग क्षेत्राला व कृषी क्षेत्राला भांडवलाची कमतरता जाणवेल. कृषी क्षेत्रासाठी सरकारला स्थायी उपाययोजना कराव्या लागतील, उद्योग क्षेत्र व सेवा क्षेत्र उभारीसाठी विशेष प्रयत्न सरकारला करावे लागतील, निर्यात वाढण्यासाठी विशेष प्रयत्न, प्रोत्साहन इ. करावे लागेल. तसेच राजकोपीय व मौद्रीक धोरणाच्या साधनांचा उचित समन्वय साधावा लागेल. ही आव्हाने सरकारला पेल्यावी लागतील.



संदर्भसूची :-

- १) भारतीय अर्थव्यवस्था वी.के. पुरी, एस.के. मिश्र हिमालया पब्लि., हाऊस
- २) www.hindubusinesslive.com
- ३) Indiatimes.economictimes.com
- ४) दै. लोकसत्ता

Trend Analysis With Respect To Area, Production And Yield Of Cotton In Maharashtra

M. O. Wankhade, H. A. Bhosale

Abstract: This study relates to the trend analysis of Area under cotton, production and productivity in Maharashtra, India. Time series data for last 54 years (from 1964-65 to 2017-18) is collected. Comparative study of Growth curve model, Linear trend model and Quadratic Trend models is made and the forecasts are generated for 10 years. Accuracy measures for estimates viz. Mean square deviation (MSD), Mean absolute percent error (MAPE) and mean absolute deviation (MAD) are used for suggesting the best model. On the basis of MSD, MAPE and MAD, we observed that quadratic trend model provides more accurate estimates as compared to growth curve model and linear trend model.

Key Words: Cotton, Linear, Growth curve, quadratic trend, MAPE, MSD, MAD

Introduction:

Cotton (*Gossypium* spp) is the most important crop in India. Maharashtra, Gujarat, Andhra Pradesh, Telangana and Karnataka are most cotton producing states in India. The four major cotton producing countries are China, India, USA and Pakistan which accounted for approximately three quarters of world output.⁵ In India, cotton plays a key role in the national economy in terms of both employment generation and foreign exchange earnings. By way of exports, foreign exchange earnings of cotton amount to about Rs. 50000 crores, which is nearly one-third of the total foreign exchange earnings of output country. It is expected to increase significantly in the coming years with the termination of quota regime in the liberalized trade scenario.³ India is currently first in area, second in yarn production and third in raw cotton production in the world. The cotton crop is cultivated in 12.3 million hectares with a production of 29.3 million bales each of 170 Kgs, at an average of 518 kg/ha. in 2017-18.2 Among Indian cotton growing states Gujarat, Maharashtra and Madhya Pradesh, contributed near about 60 per cent of the total cotton production in India. Andhra Pradesh and Telangana is main producer of cotton in southern part on India. Gujarat, Maharashtra, Madhya Pradesh, Andhra Pradesh, Telangana, Tamil Nadu, Rajasthan, Haryana, Punjab and Karnataka accounted for more than 95 per cent cotton production in India. In Maharashtra area under cotton is 42 lakh hectares, production 85 lakh bales of cotton and yield 343.48 kg/hectare. Maharashtra contribute more than one-third of cotton area and near about one-fifth of cotton production in the country.^{1,2} Maharashtra had three distinct cotton regions i.e. Vidarbha with assured rainfall, Marathwada lower rainfall than Vidarbha and rest of Maharashtra.

Methodology:

In the present study data are collected on area under cotton, production and yield (kg/hectare) from various publication and official websites of department of agriculture Maharashtra state,

Epitome of agriculture in Maharashtra-part 2, Directorate of Economics and Statistics Government of India, Handbook of statistics on the Indian Economy, Cotton Advisory Board of India and The Economic Outlook For U.S. Cotton 2018. The data have been collected for the period 1964-65 to 2017-2018. Growth curve model, Linear trend model and Quadratic Trend models are compared for analysis of trend with respect to area under crop (million hectares), production (million bales) and yield (kg/hectare) in the state of Maharashtra for the period 1964-2018. Accuracy measures for estimates viz. Mean square deviation (MSD), Mean absolute percent error (MAPE) and mean absolute deviation (MAD) are used for suggesting the best fit model for given time series data. Forecasts for 10 periods are generated and residual analysis in made using MINITAB 19.

Growth curve model: $Y_t = a * b^t$

Linear trend model : $Y_t = a + b * t$

Quadratic Trend model : $Y_t = a + b * t + c * t^2$

Mean square deviation : $MSD = \frac{1}{n} \sum_{t=1}^n [Y_t - \hat{Y}_t]^2$

Mean absolute percent error: MAPE

$$MAPE = \frac{1}{n} \sum_{t=1}^n \left[\left| \frac{Y_t - \hat{Y}_t}{Y_t} \right| \right] * 100$$

Mean absolute deviation (MAD)

$$MAD = \frac{1}{n} \sum_{t=1}^n |Y_t - \hat{Y}_t|$$

Area, production and Yield of cotton in Maharashtra			
Year	Area	Production	Yield
	Lakh hectare	Lakh bales (bale= 170 kg)	kg/hectare
1964-65	28.24	12.51	80
1965-66	26.63	10.03	68
1966-67	26.11	10.75	74
1967-68	27.94	13.53	87
1968-69	27.17	13.57	88
1969-70	28.11	12.14	78
1970-71	28.12	4.82	31
1971-72	23.78	9.17	69
1972-73	25.31	10.53	75
1973-74	22.47	10.16	77
1974-75	25.02	17.17	112
1975-76	23.1	7.72	57
1976-77	21.2	8.33	67
1977-78	23.14	12.63	93
1978-79	25.09	13.17	90
1979-80	25.88	16.95	111
1980-81	26.67	12.69	81
1981-82	27.1	14.65	92
1982-83	26.48	16.09	103
1983-84	26.85	8.14	52
1984-85	26.85	14.67	95

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1985-86	27.53	19.89	91
1986-87	26.92	8.88	78
1987-88	25.17	14.67	96
1988-89	26.27	13.73	107
1989-90	26.35	22.11	121
1990-91	27.3	15	93
1991-92	27.27	12.48	78
1992-93	24.8	20.5	141
1993-94	27.3	25	156
1994-95	27.6	15.84	98
1995-96	30.7	28.74	159
1996-97	30.85	33	182
1997-98	31.39	21.5	116
1998-99	31.99	26.5	141
1999-2000	32.54	38	199
2000-01	30.77	18.25	101
2001-02	29.8	34.25	195
2002-03	28.01	26	158
2003-04	27.66	31	191
2004-05	28.4	52	311
2005-06	28.75	36	213
2006-07	31.07	50	274
2007-08	31.91	62	330
2008-09	31.33	62.1	336
2009-10	35.03	65.75	319
2010-11	39.42	87.75	379
2011-12	41.25	76	313.21
2012-13	41.46	81	332.13
2013-14	41.92	84	340.65
2014-15	41.9	80	324.58
2015-16	42.07	76	307.11
2016-17	38	88.5	395.92
2017-18	42.07	85	343.48

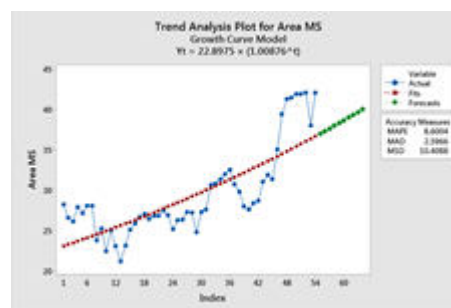
Source: Cotton Advisory Board of India

2.1 Fitted Trend Curves for Area under cotton:

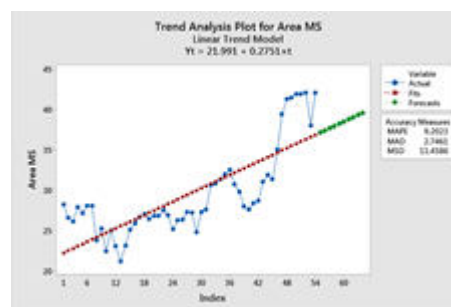
Accuracy measures	Fitted Trend equations under		
	Growth Curve Model	Linear Trend Model	Quadratic Trend Model
	$Y_t = 22.8975 * (1.00876^t)$	$Y_t = 21.991 + 0.2751 * t$	$Y_t = 28.025 - 0.3714 * t + 0.01176 * t^2$
MAPE	8.6004	9.2023	6.24397
MAD	2.5966	2.7461	1.83783
MSD	10.4088	11.4586	4.94125
Year	Forecasts		
2018	36.9928	37.1228	43.1575
2019	37.3169	37.3980	44.0910
2020	37.6438	37.6731	45.0480
2021	37.9735	37.9482	46.0285
2022	38.3062	38.2234	47.0325
2023	38.6417	38.4985	48.0600
2024	38.9802	38.7736	49.1110
2025	39.3217	39.0488	50.1855
2026	39.6662	39.3239	51.2836
2027	40.0136	39.5990	52.4051

(MS-Represents Maharashtra in all figures)

a. Growth Curve model: For area under cotton.



b. Linear trend model: For area under cotton



Results and Discussion:

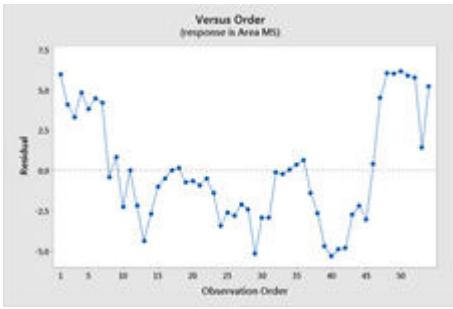
1. Statistical measures:

Statistical measures are computed and presented in the following table.

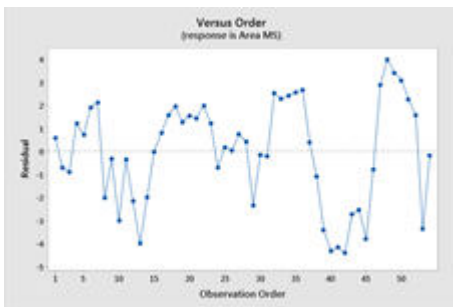
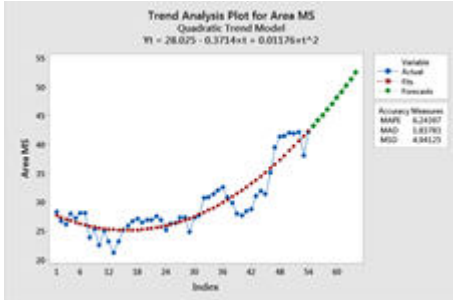
Statistical Constants	Area (Lakh hectare)	Production Lakh bales (bale= 170 kg)	Yield (kg/hectare)
Mean	29.5566	30.7566	161.1126
Standard Error	0.7504	3.5291	14.2682
Standard Deviation	5.5145	25.9341	104.8496
Coefficient of Variation	18.6575	84.3202	65.0784

2. Trend Analysis:

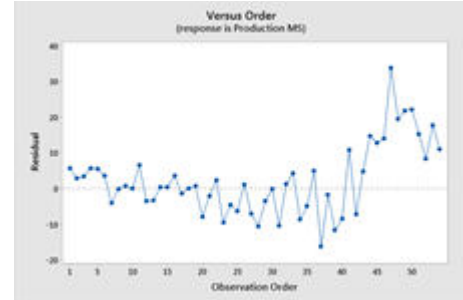
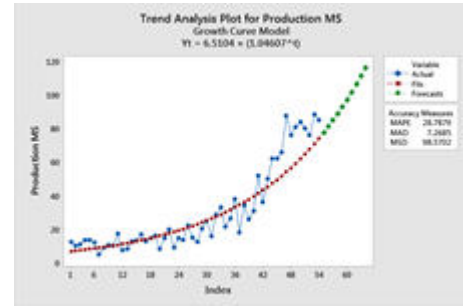
Growth curve model, Linear trend model and Quadratic trend model are fitted for area under crop, production of cotton and yield of cotton in Maharashtra using the principle of least squares in MINITAB 19.



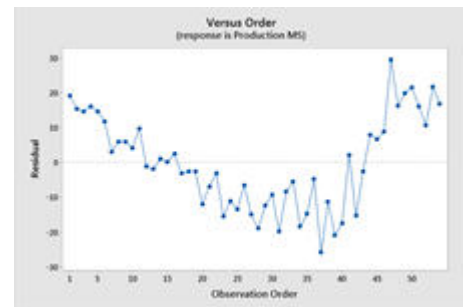
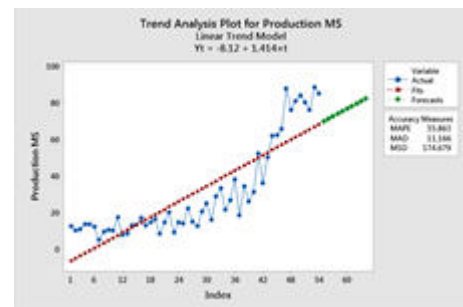
c. Quadratic Trend Model: For area under cotton



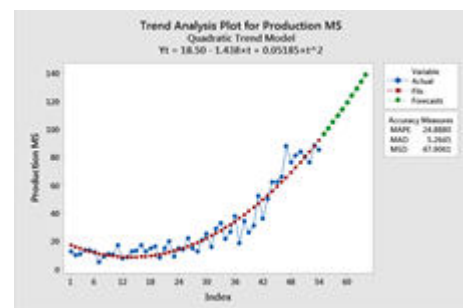
a. Growth Curve model: For Production of cotton bales



b. Linear trend model: For Production of cotton bales

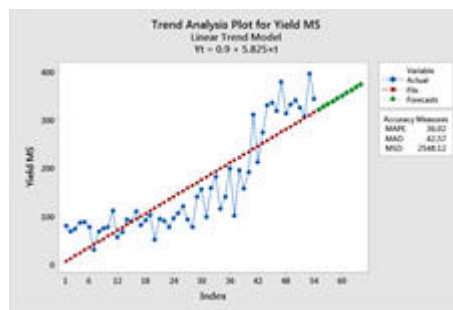
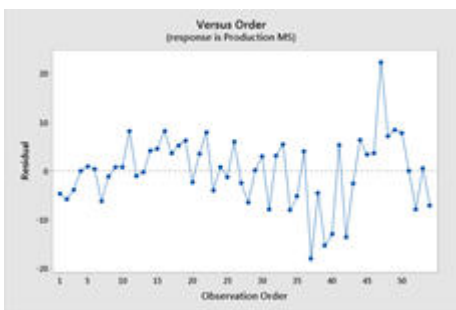


c. Quadratic Trend Model: For Production of cotton bales



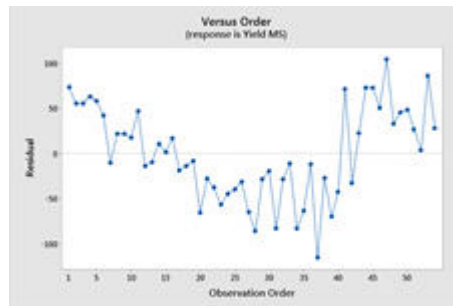
2.1 Fitted Trend Curves for Production of cotton:

Accuracy measures	Model		
	Growth Curve Model	Linear Trend Model	Quadratic Trend Model
	$Y_t = 6.5104 * (1.04607^t)$	$Y_t = -8.12 + 1.414*t$	$Y_t = 18.50 - 1.438*t + 0.05185*t^2$
MAPE	28.7879	55.863	24.8880
MAD	7.2685	11.166	5.2645
MSD	98.5702	174.679	47.9061
Year	Forecasts		
2018	77.529	69.6319	96.247
2019	81.101	71.0456	100.564
2020	84.837	72.4592	104.985
2021	88.746	73.8729	109.510
2022	92.834	75.2865	114.138
2023	97.111	76.7002	118.870
2024	101.585	78.1138	123.706
2025	106.265	79.5274	128.645
2026	111.161	80.9411	133.688
2027	116.282	82.3547	138.835

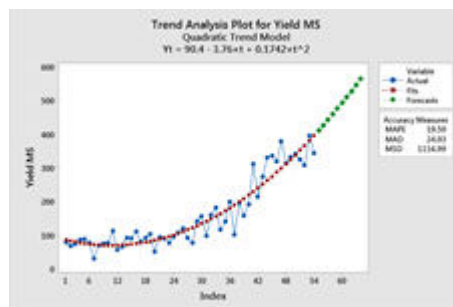


2.2 Fitted Trend Curves for Yield of cotton:

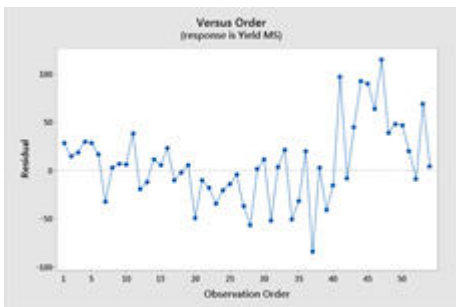
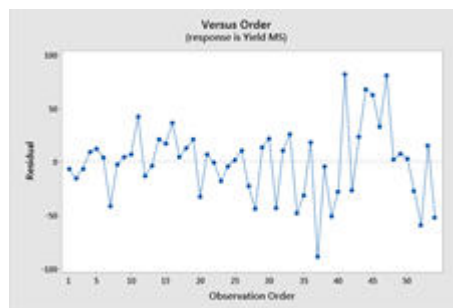
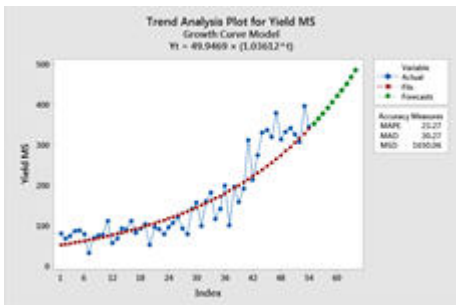
Accuracy measures	Model		
	Growth Curve Model	Linear Trend Model	Quadratic Trend Model
	$Y_t = 49.9469 * (1.03612^t)$	$Y_t = 0.9 + 5.825 * t$	$Y_t = 90.4 - 3.76 * t + 0.1742 * t^2$
MAPE	23.27	36.02	19.59
MAD	30.27	42.57	24.93
MSD	1650.06	2548.12	1116.99
Year	Forecasts		
2018	351.697	321.294	410.720
2019	364.402	327.119	426.300
2020	377.565	332.944	442.229
2021	391.205	338.769	458.506
2022	405.337	344.594	475.131
2023	419.980	350.418	492.105
2024	435.151	356.243	509.427
2025	450.871	362.068	527.098
2026	467.158	367.893	545.117
2027	484.034	373.718	563.485



c. Quadratic Trend Model: Yield of cotton (kg/hectare)



a. Growth Curve model: Yield of cotton (kg/hectare)



b. Linear trend model: Yield of cotton (kg/hectare)

Conclusion:

The study reveals that an average area under cotton is found to be 29.56 lakh hectares with coefficient of variation 18.66%, Cotton production 30.76 lakh bales with coefficient of variation 84.32% and Yield 161.11 kg per hectare with coefficient of variation 65.078%. We observed that there is 18.66% variation in area under crop, 84.32% variation in production and 65.078% in yield kg/hec. of cotton. There is more variability in production of cotton bales as compared to area under crop and yield per hectare of cotton. Accuracy measures viz. MAPE, MAD and MSD reveals that quadratic trend model is the best fit as compared to growth curve and linear trend models for the data under study. Quadratic trend model showed higher forecasts values than growth curve and linear trend model. Linear trend model leads to the lower forecasts. the residuals are observed to be at lower side in quadratic trend model than

other two models under study. We conclude that quadratic trend model is the best fit model for the trends in area, production and yield of cotton in Maharashtra.

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Translation in Maharashtra: An Overview of the Past Two Hundred Years

PRITHVIRAJ SINGH THAKUR

There is a rich and old tradition of translation in India. The advent of the British and the establishment of the British rule in India is an important epoch in the history of translation in India. Indian translation has been enriched by the translations done by several translators from English into Indian languages and vice-versa. This paper aims to look the tradition of translation in Maharashtra in the last two hundred years. There is a special significance this period because it is in this age that the activity of translation in Maharashtra took a new turn.

Keywords: translation, Indian languages, Marathi, Maharashtra.

Introduction

It is only natural and obvious that a linguistically and culturally rich and diverse country like India should have a glorious and rich tradition of translation along with its equally rich body of creative literature. Like other parts of India, Maharashtra has also made quite a rich and illustrious contribution to the field of translation in India. In this paper, I propose to look at the history of translation in Maharashtra and the contribution of the scholars of Maharashtra to the field of Indian translation in the 19th and the 20th century. I will begin by discussing the translations from English into Marathi and then proceed to discuss translation from Marathi into English. Translations of the Shakespeare's works from English into Marathi is so rich that a separate section has been devoted to its discussion.

English-Marathi Translations: An Overview

Like other Indian languages, Marathi also has an illustrious history of translation. It begins with Sant Dnyaneshwar's *Bhawarthdeepika* or *Dnyaneshwari*, which is a verse rendering of the Bhagavad Gita with Dnyaneshwar's commentary (also in verse). This is followed by the works of poets like Narendra, Mukteshwar, Moropant, Shridhar, Vaman Pandit and Raghunath Pandit who rendered various Sanskrit texts like the epics Ramayana and Mahabharata (or episodes from them), or tales from the Puranas in glorious Marathi verse. However, the tradition of translation from other languages into Marathi grew into a literary *polysystem* in the colonial period after the decline of the Maratha power and coming of the British rule. The old order was crumbling giving place to new. Everything was changing and literature and culture were changing all the more rapidly. A new class of

English educated youth was bringing about a renaissance of ideas. Pandit (2017:136) tells us:

The socio-cultural ethos in the then contemporary Maharashtra represented a renaissance of ideas caused by the colonial contact and confrontation which led to the emergence of a translation and literary culture which was completely different from the past.

A new culture of translation emerged in the nineteenth century which was quite different from the hitherto dominant culture of translation in Marathi. Translation was seen by the rulers as the means of transferring the thoughts, ideas and value system of the dominant (read English) culture into the language and culture of Maharashtra. The British rulers recognized the importance of translators as the agents of cultural change and used them to the fullest extent. Pandit (2017) divides the growth of translation culture in Marathi into three broad phases: from 1825 to 1850, 1850 to 1875 and 1875 to 1900.

In the first phase, mostly the English textbooks were translated into Marathi with an intention of making the natives familiar with European knowledge. This was followed by the translation of books on moral education which included translations of books like *Aesop's Fables*, *Children's Friend* by Berquin (translated as *Balmitra* by Sadashiv Kashinath Chhatre) and *Pilgrim's Progress* (translated by Hari Keshavji). These books became very popular with the school children and the general public also. On another front, Balshastri Jambhekar, the founder editor of the first Marathi newspaper *Darpan* (1832), was giving Marathi translations of English news items in his newspaper.

Translation of English works into Marathi got a new impetus with the establishment of the Bombay University in 1857. Before that, scholars like Major Candy (who brought out a list of *Hints for the Guidance of Translators* in 1850) had been making significant contribution to enrich the tradition of translation in Marathi. The British government established the *Dakshina Prize Committee* in 1851 to reward good translations and independent writings. All this gave a great boost to the activity of translation which is evident from both the number and quality of the works translated from English into Marathi in this period (i.e. from 1850-1875). There started a great fashion of translating Shakespeare's plays in Marathi. It has been discussed in detail in the next subsection in this chapter. Apart from Shakespeare's plays, other English literary and scholarly works were also translated into English. For instance, Krishnashastri Chiplunkar translated Dr. Johnson's novel *Rasselas* as well as Mill's *Political Economy* into Marathi.

After 1875, Marathi translations of English texts grew both in number and variety. Raosaheb Viswanath Narayan Mandlik translated Mountstuart Elphinstone's *History of India* as *Hindustānshā Itihās* in 1891. Marathi translations of Shakespeare's plays continued to appear. Other English works like Goldsmith's *Good-Natured Man* and *She Stoops to Conquer*, Daniel

Defoe's Robinson Crusoe appeared in Marathi translation in this period. The great Marathi historian Vishwanath Kashinath Rajwade made a huge contribution to the cause of translation in Maharashtra by founding a journal called *Bhāshāntar* in 1895. This journal was devoted entirely to the publication of great English scholarly works in Marathi translation. In this journal, Rajwade published his Marathi translations of works like Plato's *Dialogues* and Gibbon's *Decline and Fall of Roman Empire*. Another great work of western literature that was translated into Marathi in the late nineteenth century was Homer's Iliad. Ganesh Ramkrushna Hawaldar did a verse translation of Iliad in Marathi about this time. It was published in 1913. It still remains the only verse translation of Iliad in Marathi and most probably in any Indian language.

Nineteenth century was thus a golden age of translation in Marathi scholarship and it fostered a tremendous change in the history of Marathi literature. It was in this age, that Marathi prose was reborn in a new form. In the words of Maya Pandit:

Thus, the study of translation culture in the nineteenth-century Maharashtra reveals a marked development in the translation culture. Choice of books for translation, strategies adopted for translation, actual functions of translations in the literary polysystem underwent a lot of changes because they were defined by the colonial discourse. The field of translations underwent several changes which were a result of the changing nature of the relationship between the natives and the colonial rulers. Yet it cannot be denied that translations played a major part in shaping modern Marathi prose (Pandit 2017:155-156).

Shakespeare in Marathi Translation

After the start of English education in Maharashtra with the establishment of the Bombay University in 1857, there soon appeared a generation of young English educated Maharashtriyans. They were fascinated by the British literature and particularly by Shakespeare. The Marathi people had always been the lovers of drama. The plays of Shakespeare opened a treasure-trove of great dramatic art before them. They soon took to translating/adapting Shakespeare into Marathi with the intention of enriching Marathi literature and popularizing Marathi theatre even more. Thus, the tradition of the translation of Shakespeare's plays into Marathi started. This tradition is so long, so rich and so full of variety that any discussion of the tradition of Marathi-English translation cannot be complete without taking into account the translation of Shakespeare into Marathi.

The tradition of translating/adapting Shakespeare's plays into Marathi is very long and illustrious. It begins in 1857 with Nanasaheb Peshwa and continues till date.

Though the early Marathi dramas were mostly the adaptations/translations of classical Sanskrit plays of Kalidas, Bhas and Bhavabhuti, there had come into existence in the late 19th century Maharashtra, a branch of plays translated from English called ‘the bookish plays’, ‘Bookish’ was the term used for the Marathi plays translated from Shakespeare. However, translation of Shakespeare’s plays into Marathi had started even before 1860s. Nana Saheb Peshwa translated Hamlet in 1857. But it was after 1860, that Shakespeare was translated into Marathi more seriously and with more zeal. A number of translations started to appear. Prominent among them were - *Othello*) 1867 (by Mahadevshastri Kolhatkar, *Vilakshan Nyaya Chaturya*) 1868 (by Sakharam Pandit and *Stri Nyaya Chaturya* by A.V. Patkar] both translations of *The Merchant of Venice*, [*Vijaysingh*] *Julius Caesar* [(1872) by K.G. Natu, *Tempest*) 1875 (by Nilkanth Janardan Kirtane, *Bhranikrut Chmatkar*- *Comedy of Errors*), 1878 (by B. R. Pradhan and S. B. Jathar and *Tara-Cymbeline* by Vishnu Moreshwar Mahajani (1877). These plays became popular immediately –particularly among the English educated people of Mumbai.

From 1880 onwards, we see a significant improvement in the number and quality of the Marathi translations of Shakespeare’s plays. S. M. Ranade’s translation of *King Lear* –*Atipid Charita* appeared in 1880. Due to the demands of his audience, he had to change the ending of the play to a pleasant and happy one. *Vikaravilasita*, Gopal Ganesh Agarkar’s famous translation of *Hamlet*, appeared in 1883 and remained popular for a long time. In fact, it is still read and studied. Vitthal Seetaram Gurjar)1905 (and later Mohan Agashe brought *Merchant of Venice* as a musical play with the titles *Sangeet Pranaymudra* and *Sangeet Saudagar* respectively. Though *Hamlet* and the *Merchant of Venice* remain the most translated of Shakespeare’s plays in Marathi, translations of other plays of Shakespeare also appeared after 1880. Notable among them were -*Tratika* (*Taming of the Shrew*) and *Veermani va Shringarsundari* (*Anthony and Cleopatra*) by V.V. Kelkar as well as *Mohavilasita* (*Winter’s Tale*) and *Vallabhanunaya* (*All’s Well that Ends Well*) in 1887 by Vishnu Moreshwar Mahajani.

Among other notable translations and adaptation, there are plays like *Bhural athava Ishawikrit Lapandaav* [*A Comedy of Errors*] (1876) by A.V. Patkar, *Prataprao ani Manjula* [*Antony and Cleopatra*] by A.V. Musale (1882) and *Zunjarrao* [*Othello*] (1890) by G. B. Deval G. S. More and L.N. Joshi translated *King Lear* as *Kanyaparikshan* and *Vikaar-Vihaar* respectively in 1881.

Shakespeare’s English history plays were also brought into Marathi but they did not enjoy as much success as his other plays. Among the English history plays, L.N. Joshi brought *King John* as *Kapidhwaj* into Marathi in 1904 while Hanmant Atre translated *King Henry VIII* as *Raja Ragunathrao* in the same year. *King Henry V* and *King Henry IV* were translated as *Pancham Henry Charit* (1911) and *Bandache Praayashchitta* (1915) by Khanderao Belsare and Narayan Limaye respectively. Then there were three adaptations

of the Tragedy of King Richard III as Jayajirao (1891) by B. R. Nanal, *Daiva Durvilasa* (1904) by Vasudeo Sathe and *Raja Rakshas?* (Unknown) by K. H. Dikshit.

All these early Marathi translators of Shakespeare had to deal with more or less the same problems that the translators of Shakespeare in other Indian languages faced. They all faced the problem of adapting a foreign dramatic form to suit the Indian situation. According to Bharat's *Natyashastra*, tragedy was something totally forbidden on Indian stage and many times we see the translators ending the play happily. They struggled to find a suitable equivalent of Shrew for example and we see Kelkar using the *Tratika* –the female demon from Ramayana –as an equivalent of Shrew. Sisir Kumar Das in his essay *Shakespeare in Indian Languages* in Trivedi and Bartholomeusz) 2005 (gives us a detailed account of the problems faced by Indian translators of Shakespeare – particularly in the 19th century when the society was more orthodox and things like premarital love could not be discussed even privately –let alone in public. Das tells us how D. A. Kesakar's Marathi translation of *Romeo and Juliet* –*Tara Vilas* (1908) -faced stiff resistance and could not be staged at all. But at the same time, another translation *Mohan Tara* by K. R. Chapkhane became extremely popular. Another important adaptation of *The Merchant of Venice* is *Ek Pound Maas* (A Pound of Flesh) by S. B. Gondhalkar which appeared in 1944.

After 1950, we see in Marathi theatre, a considerable revival of interest in Shakespeare. Many stalwarts of Marathi literature/theatre came up with translations /adaptations of Shakespeare with more skill and maturity than ever. The great Marathi poet and dramatist Vishnu Vaman Shirwadkar alias Kusumagraj, came up with *Rajmukut* [Macbeth] and *Othello* between 1954 to 1960. Shirwadkar's engagement with Shakespeare does not stop here. In his famous Marathi drama *Natsamrat* [The Great Actor], we have an extremely wonderful and soul stirring translation of 'to be or not to be' as *Jagawa ki Maraava haa ekach prashan aahe* (To be or not to be, that is the question). This particular soliloquy in *Natsamrat* still holds a special place in the hearts of the lovers of Marathi literature and can very well be termed as an excellent example of transcreation. Shirwadkar has described his tryst with Shakespeare in *Shodh Shakespearecha* [In Search of Shakespeare] -a collection of articles written on Shakespeare (2012).

Nana Jog, a stalwart in the field of modern Marathi theatre translated *Hamlet* in 1959. This is considered to be a much acclaimed and famous translation and is often compared with Agarkar's *Vikaravilasita*. Another great Marathi poet, G.V. Alias Vinda Karandikar, also a professor of English, translated *King Lear* as *Raja Lear* in 1974.

In this tradition, the most recent Marathi poet to translate Shakespeare is the legendary poet Mangesh Padgaonkar who translated *The Tempest* as *Waadal* in 2001, *Julius Caesar* in 2002 and *Romeo and Juliet* as *Romeo ani Juliet* in 2003. Arun Naik is another famous contemporary translator and producer of Shakespeare's plays. He has translated and produced *Hamlet*,

Macbeth and Othello. In addition to this, he has also translated Shirwadkar's book *Shodh Shakespearecha* into English as 'In Search of Shakespeare (2012)'.

It is important to add here, that almost all these modern translations of Shakespeare have detailed introduction, notes and appendices thereby making a significant contribution to Shakespeare criticism in Marathi. Mumbai based Avishkar Theatre Group staged 'Jungle me Mangal', adaptation of *A Midsummer Night's Dream* in the form of Marathi folk drama called *tamasha* in February 2007.

Translations from Marathi to English

It is difficult to trace the beginning of the tradition of translation from Marathi into English with certainty. Marathi started coming into close and frequent contact with English in the late eighteenth and early nineteenth century. During this period however, the focus of the English scholars was mainly on translating texts from Sanskrit into English. The earliest and arguably the most significant result of Marathi-English contact was the Marathi-English dictionary of Captain James Thomas Molesworth and Major Thomas Candy which is still in print after it was first published in 1831.

Sawant (2005) traces the beginning of translation from Marathi into English back to the early twentieth century. He calls the American missionary Justin E. Abbot, the pioneer of the tradition of translation from Marathi into English. Abbot translated the poetry of almost all the Marathi saints into English publishing his translations in the form of eleven books under the series *The Poet-Saints of Maharashtra*. In this series, he published the following books:

Bhanudas (1926), *Eknath* (1927), *Bhikshugeet Athva Anutaptakadarya* (1927), *Dasopant Digambar* (1927), *Bahinabai* (1929), *Stotramala* (1929), *Tukaram* (1930), *Ramdas* (1932) *Stories of Indian Saints*, Vol I (1933), *Stories of Indian Saints*, Vol. II (1934), and *Nectar from Indian Saints* (1935).

Sawant honours the contribution of Abbot to the cause of translation from Marathi into English in the following words:

“Justine Abbot became almost an insider to Marathi culture and tried to absorb the best in the medieval ‘saint poetry’ tradition of Maharashtra. (Sawant, 2002: 31-32) Abbot's lifelong translation work of Marathi saint-poets thus marked a significant shift in the cultural and literary contact between the West and Maharashtra. The tradition of translating from Marathi into English continued when some of our own bilingual authors began to render Modern Marathi literature in English” (Sawant, 2005:250).

After the 1950s, we find a quite significant surge in the translation from Marathi into English. Most of these were the translations of Marathi short stories, novels, drama and poetry.

Ian Raeside, Lecturer in Marathi and Gujrati of the School of Oriental and African Studies (SOAS), University of London translated a collection of modern Marathi short stories written by Gangadhar Gadgil, Arvind Gokhale, P. B. Bhawe, Vyankatech Madgulkar, D. B. Mokashi, D. M. Mirasdar, Malatibai Bedekar and others as *The Rough and the Smooth* in 1966.

He was also commissioned by the UNESCO to translate S. N .Pendse's novel *Garambicha Bapu* which he translated as *Wild Bapu of Garambi* in 1969.

Shuba Slee's translated Kiran Nagarkar's novel *Saat Sakkam Trechalis* as *Seven Sixes are Forty-three*. It was published in 1980 by the University of Queensland Press, St. Lucia, Queensland, Australia. Kumud Mehta has translated P. S. Rege's Marathi works *Savitri* and *Avalokita* into English in 1969.

Recently, quite a lot of significant Marathi texts have been translated into English .Dilip Chitre and Bhalchandra Nemade are two famous names in this area. Dilip Chitre translated poems of Saint Tukaram into English as *Says Tuka* .

Marathi drama is now being translated with a lot of zeal into English. Although, till the 1990s, very few Marathi dramas had been translated in to English.

Jayant Karve and Elinor Zoliet have translated Vijay Tendulkar's play *Ghashiram Kotwal* into English in 1984 .Six of Tendulkar's plays have been translated into English so far. Among them is the English translation of *Sakharam Binder* (1973) by Shanta Shahane and Kumud Mehta. Priya Adarkar translated *Shantanta, Kort Chalu Ahe* as *Silence, the Court is in Session* in 1979. After 1990, a number of Marathi dramas began to appear in English translation. Priya Adarkar's English translation of five plays of Vijay Tendulkar was published by Oxford University Press in 1992. Today, many contemporary Marathi plays by writers like G. P. Deshpande, Satish Alekar, Shanta Ghokale, and Mahesh Elkunchwar have been translated into English with a lot of critical acclaim.

Prof. Datta Bhagat's drama *Vaataa Palwaataa* has been translated into English as 'Routes and Escape Routes (2001)' Gauri Deshande has translated Satish Alekar's play *Mahanirvan* as 'Mahanirvan -The Dread Departure (1989)' G. P. Deshpande's play *Chanakya Vishnugupta* has also been translated into English in 1996 by Maya Pandit .

Many important Marathi works of fiction have also appeared in English recently. They have been quite well received both by the English reading public and the critics. Jerry Pinto has translated Daya Pawar's novel *Baluta* into English in 2015. Sudhakar Marathe has translated Bhalchandra Nemade's novel *Kosla* as 'Cucoon (1997)' and R. R. Borade's novel *Pachola* as 'Fall (1999)'. Marathe has also translated *Ulgulaan-* a collection of Marathi poems

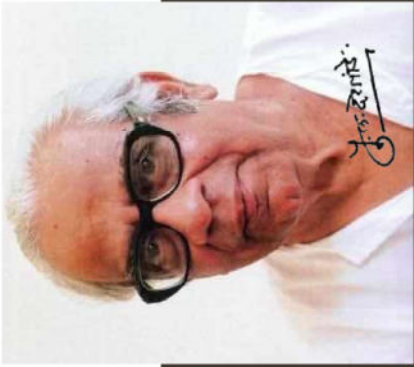
by Dalit poet Bhujang Meshram. Dalit poet Arjun Dangle has published a collection of English translation of selected poems of a few Marathi Dalit poets as ‘Poisoned Bread: Translations from Modern Marathi Dalit Literature (2009)’. Jaysingh Rao Pawar’s biography of Shahu Maharaj has been translated into English. Arun Sadhu’s novel *Viplav* has been translated into English along with some of his short stories. Vishwas Patil’s novel *Sambhaji* has also appeared in English in 2007 .

Thus, it is quite obvious from this discussion, that the tradition of translation in Maharashtra is flourishing and has come a long way now. The empire is writing back powerfully and a great many Marathi works – including the works of Dalit, Adivasi and other underprivileged writers- are being translated into English. This will undoubtedly help Marathi literature acquire global readership and give a voice to the marginalized who had been side-lined so far.

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- पुण्यस्मरण / हृदयस्थः जुनेकर सर / प्रिया निघोजकर / ३४
- कवितेच्या निमित्ताने / लावण्य : प्रशेतच फक्त तथे उजळवे ! / रमेश पानसे / ३९
- परिषद वार्ता / सुप्रिया खाडिलकर / ४४

: मराठी अभ्यास परिषद कार्यकारी मंडळ :

सलील वाघ (अध्यक्ष), विजय पाध्ये (अध्यक्ष), सुप्रिया खाडिलकर (कार्यवाह), मयूर गोहाड (सह-कार्यवाह), वैशाली कॉलेंकर (कोषाध्यक्ष), आनन्द काटीकर, रमेश पानसे, कलिका मेहता, सुशील धसकटे, रावसाहेब काळे (अकोला), उमेश करंबेळकर(सातारा)

भाषांतरशास्त्र ही आज एक महत्त्वाची विद्याशाखा म्हणून उदयास आली आहे. १९७० पासून भाषांतरशास्त्र ही एक स्वतंत्र विद्याशाखा म्हणून ओळखली जाऊ लागली आहे. एका स्वतंत्र अध्ययन व संशोधन क्षेत्राचे स्वरूप या शाखेला आता प्राप्त झाले आहे. याचे बरेचसे श्रेय जेम्स एस. होम्स यांच्या 'द नेम अँड नेचर ऑफ ट्रान्स्लेशन स्टडीज' या १९७२ मध्ये प्रसिद्ध झालेल्या शोधनिबंधाला जाते. याच शोधनिबंधाने भाषांतरशास्त्राचा स्वतंत्र शाख म्हणून पाया घातला असे मानले जाते. या दृष्टीने विचार करता भाषांतरशास्त्र बरेच अलीकडचे शाख आहे. भाषांतर म्हणजे नेमके काय, त्याची व्याख्या, त्याचे स्वरूप व त्याच्या मर्यादा या सर्वांची चिकित्सा सैद्धांतिक व उपयोजित अशा दोन्ही पातळ्यांवर करणे असे ढोबळमानाने भाषांतरशास्त्राचे स्वरूप आहे. त्यामुळे या शाखाचा इतर विद्याशाखांशी आंतरशाखीय (म्हणजेच इंटरडिसिप्लिनरी) स्वरूपाचा संबंध मोठ्या प्रमाणात येतो. भाषांतरशास्त्राचे स्वरूपच मुळी आंतरशाखीय आहे. भाषांतरशास्त्राचा शास्त्रीय अभ्यास किंवा चिकित्सा करताना भाषाशास्त्र, समाजभाषाशास्त्र (sociolinguistics), साहित्य, संस्कृती, मानसशास्त्र, तत्त्वज्ञान या व अशा अनेक शाखांची मदत घ्यावी लागते. भाषांतरशास्त्रात आजवर मुख्यतः भाषांतरप्रक्रियेचा विचार मोठ्या प्रमाणावर झाला आहे, परंतु भाषांतराची शास्त्रशुद्ध समीक्षा इंग्रजीत व मराठीत होताना विस्तत नाही. भाषांतरकाराने भाषांतरप्रक्रियेदरम्यान स्वतःला आलेले अनुभव व त्याला सोडवाव्यात लागलेल्या समस्या यांचा शोध शास्त्रीय पातळीवरून घेणे हे भाषांतरशास्त्राच्या वाढीसाठी उपकारक आहे. मात्र हे सर्व पाहिले तितक्या प्रमाणावर होताना दिसून येत नाही. मराठीत तर याची वानवाच आहे असे म्हटले तरी चालेल.

प्रस्तुत लेखात लेखकाला विष्णुभट गोडसे यांच्या 'माझा प्रवास: अठराशे सतावनच्या बंडाची हकीकत' या मराठी पुस्तकाचे इंग्रजी भाषांतर करताना ज्या समस्यांना सामोरे जावे लागले त्यांचा थोडक्यात चिकित्सक आढावा घेण्याचा प्रयत्न केला आहे. या लेखाचे मुख्य गृहितक म्हणजे- 'मराठीतून इंग्रजीत भाषांतर करताना येणाऱ्या समस्या या मुख्यतः समाजभाषाशास्त्रीय समस्या असतात' असे आहे. या गृहितकाच्या अनुषंगाने 'माझा प्रवास'चे इंग्रजी भाषांतर करताना आलेल्या समस्यांचा विचार केला आहे.

'माझा प्रवास'ची भाषांतरे:

'माझा प्रवास'चे प्रस्तुत लेखकाने केलेले इंग्रजी भाषांतर २०१५मध्ये पूर्ण झाले व ते अद्याप अप्रकाशित आहे. दरम्यान 'माझा प्रवास'ची इंग्रजी भाषांतरे आणि सुखमणी रॉय तसेच शांता गोखले आणि प्रिया आडारकर यांनी केली आणि ती अनुक्रमे २०१२ आणि २०१४ मध्ये प्रकाशित झाली. रॉय यांचे भाषांतर रोहन प्रकाशनने तर गोखले व आडारकर यांचे भाषांतर 'ऑक्सफर्ड युनिव्हर्सिटी प्रेस'ने प्रकाशित केले आहे. दोन्ही भाषांतरांच्या उपोद्घातामध्ये भाषांतरकारांनी आपल्याला आलेल्या समस्यांचा व त्यावरील उपायांचा उद्घापोह केला आहे. परंतु ही एखाद्या विशिष्ट सैद्धांतिक दृष्टिकोनातून ठावून केलेली शास्त्रीय चर्चा नसून वाचकांभेटे आपल्या भाषांतराचे केलेले वर्णन आहे. प्रस्तुत लेखाचा हेतू वेगळा आहे. भारतीय

भाषांमधून इंग्रजीत भाषांतर करताना येणाऱ्या समस्या या मुख्यतः समाजभाषाशास्त्रीय समस्या असतात या गृहितकावर सदर लेख आधारलेला आहे.

इतर अभ्यासकांनी या विषयावर केलेले अभ्यास व मांडलेली गृहितके:

भाषांतराच्या समाजभाषाशास्त्रीय अध्ययनासंबंधी इंग्रजीत लक्षणीय लिखाण झाले आहे. पाश्चात्य विद्यापीठांमध्ये यावर काही प्रमाणात विचार करण्यात आला आहे. सारा रामोस पिटो आपल्या निबंधात समाजभाषाशास्त्र आणि भाषांतरशास्त्र यातील परस्पर संबंध स्पष्ट करतात. त्यांच्या मते भाषांतराकडे पाहण्याचा भाषाशास्त्रीय दृष्टिकोन आता कालबाह्य झाला आहे. भाषांतर हीसुद्ध भाषाबदल (Language Change), बहुभाषिकत्व (Multilingualism) यासारखी एक समाजभाषाशास्त्रीय प्रक्रिया आहे व त्याकडे म्हणूनच समाजभाषाशास्त्रीय दृष्टिकोनातून पाहणे योग्य ठरते. थोडक्यात, भाषेला सामाजिक वापराचे संदर्भ असतात. म्हणूनच भाषांतरालाही समाजभाषाशास्त्रीय परिमाण असणे स्वाभाविक आहे. इंदिरा जुनघरे यांनी आपल्या शोधनिबंधात फर्ग्युसनार्थ रेषू यांच्या 'मैला आंचल' या हिंदी कादंबरीचा इंग्रजी अनुवाद करताना त्यांना आलेल्या समस्यांची चर्चा केली आहे. त्यांच्या निष्कर्षानुसार भिन्न संस्कृतीच्या भाषांमध्ये भाषांतर करताना येणाऱ्या समस्या या मुख्यतः समाजभाषाशास्त्रीय समस्या असतात.

'माझा प्रवास'चे स्वरूप:

विष्णुभट गोडसे यांचे 'माझा प्रवास' हे मराठीतील आद्य प्रवासवर्णन म्हणून मान्यता पावलेले पुस्तक आहे. व्हाह्येच्या बायजाबाई शिंदे मथुरेला सर्वतोमुख नावाचा यज्ञ करणार आहेत व त्यात लाखी रजय दक्षिणा वाटली जाणार आहे हे ऐकून आपणही तेथे जावे व द्रव्य लाभ पदरी पाडून कुटुंबाचे कर्ज फेडावे या दृष्टीने विष्णुभट गोडसे व त्यांचे काका रामभट हे उत्तरेस मथुरेला जाण्यासाठी निघतात. परंतु वाटेतच अठराशे सतावनच्या बंडाचा वणवा भडकल्याने ते या बंडाच्या धामधुमीत सापडतात. यज्ञ अर्थातच रद्द होतो, परंतु गोडसे काका-पुतणे द्रव्यलाभ नाहीतर तीर्थाटन करून पुण्य तरी पदरी पाडू, कारण बंडवाले धर्मासाठी लढत असल्याने त्यांच्यापासून आपल्याला धोका नाही या भावनेने यात्रा पुढे सुरू ठेवतात. या यात्रेदरम्यान त्यांना अठराशे सतावनच्या बंडाची रणधुमाळी जवळून पहावयास व अनुभवावयास मिळते. झशीत तर त्यांचा जवळपास चार महिने मुक्काम पडतो व झशीची राणी लक्ष्मीबाई व इंग्रज यांच्यातील भीषण रणसंग्रामाचे ते साक्षीदार बनतात. पुढे काल्पी, ब्रम्हावर्त, अयोध्या, लखनौ, गया आदी क्षेत्रे पाहून व गोंची कावड घेऊन विष्णुभट व त्यांचे काका सुमारे अडीच वर्षांनी घरी परततात. विष्णुभट गोडसे यांनी पुढे भारताचार्य म्हणून प्रसिद्ध झालेले व त्यावेळी विद्यार्थी असलेले त्यांचे यजमान रावबहादूर चिंतामणराव वैद्य यांच्या आग्रहावरून १८८४ साली आपल्या प्रवासाच्या आठवणी लिहून वैद्यांना आपल्या मृत्यूनंतर प्रसिद्ध करण्याच्या अटीवर दिल्या. त्याप्रमाणे वैद्यांनी त्या संपादित करून बऱ्याच बदलांसह १९०७ साली 'माझा प्रवास : अठराशे सतावनच्या बंडाची हकीकत' या शीर्षकाखाली प्रसिद्ध केल्या. परंतु महामहोपाध्याय दत्तो वामन पोतदार यांनी सर्वप्रथम या आठवणी मुळाबहुकुम मोडीवरून मराठी लिहून करून विवेचक प्रस्तावनेसह १९६६ साली प्रसिद्ध केल्या. याच मूळ आठवणींचे प्रस्तुत लेखकाने (तसेच रॉय आर्दनी) इंग्रजीत भाषांतर केलेले आहे.

‘माझा प्रवास’चे भाषांतर करताना आलेल्या समस्या व त्यांचे स्वरूप:

‘माझा प्रवास’चे इंग्रजी भाषांतर करताना आलेल्या समस्या देणं भिन्न संस्कृतींवर आधारलेल्या समाजांच्या भाषिक व सांस्कृतिक वैशिष्ट्यांमधून उद्भवतात. या सर्व समस्यांची चर्चा येथे करता येणे शक्य नाही. तथापि काही मुख्य समस्यांची चर्चा करून त्या समस्यांचे स्वरूप समजावून घेता येईल. या समस्या खालीलप्रमाणे आहेत:

गोडसे भटजी इंग्रज लोक व इंग्रज सैनिक यांच्यासाठी **गॉरे लोके**, **गॉरे सोबीर** असे शब्द वापरतात. इंग्रजीत भाषांतर करताना **गॉरे** साठी काय प्रतिशब्द वापरवा ही समस्या होती. गॉरे या शब्दाला येथे वांशिक व सांस्कृतिक परिमाण आहे. हे परिमाण त्याच्या इंग्रजी प्रतिशब्दातून सूचित होणे गरजेचे होते. त्यामुळे जेथे गॉरे हा शब्द वांशिक भेद दाखविण्यासाठी वापरला आहे, तेथे Whites हा इंग्रजी प्रतिशब्द योजला आहे तर जिथे तो राजकीय अर्थाने वापरला आहे तेथे British हा शब्द वापरला आहे. उदाहरणार्थ ‘...गॉरे लोकांच्या बायका’ - येथे गॉरे हा शब्द वंश अथवा राष्ट्रीयत्वाचा निर्दर्शक आहे. त्यामुळे या शब्दप्रयोगासाठी Whites हा प्रतिशब्द वापरला आहे. याउलट ‘गॉरी पलटण’ यासारख्या ठिकाणी हा शब्द इंग्रज सैन्य या अर्थाने असल्याने तेथे British troops असा प्रतिशब्द योजिला आहे.

याचप्रमाणे गोडसे भटजींनी **काळे लोक** किंवा **काळी पलटण** हा शब्दसुद्धा देणं वेगवेगळ्या अर्थाने वापरला आहे. भारतीय वंशाच्या सैनिकांसाठी ते हा शब्द वापरतात. परंतु याला जर Indian people किंवा Indian troops असा प्रतिशब्द सरसकट वापरला असता, तर गोंधळ निर्माण झाला असता. कारण बंडवाले सैनिकही काळे किंवा भारतीय होते. तसेच इंग्रजांच्या फौजेतील मद्रासी वगैरे सैनिकही काळे म्हणजे भारतीय होते. त्यामुळे होणारा संभ्रम टाळण्यासाठी संदर्भ लक्षात घेऊन प्रतिशब्द वापरला आहे. जिथे बंडवाल्या भारतीय सैनिकांचा उल्लेख येतो, तिथे rebels असा प्रतिशब्द वापरला आहे तर जिथे ब्रिटिश फौजेतील भारतीय सैनिकांचा उल्लेख येतो तिथे native soldiers असा प्रतिशब्द वापरला आहे.

अशीच संदिग्धता **सरकार** या शब्दाबाबतही निर्माण होते गोडसे भटजींनी हा शब्द कधी शासन या अर्थी तर कधी एक सन्मानदर्शक पदवी या अर्थीसुद्धा वापरला आहे. उदाहरणार्थ सरकार आश्रय, सरकार आश्रित, सरकारातून या ठिकाणी सरकार हा शब्द शासन किंवा राज्य या अर्थी वापरला आहे. तर पेशवे सरकार, राणीसरकार या ठिकाणी तो सन्मानदर्शक पदवी म्हणून वापरला आहे. त्यामुळे भाषांतर करताना संदर्भ लक्षात घेऊन त्याप्रमाणे वेगवेगळ्या प्रतिशब्दांची योजना करावी लागली. जिथे सरकार हा शब्द शासन या अर्थी वापरला होता तिथे state हा इंग्रजी प्रतिशब्द वापरला असून जिथे शासकाच्या सन्मानार्थ सरकार हा शब्द वापरला होता तिथे त्या शासकाच्या नावासमोर Excellency सारखा सन्मानसूचक इंग्रजी शब्द वापरला आहे. उदाहरणार्थ पेशवे सरकार= His Excellency the Peshwa.

गोत्र या शब्दाला अचूक इंग्रजी प्रतिशब्द मिळणे कठीण होते. गोत्र हा शब्द वंशपरंपरी संबोधित खास भारतीय शब्द असल्यामुळे त्याला अचूक इंग्रजी प्रतिशब्द नाही. तरीही lineage हा प्रतिशब्द वापरून त्याच्या अर्थचूट्टेच्या जवळपास पोहोचण्याचा प्रयत्न केला आहे. मूळ शब्द कायम ठेवून तळटीप देण्यापेक्षा lineage हा शब्द वापरणे वाचनीयता अबाधित ठेवण्याच्या दृष्टीने अधिक योग्य वाटले.

सौभाग्यवती स्त्रिया यासाठी मात्र समाधानकारक इंग्रजी प्रतिशब्द मिळाला नाही. त्यासाठी married women या शब्दप्रयोगावरच समाधान मानावे लागले. परंतु सौभाग्यवती स्त्री याचा अर्थ केवळ ‘विवाहित स्त्री’ असा नसून ‘जिचा पती जिवंत आहे अशी विवाहित स्त्री’ असा होतो. ही संपूर्ण अर्थच्छटा असलेला इंग्रजी प्रतिशब्द नसल्यामुळे married women हाच शब्द वापरवा लागला. अशा अनेक समस्यांची मोठी यादी देता येईल. परंतु स्थलाभावी केवळ काही प्रातिनिधिक उदाहरणे दिली आहेत. वरील सर्व समस्यांचे स्वरूप सारखे आहे. या सर्व समस्या सांस्कृतिक भिन्नतेतून व संदर्भजन्य संदिग्धतेतून निर्माण झाल्या आहेत. म्हणून त्या शुद्ध भाषाशास्त्रीय समस्या नसून समाजभाषाशास्त्रीय म्हणजेच sociolinguistic समस्या आहेत. भाषेच्या विशिष्ट प्रकारच्या वापराने त्या जन्मलेल्या आहेत. भिन्न सांस्कृतिक पार्श्वभूमी असलेल्या देणं भाषांपैकी एकीतून दुसरीत भाषांतर करताना निर्माण होणाऱ्या समस्या या मुख्यतः समाजभाषाशास्त्रीय समस्या असतात. त्या सोडवताना भाषांतरकाराला दोन्ही संस्कृतींची चांगली जाण असावी लागते. त्याचप्रमाणे दोन्ही भाषांवर उत्तम प्रभुत्व असावे लागते.

भाषांतराची व भाषांतर प्रक्रियेची चिकित्सा आपल्याकडे अभावानेच होते. भारतभूमी ही भाषांतरकारांसाठी सोन्याची खाण आहे. त्यामुळे भारतीय त्याचप्रमाणे जागतिक भाषांतरशास्त्रालाही समृद्ध करायचे असेल व त्यात मोलाची भर घालायची असेल तर भाषांतरकारांनी भाषांतर प्रक्रियेदरम्यान स्वतःला आलेले अनुभव नोंदवून त्यांचा चिकित्सक परामर्श घ्यायला हवा. त्याचप्रमाणे, अधिकारी समीक्षकांनीसुद्धा प्रकाशित होणाऱ्या विविध भाषांतरांचा शास्त्रीय दृष्टीने परामर्श घेऊन त्यातील बऱ्या-वाईटाची चर्चा करायला हवी, तरच भाषांतरशास्त्र अधिक पुष्ट व समृद्ध होईल.

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between the groups with respect to their satisfaction towards their life. The findings in India and abroad also suggest the same. The reasons for this can be understood on the basis of some popular psychological theories such as the cumulative stress model by Jackson and Warr (1984) according to which if stress accumulates to a certain degree a person loses hope, becomes pessimistic and becomes unsound psychologically. The exchange theory (1959) by Thibaut and his associates also declare that one expects to get rewards in accordance to the costs he has incurred. In the case of unemployed persons, be it men or women, also this holds true as the jobless feel that their efforts in life have not been paying or gainful. Thus, the hypothesis, in a way, that the educated employed will be more satisfied in their lives than their educated unemployed counterparts is accepted.

CONCLUSION

On the basis of the analysis of data and also review of literature and common observation it seems logical to conclude that employment, especially for a long duration, brings happiness and contentment in one's life owing to which oneself satisfied towards oneself on the other hand unemployment over a longer duration inculcates a feeling of loss and despair and as a result one feels dissatisfied with oneself.

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13) 10 + 25 = 35

03

RACIAL DISCRIMINATION: A CRUCIAL PROBLEM IN RICHARD WRIGHTS'S AUTOBIOGRAPHY 'BLACK BOY'

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RACIAL DISCRIMINATION: A CRUCIAL PROBLEM IN RICHARD WRIGHTS'S AUTOBIOGRAPHY 'BLACK BOY'

"Racism is the belief in the superiority of one race over another. It may also mean prejudice, discrimination, or antagonism directed against other people because they are of a different race or ethnicity. Modern variants of racism are often based in social perceptions of biological differences between peoples. These views can take the form of social actions, practices or beliefs, or political systems in which different race are ranked as inherently superior or inferior to each other, based on presumed shared inheritable traits, abilities, or qualities" [WIKIPEDIA P.np]

This paper attempts to throw light upon racial discrimination depicted by Richard Wright in his autobiography Black Boy. Richard Wright was one of the prominent African-American novelist and his novels are representatives of both Black and White audiences. Besides, the problems of Blacks in America were the conflict between different culture and different generations. His wish was to depict realistic Black life to White readers, thus demolishing the white myth of the patient, humorous, obedient Black man. He had played a significant

role in a number of important social movements of his time. His thoughts, ideas and attitudes to American life make his works techniques and style more focused and sharper. His own experience in the society included violent confrontations, conflicts, racist oppressions and escape from the South to the North. Most of the characters in his writing reflect in one way or the other, details from Wright's autobiography. Most of his writings were taken from Black life and he also proudly linked Black life with his own life story :

"In the context of African-American letters, Wright may have also been most responsible for the shaping of a literary modernism- though not through his own later experiments in these modalities. To be sure the compelling strength of Wright's naturalism bred a host of imitators, writers no less ardent in their zeal to indict the system of racism in America, if as rule, less talented than Wright" [Gates X 111]

Its Wright's credit that he has contributed to American literature a theme of alienated and discriminated man defining himself. Wright's example of archetypal outsider is the American Negro. There is a universal quality to the issue of man alienated and racially discriminated by society.

Black Boy (1945) is an autobiography by American author Richard Wright. Black Boy is an American classic. It is solid contribution to the art of autobiography. Black Boy is a chronicle of fear, frustration, and inner rage. He quickly irritated against his surroundings, reading instead of playing with other children and rejecting the Church in favor of atheism at a young age. He feels more out of place as he grows older and comes in contact with the Jim Crow racism of the 1920s South. He finds it generally unjust and fights against whites.

Thus in the first instance Black Boy forces us to imagine Southern life from a Negro point of view. Whole society is prepared and organized to keep the Negro in his place. This

attempt to mark off in advance the boundaries of human life in Wright's essential theme of Black Boy

As Wright says:

"The White South said that I had a 'Place' in life well, I had never felt my 'place' or rather, my deepest instincts had always made me reject the 'place' to which the White South had assigned me." [Bone 14]

Thus Black Boy is a furious reaction to American society. It is also a sensitive quest for self-discovery. The search for a respectable and safe place in American society for Wright- for Negroes in general. Penetrating deeply into the needs of an individual personality, Black Boy thus acquires a universal appeal. In this respect Rebecca C. Barton has offered an incisive observation in asserting that-

"In Black Boy, Wright is the most genuine representative of lower-class life and in the best position to portray its hunger, its misery, its despair." [Barton 255]

In Black Boy, Wright blends an undertone of potential strife and violence between the white and Black races with the poverty and personal conflict within his family to produce a dominant tone of anger against white men. For instance Wright's search of a father was real one. The ensuing years of physical hunger, of hard work at various jobs, of deprivation of formal education- all compounded within a social structure separating its members according to skin color that really had had their sources in the individual family problems and family economic position.

Yet, in Black Boy, what Wright tries to accomplish is a fusion of the particular with the general. The story of one Negro his family is projected into a tale of all Negroes of the South. Negro poverty and family frictions are transformed into circumstances growing out of general social structure. The young Wright of

Black Boy trends to be curious and bold. This restlessness of youth emphasized throughout the work. His mind increasingly fills with relentless questions. Richard begins to vaguely understand that relations between white and black people are very tricky, but he cannot get anyone to discuss the matter openly with him. He has also trouble understanding the distinction between blacks and whites. When Richard hears that a white man beat a black boy in the neighborhood, he assumes that the man was the boy's father, believing that only parents have the right to beat children. Ella correct her son's misunderstand about the man and the boy, but she refuses to discuss the matter further, leaving Richard puzzled about white people and wondering why they would beat a black person.

Wright tells us in Black Boy that his initial awareness of the existence of separate black and white world's occurred in a color vacuum. Although he knew as a child there were people called whites, he felt no innate emotional response to them. However, a train trip from Mississippi to Arkansas soon alerted him to "Jim Crow" practices and instilled in his with a sharp concreteness that would never die.

In Memphis Wright lived until he was almost eight and here he first becomes conscious of white oppressions. For blacks, it offered varied, of discriminatory employment at wages that were indeed low. In Memphis, also white supremacy was the unalterable code. A special characteristic of life in Memphis in these years was widespread, deeply entrenched violence.

When the Wright family was moving toward Arkansas by the train, Wright for the first time noticed that there were two lines of people at the ticket window a "White" line a "Blacks" line. As Wright remembers this incident in Black Boy-

"During my visit at Granny's a sense of the two races had been born in me with sharp concreteness that never die until I died"

[Wright 46]

When Wright's family went to the small town of Elaine, Arkansas, upon the invitation of his mother's Sister Maggie Hoskins, whose husband Fred operated a profitable black saloon. Uncle Hoskins was killed by whites who envied his prospering business and the terrified family fearing for their lives fled away twenty five miles north to West Helena where they hid in rented rooms for several weeks afraid to venture into the streets. As Wright narrates the incident in Black Boy:

"There was no funeral. There was no music. There was no period of mourning.

There were no flowers. There were only silence, quite weeping whispers, and fear. I did not know when and where uncle Hoskins was buried. Aunt Maggie was not even allowed to see his body nor was she able to claim any of his assets. Uncle Hoskins had simply been plucked from our midst and we figuratively had fallen on our faces to avoid looking into that that white hot faces of terror that we knew loomed somewhere above us.

This was as close as white terror had ever come to me and my mind reeled. Why had we not fought back, I asked my mother, and the fear that was in her made her slap me into silence."

[Wright53]

A racial tension was increasing as the war was ending, and the effect on young Wright was profound and everlasting. He remembers in Black Boy:

"These fantasies were no longer reflections of reaction to the white people, they were part of my living of my emotional life, and they were a culture, a creed, a religion. The hostility of the white had become so deeply implanted in my mind and feeling that it had lost direct connection with the daily environment in which I lived ----

It was as though I was continuously reacting to the threat of some natural force whose hostile behavior could not be predicted." [Wright 72]

One can think of such feeling a product of hyperactive imagination of young Wright. But objective reality of life in Mississippi, Tennessee, and Arkansas were more horrible as far as racial violence concern. Though atmosphere of Chicago was quite liberal, but still discrimination was severe in the crucial areas of housing and employment. Law regarding segregation prevailed in schools and in public recreational areas.

CONCLUSION:

After assessment of Black Boy we came to conclusion that Wright was to find neither peace nor an honorable adjustment to the American scene. Even the acquisition of fame and money with the popular success of Native son did not insulate Wright from racial discrimination. If one consider the long road of racial suffering in America down which Richard Wright fled from place to place, and if one consider also his extreme sensitivity one can summarize treatment he meted in his own land.

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Comparative analysis and benefits of Digital library Vs Traditional library

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ABSTRACT

The idea of digital libraries once replacing the traditional ones has been around since the very dawn of the digital age. Isn't it more convenient and efficient to keep books in electronic format than to stick to old-fashioned physical libraries with their shelves, repositories and maddeningly complex filing systems? In this article, you'll choose sides due to the information given to you. Besides, don't forget to answer the quiz questions to know exactly which library (an online or traditional one) is the best option for you. However. Although they don't shy away from implementing some of the novelties into their structure and organization – all of them have quick access to the Internet. Well, why is it so? Is it going to keep that way? Just like in case with any other topic, making prediction is an ungrateful task, for the world is most likely to develop in the least predictable way – just like it always does. Let's look at the 'battle' between digital and traditional libraries.
Keywords: Digital library; Traditional library; Analysis; Information Communication Technology; Benefits

1. INTRODUCTION

The upsurge and unprecedented advancement in Information Communication

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कथा साहित्य में स्त्री विमर्श

डॉ. शेखर खड़से

गो. से. विज्ञान कला एवं वाणिज्य महाविद्यालय,
खामगांव जिला बुलडाणा महाराष्ट्र

इक्कीसवीं सदी का कथा-साहित्य बीसवीं सदी के उन सुनहरे किरणों से सिंचित होकर तथा बीसवीं सदी के कोड़ से पनपते हुए इक्कीसवीं सदी में पूरा नया अस्तित्व लेकर खड़ा है। साथ ही साथ यह साहित्य नव चेतना, नव निर्माण तथा वास्तविकता के धरातल पर मानवीय संबंधों का परिप्रेक्ष्य, मूल्यों के टूटन की झंकार, अकेलेपन से व्यथित मनुष्य, भ्रूणंडलीकरण, उदारीकरण, बाजारवाद और उपभोक्तावाद का मौजूदा दौर वर्तमान समय की प्रमुख विशेषता है।

इक्कीसवीं सदी का प्रारंभ स्त्री समानता की दर्शक से बढ़ते दिखाई देता है। हर साहित्यकार अपने युग का युगदृष्टा होता है और प्राप्त परिस्थितियों को वह अपने लेखनी से बड़ी बखुबी से विवेचित करता है। इससे कोई भी कहानीकार अछूता न रहा है।

आज की आधुनिक नारी स्वतंत्र सोच रखनेवाली तथा आत्मनिर्भर, संयमी, अपने अधिकारों के प्रति सजग, अस्मिता के साथ जीनेवाली, निर्भिक, निर्णयक्षम एवं शिक्षित नारी है। यह नारी परिस्थितियों का डटकर मुकाबला

करनेवाली नारी है जो कहती है- "मैं कामायनी की श्रद्धा नहीं इड़ा हूँ, भावना नहीं प्रज्ञा हूँ, मात्र स्पंदनमयी नहीं, तर्कमयी भी हूँ, मात्र समर्पिता नहीं, अधिकारमयी भी इन पंक्तियों में साठोत्तरी तथा आधुनिक नारी जो

इक्कीसवीं सदी में जी रही है उस नारी के चरित्र को स्पष्ट किया जाता है। साथ ही साथ "नारी आंदोलन वास्तव में व्यक्ति होने का सलीका है प्रभा खेतान का यह वाक्य स्त्रीवादी विचार प्रवाह के केंद्रीय मुद्दा है। स्त्रीवाद नारी को केवल 'नारी' के रूप में देखने का तौर-तरीका सिखलाता है। नारी को पारंपारिक रूढ़ियों मान्यताओं, अंधविश्वासों के शोषण से मुक्त कर उसके स्वतंत्र व्यक्तित्व को समाज में प्रतिष्ठित करता है।

स्त्रीवादी विचारधाराने भारतीय महिला लेखन को प्रभावित किया है। भारत में स्त्रीवाद का

यह आक्रमक रूप नहीं मिलता जो पश्चिम में है। यहाँ की महिला लेखिकाओं ने स्त्रियों के अधिकारों के लिए कड़ा रुख जरूर अपनाया है।

इन लेखिकाओं ने समाज में अपनी दायमस्थिति को नकारा है। व्यक्तिगत प्रतिक्रियाओं से लेकर आचरण तथा तौर-तरीकों के ऐसे अनेक स्तर हैं, जिन के माध्यम से नारीवाद स्थापित सत्ता को चुनौती देता है। कम से कम आज की स्त्री ने यह तो स्थापित कर ही दिया है कि समाजिक अत्याचार तथा उपेक्षा से पीड़ित होने के बावजूद उसके सामने एक मानवीय गरिमा से भरपूर भविष्य की संभावनाएँ हैं। उधर पुरुष की वर्चस्ववादी संस्कृति और समाज, स्त्री से अधीनस्थ स्थिति और समर्पण की माँग करता है। यह चाह स्त्री में निर्माण करना, उसको मुक्त आकाश देना तथा उसको सिर्फ नारी (मानवी) रूप में जीने लायक वातावरण निर्माण करना स्त्रीवाद का कार्य है।

'हंस' जो जनचेतना का प्रगतिशील कथामासिक है इन में से कुछ चुनिंदा कहानियों में आयी हुई स्त्री मुक्ति की आवाज तथा आज की आधुनिक नारी जो सभी परंपराओं को पीछे छोड़कर नए जीवन को अपनानेवाली नारी, पीड़ाओं को स्वीकारती नारी, स्वावलंबी नारी, आत्मनिर्भर नारी आदि नारियों के चित्रण किए गए हैं- 'हंस जनवरी 2011 में छपी कहानी एक बड़ा सवाल', 'शीला इंद्रजी ने लिखी है तथा इस कहानी में सीता' नामक लड़की की एक दर्दभरी कहानी है लेकिन, जीवन में आए हुए संकट को वह किस प्रकार सहती है इसका बड़ा ही मर्मस्पर्शि उदाहरण दिया है।

एक बड़ा सवाल इस कहानी की लेखिका ने सीता नामक लड़की का संघर्षमय जीवन चित्रित किया है। जो रामायण की सीता नहीं है, यह कथा साहित्य में स्त्री विमर्श डटकर विरोध भी करती है। सीता आधुनिक सीता है जो अन्याय का प्रतिकार करती है, अपने दिल का सुनती है, अपने मन से

विद्रोह पहले दिमाग में ही होता है। मानसिक रूप में ही होता है, पर क्या यही उसका अंत है? क्या उसके बाद वो आगे नहीं बढ़ेगा? क्या वह वही से लौट आएगा या व्यवहार में भी आएगा? व्यवहार में लाना ही उनको बर्दाश्त नहीं, लड़ाई वहाँ से होगी जहाँ बंधन सबसे सख्त है। बेड़ियाँ जहाँ आपको सबसे ज्यादा रगड़ती हैं, आपके शरीर को घायल करती हैं। मुक्ति की पहली शर्त यह होती कि आप वही से अपनी बेड़ियों को काटे।

स्त्री स्वतंत्रता, स्त्री की मुक्ति दिमाग में हो, वैचारिक स्तर पर हो, लेकिन जब वो व्यवहार में आएगी तो उसकी मुक्ति देह से शुरू होगी। और कोई तरीका नहीं है इस विकृत दृष्टि को बदलने का तथा आज की स्त्री कहा स्वतंत्र है?

लेकिन हंस मासिक की इन कहानियों में व्यक्त नारीयों के स्वरूप में विविधता है, जिंदादिली है। ये नारीयाँ बड़े आत्मविश्वास के साथ लगातार आगे बढ़ती जा रही हैं। तथा इनकी कहानियों में चित्रित नारी स्वस्थ, दर्पयुक्त, आत्मविश्वासी, जीवन को सार्थक करनेवाली, आत्मनिर्भर, अपनी विशिष्ट पहचान बनानेवाली, दबंग, सामाजिक दायित्व

निभानेवाली, उसके लिए हर दुर्नौती स्वीकारनेवाली साहसी है। वह सुंदर स्वस्थ विचारवाली, विवेकशील, सबकुछ-औं-दुर्बलताओं से युक्त नारी स्त्री है। इस तरह से आज की इक्कीसवीं सदी की स्थिति हैं।

"लक्ष्य मेरा सिर्फ इतना
कामना में रकित्य हो
जिस शिला से सर्जना हो
वस तेरा व्यक्तित्व हो।"

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प्रमाणभाषा आणि बोली – परस्परसंबंध

प्रा.डॉ. एच.डी. आकोटकार

मराठी विभाग प्रमुख

गो.से. विज्ञान, कला व वाणिज्य

महाविद्यालय, खामगांव जि. बुलडाणा.

प्रास्ताविक :

भाषा सतत बदलणारी गोष्ट आहे. ती प्रवाही असते. म्हणूनच जिवंत असते. बारा कोसांवर भाषा बदलते, असे जे म्हटले जाते ते याचमुळे स्थानपरत्वे, कालपरत्वे, प्रसंगपरत्वे, व व्यक्तिपरत्वे भाषेत परिवर्तन घडून येते. एकाच कुटूंबात देखील एकसारखं बोलणार्या व्यक्ती नसतात प्रत्येकाची उच्चारणाची सवय, हेल, बोलण्यातील चढ-उतार यामुळे बोलण्यात विविधता येते. या व्यक्तिनुरूप वैशिष्ट्यांमुळेच 'व्यक्ती तितक्या प्रकृती' याप्रमाणे 'व्यक्ती तितक्या भाषा' असतात असे म्हणता येईल.

या भाषाभेदांना उपभाषा, पोटभाषा, प्रादेशिक भाषा, प्रांतभाषा किंवा बोली म्हटले जाते. व्यक्तीबोलीप्रमाणे प्रांतांच्याही बोली असतात. तशाच त्या परिसराच्याही असतात. या सर्वप्रकारच्या बोलींना वा भाषाभेदांना आपल्यात सामावून घेणारी जी मध्यवर्ती भाषा असते तिला प्रमाणभाषा म्हणतात. प्रमाणभाषा सर्व बोली भेदांना प्रमाणभाषा सर्व बोली भेदांना प्रमाण असते. प्रमाणभाषा म्हणजे काय ?

"ऐतिहासिक परंपरा आणि रूढी यांना अनुसरून सामान्यतः कोणत्याही

प्रदेशातील व राज्यातील मुख्य नगरामधील सुशिक्षितांच्या बोलण्याला प्रमाणभाषा असा शब्द योजिला जातो."¹

"मुख्य भाषा, जी मध्यवर्ती भाषा असते, ज्या भाषेत ग्रंथनिर्मिती होते आणि ती भाषा बोलणार्या सर्व समाजातील घटकाने तिला मान्यता दिलेली असते. त्या भाषेला प्रमाणभाषा म्हणतात"²

बोलींचे सर्वसामान्यीकरण झालेले जिथे पाहायला मिळते तिला प्रमाणभाषा म्हणतात. प्रादेशिक, पारिसरिक, व्यावसायिक, स्त्री-पुरुष-मुले, विविध गटांच्या बोलीभाषांचे प्रतिनिधित्व करणारे भाषाकेंद्र म्हणजेच ही केंद्रभाषा व केंद्रीय भाषा होय. स्वतःच्या अधिपत्याखालील सर्व भाषाभेदांना मध्यभागी असलेली म्हणून तिला मध्यवर्ती किंवा मध्यभाषा देखील म्हटल्या जाते. या भाषेला समाजातील सर्वघटकांनी, समूहांनी प्रमाण मानलेले असते. म्हणून तिला प्रमाणभाषा म्हणतात. बोलीच्या व्याख्या:

"बोलण्यामध्ये जास्तीत जास्त साम्य आढळणार्या व्यक्तीच्या एखादा गट विशिष्ट नामाभिधानाने ओळखता येण्याएवढा जाणवू लागल्यास त्या गटास स्वाभाविक

बोलण्याच्या गोळाबेरजेस बोली अशी संज्ञा लावता येईल.”³

“विवक्षित समाजगटात परस्परांना सहज कळणारी पण लगतच्या समाजगटाच्या बोलीहून थोडी वेगळी असणारी आणि पुन्हा भिन्नतेपेक्षा साम्य अधिक दाखविणारी ती बोली.”⁴

“एखाद्या विशिष्ट लोकसमुदायातील किंवा भौगोलिक प्रदेशातील व्यक्तीच्या अंगवळणी पडलेले आणि त्यामुळे प्रायः मुद्दाम शिकावे न लागणारे व विचारांची देवाणघेवाण करण्यासाठी सहजगत्या उपयोगी पडणारे ध्वनिरूप साधन म्हणजे बोली.”⁵

एखादा प्रदेश, एखादा गट, एखादा समूह वापरत असलेल्या भाषिक अभिव्यक्तीचे स्वतंत्र, पूर्ण विकसित ध्वनिरूप म्हणजे बोली. बोली स्वतंत्रपणे विकसित होतात. भाषेत व बोलीत भेदापेक्षा साम्यच अधिक असते. “वास्तविक भाषा व समानार्थक शब्द आहेत.”⁶

प्रमाणभाषा आणि बोली – परस्पर संबंध :
बोली स्वयंपूर्ण प्रशस्त झाली की, तिचे रूपांतर प्रमाणभाषेत होते.

- 1) प्रमाणभाषेचे आकलनीयतेचे क्षेत्र विस्तीर्ण असते. तर बोलींचे त्या तुलनेने अल्प असते.
- 2) बोली खंडप्राय असतात तर प्रमाणभाषा एकसंध असते.
- 3) “बोली ही प्रमाणभाषेशी साधर्म्याप्रमाणेच वैधर्म्यही दर्शवीत असते.”⁷
- 4) “भाषेसारखाच भाषिक व्यवहारासाठी बोली भाषेचा उपयोग होतो.”⁸

5) “बदलणे हा भाषेसारखाच बोलीभाषेचाही गुणधर्म आहे.”⁹

6) “भाषा म्हणजे भूदल व नोंदल यांचे पाठबळ असणारी बोली होय.”¹⁰

7) “भाषेचे ‘प्रकार’ किंवा ‘भेद’ तपासून पाहण्याची एक महत्त्वाची पातळी म्हणजे तिच्या ‘बोलीचे’ किंवा ‘उपभाषा’ चे स्वरूप पाहणे.”¹¹

8) “वास्तविक भाषा व बोली समानार्थक शब्द आहेत. असे असता *language* किंवा भाषा हा ग्रांथिक किंवा प्रमाण *standard* स्वरूप प्राप्त झालेल्या बोलीला उद्देशून आपण योजतो आणि तिच्यापासून भिन्न असे जे बोलीप्रकार त्यांना आपण *dialects* किंवा बोली म्हणतो.”¹²

9) प्रमाणभाषेच्या सीमावर्ती बोलीत भाषामिश्रणे आढळतात.

10) प्रमाणभाषा लिपीबद्ध असते तर कित्येक बोलींना लिपी नसते.

11) सर्व बोलींना प्रमाणभाषा केंद्रस्थानी असते.

12) प्रमाणभाषेचे क्षेत्र विस्तारामुळे काही बोली संकोच होऊन नष्ट होतात.

13) लेखनव्यवस्था नसल्यामुळे बोलींचा अभ्यास करणे मोठे गुंतागुंतीचे असते.

14) प्रमाण भाषेच्या अधिक वापरामुळे बोलींकडे दुर्लक्ष होते.

15) काही भागांत बोलीला, कुणाचातरी दास (प्रमाणभाषेची) अशी भायना प्रखर आहे.

16) लिपीचिन्ही नसल्यामुळे बोली अभ्यासासाठी संपूर्णपणे उपलब्ध

होत नाहीत. मात्र प्रमाणभाषेच्या ग्रंथबद्धतेमुळे तिचा अभ्यास सुकर होतो.

- 17) निरर्गतः बोली आधी निर्माण होतात व तदंतर प्रमाणानंतर निर्माण होते.
- 18) बोली प्रमाणभाषेला परिपुष्ट करतात.
- 19) बोलीच्या लिखित वापरामुळे बोली समृद्ध होते
- 20) लिपीबद्धतेमुळे प्रमाणभाषेला अभिव्यक्तीचा ठरीवपणा प्राप्त झालेला असतो. त्यामुळे ती कृत्रिम व औपचारिक बनून जाते.
- 21) लिपी नसल्यामुळे बोलींना साचेबद्धपणा नसतो. त्या प्रवाही, अकृत्रिम व अनौपचारिक असतात.
- 22) "बोलीतील शब्द वा रूपे कित्येकदा खूपच जिवंत असतात. नियमबद्ध आणि औपचारिक बनलेल्या प्रमाणभाषेती शब्द वा रूपे कित्येकदा वापरातल्यानाण्यांप्रमाणे गुळगुळीत झालेली असतात."¹³
- 23) बोली संपन्न झाली की, हळूहळू प्रमाणभाषेत तिचे रूपांतर होते.

समारोप :

बोली हे दैनंदिन व्यवहाराचे स्वाभाविक साधन आहे मुख्यपरंपरेमुळे तिच्यात जिवंतपण असतो, ती जातिवंत असते, ती साथी असली तरी परिणामकारक असते, तिची स्वाभाविकता हेच तिचे वैशिष्ट्य असते, तीच्या अभिव्यक्तीच्या विविध तरूहा असतात.

भाषेचा विकास निरंतर होत असतो. तिच्यात वारंवार बदल होतात. असे बदल बोलीतही होतात. एखाद्या बोलीला लिपी प्राप्त

झाल्यामुळे तिचे बदलण्याचा प्रक्रियेत थोडा अडथळा निर्माण होतो, परंतु तिचे परिवर्तनरूप कायम राहते. लिपीमुळे बोली जेव्हा ग्रंथरूपाने साकारते तेव्हा कवलींमाल तिला समाजमान्यता मिळते. हळूहळू राजमान्यता मिळाली की तिचे रूपांतर प्रमाणभाषेत होते. म्हणजे प्रमाणभाषा ही कधीतरी बोलीभाषाच असते.

निष्कर्ष:

- बोली म्हणजे प्रादेशिक भाषा, प्रांतभाषा, प्रांतिकभाषा, पारिसरिक भाषा होय.
- बोली ही समुदायबद्ध असतात. जातीचा समुह, व्यवसायाचा समुह, मुलांचा समुह, गणसमूह पारिसरिक समुह इत्यादी.
- कित्येक बोलींचे प्रतिनिधित्व करणाऱ्या भाषेला प्रमाणभाषा म्हणतात.
- प्रादेशिक बोलीच्या केंद्रस्थानी किंवा मध्यस्थानी असल्यामुळे प्रमाणभाषेला केंद्रभाषेला किंवा केंद्रीय भाषा तसेच मध्यभाषा किंवा मध्यवर्ती भाषा म्हटले जाते.
- प्रमाणभाषा ग्रंथबद्ध असते. म्हणून तिला ग्रंथभाषा किंवा ग्रंथिक भाषा असे देखील संबोधले जाते.
- बोली व प्रमाणभाषेत काही बाबतीत साम्य आहे तर काही बाबतीत भिन्नता आढळते.
- बोली लेखनरूपाने प्रगल्भ झाली की, ती प्रमाणभाषेत रूपांतरित होते.

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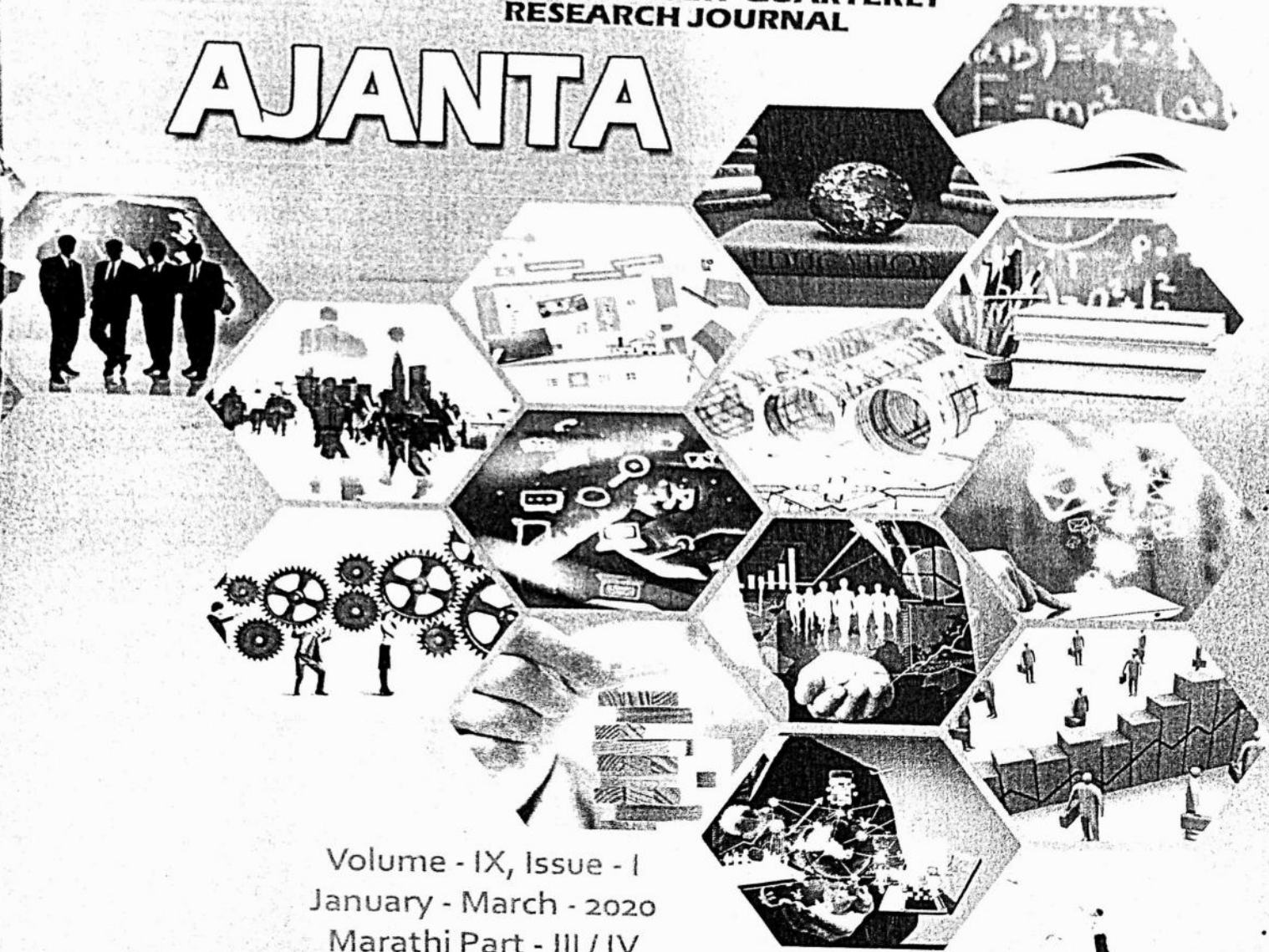


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सारांश

महाराष्ट्रातून व देशाच्या इतर काही प्रांतातून पंढरपूरला पालख्या येतात. सर्व पालख्यांचे केंद्र पंढरपूर हे असते. विठोबांची शेट ही प्रत्येक वारकऱ्यांची आरा असते वारीत हजारो लोक एकत्र येतात व पंढरपूरला हा वारकऱ्यांचा समुदाय लाखोच्या संख्येत गोळा होतो. आषाढी, कार्तिकी, चैत्री, माघी या पंढरपूरच्या चार प्रमुख वान्या असतात. काही वारकरी महिन्याची वारी शुद्धा करतात. वारीत जातीपातीला थारा असतो. जातीभेदाचे समूळ उच्चाटन झालेले वारीत पाहायला मिळते. म्हणूनच वारी हा आध्यात्मिक लोकशाहीचा आविष्कार आहे असे म्हणावे लागते. कुणाच्याही निमंत्रणाशिवाय लाखोंचा जनसमूह वारीत एकत्र येतो, ही जागतिक दर्जाची घटना आहे असे म्हटले जाते.

बीजशब्द :- वारी, आविष्कार, आषाढी, कार्तिकी, चैत्री, माघी, लोकविद्यापीठ, ज्ञानपीठ, ज्ञानेश्वर, नामदेव, एकनाथ, तुकाराम, पालखी आध्यात्मिक, लोकशाही, पंढरपूर.

प्रस्ताविक

श्री विठ्ठल हा महाराष्ट्रा लोकदेव आहे. यालाच पांडुरंग किंवा पंढरीनाथ असेही म्हटल्या जाते. पंढरपूरचा किंवा पंढरपूरचा हा विठोबा महाराष्ट्रातील वारकरी पंथाचे आराध्य दैवत आहे. त्यामुळे पंढरपूर हे वारकरी पंथाचे आधुनिक आराध्य दैवत आहे. त्यामुळे पंढरपूर हे वारकरी पंथाचे आधुनिक ज्ञानतीर्थ संबोधले जाते. या पंढरपूरला वारकरी दिंडी घेऊन येतात. यालाच पालखी असेही म्हटल्या जाते व या पालखी सोहळ्याला वारी असे म्हणतात. महाराष्ट्रातून व महाराष्ट्राबाहेरूनही पंढरपूरला वारकऱ्यांच्या शेकडो पालख्या येतात. यामध्ये आळंदीची श्री ज्ञानेश्वर माऊलीची पालखी व देहूची श्री तुकोबारा यांची पालखी प्रमुख आहे. या दोन पालख्यांमध्ये लाखोंचा लोकसमुदाय असतो. हा समुदाय पायी चालून पंढरीला पोहोचतो. याला वारी म्हणतात. वारकऱ्यांमध्ये आषाढी वारी, कार्तिकी वारी, चैत्रीवारी व माघी वारी या मुख्य वान्या आहेत. या सर्व वारकऱ्यांमध्ये आषाढी वारीला वारकऱ्यांच्या दृष्टीने फार महत्वाचे व आदराचे स्थान आहे. आषाढी वारीला पंढरपूरला वारकऱ्यांचा अक्षरशः लाखोंचा समुदाय गोळा होतो. वारकरी पंथांमध्ये या वारीला अनन्यसाधारण महत्त्व आहे.

वारी म्हणजे काय ?

संतांनी व विचारवंतांनी वारी या शब्दाचे विविध अर्थ सूचविले आहेत. कै. राजवाडे यांनी "पंढरीची वारी म्हणजे पंढरीला जाणाऱ्या प्रवशांची टोळी" असा अर्थ दिलेला आहे. वारकरी म्हणजे वारीला जाणारा प्रवासी. वारी हा शब्द ज्ञानेश्वरीमध्ये निरनिराळ्या संदर्भात अनेक ठिकाणली आला आहे. वारी हा शब्द फेरा किंवा खेप या अर्थाने आलेला आहे. वारकरी संप्रदायात हा सामान्य अर्थच अभिप्रेत आहे. मोल्सवर्थ म्हणतो "The Practice of Processding regularly at recurring monthly or annual periods on pilgrimage to any sacred place"²

प्रति वर्षी अगर प्रत्येक महिन्यास नियमितपणे पवित्र स्थळाच्या यात्रेस जाण्याची प्रति, असा वारी या शब्दाचा रूढ अर्थ होय. वारकऱ्यांच्या बाबतीत हे पवित्र स्थळ म्हणजे, विठ्ठलाचे निवासस्थान पंढरपूर होय. आषाढी, कार्तिकी, चैत्री व माघी या पंढरपूरच्या मुख्य चार वान्या होत. चार वान्यापैकी केलीच पाहिजे असा वारकऱ्यांमध्ये अलिखित नियमच आहे. तोच वारकरी म्हणविला जातो. गळ्यात तुळशीची माळ घालून नियमाने जो पंढरपूरला जातो तो पंढरपूरला वारकरी व त्याच्या उपासनेचा मार्ग तो वारकरी पंथ होय. वारी हा शब्द ज्ञानेश्वरीत निरनिराळ्या संदर्भात अनेक ठिकाणी आलेला आहे.

ऐसे वैराग्य हे करी। बुद्धि नांदे । 6-376

तैसा माझा साक्षात्कारी । सरे अहंकाराचा वारी। अ

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अर्जुना तियापरी। सरली द्वैताची वारी।

नांदी नामार्थ एकाहारी। आम्ही ते ही।। 14-56

ह्या एकपरी। रुपकाचिया कुसरी। सरितसे वारी। ते विपरीत ज्ञानाची परी।

वारीचे स्वरूप आणि परंपरा

पंढरीची वारी आणि पालखी सोहळा हा महाराष्ट्राचा सांस्कृतिक लोकप्रवाह आहे. तो व्यापक संस्कार प्रवाह आहे. केवळ वाटचाल म्हणजे वारी नव्हे तर तो वारकऱ्यांचा भावदर्शन सोहळा आहे. वारकऱ्यांचा तत्वदर्शन सोहळा आहे. पंढरीची वारी ही भगवद्प्रेमाची वारंवार अनुभव घेण्याची रीत आहे. मानवी जीवनात परिवर्तनाच्या दिशेने पडणारे विवेकी पाऊल म्हणजे वारी होय. "ज्ञानियांचे ज्ञेय, ध्यानियांचे ध्येय, तपस्विचांचे तप, जपकांचे जाप्य आणि योगियांचे गौप्य जिथे विटेवर समचरण उभे आहे. त्याला भक्तिप्रेमाने अलिंगन देण्यासाठी निघालेला वैष्णवांचा महामेळा म्हणजे वारी होय"³ "पंढरपूरचा विठोबा हा महाराष्ट्राचा लेकदेव आहे. संपूर्ण वारी सोहळा हा ज्ञान, भक्ती, तत्व आणि कर्म या अंगाने विठ्ठलाशी जोडलेला आहे. श्री विठ्ठल हेच वारी सोहळ्याचे प्रेरणास्थान, तेच ध्यान आणि ध्येयही आहे."⁴ महाराष्ट्राचा पालखी सोहळा हा जसा भक्तिप्रेमाचा उत्कट आविष्कार आहे तसेच स्वतःच्या जीवनाला वळण देणारे ते एक महाराष्ट्राचे चालते-बोलते लोकविद्यापीठ आहे."⁵ वारीत उदात जीवनमूल्यांची अनुभूती घडते. म्हणून ती एक लोकपाठशाळाही ठरते.

अशा या चारी परंपरेचा शोध घेता असे लक्षात येते की, पंढरपूरची वारी केव्हा सुरु झाली हे सांगणे कठीण आहे. परंतु ही वारी ज्ञानेश्वरपूर्व काळापासून सुरु आहे. एवढे मात्र निश्चितपणे सांगता येते. ज्ञानदेवांच्या घराण्यात पंढरीच्या वारीची मिराशी होती. "ज्ञानदेवांनी समाधी घेण्याचा मनोदय जेव्हा व्यक्त केला तेव्हा संत नामदेव, गोरा कुंभार, नरहरी सोनार आदी संत मंडळींनी भजनाची दिंडी तयार केली आणि दिंडी घेऊन टाळ-मृदंगाच्या गजरात आळंदीला येण्याचा प्रघात सुरु झाला"⁶ ज्ञानेश्वर पूर्वकालापासून म्हणजे शेकडो वर्षांची परंपरा असलेल्या ह्या दिंडीला पुढे एकनाथ महाराज तुकाराम महाराजया संत परंपरेने वाढविले व दिंडीच्या रूपात नाचू-गाऊ लागले. वीणा घेऊन चालण्याच्या सांगाती नामगरज करीत वाटचाल करणे म्हणजे "दिंडी" होय. असे मत ह.भ.प. सोनोपंत दांडेकरांनी व्यक्त केले आहे.

व्यापक कुटुंबाची कल्पना

वारी ही आपल्या सांस्कृतिक जीवनाचे महत्वाचे वैशिष्ट्य होय. हजारां लाखो सामान्य माणसे आणि तीही अठरापड जातीची, नित्यनेमाने पायी वारी करतात यातच वारीचे अपरंपार महत्व सामावलेले आहे. यातून व्यापक कुटुंबाची कल्पना दृग्गोचर होते व वारकरी पंथाच्या एकात्मदृष्टीचेही दर्शन घडते. संत नामदेवांनी पंढरीच्या वारीचे महत्व सांगताना म्हटले आहे.

माझे माहेर पंढरी। आहे भीवरेच्या तीरी।।

बाप आणि आई। माझी विठ्ठल रखुमाई।।

पुंडलिक आहे बंधू। त्याची छ्याती काय सांगू।।

माझी बहिण चंद्रमागा। करीतसे पापमंगा।।

एका जनार्दनी शरण। करी माहेरची आठवण।।

या व्यापक कुटुंबाची वारी केल्याने अगणित पुण्यलाभ पदवी पडतो. असे म्हणूनच म्हटल्या जाते. म्हणूनच प्रत्येक वारकऱ्याला पंढरीच्या वारीची आस असते. तो या वारीवर जीव ओवाळतो. संत नामदेव म्हणतात त्याप्रमाणे "माझे जीवीची आवडी। पंढरपूरा नेईन गुढी।।" ही प्रत्येक वारकऱ्यांची भावावस्था असते. वारीतून समता आणि बंधुता या मूल्यांचा जागरही होत असतो. तो वारकऱ्यांच्या आचारगात दिसून येतो. नामदेवांपूर्वी संत ज्ञानेश्वरांनी सुद्धा "हे विश्वची माझे घर" असे कल्पून आपल्या विशालदृष्टीची प्रतीती दिली आहे. या दृष्टीत सामाजिक प्रबोधनाचे बीज सामावलेले आहे. म्हणूनच ज्येष्ठ विचारवंत डॉ. प्रमोद मुनघाटे म्हणतात "मध्ययुगीन महाराष्ट्रात घडत असलेल्या या सामाजिक प्रबोधनाच्या चळवळीची नोंद जगाच्या इतिहासात अनन्यसाधारण अशीच आहे"

प्रबोधनाचे माध्यम

पंढरपूर हे वारकरी भक्तीपंथाचे आध्यपीठ आहे. ते आधुनिक ज्ञानतीर्थ आहे. "सहिष्णुता, मानवता, उदारता, समानता, सहयोग आणि या सान्याला लाभलेले भक्तींचे अधिष्ठान ही मूल्ये या पंढरीच्या वारीने सनाजात वारंवार पेरली. जात-पात-पंथ-भेद विसरून या मूल्यांच्या रुढीपरंपरांवर प्रहार करणाऱ्या संत विचारांचा जागर करत. सामाजिक समतेचा संदेश प्रत्यक्षात आणणारी आणि प्रपंचात राहूनही परमार्थ साधता येतो या मुलभूत विचारांचा प्रत्यक्ष देणारी ही वारी म्हणूनच आपल्या सगळ्यांचे विचारविश्व आणि जीवनविश्व व्यापून राहिलेली आहे" वारीतून वा पालखी सोहळ्यातून मोठ्या प्रमाणावर जनजागृती घडून येते. तिथे जातपात विसरून वारकरी एकत्र येत असल्याने राष्ट्रीय एकात्मतेचे प्रच्छन्न दर्शन घडते. ही समानता वारीत पहायला मिळते. त्याअर्थाने वारी हे सामाजिक प्रबोधनाचे भलेमोठे विचारपीठ ठरते. ग्यानबा-तुकाराम हा मराठी लोकमानसाच्या साहिष्णुतेचा मूलमंत्र आहे. आणि पंढरीची वारी महाराष्ट्राच्या सांस्कृतिक जीवनातील उदारमतवादाची शुभ पताका आहे. वारी हा भक्तीसंप्रदाय प्रबोधनाची मोठी चळवळ आहे. पंढरीची वारी सामान्य माणसाच्या सौहार्दतेचा मानबिंदू आहे. दिंडीतील सहभागाने दुर्मुखांची होखी होऊन सदाचरण घडते. त्याचा प्रभाव इतरांवर व सामान्य जनांवर पडतो. यातून संस्कार घडतो. प्रबोधन घडते. सामाजिक जीवनाचा सहवास घडल्याने व्यक्तित्वातील दोष नाडिसे होऊन त्याला यथोचित आकार प्राप्त होतो. संतांच्या या मांदियाळीत सर्वजण समाविष्ट असल्यामुळे तिथे श्रेष्ठ-कनिष्ठ, लहान-थोर हा भेदच उरत नाही त्यामुळे वारीत एकप्रकारची आध्यात्मिक लोकषाहीच अवतरते.

आध्यात्मिक लोकशाहीचा अविष्कार

वारित जात, धर्म, पंथ विसरून वारकरी एकत्र येतात. त्यामुळे वारी हा एका अर्थाने आध्यात्मिक लोकशाहीचा आविष्कारच म्हटला पाहिजे. वारीत बंधुता, मानवता या बाबींचे दर्शन घडते. उच्चनिच, जातिभेद, भेदाभेद यांना थारा नसतो. उच्च दर्जाची राष्ट्रनिष्ठा व समाजनिष्ठा पाहायला मिळते. राष्ट्रीय एकात्मतेचे दर्शन होते. हा सोहळा अनुपम असतो. वारी हे चालते बोलते विद्यापीठ, संस्कारपीठच असते. वारीतून समानतेची षिकवण मिळते. "महाराष्ट्राची ही दिंडीची थोर परंपरा समाजाला योग्य व विधायक दिशा देण्याचे कार्य करते. गावोगाव दिंडीमुळे समाजात संतांच्या थोर विचारांची पेरणी होते. समाजात स्थिरता व सामंजस्य येते. लोक आपल्या दुःखाना विसरतात व सद्बिचार, सद्भावना व सद्द्वर्तन व सद्बुद्धि समाजातील लोकांना मिळते." वारीत सहभागी झालेले भाविक भक्त एक दुसऱ्याशी सामाजिक संबधानी बोधलेले असतात. वारकरी खांद्यावर पताका घेऊन नाच गात मार्गक्रमण करतात. वारकऱ्यांना सर्वदूर विठ्ठल भरून उरला आहे असे वाटते.

तीर्थ विठ्ठल क्षेत्र विठ्ठल / देव विठ्ठल देवपूजा विठ्ठल।।

अशी त्याची मनोवस्था होते. त्याला सर्वदूर विठ्ठलच भरलेला दिसून येती. त्यामुळे आनंदाचे डोही आनंद तरंग। आनंदचि अंग आनंदाचे।। अशी त्याची भावावस्था होते. जेष्ठ विचारवंत डॉ. सागर देशपांडे म्हणतात, उपवास, भजन, कीर्तन, प्रवचनात दंगे वारकरी हातात टाळ चिपळ्या आणि डोईवर तुळशी-वृंदावन घेऊन एखाद्या आजम्य प्रताचं पालन करावं अशा श्रद्धेन जेव्हा आषाढी-कार्तिकीच्या वारीला जायला निघतात. तेव्हा आपसूकच मनात विचार येतो. कुणाच्याही निमंत्रणाशिवाय स्वयंस्फूर्तीने शेकडो वर्षे सुरु असलेला वारी हा जागतिक पातळीवरील एकमेव "इव्हेंट" असावा. वारीच्या या थोरवीतच तिचे मोठेपण सामावलेले आहे.

समारोप

या विचारमंथातून आपल्याला वारीचे अंगप्रत्यंग कळले, त्यावरून वारीत अनुशासन, शिस्त, तत्परता, सामंजस्य व समर्पणभाव याचा प्रत्यय पावलो-पावली येत असतो असे दिसते. म्हणूनच वारी हे एक चालं बोलतं विद्यापीठ आहे. ते उच्च विचार, शुध्द आचार निर्मळपणे रुजवणारं ज्ञानपीठ आहे. वारीचे व्यवस्थापन हे एक अप्रुपच आहे. वारीला तात्विक-आध्यात्मिक बैठक आहे. प्रदिर्घ परंपरा व इतिहास आहे. ओव्या, भजने, भारुडे, पवचन कीर्तन, अभंग यांच्या माध्यमातून जनजागरण करणारी ही संत महात्म्यांची व वारकऱ्यांची परंपरा आहे. पंढरीच्या विठ्ठलाची भेट हा वारीच्या अत्युच्च सुखाचा क्षण. महाराष्ट्रातून व देशाच्या इतर काही राज्यातून येणाऱ्या वान्यांचे पंढरपूर हे केंद्र आहे. वारी एकसूरी नसते. वारीत गायन, वादन, मनोरंजन आदी प्रकार असतात. वारकऱ्यांचे मन रिझविण्याचे कार्यकमही भारुडांद्वारे केले जातात. दिंड्या स्वतःच्या व्यवस्थेच्या बाबतीत स्वयंपूर्ण असतात. वारीच्या यशस्वी व्यवस्थापनाचे श्रेय कोणाही एका दुसऱ्याचे नसते तर ते सर्व वारकऱ्यांचे असते. जेष्ठ विचारवंत शिवाजीराव मोहिते म्हणतात. त्याप्रमाणे अतीव आध्यात्मिक भाव अन् कोणतीही अपेक्षा न ठेवता असलेली श्रद्धा हेच वारीच्या व्यवस्थापनाचे अप्रुप आहे.

निष्कर्ष

वारकरी पंथाचे अद्वैत श्री विठोबा हे पंढरपूरला आहे. वारकरी आषाढी, कार्तिकी, चैत्री, माघी या चार पमुख वान्या करतात वारीत सर्व जातीपंथाचे वारकरी एकत्र येत असल्याने तेथे समता, बंधुता व एकात्मता पाहायला मिळते म्हणून वारी हे चालते बोलते लोकविद्यापीठ व ज्ञानपीठ आहे असे म्हटल्यास वावगे ठरू नये. वारीत लाखांचा

समुदाय असतो. महाराष्ट्रातून तसेच महाराष्ट्रा वाहेरुन इतर काही राज्यातूनही पंढरपूरला पालख्या येतात. विठोबाचे दर्शन हे वारकऱ्यांचे सर्वात मोठे उद्दिष्ट असते.

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صدر شعبہ اُردو

شریعتی کیئر بائی لاہوٹی مہاودیا لالیہ، امراتی

مدیر عربی فارسی سیکشن

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پنج تنتر اور کلیلہ دمنہ کا تقابلی مطالعہ

ڈاکٹر انجم ضیاء الدین تاجی

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مخلص ہندوستانی میں سنسکرت زبان میں لکھی گئی کتابوں میں پنج تنتر سب سے زیادہ اہمیت کی حامل کتاب ہے۔ یہ چند حکایتوں پر مشتمل ہے۔ اسے ایک ہندوستانی راجا کے حکم پر ایک طبیب حاذق نے راجکماروں کی تربیت کے لیے لکھا تھا۔ اس کتاب کا سب سے پہلا ترجمہ پہلوی زبان میں ایران کے ساسانی بادشاہ خسرو انوشیروان کے حکم پر برزویہ طبیب نے کیا تھا۔ عربوں کے ایران پر غلبے کے بعد عبداللہ ابن المقفع نے اس کا ترجمہ پہلوی سے عربی زبان میں کیا۔ اور اس کا نام «کلیلہ و دمنہ» رکھا۔ اس کا پہلوی ترجمہ ضالیج ہو گیا۔ ابن المقفع کے عربی ترجمے کی مدد سے ابونصر منشی نے اس کا ترجمہ فارسی زبان میں کیا اور اس کا نام کلیلہ و دمنہ ہی رکھا۔ زیر نظر مقالہ میں پنج تنتر اور کلیلہ و دمنہ کا تقابلی مطالعہ کیا گیا ہے۔

مبحث

پنج تنتر: کتاب پنج تنتر اسلوب کے لحاظ سے Fable ہے۔ یعنی حکایتوں کا مجموعہ ہے۔ اس کے مصنف اور سال تصنیف کے متعلق سخت اختلافات پائے جاتے ہیں۔ پنج تنتر کے مرادھی مصنف کی رائے میں اس کا مصنف وشنو شرماس کے کرداروں کی مانند ایک افسانوی شخصیت ہے۔ عربی اور فارسی تراجم میں اس کا نام بید پای آیا ہے، جب کہ یورپی زبان کے تراجم میں اس کا نام Pilpai درج ہے۔ بید سے غالباً وید مراد ہے۔ یعنی طبیب۔ سرو لیم جونس کے مطابق شاید یہ شاہی طبیب ہوگا۔ ۲۳ سال تصنیف ۱۰۰ قبل مسیح سے ۳۰۰ء کے درمیان لکھا جاتا ہے۔ مگر البرٹ کینتھ کے مطابق یہ ۳۰۰ء سے قبل کی تصنیف نہیں ہو سکتی۔ ۳۳ اس کا جو قدیم ترین نسخہ موجود ہے، وہ صرف چند سو سال پرانا ہے۔

کلیلہ و دمنہ: پنج تنتر کا سب سے پہلے پہلوی زبان میں ترجمہ ہوا۔ پہلوی سے ابن المقفع نے اس کا ترجمہ عربی میں کیا۔ چوں کہ پہلوی زبان کا نسخہ ضالیج ہو گیا تھا، اس لیے اسے قرن ششم میں ابوالمعالی نصر اللہ بن محمد بن عبد الحمید منشی نے فارسی جامہ پہنایا۔

نصر اللہ کا تعلق غزنوی دربار سے تھا۔ وہ ایک صاحب ذوق، نکتہ پرداز اور سخن شناس شخص تھا۔ اسے علم و ادب سے اس قدر دلچسپی تھی کہ وہ اکثر اپنے گھر ہی میں اہل علم و فضل کی مجلسوں کا اہتمام کیا کرتا تھا۔ اس کے ایک دوست علی بن ابراہیم نے اسے کلیلہ و دمنہ بطور ہدیہ پیش کیا۔ جب نصر اللہ نے اس کا مطالعہ کیا تو اسے یہ بے حد پسند آئی اور اس نے اس کے ترجمے کا ارادہ کیا اور اس کام میں مصروف ہو گیا۔ اس نے کلیلہ و دمنہ کے بعض

حصوں کا ترجمہ کیا اور اپنے دوستوں کے ذریعے اسے بہرام شاہ غزنوی کو ارسال کیا، اس کے دوستوں اور بہرام شاہ نے اس کی ہمت افزائی کی اور اسے مکمل کرنے کی ترغیب دی۔ ابوالمعالی نصر اللہ منشی کو علوم متداولہ پر عبور حاصل تھا، اس لیے اس نے خشک ترجمے کی بجائے آزاد ترجمانی کو مناسب سمجھا۔ اور جہاں جہاں ضروری سمجھا اپنے اور دوسروں کے اشعار اور امثال کا اضافہ کیا۔ یہی وہ ترجمہ ہے، جو فارسی میں کلیلہ و دمنہ کے نام سے مشہور ہے۔ اسے کلیلہ و دمنہ بہرام شاہی بھی کہا جاتا ہے۔

پنج نثر اور کلیلہ و دمنہ کا تقابلی

پنج نثر کے کل پانچ ابواب ہیں، ان میں کل ۷۷ رکھائیں ہیں۔ جب کہ کلیلہ و دمنہ کل سولہ ابواب پر مشتمل ہے۔ ان میں سے پانچ ابواب ایسے ہیں، جو پنج نثر کے پانچ ابواب سے بہت قریب ہیں۔ اس میں کل حکایات کی تعداد چھتیس ہے۔

پنج نثر کی کل ۷۷ حکایتوں میں سے کلیلہ و دمنہ میں صرف ۳۲ حکایتیں ملتی ہیں۔ ان ۳۲ حکایتوں کے نام حسب ذیل ہیں۔

نمبر شمار	عنوان	صفحہ پنج نثر	صفحہ کلیلہ و دمنہ
۱-	بنیہ کے لڑکے کی کथा	۵	۶۰
۲-	خویلا خویچنے والے ایک بندر کی کथा	۹	۶۲
۳-	سیار اور دوندھی کی کथा	۲۳	۷۱
۴-	آषاڈبھتی، سیار اور دوتی آدی کی کथा	۳۷	۷۵
۵-	کویوں کے جوڈے اور کالے ناگ کی کथा	۵۷	۸۱
۶-	بگلے اور ککڈے کی کथा	۵۸	۸۲
۷-	سینگ اور خرگوش کی کथा	۶۱	۸۵
۸-	سینگ، کونٹ، سیار اور کوی کی کथा	۷۸	۱۰۵
۹-	تیتھری اور سمدر کی کथा	۸۵	۱۰۸
۱۰-	کاٹ سے گیرے हुए کھڑے کی کथा	۸۷	۱۰۹
۱۱-	سچیमुख اور بندر کی کथा	۱۰۷	۱۱۴
۱۲-	دھرمبুদ্ধی اور उसके मित्र کی کथा	۱۱۰	۱۱۵
۱۳-	بگلا، کالے ساپ اور نعلے کی کथा	۱۱۳	۱۱۷
۱۴-	لوہے کے तराजू اور بنیہ کی کथा	۱۱۴	۱۲۰

۱۵۱	۱۲۱	کاوے، چوہے، ہیرن اور کھڑے کی کथा	۱۵
۱۶۱	۱۳۵	پریراجک اور چوہے کی کथा	۱۶
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۱۶۲	۱۴۰	ہیل، سوآر اور سیاار کی کथा	۱۸
۱۷۸	۱۷۱	کاووں اور اوللووں کی کथा	۱۹
۱۸۷	۱۸۲	کاووں اور اوللووں کے بےب پورا نے ویر کی کथा	۲۰
۱۸۷	۱۸۴	خارگوش اور ہااھی کی کथा	۲۱
۱۹۰	۱۸۷	گوریا اور خارگوش کی کथा	۲۲
۱۹۵	۱۹۳	ااں اھووں اور براہمن کی کथा	۲۳
۱۹۷	۲۰۶	بوہے بنیاے کی ستری اور چور کی کथा	۲۴
۱۹۸	۲۰۸	براہمن، چور اور پشااا کی کथा	۲۵
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اااا کا سبب

سب سے پہلا سوال ہمارے ذہن میں یہ آتا ہے کہ پنچ نااا کی اااا کا سبب کیا ہے؟ پنچ نااا میں اس کا سبب یہ بیان کیا گیا کہ راجا امرنااا نے اپنے اااں کم ناا، ناااں ناااں کو ااااا کے لیے منااا ماناا برمااں کے اوالے کیا ااا۔ ان ناااں کی ااااا و ااااا کے لیے منااا ماناا پنچ نااا اااا کی۔

عبداللہ ابن المقفع نے لکھا کہ سکندر یونانی کے حملے کے بعد، جس ہندوستانی راجا نے ملک کی باگ ڈور سنبھالی، وہ ابتدا میں تو بڑا منصف تھا، مگر بعد میں ظلم و ستم کو اس نے اپنا شعار بنا لیا، اس وقت بید پای برہمن نے اسے راہ پر لانے کے لیے جو گنتھ لکھا وہ بیچ متز تھا۔ بید پای نے جب اپنے اس ارادے کا اظہار اپنے شاگردوں کے سامنے کیا، تو انھوں نے اسے روکا، مگر وہ ملک اور رعایا کی فلاح و بہبودی کی خاطر راجا کے ظلم و ستم کو انگیز کرنے کے لیے تیار تھا۔ ہوا بھی یہی جب بید پای برہمن نے اسے نصیحت کی تو راجا ادا بشلیم غضب ناک ہو گیا اور اس نے اسے قید کرنے کا حکم دے دیا اور بھول گیا۔ ایک رات جب راجا کو نیند نہیں آرہی تھی تو اس نے اجسام سماوی اور نظام کائنات کے بارے میں سوچنا شروع کیا، تاروں کی گردش کے بارے میں کچھ باتیں اسے سمجھ میں نہیں آرہی تھیں، تو اسے بید پای کی یاد آئی، تب اس نے ان گتھوں کو سلجھانے کے لیے بید پای کو طلب کیا اور پھر بید پای نے نہ صرف اس کی گتھوں کو سلجھایا، بلکہ وہ تمام باتیں بھی بتائیں جو اس نے سوچ رکھی تھیں۔^۲

عبداللہ ابن المقفع کے عربی ورژن کے مترجم اول نصر اللہ منشی نے کلیلہ و دمنہ کے مقدمے کو، جس میں عبداللہ ابن المقفع نے راجا ادا بشلیم کی کہانی بیان کی، سرے سے خارج کر دیا۔ لیکن دیباچے میں لکھا کہ اس کے مصنف بید پای برہمن نے اس کتاب کو راجا ادا بشلیم کے نام سے مرتب کیا۔^۳

لیکن اس بات کا ذکر نہیں کیا گیا ہے کہ اس کا سبب تالیف کیا ہے۔ جیسا کہ بیچ متز میں بیان کیا گیا ہے کہ یہ کتاب راجا کے کم فہم اور کم سن شہزادوں کی تربیت کے لیے لکھی گئی ہے۔ جب اس کی بات کی روشنی میں ہم بیچ متز کی حکایتوں پر نظر ڈالتے ہیں، تو ان میں ایسے نکات زیر بحث لائے گئے ہیں، جنہیں بچے سمجھ نہیں سکتے، بلکہ انہیں سن رشتہ کو پہنچے ہوئے افراد ہی سمجھ سکتے ہیں۔ یہاں بطور مثال چند اشوک نقل کا ہندی ترجمہ نقل کیا جا رہا ہے:

अति प्रबल और भयंकर शत्रु राजा के चढ आने पर भी जिसका धीरज नहीं टूटता, वह राजा कभी नहीं हारता ।

विधाता के भय दिखलाने पर भी धीर पुरुषों का धैर्य नाश नहीं होता ा गरमी में जब तालाब सूख जाते हैं तब भी समुद्र बराबर उछलता रहता है । (पृ. २२)

जो राजा अपने बल के अनुसार दवा की तरह धीरे-धीरे राज्य का भोग करता है वह खूब बलवान होता है । (पृ. ६१-६२)

हजार हाथियों से और लाख घोड़ों से लड़ाई में राजाओं का जो काम ठीक नहीं उतरता, वह केवल एक किले से सिद्ध होजाता है । (पृ. ६४)

जो मनुष्य शत्रु और रोग को जनमते ही दबा नहीं देता, तो उसके महा बलवान होने पर भी वही शत्रु और रोग बढ़कर उसका नाश कर देते हैं । (पृ. ६५)

पतिव्रता, पति को प्यार करने वाली, सदा पति का हित चाहने वाली ऐसी जिसकी पत्नी है वह आदमी इस संसार में धन्य है । (पृ. २०३)

उसे स्त्री ही नहीं मानना चाहिये जिसका पति संतुष्ट न हो । स्त्रियों के पति के प्रसन्न होने पर सब देवता प्रसन्न होते हैं । (पृ. २०३)

اس طرح کے متعدد اشلوک پنچ تنتر میں ہیں، جو یہ ثابت کرتے ہیں کہ پنچ تنتر پنچوں کے لیے نہیں لکھی گئی تھی، بلکہ یہ جوان شہزادوں کے لیے لکھی گئی تھی، جو عیش و عشرت میں تو مگن ہوں گے، مگر راج پاٹھ کے اصول سیکھنے کی طرف قطعاً توجہ نہیں دیتے ہوں گے۔

جہاں تک کلید و دمنہ کا تعلق ہے، اس کے مولف نے ابتدا میں ہی واضح کیا کہ کلید و دمنہ ایک ایسی کتاب ہے، جس کا مطالعہ ہندوستانی راجا کرتے تھے تاکہ اس کی رہنمائی میں حکومت کا نظم و نسق سنبھال سکے اور رعایا اور عہدہ داروں پر اپنی گرفت مضبوط رکھ سکیں۔

چند حکایتوں کا تقابلی مطالعہ

بندر اور تار کی حکایت: پنچ تنتر میں ہے کہ ایک باغ میں ایک بنیا مندر کی تعمیر کروا رہا تھا۔ دوپہر میں سب کاریگر کھانا کھانے جاتے تھے، ایسے ہی ایک وقت بندروں کا ایک گروہ آیا اور کودنے پھانڈنے لگا۔ وہاں ایک تار نے ایک چیرے ہوئے شہیتز کے پنچ میں ایک کیلا پھنسا کر گیا تھا، ایک بندر اس پر آ کر بیٹھ گیا۔ شگاف میں اس کے فوٹے لٹک رہے تھے اور وہ کیلا نکلنے کی کوشش کر رہا تھا۔ جیسے ہی کیلا نکلا اس کے خسیہ شگاف میں پھنس گئے اور وہ مر گیا۔

کلید و دمنہ میں یہ فرق ہے کہ ایک بندر ایک تار کو کام کرتے دیکھ رہا تھا کہ وہ ایک شہیتز پر بیٹھ کر کام کر رہا تھا۔ اس کے پاس دو پچر (wedge) تھے۔ پہلے ایک کو اس میں ٹھونکتا تا کہ آرا چلانے میں آسانی ہو۔ جب وہ چلا گیا تو بندر نے بھی اس کی نقل کرنے کی کوشش کی، اس نے پچر ٹھوکا، مگر اس کے خسیہ شگاف میں لٹک رہے تھے، جیسے ہی پچر نکلا اس کی خسیہ انک گئے اور وہ تکلیف سے بلبل اٹھا۔ اتنے میں تار آ گیا اور اس نے اسے اتنا مارا کہ وہ مر گیا۔

حکایت زاہد و دزد: اس میں حسب ذیل اختلافات پائے جاتے ہیں۔

(۱) پنچ تنتر کی کہتا میں ہے کہ تیاگی کو لوگ جو قیمتی کپڑے دیتے تھے، اس نے انہیں فروخت کر کے خوب دولت اکٹھا کر لی تھی، جسے وہ اپنے بغل میں چھپائے رکھتا تھا۔ ایک چور کو پتا چلا تو اس نے کسی طرح اسے چرانے کا ارادہ کیا اور اس کا شاگرد بن گیا۔ جب کہ کلید و دمنہ میں ہے کہ جب ایک زاہد کو بادشاہ نے خلعت فاخرہ عطا کی اور چور نے اسے دیکھا تو وہ اس خلعت کو چرانے کے لیے اس کا جیلا بن گیا۔

(۲) کلید و دمنہ میں ہے کہ ایک رات موقع پا کر چور نے خلعت چرائی اور چلتا بنا۔ جب کہ پنچ تنتر میں ہے کہ دیوشرمانے یہ شرط عائد کر دی تھی کہ رات کو تو مٹھ میں داخل نہیں ہوگا۔ اور تجھے مٹھ کے باہر بنی گھاس پھوس کی جھونپڑی میں سونا ہوگا۔ اچانک ایک مرتبہ ایک شخص نے اسے اپنے گھر بلایا۔ جب وہ دونوں روانہ ہوئے تو راستے میں ایک ندی ملی۔ دیوشرمانے کے دل میں نہانے کا خیال آیا اس نے کپڑوں کے پنچ میں اپنا ٹوا چھپایا اور نہانے کے لیے گیا۔ اس کا فائدہ چور نے اٹھایا اور ٹوا چرا کر چلتا بنا۔

(۳) کلیلہ و دمنہمیں ہے کہ زاہد کو جب چوری کا علم ہوا تو وہ اس چور کی تلاش میں شہر کی طرف روانہ ہوا اور راستے میں اس نے دو جنگلی بکروں کو لڑتے دیکھا۔ اتنے میں ایک لومڑی آئی، وہ ان کے خون کا مزہ لینے کے لیے ان کے بیچ میں گھس گئی اور دونوں کے سنگھوں کے درمیان میں آکر ماری گئی۔ زاہد آگے بڑھا اور شام کو ایک گانو میں پہنچا۔

بیچ تتر میں ہے کہ جب دیوشتر ما فراغت کے لیے بیٹھا تو اس نے دو میڈھوں کو لڑتے دیکھا، پھر ایک لومڑی آئی اور خون کا مزہ لینے کے لیے ان کے بیچ میں گھسی اور ماری گئی۔ فراغت کے بعد وہ اپنے بٹوے کے بارے میں سوچتے ہوئے واپس لوٹا تو اسے غائب پایا۔ وہ ہاتے میں لٹ گیا چلاتے ہوئے بے ہوش ہو گیا۔ ہوش میں آنے کے بعد بہت دیر تک روتا دھونتا رہا اور پھر اس کے پیروں کے نشان دیکھتا ہوا، آگے بڑھا۔ یہاں تک شام کو ایک بستی میں پہنچا۔

(۴) کلیلہ و دمنہمیں ہے کہ زاہد قصبے میں جگہ کی تلاش میں گھوم رہا تھا کہ اچانک ایک عورت اپنے گھر کی چھت پر آئی، اس نے اسے دیکھا تو سمجھ گئی کہ یہ مسافر ہے، اس لیے اسے ایک گوشے میں جگہ دی۔ یہ عورت بد چلن تھی اور اپنی کینزوں سے پیشہ کرواتی تھی۔ اس کے پاس ایک خوب صورت کینز تھی، اس کا عاشق نہیں چاہتا تھا کہ کوئی اور اس کینز سے حظ اٹھائے۔ اس وجہ سے وہ قحبہ اس سے بیزار ہو گئی تھی۔ جب وہ جوان اس سے ملنے آیا۔ اس نے دونوں کو خوب شراب پلائی، جب وہ مدہوش ہو کر سو گئے تو عورت نے تھوڑا سا زہر ایک نلی میں بھرا اور اس کا ایک سر اپنے منہ میں اور دوسرا اس جوان کی ناک میں لگایا؛ مگر جب وہ پھونکنے کا ارادہ کر بیٹھی کہ اس جوان کو چھینک آگئی اور وہ زہر اس کے منہ میں آگیا اور بلاک ہو گئی۔ زاہد نے جب یہ منظر دیکھا تو بڑی مشکل سے رات گزاری اور صبح وہاں سے چل پڑا۔

جب کہ بیچ تتر میں ہے کہ وہ ایک گاؤں میں پہنچا۔ اس نے دیکھا کہ ایک بنکر اپنی بیوی کے ساتھ شراب پینے جا رہا ہے۔ اس نے اسے کہا کہ میں یہاں کسی کو نہیں جانتا، تو مجھے اپنا مہمان بنالے۔ بنکر راضی ہو گیا۔ اس نے اپنی بیوی سے کہا کہ تو مہمان کی خدمت کر میں تیرے لیے شراب لے کر آتا ہوں۔ اس عورت نے برہمن کو ایک ٹوٹی کھٹیا دے کر کہا، میں اپنی سہیلی سے مل کر آتی ہوں، جب تک تم ہشیاری سے گھر میں رہو۔ یہ کہہ کر وہ اپنے عاشق سے ملنے کے لیے سنگار میں لگ گئی۔ سنگار کر کے وہ باہر نکلی ہی تھی کہ اسے اس کا شوہر شراب کے نشے میں لڑکھڑاتے ہوئے آتے دکھا۔ وہ فوراً بھاگ کر گھر کی طرف آگئی۔ مگر اس کے شوہر نے اسے دیکھ لیا تھا۔ اس نے غصے سے آگ بگولہ ہو کر اسے باندھ دیا۔ کچھ دیر بعد اس کی اس کی سہیلی نائن آئی۔ وہ اس کی راز دار تھی۔ بنکر کی بیوی نے نائن سے کہا کہ تو میرے عاشق کو کچھ ہوا بتا دے۔ نائن نے کہا کہ میں تیری جگہ لے لیتی ہوں، تو اپنے عاشق سے مل کر آ۔ اس نے نائن کو باندھ دیا اور خود چلی گئی۔ بنکر نے کچھ دیر بعد کہا اگر تو وعدہ کرے کہ آئندہ باہر نہیں جائے گی، تو میں تجھے معاف کر دیتا ہوں۔ نائن پہچان جانے کے خوف سے خاموش رہی۔ بنکر نے دو تین بار پوچھنے کے بعد غصے سے اس کی ناک کاٹ ڈالی۔ بنکر کی بیوی آئی، تو اس نے اسے کھولا، اور خود کو بندھوا لیا۔ نائن کے جانے کے بعد اس نے شور مچایا کہ دیوتا مجھ سے بہت خوش ہیں، تو نے ناک کاٹی، تو انہوں نے آکر جوڑ دیا۔ یہ دیکھ کر بنکر کو اپنی بیوی کی پاکیزگی کا یقین آ گیا۔

دوسری طرف صبح نائی دربار سے واپس آیا تو اس نے اپنی بیوی سے حجامت بنانے کا استرا مانگا۔ نائن نے استرا پھینک کر دیا۔ نائی غصہ ہوا، تو نائن نے شور مچایا کہ دیکھو ذرا سی بات پر نائی نے میری ناک کاٹ دی۔ لوگوں نے نائی کو بہت پیٹا۔ اسے جج کے پاس لے گئے۔ جج کے سامنے بھی نائی نے کچھ نہیں کہا۔ اسے سزا سنائی گئی۔ تیاگی جج کے پاس گیا اور اسے سب حالات بتائے۔ اس کی وجہ سے نائی کی جان بچی اور عورت کے کان بھی کاٹ ڈالے گئے۔

ان بتیں کہانیوں میں سے کچھ حکایتوں میں بڑی حد تک مماثلت بھی ہے۔ جیسے کوئے اور کالے ناگ کی کتھا، ماہی خوار اور لیکڑے کی

حکایت۔

نتیجہ

پنج تنتر اور کلیدہ دمنہ کا تقابلی مطالعہ کیا جائے تو ان کے متون میں جو فرق پایا جاتا ہے۔ اس کی اہم وجہ مذہبی اور معاشرتی پس منظر ہے۔ آج چوں کہ پہلوی ترجمہ دستیاب نہیں ہے، اس لیے اس کی نوعیت کے متعلق کچھ نہیں کہا جاسکتا کہ آیا اس میں ہندو معاشرے کے خدوخال کا پاس و لحاظ کیا گیا تھا یا نہیں۔ لیکن ابن المقفع نے عربی میں ترجمہ کرتے ہوئے، عرب کے مسلم معاشرے کو پیش نظر رکھا اور کلیدہ دمنہ کو اسلامی لبادے میں غلیفہ کے سامنے پیش کیا۔ اسی نسخے کا بعد میں دوبارہ فارسی میں جب ترجمہ ہوا تو یہ کتاب اسلامی رنگ ڈھنگ اور عرب ایرانی ثقافت کی نمائندہ بن گئی۔ حتیٰ کہ بادشاہوں اور راجاؤں کا تعلق تو چین اور ہندستان سے ظاہر کیا جاتا ہے، مگر ان کا سماجی اور دینی پس منظر قطعی عرب ایرانی ثقافت کا نمونہ نظر آتا ہے۔

حواشی

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سنائی کی پیش کردہ روایات کا جائزہ

ڈاکٹر انجم ضیا الدین تاجی

فارسی شعر میں سنائی غزنوی (۳۷۳ھ-۵۴۵ھ) اس لحاظ سے منفرد مقام کے حامل ہیں کہ انہوں نے نہ صرف نعتیہ اشعار نظم کیے ہیں، بلکہ معراج نامہ کا آغاز بھی کیا۔ سنائی کی مقبول عام مثنوی حدیقۃ الحقیقہ ہے۔ ہندوستان میں اس کی پہلی اشاعت اپریل ۱۸۸۷ء میں بمبئی میں ہوئی۔ حدیقہ کو دوسری مرتبہ ۱۸۹۵ء میں نوکسور لکھنؤ نے شائع کیا۔ اس کی اہم خصوصیت یہ ہے کہ جناب عبداللطیف صاحب نے اس کے حواشی لکھے، جن کی مدد سے اس مثنوی کے مشکل مقامات کی تفہیم میں بڑی مدد ملتی ہے۔ ایران میں پروفیسر محمد تقی مدرس رضوی (م ۱۳۶۵) نے اس کی تصحیح و تفسیر کی خدمت انجام دی اور یہ جدید ایڈیشن میں زیور طباعت سے آراستہ ہوا۔ پروفیسر تقی مدرس کے حواشی میں صرف مختلف مخطوطوں کے لفظی اختلافات کو پیش کیا گیا ہے۔

حدیقہ میں صفحہ ۱۸۹ تا ۲۲۵ کل آٹھ سو نعتیہ اشعار ہیں۔ سنائی نے نعت سے پہلے آپ کی فضیلت میں عربی میں ایک اہم نوٹ لکھا ہے، جس میں قرآن مجید کی چند آیتوں اور چند روایتوں کو آپ کی فضیلت کی دلیل میں پیش کیا گیا ہے، ملاحظہ فرمائیے:

خیر الکلام بعد کلام الملک العلام فضیلتہ محمد النبی المختار علیہ السلام، قال اللہ تعالیٰ: ان اللہ و ملائکتہ یصلون علی النبی یا ایھا الذین آمنوا صلوا علیہ وسلموا تسلیما، و قال ایضا: انا ارسلناک شاہدا و مبشرا و نذیرا و داعیا الی اللہ باذنہ و سراجا و منیرا، و قال اللہ تعالیٰ: و ما ارسلناک الا رحمة للعالمین، و قال النبی علیہ السلام: انا اول الانبیاء خلقا و آخرهم بعثا، و قال علیہ السلام: انا خاتم الانبیاء و لانی بعدی و قال علیہ السلام: کنت نبیا و ادم بین الماء و الطین، و قال صلی اللہ علیہ و سلم حکایتہ عن اللہ سبحانہ و تعالیٰ اذ قال عز و جل خطا بآبہ: لولاک لما خلقت الافلاک، و قال علیہ السلام انا سید ولد آدم و لافخر، و آدم و من دونہ تحت لوائی یوم القیمہ و لافخر۔

حدیقہ کے بمبئی ایڈیشن میں یہ اقتباس کسی قدر مختلف ہے اور نوکسور ایڈیشن میں اسے مختصر کر دیا گیا ہے۔ مذکورہ بالا اقتباس میں دو روایتیں ایسی ہیں، جن کے متعلق علماء و محدثین کے درمیان اختلاف ہے۔ روایت "کنت نبیا و ادم بین الماء و الطین" کے مفہوم میں اختلاف ہے، جب کہ روایت لولاک لما خلقت الافلاک بھی محدثین کی رائے میں موضوع حدیث ہے۔ اول

الذکر روایت کے متعلق امام سیوطیؒ کی رائے یہ ہے اس کی کوئی اصل نہیں ۲، امام ابن تیمیہؒ نے فرمایا ہے کہ یہ لفظ جھوٹ اور باطل ہیں۔ ۳ شیخ حوت نے اسے موضوع کہا ہے۔ ۴

مذکورہ بالا روایت کا سب سے قدیم ماخذ امام بیہقی (م: ۴۵۸ھ) کی دلائل النبوه جلد اول ہے۔ دلائل النبوه میں دو الگ الگ طرق سے موجود ہے۔ پہلی روایت حسب ذیل ہے:

إني عبد الله وخاتم النبيين، وإن آدم لمنجدر في طينته ۵

دوسری روایت:

قلت: يا رسول الله، متى كتبت نبيا؟ قال: وآدم بين الروح والجسد۔

اول الذکر روایت پر مرتب نے حسب ذیل حاشیہ لکھا ہے:

الحديث أخرجه الإمام أحمد في "مسنده" (۴: ۱۲۷-۱۲۸)، والحاكم في "المستدرک" (۲: ۶۰۰)، وقال "هذا حديث صحيح الإسناد"، وأقره الذهبي، وذكره الهيثمي في "مجمع الزوائد" (۸: ۲۲۳) وقال: "رواه أحمد، والطبراني، والبزار، واحد اسانيد احمد رجال رجال الصحيح، غير سعيد بن سويد، وقد وثقه ابن حبان

ایک قابل اعتنا نکتہ یہ ہے کہ امام بیہقی نے خود اس روایت کی تشریح فرمائی ہے:

أنه كان كذلك في قضاء الله وتقديره، قبل أن يكون أبو البشر، وأول الأنبياء، صلوات الله عليهم ۶

(یعنی وہ مذکورہ حالت و کیفیت میں آدمؑ کے ابو البشر بننے سے قبل اللہ کی تقدیر میں اور اس کی قضا اس طرح تھے۔)

حاشیہ میں دوسرے نسخے میں "کتبت" کی بجائے "كنت" کا لفظ ہے۔ اس روایت کے متعلق حسب ذیل حاشیہ بھی

درج ہے:

أخرجه الإمام أحمد في "مسنده" (۵: ۵۹) والحاكم في "المستدرک" (۲: ۶۰۸-۶۰۹) وقال: هذا حديث صحيح الإسناد، ولم يخرجاه، وأقره الذهبي ۷

اسے ترمذی نے بھی "فی المناقب" میں روایت کیا ہے۔

مذکورہ بالا روایت کی صحت کے متعلق جب دو قسم کی آرا پائی جاتی ہوں، تو ابن تیمیہ وغیرہ کی رائے کو اختیار کرنے سے بہتر یہ ہے کہ امام احمد بن حنبل وغیرہ کی رائے کو ترجیح دی جائے۔ جب عقلاً اس پر امام بیہقی کی خوبصورت توضیح کی روشنی میں غور کیا جاتا ہے، تو اس روایت کا صحیح ہونا اظہر من الشمس ہو جاتا ہے۔ اس میں کیا شک کہ تخلیق کائنات سے قبل ہی اللہ کے علم اور منصوبے میں ہر مخلوق کے سپرد کی جانے والی ذمہ داریاں طے تھیں۔ یہ بات اللہ تخلیق کے آغاز سے پہلے ہی طے کر چکا تھا کہ محمد خاتم النبیین ہوں گے۔

لَوَاكُ لَمَا خَلَقْتُ الْفَلَآكُ۔

اس مضمون کی حامل چند اور روایتیں بھی ملتی ہیں، مثلاً حضرت آدمؑ نے مغفرت طلب کرتے ہوئے نبی کریم ﷺ کو وسیلہ بنایا اور پھر آپ کے متعلق دریافت کیا، تو اللہ تعالیٰ نے فرمایا:

صدقہ یا آدمؑ، لہذا أحب الخلق إلی ادعنی بحقہ فقد غفرت لک ولولا محمد ما خلقتک۔

اسے شیخ محمد ناصر الدین البانی نے موضوع قرار دیا ہے۔ شیخ نے اسی طرح مندرجہ ذیل روایت کے متعلق بھی لکھا:

لا أصل له أوحى الله إلی عیسیٰ علیہ السلام یا عیسیٰ آمن بمحمد وأمر من أدرک من أمتک أن یؤمنوا به فلو لا محمد ما خلقت آدمؑ ولولا محمد ما خلقت الجنة ولا النار ولقد خلقت العرش علی الماء فکتبت علیہ لاله الله محمد رسول الله فکفن۔ (ص ۶۵)

زیر بحث روایت کو البانی نے موضوع قرار دیا ہے۔ مزید لکھا:

ومثله آتانی جبریل فقال یا محمد لولاک ما خلقت الجنة ولولاک ما خلقت النار و فی روایة ابن عساکر لولاک ما خلقت الدنیا۔ (ص ۶۵)

اب سوال یہ پیدا ہوتا ہے کہ ان روایتوں کا ماخذ کیا ہے؟ سب سے پہلے حضرت آدمؑ سے متعلق روایت حاکم نیشاپوری نے اپنی تالیف المستدرک علی الصحیحین ج ۲/ ص ۶۷۲ نمبر ۴۲۸ میں بیان کی ہے، اور اسے صحیح قرار دیا ہے۔ اسی طرح حضرت عیسیٰؑ سے متعلق روایت کا ماخذ بھی المستدرک ہے۔ (ج ۲/ ص ۶۷۲ نمبر ۴۲۲)

اس روایت کو صوفیہ میں سب سے پہلے جن مشائخ نے پیش کیا، ان میں شیخ شہاب الدین سہروردی (-۵۴۹) (۵۸۷) نے "عوارف المعارف" میں، حضرت عبدالقادر جیلانیؒ (م: ۵۶۱ھ) نے حدیث قدسی کی حیثیت سے، اور مولانا رومی کے والد شیخ بہاء الدین بلخی (۶۲۸-۵۴۳) نے میں نقل کیا۔ شیخ بہاء الدین ولد نے اس کی وضاحت یوں فرمائی:

حکمت اللہ از خلقت جہان بجز محبت نبود از آن کہ بچہ صفتی از این معنی کامل تر نبود از این معنی بود کہ مقصود از خلقت جہان محمد ﷺ آمد کہ او حبیب اللہ بود، لولاک لما خلقت الافلاک اشارت بدان است۔

مذکورہ بالا مشائخ کے علاوہ امام غزالی کے بھائی شیخ احمد غزالی نے کسی قدر تصرف کے ساتھ اسے نقل کیا۔ ان کی

تالیف میں یہ روایت یوں آئی ہے:

لولاک لما خلقت الکون۔

سنائی نے نعتیہ اشعار کی ابتدا اس صوفیانہ عقیدے سے کی کہ اللہ تعالیٰ نے کائنات کو نور محمدی ﷺ سے پیدا کیا:

احمد مرسل آن چراغ جہان رحمت عالم آشکار و نہان

آمد اندر جہان جان ہر کس جان جانہا محمد آمد و بس

صوفیہ کے مطابق تنزلات ستہ کے مرحلہ عثمانی میں ایک نور بسیط پیدا ہوا، اور اسی نور بسیط سے جملہ کائنات کو وجود بخشا گیا۔ اسی کو حقیقت محمدی کہا جاتا ہے۔ اس کی بنیاد جن روایتوں پر ہے، وہ یا تو ضعیف ہیں یا موضوع، مگر مفسرین کی اکثریت نے انھیں قبول کیا ہے۔ ذیل میں ہم وہ روایات نقل کر رہے ہیں:

(۱) الخائض الکبریٰ از علامہ جلال الدین عبد الرحمن بن ابی بکر السیوطی، جلد اول، ص ۳۔

اخرج ابن ابی حاتم فی تفسیرہ وابونعیم فی الدلائل عن طرق عن قتادہ عن الحسن عن ابی ہریرہ عن النبی ﷺ فی قوله تعالیٰ واذ اخذنا میثاق النبیین الایہ کنت اول النبیین فی الخلق و اخرہ فی البعث فبدء بہ قبلہم

آخر میں یہاں ان روایات کی روشنی میں حقیقت محمدی کے متعلق ڈاکٹر اسرار احمد کی رائے نقل کی جا رہی ہے، مگر اسے پہلے ان کی دو آرا ذہن میں رہنی چاہیے۔ ایک یہ کہ وحدت الوجود اور وحدت الشہود وغیرہ فلسفے دراصل "وجوب" سے "امکان" اور "قدم" سے "حدوث" کے مراحل کی وضاحت پر مبنی ہیں۔ ان کی حیثیت عقیدے کی نہیں بلکہ نظریے کی ہے۔ دوسری یہ کہ تنزلات سہ کی پہلی منزل میں واجب الوجود نے تنزل نہیں فرمایا، بلکہ اس کے کلمہ "کن" نے تنزل کیا۔ روح محمدی کے متعلق فرماتے ہیں:

۳) روح محمدی کے بارے میں ایک مشہور حدیث میں، جو اگرچہ محدثین کے معیار جرح و تعدیل پر تو پوری نہیں اترتی، تاہم اکثر صوفیاء ہی نہیں مفسرین نے بھی اسے قبول فرمایا ہے، "نور" ہی کا لفظ آیا ہے، یعنی اَوَّلَ مَا خَلَقَ اللّٰهُ نُورًا اسی طرح ایک اور حدیث، جس کا حوالہ تو تاحال دستیاب نہیں ہو سکا، لیکن معتبر ذرائع سے معلوم ہوا کہ مولانا غلام مرشد مرحوم اسے اپنے دروس میں بیان فرماتے تھے، اس کی رو سے حضرت جابر کے اس سوال کے جواب میں کہ اللہ تعالیٰ نے سب سے پہلے کس چیز کو پیدا کیا۔ جو اباً آنحضور ﷺ سے منقول ہے کہ "نُورٌ نَبِیْکَ یَا جَابِرُ، نُورٌ نَبِیْکَ!!" (یہ روایت اغلباً مصنف عبدالرزاق میں موجود ہے۔)

۴) خود ذات باری تعالیٰ کے لیے انسانی ذہن کی محدودیت اور نارسائی کے پیش نظر، قریب ترین لفظ، جو بطور تمثیل اختیار کیا گیا، وہ "نور" ہی ہے۔ جیسے سورہ نور کی آیت پچیس ﴿اللّٰهُ نُورٌ السَّمٰوٰتِ وَ الْاَرْضِ﴾ کے الفاظ مبارکہ اور حضرت عائشہ سے منقول "نُورٌ اٰیُّ یٰ لَیْکَ الْفَاظ۔ ان حقائق کے پیش نظر کیا یہ نتیجہ نکالنا بعید از قیاس یا دور کی کوڑی لانا قرار دیا جاسکتا ہے کہ:

تخلیق کائنات کے ضمن میں اللہ تعالیٰ کے اولین کلمہ "کن" نے اپنے تنزل کے مرحلہ اول میں ایک نور بسیط کی صورت اختیار کی اور اس سے اللہ تعالیٰ نے خلعت وجود عطا فرمایا۔ ملائکہ اور ارواح انسانیہ کو، جن کی اصل "نور" ہے اور جو صاحب تشخص اور صاحب شعور ہی نہیں "خود شعوری" کی نعمت عظمیٰ سے بھی سرفراز ہیں!

اور اس میں کونسے تعجب کی بات ہے کہ ان ملائکہ اور ارواح انسانیہ میں سب سے پہلے خلعت وجود سے سرفراز ہونے والی ہستی "نور محمدی ﷺ" یعنی "روح محمدی" ہی ہو، فِدَاہُ اَبَائِنَا وَاُمَّهَاتِنَا!! ۸

حواشی

۱۔ حدیقتہ الحقیقہ، سنائی غزنوی، ص

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امیر حسن سجزی کے قصائد پر تحقیقی نظر

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Abstract خلاصہ

اس مقالہ میں امیر حسن سجزی (1337-1254) کے قصائد کا تحقیقی و تنقیدی مطالعہ پیش کیا گیا ہے۔ حسن سجزی کے قصائد عربی ادب کے ابتدائی قصائد کی یاد تازہ کرتے ہیں جو مختصر لیکن نہایت بلند درجہ کے حامل ہوا کرتے تھے۔ حسن سجزی کے قصائد بھی مختصر لیکن وقیع ہیں۔ دیوان حسن سجزی دیوان میں چند قصائد اور غزلیں آپس میں خلط ملط ہو گئی ہیں۔ ڈاکٹر نرگس جہاں نے اپنے مرتبہ دیوان حسن سجزی میں اس کی نشاندہی کی ہے لیکن اگر مزید تحقیق کی جائے تو اضافہ کی گنجائش باقی ہے۔ حسن سجزی نے نعتیہ قصائد بھی لکھے ہیں۔ چونکہ وہ مذہبی آدمی تھے اور حضرت نظام الدین اولیاء کے ہاتھوں پر بیعت تھے کچھ اس لیے بھی ان کے نعتیہ قصائد میں نبی کریم صلی اللہ علیہ و آلہ و سلم سے والہانہ محبت کا اظہار ہوا ہے۔ وہ شاہی درباروں میں صرف علاؤالدین خلجی کے دربار سے وابستہ رہے اس لیے مدحیہ قصائد کم ہیں۔ اور جو ہیں وہ بھی بہت مختصر ہیں۔

کلیدی الفاظ Key words : امیر حسن سجزی، قصیدہ، نعتیہ قصائد

Introduction تمہید

امیر حسن سجزی چودھویں صدی عیسوی کے بہترین شاعر گزرے ہیں۔ انہوں نے مختلف اصناف میں داد سخن دی ہے۔ لیکن انہیں ایک غزل گو کی حیثیت سے زیادہ شہرت حاصل ہوئی۔ بیشتر تذکرہ نگاروں نے ان کی قصیدہ نگاری پر خاموشی ہی اختیار کی۔ لیکن حق یہ ہے کہ امیر حسن سجزی کے قصائد بھی ان کی غزلوں کی طرح بلند مرتبہ رکھتے ہیں۔ اس مقالے میں یہ بات جاننے کی کوشش کی گئی ہے کہ امیر حسن سجزی کے قصیدوں کی تعداد کتنی ہے اور ان قصائد کے موضوعات کیا ہیں نیز ان قصائد کا تنقیدی جائزہ بھی مقصود مقالہ ہے۔

تعداد قصائد

دیوان حسن سجزی مرتبہ ڈاکٹر نرگس جہاں میں قصائد کی تعداد ۱۵۷ (ایک سو ستاون) ہے جبکہ مسعود علی محوی کے مرتب کردہ دیوان میں قصائد کی تعداد ۱۶۱ (ایک سو اکسٹھ) ہے۔ اس سلسلے میں ڈاکٹر نرگس جہاں تحریر فرماتی ہیں:

این تعداد درست نیست چون بسیار ی ازین قصائد در ضمن غزل آمدہ اند۔ علاوہ برآن قصیدہ کے در نعت پیغمبر اکرم صلی اللہ علیہ وسلم است۔ داری سی صد و سیزده بیت است و شاعر آن را در ہفت بخش تقسیم کرده است۔ بدین جہت مسعود علی محوی آن را ہفت قصیدہ شمرده است بلکہ ان را باید یک قصیدہ شمرد۔ [1]

ڈاکٹر نرگس جہاں کی یہ بات قطعی طور پر درست معلوم ہوتی ہے کیونکہ حسن خود قصیدے میں کہتے ہیں کہ چونکہ غزوہ بدر میں نبی کریم صلی اللہ علیہ وسلم کے صحابہ کی تعداد ۳۱۳ تھی اس لئے اس میں ۳۱۳ اشعار کہے گئے ہیں۔

رسول حضرت تو سی صد و سیزده تن

بدان قیاس شد ابیات شعر من مانا [2]

امیر حسن سجزی کی ۱۹ غزلیں ایسی ہیں جو اشعار کی کمی بیشی کے ساتھ قصائد میں شامل ہو گئی ہیں۔ مسعود علی محوی اور ڈاکٹر نرگس جہاں نے انہیں دونوں میں شامل کیا ہے۔ ہونا یہ چاہئے تھا کہ انہیں کسی ایک صنف سخن کے تحت رکھا جاتا اور دوسری سے ہٹا دیا جاتا مگر پتہ نہیں کیا مصلحت کار فرما تھی جو ایڈیٹنگ نہیں کی گئی۔ یہ غزلیں حسب ذیل ہیں۔

- 1- مناز ای بت چین کہ چین ہم نماند قرار جہاں این چنیں ہم نماند
- 2- روی گل از ہوا نمی دارد پشت شاخ از صبا خمی دارد
- 3- گزشتگان جہاں حال خویش چون گویند کہ زیر ضربت چوگان عشق چون گویند
- 4- باغ بہشت وصف جمال محمد است ختم رسل صفات کمال محمد است
- 5- اے خواجہ بدولتم ہوس نیست این دولت بندگیت بس نیست
- 6- تا خطت ریختن خون مسلمان آموخت چشم خونریزی تو گویی کہ دو چندان آموخت
- 7- روی خود را ماہ می خوانی کہ می گوید کہ نیست موی خود را مشک می دانی کہ میگوید کہ نیست
- 8- دل نہادیم بہر حکم کہ در تقدیر است ترک تدبیر بسند ست و بہمین تدبیر است
- 9- بوی راحت در ہمہ عالم نماند آدمیت در نبی آدم نماند
- 10- فلک با کس دل یکتا ندارد ز صد دیدہ یکی بینا ندارد
- 11- ای ملک منعم مفلس نواز نامہ بنام تو روان گشت باز

12- زلفت کہ باد کہ بر رخ رخشان رساندش ابری بود کہ بر نامہ تابان رساندش

13- خط تو رہبر خطیست بر گل ای خادم خط تو گشته سنبل

14- از در دنیا چه دم زخم کہ ندارم از مہمت دل چہ جان کنم کہ ندارم

15- دلبر جا تو گرفت نگارا کجا روم از خویش دور میکنم تا کجا روم

16- زہی محراب شرع و قبلہ و دین نبوت را ز تو امکان نمکین

17- گلی خواہم از جہاں می چون گلاب تو در در ناب ریختہ یاقوت ناب تو

18- بیا ساقی کہ قوت جان تو داری بالماس اندرون مرجان تو داری

19- درستم راستم یک رایہی و یک روی کژی در من نبینی یک سر مویہی [3]

یہ وہ ۱۹ غزلیں ہیں جنہیں ڈاکٹر نرگس جہاں نے دیوان حسن سجزی کی تدوین کے وقت تلاش کیا اور نشاندہی کی مگر مزید غور کرنے پر مزید تین غزلیں ایسی دستیاب ہوتی ہیں جو قصیدے اور غزل دونوں اصناف کے تحت درج ہیں۔

1- برین بساط چہ شینم کہ ہم نشین رفتست

مروتی کہ گمان داشتہم یقین رفتست

2- دوش بودیم تا صبح از قبول یار مست

گوش از گفتا خرم دیدہ از دیدار مست

3- لعلت ز کانہست یا خود از نبات

خط تو خضر است یا آب حیات

اس طرح ۲۲ قصیدے کل ۱۶۳ قصیدوں میں سے کم ہوجاتے ہیں۔

اختصار

امیر حسن سجزی ابتدائے سخن ہی سے کم گوئی کی طرف مائل تھے ان کی غزلیں بھی زیادہ تر مختصر ہی ہیں۔ کیونکہ یہ مدح و ستائش پر مبنی ہیں اس لئے انہیں قصیدہ قرار دیا گیا ہے ورنہ غزل بھی کہا جاتا تو کوئی تعجب کی بات نہ ہوتی۔ علاء الدین کی مدح میں لکھے گئے قصائد میں سے چند قصیدے ہی طویل ہیں باقی قصیدے غزلوں کی طرف مختصر ہیں یہاں تک کہ صرف تین اشعار پر مشتمل ہیں۔

دست فلک چو بر کشید بیزق صبح گاہ را

روح امین دعا کند دولت بادشاہ را

شاہ جہاں علاء الدین کوست پناہ دین حق

عصمت حق پناہ باد این شہ دین پناہ را

عید رسید پیش کش کردہ کمان ماہ را

تہنیتی ہمی کند دولت بخت شاہ را

حسن چونکہ مختصر گوئی کے عادی تھے اور طویل قصیدہ اور مثنوی لکھنے کی نہ تو انہیں مشق تھی اور نہ ہی عادت۔ ان کا مزاج بھی کم گوئی کی طرف مائل تھا۔ اس لیے انہوں نے کچھ قصیدے براہ راست بادشاہ کی تعریف و ستائش یا اس کی سلطنت کی بقا کی دعا سے شروع کیے ہیں۔

شہنشاہ را اساس ملک تا با دا قوی با دا

سریر خسرویش از افسر کیخسروی بادا

حسن سجزی نے بعض قصائد میں قصیدے کے تمام اجزاء کو کو بروئے کار لانے کی بھی کوشش کی ہے یعنی تشبیب گریز مدح طلب اور دعا۔ حالانکہ یہ قصائد بھی مختصر ہیں مگر ان میں قصیدے کے اجزا کی نشاندہی کی جاسکتی ہے۔ مثلاً ایک قصیدہ ہے جس کا مطلع ہے

باز عہد گل بہ گل گشت ریاحین در سید

شاخ اگر در دل امیدی داشت اندر بر رسید

یہ قصیدہ ۱۵ اشعار پر مشتمل ہے اس کے پہلے چار شعر تشبیب کے ہیں ان میں شاعر نے موسم بہار کا منظر پیش کیا ہے اس کے بعد گریز کا شعر ہے۔

سرو باغ سلطنت ریاض مملکت

کز قدوم او بہار نو بہ نو ہر کشور رسید

بعد ازاں مدح کے آٹھ شعر ہیں۔ ان میں شاعر نے علا الدین خلجی کو جمشید ثانی اور سکندر ثانی کے القابات سے نوازا ہے۔ آٹھ اشعار کے بعد دعا کے دو شعر یہ ہیں۔

نعتیہ قصائد

امیر حسن سجزی کے نعتیہ قصائد بھی قابل تحسین ہیں۔ ان قصیدوں سے سے حسن سجزی کی نبی کریم صلی اللہ علیہ وسلم سے بے پناہ محبت کا ثبوت ملتا ہے۔ حسن سجزی کا سب سے مشہور نعتیہ قصیدہ وہ ہے جس میں انہوں نے ۳۱۳ (تین سو تیرہ) اشعار کہے ہیں۔ یہ قصیدہ خاقانی کے قصیدے کی زمین میں لکھا گیا ہے۔

حسن سجزی نے خود اس بات کا اعتراف کیا ہے کہ انہوں نے اس قصیدے میں قافیہ کی پابندی خاقانی کی مقرر کردہ حد میں کی ہے۔

لزوم را و الف کردم این قوافی صرف

حکیم آخر حدی نہادہ قافیہ را

اور مقطع میں خاقانی کا نام لاکر اس بات کی طرف اشارہ بھی کر دیا ہے۔ یہ قصیدہ حسن سجزی کی زبردست شعری صلاحیتوں کا بین ثبوت مہیا کرتا ہے۔ اس قصیدہ میں حسن نے نبی کریم صلی اللہ علیہ وسلم کے اوصاف حمیدہ بیان کرنے کے ساتھ آپ سے اپنی والہانہ محبت کا اظہار بھی کیا ہے یقیناً اس کا شمار فارسی کے شیریں ترین اور فصیح قصیدوں میں ہونا چاہیے۔ اس میں ان کا تغزل اپنے عروج پر ہے۔ اس قصیدے کے متعلق حسن کا دعویٰ ہے کہ یہ الہامی ہے۔ درج ذیل اشعار میں اس بات کی طرف اشارہ ملتا ہے۔

زمین مثال فرو مانده من منادی غیب

بگوش ہوش من از آسمان رسانده ندا

کہ خیز بر حسب این ندا مطرا کن

ہوای گل ز ندامت چو روی گل زندا

اس قصیدے میں حسن سجزی نے مختلف پہلوؤں سے داد سخن دی ہے۔ اس میں منظر نگاری بھی ہے اور صنایع لفظی و معنوی کا اہتمام بھی۔ چونکہ حسن کے لیے یہ نہایت سعادت کی بات تھی کہ وہ نبی کریم صلی اللہ علیہ و آلہ وسلم سے اپنی عقیدت و محبت کا ظہار کرے اس لیے انہوں نے اپنی شاعرانہ اور روحانی زندگی کے تمام تجربات و احساسات کو اس قصیدے میں سمونے کی کامیاب کوشش کی ہے۔

اسکے علاوہ بھی چند اور نعتیہ قصاید دیوان حسن سجزی میں موجود ہیں۔ یہ قصائد بھی مترنم بحروں میں نہایت پر تاثیر ہیں۔ وصف معراج رسول کریم صلی اللہ علیہ و آلہ وسلم پر کئی شعراء نے قصائد لکھے ہیں۔ حسن سجزی نے بھی اس موضوع پر اٹھارہ اشعار کا ایک قصیدہ لکھا ہے۔ یہ پوری طرح صوفیانہ انداز فکر پر مشتمل ہے۔ اس کی اہم وجہ ان کا حضرت نظام الدین اولیاء رحمۃ اللہ علیہ سے بیعت ہونا ہے۔ حسن سجزی نے حضرت کے ملفوظات فوائد الفواد کی صورت میں جمع کر کے اہم خدمت انجام دی ہے۔ [4]

دیگر موضوعات پر قصاید

حسن سجزی نے مختلف تیوباروں کے موقع پر بھی قصیدے لکھے ہیں، مثلاً عید الفطر، شب برات، نوروز، وغیرہ۔ ان قصاید میں وہ اس زمانے کے سماجی و دینی رجحانات کی آئینہ داری کرتے ہیں۔ شب برات کے موقع پر لکھا گیا قصیدہ پڑھ کر علم ہوتا ہے کہ اس رات کس قسم کی آتش بازیاں کی جاتی تھیں۔ [5] لیکن سب سے بڑا مسئلہ قصاید کا مختصر ہونا ہے۔ حسن سجزی نے اس دور کی عکاسی نہایت مختصر انداز میں کی ہے جس سے تفصیلی معلومات نہیں ملتی۔

نتیجہ Conclusion

اگرچہ حسن سجزی کے تمام قصاید نہایت مختصر ہیں لیکن وہ اپنا تاثر چھوڑنے میں کامیاب ہیں۔ حسن سجزی کے قصاید کے مطالعہ سے درج ذیل نتیجہ اخذ کیا جا سکتا ہے کہ:

* حسن سجزی کے نعتیہ قصاید عشق رسول صلی اللہ علیہ و آلہ وسلم کے آئینہ دار ہیں۔

* حسن سجزی کے قصائد میں غزلوں کا رنگ جھلکتا ہے۔

* قصاید میں حسن طلب نام کی کوئی چیز دکھائی نہیں دیتی بلکہ اظہار تشکر ملتا ہے۔

* انہوں نے ایک قصیدہ پند و نصائح کے لیے بھی لکھا ہے۔

* تہواروں کے موقعے پر لکھے گئے قصاید سماجی حالات کی عکاسی کرتے ہیں۔

مآخذ

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2۔ ایضاً، ص: 609

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Sol-Gel Synthesis and Photo-Luminiscence Study of $\text{NaSr}_{1-x}\text{PO}_4:\text{xDy}^{3+}$ Phosphor for Use in PC-WLED

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Abstract: The series of Dy^{3+} doped NaSrPO_4 white light emitting phosphors were prepared by sol-gel method. In the XRD analysis structure characterization is done and it is found that the $\text{NaSrPO}_4:\text{Dy}^{3+}$ sample is very well matched with the standard ICDD file no. (00-033-1282). Photoluminescence spectra having two main peaks were obtained at 483 nm and 575 nm, which corresponds to the blue and yellow color emission respectively. When these two peaks are combined then white light is formed with the chromaticity coordinates (0.298, 0.333).

Keywords: Sol-gel, Phosphate phosphors, White light LED, Photoluminescence, Chromaticity co-ordinates

I. INTRODUCTION

Phosphor-converted LEDs are the most common LED which are based on white light sources. In the near future White Light-emitting diode (W-LED) lamps are expected to take the place of conventional incandescent and fluorescent lamps for general lighting applications in solid state lighting. Phosphor-converted white LEDs are abbreviated as pc W-LED such a light source has been mostly applied to general lighting. In general, the materials required for pc W-LEDs are oxides, nitrides, oxy-nitrides, sulphides and silicates. High luminous efficacy is the property of pc W-LEDs and due to this property light sources in most of the lighting systems are replaced. For the purpose of global energy saving the topic of high luminous efficacy is essential. By using a semiconductor substrate such as sapphire makes a pc W-LED to perform luminous efficacy as high as 150 lm/W operated at 1 watt [1,2]. In recent years, there is a developing interest in generation of white light sources for a various applications such as solid-state lighting, multicolor display technologies, back light, and so on. pc W-LEDs have some conventional lighting properties so that these properties may differ pc W-LEDs from the general lighting systems. Advantages of the pc W-LEDs are high energy efficiency, fast response, and low cost. The major challenges in pc W-LEDs have been to achieve high luminous efficacy, high chromatic stability, good color-rendering properties, and less market value against fluorescent lamps [3]. We have made a meticulous survey to study the various light emitting phosphors for solid state lighting. Some of the phosphor material that are prepared by various researchers using different methods are described in tabular format in table (I).

TABLE I Phosphate phosphors for wled

Sr.no	Material name	Excitation (nm)	Emission (nm)	Method of synthesis	CIE	Ref
1	$\text{KSrY}(\text{PO}_4)_2:\text{Eu}^{2+}$	250 and 450	520	SSD	-	[4]
2	$\text{KSrPO}_4:\text{Dy}^{3+}$	351 and 388	570	SSD	(0.302, 0.360)	[5]
3	$\text{LiSrPO}_4:\text{Dy}^{3+}$	350	483 and 574	SSD	-	[6]
4	$\text{NaSrPO}_4:\text{Dy}^{3+}$	351	488 and 575	SSD	(0.30, 0.34)	[7]
5	$\text{Sr}_8\text{MgLu}(\text{PO}_4)_7:\text{Eu}^{2+}$	390	594	SSD	(0.336, 0.353)	[8]
6	$\text{NaCaPO}_4:\text{Dy}^{3+}$	382	482 and 575	SSD	-	[9]
7	$\text{NaCaPO}_4:\text{Eu}^{2+}$	400	505	SSD	-	[10]
8	$\text{KMgPO}_4:\text{Eu}^{2+}$	396 nm	470	SSD	-	[11]
9	$\text{NaCaPO}_4:\text{Dy}^{3+}$	386 nm	480 and 573	SSD	-	[12]
10	$\text{LiSrBaPO}_4:\text{Eu}^{3+}$	401 nm	595	SSD	-	[13]
11	$\text{SrMg}_2(\text{PO}_4)_2:\text{Eu}^{2+}$	375nm	416	SSD	-	[14]
12	$\text{Ca}_9\text{Lu}(\text{PO}_4)_7:\text{Eu}^{2+}:\text{Mn}^{2+}$	250 and 430 nm	480 and 645	SSD	-	[15]
13	$\text{SrZn}_2(\text{PO}_4)_2:\text{Tb}^{3+}$	369 nm	544	SSD	-	[16]
14	$\text{Ca}_3\text{Mg}_3(\text{PO}_4)_4:\text{Mn}^{2+}$	410 nm	610	SSD	-	[17]
15	$\text{BaSrMg}(\text{PO}_4)_2:\text{Eu}^{2+}$	350 nm	447 and 556	SSD	(0.291, 0.349)	[18]

*Solid state reaction (SSD)

White light-emitting diodes (WLEDs) as new solid-state light sources have a greatly promising application in the field of lighting and display. But the major challenges in WLEDs are to achieve high luminous efficacy, high chromatic stability, brilliant color-rendering properties, so the much more efforts have been made to develop single-phase white-light-emitting phosphors. The white light can be emitted by various single rare earth ions such as Eu^{3+} , Dy^{3+} . The rare earth elements are widely used as the luminescent centres or activators in various host materials in the recent years for the development of efficient phosphor materials. The trivalent Dy^{3+} can be used as an activator or luminescent center, the emission of Dy^{3+} mainly shows two transitions, ${}^4\text{F}_{9/2} \rightarrow {}^6\text{H}_{15/2}$ (~470nm) and ${}^4\text{F}_{9/2} \rightarrow {}^6\text{H}_{13/2}$ (~570nm). We have investigated the different phosphor materials based on borate, oxides, sulphate and phosphate. The phosphate based material is chosen for the study such as NaSrPO_4 is the good host material because the phosphate based materials are stable than the other host. Phosphates have strong emission of all the colors of wavelength. NaSrPO_4 is the orthophosphate and it has various advantages such as low cost, acceptable thermal stability, and potential applications in solid state lighting [7].

II. EXPERIMENTAL

The $\text{NaSr}_{1-x}\text{PO}_4:\text{Dy}^{3+}$ phosphors were synthesized by using the sol-gel method. The starting reagents $\text{Na}(\text{NO}_3)_2$, $\text{Sr}(\text{NO}_3)_2$, $\text{NH}_4\text{H}_2\text{PO}_4$ (AR), and $\text{Dy}(\text{NO}_3)_3$ and stearic acid were taken in a stoichiometric molar ratio and put into a crucible together. Then the raw materials were thoroughly grinded so that a homogeneous mixture was obtained. The mixture was heated at 500°C for 2 h in furnace and sintered at 900°C for 3 h to obtain the phosphors samples [5]. Complete synthesis process is given in flowchart figure(1).

The crystal structure of the as synthesized phosphors was characterized by powder X-ray diffractometer (XRD, RigakuD/Max-3B). The luminescent properties including photoluminescence excitation (PLE) and emission (PL) spectra were measured by a spectrometer (Hitachi F7000) with an excitation source 150 W Xenon lamp at room temperature.

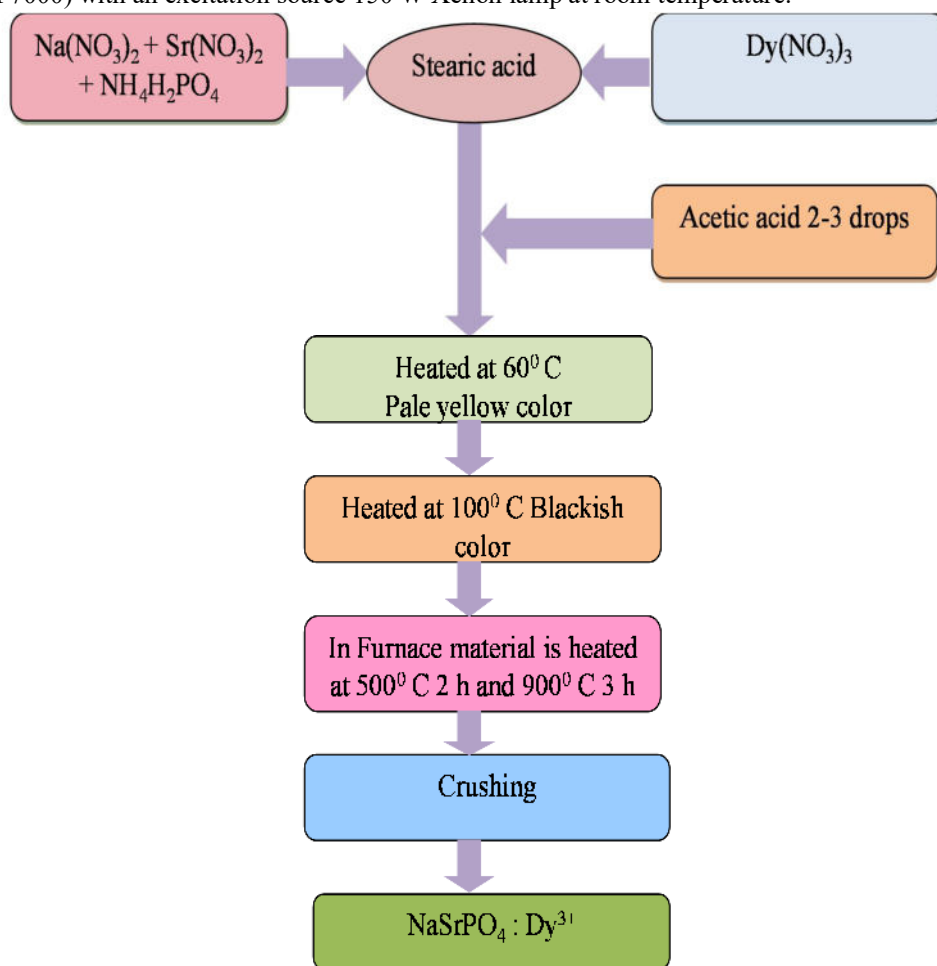


Figure 1 Flow-Chart of Sol-Gel method

III. RESULTS AND DISCUSSION XRD ANALYSIS

Figure(2) shows the XRD pattern of $\text{NaSr}_{1-x}\text{PO}_4:\text{xDy}^{3+}$ sample for 0.05 mole of dopant. It can be observed that the XRD pattern of prepared sample is in good agreement with the available standard ICDD file no. (00-033-1282). X-ray diffraction pattern shows that the crystal structure was monoclinic and lattice parameters $a = 20.4140 \text{ \AA}$, $b = 5.4290 \text{ \AA}$ and $c = 17.2460 \text{ \AA}$ and $\alpha = 90$, $\beta = 101.760$, $\gamma = 90$.

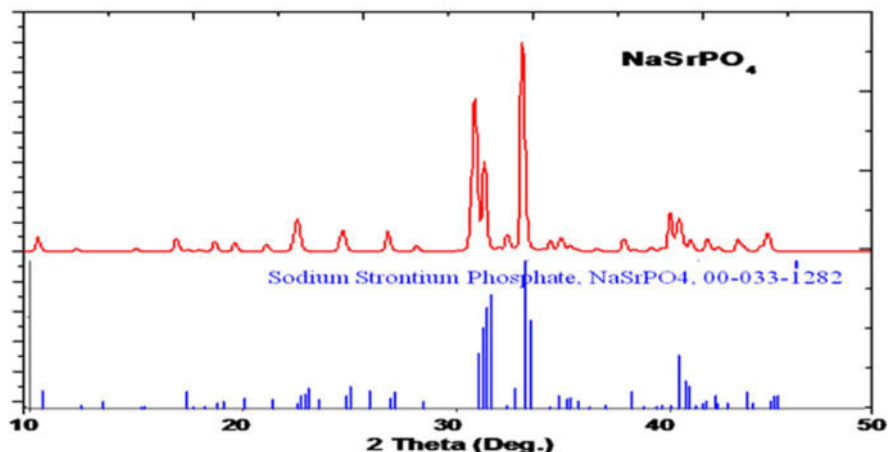


Figure 2 XRD pattern of $\text{NaSr}_{1-x}\text{PO}_4 : \text{xDy}^{3+}$

A. Photoluminescence

The PL and PLE were measured for the phosphors $\text{NaSr}_{1-x}\text{PO}_4: 0.05\text{Dy}^{3+}$. The figure (3) show the PLE spectra of $\text{NaSr}_{0.95}\text{PO}_4:0.05\text{Dy}^{3+}$. The above phosphors exhibits the relatively strong and narrow absorption peaks within the wavelength range from 260 to 460 nm, when monitoring the emission at 483 nm. The absorption peaks obtained at 297 nm, 325 nm, 350 nm, 364 nm, 388 nm and 425 nm respectively are corresponding to transitions ${}^6\text{H}_{15/2} - {}^4\text{K}_{13/2}$, ${}^6\text{H}_{15/2} - {}^4\text{K}_{15/2}$, ${}^6\text{H}_{15/2} - {}^4\text{M}_{15/2}$, ${}^6\text{H}_{15/2} - {}^4\text{P}_{3/2}$, ${}^6\text{H}_{15/2} - {}^4\text{M}_{21/2}$, ${}^6\text{H}_{15/2} - {}^4\text{G}_{11/2}$. According to the spectral data the most intense absorption peak occurred at 350 nm. The excitation behaviour of Dy^{3+} doped NaSrPO_4 materials appreciably matches the excitation from the near-UV LED chips and converts the absorbed energy into visible light emission [6].

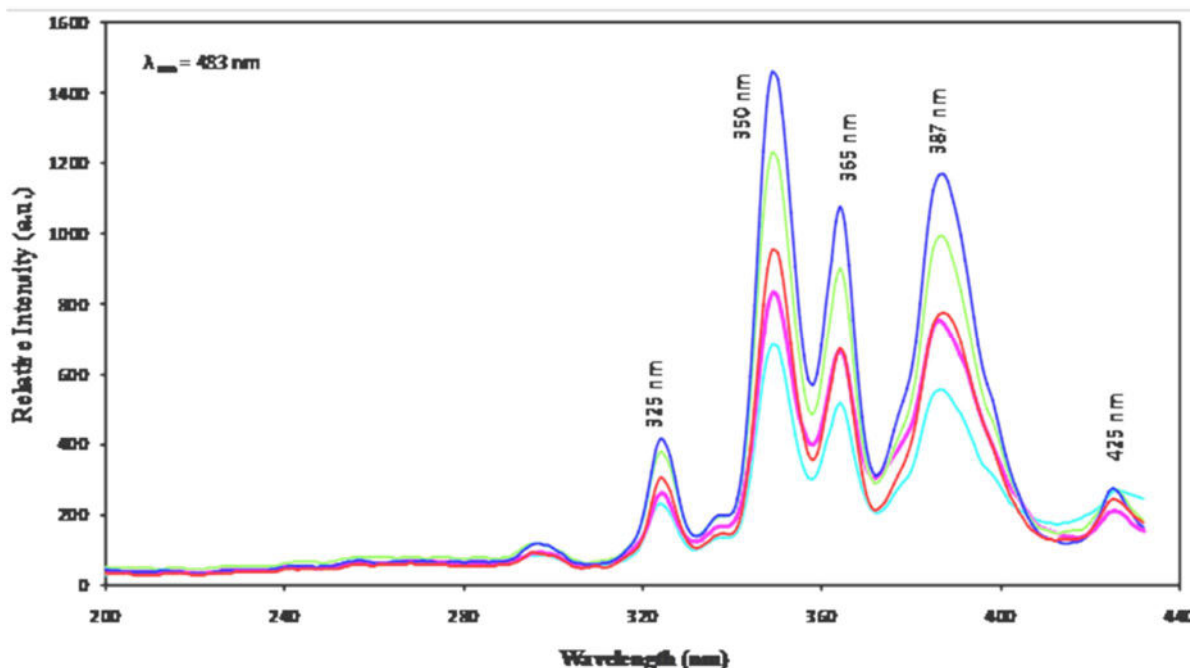


Figure 3 PLE spectra of $\text{NaSr}_{0.95}\text{PO}_4:0.05\text{Dy}^{3+}$ monitored at 483nm

The Figure (4) shows the PL emission spectrum of $\text{NaSr}_{0.95}\text{PO}_4:0.05\text{Dy}^{3+}$ under 350 nm excitation. Two intense emission peaks (blue and yellow) are observed, centering at 483 nm (blue) and 575 nm (yellow), related to the transitions for blue ${}^4\text{F}_{9/2} - {}^6\text{H}_{15/2}$ and for yellow ${}^4\text{F}_{9/2} - {}^6\text{H}_{13/2}$. Figure(4) also represents the PL spectra of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphors with different contents of Dy^{3+} dopant ($x= 0.005,0.01,0.03,0.05$). When the concentration (x) of Dy^{3+} increased from 0.005 up to 0.05 mole then emission reached the maximum intensities for the concentration 0.03 mole of Dy^{3+} ions. It is well known that the combination of appropriate proportion of blue (483nm) and yellow (575nm) emissions generates white light with high color rendering index especially used in applications of the solid state lighting such as WLEDs.

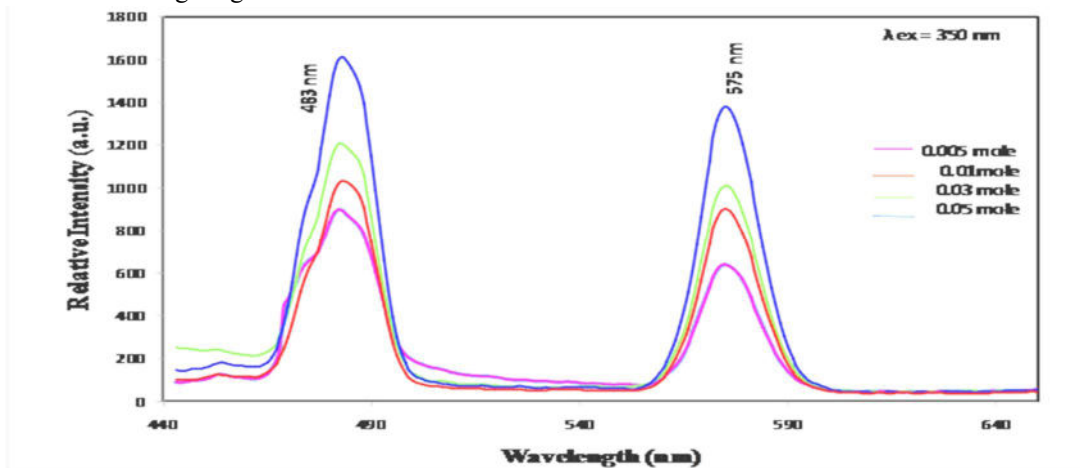


Figure 4 PL spectra of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphors

For evaluating the white light emission of $\text{NaSrPO}_4:\text{Dy}^{3+}$ phosphor the CIE chromaticity coordinates are traced and represented in a Figure(5). These coordinates are close to white light coordinates [21]. In table (II) the chromaticity coordinates and B/Y intensity ratio of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphor excited at 350 nm is given.

TABLE II
Chromaticity coordinates and B/Y ratio of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphor excited at 350 nm.

Sr. no.	Sample composition	Chromaticity coordinates	Intensity ratio (B/Y)
1	0.005	($x=0.286, y=0.355$)	1.19
2	0.01	($x=0.312, y=0.355$)	1.16
3	0.03	($x=0.314, y=0.359$)	1.14
4	0.05	($x=0.298, y=0.333$)	1.35

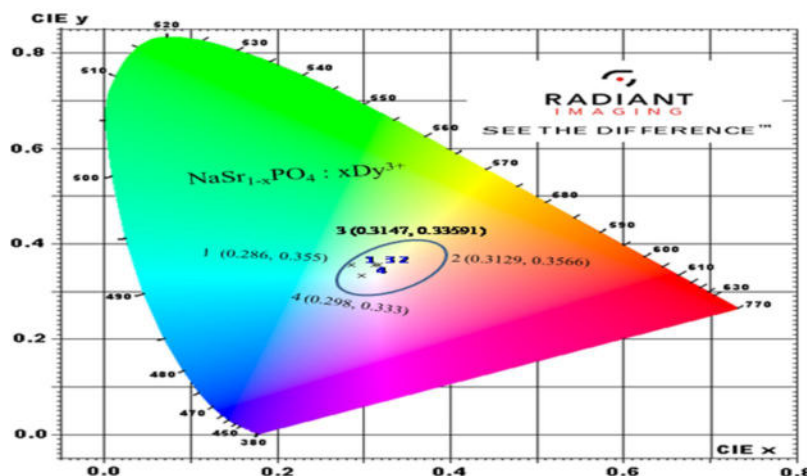


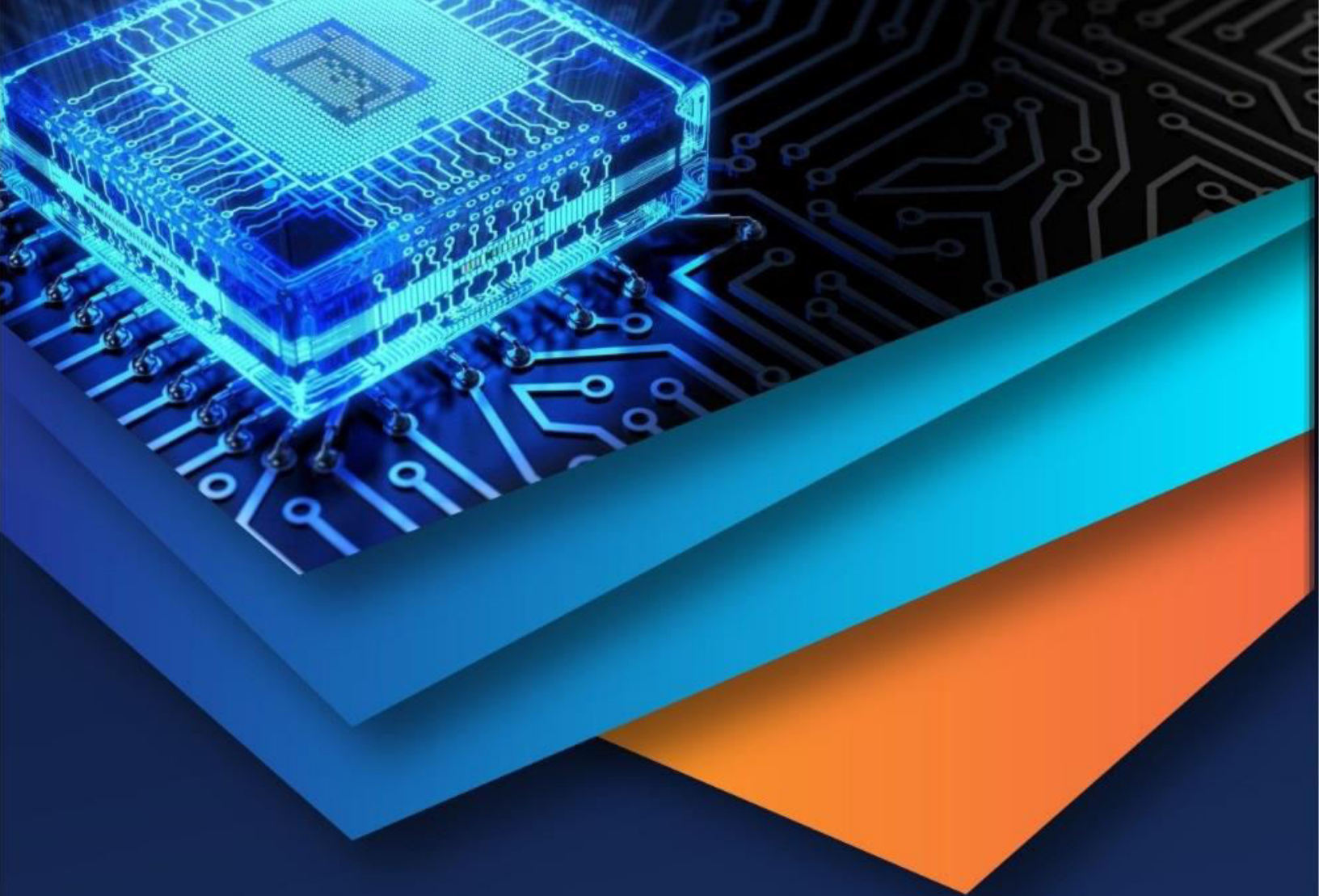
Figure 5 CIE chromaticity coordinates of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphor samples prepared with various concentrations of 1) 0.005, 2) 0.01, 3) 0.03 and 4) 0.05 mole

IV. CONCLUSIONS

$\text{NaSr}_{1-x}\text{PO}_4 : x\text{Dy}^{3+}$ $x=0.005, 0.01, 0.03, 0.05$ phosphor, were prepared by sol gel synthesis method. This phosphor gave the strong emission at 483 nm and 575 nm monitored under 350 nm excitation. The critical concentration for $\text{NaSrPO}_4:\text{Dy}^{3+}$ was determined and it is 0.05 mole. XRD analysis is very well matched with the available standard ICDD file no. (00-033-1282). The intensity ratio (B/Y) of blue emission to yellow emission is 1.35, which is highest at 0.03 mole concentration with the CIE chromaticity coordinates (0.298, 0.333), which is closer to the white light coordinates (0.33, 0.33).

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Luminescence study of UV-C to UV-A converting $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$ ($x = 3,4,5,6,7$ mole %) phosphor

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Abstract:

The polycrystalline powder sample of Pb^{2+} activated strontium yttrium borate phosphor $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$ ($x = 3,4,5,6,7$ mole %) is prepared by solution combustion technique. Formation of phosphor in the desired crystalline phase is confirmed by powder XRD characterization & FTIR. SEM images of the synthesized phosphor show the irregular grains with average particle size 5 μm . Luminescence properties of the synthesized phosphor are investigated at room temperature. The PL excitation spectrum consists of a single broad absorption band from 200 to 350 nm with the prominent excitation peak at 270 nm [1S_0 to 3P_1 of Pb^{2+} ions]. Photoluminescence is recorded in the range 300nm to 700nm. Strongest luminescent peak of 376 nm wavelength monitored at 276nm is observed. The shape of PL band is same at all concentrations of dopant and intensity of emission increases up to 0.07 mole of Pb^{2+} and then decreases. $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$ phosphor convert UV-C light into UV-A light and it's Stokes shift is $10442cm^{-1}$.

keywords:- UV-A, Borate phosphor, Combustion, Luminescence

1. Introduction:-

UVA1 (340-400 nm) radiation used in phototherapy is effective in clearing or controlling a variety of skin diseases like atopic dermatitis, scleroderma, cutaneous T-cell lymphoma, urticariapigmentosa, lupus erythematosus, extragenital lichen scleroses, Granuloma Annulare. (1). High-dose UVA1 has also been observed to help: hypertrophic scars and keloids, dyshidrotic eczema (pompholyx), prurigonodularis (2). UV radiations in the range 360nm to 390nm are also used in UV cured resin, ink, adhesives, paintings, clear coat, Glue. Most of the UV-A emitting phosphors are based on Silicates, Fluorides, Aluminates or Phosphate. Few borate based phosphors, as UV-A emitter have been studied till now and listed in table [1]. Inorganic borates could be excellent host materials because of their variety of structure type, large electronic band gap, transparency to a wide range of wavelengths, high optical damage threshold and high optical quality (3). A large number of borate compounds are transparent over a wide spectral range, beginning from VUV and extending into IR, which makes borate compounds important for opto-electronic materials or as phosphors (4). In the present work, we report the UV-A emitting borate phosphor $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$.

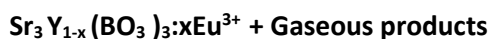
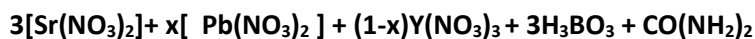
Table 1 Spectroscopic properties of Pb²⁺ doped Phosphors

Pb ²⁺ DOPED HOST	λ_{exc}	λ_{em}	STOKE'S SHIFT	REFERENCES
Pb ²⁺ -doped Sr ₂ B ₂ O ₅	289nm	370nm	7575 cm ⁻¹	(5)
NaSr _{4-x} Pb _x (BO ₃) ₃ (0.005≤x≤0.03)	289nm	370nm	7574cm ⁻¹	(6)
KCa ₄ (BO ₃) ₃	260nm	335nm	8756cm ⁻¹	(7)
Sr _(1-x) Pb _x B ₄ O ₇ and	270nm	307nm	4464cm ⁻¹	(8)
Sr _(1-x) Pb _x B ₂ O ₄	276nm	365nm	8454cm ⁻¹	
LiSr _{4-x} Pb _x (BO ₃) ₃	284nm	328nm	4723cm ⁻¹	(9)
Ba _{2-x} Pb _x Be ₂ B ₂ O ₇	284nm	396nm	9959cm ⁻¹	(10)
Li ₄ Sr _{1-x} Pb _x Ca(SiO ₄) ₂	249nm	290nm	5678cm ⁻¹	(11)
NaSr _{4-x} Pb _x (BO ₃) ₃	291nm	368nm	7190cm ⁻¹	(12)
LiSr ₄ (BO ₃) ₃	290nm	325nm	3832cm ⁻¹	(13)
Sr ₃ Y _{1-x} (BO ₃) ₃ :xPb ²⁺ .	270nm	376nm	10442cm ⁻¹	This work
Sr _{2-x} Pb _x Mg(BO ₃) ₂ and	260nm	330nm	8159cm ⁻¹	(14)
Ba _{2-x} Pb _x Mg(BO ₃) ₂	293nm	381nm	7883cm ⁻¹	

2. Experimental Details

Given Inorganic borate phosphors were prepared by the solution combustion synthesis technique. This method was accidentally discovered in 1988 in the lab of Prof. Patil in India (15). It is an exothermic reaction and occurs with the evolution of heat and light. Such a high temperature leads to formation and crystallization of phosphor materials. For phosphor particle preparation, combustion synthesis method is promising technique due to its ability to produce fine size of particles without high temperature annealing and extra steps such as grinding or milling (16) (17). Stoichiometric amounts of high purity starting materials, SrNO₃ (A.R.), Pb(NO₃)₂ (high purity 99.9%), H₃BO₃ (A.R.), CO(NH₂)₂ (A.R.), Y(NO₃)₃ (A.R.) are used for phosphor preparation. The starting materials with little amount of double distilled water were mixed thoroughly in agate mortar to obtain a homogeneous solution. Excess water was removed by heating the samples at temperature 70⁰C for about 30 min on magnetic stirrer and the solution was then transferred directly to a pre-heated Muffle furnace, maintained at temperature 650⁰C, for combustion. Following the combustion, the resulting foamy samples was crushed to obtain fine particles and then annealed for 3 h at temperature 800⁰C

TABLE 1: Molar concentration of ingredients



Sr(NO ₃) ₂	Pb(NO ₃) ₂	Y(NO ₃) ₃	3H ₃ BO ₃	CO(NH ₂) ₂
6.3486	0.0669	1.13	1.855	4.80

3. Results & Discussions

The prepared materials were characterized by powder XRD, SEM, PL and FT-IR techniques. Powder X-ray diffraction measurements were taken on a RigakuMiniflex II X-ray Diffractometer and compared with ICSD files. Surface morphology and elemental analysis of the calcined powder sample was observed by scanning electron microscopy [SEM: Model JSM6100 (Jeol)]. PL and PLE measurements at room temperature were performed on a Hitachi F-7000 spectro- fluometer with spectral resolution of 2.5 nm. FTIR of sample was done on F.T. Infra-Red Spectrophotometer Model RZX (Perkin Elmer).

3.1. XRD

Powder XRD pattern of the synthesized phosphor was recorded by X-ray diffraction using the Cu-K α wavelength ($\lambda = 1.54060 \text{ \AA}$) and scanning in the 2θ range from 20° – 80° . Figure [1] shows the powder XRD pattern of the phosphor $\text{Sr}_3\text{Y}(\text{BO}_3)_3$. The powder XRD pattern of synthesized phosphor agrees with standard pattern given by ICSD File NO. 246230. Space group is R-3; crystal system is trigonal (hexagonal axes); unit cell parameters $a=b=17.7025 \text{ \AA}$ $c=9.8830 \text{ \AA}$.

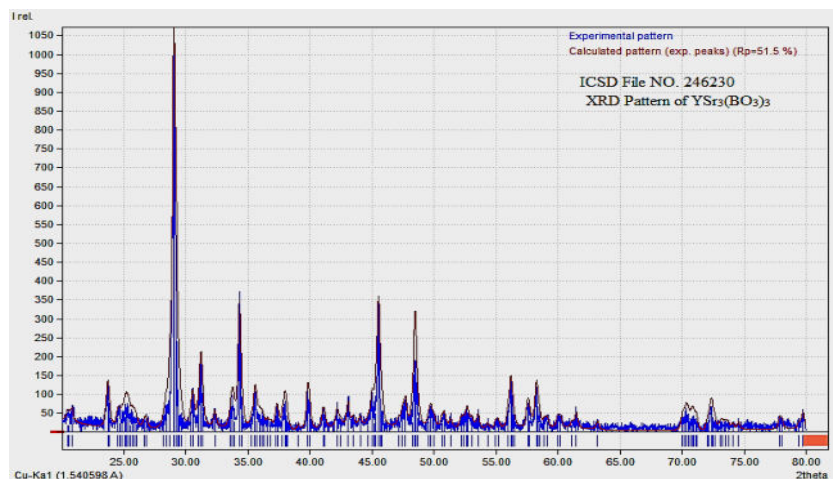


Figure 1 XRD Pattern of $\text{YSr}_3(\text{BO}_3)_3$

3.2. FTIR

The FT-IR spectra of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ recorded at room temperature is shown in Figure [2]. The strong bands observed above 1100 cm^{-1} should be assigned to the B-O stretching mode of the triangular $[\text{BO}_3]^-$ groups, while the bands with maxima at about $700\text{--}800 \text{ cm}^{-1}$ should be attributed to the B-O out of plane bending, which confirms the existence of the $[\text{BO}_3]^-$ groups (18). The absence of peaks in $1500\text{--}2000 \text{ cm}^{-1}$ indicates the complete combustion of nitrate and organic matter. The peak at $3300\text{--}3500 \text{ cm}^{-1}$ corresponds the stretching mode of O-H are also absent.

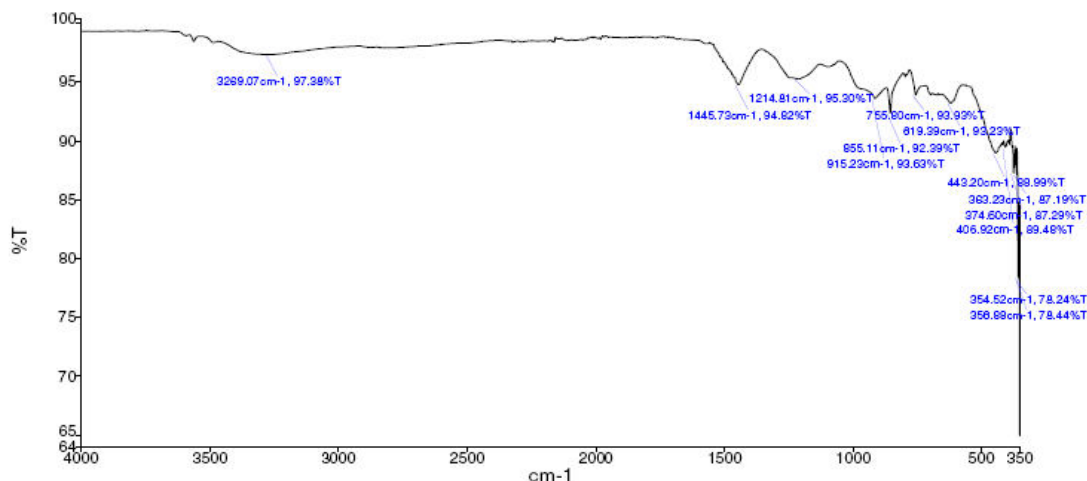


Figure 2 FT-IR spectra of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ at room temperature

3.3. SEM

The morphology of sample was studied using Scanning electron microscopy. The SEM images of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphors are shown in figure [3]. It was observed that the microstructure of the phosphor consisted of irregular grains with agglomerate phenomena. The average size of synthesized phosphor particles is about 5–20 μm . The results show that phosphors have a good crystallinity and a relatively low sinter temperature. Average crystalline size by Scherrer formula is in 42.2 nm which is different than as seen in surface morphology. It is because SEM shows the image of polycrystalline particles and XRD measurements reflects the crystalline domain size.

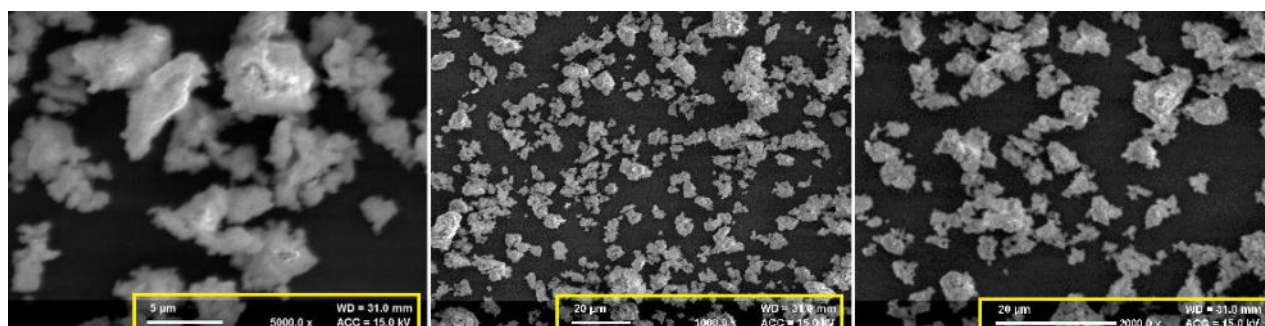


Figure 3 SEM Images at different Resolution

3.4 Photo-Luminescence Study

The PL and PLE of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor is shown in figure [4]. It is recorded on F-7000 FL spectrophotometer with scan speed 240 nm/min, excitation-emission slit width 1nm. The excitation spectrum of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ consists of a single broadband absorption ranging from 200 to 350 nm with the peaks at 229.8nm and 270nm. The strongest absorption peak is at 270 nm, which may be due to the electronic transitions from the ground state $^1\text{S}_0$ to the excited state $^3\text{P}_1$

of Pb^{2+} ions. At 270nm excitation, $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ exhibit a broad emission band in the range 350–700 nm, which originates from the $^3\text{P}_1 \rightarrow ^1\text{S}_0$ electronic transitions of Pb^{2+} ions. Strongest emission peak has 376nm wavelength which is hardly visible purple UV-A light. So at 270nm UV-C light excitation $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor emits UV-A light of 376nm. Stokes shift is 10442cm^{-1} . Large Stoke's shift ($8000\text{-}10000\text{ cm}^{-1}$) are usually indicative of excited state reaction, most often excited state photon transfer. Due to single peak in photoluminescence spectra it is believed that the Pb^{2+} ions have taken only one site in $\text{Sr}_3\text{Y}(\text{BO}_3)_3$. Activator ion Pb^{2+} ion occupy the Y^{2+} site in phosphor. We studied the PL properties with different doping concentrations of Pb^{2+} activator ion and is shown in figure (5). The shape of PL band is same and intensity of emission increases up to 0.07 mole of Pb^{2+} and then decreases. The Luminescence of Pb^{2+} depends upon the site occupied by Pb^{2+} , crystal structure of host lattice.

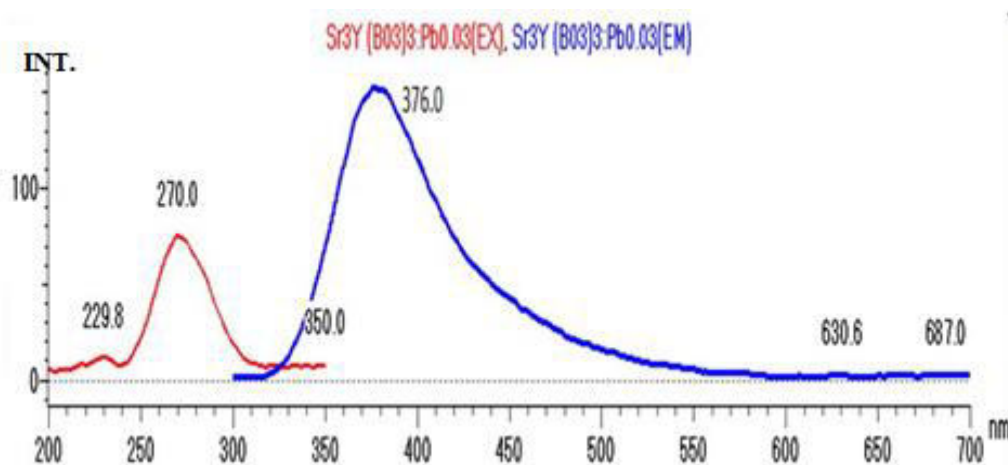


Figure 4 PL and PLE of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$

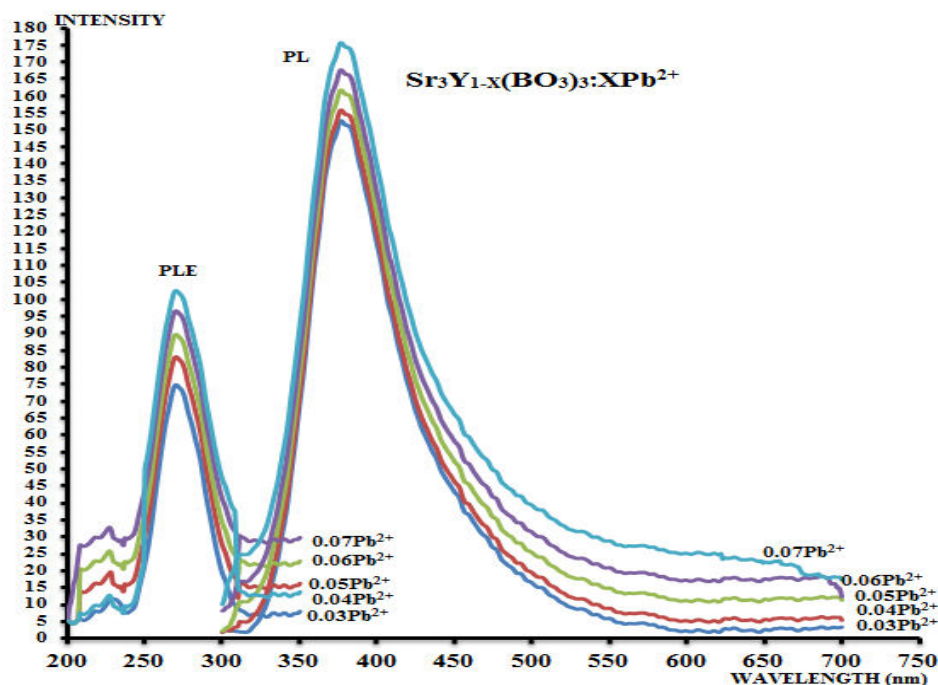


Figure 5 PL and PLE of $\text{Sr}_3\text{Y}_{1-x}(\text{BO}_3)_3:x\text{Pb}^{2+}$

3.5 CIE-Chromaticity

Figure [7] shows the Commission International del Eclairage (CIE) chromaticity coordinates diagram of the $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor at 376nm. The chromaticity coordinates of the phosphor $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ for fixed concentration of Pb^{2+} at 376 nm was computed using LEDTUNING. NL Software [<https://www.ledtuning.nl/en/cie-convertoir>]. The chromaticity coordinates are used in 'GO-CIE' CIE plot utility software developed by Organic material laboratory of IIT Roorkee for 1931 CIE CHROMATICITY diagram [<http://faculty.iitr.ac.in/~krjt8fcy/gocie.html>]. For 376 nm the coordinates obtained were $X = 0.174409$, $Y = 0.005127$, which fall at the border of blue region in the CIE 1931 chromaticity diagram and shown as radish triangle shaped spot. As seen in the PL spectra, the $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor has 376nm UV-A emission under UV-C light at 270 nm. This means that the $\text{Sr}_3\text{Y}_{1-x}(\text{BO}_3)_3:X\text{Pb}^{2+}$ phosphor could be a good UV-A phosphor candidate for solid-state lighting and Phototherapy applications.

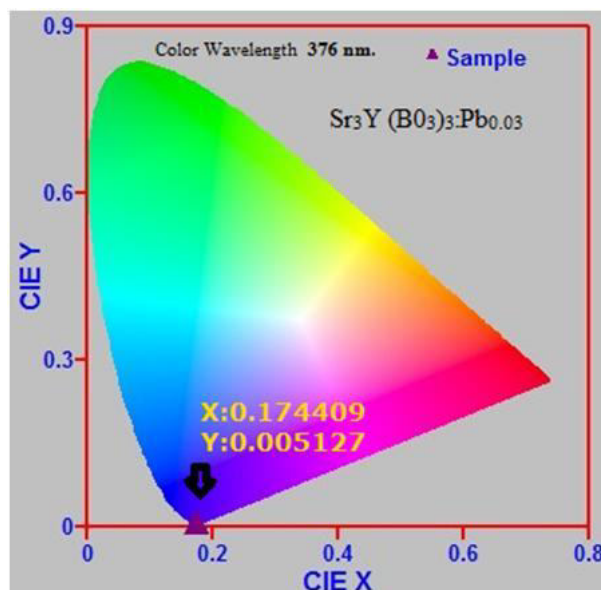


Figure 6 CIE diagram of Sr₃Y_{1-0.03}(BO₃)₃:0.03Pb²⁺

4. Conclusion

Sr₃Y_{1-x}(BO₃)₃:X Pb²⁺ (X= 0.03,0.04,.0.05,0.06,0.07 Mole Pb²⁺) is UV-C to UV-A down conversion phosphor useful for medical and industrial application. Broadband PL in 300nm to 700nm with high intensity luminescent peak 376nm monitored at 276nm is important result of these study.

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Blue Luminescent Phosphor $Sr_3Y_{1-x}(BO_3)_3:xBi^{3+}$ for WLED Applications

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Abstract



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Sol-Gel Synthesis and Photo-Luminiscence Study of $\text{NaSr}_{1-x}\text{PO}_4:\text{xDy}^{3+}$ Phosphor for Use in PC-WLED

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Abstract: The series of Dy^{3+} doped NaSrPO_4 white light emitting phosphors were prepared by sol-gel method. In the XRD analysis structure characterization is done and it is found that the $\text{NaSrPO}_4:\text{Dy}^{3+}$ sample is very well matched with the standard ICDD file no. (00-033-1282). Photoluminescence spectra having two main peaks were obtained at 483 nm and 575 nm, which corresponds to the blue and yellow color emission respectively. When these two peaks are combined then white light is formed with the chromaticity coordinates (0.298, 0.333).

Keywords: Sol-gel, Phosphate phosphors, White light LED, Photoluminescence, Chromaticity co-ordinates

I. INTRODUCTION

Phosphor-converted LEDs are the most common LED which are based on white light sources. In the near future White Light-emitting diode (W-LED) lamps are expected to take the place of conventional incandescent and fluorescent lamps for general lighting applications in solid state lighting. Phosphor-converted white LEDs are abbreviated as pc W-LED such a light source has been mostly applied to general lighting. In general, the materials required for pc W-LEDs are oxides, nitrides, oxy-nitrides, sulphides and silicates. High luminous efficacy is the property of pc W-LEDs and due to this property light sources in most of the lighting systems are replace. For the purpose of global energy saving the topic of high luminous efficacy is essential. By using a semiconductor substrate such as sapphire makes a pc W-LED to perform luminous efficacy as high as 150 lm/W operated at 1 watt [1,2]. In recent years, there is a developing a interest in generation of white light sources for a various applications such as solid-state lighting, multicolor display technologies, back light, and so on. pc W-LEDs have some conventional lighting properties so that these properties may differ pc W-LEDs from the general lighting systems. Advantages of the pc W-LEDs are high energy efficiency, fast response, and low cost. The major challenges in pc W-LEDs have been to achieve high luminous efficacy, high chromatic stability, good color-rending properties, and less market value against fluorescent lamps [3]. We have made a meticulous survey to study the various light emitting phosphors for solid state lighting. Some of the phosphor material that are prepared by various researchers using different methods are described in tabular format in table (I).

TABLE I Phosphate phosphors for wled

Sr.no	Material name	Excitation (nm)	Emission (nm)	Method of synthesis	CIE	Ref
1	$\text{KSrY}(\text{PO}_4)_2:\text{Eu}^{2+}$	250 and 450	520	SSD	-	[4]
2	$\text{KSrPO}_4:\text{Dy}^{3+}$	351 and 388	570	SSD	(0.302, 0.360)	[5]
3	$\text{LiSrPO}_4:\text{Dy}^{3+}$	350	483 and 574	SSD	-	[6]
4	$\text{NaSrPO}_4:\text{Dy}^{3+}$	351	488 and 575	SSD	(0.30, 0.34)	[7]
5	$\text{Sr}_8\text{MgLu}(\text{PO}_4)_7:\text{Eu}^{2+}$	390	594	SSD	(0.336, 0.353)	[8]
6	$\text{NaCaPO}_4:\text{Dy}^{3+}$	382	482 and 575	SSD	-	[9]
7	$\text{NaCaPO}_4:\text{Eu}^{2+}$	400	505	SSD	-	[10]
8	$\text{KMgPO}_4:\text{Eu}^{2+}$	396 nm	470	SSD	-	[11]
9	$\text{NaCaPO}_4:\text{Dy}^{3+}$	386 nm	480 and 573	SSD	-	[12]
10	$\text{LiSrBaPO}_4:\text{Eu}^{3+}$	401 nm	595	SSD	-	[13]
11	$\text{SrMg}_2(\text{PO}_4)_2:\text{Eu}^{2+}$	375nm	416	SSD	-	[14]
12	$\text{Ca}_9\text{Lu}(\text{PO}_4)_7:\text{Eu}^{2+}:\text{Mn}^{2+}$	250 and 430 nm	480 and 645	SSD	-	[15]
13	$\text{SrZn}_2(\text{PO}_4)_2:\text{Tb}^{3+}$	369 nm	544	SSD	-	[16]
14	$\text{Ca}_3\text{Mg}_3(\text{PO}_4)_4:\text{Mn}^{2+}$	410 nm	610	SSD	-	[17]
15	$\text{BaSrMg}(\text{PO}_4)_2:\text{Eu}^{2+}$	350 nm	447 and 556	SSD	(0.291, 0.349)	[18]

*Solid state reaction (SSD)

White light-emitting diodes (WLEDs) as new solid-state light sources have a greatly promising application in the field of lighting and display. But the major challenges in WLEDs are to achieve high luminous efficacy, high chromatic stability, brilliant color-rendering properties, so the much more efforts have been made to develop single-phase white-light-emitting phosphors. The white light can be emitted by various single rare earth ions such as Eu^{3+} , Dy^{3+} . The rare earth elements are widely used as the luminescent centres or activators in various host materials in the recent years for the development of efficient phosphor materials. The trivalent Dy^{3+} can be used as an activator or luminescent center, the emission of Dy^{3+} mainly shows two transitions, ${}^4\text{F}_{9/2} \rightarrow {}^6\text{H}_{15/2}$ (~470nm) and ${}^4\text{F}_{9/2} \rightarrow {}^6\text{H}_{13/2}$ (~570nm). We have investigated the different phosphor materials based on borate, oxides, sulphate and phosphate. The phosphate based material is chosen for the study such as NaSrPO_4 is the good host material because the phosphate based materials are stable than the other host. Phosphates have strong emission of all the colors of wavelength. NaSrPO_4 is the orthophosphate and it has various advantages such as low cost, acceptable thermal stability, and potential applications in solid state lighting [7].

II. EXPERIMENTAL

The $\text{NaSr}_{1-x}\text{PO}_4:\text{Dy}^{3+}$ phosphors were synthesized by using the sol-gel method. The starting reagents $\text{Na}(\text{NO}_3)_2$, $\text{Sr}(\text{NO}_3)_2$, $\text{NH}_4\text{H}_2\text{PO}_4$ (AR), and $\text{Dy}(\text{NO}_3)_3$ and stearic acid were taken in a stoichiometric molar ratio and put into a crucible together. Then the raw materials were thoroughly grinded so that a homogeneous mixture was obtained. The mixture was heated at 500°C for 2 h in furnace and sintered at 900°C for 3 h to obtain the phosphors samples [5]. Complete synthesis process is given in flowchart figure(1).

The crystal structure of the as synthesized phosphors was characterized by powder X-ray diffractometer (XRD, RigakuD/Max-3B). The luminescent properties including photoluminescence excitation (PLE) and emission (PL) spectra were measured by a spectrometer (Hitachi F7000) with an excitation source 150 W Xenon lamp at room temperature.

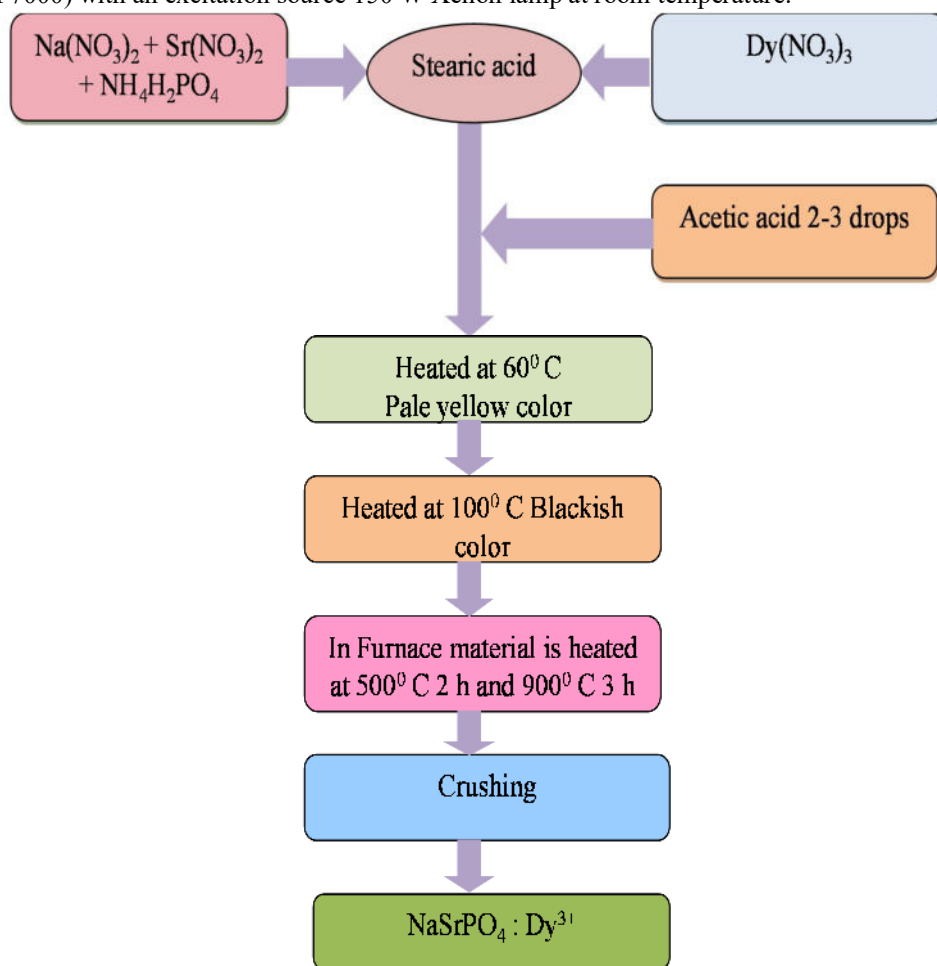


Figure 1 Flow-Chart of Sol-Gel method

III. RESULTS AND DISCUSSION XRD ANALYSIS

Figure(2) shows the XRD pattern of $\text{NaSr}_{1-x}\text{PO}_4:\text{xDy}^{3+}$ sample for 0.05 mole of dopant. It can be observed that the XRD pattern of prepared sample is in good agreement with the available standard ICDD file no. (00-033-1282). X-ray diffraction pattern shows that the crystal structure was monoclinic and lattice parameters $a = 20.4140 \text{ \AA}$, $b = 5.4290 \text{ \AA}$ and $c = 17.2460 \text{ \AA}$ and $\alpha = 90$, $\beta = 101.760$, $\gamma = 90$.

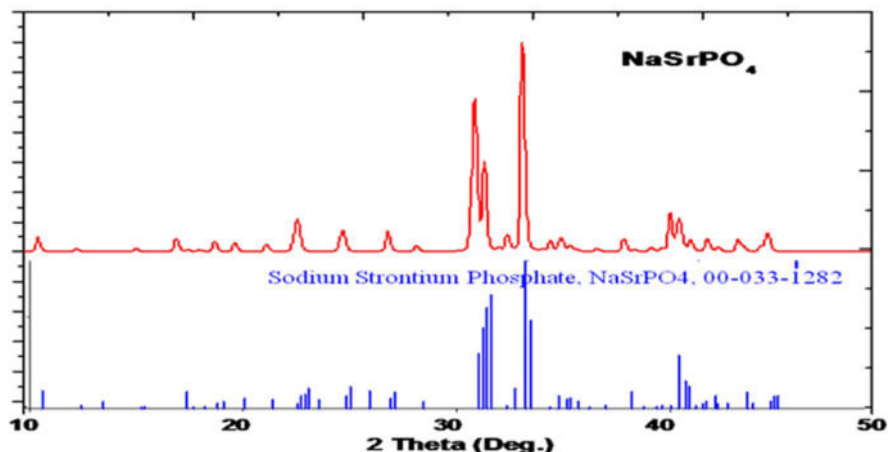


Figure 2 XRD pattern of $\text{NaSr}_{1-x}\text{PO}_4 : \text{xDy}^{3+}$

A. Photoluminescence

The PL and PLE were measured for the phosphors $\text{NaSr}_{1-x}\text{PO}_4: 0.05\text{Dy}^{3+}$. The figure (3) show the PLE spectra of $\text{NaSr}_{0.95}\text{PO}_4:0.05\text{Dy}^{3+}$. The above phosphors exhibits the relatively strong and narrow absorption peaks within the wavelength range from 260 to 460 nm, when monitoring the emission at 483 nm. The absorption peaks obtained at 297 nm, 325 nm, 350 nm, 364 nm, 388 nm and 425 nm respectively are corresponding to transitions ${}^6\text{H}_{15/2} - {}^4\text{K}_{13/2}$, ${}^6\text{H}_{15/2} - {}^4\text{K}_{15/2}$, ${}^6\text{H}_{15/2} - {}^4\text{M}_{15/2}$, ${}^6\text{H}_{15/2} - {}^4\text{P}_{3/2}$, ${}^6\text{H}_{15/2} - {}^4\text{M}_{21/2}$, ${}^6\text{H}_{15/2} - {}^4\text{G}_{11/2}$. According to the spectral data the most intense absorption peak occurred at 350 nm. The excitation behaviour of Dy^{3+} doped NaSrPO_4 materials appreciably matches the excitation from the near-UV LED chips and converts the absorbed energy into visible light emission [6].

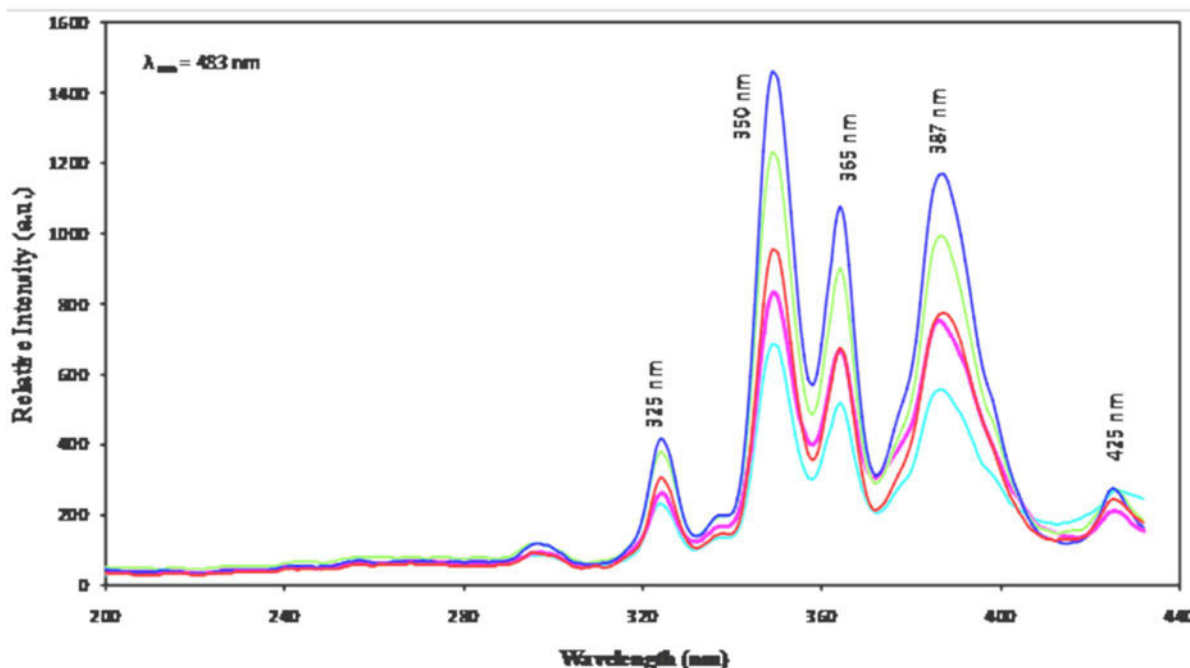


Figure 3 PLE spectra of $\text{NaSr}_{0.95}\text{PO}_4:0.05\text{Dy}^{3+}$ monitored at 483nm

The Figure (4) shows the PL emission spectrum of $\text{NaSr}_{0.95}\text{PO}_4:0.05\text{Dy}^{3+}$ under 350 nm excitation. Two intense emission peaks (blue and yellow) are observed, centering at 483 nm (blue) and 575 nm (yellow), related to the transitions for blue ${}^4\text{F}_{9/2} - {}^6\text{H}_{15/2}$ and for yellow ${}^4\text{F}_{9/2} - {}^6\text{H}_{13/2}$. Figure(4) also represents the PL spectra of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphors with different contents of Dy^{3+} dopant ($x= 0.005,0.01,0.03,0.05$). When the concentration (x) of Dy^{3+} increased from 0.005 up to 0.05 mole then emission reached the maximum intensities for the concentration 0.03 mole of Dy^{3+} ions. It is well known that the combination of appropriate proportion of blue (483nm) and yellow (575nm) emissions generates white light with high color rendering index especially used in applications of the solid state lighting such as WLEDs.

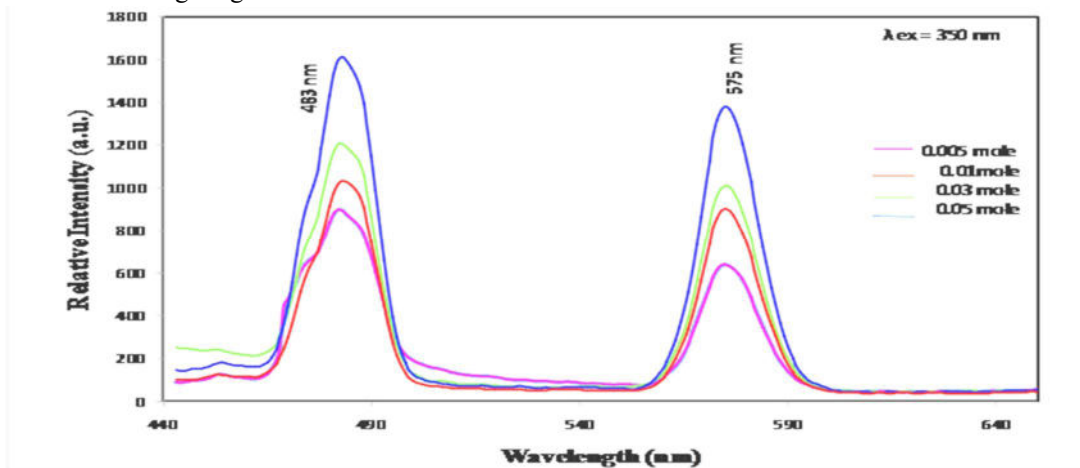


Figure 4 PL spectra of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphors

For evaluating the white light emission of $\text{NaSrPO}_4:\text{Dy}^{3+}$ phosphor the CIE chromaticity coordinates are traced and represented in a Figure(5). These coordinates are close to white light coordinates [21]. In table (II) the chromaticity coordinates and B/Y intensity ratio of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphor excited at 350 nm is given.

TABLE II
Chromaticity coordinates and B/Y ratio of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphor excited at 350 nm.

Sr. no.	Sample composition	Chromaticity coordinates	Intensity ratio (B/Y)
1	0.005	(x=0.286, y=0.355)	1.19
2	0.01	(x=0.312, y=0.355)	1.16
3	0.03	(x=0.314, y=0.359)	1.14
4	0.05	(x=0.298, y=0.333)	1.35

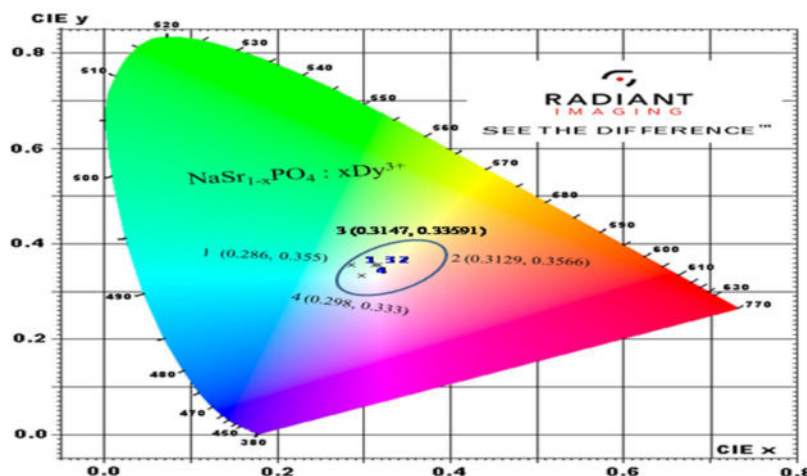


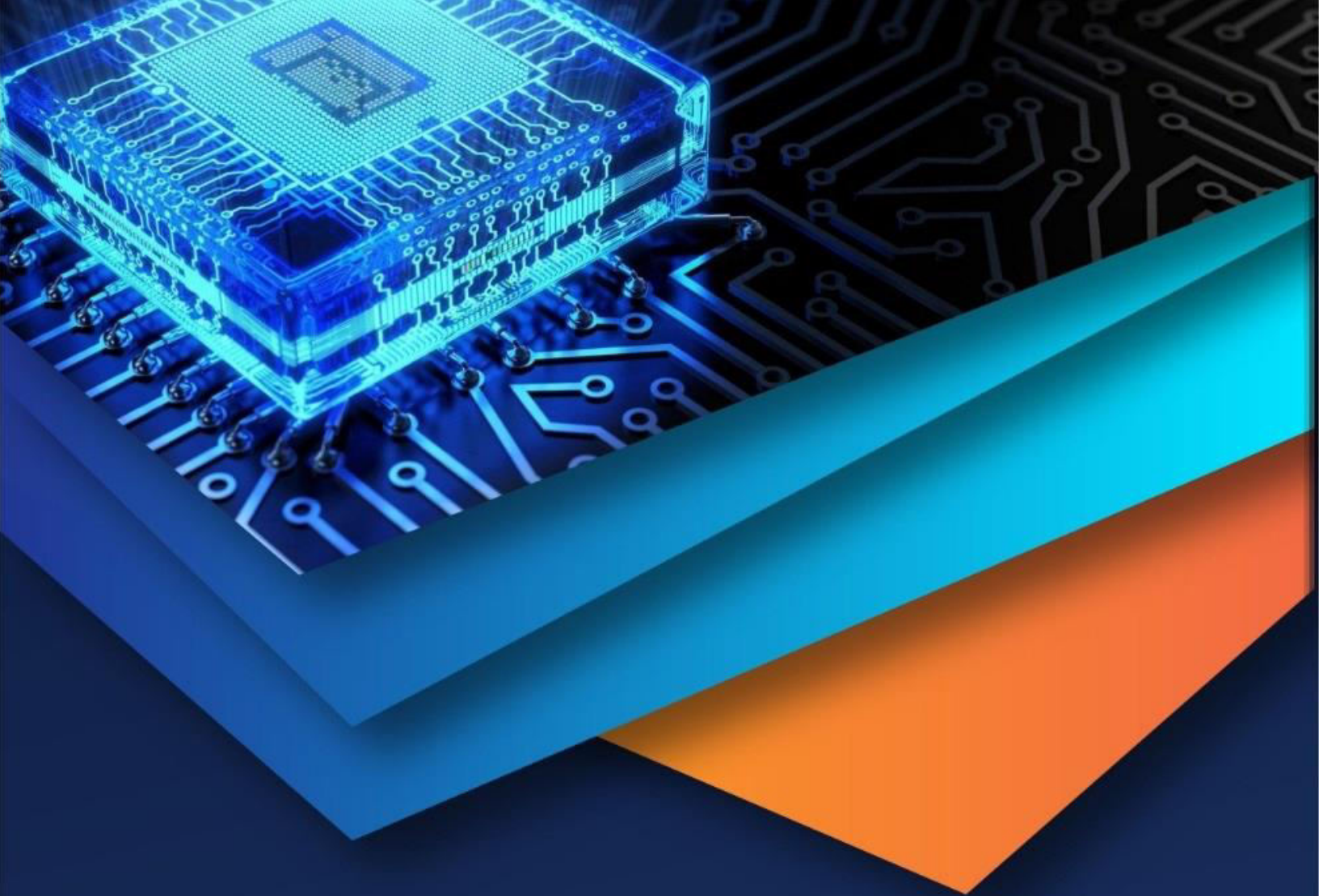
Figure 5 CIE chromaticity coordinates of $\text{NaSr}_{1-x}\text{PO}_4: x\text{Dy}^{3+}$ phosphor samples prepared with various concentrations of 1) 0.005, 2) 0.01, 3) 0.03 and 4) 0.05 mole

IV. CONCLUSIONS

$\text{NaSr}_{1-x}\text{PO}_4 : x\text{Dy}^{3+}$ $x=0.005, 0.01, 0.03, 0.05$ phosphor, were prepared by sol gel synthesis method. This phosphor gave the strong emission at 483 nm and 575 nm monitored under 350 nm excitation. The critical concentration for $\text{NaSrPO}_4:\text{Dy}^{3+}$ was determined and it is 0.05 mole. XRD analysis is very well matched with the available standard ICDD file no. (00-033-1282). The intensity ratio (B/Y) of blue emission to yellow emission is 1.35, which is highest at 0.03 mole concentration with the CIE chromaticity coordinates (0.298, 0.333), which is closer to the white light coordinates (0.33, 0.33).

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Blue Luminescent Phosphor Sr₃Y_{1-x}(BO₃)₃:xBi³⁺ for WLED Applications

Sanjay P. Hargunani, Rajkumar P. Sonekar, Ritesh S. Palasagar, Pranita Patil, Shrinivas K. Omanwar

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Abstract



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Luminescence study of UV-C to UV-A converting $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$ ($x = 3,4,5,6,7$ mole %) phosphor

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Abstract:

The polycrystalline powder sample of Pb^{2+} activated strontium yttrium borate phosphor $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$ ($x = 3,4,5,6,7$ mole %) is prepared by solution combustion technique. Formation of phosphor in the desired crystalline phase is confirmed by powder XRD characterization & FTIR. SEM images of the synthesized phosphor show the irregular grains with average particle size 5 μm . Luminescence properties of the synthesized phosphor are investigated at room temperature. The PL excitation spectrum consists of a single broad absorption band from 200 to 350 nm with the prominent excitation peak at 270 nm [1S_0 to 3P_1 of Pb^{2+} ions]. Photoluminescence is recorded in the range 300nm to 700nm. Strongest luminescent peak of 376 nm wavelength monitored at 276nm is observed. The shape of PL band is same at all concentrations of dopant and intensity of emission increases up to 0.07 mole of Pb^{2+} and then decreases. $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$ phosphor convert UV-C light into UV-A light and it's Stokes shift is $10442cm^{-1}$.

keywords:- UV-A, Borate phosphor, Combustion, Luminescence

1. Introduction:-

UVA1 (340-400 nm) radiation used in phototherapy is effective in clearing or controlling a variety of skin diseases like atopic dermatitis, scleroderma, cutaneous T-cell lymphoma, urticariapigmentosa, lupus erythematosus, extragenital lichen scleroses, Granuloma Annulare. (1). High-dose UVA1 has also been observed to help: hypertrophic scars and keloids, dyshidrotic eczema (pompholyx), prurigonodularis (2). UV radiations in the range 360nm to 390nm are also used in UV cured resin, ink, adhesives, paintings, clear coat, Glue. Most of the UV-A emitting phosphors are based on Silicates, Fluorides, Aluminates or Phosphate. Few borate based phosphors, as UV-A emitter have been studied till now and listed in table [1]. Inorganic borates could be excellent host materials because of their variety of structure type, large electronic band gap, transparency to a wide range of wavelengths, high optical damage threshold and high optical quality (3). A large number of borate compounds are transparent over a wide spectral range, beginning from VUV and extending into IR, which makes borate compounds important for opto-electronic materials or as phosphors (4). In the present work, we report the UV-A emitting borate phosphor $Sr_3Y_{1-x}(BO_3)_3:xPb^{2+}$.

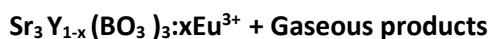
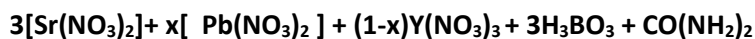
Table 1 Spectroscopic properties of Pb²⁺ doped Phosphors

Pb ²⁺ DOPED HOST	λ_{exc}	λ_{em}	STOKE'S SHIFT	REFERENCES
Pb ²⁺ -doped Sr ₂ B ₂ O ₅	289nm	370nm	7575 cm ⁻¹	(5)
NaSr _{4-x} Pb _x (BO ₃) ₃ (0.005≤x≤0.03)	289nm	370nm	7574cm ⁻¹	(6)
KCa ₄ (BO ₃) ₃	260nm	335nm	8756cm ⁻¹	(7)
Sr _(1-x) Pb _x B ₄ O ₇ and	270nm	307nm	4464cm ⁻¹	(8)
Sr _(1-x) Pb _x B ₂ O ₄	276nm	365nm	8454cm ⁻¹	
LiSr _{4-x} Pb _x (BO ₃) ₃	284nm	328nm	4723cm ⁻¹	(9)
Ba _{2-x} Pb _x Be ₂ B ₂ O ₇	284nm	396nm	9959cm ⁻¹	(10)
Li ₄ Sr _{1-x} Pb _x Ca(SiO ₄) ₂	249nm	290nm	5678cm ⁻¹	(11)
NaSr _{4-x} Pb _x (BO ₃) ₃	291nm	368nm	7190cm ⁻¹	(12)
LiSr ₄ (BO ₃) ₃	290nm	325nm	3832cm ⁻¹	(13)
Sr ₃ Y _{1-x} (BO ₃) ₃ :xPb ²⁺ .	270nm	376nm	10442cm ⁻¹	This work
Sr _{2-x} Pb _x Mg(BO ₃) ₂ and	260nm	330nm	8159cm ⁻¹	(14)
Ba _{2-x} Pb _x Mg(BO ₃) ₂	293nm	381nm	7883cm ⁻¹	

2. Experimental Details

Given Inorganic borate phosphors were prepared by the solution combustion synthesis technique. This method was accidentally discovered in 1988 in the lab of Prof. Patil in India (15). It is an exothermic reaction and occurs with the evolution of heat and light. Such a high temperature leads to formation and crystallization of phosphor materials. For phosphor particle preparation, combustion synthesis method is promising technique due to its ability to produce fine size of particles without high temperature annealing and extra steps such as grinding or milling (16) (17). Stoichiometric amounts of high purity starting materials, SrNO₃ (A.R.), Pb(NO₃)₂ (high purity 99.9%), H₃BO₃ (A.R.), CO(NH₂)₂ (A.R.), Y(NO₃)₃ (A.R.) are used for phosphor preparation. The starting materials with little amount of double distilled water were mixed thoroughly in agate mortar to obtain a homogeneous solution. Excess water was removed by heating the samples at temperature 70⁰C for about 30 min on magnetic stirrer and the solution was then transferred directly to a pre-heated Muffle furnace, maintained at temperature 650⁰C, for combustion. Following the combustion, the resulting foamy samples was crushed to obtain fine particles and then annealed for 3 h at temperature 800⁰C

TABLE 1: Molar concentration of ingredients



Sr(NO ₃) ₂	Pb(NO ₃) ₂	Y(NO ₃) ₃	3H ₃ BO ₃	CO(NH ₂) ₂
6.3486	0.0669	1.13	1.855	4.80

3. Results & Discussions

The prepared materials were characterized by powder XRD, SEM, PL and FT-IR techniques. Powder X-ray diffraction measurements were taken on a RigakuMiniflex II X-ray Diffractometer and compared with ICSD files. Surface morphology and elemental analysis of the calcined powder sample was observed by scanning electron microscopy [SEM: Model JSM6100 (Jeol)]. PL and PLE measurements at room temperature were performed on a Hitachi F-7000 spectro-fluorimeter with spectral resolution of 2.5 nm. FTIR of sample was done on F.T. Infra-Red Spectrophotometer Model RZX (Perkin Elmer).

3.1. XRD

Powder XRD pattern of the synthesized phosphor was recorded by X-ray diffraction using the Cu-K α wavelength ($\lambda = 1.54060 \text{ \AA}$) and scanning in the 2θ range from 20° – 80° . Figure [1] shows the powder XRD pattern of the phosphor $\text{Sr}_3\text{Y}(\text{BO}_3)_3$. The powder XRD pattern of synthesized phosphor agrees with standard pattern given by ICSD File NO. 246230. Space group is R-3; crystal system is trigonal (hexagonal axes); unit cell parameters $a=b=17.7025 \text{ \AA}$ $c=9.8830 \text{ \AA}$.

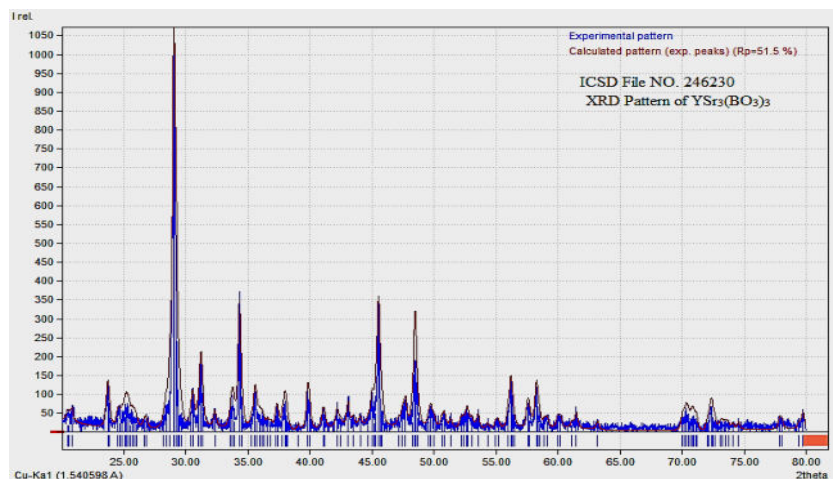


Figure 1 XRD Pattern of $\text{YSr}_3(\text{BO}_3)_3$

3.2. FTIR

The FT-IR spectra of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ recorded at room temperature is shown in Figure [2]. The strong bands observed above 1100 cm^{-1} should be assigned to the B-O stretching mode of the triangular $[\text{BO}_3]^-$ groups, while the bands with maxima at about $700\text{--}800 \text{ cm}^{-1}$ should be attributed to the B-O out of plane bending, which confirms the existence of the $[\text{BO}_3]^-$ groups (18). The absence of peaks in $1500\text{--}2000 \text{ cm}^{-1}$ indicates the complete combustion of nitrate and organic matter. The peak at $3300\text{--}3500 \text{ cm}^{-1}$ corresponds the stretching mode of O-H are also absent.

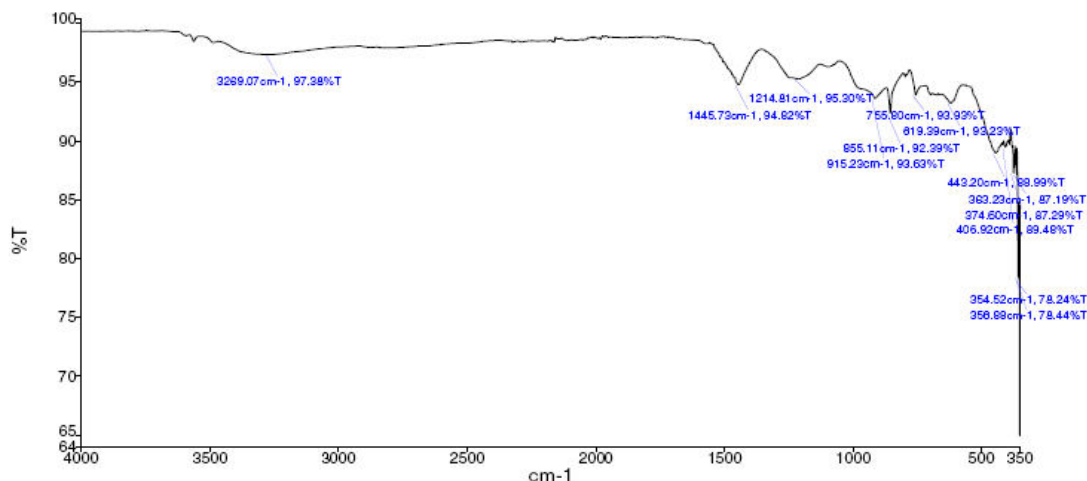


Figure 2 FT-IR spectra of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ at room temperature

3.3. SEM

The morphology of sample was studied using Scanning electron microscopy. The SEM images of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphors are shown in figure [3]. It was observed that the microstructure of the phosphor consisted of irregular grains with agglomerate phenomena. The average size of synthesized phosphor particles is about 5–20 μm . The results show that phosphors have a good crystallinity and a relatively low sinter temperature. Average crystalline size by Scherrer formula is in 42.2 nm which is different than as seen in surface morphology. It is because SEM shows the image of polycrystalline particles and XRD measurements reflects the crystalline domain size.

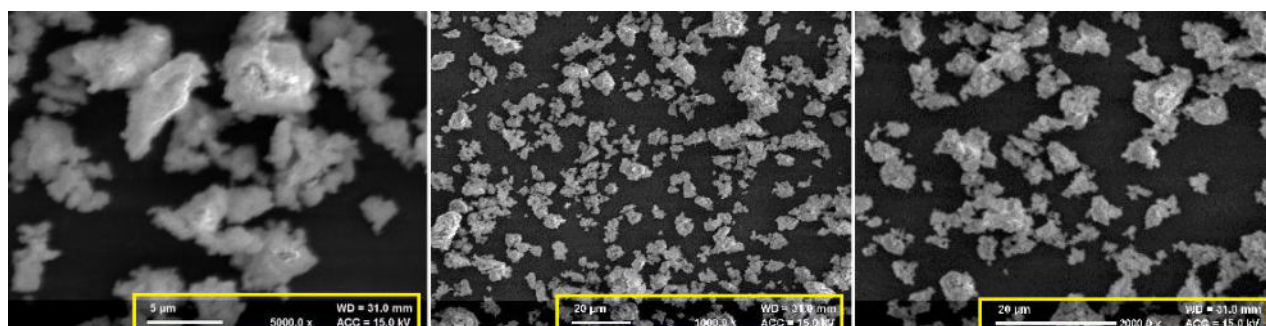


Figure 3 SEM Images at different Resolution

3.4 Photo-Luminescence Study

The PL and PLE of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor is shown in figure [4]. It is recorded on F-7000 FL spectrophotometer with scan speed 240 nm/min, excitation-emission slit width 1nm. The excitation spectrum of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ consists of a single broadband absorption ranging from 200 to 350 nm with the peaks at 229.8nm and 270nm. The strongest absorption peak is at 270 nm, which may be due to the electronic transitions from the ground state $^1\text{S}_0$ to the excited state $^3\text{P}_1$

of Pb^{2+} ions. At 270nm excitation, $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ exhibit a broad emission band in the range 350–700 nm, which originates from the $^3\text{P}_1 \rightarrow ^1\text{S}_0$ electronic transitions of Pb^{2+} ions. Strongest emission peak has 376nm wavelength which is hardly visible purple UV-A light. So at 270nm UV-C light excitation $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor emits UV-A light of 376nm. Stokes shift is 10442cm^{-1} . Large Stoke's shift ($8000\text{-}10000\text{ cm}^{-1}$) are usually indicative of excited state reaction, most often excited state photon transfer. Due to single peak in photoluminescence spectra it is believed that the Pb^{2+} ions have taken only one site in $\text{Sr}_3\text{Y}(\text{BO}_3)_3$. Activator ion Pb^{2+} ion occupy the Y^{2+} site in phosphor. We studied the PL properties with different doping concentrations of Pb^{2+} activator ion and is shown in figure (5). The shape of PL band is same and intensity of emission increases up to 0.07 mole of Pb^{2+} and then decreases. The Luminescence of Pb^{2+} depends upon the site occupied by Pb^{2+} , crystal structure of host lattice.

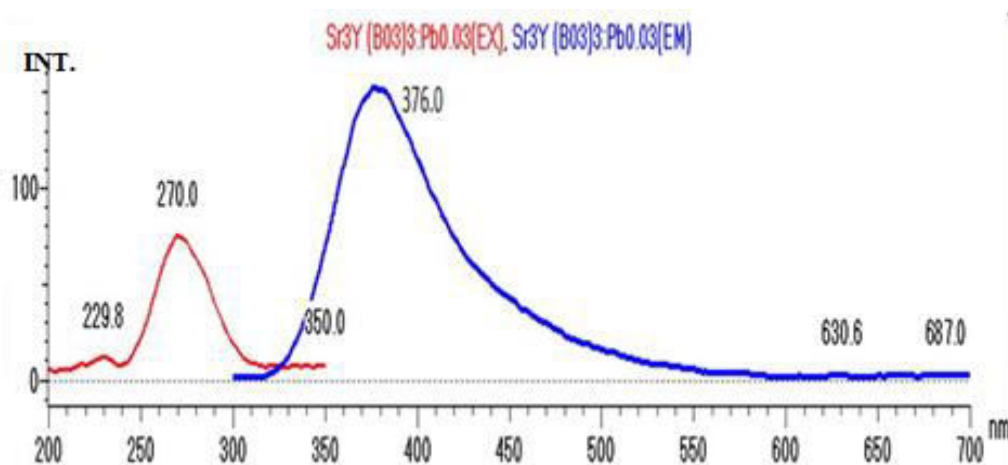


Figure 4 PL and PLE of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$

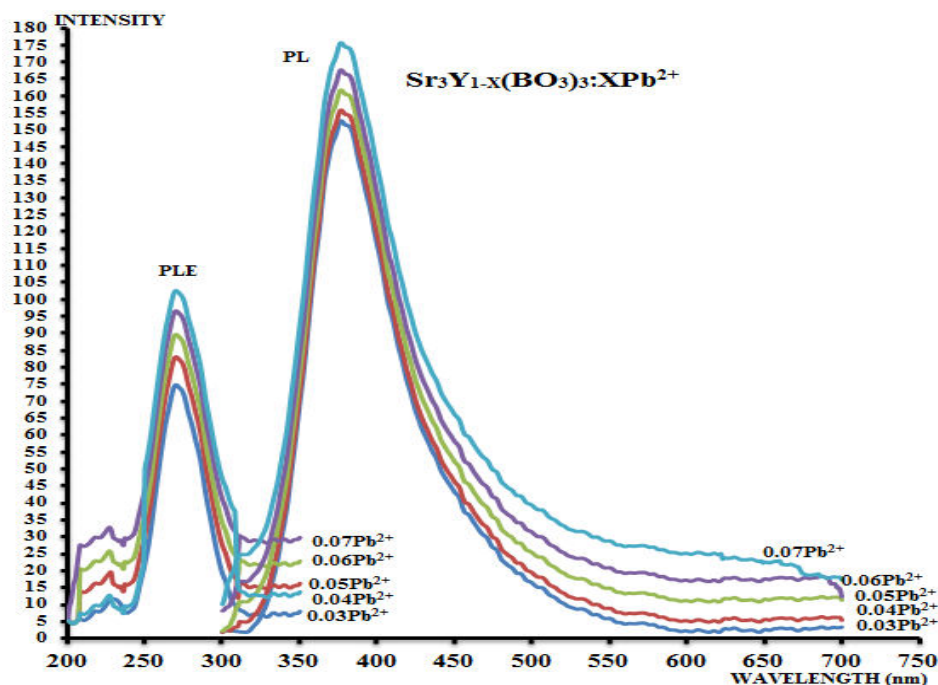


Figure 5 PL and PLE of $\text{Sr}_3\text{Y}_{1-x}(\text{BO}_3)_3:x\text{Pb}^{2+}$

3.5 CIE-Chromaticity

Figure [7] shows the Commission International del Eclairage (CIE) chromaticity coordinates diagram of the $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor at 376nm. The chromaticity coordinates of the phosphor $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ for fixed concentration of Pb^{2+} at 376 nm was computed using LEDTUNING. NL Software [<https://www.ledtuning.nl/en/cie-convertoor>]. The chromaticity coordinates are used in 'GO-CIE' CIE plot utility software developed by Organic material laboratory of IIT Roorkee for 1931 CIE CHROMATICITY diagram [<http://faculty.iitr.ac.in/~krjt8fcy/gocie.html>]. For 376 nm the coordinates obtained were $X = 0.174409$, $Y = 0.005127$, which fall at the border of blue region in the CIE 1931 chromaticity diagram and shown as radish triangle shaped spot. As seen in the PL spectra, the $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$ phosphor has 376nm UV-A emission under UV-C light at 270 nm. This means that the $\text{Sr}_3\text{Y}_{1-x}(\text{BO}_3)_3:X\text{Pb}^{2+}$ phosphor could be a good UV-A phosphor candidate for solid-state lighting and Phototherapy applications.

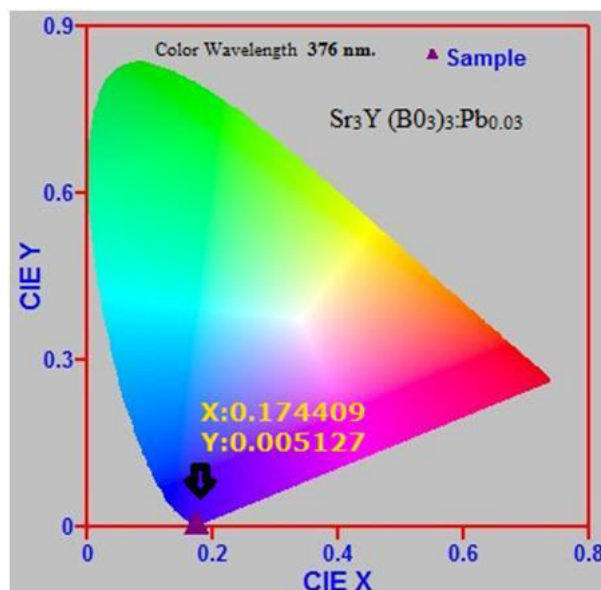


Figure 6 CIE diagram of $\text{Sr}_3\text{Y}_{1-0.03}(\text{BO}_3)_3:0.03\text{Pb}^{2+}$

4. Conclusion

$\text{Sr}_3\text{Y}_{1-x}(\text{BO}_3)_3:\text{X Pb}^{2+}$ ($\text{X} = 0.03, 0.04, 0.05, 0.06, 0.07$ Mole Pb^{2+}) is UV-C to UV-A down conversion phosphor useful for medical and industrial application. Broadband PL in 300nm to 700nm with high intensity luminescent peak 376nm monitored at 276nm is important result of these study.

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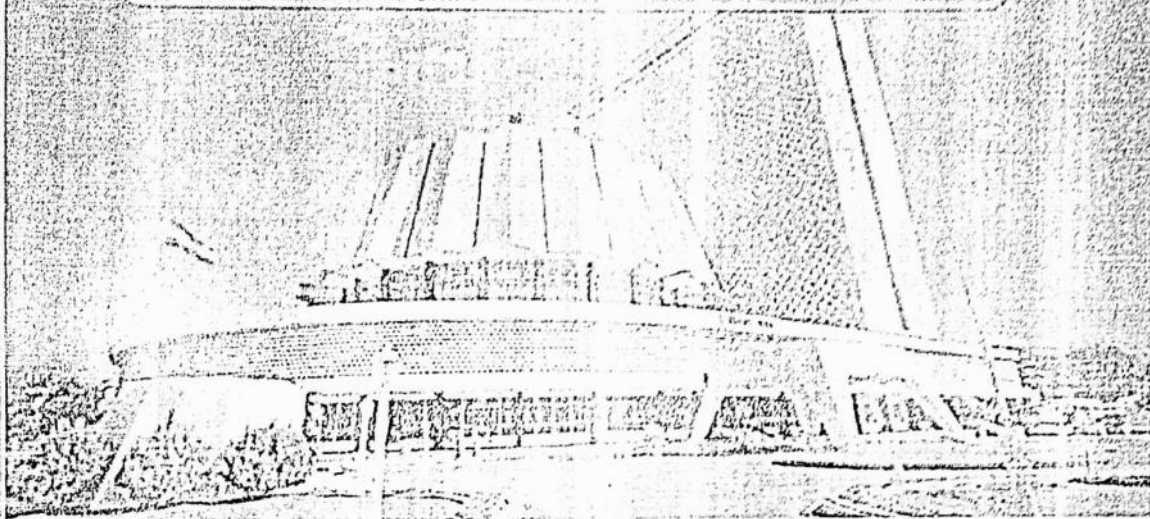
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नव युवा आमदार आणि युवा मतदार : एक चिकित्साक अध्ययन
(महाराष्ट्र विधानसभा 2019 च्या संदर्भात)

प्रा. डॉ. प्रतिभा टावरी
राज्यशास्त्र विभागप्रमुख, गो.से. विज्ञान, कला व वाणिज्य महाविद्यालय,
खामगांव जि. तुलजाणा.

देश एकविसाव्या शतकात जाण्याची तयारी करीत असतांना, देशाच्या लोकसंख्येचा सर्वात मोठा भाग असलेल्या युवांच्या राजकीय सहभागाचे, युवा राजकीय नेतृत्वाच्या भूमिकेचे अध्ययन करणे आवश्यक ठरते. इतिहास साक्षी आहे की, कोणत्याही देशाची प्रगती, सुरक्षा आणि विकासात युवकांचे योगदान महत्वाचे ठरले. युवा देशाचे भविष्य आहे. तेव्हा देशाचा वर्तमान व भविष्याच्या प्रगतीसाठी नीती निर्धारण प्रक्रियेत त्यांचा सहभाग असणे गरजेचे आहे. विद्यार्थ्यांनी राजकारणात पडू नये, फक्त अभ्यास करावा या मानसिकतेतून बाहेर पडायला हवे. 18 वर्ष पूर्ण करणारा व्यक्ती जोवून तरुण मतदार होतो, तेव्हा राजकीय प्रक्रियांचा अभ्यास त्याने करणे हे आवश्यकच ठरते. नव्या पिढीचे प्रश्न, विचार, त्यांना हवे असलेले बदल, तरुण नेतृत्वच समजून घेऊ शकतो. समाजाराठी झटणारे तरुण नेतृत्वच समाजात सकाशत्मक बदल घडवून आणू शकतो. नवे सहस्त्रक अगदी तोंडावर आले असतांना युवांवर मोठी जबाबदारी निश्चितच आहे. या अनुगंगाने युवा नेतृत्वाचे अध्ययन प्रस्तुत शोधनिबंधात केले आहे.

शोधनिबंधाचे उद्दिष्ट :-

- 1) युवा आमदारांच्या राजकारणातील प्रवेशाच्या स्रोतांचा शोध घेणे.
- 2) युवा आमदारांच्या राजकीय नेतृत्वाचे अध्ययन करणे.
- 3) युवा मतदारांच्या राजकीय सहभागाचे अध्ययन करणे.

गृहीतक :-

- 1) युवा आमदारांचा राजकारणातील प्रवेशाचा प्रमुख स्रोत घराणेशाही आहे.
- 2) राजकारणातील प्रत्यक्ष सहभागाबद्दल तरुण पीढी उदासिन दिसते.
- 3) राजकीय, सामाजिक परिवर्तनांच्या आंदोलनात तरुण पिढी उरफुर्त सहभाग घेताना दिसते.

युवा आमदारांची राजकारणातील भूमिका :-

नवीन महाराष्ट्र विधान सभेच्या निकाल 24 ऑक्टोबर 2019 रोजी जाहीर झाला. असोसिएशन फॉर डेमोकॅटिक रिफॉर्मने डिजिटल रजिस्ट्रार केलेल्या उमेदवारांच्या प्रतिज्ञापत्रातून नवनिर्वाचित आमदारांचे वय, लिंग, मालमत्ता या संवधी विश्लेषणाचा डेटा आकडेवारीतून काढला गेला. यानुसार नवीन विधानसभेत तरुण आमदार म्हणजे 40 वर्षांपेक्षा कमी वयाचे आमदार 12.50 टक्के आहेत. तर 2014 च्या विधानसभेत 16.32 टक्के होते. 60 वर्ष वयोगटाच्या वर असलेले आमदार नवीन विधानसभेत 22.22 टक्के आहेत. आणि वर्ष 2014 च्या विधानसभेत याचे प्रमाण 14.93 टक्के होते.

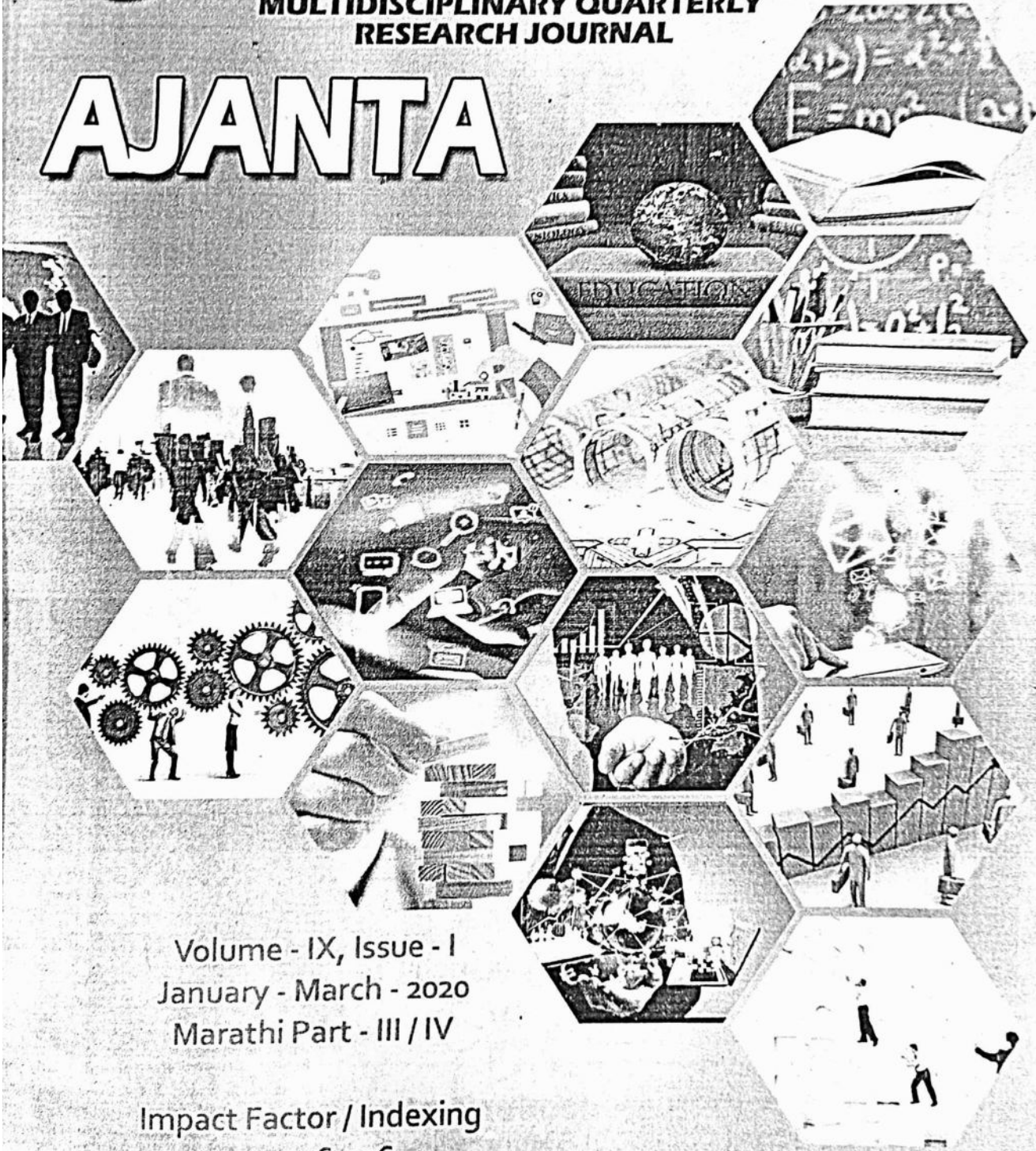


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२. भारतातील धर्मनिरपेक्ष लोकशाही

डॉ. प्रतिभा टावरी

सहयोगी प्राध्यापक, राज्यशास्त्र विभाग प्रमुख, गो.से. विज्ञान, कला व वाणिज्य महाविद्यालय, खामगांव, जि. बुलढाणा.

प्रस्तावना

पाश्चिमात्य जगाप्रमाणे भारतात कुठेही 'एकाच धर्म' हे सूत्र कधी नव्हते. ख्रिस्तपूर्व २५० वर्षांपूर्वी सम्राट अशोकाच्या राज्यात, किंवा इ. स. ७०० मध्ये सम्राट हर्षवर्धनाच्या राज्यातही केवळ एकाच धर्माचा पुरस्कार करावा, असे बंधन नव्हते. स्वधर्माचा आदर करायचा आणि इतरांच्या धर्माचा मात्र द्वेष, ही प्रवृत्ती भारतात त्या काळच्या संस्कृतीत नव्हती. म्हणूनच वैदिक परंपरेतून आलेल्या हिंदू धर्मासोबत बौद्ध, जैन, शीख, लिंगायत, आणि इस्लाम हे इतर धर्म आणि पंथ भारतात निर्माण झाले, आणि कोणत्याही राजसत्तेच्या अधिपत्याखाली परस्पर सामंजस्याने एकत्र नांदले. धर्माबाबतची सहिष्णुता भारतीय संस्कृतीत आहे. भारताची बहुधर्मीय स्वरूप ध्यानी घेवून स्वतंत्र भारताने धर्मनिरपेक्ष लोकशाहीचा मार्ग स्वीकारला.

शोधनिबंधाचे उद्दिष्ट

1. भारतीय संविधानातील धर्मनिरपेक्षता संबंधी तरतुदीचे अध्ययन करणे.
2. भारतीय धर्मनिरपेक्ष लोकशाहीचे स्वरूप अभ्यासणे.
3. भारतीय धर्मनिरपेक्ष लोकशाहीपुढील आव्हानांचा शोध व भविष्याचा वेध घेणे.

गृहितके

भारतीय धर्मनिरपेक्ष लोकशाही समोर अनेक आव्हाने आहेत.

भारतीय संविधानातील धर्मनिरपेक्षतेचे तत्त्व

१९७६ साली ४२ व्या घटनादुरुस्तीद्वारा उद्देशपत्रीका मध्ये धर्मनिरपेक्ष शब्द समाविष्ट करण्यात आला. भारताच्या संविधानात धर्मनिरपेक्षते संबंधी विविध तरतुदी ठिकाठिकाणी विखुरलेल्या आहेत. सरनाम्या मध्ये धर्मनिरपेक्षता या तत्वाचा स्पष्ट उल्लेख आहे. न्याय, स्वातंत्र्य, समता, बंधुता या तत्वात धर्मनिरपेक्षतेचे तत्त्व अंतर्भूत आहे.

घटना कलम ५ मध्ये कुठल्याही प्रकारचा भेदभाव न करता प्रत्येक स्त्री-पुरुषाला नागरिकत्व बहाल करण्यात आले आहे. घटना कलम १४ - कायद्यासमोर समानता, घटना कलम - १५ सार्वजनिक सुविधा चा उपभोग घेण्याचा अधिकार, घटना कलम - १६ कोणताही भेदभाव न बाळगता सरकारी नोकऱ्यांमध्ये सर्वांना समान संधी दिली आहे. (काही अपवाद वगळता) घटना कलम १९ मध्ये दिलेले नागरी स्वातंत्र्य सर्वांसाठी आहे. घटना कलम २५ ते २८ मध्ये धर्मस्वातंत्र्याच्या अधिकाराचा स्पष्ट उल्लेख करण्यात आला आहे. घटना कलम २९ - ३० मध्ये सुध्दा सर्व धर्मांना त्यांची भाषा, संस्कृती जपण्याचा अधिकार देण्यात

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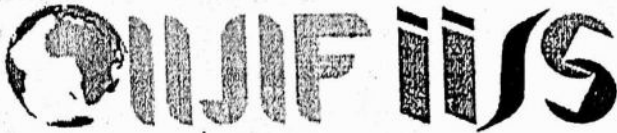


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‘सर्च’ सोबत ‘मुक्तिपथ’ ते टाळेबंदी सोबत ‘मद्यपथ’ : एक समीक्षा

डॉ. प्रा. प्रतिभा टावरी, सहयोगी प्राध्यापक व प्रमुख राज्यशास्त्र विभाग,
गो. से. विज्ञान, कला व वाणिज्य महाविद्यालय, खामगांव, महाराष्ट्र

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सारांशः— कोरोना या साथीरोगाला प्रतिबंध घालण्यासाठी संपूर्ण भारतात टाळेबंदी (लॉकडाऊन) करण्यात आली. अत्यावश्यक सेवा सोडून इतर व्यवसायावर बंदी घालण्यात आली. मद्य (दारु) व तंबाखू व्यवसायावर बंदी घातल्या गेली. टाळेबंदीच्या तिसऱ्या टप्प्यात अनेक व्यवसायावर बंदी कायम ठेऊन दारुबंदी मात्र उठविण्यात आली. त्यामुळे कोरोना प्रसाराचा धोका वाढला. सरकार ‘सर्च’ या स्वयंसेवी संस्थेसोबत व्यसनमुक्तीसाठी ‘मुक्तिपथ’ अभियान राबवून व्यसनमुक्ती कार्याला प्रोत्साहन व बळ देते तर दुसरीकडे कोरोना संकटात मद्य संकट उभे करून व्यसनमुक्ती कार्याला हतोत्साहित करून त्याची ताकद कमी करते. यामुळे दारुबंदी संबंधी सरकारच्या भूमिकेची समीक्षा करणे आवश्यक व प्रासंगिक ठरते. प्रस्तुत शोधनिबंधात सरकारच्या दारुबंदी संबंधी भूमिकेचे कोरोनाच्या संदर्भात अध्ययन करण्यात आले आहे. डॉ. अभय बंग यांच्या व्यसनमुक्ती संबंधी विचार आणि सर्च, मुक्तिपथ चे व्यसनमुक्तीचे कार्य हे या समिक्षणात्मक अध्ययनाचे संदर्भ व आधार आहेत.

प्रस्तावनाः— सध्या संपूर्ण जग कोरोना या संसर्गजन्य रोगाच्या विळख्यात सापडले आहे. कोविड-१९ या विषाणू मुळे निर्माण झालेल्या साथीरोगाचा प्रादुर्भाव रोखण्याकरिता सामाजिक अंतर राखणे अत्यंत आवश्यक बनले आहे. याकरिता इतर देशाप्रमाणे भारतातही टाळेबंदी (लॉकडाऊन) लागू करण्यात आली. आत्यंतिक आवश्यक सेवा देणाऱ्या व्यवसाया व्यतिरिक्त इतर व्यवसाय बंदी लागू करण्यात आली. टाळेबंदीच्या तिसऱ्या टप्प्यात दारु बंदी उठविण्याचा निर्णय केंद्र व राज्य सरकारने घेतला. सामाजिक अंतराचा नियम धाब्यावर बसवत लोकांची गर्दी दारु दुकानांसमोर उसळली. यावर उपाय म्हणून सर्वोच्च न्यायालयाने ‘राज्य सरकारने घरपोच दारु पुरविण्याचा विचार करावा’ अशी सूचना केली. हा निर्णय कोरोनाच्या फैलावाला निमंत्रण देणारा आहे, कोरोनाच्या संकटात शारिरिक, मानसिक, कौटुंबिक स्वास्थ्य बिगडवण्याचा धोका निर्माण करणारा आहे. व्यसनमुक्तीच्या कार्याला हांदरा देणारा आहे, अशा प्रकारच्या प्रतिक्रिया माध्यमात उमटू लागल्या.

डॉ. अभय बंग व डॉ. राणी बंग यांनी स्थापन केलेली ‘सर्च’ ही स्वयंसेवी संस्था वर्ष १९८८ पासून व्यसनमुक्तीचे कार्य करित आहे. ‘सर्च’ च्या कार्यात पुढे राज्य सरकार सहभागी झाले आणि ‘सर्च’ च्या व्यसनमुक्तीच्या कार्याला थककम बळ मिळाले. वर्ष २०१६ मध्ये सर्च, राज्य सरकार, टाटा ट्रस्ट व गडचिरोलीची जनता या चार घटकांनी मिळून व्यसनमुक्तीचे संयुक्तपणे कार्य सुरु केले. आणि या चार शक्तीचे संयुक्त कार्यगट ‘मुक्तिपथ’ नावाने स्थापन झाले. गडचिरोली जिल्हयातील १५०० गांव दारु व तंबाखू मुक्त करण्यासाठी राज्यसरकार ‘सर्च’ सोबत ‘मुक्तिपथ’ हा प्रकल्प राबवित आहे. टाळेबंदीच्या तिसऱ्या टप्प्यात मात्र सरकारला मद्यपथावर चालण्याची आवश्यकता का भासली ? व्यसनाधिनता व व्यसनमुक्ती याचे मानव व समाज यावर काय परिणाम होतात ? सरकार, समाज व व्यक्तीची यासंबंधीची कशी भूमिका असली पाहिजे ? हे प्रश्न व समस्यांचे समाधान शोधण्यासाठी व्यसनमुक्तीसाठी झटणारे सामाजिक कार्यकर्ते डॉ. अभय बंग यांचे विचार, कार्य व संशोधन प्रस्तुत शोधनिबंधात मांडण्यात आले आहे.

डॉ. अभय बंग यांच्या व्यसनमुक्ती संबंधी विचारांना वैद्यकीय, राजकीय, आर्थिक, सामाजिक, सांस्कृतिक, संदर्भ आहे आणि मानवी जीवनमूल्य व मानवता याचा त्यांच्या विचारांना आधार आहे. महाराष्ट्र राज्य कोरोना साथीरोगाच्या संकटात सापडलेले असतांना मद्यसंकट सरकारने ओढून घेतले आहे. या सर्व पार्श्वभूमीवर कोरोनाच्या अनुषंगाने दारु व तंबाखूच्या व्यसनमुक्ती संबंधी डॉ. अभय बंग यांचे विचार व प्रासंगिकता समजून घेणे, त्यांच्या कार्याचा आढावा घेणे आणि सरकारच्या भूमिकेची समीक्षा करणे आवश्यक ठरते.

Role of Technology based Higher Education in Nation's Success

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Abstract: *In India higher education is the growing sector having potential to become as a developed nation in the future. The quality of higher education plays a key role in the entire educational system. Since the nation's success is mainly determined by the quality of higher education it is important to develop the number of strategies in teaching learning process. In this regard, it is essential that new and innovative teaching methods are to be developed. This article mainly focuses on the current scenario of higher education and innovative techniques to be used so as to strengthen the content knowledge for the student. Various teaching systems are focused with a view to increase the overall quality of education systems. Study is done on the Enrollment of students in different courses and their percentages and Gross Enrollment Ratio in higher education in various states in India. Innovative Teaching Methods and use of Artificial Intelligence in Education sector is also discussed.*

Keywords: *Educational research methods,POT, e resources, Google classroom, Innovative teaching learning method, LMS, GER, ITS, Artificial Intelligence.*

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I. Introduction

India has emerged as a global leader and a strong nation at the turn of the 21st century as far as Vision and Goal is considered. The quality of higher education can be enhanced by social change, transformation and innovative teaching practices[1]. A term 'student engagement' is defined which involves activities and practices, such as contact with faculty, collaboration, integrating education and experience, or high expectations. These activities lead to the creation of engagement leading to the learning[2]. Student engagement also involves the time and energy devoted by students to educationally purposeful activities. This leads to participation of students in activities that leads to the student as well as the institution's success[3].

In this era of information and communication technology, students have to be prepared by educationalists in order to compete situations occurring in the 21st century. To make the students competent to face the challenges in the 21st century Youth development and teacher preparation programme must be aligned. It has been shown by the Brain Research that certain methods and approaches truly enhance the teaching learning process. It is found that both students and teachers are getting benefitted on the application of innovative learning and attention management techniques in classes. Nowadays student should be engaged and excited through shaking up of our teaching methods in innovative ways. The most necessary and imperative reforms required in higher education is to remodel it by introducing a new and innovative ideas in the quality of higher education. Innovative teaching methodology will lead to a learning society in which the creative and intellectual abilities of students will allow them to meet the goals of transformation and development.

The capacity of students can be developed by introducing new ideas and evidence in the teaching learning procedure. Information and Communication Technology (ICT) led to the transformation of knowledge in different dimensions. With the advancement in computer technology, drastic changes are observed in the collection, compilation and organization of information[4]. Information and Communication Technology (ICT) led to the improvement in the quality of life and it is widely used on a large scale by professionals for carrying out their daily activities. A lot of investment is done on training workers on ICT applications. Training programmes are found to reduce computer anxiety and improve workers ICT utilization and productivity. This study was carried out in Ogun State Nigeria, assessment included the levels of participation of teachers in ICT training programmes, computer anxiety and ICT utilization. The relationships among these variables were also investigated[5].

Another approach known as service learning was used by institutions as a collaborative learning for practices related to service. The group projects were allocated to students as part of collaborative learning. These group projects were expected to develop a sense of community among students[6]. Peer Observation of Teaching (POT) is the method followed in the institution for evaluating the quality of teaching. It also leads to the development of teachers based on the feedback and contributes in good teaching and learning process. There

are mainly three considerations: the management of the process, the links between POT and staff development and the impact due to application of peer observation in learning and teaching[7]. Most of the students using cellphones are teenagers and therefore some educational apps can be developed which lead to the enhancement of the learning process [8]. ICT has created large Impact on Educational Reforms and Employment. The Internet based Smartphones are taking quality learning to students across Geography in India. Education is imparted to them through flexible format [9].

A review on the use of social media in improving the quality of higher education was studied. It was found that the students who were given online education performed better than classroom students. Also it was found that instructors do not encourage students to make use of social media for educational purposes. Various experiences on using social media platforms as a learning tool are discussed [10]. Other techniques include the introduction of educational software games so as to increase the interest of the student in the subject. Educational effectiveness using educational software games was studied with the help of the Intelligent Tutoring System(ITS). This operates as a virtual reality educational game. The virtual reality game known as VR-ENGAGE was developed. This game aims at increasing student engagement in the subject. This is due to the use of motivating the virtual reality environment. This effect of introducing a virtual reality game on students learning in comparison to educational software is studied [11].

An essential condition for forming the bond between theory and practice in higher education is the interaction and knowledge sharing between the higher education institution and industry. A model was developed for common knowledge exchange and knowledge development. This involves the simultaneous use of both practical and theoretical knowledge to increase educational standards. Also more efforts need to be concentrated in the problem areas which increase curiosity both among teachers and students. The interests of students and teachers varied during the whole process based on the time taken by other organization to answer the questions and some teachers believed that it is difficult to transform theory into practical knowledge [12].

Teachers should give more stress on the inclusion of ICT in educational practices. For this, teachers should be made aware on the use of technologies and their long term benefits both for teachers and students. It is found that teacher's knowledge has a strong impact on teacher's decision. Though changing the pedagogical beliefs of teachers to adopt this innovative and influential way of good teaching and gaining knowledge, they also need the confidence to bring it into practice. We should provide opportunities for teachers to both experiment and to succeed. It is also observed that the most effective way to support change in teachers by bringing change in their methodology is by providing opportunities for them to see the positive impact of these changes on their students [13]. Awareness in the use of technology needs to be implemented from school level so as to get benefits in the future. The main factors include the professional development in the area and use of technology and research on efforts to increase its use on a large scale. There are four useful points which needs to be considered for teacher technology training: first, it we consider learning a new teaching model, it found that it is easier to learn a new teaching model than to learn about technology for personal or pedagogical use. Second, there should be access to the new technology both at home and at school. Third, there should not be fear of the unknown and if it is there it must be solved soon. Fourth, with the use of new technology teachers may bring changes in the ways and techniques in which they teach the students [14]. A study was conducted consisting of faculty members of the US colleges of education. It was found that significant relation exists between technology literacy and pedagogical practice integration. A trainer can be assigned to a small group of faculty forums. This helps in maximizing Faculty technology training for the integration of pedagogy [15].

Use of ICT was significant in increasing student examination score. The score was found to raise by 0.07 to 0.75 standard deviations. Effects of Computer Based Instruction, Computer Assisted Instruction, Computer Enriched Instruction, Computer Managed Instruction and Computer based Education on learning process are studied [16].

In the past lot of efforts have been taken on development of teachers but they are unsuccessful. This is due to adoption of top-down approach. This approach does not take into account teachers' existing knowledge, beliefs and attitudes into consideration. Therefore, a thorough research of use of ICT in education by teachers can provide inputs for improving them. Strategies such as learning in network, peer coaching and collaborative action research must be encouraged for overall development [17]. It is observed that though teachers show great interest in learning about ICT, they do not encourage use of ICT tools on large scale. Their use of ICT is concentrated mainly for personal purposes. Most of the teachers have been found to make use of computers for very basic tasks such as word processing (preparation of timetable for lectures, lesson plans, assignments, quiz, preparation of marksheets etc.) or getting the information from the internet. Also most of the teachers get help from technicians and librarian therefore it has become necessary that these persons develop their own ICT skill set and knowledge so as to increase overall performance [18].

Quality teaching has become an important issue in higher education as continuous changes are observed such as increased international competition, increasing social and geographical diversity of the student body, increasing demands of value for money, the introduction of information technologies, etc. It is therefore

challenge to choose reliable parameters so as to assess the quality and productivity of teaching. On the basis of above literature, it is observed that more focus should be on development of new techniques in teaching and learning so as to increase the percentage of enrolment of students in higher education and to create interest in them so as to increase overall quality.

II. Results And Discussion

2.1 Gross Enrollment Ratio

As per the survey made, by the year 2030 India will be amongst the youngest nation of the world. For the enhancement of quality teaching to support the youngest community of this nation it is necessary to take steps to carry out a vision 2030 document which introduce technology in the teaching learning process. Gross Enrollment Ratio is studied on the basis of AISHE Report 2015-16 across some popular states in India.

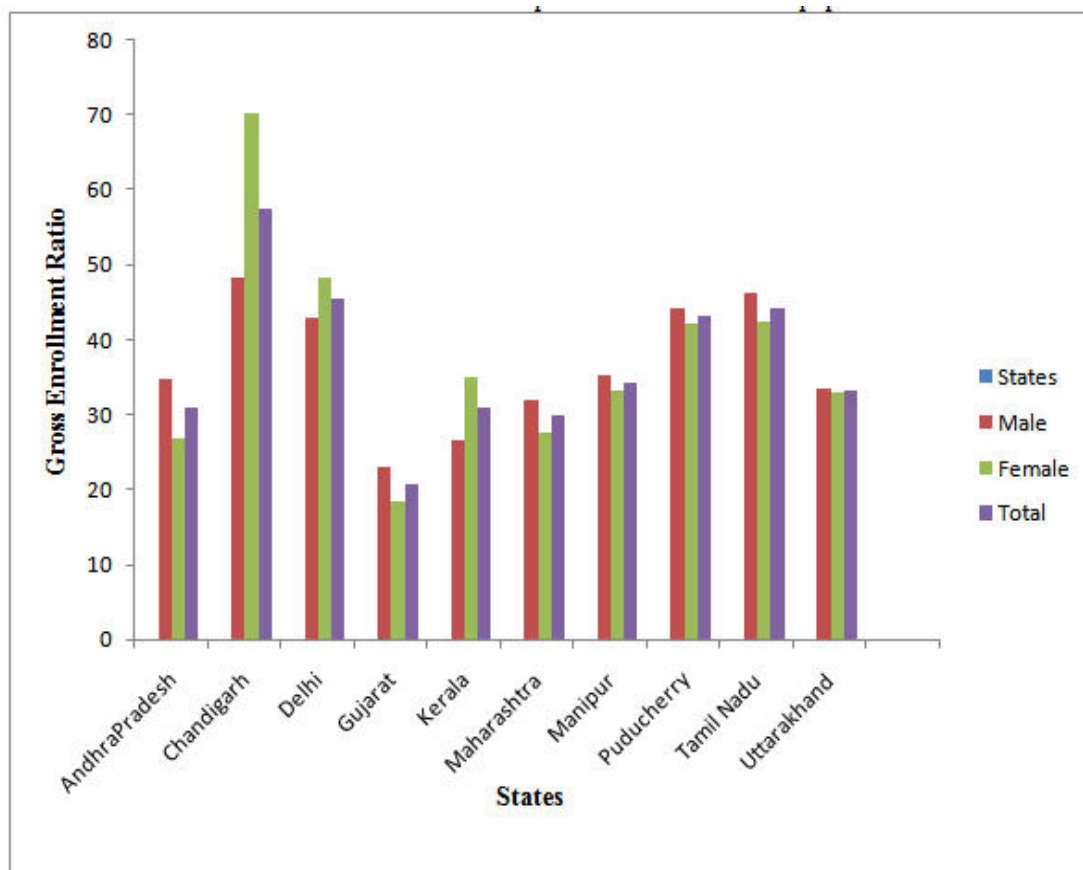


Fig. 1 Gross Enrollment ratio in higher education (18-23 years) in various states of India[19]

Figure 1 shows the Gross Enrollment ratio of some popular states in India. It is observed that the highest GER for males and females occur in the state Chandigarh. The lowest GER occurs in the state Gujarat. Males as well as females are interested to go for higher education. This GER indicates that most of the young students are pursuing their admission in higher education.

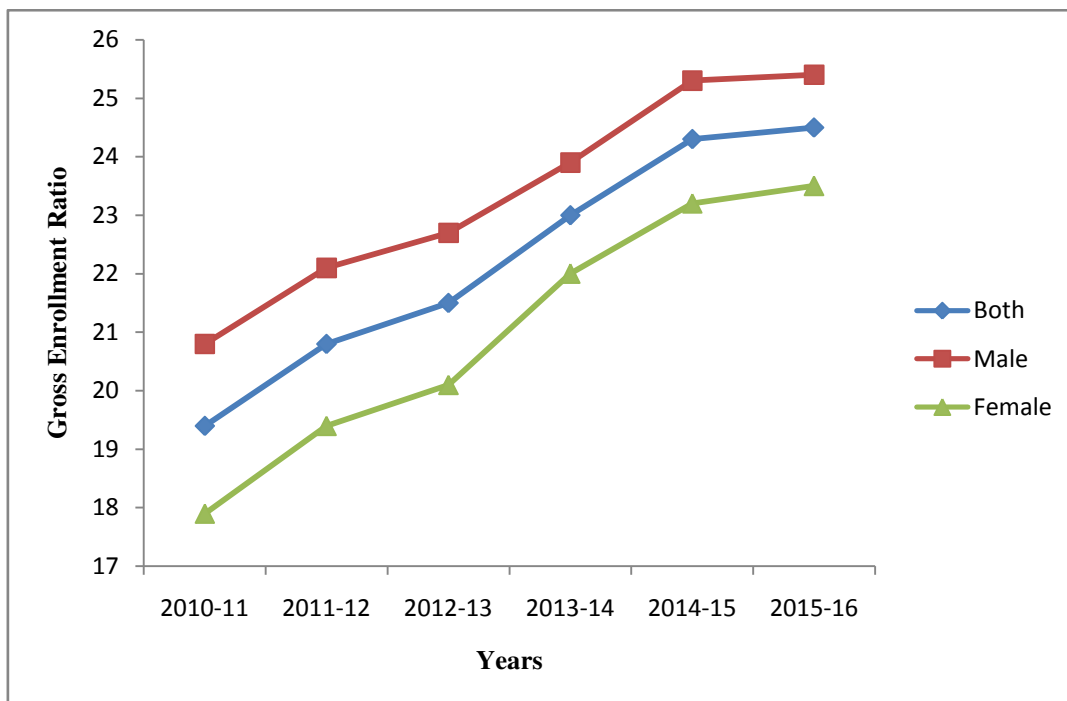


Fig. 2 Trend of Gross Enrollment Ratio of India in various years[19]

From figure 2 it is clear that Gross Enrollment Ratio in higher education in the age group of 18-23 years has been increased subsequently in India in the last five years. It is therefore necessary to introduce innovative techniques of learning in the classroom, particularly Digital Techniques. Visualization is associated particularly with the smart teaching strategy for reading and attainment. Teaching through visualization skill helps the student understand recording and think critical about the subject they study. Computers, tablets, digital cameras, video conference technology and GPS devices enhance student learning experience.

Large impact on education is observed with the use of Google apps like Google Docs, Google spreadsheets and Google calendars. Google classroom is one of the important feature of Google, a technology in the classroom app which provides a single dashboard to unify instructors. With the help of Google classroom, paperless communication between teachers and students can be facilitated. It gives good opportunity for students and teachers to share information with one another instantaneously instead of having to submit work. Students can initiate their work with the help of just one click and can view their assignment by opening Google Docs. Teachers have a real time view in student progress and thus can offer valuable feedback to the students. Google classrooms offer one step platforms for facilitating digital production, workflow and communication between students and teachers. Google classroom could be a free application designed to assist students and teachers communicate, collaborate, organize and manage assignments go paperless and much more.

Many classrooms are using Learning Management systems which help in an alteration of the higher education process. Various learning management systems are classmate, Blackboard, Moodle, Edmodo and Google classroom. The skill and experiences provided by implementing an LMS in the classroom prepares our young minds for their future education and their entry into a world that is increasingly organized and advancing via technology. The LMS system permits for teachers and students to place all of their work in one central system. Students can share their work with each other allowing them to collaborate on their assignment from both college and home. It has been found that regardless of physical location of students, teachers can easily review and distribute assignment to students. Once most are working with efficiency with the LMS system the method of collaborating and interfacing the complete classroom is realizable.

2.2 Student Enrollment at various levels of Courses in Institutions

The total number of students enrolled in different institutions across various levels (Ph.D., M.Phil, Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated) is shown in below Table 1:

Table 1: Degree wise distribution of student enrollment at various levels of Courses in Institutions[19]

Name of Degree	Number of Students Enrolled	Percentage of Students Enrolled(%)
Under Graduate	2,74,20,450	79.3
Post Graduate	3,92,0000	11.3
Integrated Ph.D.	5753	0.42
Ph.D.	1,26,451	0.66
Diploma	2,55,0000	7.4
PG Diploma	230000	0.7
Certificate	140000	0.4

Table 1 shows student enrollment at various levels of courses in Institutions in India. It can be seen that a large number of students are enrolled in UG courses which constitutes 79.3% of the total number of students. Next higher percentage of students enrolled in Post graduate courses. But we can see that the total number of students opting for PG courses is decreasing. So more emphasis needs to be given to increase the quality of PG education and to increase their value. So some steps need to be taken in this regard. One solution in this regard is to introduce new techniques of learning and introducing new technologies which makes learning interesting. Also more focus should be on research so large amount of funds must be released and institutes must be encouraged to undertake sponsored research projects in their field of interest. This leads to the development of institutions and students can gain practical knowledge by working on the project. Also a good number of research papers can be published which increases value of the institution and overall progress of the student. Research lab should be established with the help of industries at the institute so that student can do research on live industrial problem. This increases student thinking process. Some innovative solutions can come out using this process which will be beneficial for industry and also it will be great learning for students. Above techniques can increase students interest in higher education and the percentage of enrollment of students will be increased.

Another important factor is the creation of jobs for PG students after completion of their courses. Institutes should focus on job creation and should include courses in PG which match Industry Standards. Students should be encouraged to carry out internships in Industries so as to expose them to industrial tools and machines.

One of the approaches to improve teacher's knowledge and skills is the lesson study. In lesson study teachers from small groups and discuss the problems faced and the techniques to solve those problems. This leads to their overall improvement of knowledge and faster solutions of problems faced in teaching a topic. In groups teachers discuss one goal and implement it in classrooms and experiments with different methods and techniques which can lead them to that goal. After discussing these methods, teachers develop a 'study plan'. Once the study plan is developed, the plan which is prepared in the group is presented by one teacher to students and the role of other teachers is to observe the plan carefully note the students understanding of the concepts and to take the notes. After the teaching the group assembles again to discuss the observations. This collaborative approach not only increases students learning capability but also leads to overall development of teachers.

Teachers need to get the confidence to use ICT tools for upgrading their knowledge. For this to achieve more teachers should be exposed to the use of ICT tools. Even if some teachers gain confidence on using of ICT tools for their personal and students development, other teachers can get motivation from them to use ICT tools and this can lead to overall development of institution. Though the process is slow but it will have long lasting benefits in the future.

2.3 Innovative Ideas In Teaching Learning Process

In the universe progressively complicated issues need inventive solutions. One author quoted the text "The best teachers are those who show you where to look but don't tell you what to see." To reach academic pursuits of higher education it is important to introduce the following innovative ideas in teaching learning process.

- Creative teaching which brings aspects of creativity into teaching.
- Audio and video tools which incorporate audio visual materials to supplement the textbook during the teaching learning process which will help student imagination thrive and glow.
- Real life illustrations: The teaching material will be easy to understand and learn if it is expressed in the real life way.
- Brain storming: Helps the student to make passive thoughts.
- Classes outside the classroom: Some lessons are become interesting when they are particularly discussed in outside premises of classroom. It includes organizing the field trip.
- Roll Play: Useful in teaching learning methods to develop interpersonal skills of students.
- Storyboard teaching: If a lesson is taught in the form of story it will never be forgotten.
- Stimulating classroom environment: Creative and stimulating environment of the classroom will help the student to learn innovative ideas.

- Puzzles and games: Learning through puzzles and game is an exciting and interesting task to the students.

2.4 Use Of Artificial Intelligence In Improving Higher Education

Within a short period of time Technology based education has gained a lot of importance and became the essential factor for the new generation. In Today's world the richest countries and human societies are found to be those who have access to the greatest knowledge, awareness and information. The sole purpose of introducing technology in higher education is to broaden one's intellectual horizons. The Student nowadays goes to institution to become equipped with skills and he makes use of those skills to land him/her a well-paying job. But this was not the case in the earlier generation where his/her predecessors were giving a lot of importance to intellectual gratification. Today, it has become easy to learn the courses by directly logging into your online course from the comfort of your living room regardless of the location. This eases the teaching learning process. It is also found that students nowadays prefer learning through audio visual modes for better understanding of the concepts. Besides advancements in technology, the transformation in educational structures and various modes of knowledge dissemination has a lot to owe to the policy changes which have made higher education more influential. Nowadays every student expects quality education. This leads to high expectation of student towards the university to provide them with all the skills so as to gain the employment in good industries that will enhance their prospects of getting a higher return on investment. Artificial Intelligence plays an important role in this regard. Artificial Intelligence is growing at a faster rate. The main factor for market growth is the adoption of ITS (intelligent tutoring systems) in the learning process. ITS is basically a computer system that helps to provide instant and customized feedback to learners. This can be done without the requirement of intervention from a human teacher.

The use of supercomputers in universities which provides feedback at any moment of time is replacing administrative staff. Machine learning is an emerging field which makes use of Artificial Intelligence. Many tasks which are currently done by teachers will be replaced by AI software in the near future. This AI software is based on complex algorithms developed by programmers. But there are some limitations on the use of AI. It is witnessed that the development of new car which relied on AI led to the death of driver in May 2016 when the car was set on autopilot mode which went under the tractor trailer which was not detected by the software. Nowadays research is the main source of funds and prestige in international rankings for institutions, therefore the use of MOOC act as an alternative solution to cut costs due to employment of academic teaching staff for many university administrators [20]. The development of AI can supplement the human thinking process thus overall developing the quality of education. It is found that Google is making effective use of AI for various apps and maps, and also the latest launched cars use AI which give indications from engine section to breaks and also navigation. Self-driving car technology is being developed by companies such as Tesla, Volvo and Mercedes which depends on AI.

AI is defined as the ability of computer systems to behave in ways as that of a human. AI systems are designed so that they can interact with the world. Interaction is with the help of capabilities, such as speech recognition, and intelligent behaviours. Intelligent behaviour involves assessment of a situation and taking sensible actions towards a goal. With the development of AI systems students' skills, such as collaboration and persistence, as well as students' characteristics, such as confidence and motivation can be assessed effectively. For example, iPhone's Siri is developed using the complex set of algorithms and is an excellent example of AI solutions that became part of a day to day life [21].

Large numbers of students are now turning to higher education therefore it will be essential to make use of AI solutions in the future. The academic positions in institutes may be replaced by intelligent machines based on AI in the near future. But this will increase the cost of the system.

III. Conclusion

The system of higher education leads to the growth of a nation. It is observed that various strategies are used in the different institution for the student's engagement. In this era of the young community, it is very necessary to introduce technological educational reforms in higher education and thereby introduce new ideas in teaching and learning method. Any innovative teaching and learning technique is not a quick fix or universal remedy. ICT is very important in increasing the quality and development of the nation. Effective utilization of computers and apps will increase the overall productivity. It cannot replace a conventional teaching methodology in education, however, rather supports it. Innovative methods should be utilized by Teachers so that students can increase their self-esteem. This give rise to free flowing student learning process. However, giving these devices to students usually require techno-savvy teachers. Intelligent Tutoring System is another technique which can be used on a large scale for increasing the quality of technical education. It does not require intervention by the human teacher. Though Artificial Intelligence can help the institutions to grow, but there should be balance so that it should not lead to unemployment due to the reduction of teaching staff in Institution. More Research Projects should be taken by Institutions and students should be involved in those projects so that

students can get practical knowledge of the concepts they are applying during their theory lectures. This will increase the student's enrollment percentage in higher education and also lead to increase in Gross Enrollment Ratio.

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Trend And Forecasts Analysis Of Yield Of Jowar In India Using Sarima Method Of Time Series

M O Wankhade

Abstract: The aim of this paper is to analyse the trend and generate the forecasts of Yield of Jowar in India. SARIMA model of time series is adopted for the analysis and to generate the forecast. The Time series data on yield of Jowar of last 67 years from 1950-51 to 2016-17 is analysed using MINITAB19 statistical software. The test for randomness of the data is carried out by using Ljung-Box statistics and it was observed that the data was random. The forecasts are generated for the period 2017-18 to 2033-34 along with their 95% confidence limits.

Key Words: Jowar, Time Series, Trend analysis, SARIMA, Ljung-Box Statistic.

1. INTRODUCTION

Sorghum known as Jowar being the most important food and fodder crop of dry land agriculture in India is the third important food crop of the country after rice and wheat both in terms of area and production. It grows well at a temperature between 25°C to 35°C and requires a moderate rainfall between 40 cm to 70 cm. [8] Jowar is grown in both the crop seasons Kharip and Rabi. T. V. Lakshmi Kumar et. al. [1] studied the trends of yields of major food grain in India and suggested that Jowar crops need to be paid more attention. An investigation was undertaken to study the growth rate and instability of area, production and productivity of jowar in Western Vidarbha region of Maharashtra by Jagannath et.al [2]. They used exponential growth curve model for the study of area, production and productivity of Jowar. They observed that there is decreasing trend with respect to area, production and yield of Jowar in the districts of Amravati region of Maharashtra. Ankhila R. Handral And Jyoti Prakash Sethy [3] adopted the compound growth rate model for trend analysis with respect to production and productivity of Jowar and Bajra in India and thrown light on increasing relative instability in most of the states, growing Jowar and Bajra. The trends in the growth of the crop sector was presented by Elumalai Kannan, Sujata Sundaram [4] and explained the significant changes in cropping pattern in India. According to them the area under coarse cereals has shown decreasing trend and the area under coarse cereals decreased by 13.3 %. Dr. Parul Mittal and Mrs. Shiksha [5] tried to analyse the trends in production, area and yield of food grains in the pre economic reforms period by using Average Compound Growth Rate model. They observed increasing compound growth rate with respect to area and yield has a positive impact on the growth rate of production of food grains. The study of instability with respect to area and production of major crops using the concept of coefficient of variation as an instability index was made by Jitendra Suman et.al [6].

According to them the crop jowar has high growth and high instability. S. S. Kalama et.al [7] have adopted exponential trend model to examine the growth rate with respect to area, production and yield of principle crops in India for the last 49 years and they observed that area under jowar declined over a period of time.

2 METHODOLOGY

The secondary data of area, production and yield of Jowar is extracted from Agricultural Statistics at Glance 2016 and 2017, Ministry of Agriculture & Farmers Welfare Department of Agriculture, Cooperation & Farmers Welfare Directorate of Economics and Statistics, Government of India. The time series data for the period 1950-51 to 2016-17 is analyzed using Seasonal Autoregressive Integrated Moving Average (SARIMA) method in MINITAB19 software. The forecasts are generated for the period 2017-18 to 2033-34 along with 95% confidence interval for each of the estimates.

SARIMA Model is of the form as under

$$ARIMA(p, d, q) \times (P, D, Q)_h$$

p, d, q and h represent the parameters autoregressive order, differencing order, moving average order and seasonal period respectively.

$$\Phi(B^h)X_t = \Theta(B^h)Z_t \dots\dots\dots(1)$$

where

$$\Phi(B^h) = 1 - \Phi_1 B^h - \Phi_2 B^{2h} - \dots - \Phi_p B^{ph} \dots\dots\dots(2)$$

and

$$\Theta(B^h) = 1 + \Theta_1 B^h + \Theta_2 B^{2h} + \dots + \Theta_q B^{qh} \dots\dots\dots(3)$$

are, respectively, the seasonal AR operator and the seasonal MA operator, with seasonal period of length h.

$$\Phi(B^h)\varphi(B)\nabla^D \nabla^d X_t = \alpha + \Theta(B^h)\theta(B)Z_t \dots\dots\dots(4)$$

$$\Phi(B^m)\Phi(B)(1 - B^h)D(1 - B)^d X_t = \Phi(B^m)\Phi(B)Z_t \dots\dots\dots(5)$$

Z_t is $WN(0, \sigma^2)$

Model Parameters φ and θ are to be estimated by the method of maximum likelihood.

We want to test the hypothesis that the group of autocorrelations $\rho_1, \rho_2, \rho_3, \dots, \rho_k$ is no significant or the data is random. This hypothesis is tested by using Ljung-Box-Pierce statistic which is defined as

$$Q = n(n+2) \sum_{i=1}^k \frac{\rho_i^2}{n-i} \dots\dots\dots(6)$$

Q has chi-square distribution with h-p-q degrees of freedom.

ρ_i is the autocorrelation at i^{th} lag and k is the number of lags to be tested.

H_0 : The time series data is random.

H_1 : The time series data is not random.

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DATA TABLE-1: YIELD OF JOWAR IN QUINTAL/ HECTARE

Year	Yield	Year	Yield	Year	Yield
1950-51	3.53	1973-74	5.44	1995-96	8.23
1951-52	3.81	1974-75	6.43	1996-97	9.57
1952-53	4.2	1975-76	5.91	1997-98	6.97
1953-54	4.55	1976-77	6.67	1998-99	8.59
1954-55	5.27	1977-78	7.39	1999-00	8.47
1955-56	3.87	1978-79	7.08	2000-01	7.64
1956-57	4.51	1979-80	6.99	2001-02	7.71
1957-58	4.99	1980-81	6.6	2002-03	7.54
1958-59	5.03	1981-82	7.27	2003-04	7.16
1959-60	4.84	1982-83	6.57	2004-05	7.97
1960-61	5.33	1983-84	7.25	2005-06	8.8
1961-62	4.4	1984-85	7.15	2006-07	8.44
1962-63	5.29	1985-86	6.33	2007-08	10.21
1963-64	5.01	1986-87	5.76	2008-09	9.62
1964-65	5.36	1987-88	7.62	2009-10	8.6
1965-66	4.29	1988-89	6.97	2010-11	9.49
1966-67	5.11	1989-90	8.69	2011-12	9.57
1967-68	5.45	1990-91	8.14	2012-13	8.5
1968-69	5.23	1991-92	6.55	2013-14	9.56
1969-70	5.22	1992-93	9.82	2014-15	8.84
1970-71	4.66	1993-94	8.95	2015-16	6.97
1971-72	4.6	1994-95	7.79	2016-17	8.89
1972-73	4.49				

Source: Directorate of Economics & Statistics, Gov. of India

3 RESULTS AND DISCUSSION

The time series data is analysed using SARIMA method and the estimated values of the parameter are presented in the table-2.

TABLE-2: FINAL ESTIMATES OF PARAMETERS

Type	Coef	SE Coef	T-Value	P-Value
AR 1	0.843	0.145	5.82	0.000
SAR 3	-0.339	0.297	-1.14	0.258
SAR 6	0.507	0.195	2.60	0.012
SAR 9	0.424	0.136	3.12	0.003
MA 1	0.318	0.197	1.62	0.111
SMA 3	-0.682	0.322	-2.12	0.039
Constant	0.403	0.124	3.25	0.002
Mean	6.31	1.94		

TABLE-3: MODIFIED BOX-PIERCE (LJUNG-BOX) CHI-SQUARE STATISTIC

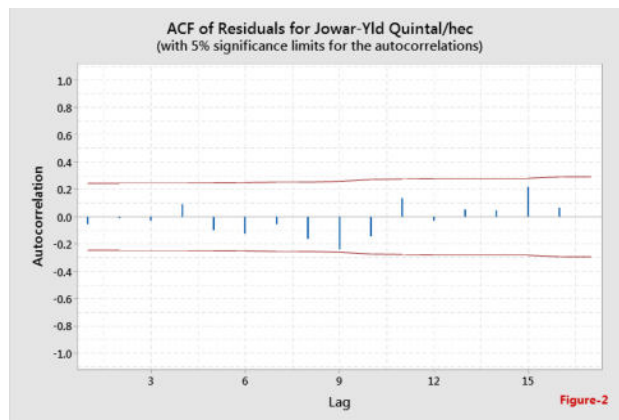
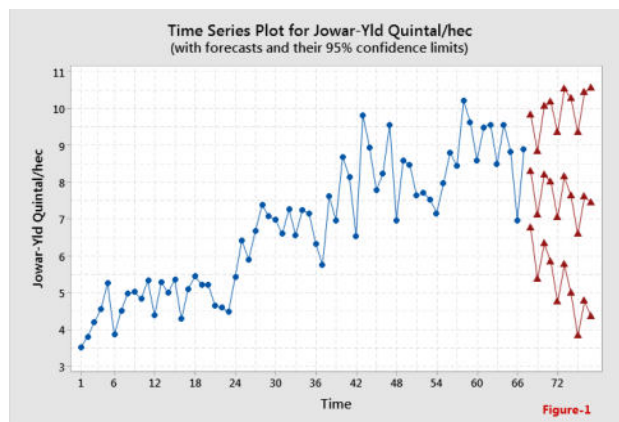
Lag	12	24	36	48
Chi-Square	12.61	22.97	32.87	39.68
DF	5	17	29	41
P-Value	0.027	0.150	0.283	0.529

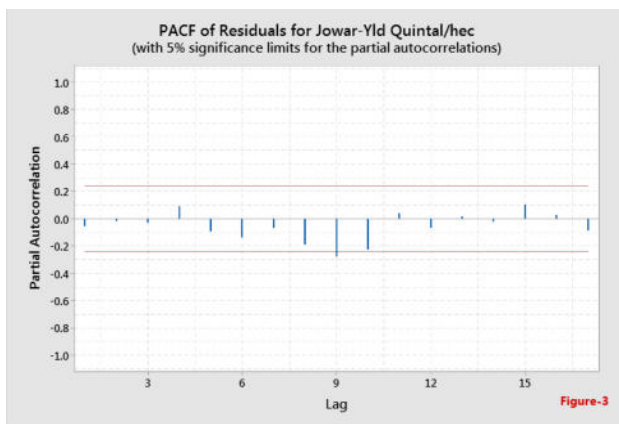
Hypothesis of randomness of the data is tested by Q statistic. The p-value of Q statistics for number of lags is shown in the above table-3. The null hypothesis H0 may be true at 5% level of significant for the number of lags 24, 36 and 48 respectively. This indicates that the data is random. But for the 12 lags the null hypothesis is refuted at 5 % level significance which indicates that the data is not random. The time series plot for yield of Jowar along with 95% confidence limits, Autocorrelation function and partial autocorrelation function are presented as figure-1, figure-2 and figure-3 respectively. The forecasts of yield of Jowar in quintal/hectare for the period 2017-18 to 2033-34 are shown in Table-4

ARIMA MODEL: JOWAR-YIELD QUINTAL/HECTARE

TABLE-4: FORECASTS FROM PERIOD 2017-18 TO 2033-34

Sr. No.	Period	Forecast	95% Limits	
			Lower	Upper
1	2017-18	8.28725	6.75196	9.8225
2	2018-19	7.10226	5.36765	8.8369
3	2019-20	8.19706	6.33361	10.0605
4	2020-21	7.99840	5.83401	10.1628
5	2021-22	7.04562	4.75124	9.3400
6	2022-23	8.13903	5.75650	10.5216
7	2023-24	7.62943	4.98733	10.2715
8	2025-26	6.58691	3.83420	9.3396
9	2026-27	7.61053	4.78176	10.4393
10	2027-28	7.44743	4.34895	10.5459
11	2028-29	6.83215	3.62200	10.0423
12	2030-31	7.51895	4.23167	10.8062
13	2031-32	7.24374	3.83997	10.6475
14	2032-33	6.52960	3.06361	9.9956
15	2033-34	7.28874	3.77916	10.7983





4 CONCLUSION

We observed the forecasts of yield of Jowar in India for the period 2018-2034 ranges from 6.53 (with 95% confidence limits 3.063-9.99) to 8.23 (with 95% confidence limits 6.75-9.82) quintal/hectare by using SARIMA method (Table-4). The figure-1 represents the forecasts along with their 95% confidence intervals. We conclude the data is random by carrying the test of hypothesis based on Ljung-Box statistics. The SARIMA method and Ljung-Box test efficient in statistical modelling and analysis of the time series data and forecasts.

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Trends in Gross Enrolment Ratio of Male Female Enrolment and Expenditure on Higher Education as Percentage of Gross Domestic Product India



M. O. Wankhade

Abstract: Education plays a vital role in development of the society and the nation at large. It prepares and trained staff in any respect levels to manage capital, technology services and administration at each sector within the economy of the nation. India is presently at the stage of demographic transition wherever growth is retardation down however, the population of young people entering the labor/employment force continues to expand.

This young and huge population ought to be educated for the betterment of the state. Gross Enrolment Ratio (GER) in higher education with respect to gender is having increasing trend. The proportion of students enrolling in the higher education has increased significantly during the last two decades and as a result the higher education institutes, private universities, private and government colleges, in India are increasing significantly. Though the government of India has its own limitations towards funding the higher education should formulate the policy of funding to the universities/educational institutes so that the quality and standard in higher education is maintained. The aim of this paper is to study the trends in male, female enrolment and expenditure on higher education as % of Gross Domestic Product (GDP) of country. The secondary data is taken from the annual reports of University Grants Commission, AISHE and Ministry of Human Resource Development of India. The data is analyzed by using MINITAB19 statistical software by fitting quadratic trend and the forecasts for the period 2018-19 to 2027-28 with respect to GER of Male, Female and public expenditure on higher education in India. The accuracy of the fitted model is measured on the basis of Mean Absolute Percent Error (MAPE). It was observed that student enrolment in higher education is increased but the expenditure on higher education as % of GDP has sown decreasing trend after 2000-2001.

Keywords : GER, Higher Education, Gross Domestic Product, Expenditure, Quadratic Trend Analysis.

I. INTRODUCTION

Expenditure on higher education is one of the major concerns, and it requires active participation from the government and private bodies to initiate an action against it. The Scientific Manpower Committee[1] and Radhakrishnan committee[2] suggested expansion, quality improvement and financial support from the government.

The recommendations of these commissions and committees jointly were incorporated in the first three Five Year Plan determinations with quality improvement and expansion of education in India. Punnayya Committee Report on UGC Funding of Institutions of Higher Education [3] (1993) also emphasized that higher education plays vital role for country's economic and technological progress. They suggested that Government funding must continue to support higher education. There are two major players in financing of education in India, firstly public sector and secondly private sector. Financing from public sector includes spending by central government, state government, local bodies and foreign aid which is transferred primarily through central government budgets. During 1956-57, government spending on education sector in India was only Rs 206.31 crores, which include spending of Rs 25.27 crore on higher education and Rs. 7.79 crore on technical education. Government expenditure on education was increased remarkably to Rs 3,374.33 crores out of which expenditure on higher and technical education was increased to 483.66 crore and Rs 136.95 crore respectively during 1980-81. In the period 1990-91, total expenditure on education sector and two of its subsector viz. higher and technical education was Rs. 17193.66 crore, Rs. 2311.85 crore and Rs 753.01 crore[5,6,8]. For the period 2009-10, the amount of government spending has increased to Rs 194642.91 crore, Rs 24831.93 crore and Rs 9469.35 crore[9,10]. During 1990s, budgetary allocations to higher education have been restricted and as a result the higher education sector has suffered badly and led to sharp decline. The public funds have been reduced by many governments capacity to support higher education which resulted into mismatch between demand of higher educational services in the country and its supply. As per UGC annual reports[4] there are 316 private universities in India till December 2018 showing significant increase in educational institutions. The enrollment in private colleges is 64% as per AISHE report 2014. There are more than 78.0% colleges running in Private sector; aided and unaided taken together, but it caters to only 67.3% of the total enrolment.

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II. METHODOLOGY

The secondary data is extracted from the websites of UGC[4,5,6], MHRD for the period 2001-2018[11] and analyzed using MINITAB software. The forecasts are generated for the period 2018-19 to 2027-28.

Quadratic Trend model:

$$Y_t = \alpha + \beta \times t + \gamma \times t^2 \dots\dots(1)$$

Where α , β and γ are the constants to be determined by the method of least squares.

Table-1 The GER of Men and Women in Higher Education

Year	GER Male	GER Female	Public Expenditure on Higher Education As % of GDP
2000-01	9.3	6.7	0.81
2001-02	10.3	7.5	0.63
2002-03	10.6	7.7	0.69
2003-04	11.6	8.2	0.62
2004-05	13.5	9.4	0.66
2005-06	14.5	10	0.78
2006-07	15.2	10.7	0.8
2007-08	15.8	11.4	0.83
2008-09	17.1	12.7	0.9
2009-10	20.8	17.9	0.91
2010-11	22.1	19.4	0.95
2011-12	22.7	20.1	0.9
2012-13	23.9	22.0	0.85
2013-14	25.3	23.2	0.67
2014-15	25.4	23.4	0.64
2015-16	25.4	23.5	0.71
2016-17	26.0	24.5	0.77
2017-18	26.3	25.4	0.75

Source[11]: Extracted from Educational Statistics at a Glance, Ministry of HRD Reports

GER- Gross Enrolment Ratio

ME- Male Enrolment, FE- Female Enrolment

PEHE- Public Expenditure on Higher Education

III. RESULT AND DISCUSSION

i. Fitting of the Model

The Quadratic trend Model fitted for the data are; Male Enrolment :

$$Y_{ME} = 6.658 + 1.498 \times t - 0.0190 \times t^2 \dots\dots(2)$$

Estimated values of constants;

$$\alpha_1 = 6.658$$

$$\beta_1 = 1.498$$

$$\gamma_1 = -0.019$$

Female Enrolment :

$$Y_{FE} = 4.19 + 1.125 \times t + 0.0076 \times t^2 \dots\dots(3)$$

$$\alpha_2 = 4.19$$

$$\beta_2 = 1.125$$

$$\gamma_2 = 0.0076$$

Public Expenditure on Higher Education:

$$Y_{PEHE} = 0.6024 + 0.0447 \times t - 0.002189 \times t^2 \dots\dots(4)$$

$$\alpha_3 = 0.6024$$

$$\beta_3 = 0.0447$$

$$\gamma_3 = 0.002189$$

ii. Measure of Accuracy:

a. Mean Absolute percent Error (MAPE)

$$MAPE = 100 * \frac{1}{n} \sum_{i=1}^n \frac{|Y_t - \hat{Y}_t|}{Y_t} \dots\dots(5)$$

b. Mean Absolute Deviation (MAD)

$$MAD = \frac{1}{n} \sum_{i=1}^n |Y_t - \hat{Y}_t| \dots\dots(6)$$

c. Mean Square Deviation (MSD)

$$MSD = \frac{1}{n} \sum_{i=1}^n |Y_t - \hat{Y}_t|^2 \dots\dots(7)$$

Where

n - the number of observations,

Y_t - observed value

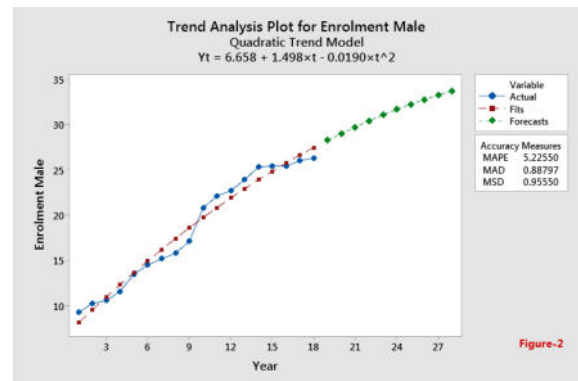
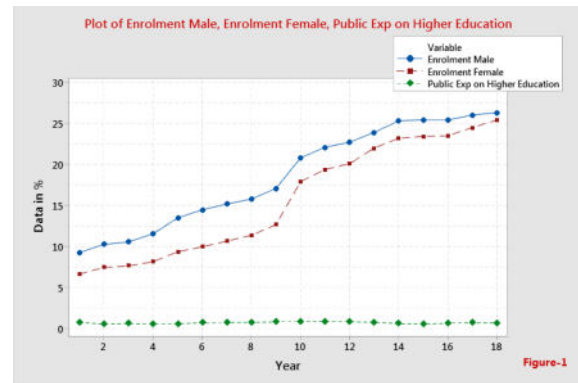
\hat{Y}_t - Estimated value

Table-2 Accuracy measures

Accuracy measures	ME	FE	PEHE
MAPE	5.2255	9.58419	9.77645
MAD	0.88797	1.30685	0.07263
MSD	0.9555	2.08116	0.00754

Table-3 Forecasts Generated

Sr. No	Year	GER Male	GER Female	Public Expenditure on Higher Education
1	2018-19	28.2426	28.3010	0.661422
2	2019-20	28.9981	29.7224	0.620746
3	2020-21	29.7155	31.1591	0.575691
4	2021-22	30.3949	32.6110	0.526259
5	2022-23	31.0362	34.0782	0.472448
6	2023-24	31.6394	35.5605	0.414260
7	2024-25	32.2046	37.0581	0.351692
8	2025-26	32.7318	38.5709	0.284747
9	2026-27	33.2209	40.0989	0.213424
10	2027-28	33.6719	41.6422	0.137722

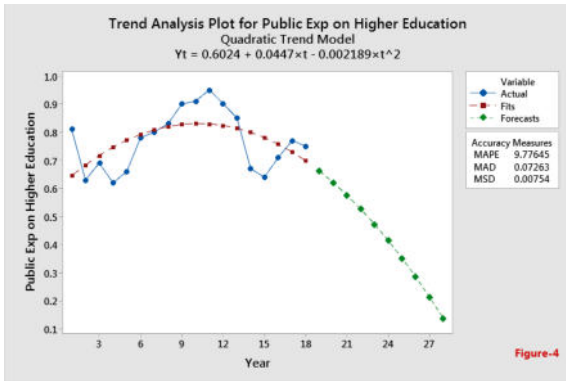
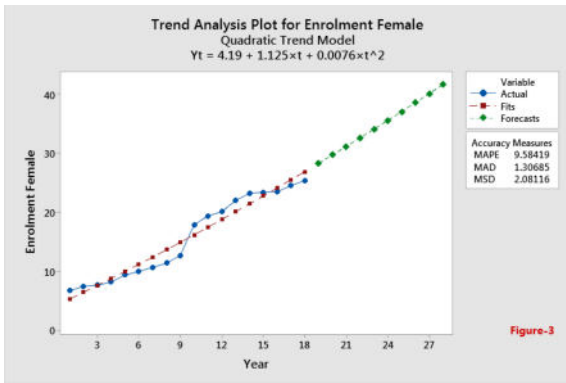


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IV. CONCLUSION

On the basis of mean absolute percent error (MAPE) we observed that quadratic trend model is more accurate for forecasts for the problem under study. Gross enrolment ratio of male and female in higher education is increasing at significant rate (Figure 2 and 3) while the expenditure on the higher education showed decrease (Figure 4). An expenditure on higher education will be decreasing significantly if the same trend continues. An expenditure on higher education will be less than 0.5% of GDP of India from the year 2022-23 and the model predicts that it will be only 0.13% of GDP by the period 2027-28. Finally we conclude that the government should increase public funds for higher education and a policy be framed to maintain the quality and standards in higher education in India .

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Multiple Regression Model For Optimization Of Yield Of Cotton In Rain Fed Zone Of Maharashtra, India

M. O. Wankhade, U. V. Kale

Abstract: This study relates to the optimization of yield of cotton with respect to variations in the monthly rainfall from June to September and the area under crop. Multiple regression model with interaction effects is fitted for the time series data of rainfall, area under cotton and yield of cotton from 1964 to 2018. The optimized solutions for yield of cotton with respect to various combination of monthly rainfall are suggested. Also an interaction effects between monthly rainfall, area under cotton and yield of cotton are studied.

Key Words: Multiple Regression, interactions, optimization, cotton yield, rain fed.

1 INTRODUCTION

Cotton is the most important cash crop of India and Maharashtra is the prominent cotton producing state of India especially Vidarbha and Marathwada regions. The renowned black cotton soil zone comprising of Vidarbha, Marathwada and Khandesh regions of Maharashtra produces about 75% of total cotton production of Maharashtra. The most of the area of Vidarbha and Marathwada being rain fed zone cotton is sown in the month of June-July and the temperature required for normal growth of cotton ranges from 20°C to 40°C. M. O. Wankhade, H. A. Bhosale¹ (2019), have made the comparison of linear, exponential growth curve and quadratic model for trend analysis of area, production and yield of cotton in Maharashtra and observed that quadratic trend model is the best fit as compared other models using the concept of accuracy measures viz. Mean Absolute Percent Error, Mean Absolute Deviation and Mean Square Deviation. Boreal Ecosystems Productivity Simulator for estimation of cotton yield in southern united states was proposed by Liming He, Georgy Mostovoy² 2019 and they found that 80 % of the data was explained by their model. V. Sellam and E. Poovammal³ (2016) used Regression model for the analysis of the effects of various factors viz. area under crop, rainfall and prices of food, on the yield of crop and established the relationship between these factors using linear regression model. Quadratic, pure quadratic, linear, polynomial, interactions and stepwise linear regression model were adopted for estimation of yield of cotton, maize and wheat in India, by A. Shastry, H A Sanjay and E Bhanusree⁴. They studied the accuracy of the regression models on the use of R-square statistics and percentage error. S Bazgeer, Gh. Fadavi and S M Hossainy⁵ (2014) tried to develop regression model for estimation of cotton yield in rain fed District Gharakhil of Iran. They proposed different regression models at two different stages viz. germination stage and squaring stage. Their study revealed that Exponential model are best at germination level while cubic regression model at squaring stage for estimation of yield of cotton. Patel, Amiksha

A. & Kathiriya Dhaval R⁶ (2017) studied effect of rainfall on cotton yield by data mining technique using Gaussian process algorithm in Sabarkantha agricultural region of Gujarat state, India. They observed that there is significant relationship between rainfall and yield of cotton. Raju Prasad Paswan, Shahin Ara Begum⁷ (2013) reviewed artificial neural network and regression models for forecasting and prediction crop yields using different parameters. They observed that neural networks and statistical models together are more suitable for forecasts and prediction of yields. N. J. Rankja, S. M. Upadhyay, H. R. Pandya, B. A. Parmar and S. L.Varmora⁸ developed pre-harvest forecast models for cotton yield considering various weather parameters in Banaskantha district of Gujarat. They suggested that temperature, humidity have significant effect on yield of cotton. Time series and cross-sectional statistical models were applied by David B. Lobell, Marshall B. Burke⁹ (2010) for simulation of historical variability and prediction of the effect of climate changes on crop yield. Their study revealed that statistical models give accurate predictions of crop responses to climate changes. M. Sundar Rajan, M. Palanivel¹⁰ compared various regression models to project the area under cotton, production and productivity cotton in India for 1951 to 2013. They stated that the third degree polynomial models are best for future trends of cotton in India as compared other regression models models, on the basis of R² statistics. Karim, M. R., M. A. Awal and M. Akter¹¹, (2010) focused on various deterministic models of time series viz. linear as well as nonlinear models for forecasting of wheat production in, Dmajpur, Rajshahi, and Rangpur districts of Bangladesh for the period 1971-72 to 2004-05.

2 METHODOLOGY

The monthly rainfall, particularly in June, July, August and September, has vital role for the growth and yield of cotton in rain fed zone of Maharashtra, especially Vidarbha and Marathwada regions. We focused to study the effect of monthly rainfall on cotton yield, interaction effects between monthly (June, July, August and September) rainfall and area under crop as well between monthly rainfall and yield of cotton by fitting Multiple Regression model. The same model is used for determining an optimum yield of cotton in Maharashtra using Minitab19 statistical software. The secondary data on monthly rainfall for the period 1964-2018 from Indian Institute of Tropical Meteorology, Earth System Science Organization Ministry of Earth Sciences Pune, India.

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The data relating to yield of cotton(in bales) and area under cotton (hectare) for the period 1964-2018 in Maharashtra is taken from cotton corporation and cotton advisory board of India.

2.1 MULTIPLE REGRESSION MODEL

- Y_{id}- Yield of cotton (Kg/hectare);
- X₁- Rainfall in the month of June;
- X₂- Rainfall in the month of July;
- X₃- Rainfall in the month of August;
- X₄- Rainfall in the month of September;
- X₅- Area under cotton (in Lakh hectare)

The yield of cotton is function area under the crop, rainfall in June, July and August. Thus yield of cotton is expressed as;

$$Y_{id} = f(X_1, X_2, X_3, X_4, X_5, X_1 * X_5, X_2 * X_5, X_3 * X_5) \dots\dots(1)$$

Multiple regression model with interaction for the data under study is as;

$$Y_{id} = \beta_0 + \sum_{i=1}^5 \beta_i * X_i + \sum_{i=1}^3 \gamma_{i5} * X_i X_5 \dots\dots(2)$$

Where Y_{id} is the dependent variable, Xi (i=1,2,3,4,5) the predictors and βi (i=0,1,2,3,4,5) are regression coefficients to be estimated.

Year	Rainfall				Cotton	
	JUN-AVG (in cm)	JUL-AVG (in cm)	AUG-AVG (in cm)	SEP-AVG (in cm)	Area Lakh hect.	Yield MS Kg/hect.
Year	X1	X2	X3	X4	X5	Yld
1964	138.55	240.15	274.3	208.55	28.24	80
1965	135.8	253	187.75	121.5	26.63	68
1966	66.55	350.45	149.7	204.5	26.11	74
1967	135.35	308.55	145.3	107.5	27.94	87
1968	89.35	254.75	136.2	220.25	27.17	88
1969	122	287.3	160	257.3	28.11	78
1970	283.1	184.35	419.75	214.45	28.12	31
1971	146.6	63.35	224.25	151.3	23.78	69
1972	120.3	103.75	158.55	65.35	25.31	75
1973	91.65	295.9	374.8	160.95	22.47	77
1974	102.85	177.85	219.75	107.45	25.02	112
1975	188.25	251.7	269.95	308.3	23.1	57
1976	99.9	300.55	218	113.65	21.2	67
1977	161.35	195.45	260.85	123.3	23.14	93
1978	217.35	287.15	237.15	65.55	25.09	90
1979	196.25	207.8	259.85	198.75	25.88	111
1980	224.25	194.65	349.65	95.8	26.67	81
1981	154.35	224.8	249.55	317.6	27.1	92
1982	86.4	264.7	134.25	185.3	26.48	103
1983	118.6	266.65	292.8	367.75	26.85	52
1984	66.45	191.15	144.6	87.35	26.85	95
1985	176	231.45	114.5	87.25	27.53	91
1986	160.6	219.75	278.3	99.7	26.92	78
1987	134.1	143.8	264.55	40.65	25.17	96
1988	176.25	355.4	316.25	362.6	26.27	107
1989	197.55	301.1	274.4	157.35	26.35	121
1990	269.35	230.45	447.95	139.65	27.3	93
1991	227.1	276.7	151.7	36.4	27.27	78
1992	203.3	132.4	363.4	146.5	24.8	141
1993	113.05	288.5	170.35	159.35	27.3	156
1994	167.15	316.05	219.95	155.7	27.6	98
1995	136.75	261.85	120.05	188.95	30.7	159
1996	46.85	225.7	229.5	229.45	30.85	182
1997	98.85	193.45	173.85	147.35	31.39	116
1998	164.25	252.1	279.1	255.95	31.99	141
1999	199.55	179.5	186.9	235.35	32.54	199
2000	253.65	285.4	280.5	55	30.77	101
2001	237.8	109.45	344.75	72.35	29.8	195
2002	304.05	88.1	285.8	111.85	28.01	158
2003	130.1	343.9	231.85	95.75	27.66	191

2004	110.75	199.05	153.2	126.4	28.4	311
2005	110.9	404.05	196	195.35	28.75	213
2006	154.25	244.95	342.45	188.95	31.07	274
2007	224.5	228.45	212.65	235.45	31.91	330
2008	108.3	179.8	234.65	272.5	31.33	336
2009	67.95	176.45	155.75	112.4	35.03	319
2010	142.1	345.75	310.05	189.65	39.42	379
2011	110.35	244.65	262	140.55	41.25	313.21
2012	75.15	262.6	183.1	180.6	41.46	332.13
2013	268	419.9	205.35	164.4	41.92	340.65
2014	62.9	227.05	197.15	155.75	41.9	324.58
2015	190.95	83.55	176.05	188.85	42.07	307.11
2016	163.35	386.35	110.4	313.55	38	395.92
2017	145.77	299.84	129.45	278.96	42.07	343.48
2018	99.78	195.89	174.51	110.02	41.19	334

Source:

1. Rainfall: Indian Institute of Tropical Meteorology, Earth System Science Organization Ministry of Earth Sciences Pune, India.
2. Area under crop and yield of cotton in Maharashtra: Cotton Advisory Board of India

3 RESULT AND DISCUSSION

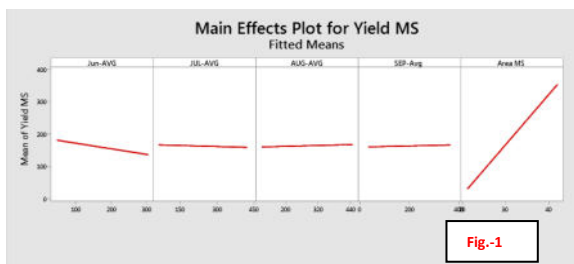
Multiple regression model with first order interactions fitted by using Minitab19 software is;

$$Y_{id} = -177 - 0.375 X_1 - 0.563 X_2 + 0.293 X_3 + 0.017 X_4 + 12.20 X_5 + 0.0067 X_1 X_5 + 0.0182 X_2 X_5 - 0.0091 X_3 X_5 \dots\dots\dots(3)$$

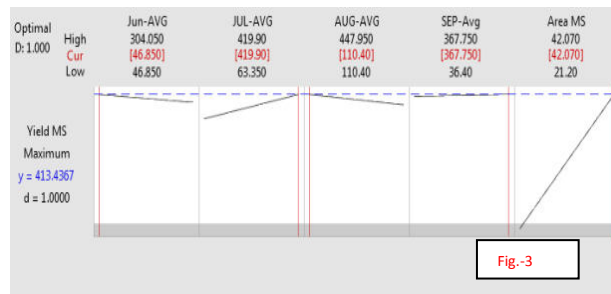
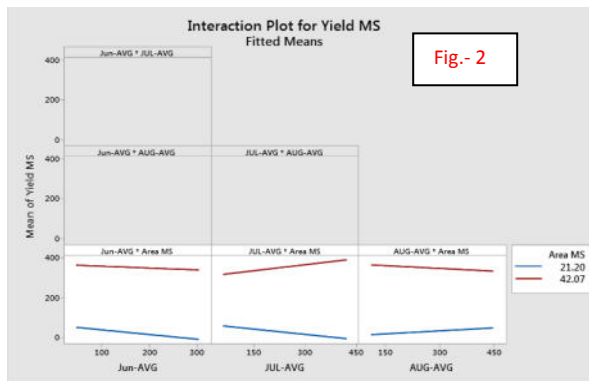
ANOVA TABLE

Source	D F	Adj SS	Adj MS	F-Value	P-Value
Regression	8	446973	55871.6	15.6	0.000
Jun-AVG	1	705	704.7	0.20	0.660
JUL-AVG	1	4266	4266.3	1.19	0.281
AUG-AVG	1	580	580.1	0.16	0.689
SEP-Avg	1	85	85.1	0.02	0.878
Area MS	1	10724	10723.9	2.99	0.091
Jun-AVG*AreaMS	1	228	227.7	0.06	0.802
JUL-AVG*AreaMS	1	4399	4399.4	1.23	0.274
AUG-AVG*AreaMS	1	490	489.9	0.14	0.713
Error	46	165025	3587.5		
Total	54	611998			

3.1 FACTORIAL PLOTS FOR YIELD MS



		7	0	5	7	0
13	46.850	333.327	110.400	367.75	42.07	395.920
14	46.850	419.900	303.355	367.75	42.07	395.920
15	46.850	419.900	303.355	367.750	42.07	395.920



3.1.3 PARAMETERS FOR RESPONSE OPTIMIZATION: YIELD MS

3.1.1 PARAMETERS FOR RESPONSE OPTIMIZATION YIELD MS

Table 1

Response	Goal	Lower	Target
Yield MS	Maximum	31	395.92
Variable	Values		
	Min.	Max.	
JUN-AVG	46.85	304.05	
JUL-AVG	63.35	419.9	
AUG-AVG	110.4	447.95	
SEP-Avg	36.4	367.75	
Area MS	21.2	42.07	

Table 3

Response	Goal	Lower	Target
Yield MS	Maximum	31	395.92
Variable	Values		
	Min.	Max.	
JUN-AVG	46.85	304.05	
JUL-AVG	63.35	419.9	
AUG-AVG	110.4	447.95	
SEP-Avg	36.4	367.75	
Area MS	21.2	37.2	

3.1.4 OPTIMUM SOLUTIONS-2

3.1.2 OPTIMUM SOLUTIONS-1

Table 2

Solution	Jun-AVG	JUL-AVG	AUG-AVG	SEP-AVG	Area MS	Yield MS Fit
1	46.850	419.900	110.400	367.75	42.07	413.43
2	46.850	419.900	110.400	36.40	42.07	407.65
3	237.482	419.900	110.400	367.75	42.07	395.92
4	237.482	419.900	110.400	367.75	42.07	395.92
5	46.850	416.599	112.156	367.75	42.07	412.60
6	46.850	416.599	112.156	36.702	42.07	406.83
7	237.482	419.900	110.400	367.75	42.07	395.92
8	237.482	419.900	110.400	367.75	42.07	395.92
9	237.482	419.900	110.400	367.75	42.07	395.92
10	46.850	333.327	110.400	367.75	42.07	395.92
11	46.850	333.327	110.400	367.75	42.07	395.92
12	46.850	333.327	110.400	367.75	42.07	395.92

Table 4

Solution	Jun-AVG	JUL-AVG	AUG-AVG	SEP-AVG	Area MS	Yield MS Fit
1	46.850	419.900	110.400	367.75	37.20	320.20
2	46.850	419.900	110.400	367.75	37.20	320.20
3	175.450	250.800	110.400	367.75	37.20	284.928
4	46.850	63.368	110.400	367.75	37.20	279.641
5	46.850	63.350	349.150	367.75	37.20	268.573
6	46.850	63.350	389.675	367.75	37.20	266.694
7	46.850	63.350	110.401	367.75	35.622	259.662
8	46.850	63.350	110.401	36.400	35.992	258.569
9	46.850	419.895	447.950	367.75	34.173	255.926
10	238.084	63.350	110.400	367.75	37.200	255.794
11	46.850	419.892	447.950	36.401	34.523	255.762
12	241.403	63.350	110.400	367.75	37.200	255.381



As the rainfall increases from 46.8 cm in June (Fig.-3, Fig.-4) the yield of cotton shows the downward trend. An increase in the rainfall in July shows an increase in the yield of cotton while increase in the rainfall in August results in decrease in the yield of cotton. There is no significant effect of rainfall in September on the yield of cotton. There is significant main and interaction effect (Fig.-1, Fig.-2) between the area under cotton, rainfall in June, July and August. An optimum solution for yield of cotton (Table-2, Table-4) under various parameters (Table-1, Table-3) are presented.

4 CONCLUSIONS:

We observed that multiple regression model with interaction effects is effective method to study of effect of rainfall in the various months from June, July, August September, and area under crop on the yield of cotton. The model showed that there is significant main and interaction effect of rainfall in June, July and August on the yield of cotton. Also the area under crop significantly effects the yield of cotton. We suggest that multiple regression model may be used for determining the optimum combinations of monthly rainfall, area under crop and yield of the crop.

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A Study Of Gender Parity With Respect To Education Of Scheduled Tribes In India

M. O. Wankhade

Abstract: This paper relates to the study of gender parity on the higher education of scheduled tribes in India. The time series data for the period 2005-06 to 2016-17 is taken for the study. Pearl Reed S-shape logistic curve and quadratic models are fitted for data under study and trends are estimated. The forecasts are generated for next 20 years under both the models. The estimated trend values as well as the forecasts so generated are tested for significance of difference between the models used. It was observed that there was no significant difference between the models for trend values but they are significantly different for forecasts. We reveal that Pearl Reed S-shape logistic curve is the curve of best fit for the problem under study.

Key Words: Gender Parity, Scheduled tribes, higher education, Pearl Reed curve S curve, Quadratic curve, Trend.

1 INTRODUCTION

The gender parity index is a universally accepted measure for equality between girls and boys with respect to enrolment in schools and colleges. It takes only non-negative value as it is the ratio of female to boys enrolled in schools/colleges. If it is equal to unity then it is an indication of equality between male and female enrolment in schools and/or colleges. A gender parity index with less than unity is an indication of male enrolment is higher than female enrolment while gender parity index with greater than unity indicates that female enrolment is higher than male enrolment. The higher the value of gender parity index higher is the equality of access between males and females. (1,12) Jayachandran S (2) has expressed the roots of gender inequality in developing countries and suggested the several mechanisms for economic development by empowering women and reducing gender gaps. Dunn D. has represented a descriptive picture of scheduled caste and tribe women's status in Indian society and revealed that social and economic development plays an important role to reduce the disadvantage of scheduled tribe women. She relied on the gender parity as important aspect for overall development of the country. The strategies for improving gender parity to promote deprived women of Coochbehar district, West Bengal, India have been suggested by S Chaudhary and D Sarkar.(14) They observed that gender parity plays the key role for improvement of scheduled tribe and scheduled castes women. Esther Duflo(8) relied upon women favouring policies has significant effect on achievement of gender equality and ultimately women empowerment. Tribal populations continue to have one of the lowest enrolments and retention rates as well as learning outcomes in the country.(1, 2) . A rigorous study of adjustment of tribal students in their schools on the basis of economic conditions has been made by Jeena Shelly(10) and suggested that every stake holder of the education system should attempt for better atmosphere in schools so that dropout rate of tribal's be decreased. Jobin Joy and M. Srihari(11) studied the factors affecting the dropout among scheduled tribe students in their case study of Wayanad district, Kerala and they suggested to conduct awareness and motivational programs for the tribal to recognize the importance of education. An attempt was made by Dhar Diva ,

Tarun Jain & Seema Jayachandran (13) to study the role of parents towards gender equality by conducting a survey in Haryana India. They emphasized on the importance of parent-children relationship for gender equality considering educational and social factors. The only means for ensuring gender equality and empowerment is the education. GPI, which is free from the effects of the population structure of the appropriate age group, provides picture of gender equality in education from the year 2005-06 onwards remarkable development has been achieved towards gender equality in education of scheduled tribes.(3,4,5,6,7)

2 METHODOLOGY

In this study Pearl Reed S-shape logistic curve and quadratic trend models are used for analysis of Gender Parity among Scheduled Tribe students with respect to higher education. The trend values are estimated under both the models and also forecasts for next 20 years are generated assuming the normal conditions. Both these models are separately tested for estimated trends as well as forecasts generated using Student's t test. Also the fitted models are tested on the basis of accuracy measures viz. mean absolute percent error (MAPE), mean absolute deviation (MAD) and mean square deviation (MSD) using MINITAB software.

i. Quadratic trend Model:

$$Y_t = \alpha_0 + \alpha_1 * t + \alpha_2 * t^2 \dots\dots\dots(1)$$

ii. S-Curve Pearl Reed Logistic Trend Model

$$Y_t = \frac{10^{\alpha}}{(\beta + \gamma * \delta^t)} \dots\dots\dots(2)$$

Where α_0 , α_1 , α_2 , α , β , γ , and δ are the constants to be determined.

Table1
 Gender Parity Index for Scheduled Tribe Students

Year	Higher Education	Year	Higher Education
2005-06	0.55	2011-12	0.78
2006-07	0.58	2012-13	0.79
2007-08	0.54	2013-14	0.81
2008-09	0.58	2014-15	0.81

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2009-10	0.57	2015-16	0.83
2010-11	0.74	2016-17	0.85

Source: Gov. India MHRD Department of School Education & Literacy New Delhi 2016, 2017

3 RESULTS AND DISCUSSION

The fitted Quadratic trend Model and S-Curve Pearl Reed Logistic Trend Model using MINITAB are as;

3.1 QUADRATIC TREND MODEL:

$$Y_t = 0.4711 + 0.0412xt - 0.00067xt^2$$

$$\alpha_0 = 0.4711, \alpha_1 = 0.412 \text{ and } \alpha_2 = 0.00067$$

3.2 PEARL REED S-SHAPE LOGISTIC MODEL

$$Y_t = \frac{10^1}{(9.68806 + 11.6379 * 0.860532^t)}$$

$$\alpha = 1, \beta = 9.68806, \gamma = 11.6379 \text{ and } \delta = 0.860532$$

Table-2

Year	GPI Higher Education ST	Quadratic Trend Model	Pearl Reed S-shape logistic Model
		Estimated Trend Q	Estimated Trend S
2005-06	0.55	0.511621	0.507540
2006-07	0.58	0.550772	0.546265
2007-08	0.54	0.588589	0.584652
2008-09	0.58	0.625072	0.622282
2009-10	0.57	0.660222	0.658769
2010-11	0.74	0.694038	0.693775
2011-12	0.78	0.726521	0.727019
2012-13	0.79	0.757670	0.758287
2013-14	0.81	0.787485	0.787430
2014-15	0.81	0.815967	0.814363
2015-16	0.83	0.843114	0.839060
2016-17	0.85	0.868929	0.861543
Accuracy measures	MAPE	5.75815	5.62473
	MAD	0.03698	0.03586
	MSD	0.00183	0.00177

We are testing the models with respect to estimates of trend values at 5% level of significance. The null hypothesis set up is

$$\mu_1: \text{Mean of Trend S curve}$$

$$\mu_2: \text{Mean of Trend Q curve}$$

$$\text{Null hypothesis } H_0: \mu_1 - \mu_2 = 0$$

$$\text{Alternative hypothesis } H_1: \mu_1 - \mu_2 \neq 0$$

TEST

T value	DF	P Value
-0.05	21	0.96

Null hypothesis H_0 is accepted at 5% level. This indicates that there is no significant difference between the models fitted.

Table-3

Sr. No.	Year	Forecasts Generated Under	
		Quadratic Trend Model	S-Curve Trend Model
1	2017-18	0.89341	0.88188
2	2018-19	0.91656	0.90016
3	2019-20	0.93837	0.91651
4	2020-21	0.95885	0.93107
5	2021-22	0.97799	0.94396
6	2022-23	0.99581	0.95535
7	2023-24	1.01229	0.96538
8	2024-25	1.02743	0.97417
9	2025-26	1.04124	0.98187
10	2026-27	1.05372	0.98859
11	2027-28	1.06486	0.99445
12	2028-29	1.07467	0.99955
13	2029-30	1.08315	1.00398
14	2030-31	1.09029	1.00782
15	2031-32	1.09610	1.01115
16	2032-33	1.10058	1.01404
17	2033-34	1.10372	1.01653
18	2034-35	1.10553	1.01869
19	2035-36	1.10600	1.02055
20	2036-37	1.10514	1.02216

We are testing the models with respect forecasts generated at 5% level of significance. The null hypothesis set up is

$$\mu_1: \text{Mean of Forecasts S curve}$$

$$\mu_2: \text{Mean of Forecasts Q curve}$$

$$\text{Null hypothesis } H_0: \mu_1 - \mu_2 = 0$$

$$\text{Alternative hypothesis } H_1: \mu_1 - \mu_2 \neq 0$$

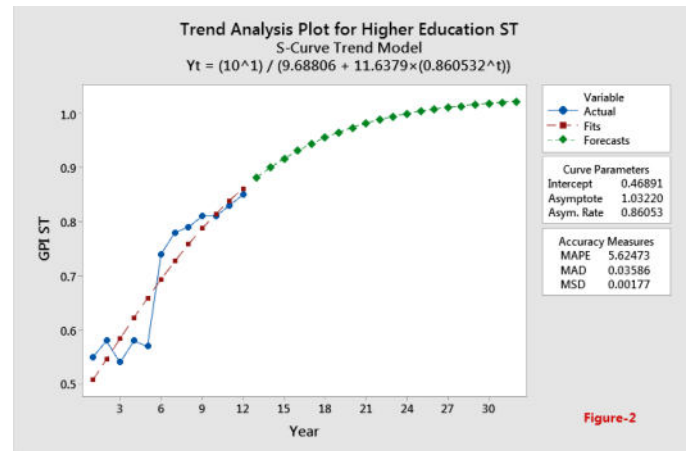
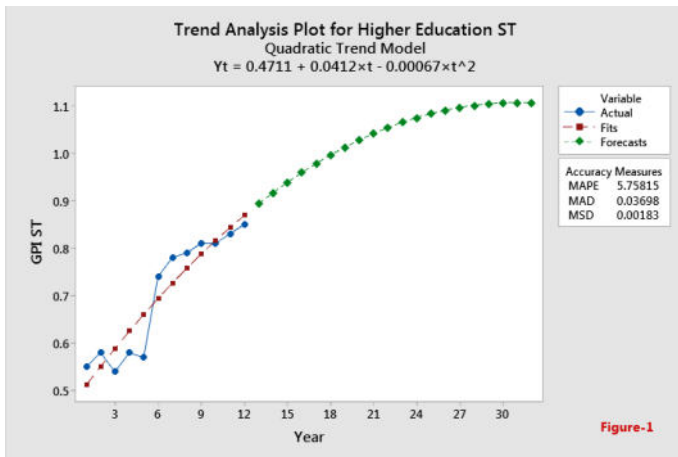
TEST

T value	DF	P Value
-3.30	31	0.002

We reject the Null hypothesis H_0 at 5% level as P-value is less than 0.05. This indicates that there is significant difference between the models fitted with respect to forecasts.

Sample	N	Mean	StDev	SE Mean
Trend S	12	0.700	0.118	0.034
Trend Q	12	0.703	0.117	0.034

Sample	N	Mean	StDev	SE Mean
Forecast S	20	0.9774	0.0428	0.0096
Forecast Q	20	1.0373	0.069	0.015



4 CONCLUSIONS

We conclude that the quadratic trend model and the S-curved model are not significant with respect to estimates of trend values. But there is significant difference between these two models with respect the forecasts generated at 5% level. S-curved model is more appropriate model as compared to quadratic model on the basis of accuracy measures for this type of data which depends upon time. The quadratic model shows rapid increase in the gender parity in higher education of scheduled tribes as compared to S-curved model (Table-2). If the gender wise enrolment in higher education of scheduled tribes is exhibiting S-curve trend then the gender equality will be achieved in the year 2029-30 on the other hand if the data exhibits quadratic trend the gender equality may be achieved in 2022-23 (Table-3). By comparing the accuracy measures and current enrolment of scheduled tribes in higher education we suggest that S-curved trend models will be more appropriate for this phenomenon.

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Analysis Of Gender Wise Enrolment Trend In Higher Education In India

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Abstract: This study relates to the male and female enrolment trends in higher education since 2001. The Winter's method is adopted to analyze the gender wise trend of enrolment in higher education under multiplicative and additive models of time series. The forecasts are generated for the period 2016-2055 along with 95% predictive intervals under both the models and comparisons are made. It was observed that female enrolment has an increasing trend while male enrolment showed decreasing trend. For the year 2024 the female and male enrolment are nearly same but afterwards female enrolment will be more than male enrolment. If the same trend continues then in 2055 the female (male) enrolment is observed to be 76.91% (25.27%) and 75.66% (24.34) under multiplicative and additive models respectively. We do not found any significant difference between multiplicative and additive models.

Key Words: Higher Education, Gender, Enrollment, Trend, Winters Method.

1. INTRODUCTION

Higher Education plays vital role in the overall development of the nation and it determines the socio-economic and technological growth of the country. The education facilities in the field of science and technology have been significantly improved over the period of years which resulted in significant growth over last three decades. The number of universities, educational institutes, both aided and unaided, has increased to promote higher education and research since last 20 years in India. The quality higher education leads to enhanced productivity and economic prosperity for the country. It is the gateway to economic security and opportunity, particularly for women in India. The progress of women is equated with the progress of the nation. The Indian Government has introduced policies favoring gender equity and women empowerment through education. Since last 20 years women enrolment in Higher education has shown very significant growth in India. Uma Pujar (2014) observed that gross enrolment ratio in higher education in India has been significantly increased to 17.9% from 12.3% during eleventh plan and it was six times over the period of last 30 years. The enrolment in professional courses such as engineering and medicine has significant growth. The relationship between education expenditure and economic growth for the period 1951-2011 was established by S. G. Dastidar & M. Chatterji (2015). S. R. Ahmad & Mohammad Un Nisa(2017) emphasized on privatization of higher education in India and they observed that Indian higher education system has shown impressive growth over last decade and the increase in the number of private educational institutes resulted in increased enrolment in higher education. Approximately 60% students are enrolled in private institutes in India. S. Samuel Ravi (2015) argued that privatization of higher education has resulted in significant increase in student enrollment and degree holders. The critical issues relating to quality and quantity of higher education in India were discussed by S. S. Hiremath & D. R. Albal (2016). M. Chahal (2015) has thrown light on growth in higher education in terms of institutions enrolment and suggested that the challenges of Indian economy should be overcome through proper policy formation and implementation.

An Ancient rich tradition of excellence in higher education has continued over time in India post independence India has witnessed tremendous efforts for sustainable higher education by Indian government was explained by D. Sen (2016). He also argued that the period since 1947 to 1986 was the period of massive improvement in higher education and 1986 onwards massive privatization in Indian higher education system. N. Kumari & A. Sharma (2017) revealed that higher education has a vital role in securing socio-economic progress. According to them higher education helps in improving income distribution and promote entrepreneurship and technological advances. Soloman A David (2017) argued that theoretical and empirical exploration confirmed that access in higher education in India is achieved through all doors such as privatization, financial interests, reservation etc.

2 METHODOLOGY:

The secondary data relating to enrolment in higher education is taken from annual report of University Grants Commission India for the year 2014-15, 2015-16 and AISHE survey 2015-16. Holt (1957) and Winters (1960) developed the method for smoothing of the exponential trends to capture seasonal component. The Holt-Winters method includes the forecast equation and three smoothing equation viz. single, double and triple smoothing of the data. In single smoothing concept it is assumed the absence of trend and seasonal fluctuation in the data. Double smoothing data model assumes the presence of trend only and no seasonal variations while in triple smoothing is done assuming the trend as well as seasonal fluctuations in time series. In this study we have used the triple smoothing of the data and choosing smoothing level (α), trend (γ) and seasonal component (δ) arbitrarily for the analysis using MINITAB 19 software.

Winters' Multiplicative model:

$$T_t = \gamma(L_t - L_{t-1}) + (1 - \gamma)[T_{t-1}] \dots \dots \dots (5)$$

$$S_t = \delta \left(\frac{Y_t}{L_t} \right) + (1 - \delta)S_{t-1} \dots \dots \dots (6)$$

$$\hat{Y}_t = [L_{t-1} + T_{t-1}]S_{t-p} \dots \dots \dots (7)$$

Where L_t is the level at time t , α the weight for given level, T_t the trend component, γ the weight of trend, S_t seasonal component, δ the weight associated to seasonal component, p the period of seasonal fluctuations, Y_t the actual response at

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the time t , \hat{Y}_t is the estimated response at time t .
 The forecasts are generated under the multiplicative model for the various periods (k).

$$\hat{Y}_t(\text{forecast}) = [L_t + T_t]S_t + k - p \dots\dots\dots(8)$$

Accuracy measure for the model efficiency used Mean Absolute Percent Error (MAPE), Mead Absolute Deviation (MAD) and Mean squared Deviation (MSD) are;

$$MAPE = \frac{1}{n} \sum \left| \frac{Y_t - \hat{Y}_t}{Y_t} \right| \times 100 \dots\dots\dots(9)$$

$$MAD = \frac{1}{n} \sum |Y_t - \hat{Y}_t| \dots\dots\dots(10)$$

$$MSD = \frac{1}{n} \sum [Y_t - \hat{Y}_t]^2 \dots\dots\dots(11)$$

Students Enrolment in Higher education :India 2001-02 to 2015-16 Source: UGC Reports 14-15, 15-16, AISHE 2015-16		
Year	Female Enrolment%	Male Enrolment%
2001-02	39.20	60.80
2002-03	38.84	61.16
2003-04	39.23	60.77
2004-05	38.36	61.64
2005-06	37.09	62.91
2006-07	35.77	64.23
2007-08	34.89	65.11
2008-09	35.83	64.17
2009-10	35.26	64.74
2010-11	37.75	62.25
2011-12	42.67	57.33
2012-13	39.04	60.96
2013-14	44.40	55.60
2014-15	46.92	53.08
2015-16	47.27	52.73

TABLE No. 1

3 RESULTS AND DISCUSSION:

The data is analyzed with the Winters' method with parameters, level $\alpha = 0.2$; Trend $\gamma = 0.2$; Season $\delta = 0.2$, assuming multiplicative time series model and the forecasts so generated up to year 2055 relating to female and male enrolment in higher education in India and are presented in table No 2. The accuracy measures mean absolute percent error, mean absolute deviation and mean squared deviation for female as well as male enrolment along with and 95% predictive intervals are estimated by using MINITAB 19 statistical software and are presented in Table No. 2. Winter methods plot for female and male enrolment and time series plot of forecasts are presented in figure 1, figure 2 figure 3 and figure 4 respectively under multiplicative and additive model. Mean absolute deviation and Mean squared deviation for male enrolment are greater than that of female enrolment. The mean absolute percent error for female enrolment is less than that of male enrolment.

Winter's Method Results using multiplicative and Additive models;

Winter's Method Results using multiplicative and Additive model	
Smoothing Constants: Level $\alpha = 0.2$; Trend $\gamma = 0.2$; Season $\delta = 0.2$	
Forecasts Generated in %	Forecasts Generated in %

Year	Multiplicative Model		Additive Model		Year	Multiplicative Model		Additive Model	
	F-F-Mult	M-F-Mult	F-F-Add	M-F-Add		F-F-Mult	M-F-Mult	F-F-Add	M-F-Add
2016	44.2	55.7	44.2	55.7	2036	59.9	40.37	59.9	40.2
2017	46.2	53.9	46.1	53.8	2037	62.3	38.8	61.6	38.3
2018	45.8	54.2	45.8	54.2	2038	61.5	38.8	61.3	38.6
2019	47.8	52.4	47.6	52.3	2039	63.9	37.3	63.2	36.7
2020	47.3	52.6	47.3	52.6	2040	63.1	37.2	62.9	37.1
2021	49.4	50.9	49.2	50.7	2041	65.6	35.8	64.7	35.2
2022	48.9	51.1	48.9	51.0	2042	64.6	35.7	64.4	35.5
2023	51.0	49.4	50.7	49.2	2043	67.2	34.3	66.3	33.6
2024	50.5	49.6	50.4	49.5	2044	66.2	34.2	66.0	33.9
2025	52.6	47.9	52.3	47.6	2045	68.8	32.8	67.8	32.1
2026	52.1	48.0	52.0	47.9	2046	67.8	32.6	67.5	32.4
2027	54.3	46.4	53.8	46.1	2047	70.4	31.3	69.4	30.5
2028	53.6	46.5	53.5	46.4	2048	69.3	31.1	69.1	30.8
2029	55.9	44.9	55.4	44.5	2049	72.0	29.8	70.9	29.0
2030	55.2	44.9	55.1	44.8	2050	70.9	29.6	70.6	29.3
2031	57.5	43.4	57.0	43.0	2051	73.6	28.2	72.5	27.4
2032	56.8	43.4	56.6	43.3	2052	72.5	28.0	72.2	27.7
2033	59.1	41.8	58.5	41.4	2053	75.2	26.7	74.1	25.9
2034	58.3	41.9	58.2	41.7	2054	74.1	26.5	73.7	26.2
2035	60.7	40.3	60.1	39.8	2055	76.9	25.2	75.6	24.3

TABLE No. 2

- i. F-F-Multi- Female enrolment forecast under multiplicative model.
- ii. M-F-Multi- Male enrolment forecast under multiplicative model.
- iii. F-F-Add- Female enrolment forecast under additive model.
- iv. M-F-Add- Male enrolment forecast under additive model.

Accuracy Measures				
Accuracy Measures	Multiplicative Model		Additive Model	
	F-F-Mult	M-F-Mult	F-F-Add	M-F-Add
MAPE	6.0001	4.4543	6.0455	4.4306
MAD	2.5200	2.5517	2.5379	2.5379
MSD	12.7003	12.8451	12.7622	12.7622

TABLE No. 3

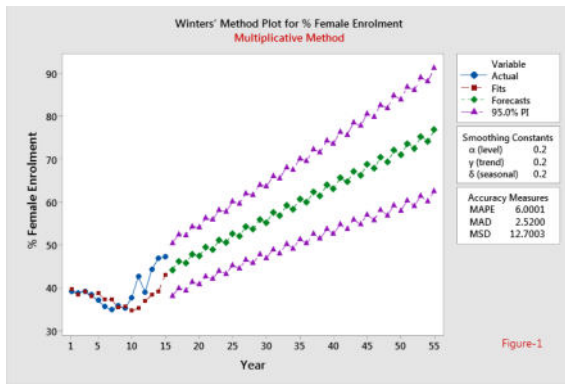


Figure-1

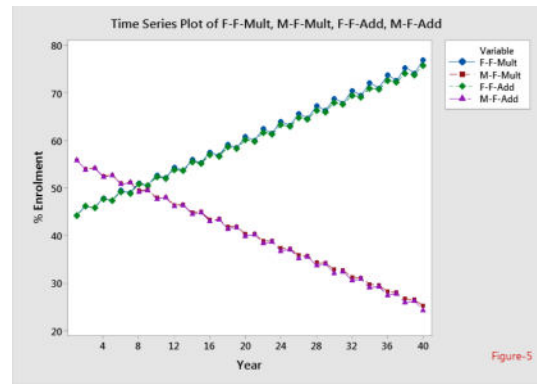


Figure-5

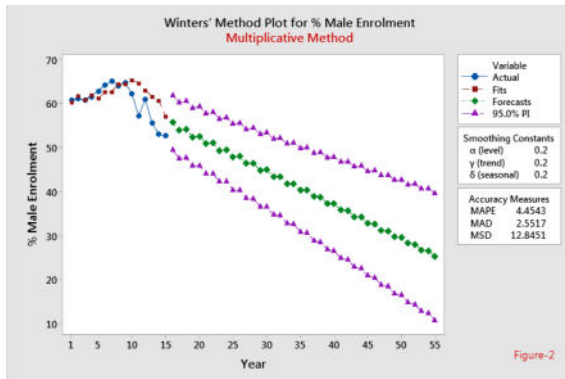


Figure-2

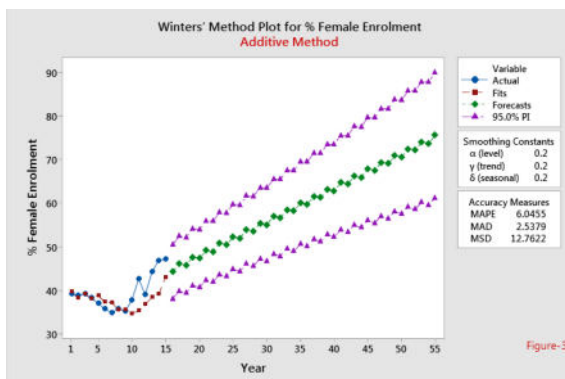


Figure-3

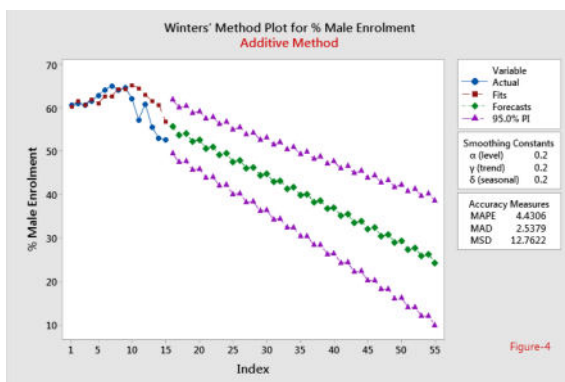


Figure-4

4 CONCLUSIONS:

The gender wise forecasts generated for the period 2016-2055 by using Winter's method under multiplicative and additive model of time series reveals that female enrolment has an increasing trend while male enrolment showed decreasing trend. The figure-1 and figure-3 depict the increasing trend of female enrolment in higher education while figure-2 and figure-4 depict decreasing trend of male enrolment in higher education under both the models. For the year 2024 the female and male enrolment found to be near about same but afterwards female enrolment is more than male enrolment. We conclude that if the same trend continues then in 2055 the female (male) enrolment will be 76.91% (25.27%) and 75.66% (24.34) under multiplicative and additive models respectively. On the comparison of accuracy measures MAPE, MAD, MSD and figure-5 we conclude that there is no significant difference between multiplicative and additive models.

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Trend Analysis With Respect To Area, Production And Yield Of Cotton In Maharashtra

M. O. Wankhade, H. A. Bhosale

Abstract: This study relates to the trend analysis of Area under cotton, production and productivity in Maharashtra, India. Time series data for last 54 years (from 1964-65 to 2017-18) is collected. Comparative study of Growth curve model, Linear trend model and Quadratic Trend models is made and the forecasts are generated for 10 years. Accuracy measures for estimates viz. Mean square deviation (MSD), Mean absolute percent error (MAPE) and mean absolute deviation (MAD) are used for suggesting the best model. On the basis of MSD, MAPE and MAD, we observed that quadratic trend model provides more accurate estimates as compared to growth curve model and linear trend model.

Key Words: Cotton, Linear, Growth curve, quadratic trend, MAPE, MSD, MAD

Introduction:

Cotton (*Gossypium* spp) is the most important crop in India. Maharashtra, Gujarat, Andhra Pradesh, Telangana and Karnataka are most cotton producing states in India. The four major cotton producing countries are China, India, USA and Pakistan which accounted for approximately three quarters of world output.⁵ In India, cotton plays a key role in the national economy in terms of both employment generation and foreign exchange earnings. By way of exports, foreign exchange earnings of cotton amount to about Rs. 50000 crores, which is nearly one-third of the total foreign exchange earnings of output country. It is expected to increase significantly in the coming years with the termination of quota regime in the liberalized trade scenario.³ India is currently first in area, second in yarn production and third in raw cotton production in the world. The cotton crop is cultivated in 12.3 million hectares with a production of 29.3 million bales each of 170 Kgs, at an average of 518 kg/ha. in 2017-18.2 Among Indian cotton growing states Gujarat, Maharashtra and Madhya Pradesh, contributed near about 60 per cent of the total cotton production in India. Andhra Pradesh and Telangana is main producer of cotton in southern part on India. Gujarat, Maharashtra, Madhya Pradesh, Andhra Pradesh, Telangana, Tamil Nadu, Rajasthan, Haryana, Punjab and Karnataka accounted for more than 95 per cent cotton production in India. In Maharashtra area under cotton is 42 lakh hectares, production 85 lakh bales of cotton and yield 343.48 kg/hectare. Maharashtra contribute more than one-third of cotton area and near about one-fifth of cotton production in the country.^{1,2} Maharashtra had three distinct cotton regions i.e. Vidarbha with assured rainfall, Marathwada lower rainfall than Vidarbha and rest of Maharashtra.

Methodology:

In the present study data are collected on area under cotton, production and yield (kg/hectare) from various publication and official websites of department of agriculture Maharashtra state,

Epitome of agriculture in Maharashtra-part 2, Directorate of Economics and Statistics Government of India, Handbook of statistics on the Indian Economy, Cotton Advisory Board of India and The Economic Outlook For U.S. Cotton 2018. The data have been collected for the period 1964-65 to 2017-2018. Growth curve model, Linear trend model and Quadratic Trend models are compared for analysis of trend with respect to area under crop (million hectares), production (million bales) and yield (kg/hectare) in the state of Maharashtra for the period 1964-2018. Accuracy measures for estimates viz. Mean square deviation (MSD), Mean absolute percent error (MAPE) and mean absolute deviation (MAD) are used for suggesting the best fit model for given time series data. Forecasts for 10 periods are generated and residual analysis in made using MINITAB 19.

Growth curve model: $Y_t = a * b^t$

Linear trend model : $Y_t = a + b * t$

Quadratic Trend model : $Y_t = a + b * t + c * t^2$

Mean square deviation : $MSD = \frac{1}{n} \sum_{t=1}^n [Y_t - \hat{Y}_t]^2$

Mean absolute percent error: MAPE

$$MAPE = \frac{1}{n} \sum_{t=1}^n \left[\left| \frac{Y_t - \hat{Y}_t}{Y_t} \right| \right] * 100$$

Mean absolute deviation (MAD)

$$MAD = \frac{1}{n} \sum_{t=1}^n |Y_t - \hat{Y}_t|$$

Area, production and Yield of cotton in Maharashtra			
Year	Area	Production	Yield
	Lakh hectare	Lakh bales (bale= 170 kg)	kg/hectare
1964-65	28.24	12.51	80
1965-66	26.63	10.03	68
1966-67	26.11	10.75	74
1967-68	27.94	13.53	87
1968-69	27.17	13.57	88
1969-70	28.11	12.14	78
1970-71	28.12	4.82	31
1971-72	23.78	9.17	69
1972-73	25.31	10.53	75
1973-74	22.47	10.16	77
1974-75	25.02	17.17	112
1975-76	23.1	7.72	57
1976-77	21.2	8.33	67
1977-78	23.14	12.63	93
1978-79	25.09	13.17	90
1979-80	25.88	16.95	111
1980-81	26.67	12.69	81
1981-82	27.1	14.65	92
1982-83	26.48	16.09	103
1983-84	26.85	8.14	52
1984-85	26.85	14.67	95

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1985-86	27.53	19.89	91
1986-87	26.92	8.88	78
1987-88	25.17	14.67	96
1988-89	26.27	13.73	107
1989-90	26.35	22.11	121
1990-91	27.3	15	93
1991-92	27.27	12.48	78
1992-93	24.8	20.5	141
1993-94	27.3	25	156
1994-95	27.6	15.84	98
1995-96	30.7	28.74	159
1996-97	30.85	33	182
1997-98	31.39	21.5	116
1998-99	31.99	26.5	141
1999-2000	32.54	38	199
2000-01	30.77	18.25	101
2001-02	29.8	34.25	195
2002-03	28.01	26	158
2003-04	27.66	31	191
2004-05	28.4	52	311
2005-06	28.75	36	213
2006-07	31.07	50	274
2007-08	31.91	62	330
2008-09	31.33	62.1	336
2009-10	35.03	65.75	319
2010-11	39.42	87.75	379
2011-12	41.25	76	313.21
2012-13	41.46	81	332.13
2013-14	41.92	84	340.65
2014-15	41.9	80	324.58
2015-16	42.07	76	307.11
2016-17	38	88.5	395.92
2017-18	42.07	85	343.48

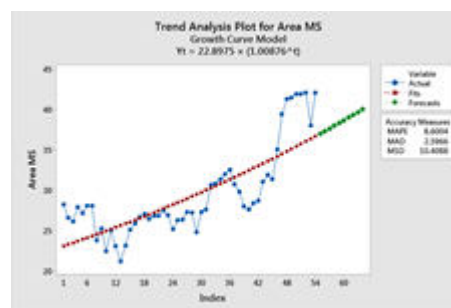
Source: Cotton Advisory Board of India

2.1 Fitted Trend Curves for Area under cotton:

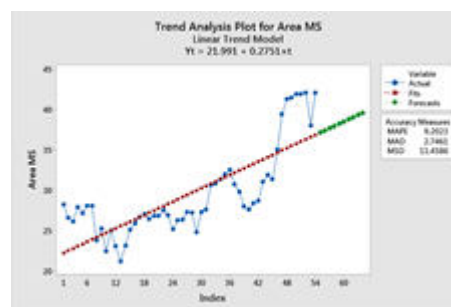
Accuracy measures	Fitted Trend equations under		
	Growth Curve Model	Linear Trend Model	Quadratic Trend Model
	$Y_t = 22.8975 * (1.00876^t)$	$Y_t = 21.991 + 0.2751 * t$	$Y_t = 28.025 - 0.3714 * t + 0.01176 * t^2$
MAPE	8.6004	9.2023	6.24397
MAD	2.5966	2.7461	1.83783
MSD	10.4088	11.4586	4.94125
Year	Forecasts		
2018	36.9928	37.1228	43.1575
2019	37.3169	37.3980	44.0910
2020	37.6438	37.6731	45.0480
2021	37.9735	37.9482	46.0285
2022	38.3062	38.2234	47.0325
2023	38.6417	38.4985	48.0600
2024	38.9802	38.7736	49.1110
2025	39.3217	39.0488	50.1855
2026	39.6662	39.3239	51.2836
2027	40.0136	39.5990	52.4051

(MS-Represents Maharashtra in all figures)

a. Growth Curve model: For area under cotton.



b. Linear trend model: For area under cotton



Results and Discussion:

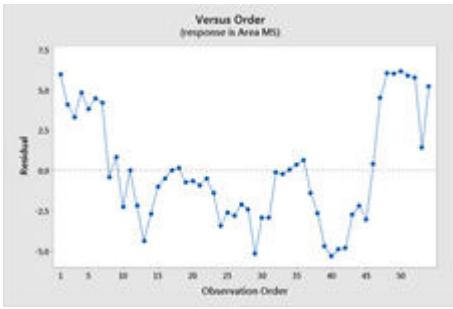
1. Statistical measures:

Statistical measures are computed and presented in the following table.

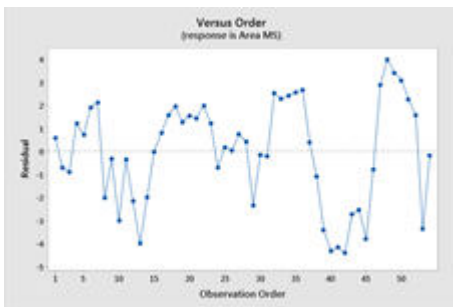
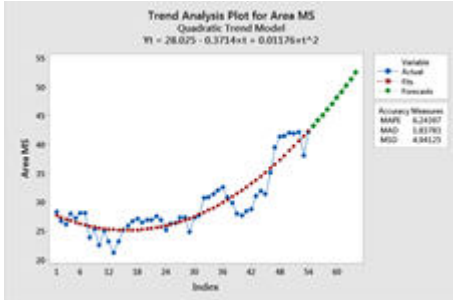
Statistical Constants	Area (Lakh hectare)	Production Lakh bales (bale= 170 kg)	Yield (kg/hectare)
Mean	29.5566	30.7566	161.1126
Standard Error	0.7504	3.5291	14.2682
Standard Deviation	5.5145	25.9341	104.8496
Coefficient of Variation	18.6575	84.3202	65.0784

2. Trend Analysis:

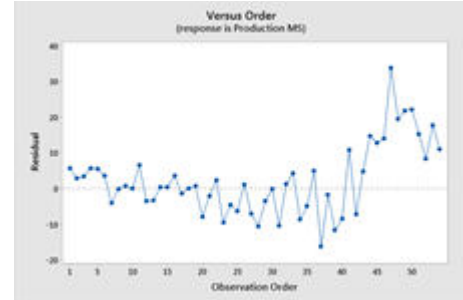
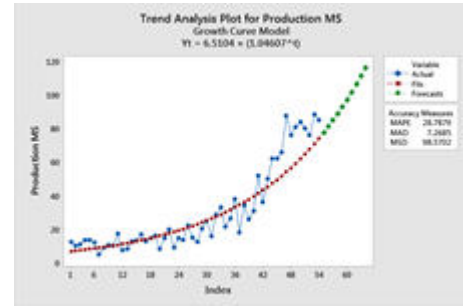
Growth curve model, Linear trend model and Quadratic trend model are fitted for area under crop, production of cotton and yield of cotton in Maharashtra using the principle of least squares in MINITAB 19.



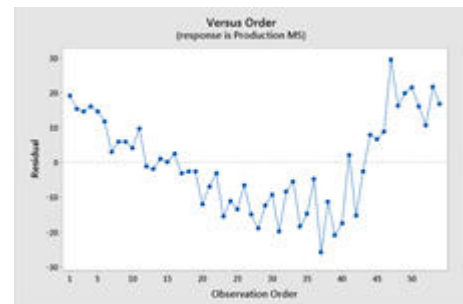
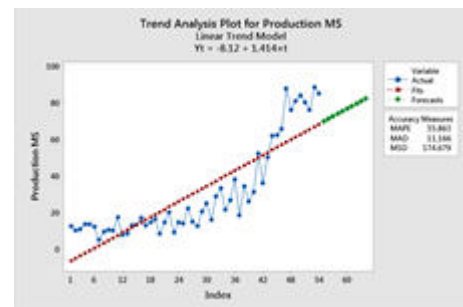
c. Quadratic Trend Model: For area under cotton



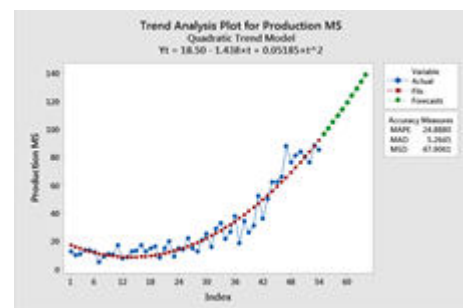
a. Growth Curve model: For Production of cotton bales



b. Linear trend model: For Production of cotton bales

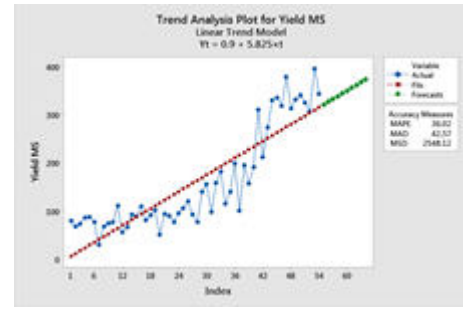
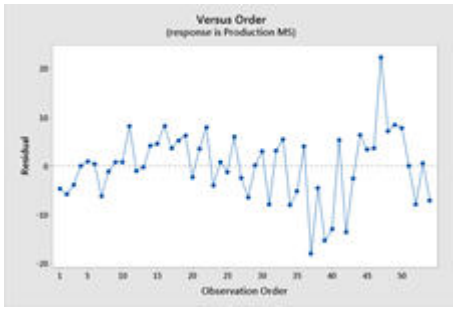


c. Quadratic Trend Model: For Production of cotton bales



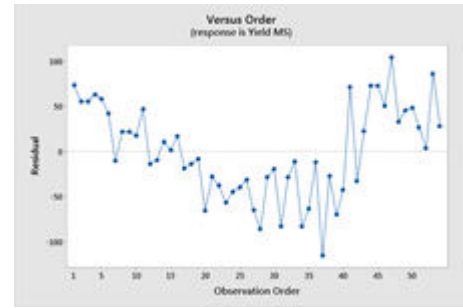
2.1 Fitted Trend Curves for Production of cotton:

Accuracy measures	Model		
	Growth Curve Model	Linear Trend Model	Quadratic Trend Model
	$Y_t = 6.5104 * (1.04607^t)$	$Y_t = -8.12 + 1.414*t$	$Y_t = 18.50 - 1.438*t + 0.05185*t^2$
MAPE	28.7879	55.863	24.8880
MAD	7.2685	11.166	5.2645
MSD	98.5702	174.679	47.9061
Year	Forecasts		
2018	77.529	69.6319	96.247
2019	81.101	71.0456	100.564
2020	84.837	72.4592	104.985
2021	88.746	73.8729	109.510
2022	92.834	75.2865	114.138
2023	97.111	76.7002	118.870
2024	101.585	78.1138	123.706
2025	106.265	79.5274	128.645
2026	111.161	80.9411	133.688
2027	116.282	82.3547	138.835

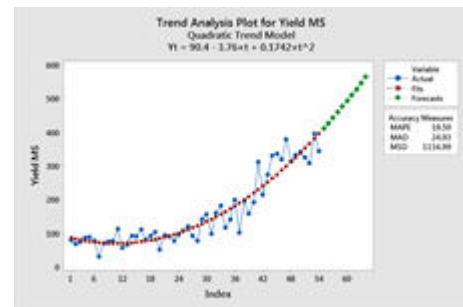


2.2 Fitted Trend Curves for Yield of cotton:

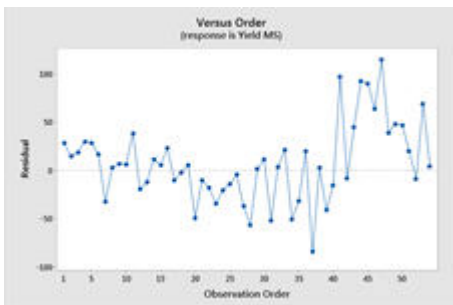
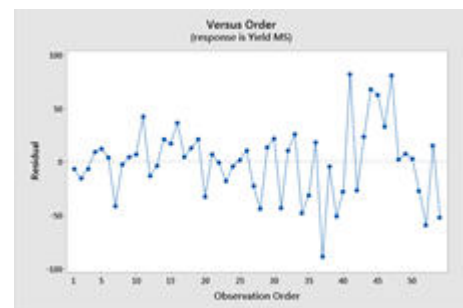
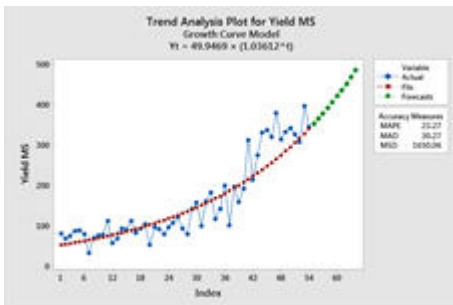
Accuracy measures	Model		
	Growth Curve Model	Linear Trend Model	Quadratic Trend Model
	$Y_t = 49.9469 * (1.03612^t)$	$Y_t = 0.9 + 5.825 * t$	$Y_t = 90.4 - 3.76 * t + 0.1742 * t^2$
MAPE	23.27	36.02	19.59
MAD	30.27	42.57	24.93
MSD	1650.06	2548.12	1116.99
Year	Forecasts		
2018	351.697	321.294	410.720
2019	364.402	327.119	426.300
2020	377.565	332.944	442.229
2021	391.205	338.769	458.506
2022	405.337	344.594	475.131
2023	419.980	350.418	492.105
2024	435.151	356.243	509.427
2025	450.871	362.068	527.098
2026	467.158	367.893	545.117
2027	484.034	373.718	563.485



c. Quadratic Trend Model: Yield of cotton (kg/hectare)



a. Growth Curve model: Yield of cotton (kg/hectare)



b. Linear trend model: Yield of cotton (kg/hectare)

Conclusion:

The study reveals that an average area under cotton is found to be 29.56 lakh hectares with coefficient of variation 18.66%, Cotton production 30.76 lakh bales with coefficient of variation 84.32% and Yield 161.11 kg per hectare with coefficient of variation 65.078%. We observed that there is 18.66% variation in area under crop, 84.32% variation in production and 65.078% in yield kg/hec. of cotton. There is more variability in production of cotton bales as compared to area under crop and yield per hectare of cotton. Accuracy measures viz. MAPE, MAD and MSD reveals that quadratic trend model is the best fit as compared to growth curve and linear trend models for the data under study. Quadratic trend model showed higher forecasts values than growth curve and linear trend model. Linear trend model leads to the lower forecasts. the residuals are observed to be at lower side in quadratic trend model than

other two models under study. We conclude that quadratic trend model is the best fit model for the trends in area, production and yield of cotton in Maharashtra.

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A Study Of Use Of Smokeless And Smoking Forms Of Tobacco Among Agriculture Workers Of Villages In Murtizapur India

M. O Wankhade, H. S. Lunge

Abstract: Use of both the forms smokeless and smoking of tobacco has increased during last 20 years in rural as well as in urban part of country. A sample data from 2924 workers engaged in agriculture farming in villages of Murtizapur tahsil of Akola district of Maharashtra India, was collected for various age groups. Two way Analysis of variance was carried out and 95% confidence interval are estimated for Tobacco, gutkha, Snuff chewers and smokers. It was observed that there are significant difference among age groups with respect to habit of use of tobacco, gutkha, snuff and smoking and also significant difference among Tobacco, gutkha, Snuff chewers and smokers. The pair wise comparison between various age groups is made by using critical difference.

Key words: Tobacco, Gutkha, Agriculture workers, ANOVA, confidence intervals, box-plot, critical difference

1. Introduction:

The smokeless form of tobacco refers to the consumption of tobacco, gutkha and snuff. Gutkha is sold in two forms locally made and product of gutkha companies. Locally made gutkha is prepared at paan centres. The second type of gutkha is sold under brand name of companies in sachets. Both these type of gutkha contains tobacco. The term snuff refers to the tobacco powder which is inhaled in nasal cavity. It is also used for teeth and gum cleaning in rural areas. The use of smokeless and smoking form of tobacco is increasing day by day in India and it has been observed that extensive use of Gutkha and tobacco could contribute to the development of oral cancer, Shah G et. al.⁷. The main reason for the use of tobacco in either forms in the rural areas is the lack of education and awareness among the people. Banerjee SC et. al.¹ observed people are using tobacco as mouth freshening, support for digestion, germ killing, astringency, mood enhancement, tension relief and oral cleaning. According to GATS³ In India about 10 lakh people die due to tobacco related diseases. GATS³ (Global Adult Tobacco Survey) revealed that more than 35% of adult in India use tobacco in various forms. According to GATS survey figures more than 163.7 million people use smokeless form, 68.9 million smoke while 42.3 million use both smokeless and smoking form of tobacco in India. Tobacco users, smokers and smokeless tobacco users in rural part of India is 35%, 15.1% and 29.3% respectively. The tobacco situation is unique because of vast spectrum of tobacco products available for smokeless and smoking use.

2. Methodology:

The sample data was collected from 2924 workers engaged in agriculture from a cluster of 6 villages Murtizapur, India. The main enquiry was set for data on chewing of tobacco, gutkha, snuff and smoking in the different age groups from the age of 18 years to 62 years.

The persons below 18 years and above 62 years were deliberately excluded from the study. Two way ANOVA was carried out to test the significance of difference among various age groups with respect to use of smokeless and smoking form of tobacco and also the significance of difference among four categories viz. chewing of tobacco, gutkha, snuff and smoking. The 95% confidence intervals for each of the above categories are estimated and data related to chewing of tobacco, gutkha, snuff and smoking are presented as box-and-whisker plot. Critical Difference (CD), the least significant difference for the pair wise comparison between the group means is used to identify the significantly different age groups with respect to use of either forms of tobacco.

3. Analysis and Results:

Data is analyzed as Two way ANOVA model for testing hypotheses related to differences among age groups with respect use of different forms of tobacco. Also the significance of difference among tobacco chewers, gutkha chewers, snuff users and smokers is tested. The significance of difference between smokeless tobacco users and smoking forms is also tested.

Age groups	Smokeless tobacco Users			Smokers	Total users	Samples
	Tobacco chewer	Gutkha	Snuff			
18-22	9	26	0	16	51	215
22-26	13	67	0	47	127	229
26-30	18	69	1	81	169	319
30-34	22	84	2	61	169	345
34-38	14	47	2	32	95	259
38-42	17	35	4	22	78	263
42-46	10	22	8	13	53	185
46-50	13	30	3	31	77	225
50-54	20	34	8	30	92	289
54-58	17	14	7	24	62	290
58-62	28	9	9	13	59	305
Total	181	437	44	370	1032	2924

3.1. Two way model:

The linear model is

$$x_{ij} = \mu + \alpha_i + \beta_j + \varepsilon_{ij}$$

$$(i = 1, 2, 3, \dots, k; j = 1, 2, 3, \dots, h)$$

$$(k = 11 \text{ and } h = 4)$$

$$\mu - \text{General average effect which always constant}$$

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α_i - is the effect due to i th row (age group)
 β_j - effect due to j th column (form of tobacco use).
 ϵ_{ij} - Error effects due to chance.

3.2. Hypotheses to test

- i. H_{01} : No significant difference among age groups with respect to use of tobacco in different forms.
- ii. H_{02} : All the different forms of tobacco are insignificant.

ANOVA					
Source of Variation	SS	df	MSS	F observed	F critical
Rows	4666.909	10	466.691	2.25362	2.16458
Columns	8755.455	3	2918.485	14.09318	2.92227
Error	6212.545	30	207.085		
Total	19634.91	43			

Both the hypotheses under the study are refuted at 5% significant level. Critical difference (CD) for testing pair wise differences between various age-groups and between different forms of use of tobacco is;

$$CD = t(0.05, errorDF) * \sqrt{[s_E^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)]}$$

$$CD_{tobacco-form} = 1.697 * \sqrt{[207.0848 \left(\frac{1}{11} + \frac{1}{11} \right)]}$$

$$CD_{tobacco-form} = 10.41297$$

$$CD_{Age-group} = t(0.05,30) * \sqrt{[s_E^2 \left(\frac{1}{4} + \frac{1}{4} \right)]}$$

$$CD_{Age-group} = 1.697 * \sqrt{[207.0848 \left(\frac{1}{4} + \frac{1}{4} \right)]}$$

$$CD_{Age-group} = 11.87258$$

3.3 Pair wise comparison:

As the absolute difference for the pairs shown in the table is greater than CD there is significant difference between the pairs at 5% level;

Form	Significant	Absolute difference
Tobacco	Gutkha	23.273
	Snuff	12.455
	Smoking	17.182
Gutkha	Snuff	35.727
Smoking	Snuff	29.636

- i. Tobacco and Gutkha chewers, Tobacco chewers and snuff users, tobacco chewers smokers.
- ii. Gutkha chewers and snuff users.
- iii. Smokers and snuff users.

Pair wise comparison among different age groups

	Significant age groups	Absolute difference between average
18-22	22-26	19
	26-30	29.5
	30-34	29.5
22-26	38-42	12.25
	42-46	18.5
	46-50	12.5
	54-58	16.25
	58-62	17
26-30	34-38	18.5

	38-42	22.75
	42-46	29
	46-50	23
	50-54	19.25
	54-58	26.75
	58-62	27.5
	30-34	34-38
38-42		22.75
42-46		29
46-50		23
50-54		19.25
54-58		26.75
58-62		27.5

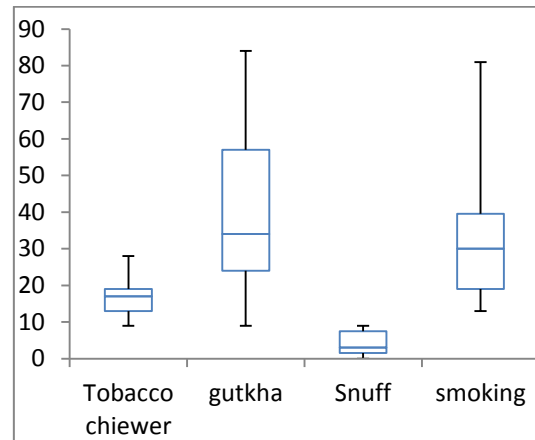
3.4. Confidence intervals:

The 95% Confidence intervals for average are estimated as;

Sr. No.	95% Confidence interval	
1	Tobacco chewer	16.45455 ± 3.120553
2	Gutkha chewers	39.72727 ± 13.65385
3	Snuff users	4 ± 1.919042
4	Smokers	33.63636 ± 12.06434

3.5 Box plot:

Representation of various forms of use of tobacco as box plot.



Conclusion:

It was observed that 35.29% of village workers use tobacco in both the forms, viz. smokeless and smoking forms. Use of tobacco in Smokeless form is found to 22.64% and that of smoking form is 2.65%. It was further revealed that age groups differ significantly with respect to use of tobacco in various forms. On pair wise comparison using critical difference among various forms of use of tobacco we observed that there is significant difference among groups of tobacco chewers, gutkha chewers, snuff users and smokers. Among these forms of use of tobacco there is no significant difference between habit of chewing gutkha and smoking. By comparing pair wise differences using critical difference we observed that the age groups differ significantly with respect use of tobacco in any form. More than 50% percent of people in the age groups 22-26, 26-30 and 34-38 use tobacco in smokeless and smoking form. Further 95% Confidence intervals; for tobacco chewers, gutkha chewers, snuff users and smokers are estimated as 16.455±3.121, 39.727 ± 13.654, 4 ± 1.919 and 33.636± 12.064 respectively. There is high proportion of people using tobacco in any form, specially use of gutkha, in the age group 22-34 years. We suggest

counseling to the workers to quit the use of tobacco, gutkha and smoking as these people are not aware of effects of tobacco and gutkha on human health.

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Effect of 3-Sigma and Six sigma in Banking sector : A case study

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EFFECT OF 3-SIGMA AND SIX SIGMA IN BANKING SECTOR : A CASE STUDY

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Abstract: Six Sigma is a powerful business strategy which has been used in various sector for quality improvement. This paper is a self analytical continuous improvement process to make out an information center on variation by using the statistical tools and techniques. In this case study to determine the process standard deviation (SD) and process capability (C_p) apply the normal distribution control limit based on Six Sigma for 3-Sigma and 6-Sigma. C_p value can be obtained using $C_{p3} = \frac{USL - LSL}{6\sigma}$ and $C_{p6} = \frac{USL - LSL}{12\sigma}$ and Z for standard normal variate. For specified SD and Z the value of σ is calculated from $\sigma = \frac{USL - LSL}{6Z}$ for value for 3-Sigma and $\sigma = \frac{USL - LSL}{12Z}$ for value for 6-Sigma, which represent the effect of 3-sigma & 6-sigma.

Key words: 3-sigma, Six Sigma and Process methods, Six Sigma Control Chart, Statistical quality control

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اردو افسانہ، آغاز و ارتقا

ڈاکٹر محمد راغب محمد طالب دیشمکھ

صدر شعبہ اردو

جی۔ ایس۔ سائنس، آرٹس اینڈ کامرس کالج

کھام گاؤں ضلع بلڈانہ

اردو میں داستان کا باقاعدہ آغاز فورٹ ولیم کالج کامرہون منت ہے۔ بعد ازاں داستانوں کے خلاف بطور رد عمل اور کچھ انگریزی اثرات کے باعث اردو ناول وجود میں آیا۔ ناول میں پہلی دفعہ بے سرو پاپاتوں اور مافوق الفطرت عناصر کے بجائے زندگی کے حقائق کو پیش کیا جانے لگا۔ ناول کے ساتھ ہی مختصر افسانہ کا وجود بھی عمل میں آیا جو سبب تھا انسان کی بڑھتی ہوئی مصروفیات اور مغربی اثرات کا۔ افسانہ دراصل مشینی دور کی پیداوار ہے کہ اس دور میں انسان کے لیے داستانیں اور ناول پڑھنے کا وقت نہیں ہے۔

افسانہ کی تعریف کے حوالے سے مختلف آراء سامنے آ رہی ہیں۔ اس لیے اس کی جامع تعریف مشکل ہے۔ تاہم ہم کہہ سکتے ہیں کہ افسانہ ایک خاص پس منظر میں کسی خاص یا عام واقعات یا تصور زندگی کے کسی پہلو کو فنکارانہ انداز میں پیش کرنے کا نام ہے۔ افسانہ اختصار کا متقاضی ہوتا ہے لیکن اس کے ساتھ ساتھ اس میں قصہ، پلاٹ، کردار نگاری، وحدت تاثر اور اسلوب کی چاشنی بھی از حد ضروری ہے۔ ان سب اصول و ضوابط کے باوجود افسانے کا فن جامد و ساکن نہیں ہے۔ یہی وجہ ہے کہ جدید افسانہ تجربات کامرہون منت ہے۔ یہ ضروری نہیں کہ ایک افسانہ نگار انہی قواعد و ضوابط کو افسانہ لکھتے وقت پیش نظر رکھے بلکہ وہ خود بھی تجربات کر سکتا ہے۔ ان تجربات کا انحصار افسانہ نگار کی ذہنی صلاحیتوں پر ہے کہ وہ کس نوعیت کی تخلیق پیش کرتا ہے۔ اردو افسانے کے آغاز کے حوالے سے اگرچہ سجاد حیدر یلدرم، نیاز فتح پوری، علامہ راشد انجیری اور خواجہ حسن نظامی کا ذکر بھی کیا جاتا ہے لیکن اردو افسانے کی ابتدا کاسبر حقیقتاً منشی پریم چند ہی کے سر بندھتا ہے۔

وجہ یہ ہے کہ انہوں نے نہ صرف تو اتر سے افسانے لکھے بلکہ اس کے ارتقائی سفر میں بھی اہم کردار ادا کیا ہے۔ یہ انہی کا دم تا کہ اردو افسانہ نئی تخلیق فنا اور ماحول سے آشنا ہوا۔ یہ پریم چند ہی ہیں جو اردو افسانے کو داستان ماحول سے الگ کر کے زندگی کے قریب لائے۔ ان کے ہاں ہندوستانی معاشرہ اپنے حقیقی روپ میں نظر آتا ہے۔

ان کے کردار اپنے گرد و پیش کی نمائندگی کرتے ہیں۔ ان کے ہاں کسان، مزدور اور غریب طبقے کے گھرانوں اور ان کے ماحول کا ذکر بہت باریک بینی سے کیا گیا ہے۔ پریم چند کے افسانوں میں ہندوستانی کسان، مزدور اور غربت کی چکی میں پتے پتے ہوئے پریشان حال لوگوں کی

عادات و اطوار اور رسم و رواج کا ایسا نقشہ کھینچا گیا ہے کہ جیتی جاگتی تصویریں ہمارے سامنے آجاتی ہیں۔ ہریم چند اپنے افسانوں کے ذریعے اخلاقی درس دیتے ہوئے دکھائی دیتے ہیں، اُن کے کردار محنت اور انسانی عظمت کے مختلف پہلوؤں کو اجاگر کرتے ہیں۔ وہ اپنے کرداروں کی مدد سے معاشرتی برائیوں کی اصلاح کا کام بھی لیتے ہیں۔ ہریم چند ایک باشعور اور بالغ ذہن ادیب کی حیثیت سے اپنے دور میں اٹھنے والی آزادی کی آہنگ سے بھی لا تعلق نہیں رہتے۔ اس حوالے سے اُن کے افسانے 'آشیاں'، 'باڈا اور ڈائل' کا قیدی اُن کے بدلتے ہوئے رجحانات کی ترجمانی کرتے ہیں۔ عمر کے آخری حصے میں ہریم چند ترقی پسند تحریک سے وابستہ ہوئے۔ انہوں نے 1936ء میں منعقدہ ترقی پسند مصنفین کی پہلی کانفرنس کی صدارت بھی کی۔ ترقی پسند تحریک کے زیر اثر ہی انہوں نے افسانہ 'کفن' لکھا۔ تاہم وہ دیگر ترقی پسندوں کی طرح کسی خاص نظریے کا پرچار نہیں کرتے بلکہ اُن کی تحریروں میں مقصد زیر سطح ہی رہتا ہے۔

اردو افسانے کا ایک اور نمایاں نام کرشن چندر کا ہے۔ کرشن چندر بنیادی طور پر مارکسیت پر یقین رکھنے والے افسانہ نگار ہیں یہی وجہ ہے کہ وہ دیگر اشتراکی ادیبوں کی طرح ادب برائے اور شدت سے حقیقت نگاری کے قائل ہیں لیکن اُن کے ہاں پائی جانے والی رومانیت اُن کے اشتراکی ذہن کے ساتھ ہم آہنگ ہو کر ایک دلکش امتزاج کا سبب بنتی ہے۔ بقول ڈاکٹر انور سدید، کرشن چندر طبعاً رومانی ضرور ہیں لیکن ان کی معروفیت گہرے سماجی شعور کی عکاس ہے (2)۔ کرشن چندر سماج اور انسانی مسائل کو اہم موضوعات کے طور پر قبول کرتے ہیں۔ اُن کے ہاں وسیع تر مشاہدہ کی نمائندگی ہوتی ہے۔ وہ معمولی واقعات سے بھی افسانے تخلیق کر ڈالتے ہیں۔ اُن کے ہاں زندگی کا ربط اور بے ربطی پر دونوں کا اظہار افسانوں کی شکل میں ہوا ہے۔

کرشن چندر کا شمار اہم ترقی پسند افسانہ نگاروں میں ہوتا ہے۔ اپنے افسانوں میں وہ زندگی کے حقائق اور مسائل بیان کرتے وقت بھی ترقی پسند نظریات کو پیش نظر رکھتی ہیں۔ جہاں تک کرشن چندر کی حقیقت نگاری کا تعلق ہے تو اس سے قطع نظر کہ وہ ترقی پسند تحریک سے وابستہ رہے۔ حقیقت یہ ہے کہ وہ زندگی کا بہت باریکی اور گہرائی سے مشاہدہ کرتے ہیں۔ وہ انسان کی محرومیوں کو نمایاں کرتے ہیں۔ اس کے باوجود اُن کے ہاں زندگی سانس لیتی ہوئی اور آگے بڑھتی ہوئی دکھائی دیتی ہے۔ ان کے افسانے، ان داستانوں کی ایک شام، بالکونی اور پیسا وغیرہ اس کی عمدہ مثال ہیں۔ اُن کا اسلوب رومانیت سے گندھا ہوا ہے جو تلخ سے تلخ بات اور کرہ سے کرہ واقعہ کو بھی فطری رعنائی بخش کر قابل قبول بناتا ہے۔ البتہ کہیں کہیں ترقی پسند نظریات کے غلبے کی بنا پر اُن کے ہاں جذبے کی کمی ضرور محسوس ہوتی ہے۔ بحیثیت مجموعی کرشن چندر اردو افسانے کا ایک نمایاں نام ہے جس نے اردو افسانے کے ارتقا میں اہم کردار ادا کیا ہے۔ اسی دور کی ایک اور افسانہ نگار عصمت چغتائی ہیں جن کے اردو افسانے پر انگریزی افسانوی ادب کا گہرا اثر دکھائی دیتا ہے۔ اُن کے افسانوں میں ایک ایسی عورت کی تصویر کشی کی گئی ہے جو مشرق کی مروجہ روایات اور نسوانیت سے آمادہ بغاوت ہے۔ عصمت کے ہاں جنس کے مسائل بہت شد و مد سے زیر بحث آتے ہیں۔ اس حوالے سے 'چوٹیں اور لٹحات' اُن کی نمائندہ تحریروں میں ہیں۔ جس میں انہوں نے جنسی جذبے کو زندگی کی اہم ترین اور بنیادی ضرورت قرار دیا ہے۔ اُن کے نزدیک اس جذبے کی تسکین

کی خواہش عین فطرت ہے۔ عصمت چغتائی کے ابتدائی افسانوں میں نوجوانوں اور ان کے مسائل کا تذکرہ بھی بھرپور انداز میں ملتا ہے لیکن ان کی یہ حقیقت نگاری توازن کے فقدان کی بنا پر زیادہ موثر نہیں ٹھہرتی بلکہ لذت پسندی پیدا کرنے کا سبب بنتی ہے۔

اردو افسانے کے ابتدائی خدوخال نمایاں کرنے میں ایک اور افسانہ نگار کے کردار کو بھی نظر انداز نہیں کیا جاسکتا۔ یہ خواجہ احمد عباس ہیں۔ خواجہ احمد عباس کے بارے میں ڈاکٹر انور سدید کی رائے ہے کہ وہ ترقی پسند تحریک کے ایک رپورٹر کی حیثیت رکھتے ہیں (3)۔ لیکن خواجہ احمد عباس کے افسانوں کا مجموعی جائزہ لیں تو یہ بات زیادہ قرین قیاس نہیں لگتی۔ وہ ایک ایسے افسانہ نگار ہیں جو زندگی کی تعمیر میں سماجی مسائل اور سیاسی الجھنوں کی اہمیت کو بھی پیش نظر رکھتے ہیں۔ ان کا مشاہدہ اور تخلیقی قوت دونوں جاندار ہیں البتہ کہیں کہیں ترقی پسند نظریات کے غلبے کی بنا پر ان کی حقیقت نگاری پر غیر فطری ہونے کا گماں ضرور گزرتا ہے۔ اس حوالے سے ان کے افسانے سردار جی، انتقام اور شکر اللہ وغیرہ کی مثال دی جاسکتی ہے لیکن اس کے ساتھ ساتھ ان کے بعض افسانے نظریے اور جذبے کا خوبصورت امتزاج بھی ہیں۔ اس سلسلے میں ان کا افسانہ پسماندگان ایک نمایاں مثال ہے۔ جس میں وہ ایک بڑے افسانہ نگار کے طور پر دکھائی دیتے ہیں۔

اردو افسانے کی تاریخ میں ایک نام احمد علی کا بھی ہے جنہوں نے اردو افسانے کے پرسکون پائیوں میں اپنے مشترکہ افسانوی مجموعے انکارے سے ارتعاش پیدا کیا۔ دسمبر 1932ء میں نو افسانوں اور ایک ڈرامے پر مشتمل مجموعہ انکارے منظر عام پر آیا۔ اس مجموعے میں احمد علی کے ساتھ سجاد ظہیر، رشید جہاں اور محمود الظفر کے افسانے بھی شامل تھے۔ ان افسانوں کے موضوعات اور لب و لہجہ اشتعال انگیزی کا باعث بنا۔ جس نے اس کتاب کو اردو افسانوی ادب میں نمایاں کر دیا۔ انتہا چین انکارے کے اسلوب اور موضوعات کے حوالے سے لکھتے ہیں کہ انکارے نے ایک غلط روایت کی طرح ڈالی بعد میں آنے والوں نے یہ سمجھا کہ افسانے میں سنسنی کی ضرورت ہے۔

انکارے کے افسانوں سے بے شک اردو افسانے میں سنسنی خیزی اور اشتعال کی ایک لہر تو آئی لیکن اس نے اردو افسانے کے ارتقا میں بہت سے درد بھی کر دیئے۔ اس کے ساتھ ہی اردو افسانے کی بساط پر ایسے لکھنے والے نمودار ہوئے جنہوں نے انکارے کے اسلوب کو اپنا راہنما بنایا اور کچھ پرانے لکھنے والوں کے قلم سے بھی انقلابی افسانے تخلیق کروائے۔ اس حوالے سے ڈاکٹر انوار احمد کی رائے کو نظر انداز نہیں کیا جاسکتا۔ وہ لکھتے ہیں کہ انکارے کے افسانوں نے نہ صرف ہندوستان کے سیاسی اور مذہبی واقعوں میں ٹپیل پیدا کی بلکہ ادبی اور فنی تصورات کی دنیا کو بھی تھل چھل کر دیا۔ ڈاکٹر انوار احمد، ڈاکٹر قمر انیس کے حوالے سے مزید لکھتے ہیں کہ ڈلاری اور انکارے کی دوسری کہانیوں میں فن کا وہ نیا تصور تھا جس نے نہ صرف حیات اللہ، انصاری اور سہیل عظیم آبادی جیسے نوجوان ادیبوں کو متاثر کیا بلکہ پریم چند ایسے کہنہ مشق ادیبوں کو بھی اپنے فن کی پرانی روش بدلنے اور کفن اور نبولی جیسے افسانے لکھنے پر اکسایا۔

انکارے کی اشاعت نے احمد علی کو راتوں رات شہرت کی بلند یوں پر پہنچا دیا۔ احمد علی کے افسانوں نے اردو افسانے میں ایک نئی روایت کی بنیاد رکھی۔ انکارے میں شامل ان کے افسانے نبادل نہیں آتے اور مہاوٹوں کی ایک رات، مٹتی ہوئی تہذیب پر ایک جرات مندانہ طنز کی علامت

ہیں۔ انہوں نے یہ طرز نہایت بے باکی سے کیا ہے۔ گو ان کے ہاں اعتدال اور توازن کا فائدہ ان ہے لیکن ان کے ہاں پائی جانے والی سنسنی خیزی، برصغیر میں پائی جانے والی ان دنوں کی سیاسی و سماجی کشمکش اور تحریکوں کی عکاس ہے

اردو افسانے کے ارتقائی سفر میں مختلف افسانہ نگاروں نے رخت سفر باندھا۔ کچھ دو چار گام پر ہی ساتھ چھوڑ گئے اور کچھ تادیر شریک سفر رہے۔ ایسے ہی افسانہ نگاروں میں اختر حسین رائے پوری، علی سردار جعفری اور احتشام حسین شامل ہیں۔ ان کے ہاں زندگی کی ناہمواری اور اتار چڑھاؤ بنیادی موضوع ہے۔ سیاسی کشمکش اور مختلف تحریکوں کے اثرات بھی ان کی تحریروں پر نمایاں ہیں۔ اختر حسین رائے پوری ٹیگور سے متاثر ہیں جبکہ علی سردار جعفری اور احتشام حسین ترقی پسند تحریک سے وابستہ ہیں۔

اس قافلے میں اختر انصاری اور حیات اللہ انصاری بھی شامل ہیں۔ اختر انصاری کے ہاں بورژوا سماج کے استبداد اور پروتاری جماعت کی مظلومیت سے آویزش پیدا کی گئی ہے۔ فنی اعتبار سے ان کے افسانے کمزور ہیں کیونکہ وہ مقصدیت کا بوجھ سہارنے سے قاصر ہیں۔ حیات اللہ انصاری کے ہاں زمینی مسائل کو زیر بحث لایا گیا ہے۔ خاص طور پر سماجی اور معاشی بد حالی کے واقعات ان کے افسانوں کا موضوع ہیں۔ ان کا اسلوب اور موضوع توازن اور اعتدال کی مثال ہے۔ وہ انسانی کرب اور پریشانیوں کا ذکر کرتے ہوئے واقعیت اور حقیقت نگاری کو اعتدال سے محروم نہیں ہونے دیتے۔ اردو افسانے کی روایت میں ایک نمایاں نام راجندر سنگھ بیدی کا ہے۔ ان کے افسانوں میں پائی جانے والی معروضیت ان کے جذبے کو معتدل کرتی ہے۔ ان کے موضوعات زمین سے شروع ہو کر زمین پر ہی لوٹ آتے ہیں۔ انسان اس کائنات کا مرکز و محور ہونے کے باوجود اس کائنات میں سب سے محروم اور کچی مخلوق ہے جو احساس اور شعور رکھنے کی بنا پر ہر لمحے تڑپتی اور بے قرار رہتی ہے۔ بیدی کے افسانوں میں انسانی کرب اور پریشانیوں کو پیش تو سمیٹا گیا ہے لیکن ان کے اسلوب کی لطافت اور جذبے کے سبب کہیں بھی یہ کرب اور پریشانیاں اشتهار نہیں بنتیں۔ راجندر سنگھ بیدی کے ہاں تجربے کی گہرائی سے صداقت کا ظہور ہوا ہے۔ جس نے ان کے افسانے کو نئی معنویت عطا کی ہے۔ ان کے افسانے گرم کوٹ، دوسرا کنارہ، متھن، لاجوتی اور گرہن اس حوالے سے عمدہ مثال ہیں

اوپندر ناتھ اشک بھی اردو افسانہ نگاری میں نمایاں مقام رکھتے ہیں۔ انہوں نے اپنے افسانوں کے ذریعے نچلے اور متوسط طبقوں کی معاشی، سماجی اور جنسی محرومیوں کا ذکر کیا ہے۔ ان کے موضوعات کا بنیادی ماخذ زمین اور اس پر بسنے والا انسان ہی ہے۔ یہ موضوع روز ازل ہی سے ہر لکھنے والے کا موضوع رہا ہے لیکن انداز بیان اور جذبے کی صداقت و گہرائی نے ہر لکھنے والے کو امتیاز بخشا ہے۔ اوپندر ناتھ اشک بھی زمین اور اس کے بایوں کی محرومیوں اور دکھوں کو موضوع سخن تو بناتے ہیں لیکن ان کے ہاں جذبے کی چاشنی، انہیں روایتی ترقی پسندی کے منصب سے کہیں بلند کر دیتی ہے۔ یہی وجہ ہے کہ ان کے ہاں اقدار کی تخریب کے بجائے ایک صحت مند تبدیلی کا ماحول ملتا ہے۔ ان کے افسانے قفس، ڈاچی اور چیتن کی ماں، اس حوالے سے عمدہ مثالیں ہیں۔

اردو افسانے کے ارتقائی سفر میں ایک نمایاں افسانہ نگار، جس کے بغیر اردو افسانے کا تذکرہ ناممکن رہے گا وہ سعادت حسن منٹو ہے۔ بلاشبہ وہ

عظیم افسانہ نگار ہیں۔ اس کے باوجود کہ منٹو پر جنس نگاری کی چھاپ لگی ہوئی ہے لیکن انہوں نے دوسرے بہت سے موضوعات پر بھی قلم اٹھایا ہے۔ سعادت حسن منٹو نہایت بے باکی سے کہانی بیان کرنے کی قدرت رکھتے ہیں۔ وہ حقیقت نگاری کیبا وجود اپنے اسلوب میں کہیں سپاٹ پن نہیں آنے دیتے۔ منٹو نے اپنے افسانوں میں اگر طوائف ہی کو زیادہ موضوع بنایا ہے تو اس کی ایک بنیادی وجہ اس کا ماحول ہے۔ امرتسر جہاں منٹو کا بچپن گزرا، وہاں شہر کے درمیان ایک طویل بازار حسن تھا۔ پھر جب منٹو بمبئی آئے تو یہاں بھی قدم قدم پر انہیں، ان کی پسند کے کردار ملے۔ شہر سلطانہ، ممدو بھائی، مسز ڈی کوٹا اور گوپی ناتھ، ممبئی کے ہی کردار ہیں۔ سعادت حسن منٹو زندگی کو سرسری نظر سے نہیں دیکھتے، وہ بہت باریک بینی سے گرد و پیش کا جائزہ لیتے ہیں اور نہایت بے باکی سے پوسٹ مارٹم کر کے رکھ دیتے ہیں۔ یہ پوسٹ مارٹم اتنی بے رحمی سے ہوتے ہیں کہ بعض اوقات تو کراہت محسوس ہوتی ہے۔ ایک طرف وہ ٹھنڈا گوشت، کالی شلوار، بلاؤ اور کھول دو جیسے افسانے لکھتے ہیں تو دوسری طرف نیا قانون اور تماشا جیسے افسانے لکھ کر اپنے سماجی و سیاسی شعور کا اظہار بھی کرتے ہیں۔

احمد ندیم قاسمی شاعر ہونے کے ساتھ ساتھ نہایت عمدہ افسانہ نگار بھی ہیں۔ اردو افسانے کی ترویج میں ان کی خدمات ناقابل فراموش ہیں۔ ان کے افسانوں میں مقصدیت اور حقیقت نگاری کا فرما ہے۔ ان کی مقصدیت اور حقیقت نگاری رومانیت کے زیر اثر ایک منفرد اسلوب متعارف کراتی ہے۔ ان کے افسانوں میں دیہاتی اور شہری زندگی کے تصادم سے ایک اچھوتی فضا تیار کی گئی ہے۔ الحمد للہ، بخجری، مامتا، کپاس کا پھول، سنانا، رئیس تھانہ، بندگی، طلوع و غروب، ان کے نمائندہ افسانے ہیں۔ احمد ندیم قاسمی کے افسانے فکری اور اسلوبیاتی اعتبار سے ان کی مہارت کے گواہ ہیں۔ انہیں کہانی کی بنت کاری اور کرافٹنگ پر دسترس حاصل ہے۔

اردو افسانہ نگاری میں ایک اور معتبر نام قرۃ العین حیدر کا ہے۔ انہوں نے اودھ کے جاگیردار طبقے اور آئی سی ایس افسروں کے متعلق اپنی کہانیوں کا آغاز کیا۔ قرۃ العین حیدر کے افسانوں میں تقسیم ہند کے بعد پیش آنے والے حالات و واقعات نے ایک اچھوتا کرب نمایاں کیا ہے۔ اس حوالے سے وہ اپنے دیگر ہم عصر لکھنے والوں سے مختلف انداز میں لکھتی ہیں۔ وہ لٹی ہوئی عصمتوں پر آنسو نہیں بہاتیں، ان کے افسانوں میں تباہی و بربادی کا نوہ نہیں ہے۔ کیونکہ انہیں اس سے غرض نہیں ہے کہ کیا ہوا بلکہ وہ اپنی تمام تر توجہ اس پر رکھتی ہیں کہ کیوں ہوا۔ قرۃ العین حیدر کا شمار بھی ارضی رحمان رکھنے والے علمبرداروں میں ہوتا ہے۔ ان کے موضوعات اپنے گرد و پیش کی نمائندگی کرتے ہیں۔ ان کے ہاں غفران منزل اور کنور لاج کا ذکر ہے تو وہیں معمولی ٹائپسٹ لڑکیوں اور ریڈیو پیشمنوں کے برآمدوں میں انتظار کرتی طوائفوں کا تذکرہ بھی ہے۔

آزادی کے بعد اردو افسانے کے اسلوب اور موضوعات پر دستور پیدا ہوا۔ بہت سے جدید لکھنے والوں نے اس میں تجربات کے دروا کیے ہیں۔ ان لکھنے والوں میں ایک غلام عباس بھی شامل ہیں۔ جن کی افسانہ نگاری کا آغاز آزادی سے پہلے ہی ہو چکا تھا لیکن آزادی کے بعد انہوں نے اپنے منفرد اسلوب اور موضوعات کی بنا پر، اپنا جداگانہ رنگ جمایا۔ ان کے ہاں موضوعات کا تنوع ہے۔ وہ زندگی کو بہت قریب سے دیکھتے ہیں اور جذبات نگاری کو برائے کار لاتے ہوئے واقعتاً نگاری کا حق ادا کر دیتے ہیں۔ ان کا اسلوب رواں اور سادہ ہے۔ ان کے اکثر کردار دوہری

شخصیت کے حامل ہیں جو کہانی میں چونکا دینے کا سبب بنتے ہیں۔ ممتاز مفتی ایک اور افسانہ نگار ہیں جنہوں نے اردو افسانے میں انفسیاتی مطالعہ کی اہمیت کو اجاگر کیا۔ ممتاز مفتی کے کردار بظاہر عام زندگی سے تعلق رکھنے والے افراد ہوتے ہیں لیکن وہ انہیں انفسیات کی آنکھ سے دیکھ کر مختلف بنا دیتے ہیں۔ ممتاز مفتی کے اکثر افسانوں میں تو انسانی فطرت کا انفسیاتی مطالعہ کسی ماہر انفسیات کی طرح کیا گیا ہے۔

اشفاق احمد کے افسانوں کا مرکزی نقطہ محبت ہے لیکن اس کے باوجود ان کے ہاں زندگی کا کرب اور اس کی پریشانیوں کا اظہار بھی ہوا ہے۔ حقیقت میں ان کے ہاں موضوعات کا تنوع ہے اور ان موضوعات کے لیے جو جذبہ ہمہ گیر کا کام کرتا ہے وہ ان کی والہانہ محبت ہے جو ان کے افسانوں کا احاطہ کیے رکھتی ہے۔ اردو افسانے کے ارتقائی مراحل میں جس افسانہ نگار کی کاوشوں کو فراموش نہیں کیا جاسکتا، وہ انتظار حسین ہیں جنہوں نے کہانی کو ایک نیا بین عطا کیا۔ انہوں نے اردو افسانے کے اسلوب کو ایک نئی جہت بخشی۔ تجسیم، تجدید اور علامت نگاری کے نئے تجربات کیے اور اردو افسانے کو دیگر زبانوں میں لکھے جانے والے شاہکار افسانوں کی صف میں لا کھڑا کیا۔

موجودہ دور تک پہنچنے پہنچنے اردو افسانہ مختلف مراحل اور تجربات سے گزرا ہے۔ اس میں موضوعات اور اسلوب کے نئے تجربات کیے گئے ہیں۔ یہ تجربات جہاں مختلف شخصیات کے مزاج اور صلاحیتوں کے مرہون منت ہیں وہاں حالات و واقعات اور زندگی کی سماجی اور سیاسی جہتوں میں آنے والی نئی تبدیلیاں بھی اس کا سبب ہیں۔ بین الاقوامی تحریکیں اور بدلتے ہوئے تہذیبی و سماجی رجحانات بھی اردو افسانے پر اثر انداز ہوتے ہیں۔ فرانس سے شروع ہونے والی علامتی تحریک کے اثرات بھی ہمارے افسانہ نگاروں نے لیے۔ اس کے ساتھ ہی فریڈ اور ڈونگ کے خیالات سے بھی اردو افسانہ محفوظ نہ رہ سکا۔ گو یہ خیالات اردو افسانے میں قدرے تاخیر سے داخل ہوئے لیکن ان کے اثرات اجتماعی سوچ اور زندگی پر ظاہر ضرور ہوئے۔ شعور کی رو کے تحت افسانے لکھے گئے۔ شعور و لاشعور کو موضوع بحث بنایا گیا۔

حسن عسکری نے شعور کی رو کے حوالے سے افسانے لکھے۔ ان کے افسانوں میں ان نا آسودہ خواہشات کو موضوع بنایا گیا جو معاشرے کی پابندی کے باعث آسودہ نہیں ہو پاتیں۔ ان کے افسانوں میں پلاٹ کی ترتیب کا اتنا خیال نہیں رکھا گیا۔ محض شعور کی غیر مربوط رو سے ہی کہانی اور کرداروں کے اندر خیال ترتیب دینے گئے ہیں۔ مغرب کے زیر اثر ممتاز شریف نے بھی اپنے افسانوں میں علمیت کا اظہار کر کے اپنے قاری کے لیے ذہنی ورزش کا خوب اہتمام کیا ہے۔ انہوں نے اپنے افسانوں میں یہ بتانے کی کوشش کی ہے کہ انسانی تجربات کو گرفت میں لانے کے لیے محض مال ہی سے واسطہ کافی نہیں ہے بلکہ اس کے لیے ماضی میں تاریخ اور یومالوں میں اس کے رشتے اور جو میں تلاش کرنا پڑتی ہیں۔ یہ انہیں لکھنے والوں کا آغاز ہے کہ اردو افسانہ نگاری اور فرانسسیسی ہم عصر افسانوں کے مقابل آکھڑا ہوا ہے۔

موجودہ عہد میں اردو افسانے کی تکنیک پر بھی بے شمار تجربات ہوئے ہیں۔ یہی وجہ ہے کہ تکنیک کے اعتبار سے آج اس میں بے پناہ تنوع پایا جاتا ہے۔ آج کا افسانہ تجسیم اور تجرید کے بین بین اپنا سفر طے کر رہا ہے۔ دہری سطح کی کہانیاں لکھی جا رہی ہیں، جنہیں قاری کے لیے سوچنے اور خود کو کہانی میں شامل کرنے کے مواقع موجود ہیں۔ اس طرز کی کہانی میں مشتاق قمر، منشا یاد اور سلیم آغا قمر لٹاں بہت نمایاں ہیں۔ خالدہ حسین احمد کی کہانیوں

میں قدرے ابہام پایا جاتا ہے البتہ ان کا نقطہ نظر بین السطور جاری و ساری رہتا ہے، اسی طرح مرزا حامد بیگ کی کہانیوں میں بھی ابہام کی فضا ضرور ہے لیکن ان کی کہانی کو سمجھنا بھی مشکل نہیں ہے۔

اردو افسانے کے ارتقا اور ترقی میں اور بہت سے افسانہ نگاروں کا خون جگر بھی صرف ہوا ہے۔ جن کا ذکر علیحدہ سے نہیں ہو سکتا تاہم ان کے بغیر اردو افسانے کی داستان ادھوری رہے گی۔ ان میں سے کچھ نام یوں ہیں۔ شیر محمد اختر، قدرت اللہ شہاب، شوکت صدیقی، آغا بابر، شمس آغا، منشا یاد، انور سجاد، مظہر الاسلام، رشید امجد، مستنصر حسین تارڑ، غلام الثقلین نقوی، جوگندر پال، رام لعل، جیلانی بانو، خدیجہ مستور، ہاجرہ مسرور، بانو قدسیہ، نشاط فاطمہ، خذرا اصغر، امجد الطاف، صلاح الدین اکبر، رحمان مذب، الطاف فاطمہ، مسعود مفتی، جمیلہ ہاشمی، فرخندہ لودھی، ساترہ ہاشمی، احمد جاوید، احمد داؤد، مظہر الاسلام، اعجاز راہی، نیلوفر اقبال، محمد الیاس، نسیم احمد بشیر، شمشاد احمد، جمیل احمد عدیل، ابدال بیلا، امجد طفیل اور محمد عاصم بٹ۔

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سر سید احمد خاں: شخصیت: عقائد اور نظریات

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صدر شعبہ اردو

جی۔ ایس۔ سائنس، آرٹس اینڈ کامرس کالج

کھام گاؤں ضلع بلڈانہ

سر سید احمد خاں کی ولادت 17 اکتوبر 1817ء کو دہلی کے ایک متوسط گھرانے میں ہوئی۔ جس کا تعلق مغلیہ خاندان سے کافی اچھا تھا۔ آباؤ اجداد شاہ جہاں کے عہد میں ہرات سے ہندوستان آئے۔ شاہ غلام علی نقش بندی مجددی دہلوی نے "احمد" نام رکھا اور بڑے ہونے کے بعد ابتدائی تعلیم بھی دی۔ سر سید کی ابتدائی تعلیم و تربیت خالص مذہبی اور روحانی ماحول میں ہوئی، کیوں کہ ان کے والد اور دیگر افراد خانہ کو دہلی کے دو اہم علمی و روحانی مراکز خانقاہ نقش بندیہ اور خانوادہ شاہ عبدالعزیز محدث دہلوی سے گہری عقیدت اور وابہانہ تعلق تھا۔ دستور زمانہ کے مطابق عربی اور فارسی کی تعلیم حاصل کی۔ آپ نے ابتدائی تعلیم اپنے نانا فرید الدین احمد خان سے بھی حاصل کی۔ ابتدائی تعلیم میں آپ نے قرآن پاک ناظرہ پڑھا اور عربی اور فارسی ادب کا مطالعہ بھی کیا۔ اس کے علاوہ آپ نے حساب، طب اور تاریخ میں بھی مہارت حاصل کی

سر سید کا تعلق اس خاندان سے تھا، جو صدیوں سے علم و حکمت، فلسفہ و روحانیت اور مریدی کا مرکز رہا۔ سر سید بے پناہ دنیاوی فضائل و کمالات کی شخصیت تھے۔ ہم ان کی کن کن خوبیوں کا یہاں ذکر کریں۔ ان کے علمی افکار، اعمال کا پیمانہ جماعتی، گروہی تعصب سے پاک تھا۔ ان کا ظرف، انتہائی اعلیٰ اور ذہنی سطح انتہائی بلند و ارفع تھا۔ علم و فن، فلسفہ و معارف، کا عکس ان کی باتوں میں عیاں تھی متعدد زبانوں پر دسترس، کتنی ہی اہم باتیں سر سید کی شخصیت میں شامل تھیں۔ گویا متعدد کمالات ایک انسانی ڈھانچے میں اتار دیا گیا ہو۔ سر سید کو سمجھنے کے لئے کافی وقت درکار ہے۔

منزل بہ منزل!

ابتدائی تعلیم حاصل کرنے کے بعد آپ نے اپنے خالو مولوی ثلیل اللہ سے عدالتی کام سیکھا۔ پھر 1837ء میں آگرہ میں کمیشنر کے دفتر میں بطور نائب منشی کے فرائض سنبھالنے لگے۔ 1841ء اور 1842ء میں مین پوری اور 1842ء اور 1846ء تک فتح پور سیکری میں سرکاری خدمات سر انجام دیں۔ محنت اور ایمان داری سے ترقی کرتے ہوئے 1846ء میں دہلی میں صدر امین مقرر ہوئے۔ دہلی میں قیام کے دوران میں آپ نے اپنی مشہور کتاب "آثار السناد" 1847ء میں لکھی۔ 1857ء میں آپ کا تبادلہ ضلع بجنور ہو گیا۔ ضلع بجنور میں قیام کے دوران میں آپ نے اپنی کتاب "سرکشی ضلع بجنور" لکھی۔ جنگ آزادی ہند 1857ء کے دوران میں بجنور میں قیام پزیر تھے۔ اس کٹھن وقت میں آپ نے بہت سے انگریز مردوں،

عورتوں اور بچوں کی جانیں بچا کر انسانیت کا ثبوت دیا۔ آپ نے یہ کام انسانی ہمدردی کیلئے ادا کیا۔ جنگ آزادی ہند 1857ء کے بعد آپ کو آپ کی خدمات کے عوض انعام دینے کیلئے ایک جاگیر کی پیشکش ہوئی جسے آپ نے قبول کرنے سے انکار کر دیا۔

1857ء میں آپ کو ترقی دے کر صدر الصدور بنا دیا گیا اور آپ کی تعیناتی مراد آباد کر دی گئی۔ 1862ء میں آپ کا تبادلہ غازی پور ہو گیا اور پھر 1867ء میں آپ بنارس میں تعینات ہوئے۔

1877ء میں آپ کو امپریل کونسل کارکن نامزد کیا گیا۔ 1888ء میں آپ کو سر کا خطاب دیا گیا اور 1889ء میں انگلستان کی یونیورسٹی اڈنبرا نے آپ کو ایل ایل ڈی کی اعزازی ڈگری دی۔ اور 1864ء میں غازی پور میں سائنسی سوسائٹی قائم کی۔

ان کی زندگی کے احوال کو چار حصوں میں تقسیم کیا جاسکتا ہے۔ پہلا دور 1817 تا 1837 ہے جو ان کے بچپن جو انی اور تعلیم کا دور ہے جس دور میں مغلیہ سلطنت کے زوال کے آثار دکھائی دے رہے تھے۔ دوسرا دور 1838 تا 1857 کا احاطہ کرتا ہے۔ اس دور میں سرسید کی بہت سی مشہور تصانیف منظر عام پر آئیں۔ اس دوران انھوں نے نوکری، دیگر ادبی خدمات انجام دیں۔ تیسرا دور 1877 تک محیط ہے۔ اس دور میں انھوں نے قوم کے مابین اتحاد و اتفاق میل جول اور بھائی چارے پر زور دیا ہے، اس دور میں انھوں نے لندن کا سفر کیا اور وہاں کی یونیورسٹیوں کے تعلیمی نظام سے بہت متاثر ہوئے، اور انھوں نے لندن ہی میں اپنے ذہن میں 'ایک خاکہ بنالیا تھا کہ ہندوستان میں ایک عظیم یونیورسٹی مسلمانوں کے لیے قائم کریں گے۔

علی گڑھ تحریک!

سرسید نے اس تحریک کا آغاز جنگ آزادی سے ایک طرح سے پہلے سے ہی کر دیا تھا۔ غازی پور میں سائنٹفک سوسائٹی کا قیام اسی سلسلے کی ایک کڑی تھا۔ لیکن جنگ آزادی نے سرسید کی شخصیت پر گہرے اثرات مرتب کئے اور ان ہی واقعات نے علی گڑھ تحریک کو بار آور کرنے میں بڑی مدد دی۔ لیکن یہ پیش قدمی اضطراری تھی بلکہ اس کے پس پشت بہت سے عوامل کار فرما تھے۔ 1857ء کی جنگ آزادی میں آخری مغل بادشاہ بہادر شاہ ظفر کی شکست ہو گئی، اور مکمل طور سے مغلیہ سلطنت کا خاتمہ ہو گیا۔ 1857ء کی جنگ آزادی سے ہندوستانی مسلمانوں کا جانی و مالی نقصان سب سے زیادہ ہوا، اس کی وجہ تھی اس جنگ میں مسلمانوں نے سب سے زیادہ بڑھ چڑھ کر حصہ لیا تھا اور انگریزوں کا ماننا تھا کہ ہندوستانی مسلمان ان کے سب سے بڑے دشمن ہیں، اس جنگ آزادی کے رد عمل میں مسلمانوں کا سب سے زیادہ خسارہ ہوا۔ غدر 1857ء نے حکومت کو ہندوستانیوں خاص کر مسلمانوں سے حد سے زیادہ برہم کر دیا جس کے نتیجے میں مسلمانوں کی زندگی اس ملک میں دشوار ہو گئی۔ کتنے مسلمانوں کو غدر کے الزام میں سزائے موت دے دی گئی کتنے کے گھروں کو اجاڑ دیا گیا۔ ان کی جائیدادیں اور ان کی املاک کو ان سے نہایت بے دردی سے چھین لیا گیا ان پر روزی روزگار کے تمام راستے بند کر دیئے گئے مسلمان زمینداروں، تعلقہ داروں اور اس قوم کے سربرآوردہ اشخاص کی عزت و آبرو بھی ٹچھر باد کر دی گئی، غریب مسلمانوں کے چھوٹے موٹے پیشے اور کاروبار کو تباہ کر دیا گیا جس سے صنعت گر، اور ہنرمند مسلمانوں کی

بھی روزی ماری گئی۔ اس طرح مسلمانوں کے اندر معاشرتی، اقتصادی اور سیاسی ہر اعتبار سے بد حالی پیدا ہو گئی۔ سرسید احمد خان نے 1857 کی تباہی کو اپنی آنکھوں سے دیکھا تھا۔ اس نازک دور نے سرسید کو ذہنی کشمکش اور عجیب پریشانی میں مبتلا کر دیا تھا۔ انھوں نے ہندوستانی مسلمانوں کی فلاح و بہبود کے لیے برطانوی نظر سے مسلمانوں کے خلاف قائم کردہ دور کرنے کی پیہم کوشش کی اور مسلمانوں کی فز و فلاح کے لیے مشکل سے مشکل کام کرنے کا عزم مصمم کر لیا اور وہ اپنے اس عظیم مقصد میں کسی حد تک کامیاب بھی ہوئے۔ اس تحریک کے کئی پہلوؤں میں نئے علوم کا حصول، مذہب کی تفہیم، سماجی اصلاح اور زبان و ادب کی ترقی اور سر بلندی شامل ہیں۔ جبکہ رشید احمد صدیقی لکھتے ہیں کہ اس تحریک کے مقاصد میں مذہب، اردو ہندو مسلم تعلقات، انگریز اور انگریزی حکومت، انگریزی زبان، مغرب کا اثر اور تقاضے وغیرہ چند پہلو شامل ہیں۔

سرسید احمد خاں برصغیر میں مسلم نشاناتِ ثانیہ کے بہت بڑے علمبردار تھے۔ انہوں نے مسلمانوں میں بیداری علم کی تحریک پیدا کرنے میں بہت اہم کردار ادا کیا۔ وہ انیسویں صدی کے بہت بڑے مصلح اور رہبر تھے۔ انہوں نے ہندوستانی مسلمانوں کو جمود سے نکالنے اور انہیں باعزت قوم بنانے کے لیے سخت جدوجہد کی آپ ایک زبردست مفکر، بلند خیال مصنف اور جلیل القدر مصلح تھے۔ ”سرسید نے مسلمانوں کی اصلاح و ترقی کا بیڑا اس وقت اٹھایا جب زمین مسلمانوں پر تنگ تھی اور انگریز ان کے خون کے پیاسے ہو رہے تھے۔ وہ توپوں سے اڑاتے جاتے تھے، سولی پر لٹکائے جاتے تھے، کالے پانی پیچھے جاتے تھے۔ ان کے گھروں کی اینٹ سے اینٹ بجا دی گئی تھی۔ انہی جاہل آدمیوں میں ضبط کر لیں گئیں تھیں۔ نوکریوں کے دروازے ان پر بند تھے اور معاش کی تمام راہیں مسدود تھیں۔ وہ دیکھ رہے تھے کہ اصلاح احوال کی اگر جلد کوشش نہیں کی گئی تو مسلمان ”سائیس، خاناماں، خندہ گار اور گھاس کھودنے والوں کے سوا کچھ اور نہ رہیں گے۔“ سرسید نے محسوس کر لیا تھا کہ اونچے اور درمیانہ طبقوں کے تباہ حال مسلمان جب تک باپ دادا کے کارناموں پر شیخی بگھارتے رہیں گے۔۔۔ اور انگریزی زبان اور مغربی علوم سے نفرت کرتے رہیں گے اس وقت تک وہ بدستور ذلیل و خوار ہوتے رہیں گے۔ ان کو کامل یقین تھا کہ مسلمانوں کی ان ذہنی اور سماجی بیماریوں کا واحد علاج انگریزی زبان اور مغربی علوم کی تعلیم ہے۔ اس مقصد کو حاصل کرنے کی خاطر وہ تمام عمر جدوجہد کرتے رہے اور اسی مقصد کو مد نظر رکھ کر علی گڑھ مسلم یونیورسٹی کی بنیاد رکھی گئی۔

افکار و نظریات!

سرسید کی نمایاں سرگرمیوں کی وجہ سے ان کی دو جہتیں متعین کی جاسکتی ہیں۔

(1) ایک تعلیمی معمار کی

(2) دوسری مذہبی مصلح کی

اپنی پہلی حیثیت میں سرسید نے تعلیم کے ذریعے مسلمانوں کی معاشرتی اور معاشی ترقی کے لیے متحدہ ہندوستان میں تحریک چلائی، اسے تاریخ

میں "علی گڑھ تحریک" کے نام سے جانا جاتا ہے، جو مدرسہ العلوم (علی گڑھ مسلم یونیورسٹی) کی شکل میں بار آور ہوئی۔ معرکہ ستاون کے بعد مسلمانوں کی تعلیمی، معاشرتی اور معاشی بد حالی پر اس تحریک نے جس طرح قابو پایا ہے، اس کا اعتراف بلا تفریق مذہب و ملت سب کو ہے۔

سرمد کی دوسری حیثیت مذہبی مصلح کی ہے۔ اپنی اس حیثیت میں انہوں نے مسلمانوں کی مذہبی اصلاحات کا آغاز کیا اور مذہبی خیالات کے زیر اثر جو تعلیمی، معاشی اور معاشرتی حد بندیاں مسلمانوں نے مقرر کی تھیں، انہیں ختم کرنے کی کوشش کی۔ نیز عیسائی حکمران اور مستشرقین اسلام کے جن اصولوں پر معترض تھے، ان کی توجیہ و تشریح عقل و سائنس کے ذریعے کرنے کی بنا ڈالی۔ جوان کے مقاصد کی تکمیل میں ممانع تھا، یہاں تک کہ ہندوستان میں اس طرح کے خلاف جمہور عقیدوں پر مشتمل ایک ایسا فرقہ ظہور میں آگیا جو اعتزال کی ایک نئی شکل تھی، جو بلاشبہ تعقل پسندی اور نیچرل سائنس پر استوار تھا جسے "فرقہ نیچریہ" سے تعبیر کیا گیا۔ دراصل سرمد کا یہی فعل ان کی ذات سے شروع ہو کر ان کی تعلیمی تحریک کی مخالفت کا سامان بن گیا۔

اس اعتراض کو سمجھنے کے لیے سرمد کے مذہبی عقائد و افکار کو جاننا ضروری ہے، جس سے مسئلے کی سنگینی اور علما کے مخالفانہ رویے کی سبب اور جواز کا اندازہ ہو سکے گا۔ سرمد کے چند مذہبی عقائد بطور منٹے نمونہ از خود ارے حسب ذیل ہیں:

- (1) ملائکہ اور فرشتوں کا کوئی خارجی وجود نہیں ہے۔
- (2) نبی پر متعارف فرشتوں کے ذریعے وحی نہیں ہوتی، بلکہ خارجی طور پر وحی کا سرے سے کوئی وجود نہیں۔
- (3) معراج اور شق صدر کے واقعات رد یا کافعل ہے۔
- (4) قرآن میں جن یا جنہ کے الفاظ آئے ہیں، ان سے مراد پہاڑی اور صحرائی لوگ ہیں، نہ کہ وہ وہی مخلوق جو بھوت اور دیو وغیرہ کے الفاظ سے منہوم ہوتی ہے۔
- (5) جو لوگ یہ سمجھتے ہیں کہ اس پتھر کے بنے ہوئے چوکھونے گھر (کعبہ) میں ایک ایسی متعدی برکت ہے، جہاں سات دفعہ اس کے گرد پھرے اور بہشت میں چلے گئے، یہ ان کی نام خیالی ہے۔ کوئی چیز سوائے خدا کے مقدس نہیں ہے۔
- (6) مستحکم اہل کتاب یعنی ایسے پرندے یا جانور جسے اہل کتاب نے گلا گھونٹ کر مارا ہو، اس کا کھانا مسلمانوں کو جائز ہے۔
- (7) حساب کتاب، میزان اور جنت و دوزخ کا کوئی خارجی وجود نہیں، ان سے متعلق قرآن میں جو ارشادات ہیں وہ بطریق مجاز، استعارہ اور تشبیہ کے ہیں۔

- (8) قرآن مجید کی کسی آیت سے یہ ثابت نہیں ہوتا کہ حضرت عیسیٰ بن باپ کے پیدا ہونے یا آسمان پر اٹھالیے گئے۔
 - (9) اللہ تبارک و تعالیٰ اپنی قدرت کا کوئی نازق عادت نشان دکھائی نہیں سکتا۔ کیوں کہ اگر ایسا ہوتا تو اس کی عظمت و قدرت و صنعت کو بنا لگے گا۔
- سرمد کے یہ تمام عقائد ان کی تفسیر "تفسیر القرآن" سے ماخوذ ہیں، جس کے بارے میں مولانا الطاف حسین حالی نے اپنے ایک مضمون "سرمد

اور مذہب "میں لکھا ہے جوئی 1898ء میں علی گڑھ میگزین میں شائع ہوا:

"بہت سے مقامات ان کی تفسیر میں ایسے موجود ہیں، جن کو دیکھ کر تعجب ہوتا ہے کہ ایسے عالی دماغ شخص کو کیسے ایسی تاویلات بارود پر اطمینان ہو گیا اور کیوں کر ایسی فاش غلطیاں ان کے قلم سے سرزد ہوئیں۔" (حیات شبلی، ص: 237)

نتائج

آپ نے ایک بار پھر دین میں عقل کا دروازہ کھول دیا جس کے نتائج آج بھی دیکھے جاسکتے ہیں۔ آپ کے بعد آنے والوں نے آپ کے نقش قدم پر چلتے ہوئے عقل کی بنیاد پر طرح طرح کے عقائد فاسد گھڑ لئے۔ جن سے عوام میں کفر و شرک کی طرف لے کر جانے والے عقائد عام ہوئے اور بدعات کو عقلی تائید بھی حاصل ہو گئی۔ جیسے مرزا قادیانی کا قرآن کی عقلی تاویل کرنا اور خاتم نبوت کے عقیدہ سے انکار کرنا، مولانا احمد رضا خاں صاحب کا عقلی دلائل کی بنیاد پر بیلوس میلاد، ختم اور چالیسواں جیسی رسوم کو پھیلا کر، غلام احمد پرویز صاحب کا عقل کو کسوٹی بنا کر احادیث کا انکار کرنا اور جاوید احمد غامدی صاحب کا عقل و تدبر اور اجتہاد کے نام پر اجماعی اصطلاحات دین اور اصول فقہ کی خود ساختہ تعبیرات پیش کرنا وغیرہ۔ ان سب صاحبان کے علم کا دروازہ جناب سر سید احمد خان سے ہی کھلتا ہے۔

تصانیف!

آثار الصنادید

رسالہ نسیحہ

تاریخ ضلع بجنور

اسباب بغاوت ہند

خطبات احمدیہ

تفسیر القرآن

تصحیح آئین اکبری۔

تاریخ سرکشی بجنور

لائل محمد نذرت انڈیا، 1860 اور 1861ء۔ سلسلہ وار تھی، صرف تین نمبروں تک جاری رہی۔

تحقیق لفظ نزاری۔

سلسلہ الملوک، 1852ء۔ راہبہ یڈیشنر سے ملکہ وکنور یہ تک، دہلی کے بادشاہوں کا تذکرہ ہے۔

قول متین در ابطال حرکت زمین۔

ذوائد الافکار فی اعمال الفرجار، ترجمہ 1864ء

تصحیح تاریخ فیروز شاہی، 1862ء۔ ضیاء الدین برنی کی مشہور تصنیف کی سرسید نے تصحیح کی۔

تبیین الکلام، 1862ء۔ علاج ہو میو پیو تھک، 1867ء۔ احکام طعام اہل کتاب۔ سفر نامہ لندن۔ رسالہ ابطال غلامی۔ رسالہ تہذیب

المنظر فی بعض المسائل۔ سفر نامہ پنجاب، 1884ء۔ جواب امہات المؤمنین۔ تسہیل فی جرائد الشیخ، 1844ء۔ کلمۃ الحق، 1849ء

ان کے علاوہ سیرت فرید، جام جم بسلسلہ الملکوت، تاریخ ضلع بجنور اور مختلف موضوعات پر علمی و ادبی مضامین ہیں جو "مضامین سرسید" اور "مقالات سرسید" کے نام سے مختلف جلدوں میں شائع ہو چکے ہیں۔

سفر آخرت!

انسانیت کو دنیاوی ترقی اور عروج تک کا راستہ دکھانے والا یہ غواص بالآخر برطانوی سامراج میں 1898ء (80 سال عمر) علی گڑھ کی سرزمین پر فوت ہو گیا اور علی گڑھ مسلم یونیورسٹی کے حدود میں انہیں سپرد خاک کیا گیا۔

ایسے گئے کہ بکورا کر چلے گئے

چاروں طرف تاحہ نظر لوگوں کا ایک بے کراں سمندر ٹھاٹھیں مار رہا تھا۔ جدھر بھی نگاہ جاتی، لوگوں کے سر ہی سرد کھائی دیتے تھے۔ آگے دیکھئے یا پیچھے، دائیں مڑیے یا بائیں، لوگ سر جھکائے، افسردہ و مغموم پریشان حال، درد و کرب میں غرق چلے جا رہے تھے، اس وسیع سمندر میں آہ و بکا کی آوازیں، اس طرح انہیں گویا سمندر کی طوفانی لہریں پورے جوش و خروش سے ساحل کی طرف بڑھ رہی ہوں۔ یکا یک ہر طرف سکوت مرگ طارق ہو جاتا اور لوگ غم و اندوہ کے سمندر میں ڈوب جاتے۔

سرسید احمد خاں کی علمی خدمات کا اعتراف کیے بنا ہندوستان کی علمی تاریخ ادھوری ہے اس لیے کہ سرسید احمد خاں نے جو کچھ ہندوستانی سماج کو دیا ہے اسے بھلانا آسان نہیں ہے انکی کاوش اور خدمات کا قائل ہر شخص ہے ہاں خامیاں بھی تھیں انکے اندر مگر اسکی وجہ سے انکی علمی کارناموں کا انکار نہیں کیا جاسکتا۔

☆☆☆

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KALYAN (MAHARASHTRA)**



11.

حالی اور مسدسِ حالی

ڈاکٹر محمد راغب دیشکھ

اسسٹنٹ پروفیسر، صدر شعبہ اُردو،

جی۔ ایس۔ سائنس، آرٹس اینڈ کامرس، کالج کھام گاؤں ضلع بلڈانہ

خواجہ الطاف حسین حالی، ہندوستان میں ”اردو“ کے نامور شاعر اور نقاد گزرے ہیں۔ حالی 1837ء میں پانی پت میں پیدا ہوئے۔ انکے والد کا نام خواجہ ایزد بخش تھا۔ ابھی 9 سال کے تھے کہ والد کا انتقال ہو گیا۔ بڑے بھائی امداد حسین نے پرورش کی۔ اسلامی دستور کے مطابق پہلے قرآن مجید حفظ کیا۔ بعد ازاں عربی کی تعلیم شروع کی۔ 17 برس کی عمر میں ان کی مرضی کے خلاف شادی کر دی گئی۔ اب انہوں نے دلی کا قصد کیا اور 2 سال تک عربی صرف و نحو اور منطق وغیرہ پڑھتے رہے۔ حالی کے بچپن کا زمانہ ہندوستان میں تمدن اور معاشرت کے انتہائی زوال کا دور تھا۔ سلطنتِ مغلیہ جو 300 سال سے اہل ہند خصوصاً مسلمانوں کی تمدنی زندگی کی مرکز بنی ہوئی تھی، دم توڑ رہی تھی۔ سیاسی انتشار کی وجہ سے جماعت کا شیرازہ بکھر چکا تھا، اور انفرادیت کی ہوا چل رہی تھی۔

1856ء میں ہسار کے کلکٹر کے دفتر میں ملازم ہو گئے لیکن 1857ء میں پانی پت آ گئے۔ 3-4 سال بعد جہانگیر آباد کے رئیس مصطفیٰ خان شیفیتہ کے بچوں کے اتالیق مقرر ہوئے۔ نواب صاحب کی صحبت سے مولانا حالی کی شاعری چمک اٹھی۔ تقریباً 8 سال مستفید ہوتے رہے۔ پھر دلی آکر مرزا غالب کے شاگرد ہوئے۔ غالب کی وفات پر حالی لاہور چلے آئے اور گورنمنٹ ہک ڈپو میں ملازمت اختیار کی۔ لاہور میں محمد حسین آزاد کے ساتھ مل کر انجمن پنجاب کی بنیاد ڈالی یوں شعر و شاعری کی خدمت کی اور جدید شاعری کی بنیاد ڈالی۔

4 سال لاہور میں رہنے کے بعد دلی چلے گئے اور اینگلو عربک کالج میں معلم ہو گئے۔ وہاں سر سید احمد خان سے ملاقات ہوئی اور ان کے خیالات سے متاثر ہوئے۔ اسی دوران 1879ء میں ”مسدسِ حالی“ سر سید کی فرمائش پر لکھی۔ ”مسدس“ کے بعد حالی نے اسی طرز کی اور بہت سی نظمیں لکھیں جن کے سیدھے سادے الفاظ میں انہوں نے فلسفہ، تاریخ، معاشرت اور اخلاق کے ایسے پہلو بیان کئے جن کو نظر انداز کیا جا رہا تھا۔

ملازمت سے فارغ ہونے کے بعد پانی پت میں سکونت اختیار کی۔ 1904ء میں ”شمس العلماء کا خطاب ملا، 31 دسمبر 1914ء کو پانی پت میں وفات پائی۔

سر سید جس تحریک کے علمبردار تھے حالی اسی کے نقیب تھے۔ سر سید نے اردو نثر کو جو وقار اور اعلیٰ تنقید کے جوہر عطا کئے تھے۔ حالی کے مرصع قلم نے انہیں چمکایا۔ نہ صرف یہ کہ انہوں نے اردو ادب کو صحیح ادبی رنگ سے آشنا کیا بلکہ آنے والے ادیبوں کے لیے ادبی تنقید، سوانح نگاری، انشا پر داری اور وقتی مسائل پر بے تکلف اظہار خیال کر کے بہترین نمونے یادگار چھوڑے۔

اردو شاعری میں مولانا حالی کا اعلیٰ ترین کارنامہ ان کی طویل نظم ”مد و جزر اسلام“ ہے جو عام طور پر ”مسدس حالی“ کے نام سے مشہور ہوئی۔ یہ نظم اس قدر مقبول ہوئی کہ اس نے مقبولیت اور شہرت کے اگلے پچھلے تمام ریکارڈ توڑ دیے۔ کہا جاتا ہے کہ کئی سال تک برصغیر کے طول و عرض میں جو کتب قرآن کریم کے بعد سب سے زیادہ شائع ہوئی وہ ”مسدس حالی“ تھی۔ بقول سر سید احمد خان، ”بے شک میں اس کا محرک ہوں اور اس کو میں اپنے اعمالِ حسنہ میں سے سمجھتا ہوں کہ جب خدا پوچھے گا کہ دنیا سے کیا لایا۔ میں کہوں گا کہ حالی سے مسدس حالی لکھوا کر لایا ہوں اور کچھ نہیں“

سر سید کی یہ بات اتنی سچی ہے جیسے دن ہو یا رات۔ میں نے جب ہوش کی آنکھ کھولی، یہ بات سن 1957ء کی ہے، تو اپنے گھر میں اپنی نانی، نانا، خالہ خالو اور بہت سارے افراد کو اسے آواز بلند پڑھتے پایا۔ میری والدہ کے چچا کو تو یہ حفظ تھی۔ حالی کی ”مسدس“ (مد و جزر اسلام) ہو یا حفیظ جالندھری کا شاہ نامہ اسلام، بلاشبہ یہ دونوں کتابیں مقدس کتابوں کا سا درجہ رکھتی تھیں لیکن آج ان کتابوں کا نام تک کوئی نہیں جانتا۔

ناگفتہ بہ صورت حال اور کڑے وقت میں کسی کا بھی قوم کیلئے اٹھنا اور مثبت پیغام دینا مومنانہ کام ہے اور یہ کام وہی انجام دے سکتا ہے جس کا ایمان پختہ ہو اور کڑے سے کڑے وقت میں حق اور سچ ہی بیان کرنا جانتا ہو اگر ہم آج سے اس وقت کا موازنہ کریں تو الحمد للہ ہم ایک مسلمان ملک میں رہتے ہیں جس میں حق بات کہنا کوئی دشوار بات نہیں لیکن ایک ایسا ملک جس میں نہ صرف مسلمان اقلیت میں تھے بلکہ ان کے چاروں جانب دشمن ہی دشمن تھے، ایک جانب ہندو اور دوسری جانب سکھ اور اس پر قیامت یہ کہ حکومت فرنگیوں کی جن کے سینے میں دل کی جگہ پتھر رکھا ہوا تھا، ان کے سامنے پیغام: بیداری موت کا پروانہ بھی ثابت ہو سکتا تھا لیکن یہ بات حق گوئی اور بے باکی کو مہمیز دیتی ہے اور اس کی جذبات میں اور بھی حرارت کا سبب بنتی ہے۔ انگریز بہت اچھی طرح جانتے تھے کہ اگر ان کے ناپاک مقاصد میں اگر کوئی مزاحم ہو سکتا ہے تو وہ صرف اور صرف مسلمان ہی ہو سکتے ہیں۔ آنے والے وقت نے یہ ثابت بھی کیا اور مسلمانوں کے ہاتھوں انگریزوں کو سخت مزاحمت کا سامنا بھی کرنا پڑا۔ ایسے دور میں مولانا الطاف حسین حالی نے اپنی تحروں اور شاعری سے مسلمانوں کے دل مردہ میں وہ روح پھونکی کہ ہر جانب انقلاب کی نوید سنائی دینے لگی۔

”مسدس حالی“ ایک ایسی لظم ہے جس میں مسلمانوں کے ماضی کی جھلکیوں کا عکس ملتا ہے۔ اس لظم میں مولانا حالی نے نہ صرف قوم کی سابقہ عظمت اور شان و شوکت پر بحث کرتے ہوئے موجودہ دور میں ان کی غیرت کو لاکار ہے۔ بلکہ اس کو تاریخی واقعات کے ساتھ بیان کر کے ان کی عہد بہ عہد ترقی اور تنزل کے اسباب اور وجوہات کو بھی بیان کیا ہے۔ جس سے مولانا حالی کے تاریخ اسلام کے گہرے مطالعے اور آگاہی کا پتہ چلتا ہے۔ انہوں نے عہد بہ عہد تاریخی واقعات کو نمونے کے طور پر لظم کا روپ دے کر مسلمان قوم کو بیدار کرنے کی کوشش کی ہے کہ جس کی مثال نہیں ملتی۔ مثال کے طور پر شروع کے اشعار میں عرب کی حالت کا نقشہ کھینچا گیا ہے۔ وہ ایسا سچا ہے کہ جب سے قلم نے اس منظر کو قلمبند کیا اس وقت سے آج تک وہ اس عہد کے ہر نقشہ کھینچنے والے کے لئے نمونے کا کام دیتا ہے۔

عرب جس کا چرچا ہے یہ کچھ وہ کیا تھا
 جہاں سے الگ ایک جزیرہ نما تھا
 زمانے سے پیوند اس کا جدا تھا
 نہ کورستان تھا نہ کشور کشا تھا
 تمدن کا اس پر پڑا نہ تھا سایہ
 ترقی کا تھا وہاں قدم تک نہ آیا

اس طرح ایک اور شعر ملاحظہ ہو جس سے اس وقت کی مذہبی رسومات اور لوگوں کی ایماں و یقین پر بخوبی روشنی پڑتی

ہے۔

قبیلے قبیلے کا بت اک جدا تھا
 کسی کا ہبل تھا کسی کا صفا تھا

آج نہ جانے کتنے ممالک ہیں اور کتنی تنظیمیں جو انسانی حقوق کی علمبردار بنی نظر آتی ہیں۔ ان کی چہرے دہرے ہی نہیں، ہزاروں روپ رکھتے ہیں۔ انسانی حقوق کا شور مچانے والوں کے چہروں پر چڑھے اگر ایک ایک نقاب کو نوچ نوچ کر الگ کی جائے تو ہر چہرہ بھیڑیا صفت ثابت ہوگا۔ یہ سارے امن و آشتی کا سبق دینے والے اندر سے اتنے ظالم اور جابر ہیں کہ فرعون و ہامان کی داستانیں بھی ان سے شرماتی ہیں۔ یہ ایک بٹن دبا کر پوری انسانیت کو تباہ کر دیتے ہیں اور انسانی کھوپڑیوں کے نہ صرف مینارے بناتے ہیں بلکہ ان میں شراہیں تک پینے سے گریز نہیں کرتے۔ حالی کے دور میں یہی مناظر تھے اور آج بھی وہی

مگر صد افسوس کہ اب پورے عالم اسلام میں مسلمانوں میں غیرت جگانے والا کوئی ایک رہبر یا مصلح دکھائی نہیں دے رہا۔ ہر جانب ہو کا عالم ہے اور ایک قحط الرجال کی سی کیفیت ہے۔ مسلمان ممالک میں مسلمان ہی مسلمانوں کے خون کے پیاسے بنے ہوئے ہیں۔ رات دن ایک دوسرے کے گلے کاٹ رہے ہیں۔ بمباریاں کر رہے ہیں۔ ان کو اس بات میں بھی کوئی شرم نہیں کہ ان کی زد میں محض ان کے دشمن ہی نہیں، معصوم بچے، عورتیں، بوڑھے اور بے قصور بھی آرہے ہیں۔ حد یہ ہے کہ ہسپتال تک ان کی وحشیانہ کارروائیوں سے محفوظ نہیں۔ وحشت و بربریت کا ایک بازار ہے جو ہر سو گرم ہے لیکن غیرت و حمیت ہے کہ بیدار ہو کر نہیں دے رہی۔

مولانا حالی نے اسلام کی تعلیمات کا ذکر بھی تفصیل کے ساتھ کیا ہے۔ آپ ﷺ نے انسانوں اور بالخصوص عرب کی وہ سر زمین جہاں جہالت کے اندھیارے پھیلے ہوئے تھے اور انسان جانوروں سے بھی بدتر زندگی گزار رہے تھے ان کو ایسا انسان بنادیا جس کی مثال نہیں ملتی اور آج کی دنیا بھی انھوں انسانوں کے حوالے سے اپنی زندگی کے روز و شب کو مثالی بنانے میں ان ہی نفوس کی مثالیں اور حوالے دینے پر مجبور ہے۔ اگر زمین کو جنت نظیر بنانا ہے اور اس کو ہر فتنہ و فساد سے بالاتر رکھنا ہے تو ضروری ہے کہ اسی بنی ﷺ کی لائی ہوئی شریعت کو تازہ کیا جائے اور اس بنی ﷺ کی سنت اور اس کے اصحاب کے مثالی کردار کو عام کیا جائے بصورت دیگر دنیا جنت نظیر کبھی نہیں بن سکتی البتہ دوزخ ضرور ثابت ہو سکتی ہے۔ آپ ﷺ کی آمد اور ان کے تعلیمات کے چھا جانے کو حالی کچھ اس انداز میں بیان کرتے ہیں:

گھٹا اک پہاڑوں سے بٹھا کے اٹھی
پڑی چار سو یک بیک دھوم جس کی
کڑک اور دمک دور دور اس کے پہنچی
جو ٹیگس پہ گرجی تو گنگا پہ برسی
رہے اس سے محروم آبی نہ خاکی
ہری ہو گئی ساری کھیتی خدا کی

اگر تاریخ کا صدق دل کے ساتھ مطالعہ کیا جائے تو اس بات سے ترقی یافتہ سے ترقی یافتہ قوم بھی انکار نہیں کر سکتی کہ وہ آج ترقی کے جس مقام پر ہیں ان کے ہر علم کی اساس مسلمانوں نے ہی فراہم کی۔ نئی نئی دنیا میں مسلمانوں نے ہی دریافت کیں۔ عدل و انصاف کا اعلیٰ ترین معیار مسلمانوں نے ہی فراہم کیا۔ حکومت کس طرح کی جاتی ہے، یہ مسلمانوں نے ہی دنیا کو سکھایا۔ دل کس طرح جیتے جاتے ہیں اس کی تعلیم مسلمانوں نے ہی دی۔ دنیا والوں کو ریاضی، فلسفہ، طب، کیمیا، ہندسہ، ہیئت، سیاحت، تجارت، معماری، نقاشی، اور جراحی جیسے علوم و فنون سے آگاہ کیا۔ یہ دوسری بات ہے کہ مسلمان آگے چل کر خواب

غفلت کا شکار ہو گئے اور عیاشی میں پڑ کر تحقیق سے کنارہ کش ہوئے اور دوسری اقوام سے مغلوب ہوتے چلے گئے جس کا سبب علامہ اقبال کچھ یوں بیان کرتے ہیں کہ:

آ تجھ کو بتاؤں میں تقدیر امم کیا ہے

شمشیر و سناں اول طاؤس و رباب آخر

مسدس میں حالی نے قوم کی ترقی و عروج کو نہایت موثر انداز میں بیان کرنے کے بعد اس بات کو بڑے دکھ کے ساتھ بیان کیا ہے کہ مسلمانوں نے تنزلی پر قناعت کر لی ہے اور غفلت کے ترک کرنے پر آمادہ نہیں۔ اس طرح وہ خود تو ذلیل ہوئے ہی ہیں لیکن انہوں نے اپنی بے حسی کی وجہ سے ہادی برحق کے دین کو بھی بدنام کیا ہے۔ فرماتے ہیں:

پر اس قوم غافل کی غفلت وہی ہے

تنزل پہ اپنے قناعت وہی ہے

ملے خاک میں پر رعونت وہی ہے

ہوئی صبح اور خوابِ راحت وہی ہے

نہ افسوس انہیں اپنی ذلت پہ ہے کچھ

نہ رشک اور قوموں کی عزت پہ ہے کچھ

□□□

Study of Snake Species Diversity in Rural and Semi Urban Areas of Buldhana district of Maharashtra, India

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ABSTRACT

Snakes plays important ecological role in food chain. Depletion of these animals throughout the globe and their extinction is causing a conscientious and diligent task to the people of all spheres of the society to conserve them. A total number of 25 species of snakes belonging to 6 families, 22 genera were recorded during the study period of six month. Of which 17species belonging to non-venomous, 3 semi-venomous and 5 species were venomous. Among these 2 species were endemic to India and 7 species shows rare status.

Key words: Snake of India, Maharashtra Snakes, Khamgaon, Dyanganga, Snakes.

INTRODUCTION

Snakes are abundant all over the world except Antarctica and some islands. Snakes are extremely well adapted to their habitats and plays important role in food chain and food web. The snakes are integral part of a forest ecosystem as their position in the food chain as predators making them important in the nutrients flow. They play key ecological roles in controlling rodents pests. They maintain the balance of nature. The present study was aimed to determine the diversity distribution and various morphs of the snake species in Khamgaon region of Maharashtra. The study period was August 2018 to January 2019.

MATERIAL AND METHODS

Khamgaon is located in the Buldhana district, Maharashtra. Dyanganga Wild Life Sanctuary is about 22km from Khamgaon. For the collection Pit-fall trap, direct encounter, snake occurrence calls and following the rescue calls of snake friends these type of methods were used. The collected species were identified by using field guide and books. The collected species then released in their natural habitat. If any injured snake species collected then it were treated with Veterinary Doctors and released in forest after some time.

RESULTS ANA DISCUSSION

In the present study total snakes comprises six families Typholopidae, Pythonidae, Boidae, Colubridae, Elapidae, Viperidae. Out of this families

Colubridae family shows a dominance and represented in dominance order as Colubridae> Elapidae> Viperidae>=Boidae>Pythonidae>=Typhlopidae.

There were 22genera recorded out of 25 snake species with 6 families during the study period of six month. Of which 17species belonging to non-venomous, 3 semi-venomous and 5 species were venomous. Among the venomous species, Common krait, slender coral snake, spectacled cobra, Russell's viper and Saw scaled viper were found. Indian cobra-Naja naja was the most abundant followed by Indian krait-Bungarus careuleus. The non-venomous species included Bramhminy worm snake, Indian rock Python, Common sand boa, Red sand boa, Common trinket snake, Indian rat snake, Banded racer, Indian smooth snake, Common kukri, Common bronzeback tree snake, Common wolf snake, Yellow spotted wolf snake, Dumeril's black headed snake, checkered keelback, striped keelback, Green keelback and Russell's kukri. Among the semi-venomous species Indian egg eater, Common cat snake and Common vine snake were recorded.

Among these snake species Indian smooth snake- Corenella branchyura and Yellow spotted wolf snake- Lycodon flavomacutus shows endemic status in India.

There were Indian egg eater, Indian Rock python, Yellow spotted wolf snake, Indian smooth snake, Russell's kukri, Dumerill's Black headed snake and Slender coral snake shown rare status. Family Typhlopidae was recorded with single species, Pythonidae with 1, Boidae with 2, Colubridae with 16, Elapidae with 3 and Viperidae 2 species. Family Colubridae showed highest percentage 64% and was species rich. While non-venomous category of snakes recorded with highest number of species and semi venomous category found to be poor in species.

The present study is a trial to guage the data regarding differing kinds of snake species and their incidence, abundance and species richness and any assist within the data, awareness and conservation of snake fauna in this region.

Data analysis:-

$$\text{Shannon index (H)} = - \sum P_i \ln P_i = - (-2.4216) \quad ,$$

$$H = 2.4216$$

$$\text{Simpson index (D)} = 1/\sum P_i^2 = 1/0.3976 \quad ,$$

$$D = 2.5150$$

Table 1: Data analysis using diversity indices (Shannon and Simpson)

Sr.no	Family name	No. of species	pi	pi ²	In Pi	Pi In pi
1	<i>Typhlopidae</i>	4	0.0243	0.0005	-7.6009	-0.1847
2	<i>Pythonidae</i>	3	0.0182	0.0003	-8.1117	-0.1477
3	<i>Boidae</i>	11	0.067	0.0044	-5.4261	-0.3635
4	<i>colubridae</i>	95	0.5792	0.3344	-1.0924	-0.6327
5	<i>Elapidae</i>	37	0.2256	0.0508	-2.9798	-0.6722
6	<i>Viperdae</i>	14	0.0853	0.0072	-4.9336	-0.4208
		164		0.3976		-2.4216

Table 2: Data analysis of No. of species by Family distribution.

Sr.No.	Family	No. of species recorded	Percentage (%)	π chart %
1	Typhlopidae	1	1/25×100= 4	4×3.6=14.4°
2	Pythonidae	1	1/25×100= 4	4×3.6=14.4°
3	Boidae	2	2/25×100=8	8×3.6=28.8°
4	Colubridae	16	16/25×100= 64	64×3.6=230.4°
5	Elapidae	3	3/25×100= 12	12×3.6=43.2°
6	Viperidae	2	2/25×100= 8	8×3.6=28.8°
Total	25	100%	360°	

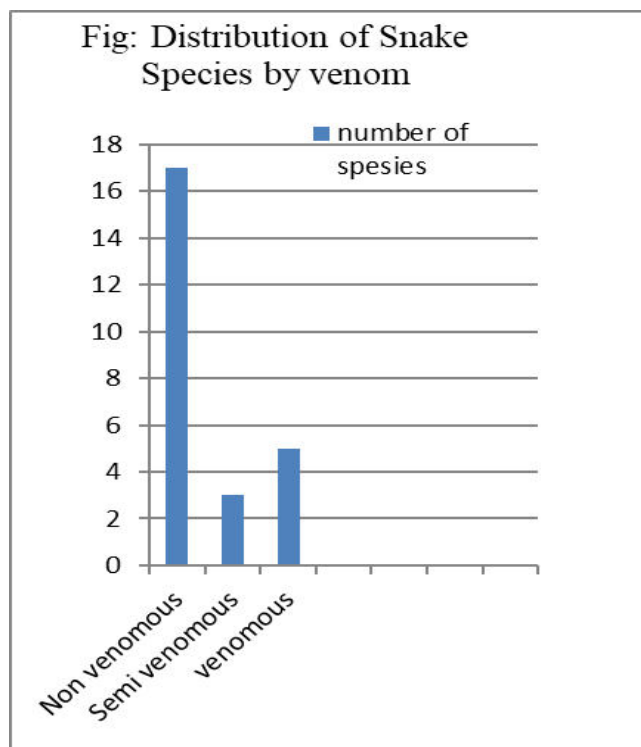
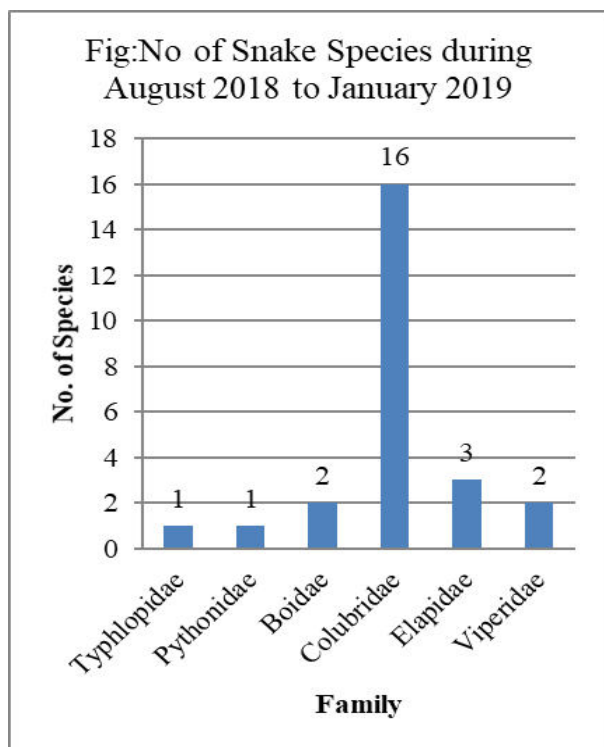


Table.3: Graphical Representation of Data on basis of Family and Venom

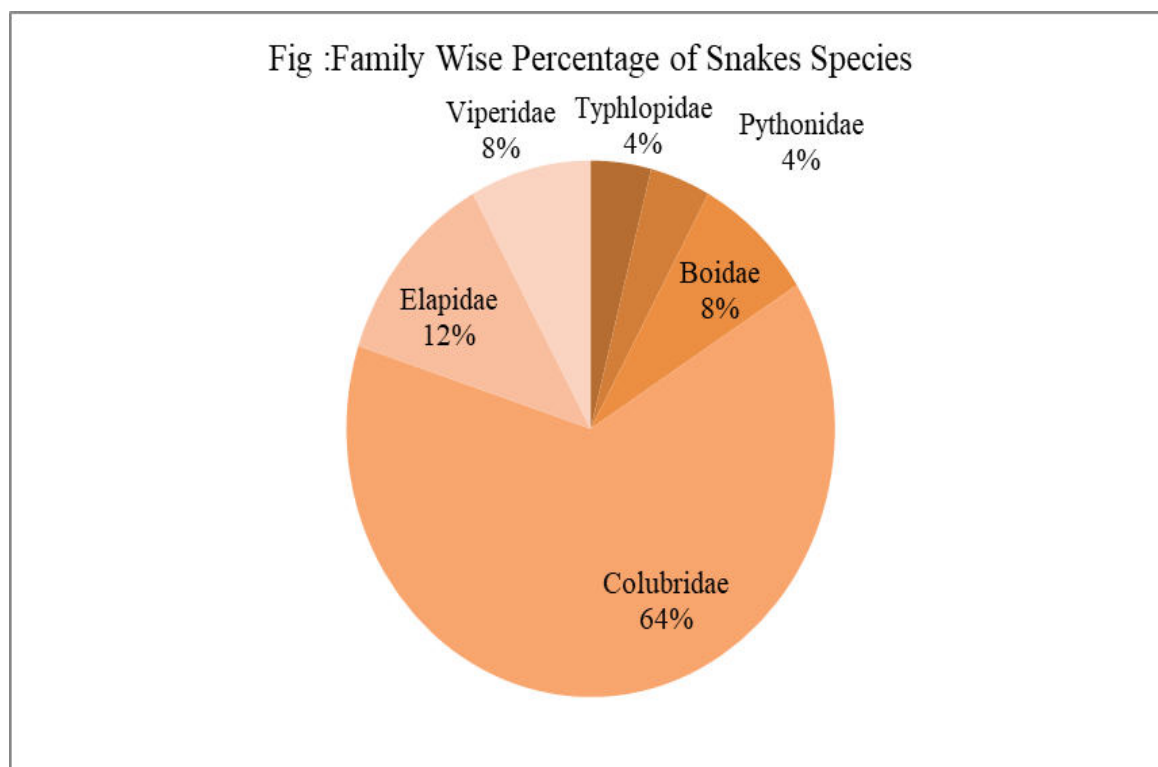


Table.4: Pie Diagram for Family Wise Percentage of Snake Species.



1. Brahminy worm snake Location:- Garadgaon



2. Indian rock python Location:- Tembhurna



3. Common sand Boa Location:- Sutala Bk.



4. Red sand Boa Location:- Shirajgaon Deshmukh



5. Common trinket snake Location:- Area of Garadgaon



6. Indian rat snake Location:- Area of Garadgaon



7. Banded racer Location:- Area of Garadgaon



8. Indian smooth snake Location:- Civil line Khamgaon



9. Indian egg eater Location:- Area of Wadi



10. Common kukri snake Location:- Area of Antraj



11. Common Bronzback snake Location:-Lakkadganj Khamgaon



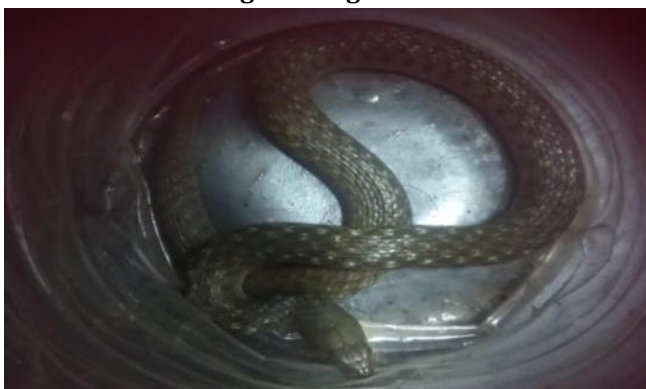
12. Common wolf snake Location:- Rekha Plot Khamgaon



13. Yellow spotted wolf snake Location:- G.S. college Khamgaon



14. Dumeril's black headed snake Location:- Area of Sutala Khurd



15. Checkered keelback Location:- Area of Garadgaon



16. Striped keelback Location:- Area of Waghali



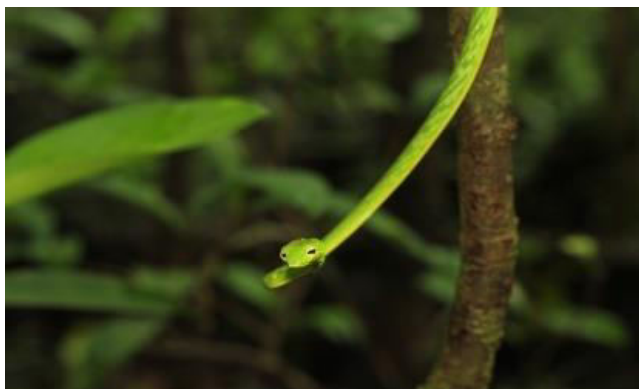
17.Green keelback Location:-Area of Mathani



18.Russell's kukri snake Location:-Area of Makta



19.Common cat snake Location:-Area of Hiwarkhed



20.Common vine snake Location:-Area of Varna



21.Common krait Location:- Area of Sajanpuri



22.Slender coral snake Location:- Civil lines Khamgaon



23.Specteclad cobra Location :- Vijaylaxmi Petrol Pump Khamgaon



24.Russell's viper Location:- Area of Garadgaon



25. Saw scaled viper Location:- Area of Shelodi

Conflicts of interest: The authors stated that no conflicts of interest.

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Section Articles

INDIAN RURAL ECONOMY: ISSUES AND SOLUTIONS FOR SUSTAINABLE DEVELOPMENT

G.B.Kale

K.B.Sangve

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Abstract

Indian rural economy is based on agriculture and is facing the problems of policy contradictions. Although several forecasts of the 1990s predicted that India would be a large importer of grains in the years to follow, in fact from 2001 to 2004 India exported around 30 million tons of food grains. It was seeking primarily to liquidate its bulging grain stocks, which reached 63 million tons in July 2002. Whereas India's agricultural policy is still rooted in the goal of self-sufficiency in grains, consumption patterns are changing fast toward high-value agricultural products such as fruits and vegetables, livestock products, and fish. The policy is lagging behind the structural change occurring in India's consumption and production baskets. On another



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Survey of sickle cell anemia at Satgaon Bhusari Maharashtra India

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Abstract

Sickle cell anemia is the most common form of sickle cell disease (SCD) SCD is a serious disorder in which the body makes sickle-shaped red blood cells. "sickle-shaped" means that the red blood cells are shaped like a crescent.

Normal red blood cells are disc-shaped and look doughnuts without holes in the center. They move easily through your blood vessels. Red blood cells contain an iron-rich protein called hemoglobin. This protein carries oxygen from the lungs to the rest of the body. The aim of study to carry out to assess the sickle cell anemia and morbidity pattern in village at Satgaon Bhusari, Chikhali tahsil of Buldana district in Maharashtra, India. The subjects were screened by solubility test.

The present study is community based cross sectional study conducted on date 12 march 2018 at village Satgaon Bhusari, tehsil Chikhali of Buldana district in Maharashtra. All 25 participating individuals were 1 - 30 years of age. By arranging screening camps village Satgaon Bhusari at places primary school, sub primary health center the investigation was conduct by contact & screen each and every 1 to 30 year age group population by doing solubility test. Detailed history of each individual was recorded with age, sex, cast, smoking habit, food habit, family history and morbidity status etc. The population was screened by solubility test.

Keywords: genetic disorder, abnormal RBC's, haemoglobin, anemia

Introduction

Sickle cell anemia is a genetic disorder which causes the expression of defective hemoglobin resulting irregularly shaped red blood cells, known as "sickle cells." These sickle cells cause problems in the body, often blocking blood flow and causing painful attacks and sometimes stroke. Sickled cells have different biochemistry than normal red blood cells and are controlled by many free radical processes.

Patients with sickle cell disease experience both chronic and episodic pain and have a reduced quality of life [7]. Painful crisis is the most common reason for emergency department use by patients with sickle cell disease [8]. The pathophysiology of a painful crisis is not entirely clear, and its determinants are uncertain. Some patients have frequent crises and severe disability, whereas others are able to lead relatively normal lives. Much of what we have learned about the incidence of complications in people with sickle cell disease comes from the Cooperative Study of Sickle Cell Disease (CSSCD)

Material and Methods

The present study is community based cross sectional study conducted on date 12 March 2018 at village Satgaon Bhusari, Tehsil Chiklli of Buldana district in Maharashtra. All 25 participating individuals were 1 - 30 years of age. By arranging screening camps village at Satgaon Bhusari at places primary school, sub primary health center the investigation was conduct by contact & screen each and every 1 to 30 year age group population by doing solubility test. Detailed history of each individual was recorded with age, sex, cast, smoking habit, food habit, family history and morbidity status etc. The population was screened by solubility test.

Solubility test procedure

One ml of phosphate buffer reagent was taken in a glass tube and a small quantity of sodium dithionite was added to it and was mixed well to dissolve.

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A small drop of washed red cells was added and was mixed well to produce light pinkish violet colour. The test was read after 3 to 5 min. It was read as positive, if the turbidity impaired the visibility of dark, bold lines on a white paper held against bright source of light at one inch distance. Negative test was indicated by visible lines. The sickle cell solubility test is a simple method that detects the presence of

sickle hemoglobin, but does not distinguish between sickle cell trait and sickle cell disorders.

Sr. No.	Turbidity	Clarity	Visibility of line through the tubes	Interpretations
01	No	Yes	Yes	Normal
02	Yes	No	No	Sickle cell

Observation Table

Sr. No.	Name of patients	Gender	Age	caste	Marital status	Result
01	Kunti Ashok Lokhande	F	24	Maratha	Married	-ve
02	Manish Dilip Hiwale	M	18	Mahar	Single	-ve
03	Ashwini Gajanan Ingle	F	15	Buddha	Single	-ve
04	Pooja Dilip Hiwale	F	14	Mahar	Single	+ve
05	Babita Kisan Jadhav	F	15	Maratha	Single	-ve
06	Ajay Kaduba Mane	M	14	Mahar	Single	+ve
07	Akhash Dilip Khandare	M	16	Mahar	Single	-ve
08	Suraj Santosh Gawai	M	17	Mahar	Single	-ve
09	Gopal Ramdas Jadhav	M	14	Mahar	Single	-ve
10	Archana Shivaji Katkar	F	22	Kunbi	Married	+ve
11	Yash Shivaji Katkar	M	3	Bhil	Single	-ve
12	Rekha Sanjay Pathe	F	ZJ	Chambhar	Married	-ve
13	Jija Brmhanand Gawai	F	27	Buddha	Married	-ve
14	Ganesh Pralhad Pawar	M	15	Maratha	Single	-ve
15	Sandip Voman Jadhav	M	24	Buddha	Single	-ve
16	Vilas Ramesh More	M	25	Buddha	Married	-ve
17	Varsha Rajkishir Kankal	F	26	Buddha	Married	+ve
18	Santosh Himmatrao Jadhao	M	22.	Buddha	Single	+ve
19	Shubhangi Suresh Rindhe	F	17	Maratha	Single	-ve
20	Surekha Ramesh Jadhao	F	27	Buddha	Married	-ve
21	Vimal Sanjay Khandare	F	29	Buddha	Married	-ve
22	Archana Shivaji Gadge	F	26	Maratha	Married	-ve
23	Meera Babulal Pathe	F	26	Chambhar	Married	-ve
24	Vlukta Gajanan Bhusari	F	17	Kunbi	Single	-ve

Result

During the study period of two months total persons are observed undertake camp. The local status also analyzed through seasonal data. The patients observed under the camp during the study are listed above.

Conclusion

Sickle cell anemia is a genetic disorder which causes the expression of defective hemoglobin resulting irregularly shaped red blood cells. This sickle cell blocking blood flow, causing painful attacks.

In the study, the solubility test was used as screening test, as it is easy to carried out in the field setting and rapid method. The study shows that most of the cases are in the age group of below 30 years. Out of total only 10 to 15% persons where observed as a sickle cell carrier i.e. the cases of sickle cell a given areas are very rare.

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Study of Ant Diversity in Various Localities of Akola, Maharashtra, India

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ABSTRACT

Ants are abundant insects and are considered important in ecosystem functioning they have diverse ecological role including nutrient cycling seed dispersal. This research is carried out from January 2018 to April 2018. During this research ant samples were collected from the two ecological habitats. In this finding ants of about 8 species were found different species were collected through different methods and recorded their diversity. Species such as longicornis, pharaonis, indica, C.sericus, hespera, nigra, spathifera, geminate. Among all the species longicornis has found at a greater frequency while the frequency of species indica were reported very less. While considering species richness diversified species were mostly found in the month of April followed by month of January and it was very less in February and march during this research ants were collected by using pitfall traps, scented traps and hand collection methods ants were generally collected during morning and was preserved by the wet preservation methods.

Key words: Ants, diversity, species, ecological habitats, Akola city.

INTRODUCTION

Ants are one of the least studied groups with respect to their taxonomy and ecology in India. Species identification of ants is difficult because of lack of reference collection and the fact that most of the available keys are either out of print and unavailable are restricted to the ant fauna of specific region ants account for an estimated 30% of terrestrial biomass (holldobler and Wilson 1990) and play many important ecological role having direct interaction with the soil plants and animals at all tropic levels

Ant communities are influenced by both biotic and abiotic factors (Cushman 1993, perfecto and vandermeer1996) distribution of ant species varies along latitudinal gradients which correspond to gradual changes in a certain environmental factor such as a climate and vegetation factors. Globally there are about 12571 extant ants species as per the recent classification all ants are grouped in 21 sub families all the ants species fall into signal family formicidae this family is included in the super family vespidae of the order hymenoptera which is place in the class insecta.

The objective of this study was to found the ant diversity and distribution in different habitat. Habitat considered for this research is PDKV and Nehru amusement park.

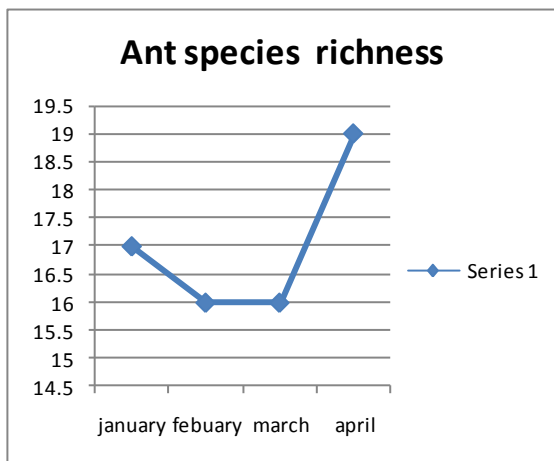
MATERIALS AND METHODS

The ants sample were collected from various localities on and around Akola city within 15km of the city center 3 ecological habitat PDKV, Nehru park and residential area were chosen for sampling. Akola is located at latitude 20.7⁰ north and longitude 77.07⁰ east. It is at an altitude of 925 ft (282m) above the sea level. Akola has a tropical savanna climate (koppen climate classification AW) and people predominantly wear cotton cloths. Akola has national weather station which serves as the local weather centre. Annual5 temperature ranges from a high of 48 ⁰C (118 ⁰F) to a low of 10 ⁰C (50 ⁰F). Akola lies on the tropic of cancer and become very hot during summers, especially in may. Although it can be very hot in the day, it is

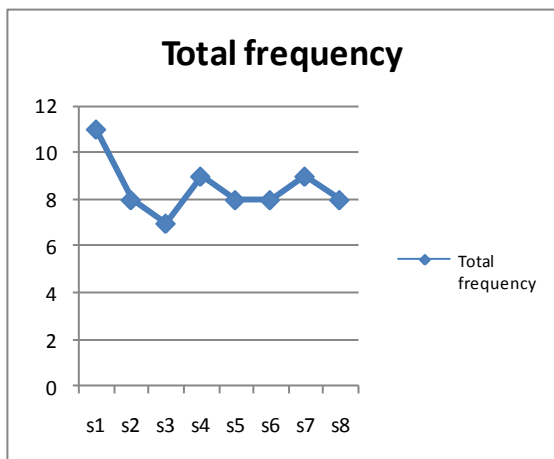
cooler at night the annual rainfall occurs in monsoon season between June and

September but some rain does fall during January and February.

number	Subfamily	Species	January	February	March	April	Total ferquency
1	Formicinae	Paratrechina longicornis	2	3	3	3	11
2	Myrmicinae	Monomorium pharaonis	2	2	2	2	8
3	Vasopdae	Monomorium indicum	3	1	1	2	7
4	Formicinae	Componotus sericeus	2	3	2	2	9
5	Myrmicinae	Chremotogaster hespera	3	1	2	2	8
6	Pseudomyrmicinae	Tetroponeia nigra	1	2	2	3	8
7	myrmicinae	Pheidole spathifera	2	2	2	3	9
8	myrmicinae	Solonopses geminate	2	2	2	2	8
			17	16	16	19	Total



Table



RESULT

8 species of ants were identified in the study area of Akola city at allied region. All the collected ants were identified into 4 sub families that myrmicinae, formicidae, vasopdae, pseudomyrmiciae, all this 8

species are diversely collected from the forest, human habitat and park.

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The Role of GST in the Upliftment of Indian Economy

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Abstract:

As we are not habituated of single tax policy, it is obvious that it will take some time to give much favorable outcomes for the development of Indian Economy because if we want to change, we have to keep patience. For this purpose, we have to accept this big challenge in the form of transformation through taxation policy which is requirement of scenario. In this paper, Researcher has gone through empirical study and has taken ideas, views and opinion of experts. In Nutshell, GST is assisting Indian Economy. But Government should keep uniformity in its rules and regulations because time to time variations disturb the mindset of Taxpayers.

Key Words: GST, Economy, Service Sector, Industry.

Introduction:

During economic crisis across the universe, our country has posed a beacon of hope with ambitious growth targets, assisted by a bunch of strategic undertakings such as the Make in India and Digital India campaigns. The Goods and Services Tax (GST) is another such undertaking that is expected to provide the much required stimulant for economic growth in India by transforming the existing base of indirect taxation towards the free flow of goods and services. GST is also expected to eradicate the cascading effect of taxes. India is estimated to play an important role in the world economy in the years to come. We have very high expectations from GST as India is a developing country. The slogan of GST is 'ONE NATION, ONE TAX' Policy.

Objectives of Study:

- To study Corporate's view on implementation of the GST.
- To analyze the opinion on Indian Economy of GST.
- Understand the view of respondents on tax administration & litigation management.

Hypothesis: The industry and business along with the consumers will be benefitted.

Research Methodology:

Collection of Data: The data will be collected using both by primary data collection method as well as secondary sources.

Sample size : The respondent size is 50 which is selected on the basis of convenience sampling method. The tools adopted to analyze the data are percentage and the research design used is descriptive research design. For the purpose of research study both primary data as well as secondary data has been collected.

Empirical Evidence:

A research study conducted recently reveals about the possible impact of GST. The impact is as perceived by 50 corporate undertakings belonging to both manufacture and service sectors and tax experts across the country. Their perception about the possible out-come of the implementation of GST are gathered as below:



Table - 1:

Corporates' agreement on implementation of the GST

Implementation of the proposed Goods and Services Tax (GST) would make your Organization and Industry more competitive		
Opinion	Frequency %	Frequency Count
Strongly Agree	24%	12
Agree	50%	25
Neither Agree Nor Disagree	13%	08
Disagree	08%	04
Strongly Disagree	02%	01
Total	100%	50

Source: Field Survey

The GST is expected to unify the fragmented market in India and reduce cascading impact. In this connection, the opinion was gathered from the respondents on competitiveness of GST 24% of the respondents strongly agreed and 50% of the respondents agreed that, "implementation of the proposed Goods and Services Tax (GST) would make their organization and industry more competitive". While, 13% of the respondents were undecided, 8% and 2% of the respondents were disagreed and strongly disagreed, respectively, with the statement made. In general, the overall picture generates the hope that, the GST will get good support from the majority of business & industrial community in India in the global environment.

Table - 2:

Corporates' agreement on the intention of bringing GST

The intention of bringing GST is to broad-base the levy, have fewer tax rates, simplify procedures and computerize the tax administration		
Opinion	Frequency %	Frequency Count
Strongly Agree	18%	09
Agree	60%	30
Neither Agree Nor Disagree	10%	05
Disagree	06%	03
Strongly Disagree	06%	03
Total	100%	50

Source: Field Survey

Table - 2 shows that, 18% of the respondents strongly agreed and 60% of the respondents agreed that, "the intention of bringing GST is to broad-base the levy, have fewer tax rates, simplify procedures and computerize the tax administration". While, 10% of the respondents were neutral on this view, a small number i.e. 6% of the respondents in each group belonged to disagreed and strongly disagreed groups with the above statement. This shows, the acceptance of proposed GST by the business and industry community.

Table - 3:

Corporates' agreement on GST's competency

The implementation of GST will improve the tax revenue in addition to improving the economy		
Opinion	Frequency %	Frequency Count
Strongly Agree	20%	10
Agree	70%	35
Neither Agree Nor Disagree	04%	02
Disagree	04%	02
Strongly Disagree	02%	01
Total	100%	50

Source: Field Survey



A change in regime in recent times from cascading type sales tax to tax based on input-tax credit within taxation of goods, as well as the adoption of a uniform rates of tax, has resulted in rise revenues. Hence, it is also believed that, the GST, along with simplifying many issues in consumption taxation, extends the revenue base of the Indian economy. The respondents have expressed their view on the role of GST in revenue collection. Table - 3 reveals that, 20% of the respondents strongly agreed and 70% of the respondents agreed that, "the implementation of GST will improve the tax revenue in addition to improving the economy". While, 4% of the respondents were undecided, a small number (2%) of the respondents, respectively, disagreed and strongly disagreed with the statement made.

Table - 4:

Corporates' agreement on the role of GST in tax administration and litigation management

The implementation of GST improves tax administration and reduces the litigations		
Opinion	Frequency %	Frequency Count
Strongly Agree	16%	08
Agree	60%	30
Neither Agree Nor Disagree	10%	05
Disagree	10%	05
Strongly Disagree	04%	02
Total	100%	50

Source: Field Survey

A tax regime may be called as advanced or developed if the scope for litigation is very less. In this regard, Table - 4 describes that, 16% of the survey participants strongly agreed and 60% of the participants agreed that, "the implementation of GST improves tax administration and reduces the litigations". While, 10% of the participants were having neutral as well disagree view, small groups with 4% of the participants strongly disagreed. The overall picture indicates that, maximum participants believe that, the GST will improve the tax administration along with reducing litigations.

Table - 5:

Experts' agreement on implementation of the GST

Implementation of the proposed Goods and Services Tax (GST) would make the Indian business & industry more competitive		
Opinion	Frequency %	Frequency Count
Strongly Agree	16%	08
Agree	64%	32
Neither Agree Nor Disagree	12%	06
Disagree	06%	03
Strongly Disagree	02%	01
Total	100%	50

Source: Field Survey

The opinion was gathered from the tax experts on competitiveness and feasibility of proposed GST. Table - 5 elucidates that, 16% of the tax experts strongly agreed and 64% of the tax experts agreed that, the "implementation of the proposed Goods and Services Tax (GST) would make the Indian business and industry more competitive". While, 12% of the tax experts were undecided, a further 6% & 2% of the tax experts in each group disagreed and strongly disagreed, respectively, with the statement.

Table - 6:
Experts' agreement on the intention of bringing GST

The intention of bringing GST is to broad-base the levy, have fewer tax rates, simplify procedures and computerize the tax administration.		
Opinion	Frequency %	Frequency Count
Strongly Agree	16%	08
Agree	76%	38
Neither Agree Nor Disagree	04%	02
Disagree	02%	01
Strongly Disagree	02%	01
Total	100	50

Source: Field Survey

The opinion of the tax professionals on the Government's intention of bringing the GST was collected. Table - 6 reveals that, 16% of the tax professionals strongly agreed and 76% of the tax professionals agreed that, "the intention of bringing GST is to broad-base the levy, have fewer tax rates, simplify procedures and computerize the tax administration". While, 4% of the tax professionals were having neutral view, 2% of the tax professionals in each group disagreed and strongly disagreed with the statement made.

Table - 7:
Experts' agreement on GST's Competency

Implementation of GST improves tax revenue in addition to improving economy		
Opinion	Frequency %	Frequency Count
Strongly Agree	16%	08
Agree	70%	35
Neither Agree Nor Disagree	06%	03
Disagree	04%	02
Strongly Disagree	04%	02
Total	100%	50

Source: Field Survey

The respondents have expressed their view on the role of GST in revenue collection and economic growth. Table - 7 reveals that, 16% of the respondents strongly agreed and 70% of the respondents agreed that, "the implementation of GST will improve the tax revenue in addition to improving the economy". While, 6% of the respondents were undecided, a further 4% of the respondents in each groups, disagreed and strongly disagreed with the statement made. This indicates, there would be improved revenue generation along with improvement in the economy.

Table - 8
Experts' agreement on the role of GST in tax administration & litigation management

Implementation of GST improves tax administration and reduces the litigations		
Opinion	Frequency %	Frequency Count
Strongly Agree	12%	06
Agree	74%	37
Neither Agree Nor Disagree	06%	03
Disagree	06%	03
Strongly Disagree	02%	01
Total	100%	50

Source: Field Survey



Table-8 describes the opinion of the respondents on anticipation of GST on tax administration. It reveals that, 12% of the surveyed tax experts strongly agreed and 74% of the tax experts agreed and hope that, "the implementation of GST improves tax administration and reduces the litigations". While, 6% of the participants were having neutral view, 6% and 2%, of the participants disagreed and strongly disagreed, respectively, with the above opinion.

Conclusions & Suggestions:

The study shows that the stakeholders of GST have a very high hopes & ambitions from the favorable response of GST. One thing is sure that the GST will bring uniformity and long-term perspective to the indirect tax structure in India. The industry and business along with the consumers will get benefit from it. However, while implementing the GST the Government has to the following conditions to derive the above stated benefits:

- a) Centre should take all the states into confidence.
- b) State level taxes should be properly mentioned.
- c) Clarity of contentions issues and aspects is to be ensured.
- d) Clear blueprint of GST along with proper administrative mechanism should be in place.

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ONE DAY NATIONAL CONFERENCE ON

Opportunities and Challenges in Commerce Education



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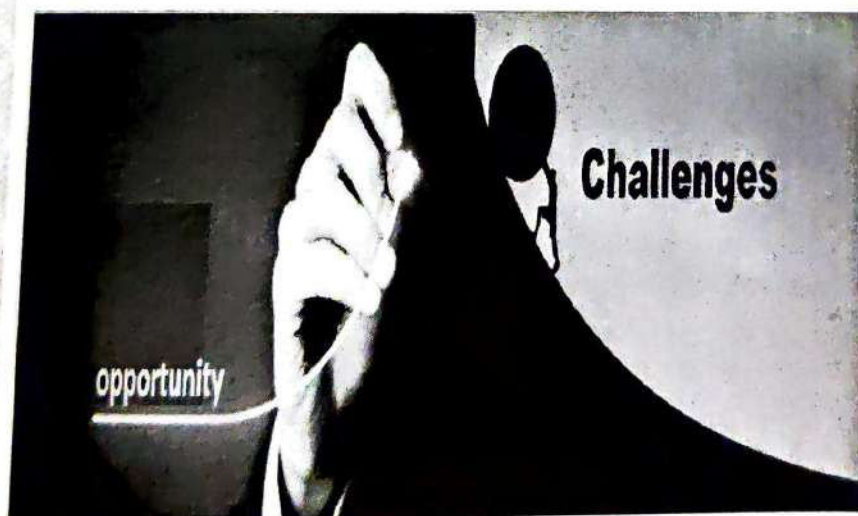
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**Vision 2020 – Special Schemes for Economic Upliftment of
Agriculture Sector Solarisation, Agri-logistic, PM-KUSUM, e-NAM.**

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Abstract:

Agriculture is the backbone of Indian Economy and always support to allied sectors for moving in the direction of growth and development which is essential for developing country. This research paper is based on Budgetary perspectives, under this only Agriculture and Rural Development criteria is selected which is chiefly concentrating on Aspirational India. In this paper, Researcher highlights the various schemes lunched in Union Budget 2020 for the development of Primary Sector. Right from independence, every year government is trying to do best for farmers. Core aspect of these schemes are, Government wants to boost PM-KUSUM (Pradhan Mantri-Kisan Urja Suraksha Avam Utathan Maha Abhiyaan) and deducted financial assistance from MNREGA. Besides this, electronic based privileges enhances like Kisan Rail, Kisan Udaan as well as e-NWR with e-NAM (electronic-National Agriculture Market). In the same manner there are pros and cons of these schemes which are also mentioned, hence some recommendations are made to Central and State Government which give proper direction and guideline to our Youth Power and respective areas which are directly or indirectly connected with Indian Economy. Meanwhile, definitely it will boost our GDP & International Marketing.

.Key Words:

Introduction:

Agriculture is the main business of developing country like India, hence known as an Agrarian Country. Farming is main tool for economic developments around more than 60% people are depending on farming. Agricultural Sector is the core aspect of the rural Indian economy around which socio-economic convenience and deprivations move and any transform in its structure is likely to have a corresponding impact on the existing pattern of Social equity. Sustainable Agricultural production depends on the tedious implementation of natural resources (soil, water, livestock, plant genetic, fisheries, forest, climate, rainfall, and topography) in an acceptable technology management under the prevailing socio-economic infrastructure. Various research studies and policy papers focus on the farming sector deals with resource restrictions, infrastructure restrictions, institutional restrictions, technology restrictions, and policy induced limitations. To achieve sustainable agricultural development, it is required to merged natural resources, capital resources, institutional resources, and human resources. Information Technology (IT) plays an important role in the rapid economic growth and social transformation in developing countries. Information Technology and Bio-Technology, which are "the pillars" of globalization, liberalisation, privatisation and tighter Intellectual Property Rights (IPR), are bound to create new risks of marginalisation and vulnerability in the Indian Agricultural sector.

Objectives of Study:

- To study the production oriented facility provided by Government
- To analyze the favorable and unfavorable impact of Agriculture provision.
- To bring out light on various schemes provided by Government.
- To present conclusions and suggestions for the betterment of Agriculture Sector.
- To understand the pros and cons of Governmental Policies made for farmers.



Limitation of study:

Researcher has used recent budget 2020 for study purpose only try to cover primary sector of Indian Economy and presented personal view on it.

Research Methodology:

Data has been collected from various secondary sources like Text Books, Government Budget, and Websites etc. Similarly, to explain the various schemes of Government Descriptive Methodology is used.

Supportive Schemes for Agrarian Sector:

In India Constitution, the concept of Budget is described as 'Annual Financial Statement'. In simple words, it is estimation of expenditure and income in a stipulated period which determines the structure of accounting and financial aspects. Honorable Finance Minister, Mrs. Niramala Sitaraman has proposed some special schemes for the upliftment of Indian Economy where farmers and farming has taken as a backbone of nation. Primary Sector is always allying with Industries and Service Sector. Our youth have big expectation from these schemes as it is also youth oriented budget.

Prominent themes of budget are as follows:

I. Aspirational India: Three aspects are considered.

1. Agriculture, Irrigation and Development
2. Wellness, Water and Sanitation
3. Education and Skill

II. Economic Development: Three aspects are considered

1. Industry, Commerce and Investment
2. Infrastructure
3. New Economy

III. Caring Society: Three aspects are considered

1. Women, Child and Social Welfare
2. Culture and Tourism
3. Environment and Climate Change

Among above three, Researcher has studied in detail the Aspirational India.

A) Structural Reforms:

Government has proposed to encourage structural updating like land leasing; agricultural marketing and contract farming. Government have provided energy sovereignty through KUSUM and input sovereignty by Paramparagat Krishi Vikas Yojana and also given resilience for 6.11 crores farmers insured under PM Fasal Bima Yojana. Focus on cultivation of pulses, expansion of micro-irrigation through Krishi Sinchai Yojana, have increased the self-reliance of the country. Provision of any annual supplement of the income to the farmer, directly is done through PM-KISAN. Connectivity through PMGSY, financial inclusion will be helped boost farm revenue.

B) Promotion given to Animal Husbandry and Fisheries:

Promotion of animal husbandry, milk processing and development of the blue-economy is a welcome step taken by Government and created separate Departments for all these verticals and hence, targeted investments is expected to yield productive outcomes. Blue Economy is nothing but marine based activities which also promote sustainable development and also protect and preserve the environment. The target to enhance fish production and promotion of FPOs for fish farmers are also very appreciable step. In this area, Government has decided to provide these provision:

- Upto year 2022-23, Fish production will be raised by 200 lakh tonnes.
- Other aspect of blue economy is that 45000 acres of aqua culture to be assisted.
- 3477 Sagar Mitras and 500 Fish FPOs also extended.



- Most important task under this scheme is Fishery Export will be raised by Rs. 1 lakh Crore by 2024-25

C) Strengthening Agri-logistics:

To ensure farmers' surpluses having access to market opportunities is often taken as a direction to empower farmers and raise their income. Specific measures announced in this budget such as 'Kisan Rail and KrishiUdaan' to be launched by Indian Railways and Ministry of Civil Aviation respectively for a seamless national cold supply chain (for transportation of perishable agricultural products through refrigerated coaches); financing of NWRs (negotiable warehouse receipts) with e-NAM (electronic national agricultural market); VGF (viability gap funding) for extra storage potential with geo-tagging of the warehousing. The involvement of SHGs for seedbanks and One Product-One District idea to motivate farm exports from such clusters are well thought out proposals.

D) Solarisation of Agriculture:

The important step to enhance solar power usage in farm sector so that reduction of carbon footprints through use of electric/diesel/kerosene pumps for irrigation purpose. A target of 2 million solar pumps and 1.5 million farmers for solarized grid connect could prove to be a modest figure, if suitable policies and incentives (subsidies) are put in place with institutional arrangements (financing and market support) of stakeholders. The Solar based irrigation system indeed offers unique opportunities to mitigate GHG emissions from agriculture sector. Apart from this, Government is also declared comprehensive measures for water-stressed districts; integrated farming systems for rain-fed areas; fodder farming with NREGS funds, etc. would be time tested for ultimate benefits to the farmers at large. Promotion of natural and organic farming practices are surely good measures if the produce gets the right price for the growers.

Upto year 2022 Government wants to doubling farmers income and the main objective of budget is to encourage the income of people and raise their purchasing power. For achieving this target Government has frame 16 action point plan. In this pathway, Government allocated Rs. 1.60 lakh crore and Rs. 1.23 lakh crore respectively for agriculture and allied activities, irrigation and rural development in the year 2020-21 budget.

E) Agricultural Credit:

Rs. 15 lakh crore has given to farmers as a agricultural credit.

Challenges and Lacunas of Schemes:

Government is ever trying to assist farmers and launch different policies for their welfare. But while implementing it, there are so many obstacles arises which may be like these. They are as under:

- ✓ Government has cut 13% MGNREGS funding among the allocated amount as a result it will not give full response to this project.
- ✓ Besides, slashing the allocation of MGNREGS is not compensated in the PM-Kisan scheme as the former addressed to marginal and landless farmers. Apart from this, just handing over three new models for land leasing, contract farming, and APLM is not enough.
- ✓ Meanwhile, decreasing FCI's procurement operations would prevent farmers from availing market assurance benefits to whatever small number it was reaching.
- ✓ Along with this, Importance on Zero Budget natural Farming may bring 20-25% losses to farmers.

Again, the promotion of 500 fish FPOs is just part of the previous year's budget target of promoting 10,000 FPOs. The government must deliver continued support to FPOs after their initiations.

Government is also promoting traditional and organic fertilizers, it will affect productivity hence farmers will decrease their production and suffer from loss.

Indian Farming is based on Mansoon



Farmers are not self-sufficient to face financial burden and it is big challenge in front of government to make farmers as Potential Farmer.

Conclusions:

Every year Government has declare various kinds of plans and schemes for the welfare of farmers but did not get proper response. Hence the involvement of state Government is also important along with Central Government. The subsidy based policies requires being eco-friendly and based on sustainable theme accordingly, re-designed. Government has focused only on production issued, along with this, marketing & distribution is also important. The Development of Farmers and rural areas are the central themes of this Budget. Main conclusions are as follows:

- Government has been trying to present a roadmap for Horticulture sector along with agriculture aspects.
- Focused has been made on Zero Based Farming which is difficult task for Government.
- Mediators /Agents are eradicated by E-NAM facility.
- There is a big problem of Infrastructure in Mandi's and lack of proper storage facilities.
- In this year, Government has given to traditional and organic fertilizers which affect the quantity of productivity.

In Nutshell, it creates dilemma that' whether this schemes are Bull or Bear for Agriculture Sector.

Suggestions:

- Government should give importance Agriculture Sector as a Business Oriented Unit so that our new generation will automatically attract in this sector and it will also generate employment opportunities in society.
- Agro based product should be sold in Organized Market.
- Government should be commenced Farming Training Centre to train Youth.
- Government should attach Agro Processing Unit to FPO.
- Government should Modernize Mandi's as a Mall and raise transparency, this will impart justice to farmers because we are living in the scenario of Attraction and Modernization.
- Government should be also made some Statutory Provision for implementing the Schemes to Farmers, this will assist to convey all the privileges to concern to respective field, units and persons.
- Storage facility should be linked with Digital Based or Mobile Based Apps and those who will not follow the protocol should be punished.
- Also promote Irrigation Based facilities.
- Dairy Farming is integral part of society hence concentrate on this sector also.
- Agro- based Foresting should be encouraged, for this aim, Government pay attention here also.
- Government should concentrate on market efficiency aspects.

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A Study of Consumer Behavior -Registration & Opting Online Mobile Applications Services (Special Context MSEDCL in Akola City)

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Abstract

The Registration of Mobile numbers of consumers is the important part of the using of NOLINE mobile services/ Applications of MSEDCL & is vital part of technological innovation process in the power distribution sector and mostly responsible for the development of the sector. But the response of the consumers plays a vital role in using of this services & for that purpose their behavior/preference is the deciding factor for success of ONLINE service of MSEDCL. As far as consumers and working of MSEDCL is concern in Akola City the effort to be taken by the MSEDCL officers & employees for awareness for maximum registration of Mobile numbers of the consumers will decide the spread of online services of MSEDCL amongst the consumers in Akola City which ultimately will benefit both the consumers as well as MSEDCL.

Key Words: MSEDCL (Maharashtra State Electricity Distribution Company Limited) ,Mobile App, Consumer behavior.

Introduction

MSEDCL after unbundling of erstwhile MSEB become the commercial organization. Though it is a government company, they are looking for managing the business in a commercial manner. Also to ensure the sustainability in the economic growth and to run the business in competition with the private utilities in the State, MSEDCL is always trying to provide the advance/modern tools/techniques for best services to their consumers & employees. MSEDCL is having their separate website as www.mahadiscom.in wherein the details about the organization, its management team, operational data, power position, consumers services, centralized call center, various departments & various important links related to energy departments, news & latest announcements etc. are available on this website. Various portals regarding consumer's portal, employee's portal, supply portal have been made available on the website.

The MSEDCL being the service sector industry; it has given the prime importance to its consumers. The consumer's satisfaction & thereof protection of their interest is obligation to the MSEDCL. The Standard of Performance (SoP) are part of regulation 2005 of (Maharashtra Electricity Regulatory Commission) MERC. (Practice Directions Under Electricity Supply Code Regulations,2005-Reducing Processes And Time For Releasing New Connection).

Therefore to extends the good quality of services to the consumers at the affordable rate; MSEDCL has to adapt the advance technologies like reading of consumers, collection of revenue & different mobile applications etc

ONLINE services have been introduced by the MSEDCL for meter reading, energy bill payments, consumer's complaints, information of supply availability, information of employees as a part their commitments towards the technological innovations in the power distribution sector. Further one step ahead with the technological innovations MSEDCL has launched their services on mobile through various mobile Applications (Apps).

Registration of Mobile Numbers of Consumers

In order to provide the ONLINE mobile services the MSEDCL has started the registration of mobile numbers of its consumers wherein the consumers could receive the sms regarding the reading, bill payments, status of new connection, supply instructions etc. This means mere registration of mobile numbers of consumers it becomes possible to the consumers that the online tracking of the services like New service connections, Various complaints power supply positions etc.

Hence in the Akola city the Executive Engineer along with other field officers & field employees have started the campaign for registration of mobile numbers of consumers through the personal one to one contact, news paper announcement, arranging local camps so as to achieve 100 % registration of consumers in Akola City.

Akola Urban Division

MSEDCL Akola Urban Division is distributing the electricity in the complete City of Akola taking into consideration of Municipal council area surrounding to 128 square Kilometers & having the population of around 537137. MSEDCL's infrastructure is spread over across the city as -33/11 KV Substations-15 nos.-33 KV feeders-25 nos.& 11 KV



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feeders -70 nos.and Distribution transformers- 1763 nos. (Source - Akola Divisional Office MSDCL)

Objectives of the Study

1. To study the administrative & Service control methods in MSEDCL with ref. to Akola City.
2. To study the behavior of consumers for adapting the new technology introduced by the MSEDCL through Mobile Application by registering their mobile numbers.
3. To study the Role of Local authority viz Executive Engineer In charge of Akola city to inspire the consumers/ customers of MSEDCL and its Impact in increase of registration of consumers.
4. To study the efforts taken by MSEDCL for registration of consumer's mobile numbers.
5. To study the long term benefits to the consumers as well as MSEDCL through this activity of mobile registration.

Hypothesis:

All the registered consumers are benefitted from the online services of MSEDCL.

Data Collection Method:

Primary and Secondary data is used for this study. Data was collected through structured questionnaires of multiple choice questions based on objective of study .Structured questionnaire is a formal list of questions framed so as to get the facts

Sample Size & Method:

100 respondent of Akola City are taken as well as Probability Sampling Method is used.

Result & Discussion:

On the basis of Questionnaire:

1. Area wise Classification of consumers according to the category type

Sr. No.	Category	LIVE CONSUMERS
1	Residential	106205
2	Commercial	15656
3	Industrial	1836
4	Agricultural	84
5	Other	910
Total consumers		124691

(Source - Akola Divisional Office, MSDCL)

The consumers in Akola City are having the dominance of residential category & negligible Agricultural category

2. Area wise Registration of Mobile numbers of consumers in Akola City

Sr. No.	Subdivision	Mobile Registration	% of Mobile Registration
1	Akola U-I S/Dn (Old City)	33619	93.84
2	Akola U-II S/Dn (Civilized Area)	40244	96.62
3	S/Dn (New developing City Area)	44916	95.13
Total		118779	95.26

(Source - Akola Divisional Office, MSDCL)

Due to some slum area & less awareness the registration of Mobile numbers of consumers in Old City is less compared to other part of area of Akola city.



3. Classification of respondent according to their category type:

Sr No.	Category Type	No. of Respondents	Percentage
1	Residential	75	75
2	Commercial	14	14
3	Industrial	5	5
4	Agricultural	2	2
5	Other	4	4
Total		100	100

The residential consumers have responded more compared to other category type consumers are willing to registered their mobile numbers & take advantages of ONLINE services of MSEDCL.

4. Classification of respondent according to their Occupation:

Sr No.	Category Type	No. of Respondents	Percentage
1	Service	72	72
2	Half-Employed	12	12
3	Business	12	12
4	Retiree	4	4
Total		100	100

The consumers in service occupation have responded more compared to other occupation consumers & are willing to registered their mobile numbers & prefers of ONLINE services of MSEDCL.

5. Classification of respondent according to registration of mobile numbers with MSEDCL:

Sr No.	Consumers' difficulty	No. of Respondents	Percentage
1	Registered with MSEDCL	96	96
2	Didn't have smart phone/Not registered with MSEDCL	2	2
3	Need to Purchase smart phone/have difficulty	2	2
4	Not willing to Register with MSEDCL	0	0
Total		100	100

Most of the consumers i.e. 96 % of the consumers in Akola city have registered their mobile numbers & are happy to joined ONLINE services of MSEDCL.

6. Classification of respondent according their response that they are as well as MSEDCL is benefited by the ONLINE services of MSEDCL

Sr No.	Consumers' difficulty	No. of Respondents	Percentage
1	Benefited	75	75
2	Highly benefited	21	21
3	Not benefitted	2	2
4	Can't say	2	2
Total		100	100

Most of the consumers i.e. 96 % of the consumers in Akola city have registered their mobile numbers & benefited from the ONLINE services of MSEDCL.



Conclusions

1. It was observed from the above data, collected through structures questionnaire that most of the respondent of Akola city are satisfied with the services of MSEDCL in Akola City.
2. Most of the Consumers are having the residential category type consumers with high impact of revenue for the MSEDCL
3. It is found that there is high growth of consumers in the subdivision no III, (developing area) of Akola city. The Concern Executive Engineer along with the Officers & filed employees of Akola city have taken lots of efforts, arranged camps for maximum numbers of mobile numbers registration with MSEDCL.
4. Since the area is urban area most of the consumers are having the smart phones & & have the knowledge of internet, websites & awareness about the MSEDCL mobile applications.
5. Being the well-educated & most of the consumers are having the service peoples they didn't have face any difficulty in mobile registration.
6. Most of the consumers have registered with the Mobile numbers & also downloaded the Mobile applications of MSEDCL
7. Almost all the registered consumers have utilizing mobile services of MSEDCL and are getting the SMS of services like reading, due dates of bill payments lodging of complaints, tracking of new connections etc.
8. With all the above services all the registered consumers are benefitted from the online services of MSEDCL and also MSEDCL is getting benefits of sending mass SMS to registered consumers regarding their announcements, new updates.

Suggestions & Recommendations

1. With advancement of technology & having good response from the consumers of Akola City, MSEDCL can go for other new mobile applications.
2. With the registered mobile numbers of consumers, MSEDCL can appeal the consumers at once for payments of energy bills & payments of Arrears amount to the consumers.
3. In case of default of energy bill amount the MSEDCL can sent SMS as a "notice of disconnection" to the consumers on mobile which is treated as a legal notice to the consumers & in case of legal matter this will help the MSEDCL.
4. The lodging of complaints/new services & tracking of them is possible hence consumers shall be allowed to get the SoP compensation as per the Rules & Regulation MSEDCL (MERC Regulation 2005) .
5. The suggestions from the consumers through mobile application & thereof through SMS can be given wide publicity & appreciation form MSEDCL so as to encourage the consumers for more suggestions.
6. MSEDCL can develop the system wherein the repetition of complaints, long pendency of various services & identifying & blocking of mischief of consumers can be done through system only.
7. Finally, MSEDCL now try to explore/identify the high value consumers, defaulter consumers, most beneficial area of the city, theft prone area of the city & strategically tackle the consumers on merit & plan accordingly for more revenue, less losses & good services to the consumers for betterment/benefits of consumers as well as MSEDCL.

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