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1

## Economic Valuation of River Ecosystem Services : A Case Study of Panchganga River

Dr. P. S. Kamble<sup>1</sup>

### Abstract :

*It is of topmost importance to undertake an economic valuation of the ecosystem services such as a river, which is an aquatic and natural ecosystem, because of their very important role in the development and welfare of the society. It is against this overall backdrop; the present research study attempts to estimate an economic valuation of the services of the Panchganga river as an aquatic ecosystem. The empirical analysis of the economic valuation of the services in monetary terms being provided by the Panchganga river ecosystem estimates its total economic value. No doubt, it is worth Rs. 5459.41 lakh per annum is important and valuable, which indicates its role in the socio-economic development of the area under our study. It is an indicator of the number and variety of services being provided by the Panchganga useful for agriculture, allied activities, industry and business development along with water for domestic use of the area and its people. The analysis of the determinants of the economic value of the Panchganga river reveals that the non-economic than economic factors are very much dominant and effective in generating the total economic value of the Panchganga ecosystem services. It is very much urgently needed to consider the importance of the economic services of the ecosystem like a river as of non-economic services to fully extract the benefits and role in the overall development.*

**Keywords :** Economic Valuation, Ecosystem, River Ecosystem, Ecosystem Services, Techniques of Valuation.

JEL Classification: Q5, Q51, Q57, Q58

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## **I. Introduction :**

Resources in general and natural resources, in particular, play a crucial role in the overall development of the economy. In absence of resources, there cannot be productive activity hence no economic growth and development. Ecosystems are natural and consequently suppliers of natural resources and their services. Costanza & Daly (1992) describe ecosystem resources such as water, air and soil as Natural Capital. These resources can be renewable or non-renewable. The other form of capital is Industrial Capital, which consists of Manufactured Capital such as physical enterprises and farm machinery, and Human Capital such as skills and knowledge. Production results from the combining of Natural and Industrial Capital (Whittington et al, 2000). Resources are a means of economic activities and consequently the development of the economy. “Sustainable development” is a loosely used oxymoron these days. The term “sustainable” clearly is indicative of the acceptance of the fact that natural assets are not infinite (Stalin, 2020). There is a misconception and misunderstanding that natural resources are free of cost and gift of nature, as a result, those are not utilized properly, optimally, and rationally as well. The scarcity of natural resources is of higher gravity than others, consequently, their proper allocation and optimal utilization is urgently needed. It is therefore, the economic valuation of the natural resources is of greater importance. Rivers are essential to human well-being. However, many rivers around the world are severely degraded or at risk, which undermines their ability to provide critical ecosystem services and related benefits. (Parker and Oates, 2016). The evidence suggests that rivers have the potential to provide a wide range of benefits to society, for example supporting key livelihood activities and economic sectors, nurturing social relations and spiritual well-being, and contributing to strategic goals such as food-energy-water security, poverty reduction or climate resilience (Parker and Oates, 2016). But unfortunately, it is a very much neglected aspect in research as well as in practice. This urgently demands to undertake the valuation of the natural resources, which will enable proper allocation, utilization of the natural resources for the development of the economy, and their protection, conservation, quality enhancement and growth as well. Ecosystems are an integral and important part of the nature and environment, which provide the number of services of natural resources useful for growth and development of the economy. Ecosystem services (ES), are the ecological



characteristics, functions, or processes that directly or indirectly contribute to sustainable human wellbeing. The ecosystems that provide the services are ‘natural capital’ (NC) using the general definition of capital as a stock that yields a flow of services over time (Costanza, 2020). Freshwater ecosystems have been described as “biological assets (that are) both disproportionately rich and disproportionately imperiled.” They need not be so threatened (Baron et al, 2003). Hence as of natural resources, the valuation of the ecosystem services is of vital importance, which are natural resources and their services play a very important role in the overall development of the economy. Of the many paradoxes of human existence, this has to be one of the starkest: even as we depend for our lives on the rivers, even as we venerate them in every culture, we also pollute them, block their flow, divert them into lifeless channels, and desecrate them in every conceivable way (Kothari and Bajpai, 2017). Aquatic ecosystems also provide a home to many species including the phytoplankton, zooplankton, aquatic plants, insects, fish, birds, mammals, and others (Balasubramanian, 2005). It is against this overall backdrop, the present research study attempts to carry out an economic valuation of the services of the Panchganga river as an aquatic and natural eco system.

## **II. Review of Research Studies :**

A review of some of the research studies relating to topic of the present research study to identify a research gap is as follows.

Strner et al (2020) in their study argue that Earth’s 21 largest lakes hold 2/3 of all global, liquid, surface, fresh water and occupy diverse ecological and social settings. The study has identified seven ecosystem services for which there were quantitative data across most or all of these large lakes. Approximately 1.35 million tonnes of fish are harvested per year from these lakes by commercial or artisanal means, with approximately 95% of this harvest coming from the African large lakes. Liu et al (2020) found the Ecosystem value of rice–fish coculture ecosystems in the study area was 255,529 RMB/hm<sup>2</sup>/year and was 37.9% higher than that in rice monoculture, while the Ecosystem value increased by at least 6.74 times than direct economic value in rice monoculture. Barua et al (2020) opine that most studies focused on provisioning services. The available estimates indicate that forests of Bangladesh are worth USD 840 ha<sup>-1</sup> yr<sup>-1</sup> on average. The value

was the highest for the Sundarbans (USD 2176 ha<sup>-1</sup> yr<sup>-1</sup>) while the hill forests' value was a distant second with USD 1066 ha<sup>-1</sup> yr<sup>-1</sup>. Shipley et al (2020) study revealed that diverse benefits were derived from provisioning (e.g., crop production), regulating (e.g., flood prevention), supporting (e.g., soil formation), and cultural (e.g., farming lifestyle) services provided by the watershed. A disproportionately higher number of cultural services were identified and rated as highly important. D'Souza et al (1998) study three projects, namely, Hirakud, Ukai and Indira Gandhi Nahar Project (IGNP), clearly demonstrates the glaring and complete dichotomy between pre-construction projections and post-construction realities. Water-logging, salinity, sedimentation and health hazards have a high possibility of occurrence. Parker and Oates (2016) in their study argue that rivers have the potential to provide a wide range of benefits to society but are often exploited to deliver a narrow range of objectives, to the detriment of river health and other human needs (i.e. sub-optimal investment decisions). Whittington et al (2000) state that Sustainability in the Murray-Darling Basin should be defined as the indefinite preservation of: - a functional and diverse ecosystem which, as well as meeting aesthetic and ethical requirements, provides a natural resource suitable for (all) human uses and production; and - a socio-economic system capable of using the natural resource productively to the maximum good of the current and future communities. Baron et al (2003) observe, there is growing recognition, however, that functionally intact and biologically complex freshwater ecosystems provide many economically valuable commodities and services to society. Over the long term, intact ecosystems are more likely to retain the adaptive capacity to sustain the production of these goods and services in the face of future environmental disruptions such as climate change. Kothari and Bajpai (2017) have pointed how the Indian court's order and the New Zealand law are potentially breakthrough decisions, but raise difficult and complex questions of interpretation, implementation, and redressal. They have also stressed that there are fundamental contradictions between growth-led "development" and the rights of nature, or indeed, of ecological sustainability, even from a human-centred point of view. Mehta et al (2013) study has observed that the Cities, like living organisms, depend on external metabolic flows to keep them alive. The study views that our urban metabolism framework treats the city as a tightly-coupled social-ecological system and shows that a spatially explicit

understanding of consumption patterns is crucial to addressing three central aspects of the water conundrum – equity, ecological sustainability and economic efficiency. Ahmed (2012) in his study opines that the Supreme Court’s verdict directing the Government of India to implement the interlinking of rivers seems to have overlooked the regional and international implications of what the Indian Court strangely considers “the rivers of the country”. Any unilateral action by India on any of its international rivers will degrade its relations with its neighbours while also adversely affecting its ecology, economy and society.

The foregoing review reveals that there is the number of studies relating to ecosystem have been carried out, which covered the ecosystems like lakes, rivers, forests and others. They are prominently in broader perspectives and look at the ecosystem services and their economic valuation. The river is a very important ecosystem, which provides several services useful for economic development as well as human welfare. It is, therefore, the present study has been undertaken to carry out an economic valuation of the services of the river ecosystem namely Panchganga, with the number of aspects.

### **III. Research Methodology and Database :**

The present research study is analytical which intends to carry out a data-based analysis of the economic value of the services of the Panchganga river ecosystem. The major objective of the study is; to estimate and analyse the economic value of services being provided by the Panchganga river ecosystem. A hypothesis of the study is H<sub>0</sub>: No significant economic value is contributed by the Panchganga river ecosystem. The study is mainly dependent on the Primary data collected by administering a well-designed questionnaire among the 50 household respondents comprising about 250 individual respondents approximately, selected purposively considering their social stratification from the urban area namely Kolhapur city of the Kolhapur district in the catchment area of Panchganga river ecosystem. The services being provided by the Panchganga river in its catchment area especially categorized under Provisioning and social or cultural have been taken into account because all the services cannot be considered at a time due to data constraints. But the services considered by this study have been categorized into consumptive and non-consumptive also. The necessary data has been collected as the

indications and guidance given by the review of the research literature.

As mentioned earlier, the present study is restricted to the urban area of the Kolhapur district. A total of 50 household respondents has been selected from the urban area of Kolhapur district namely Kolhapur city 50, which is worth 250 individual respondents. The social stratification of the respondents also has been taken into account, which comprises representatives of 80% Open category, 6% SC, 2% NT and 12% OBC by the government norms of representation. Our respondents are educated, which includes 12% primary, 30% secondary, 22% higher secondary and 34% graduate. Unfortunately, postgraduate and illiterate was 1% each. The occupational profile of the respondents shows that 51% are agriculturists, 29% government servants, 2% private servants, 13% businessmen, and 5% labours. Thus our sample is inclusive, varied and comprehensive as well. The collected primary data has been processed and analysed by adopting a computer software package SPSS to reveal descriptive statistics such as mean, range, frequency, percentage / relative shares and arithmetic calculations. The use of graphs and figures is made wherever necessary and useful.

#### **IV. Results and Discussion :**

This section of the paper is very important, which carries out estimation of the economic value of the services both the provisioning and social/ cultural being provided by the Panchganga river a natural and aquatic ecosystem.

##### **4.1 Value of Panchganga River in Terms of WTP (Willingness To Pay):**

The economic value of the river ecosystem is estimated with help of applying different methods already we have discussed and estimated also in the previous analysis. The willingness to pay (WTP) of the people is also another method considered for the estimation of the economic value of the river ecosystem.

**Table 1: Value of Panchganga River in WTP**

<b>Value of Panchganga River in WTP</b>	<b>Frequency</b>	<b>Per cent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>	<b>Value of Panchganga (WTP) (lakh Rs)</b>
Rs. 50 lakh	9	18.0	18.0	18.0	450
Rs. 25 lakh	24	48.0	48.0	66.0	600
Rs. 15 lakh	12	24.0	24.0	90.0	180
Rs. 10 lakh	5	10.0	10.0	100.0	50
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>100.0</b>		<b>1280</b>

*Source: Calculated by the Researcher based on Field Survey March 2020*

It is a very important and noteworthy thing is, the importance of the Panchganga river as an ecosystem has been very well recognized by the people in the society. Hence only our household respondents have shown Rs. 1280 lakh willingness to pay as total economic value pa, is significant. Its decomposition shows that the total economic value has been contributed by the household respondents in percentage terms as 48%, 24% and 10% respectively with the worth of amount Rs. 25 lakh, Rs. 15 lakh and 10 lakh per family respectively. This is sufficient proof that river ecosystems should be protected, conserved and their growth should endeavour for the ecological and environmental balance then only the earth will survive.

#### **4.2 Total Economic Value of Panchganga (Provisioning & Social) :**

The analysis of the decomposition of the total economic value of the ecosystem is of crucial importance because it highlights the broad and subcategories of services being provided by the ecosystem and their relative importance. The ecosystem services are broadly classified into provisional and social or cultural services, which are further enlisted as domestic use, agriculture, allied, industry, business, religious, aesthetic, tourist, habitat centre and recreational place.

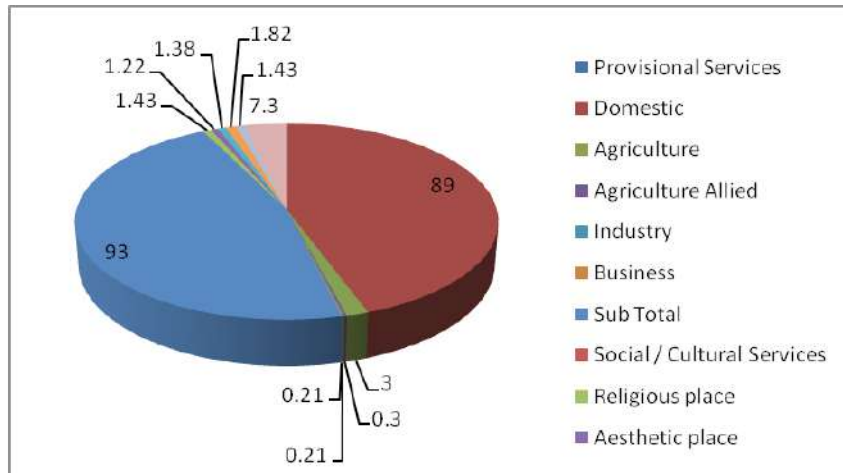
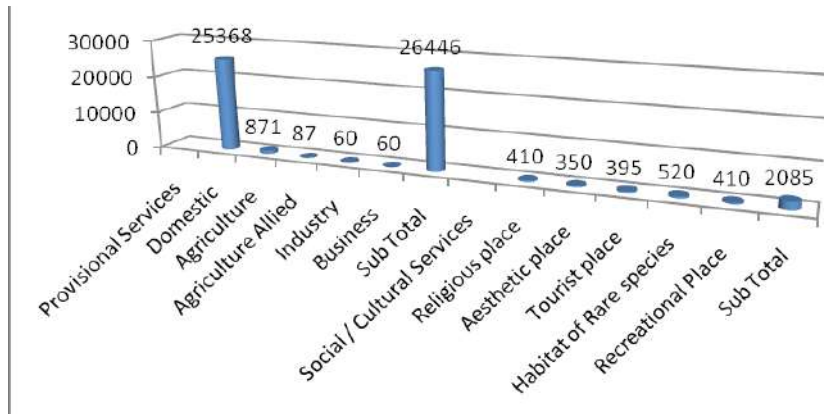
**Table 2: Total Economic Value of Panchganga (Provisioning & Social)**

Sr. No.	Component	Value (lakh Rs)	% Share
<b>I</b>	<b>Provisional Services</b>		
1	Domestic	25368 (96%)	89
2	Agriculture	871 (3%)	3
3	Agriculture Allied	87 (0.32%)	0.30
4	Industry	60 (0.22%)	0.21
5	Business	60 (0.22%)	0.21
	<b>Sub Total</b>	<b>26446 (100)</b>	<b>93</b>
<b>II</b>	<b>Social / Cultural Services</b>		
1	Religious place	410 (20%)	1.43
2	Aesthetic place	350 (17%)	1.22
3	Tourist place	395 (14%)	1.38
4	Habitat of Rare species	520 (25%)	1.82
5	Recreational Place	410 (20%)	1.43
	<b>Sub Total</b>	<b>2085 (100)</b>	<b>7.30</b>
	<b>Grand Total</b>	<b>28531</b>	<b>100</b>
	<b>WTP</b>	<b>1280</b>	<b>4.48</b>

*Source: Calculated by the Researcher*

The estimation of the economic value of the ecosystem services provided by the Panchganga river is significant which stood at Rs. 28531 lakh pa is a huge amount, and its hugeness increases because it is just related to the respondents in Kolhapur city of Maharashtra state. It is also substantially greater than the willingness to pay by the respondents. The decomposition analysis of the total economic value reveals that, it is contributed by the Provisional services also known as economic services prominently with 93% share, and which is followed by Social or Cultural or non-economic services with 7% share, adequately indicates the economic importance of the services of Panchganga river ecosystem. The further analysis of the economic value from provisional services

reveals that the use of water for domestic purposes has contributed a lion’s share, which is followed by agriculture. In the case of social or cultural services, their relative contribution is smaller and meagre and more or less is the same for all the services included.



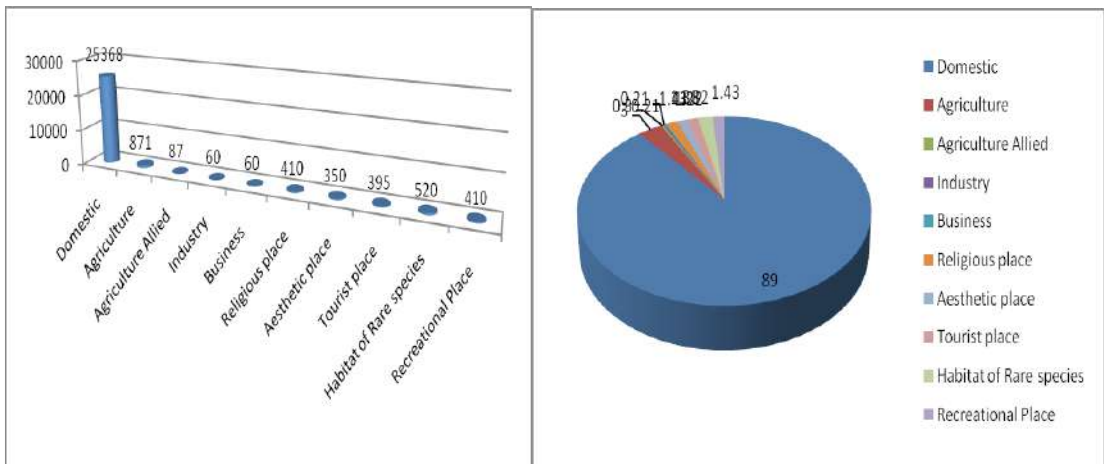
### 4.3 Components (Activity/Service Wise) of Total Economic Value of Panchganga River :

Ecosystems provide several services useful for development as well as human welfare. Hence it is of crucial importance to examine the relative contribution of each service to the total economic value of the ecosystem. This we get in the analysis of the components of total economic value.

**Table 3: Components of total Economic Value of Panchganga River**

Sr. No.	Component	Value (lakh)	% Share
1	Domestic	25368	89
2	Agriculture	871	3
3	Agriculture Allied	87	0.30
4	Industry	60	0.21
5	Business	60	0.21
6	Religious place	410	1.43
7	Aesthetic place	350	1.22
8	Tourist place	395	1.38
9	Habitat of Rare species	520	1.82
10	Recreational Place	410	1.43
<b>Total</b>		<b>28531</b>	<b>100</b>
<b>WTP</b>		1280	4.48

Source: Calculated by the Researcher





It was found that the Panchganga river in Kolhapur city plays a very important role rather than lion's share (89%) in providing water for domestic use and generates its total economic value, which is followed by agriculture (3%). All others both the economic as well as non-economic services and activities in very small and meagre proportion up to 1% to the total economic value, indicates the economic relevance of the Panchganga river ecosystem services than the social or cultural or noneconomic one.

## **V. Major Conclusions and Policy Suggestions:**

The empirical analysis of the economic valuation of the services is worth Rs. 28531 lakh per annum is important and valuable, which indicates its role in the socio-economic development of the area under our study. It is an indicator of the number and variety of services being provided by the Panchganga useful for agriculture, allied activities, industry and business development along with water for domestic use of the area and its people. But this economic value is restricted to sample area and sample respondents only, which can be very much greater and higher relating to the entire area and population. Besides this, Panchganga also provides non-consumption services like religious places, aesthetic valuesourist places, recreational places, rare species habitat centres and others. People have a perspective that they give more importance to provisioning or economic services (93%) than the social/ cultural or economic services (7%) of the Panchganga ecosystem, which is supervising and considerable even in the era of science, technology and modern also. In economic services the domestic purpose use of water has contributed significantly to value (96%) is so much higher hence ahead than services to other economic activities and their value, which is adequate proof of the importance of water for domestic use and agriculture necessary for the survival of the human beings and food security. The analysis of the components of the total economic value of the Panchganga river reveals that domestic use and agriculture are only the important components and are very much dominant and effective in generating the total economic value of the Panchganga ecosystem services, indicating the importance of economic services and their value, is a thing of importance and significance.

It is very much urgently needed to consider the importance of the economic services of the ecosystem like a river as of non-economic services to fully extract the benefits in the overall development. The provision of imparting education and awareness among

the people about the ecosystem services, their value and their role in development and welfare is necessary. The government should enlist the river ecosystems, their services and quantification and availability of the data to people in the society. The budgetary provisions should be made by all layer governments for the conservation, protection, maintenance and growth of ecosystems and their service.

### **Concluding Remarks :**

River ecosystems are a means and source of development especially of the rural economy, hence the estimation of the economic value, their components and determinants are of crucial importance. But one single study especially a research paper is not sufficient at all which requires several such studies in a variety of forms. This will enable proper allocation and utilization of natural resources like a river and its variety of services, and more importantly their economic importance and contribution to the development of the economy and society as well. This will enable the mapping of the ecosystems in general and river ecosystems in particular and a formulation and implementation of the policy is needed and relevant as well.

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2

## Penetration of Micro Irrigation in India: A State-Wise Analysis

Dr. M. S. Deshmukh, Ajay D. Kumbhar

### **Abstract:**

*Micro irrigation played a crucial role in Indian agriculture. The drip irrigation, sprinkler irrigation and combination of both that is micro irrigation have received considerable attention from researchers, policymakers, economists etc. This paper focused on the state wise analysis of micro irrigation in India during 2015-16 and 2019-20. Out of total 140.13 million hectares of sown area, the net irrigated area was 68.38 million hectares (48.80%) while 71.74 million hectares (51.20%) were non-irrigated and the area under micro irrigation was only 12.90 million hectares, which was 18.80% to the net irrigated area in India as on 2021. It was found that drip, sprinkler and micro irrigation has increased by 2.58, 2.19 and 4.76 million hectares respectively during 2015-16 and 2019-20. Despite the long journey of micro irrigation, the coverage is still limited. As a result, more efforts are required to increase the penetration of micro irrigation in a country, Hence the major focus of policy should be on the promotion of micro irrigation in those states where scarcity of water is alarming.*

**Keywords:** Micro Irrigation, Drip Irrigation, Sprinkler Irrigation, Water-Use Efficiency

### **I. Introduction:**

Looking at all the economic sectors, agriculture is the one where water scarcity has greater relevance. Agriculture accounts for approximately 70% of the global freshwater withdrawals and approximately 90 % of its consumptive use (FAO). Among advanced micro-irrigation techniques, drip and sprinklers are gaining special attention. drip

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irrigation and sprinkler irrigation methods have special characteristics such as flow rate, pressure requirement, irrigated area and mobility (Kulkarni 2005). Nearly 3.4 billion people would be living in ‘water-scarce’ countries by the year 2025. The Indian sub-continent, with its unique position in South-Asia may face a lot of crises and as a result, India would be at the center of it. India has 18% of the world’s population with only 4% of the usable water resources. 90% of the waste water settled into the rivers does not meet environmental standards, while 65% of rainwater runoff flows into the seas, which is a major wastage (UN). These two factors also add to future scarcity. With the usage of micro irrigation systems, conveyance loss is minimal. Evaporation, runoff and deep percolation are also reduced by using micro irrigation methods. Micro irrigation provides significantly higher water usage efficiency due to focused application. Micro irrigation reduces the cost of cultivation, weed problems, soil erosion and rises water use efficiency as well as electricity use efficiency, besides helping reduce the overexploitation of groundwater. Despite having many economic and other advantages.

## **II. Research Methodology and Database:**

The present research paper is purely based on the secondary data, that has focused on the analysis of selected major states with regard to penetration of micro irrigation in India during the period 2014-15 to 2019-20. The secondary data is borrowed from agricultural statistics at a glance, Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare, Government of India, Directorate of Economics and Statistics etc. The eleven major states have been selected on the basis of the area covered under micro irrigation which is more than 1% in each state during 2014-15. We have calculated the percentage of area covered under micro irrigation in general and drip as well as sprinkler irrigation in particular with the help of statistical tools. In addition to that researcher has calculated the percentage changes in drip, sprinkler and micro irrigation systems for the study period. The researcher has also calculated state wise share to the area covered under drip irrigation and sprinkler irrigation by using the percentage method. The major objective of present paper is to study the penetration rate of micro irrigation in various states of India.

### **III. Results and Discussion:**

#### **Evolution of Micro Irrigation Schemes in India:**

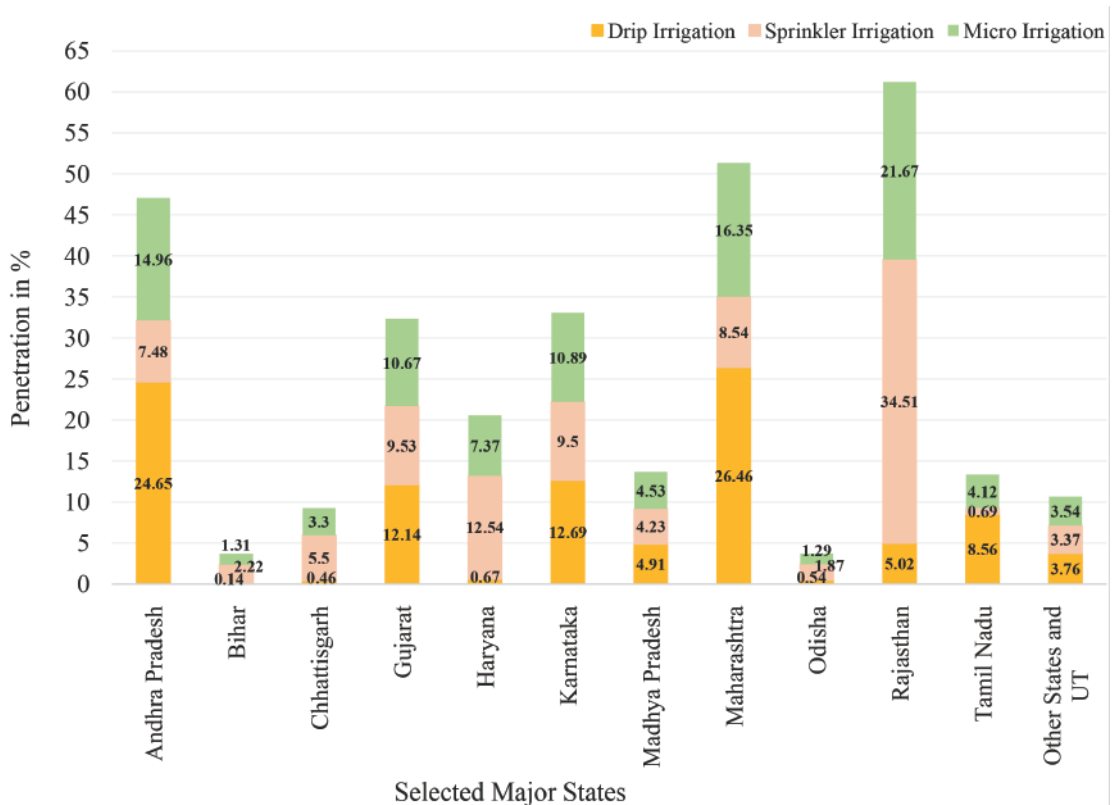
The evolution of micro irrigation in India was started in 1981 when the National Committee on Plasticulture in Agriculture (NCPA) sanctioned the use of plastics in agriculture on a trial basis. The NCPA, in its four successive reports (1982, 1983, 1984, and 1985), emphasized promoting the use of plastics for drip irrigation, mulching and greenhouses to uplift horticulture production. In 1992, the Government of India launched a centrally sponsored scheme on the use of plastics in agriculture based on the recommendations of the NCPA. Farmers were eligible for financial assistance under the scheme depending on the size of their land, the cost of installing a micro irrigation system, and their economic situation. The government of India has initiated micro irrigation in the year 1992 and recognized it as a focus area in multiple Centrally Sponsored Schemes (CSS) since 2006. It has been implementing a CSS on micro irrigation to maximize irrigation efficiency in agriculture by bringing appropriate technological change like drip and sprinkler irrigation technologies and supporting farmers to use water-saving and conservation techniques. The Ministry of Agriculture's Department of Agriculture and Cooperation introduced the CSS on micro irrigation in January 2006. It was renamed the National Mission on Micro Irrigation (NMMI) in June 2010, and it operated only till 2013-14. NMMI was merged into the National Mission on Sustainable Agriculture (NMSA) on April 1, 2014, and conducted as On Farm Water Management (OFWM) for the fiscal year 2014-15. The micro irrigation component of OFWM has been merged into the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) since April 1, 2015. later on, the OFWM which is a component of micro irrigation was subsumed in the PMKSY during the financial year 2015-16 and implementing micro irrigation schemes till now.

#### **Micro Irrigation Development in India - Current Scenario:**

The Department of Agriculture, Cooperation, and Farmers Welfare is implementing the Pradhan Mantri Krishi Sinchayee Yojana's Per Drop More Crop (PMKSY- PDMC). Since the last five years (2015-16 to 2019-20) the PMKSY-PDMC has focused on

increasing water use efficiency at the farm level through micro irrigation technologies such as drip and sprinkler irrigation systems. In India, both the central and state governments are promoting micro irrigation with a subsidy aspect. As of 2019-20, the area covered under drip irrigation was 5.96 million hectares, sprinkler irrigation 6.58 million hectares and micro irrigation was 12.54 million hectares. It was found that in selected eleven major states regarding the spread of drip, sprinkler and micro irrigation, Andhra Pradesh, has the highest area under drip irrigation, followed by Maharashtra, Gujarat, Karnataka, Tamil Nadu, Madhya Pradesh, Rajasthan, Haryana, Chhattisgarh, Odisha and Bihar these eleven states accounted together for about 93.94% whereas other states and union territories have covered only 6.05% of the total drip irrigated area. In case of sprinkler irrigation, Rajasthan has the highest irrigation coverage, followed by Karnataka, Gujarat, Haryana, Maharashtra, Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Bihar and Odisha these eleven states have accounted for about 93.75% of the total sprinkler irrigated area but other states and union territories have covered only 6.27% of the total sprinkler irrigated area. Looking at the micro irrigation Rajasthan state has the highest irrigation coverage followed by Andhra Pradesh, Maharashtra, Karnataka, Gujarat, Tamil Nadu, Haryana, Madhya Pradesh, Chhattisgarh, Odisha and Bihar these eleven states accounted together about 93.85% of the total micro irrigated area whereas other states and union territories have covered only 6.16% of the total micro irrigated area. Despite the long journey of micro irrigation, the coverage is still limited. Looking at the other states and union territories it needs instant attention to increase area under micro irrigation system [2]. Out of total 140.13 million hectares of sown area, the net irrigated area is 68.38 million hectares while 71.74 million hectares are non-irrigated and the area under micro irrigation is only 12.90 million hectares which is 18.80% to the net irrigated area in India as on 2021. Therefore, more efforts are required to increase the penetration of micro irrigation in India.

**Fig. No. 01 - Drip, Sprinkler and Micro Irrigation Structures of Selected Major States in India during 2014-15**



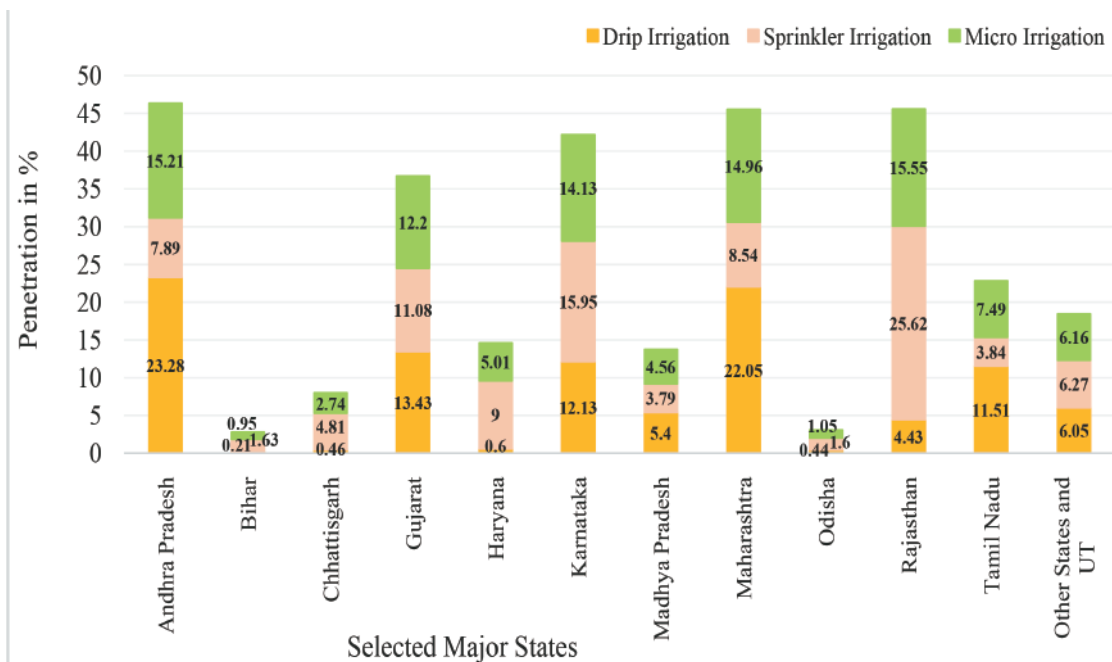
(Fig. drawn from Annexure table no. 01, Note: UT- Union Territories)

Figure no. 01 shows that the state-wise area covered under drip irrigation, sprinkler irrigation and micro irrigation. Maharashtra has the highest area under drip irrigation (26.46%), followed by Andhra Pradesh (24.65%), Karnataka (12.69%), Gujarat (12.14%), Tamil Nadu (8.56%), Rajasthan (5.02%), Madhya Pradesh (4.91%), Haryana (0.67%), Odisha (0.54), Chhattisgarh (0.46) and Bihar (0.14%). These eleven states together accounted for about 96.24% and the remaining states and union territories have contributed only 3.76% of the total drip-irrigated area of the country. These states need immediate attention to increase the area under drip irrigation. The total area covered under drip irrigation in the country was 3.39 million hectares in the year 2014-15.



Considering the total area under sprinkler irrigation it was found that Rajasthan has the highest area under it (34.51%) followed by Haryana (12.54%), Gujarat (9.53%), Karnataka (9.50%), Maharashtra (8.54%), Andhra Pradesh (7.48%), Chhattisgarh (5.5%) Madhya Pradesh (4.23%), Bihar (2.22%), Odisha (1.87%) and Tamil Nadu (0.12%), these eleven states have accounted for about 96.61% and the remaining states and union territories contributed only 3.37% of the total sprinkler irrigated area in the country during 2014-15. Therefore, there is an urgent need to increase the area under sprinkler irrigation in India. The total area covered under sprinkler irrigation was 4.39 million hectares in the year 2014-15.

**Fig. No. 02 - Drip, Sprinkler and Micro Irrigation Structures of Selected Major States in India during 2019-20**



(Fig. drawn from Annexure table no. 02, Note: UT- Union Territories)

Looking at the micro-irrigation it was found that Rajasthan has the highest area under it (21.67%), followed by Maharashtra (16.35%), Andhra Pradesh (14.96%) Karnataka (10.89%), Gujarat (10.67%), Haryana (7.37%), Madhya Pradesh (4.53%), Tamil Nadu

(4.12%), Chhattisgarh (3.3%), Bihar (1.31%) and Odisha (1.29%) these eleven states have accounted for about 96.46% and remaining states and union territories have accounted only 3.54% area covered under micro irrigation, it needs to be increased. The total area covered under micro irrigation is about 7.78 million hectares. The overall share of drip irrigation and sprinkler irrigation found that about 43.56% area is covered under drip Irrigation and the remaining 56.44% area is covered under sprinkler irrigation all over in India, that is the area covered under drip and sprinkler irrigation is almost equal 2014-15.

Figure no. 02 shows that the state-wise area covered under drip irrigation, sprinkler irrigation and micro irrigation. Andhra Pradesh has the highest area under drip irrigation (23.28%), followed by Maharashtra (22.5%), Gujarat (13.43%), Karnataka (12.13%), Tamil Nadu (11.51%), Madhya Pradesh (5.4%), Rajasthan (4.43%), Haryana (0.6%), Chhattisgarh (0.46%), Odisha (0.44%) and Bihar (0.21%). These eleven states together accounted for about 93.94% and the remaining states and union territories have contributed only 6.05% of the total drip-irrigated area. These states need instant attention to increase the area under drip irrigation. The total area covered under drip irrigation in the country was 5.96 million hectares in the year 2019-20.

Considering the total area under sprinkler irrigation it was found that Rajasthan has the highest area under it (25.62%) followed by Karnataka (15.95%), Gujarat (11.08%), Haryana (9%), Maharashtra (8.54%), Andhra Pradesh (7.89%), Chhattisgarh (4.81%) Madhya Pradesh (3.79%), Bihar (1.63%) and Odisha (1.6%), these eleven states have accounted for about 93.75% and the remaining states and union territories contributed only 6.27% of the total sprinkler irrigated area in the country during 2019-20. Therefore, there is an urgent need to increase the area under sprinkler irrigation in India. The total area covered under sprinkler irrigation was 6.58 million hectares in the year 2019-20.

Looking at the micro irrigation it was found that Rajasthan has the highest area under it (15.55%), followed by Andhra Pradesh (15.21%), Maharashtra (14.96%) Karnataka (14.13%), Gujarat (12.2%), Tamil Nadu (7.49%), Haryana (5.01%), Madhya Pradesh (4.56%) Chhattisgarh, Odisha and Bihar these eleven states have accounted for about 93.85% and other states and union territories have accounted only 6.16% covered under

micro irrigation, it needs to be increased. The total area covered under micro irrigation is about 12.54 million hectares. The overall share of drip irrigation and sprinkler irrigation found that about 47.55% area is covered under drip Irrigation and the remaining 52.45% area is covered under sprinkler irrigation all over in India, that is the area covered under drip and sprinkler irrigation is seems equal during the 2019-20.

**Table- No. 01- Net Change in Drip Irrigation of Major States during 2014-15 and 2019-20:**  
(Area under irrigation in thousand hectares)

Sr. No.	Name of the State	Area covered under Drip Irrigation				
		2014-15	%	2019-20	%	% Change
1	Andhra Pradesh	834.865	24.65	1388.126	23.28	66.27
2	Bihar	4.61	0.14	12.488	0.21	170.89
3	Chhattisgarh	15.553	0.46	27.504	0.46	76.84
4	Gujarat	411.208	12.14	800.72	13.43	94.72
5	Haryana	22.682	0.67	35.812	0.6	57.89
6	Karnataka	429.903	12.69	723.178	12.13	68.22
7	Madhya Pradesh	166.358	4.91	322.181	5.4	93.67
8	Maharashtra	896.343	26.46	1314.779	22.05	46.68
9	Odisha	18.431	0.54	26.134	0.44	41.79
10	Rajasthan	170.098	5.02	264.298	4.43	55.38
11	Tamil Nadu	290.009	8.56	686.572	11.51	136.74
12	Other States and UT	127.039	3.76	360.915	6.05	184.10
<b>All India</b>		<b>3387.099</b>	<b>100.0</b>	<b>5962.707</b>	<b>100.0</b>	<b>76.04</b>

*Source: Compiled by author from Annexure table no 1 and 2*

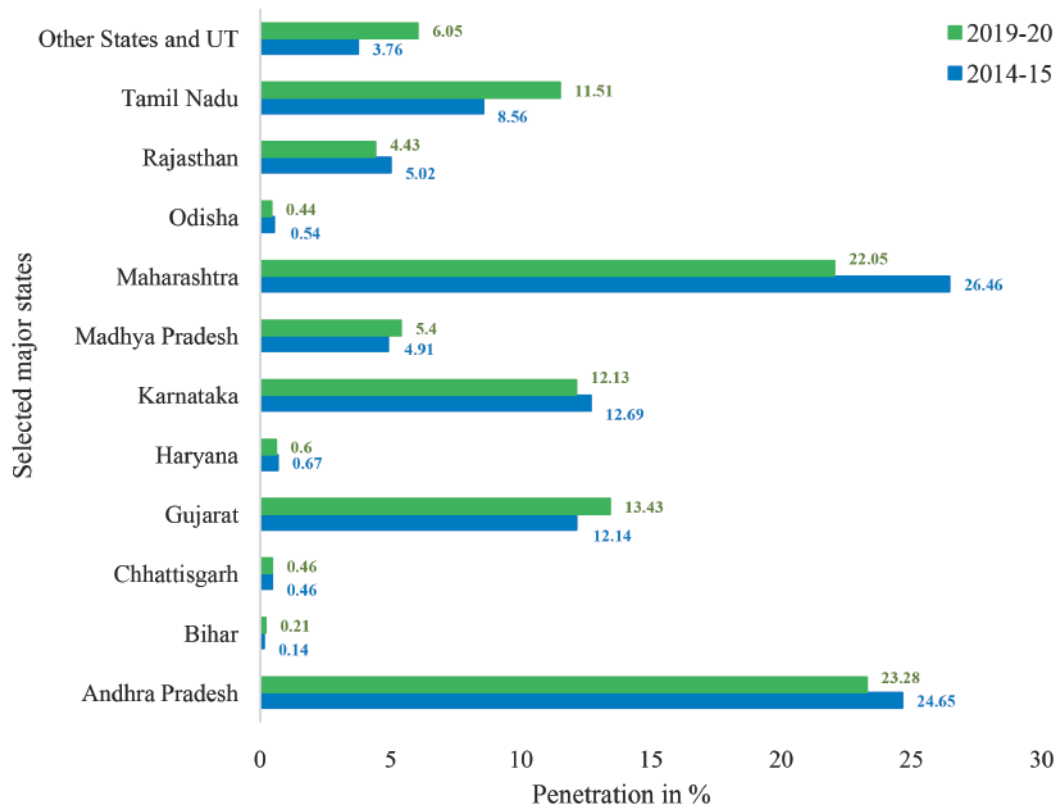
**Fig. No: 03 - Change in Drip Irrigation of Selected Major States in study period**

Table no. 01 and figure no. 03 shows the percentage change in drip irrigation of selected major states during the period of 2014-15 and 2019-20. It was found that the other states and union territories (184.10%) has the highest percentage change, that is drip irrigated area increased by around 2 times more followed by Bihar (170.89%) and Tamil Nadu (136.74%). Only Bihar and Tamil Nadu have increased more than double along with other states and union territories. While Rajasthan (55.38%) followed by Maharashtra (46.68%) and Odisha (41.79%) which was the lowest percentage changes for the study period. The remaining states have increased by more than half times as per the figures of 2014-15. The total percentage change of area covered under drip irrigation in India is increased about 76.04% between the period of 2014-15 and 2019-20. The total percentage

change of area covered under drip irrigation in India is about 76.04 % for the study period. Considering the area under drip irrigation coverage for the period 2014-15 was 3.39 million hectares and 5.96 million hectares for the period 2019-20 which found the difference of 2.58 million hectares area under sprinkler irrigation system between the period of 2014-15 and 2019-20

**Table No. 02- Net change in Sprinkler Irrigation of Major States during 2014-15 and 2019-20:**  
(Area under irrigation in thousand hectares)

Sr. No.	Name of the State	Area covered under Sprinkler Irrigation				
		2014-15	%	2019-20	%	% Change
1	Andhra Pradesh	328.441	7.48	519.165	7.89	58.07
2	Bihar	97.44	2.22	106.979	1.63	9.79
3	Chhattisgarh	241.42	5.5	316.456	4.81	31.08
4	Gujarat	418.165	9.53	728.843	11.08	74.30
5	Haryana	550.458	12.54	592.221	9	7.59
6	Karnataka	417.005	9.5	1048.906	15.95	151.53
7	Madhya Pradesh	185.759	4.23	249.036	3.79	34.06
8	Maharashtra	374.783	8.54	561.647	8.54	49.86
9	Odisha	82.147	1.87	105.095	1.6	27.94
10	Rajasthan	1514.451	34.51	1685.006	25.62	11.26
11	Tamil Nadu	30.436	0.69	252.573	3.84	729.85
12	Other States and UT	147.71	3.37	411.055	6.27	178.29
<b>All India</b>		<b>4388.215</b>	<b>100.0</b>	<b>6576.98</b>	<b>100.0</b>	<b>49.88</b>

*Source: Compiled by author from Annexure table 1 and 2*

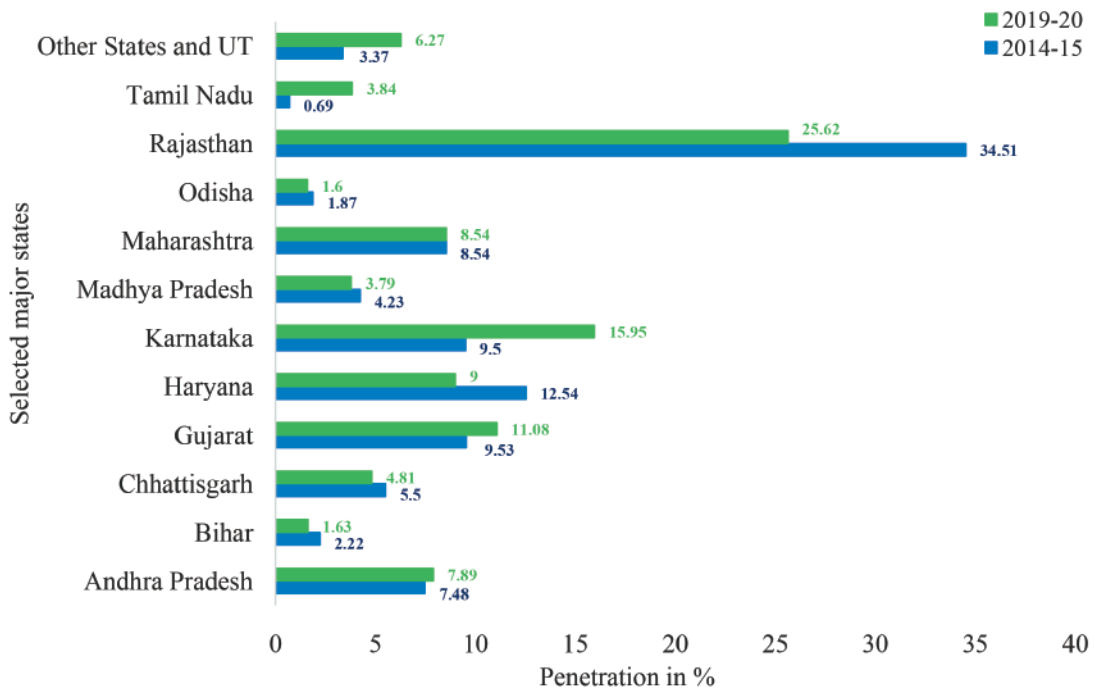
**Fig. No: 04 - Change in Sprinkler Irrigation of Selected Major States during study period**

Table no. 02 and figure no. 04 shows the percentage change in sprinkler irrigation of selected major states during the period of 2014-15 and 2019-20. It was found that Tamil Nadu (729.85%) state has the highest percentage change, that is sprinkler irrigated area increased by more than 7 times, followed by other states and union territories (178.29%) and Karnataka (151.53%). While Rajasthan (11.26%) followed by Bihar (9.79) and Haryana (7.59%) which is very less increased. The remaining states were also increased between 27% to 75% in the period which is found that they have not even increased by double. The total percentage change of area covered under sprinkler irrigation in India is about 49.88 % for the study period. Looking at the area under sprinkler irrigation coverage for the period 2014-15 was 4.39 million hectares and 6.58 million hectares for the period 2019-20 which found the difference of 2.19 million hectares area under sprinkler irrigation system between the period of 2014-15 and 2019-20

**Table- No. 03- Net change in Micro Irrigation of Major States during 2014-15 and 2019-20:**  
(Area under irrigation in thousand hectares)

Sr. No.	Name of the State	Area covered under Micro Irrigation				
		2014-15	%	2019-20	%	% Change
1	Andhra Pradesh	1163.31	14.96	1907.291	15.21	63.95
2	Bihar	102.05	1.31	119.467	0.95	17.07
3	Chhattisgarh	256.973	3.3	343.96	2.74	33.85
4	Gujarat	829.373	10.67	1529.563	12.2	84.42
5	Haryana	573.14	7.37	628.033	5.01	9.58
6	Karnataka	846.908	10.89	1772.084	14.13	109.24
7	Madhya Pradesh	352.117	4.53	571.217	4.56	62.22
8	Maharashtra	1271.13	16.35	1876.426	14.96	47.62
9	Odisha	100.578	1.29	131.229	1.05	30.47
10	Rajasthan	1684.55	21.67	1949.304	15.55	15.72
11	Tamil Nadu	320.445	4.12	939.145	7.49	193.08
12	Other States and UT	274.749	3.54	771.97	6.16	180.97
	<b>All India</b>	<b>7775.31</b>	<b>100</b>	<b>12539.69</b>	<b>100.00</b>	<b>61.28</b>

Source: Compiled by author from Annexure table 1 and 2

**Fig. No: 05 - Change in Micro Irrigation of Selected Major States during study period**

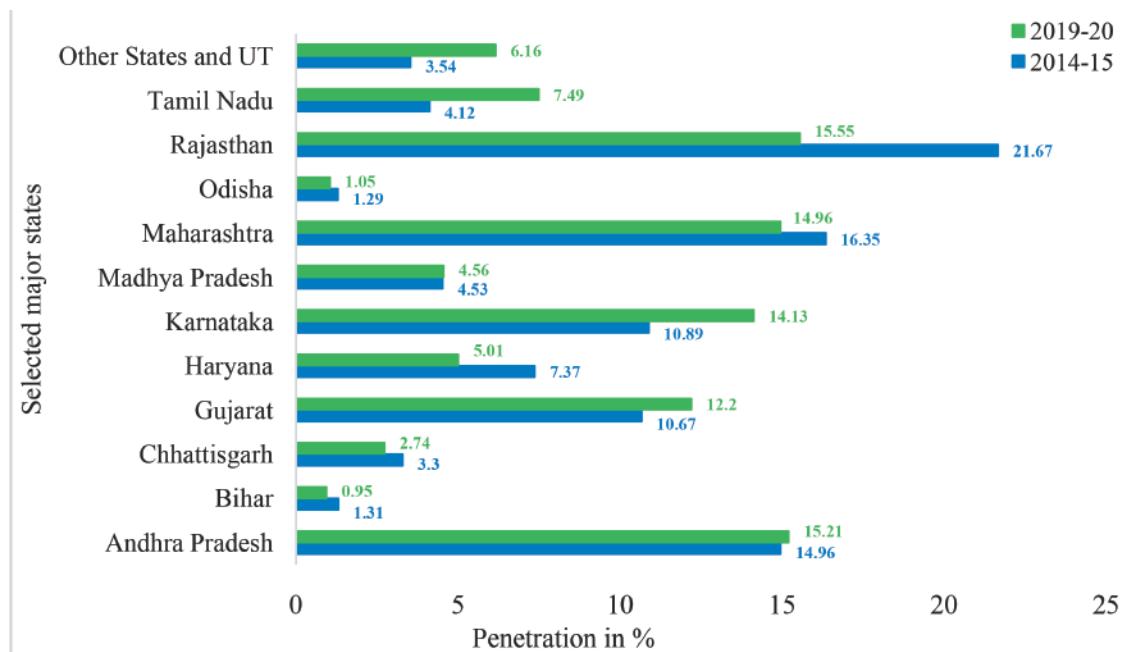
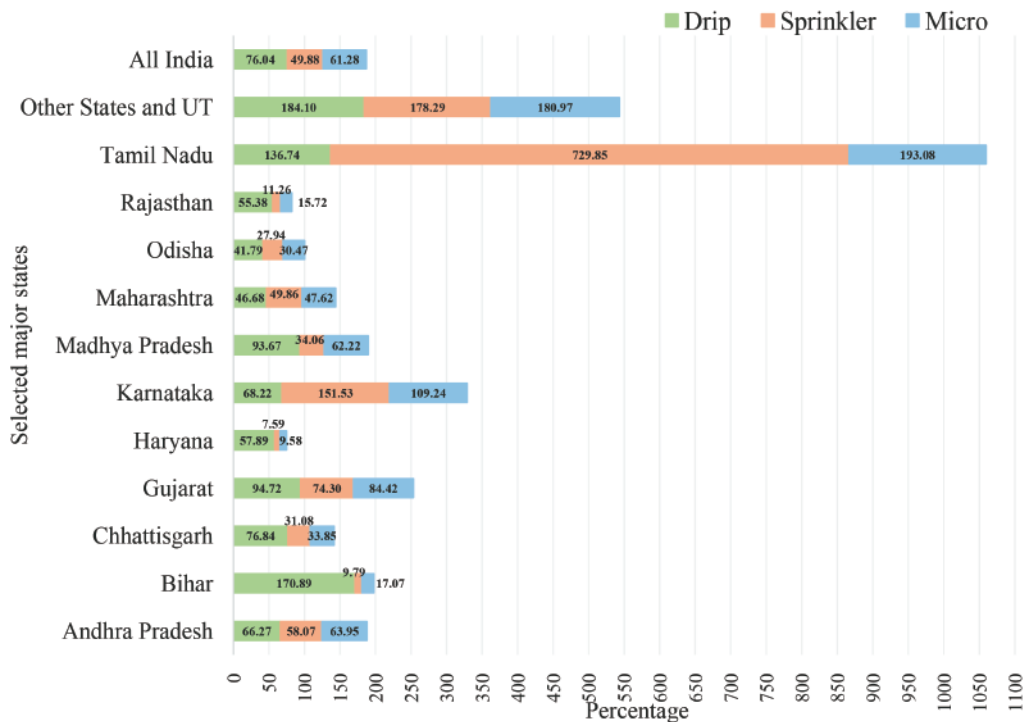


Table no. 03 and figure no. 05 shows the percentage change in micro irrigation of selected major states during the period of 2014-15 and 2019-20. It was found that the Tamil Nadu (193.08%) has the highest percentage change followed by other states and union territories (180.97%) and Karnataka (109.4%). While Bihar (17.07%) followed by Rajasthan (15.72%) and Karnataka (9.58%) has the lowest percentage change, which is very less increased. The remaining states were also increased from 30% to 85% in the study period which is found that they have not even increased by double in the period 2014-15 and 2019-20. The total percentage change of area covered under micro irrigation in India is about 61.28 % for the study period. Looking at the area under micro irrigation coverage for the period 2014-15 was 7.78 million hectares and 12.54 million hectares for the period 2019-20 which found the difference of 4.76 million hectares area under micro irrigation system between the period of 2014-15 and 2019-20

**Fig. No: 06 - Percentage Change of Irrigation during study period**





The information reveals that (Table no 01-03 and figure no. 06) the percentage change in the area under drip irrigation, sprinkler irrigation and micro irrigation system in India. In this study it is found that the drip irrigated area of other states and union territories increased by (184.10%) followed by Bihar (170.89%), Tamil Nadu (136%) has increased more than it's double. While remaining states have even not increased by its double, it need urgent attention to be increased. Considering the sprinkler irrigated area of Tamil Nadu (729.85%), followed by other states and union territories (178.29%) and Karnataka (151.53%) has increased sprinkler irrigated area by its double, while remaining state have less coverage, it needs to be increased. Looking at the area covered under micro irrigation of Tamil Nadu has (193.08%), followed by other states and union territories (180.97%) and Karnataka (109.24%) were doubled. On the other hand, remaining states have not increased even double during the study period of 2014-15 and 2019-20.

**Table- No. 04 - Penetration of Micro Irrigation in India during the period 2014-15 to 2019-20:**  
(Area under irrigation in million hectares)

Year	Drip	Sprinkler	Micro
2014-15	3.39	4.39	7.74
2015-16	3.92	4.71	8.63
2016-17	4.24	4.97	9.21
2017-18	4.78	5.47	10.25
2018-19	5.36	6.06	11.41
2019-20	5.96	6.58	12.54

**Source:** Government of India, Agricultural Statistics at a glance (2015-2020)

**Fig. No: 07 - Penetration of Micro Irrigation in India during the period 2014-15 to 2019-20**

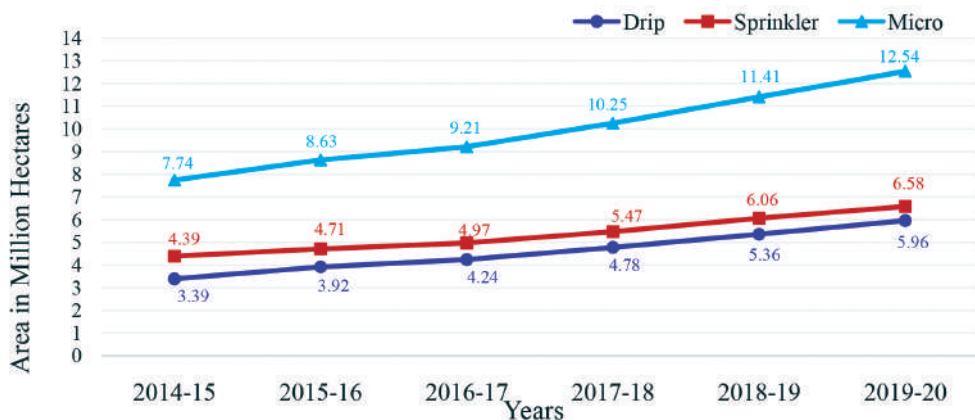


Table no. 04 and figure no. 07 Shows that the penetration of drip, sprinkler and micro irrigation in India during the study period 2014-15 to 2019-20. It is found that the penetration of drip, sprinkler and micro irrigation in India was increasing in study period. Considering the drip irrigated area was increased by 2.58 million hectares, sprinkler irrigated area by 2.19 million hectares and micro irrigated area was increased by 4.76 million hectares. While taking into account the net irrigated area which is 71.74 million hectares and the area covered under drip, sprinkler and micro irrigation is 5.96, 6.58 and 12.54 million hectares respectively as of 2019-20. Additionally, most of this development has been due to the subsidy from the state and central agencies.

#### **IV. Conclusion and Policy Recommendations :**

Indian economy is an agrarian society, with the agricultural sector accounting for 18% of GDP and employing half of the country's workforce. Water scarcity has been intensified by increased demand for water from other industries, as well as inefficient irrigation methods. In order to address India's water scarcity problem, especially in the agricultural sector, the government of India has introduced a number of irrigation programmes and projects from time to time. Recognizing the importance and potential benefits of the process to double farmers' income while also ensuring agricultural sustainability and environmental quality, the Union government launched the Pradhan Mantri Krishi Sinchai Yojana 'Per Drop More Crop' initiative. It is quite evident that micro-irrigation is crucial to ensure long-term sustainability in Indian agriculture. Following are the major suggestions to improve the penetration rate of micro irrigation in India.

- Micro irrigation helps in achieving greater water-use efficiency therefore it is to be seen as an essential component of the overall agricultural policy, rather than a water conservation tool. The growth of the area under micro irrigation has not so far been significant compared to the total net irrigated area. Hence policymakers should focus more on the allocation of micro irrigation that is drip irrigation in general and sprinkler irrigation in particular.
- It was found that the penetration of micro irrigation is not equally distributed in all the states in India. Maharashtra and Rajasthan have the highest area under

drip and sprinkler irrigation during 2014-15. respectively Moreover it was found that Rajasthan remained highest under sprinkler and micro irrigation vis-à-vis the Andhra Pradesh has taken over Maharashtra and ranked as highest under drip irrigation during 2019-20.

- It was found that the penetration rate of drip, sprinkler and micro irrigation has increased only by 2.58, 2.19 and 4.76 million hectares respectively during the study period. After the long journey of micro irrigation area covered is still limited. As a result, more efforts are required to increase the penetration rate of micro irrigation in India.
- So far as considering the current rate of net area under irrigation and with same schemes and policies of government it was estimated that, it will take more than sixty years to cover the net irrigated area under micro irrigation in India.
- Instead of transferring funds to the company, the subsidy amount should be transferred directly to the farmer's account. farmers can choose their own firm as well as design that is appropriate for his crop.
- To address the problem of water scarcity, micro irrigation is the only solution to increase and bring more area under the irrigation. Therefore, instant action is needed to intensify the micro irrigation schemes.

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**Annexures:**

**Annexure-1: Spread of Micro Irrigation Structures across the States in India during 2014-15**  
(Area under Irrigation in Thousand Hectares)

Sr. No.	Name of the State	Drip Irrigation		Sprinkler Irrigation		Micro Irrigation		Share to State in %	
		Area	%	Area	%	Area	%	Drip	Sprinkler
1	Andhra Pradesh	834.865	24.65	328.441	7.48	1163.31	14.96	71.77	28.23
2	Arunachal Pradesh	0.613	0.02	0	0	0.613	0.01	100	0
3	Assam	0.31	0.01	0.129	0	0.439	0.01	70.62	29.38
4	Bihar	4.61	0.14	97.44	2.22	102.05	1.31	4.52	95.48
5	Chhattisgarh	15.553	0.46	241.42	5.5	256.973	3.3	6.05	93.95
6	Goa	0.965	0.03	0.899	0.02	1.864	0.02	51.77	48.23
7	Gujarat	411.208	12.14	418.165	9.53	829.373	10.67	49.58	50.42
8	Haryana	22.682	0.67	550.458	12.54	573.14	7.37	3.96	96.04
9	Himachal Pradesh	0.291	0.01	0.684	0.02	0.975	0.01	29.85	70.15
10	Jharkhand	6.303	0.19	9.919	0.23	16.222	0.21	38.85	61.15
11	Karnataka	429.903	12.69	417.005	9.5	846.908	10.89	50.76	49.24
12	Kerala	22.516	0.66	6.948	0.16	29.464	0.38	76.42	23.58
13	Madhya Pradesh	166.358	4.91	185.759	4.23	352.117	4.53	47.25	52.75
14	Maharashtra	896.343	26.46	374.783	8.54	1271.13	16.35	70.52	29.48
15	Manipur	0.047	0	0.03	0	0.077	0	61.04	38.96
16	Mizoram	1.727	0.05	0.425	0.01	2.152	0.03	80.25	19.75
17	Nagaland	0.2	0.01	5.005	0.11	5.205	0.07	3.84	96.16
18	Odisha	18.431	0.54	82.147	1.87	100.578	1.29	18.33	81.67
19	Punjab	30.805	0.91	12.161	0.28	42.966	0.55	71.7	28.3
20	Rajasthan	170.098	5.02	1514.451	34.51	1684.55	21.67	10.1	89.9
21	Sikkim	5.544	0.16	2.769	0.06	8.313	0.11	66.69	33.31
22	Tamil Nadu	290.009	8.56	30.436	0.69	320.445	4.12	90.5	9.5
23	Telangana	25.299	0.75	5.293	0.12	30.592	0.39	82.7	17.3
24	Tripura	0.1	0	0.392	0.01	0.492	0.01	20.33	79.67
25	Uttar Pradesh	15.519	0.46	21.164	0.48	36.683	0.47	42.31	57.69
26	Uttarakhand	0.696	0.02	0.316	0.01	1.012	0.01	68.77	31.23
27	West Bengal	0.604	0.02	50.576	1.15	51.18	0.66	1.18	98.82
28	Other States and UT	15.5	0.46	31	0.71	46.5	0.6	33.33	66.67
	<b>All India</b>	<b>3387.099</b>	<b>100</b>	<b>4388.215</b>	<b>100</b>	<b>7775.31</b>	<b>100</b>	<b>43.56</b>	<b>56.44</b>

Source: National Committee on Plasticure Applications in Horticulture (NCPAH), Department of Agriculture, Cooperation & Farmers Welfare (DAC & FW) (2015)

**Annexure -2: Spread of Micro Irrigation Structures across the States in India during 2019-20***(Area covered under irrigation in Thousand Hectares)*

Sr. No.	Name of the State	Drip Irrigation		Sprinkler Irrigation		Micro Irrigation		Share to State in %	
		Area	%	Area	%	Area	%	Drip	Sprinkler
1	Andhra Pradesh	1388.126	23.28	519.165	7.89	1907.291	15.21	72.78	27.22
2	Arunachal Pradesh	0.613	0.01	0	0	0.613	0	100.00	0.00
3	Assam	2.374	0.04	11.32	0.17	13.694	0.11	17.34	82.66
4	Bihar	12.488	0.21	106.979	1.63	119.467	0.95	10.45	89.55
5	Chhattisgarh	27.504	0.46	316.456	4.81	343.96	2.74	8.00	92.00
6	Goa	1.336	0.02	1.264	0.02	2.6	0.02	51.38	48.62
7	Gujarat	800.72	13.43	728.843	11.08	1529.563	12.2	52.35	47.65
8	Haryana	35.812	0.6	592.221	9	628.033	5.01	5.70	94.30
9	Himachal Pradesh	6.9	0.12	5.386	0.08	12.286	0.1	56.16	43.84
10	Jharkhand	25.081	0.42	17.298	0.26	42.379	0.34	59.18	40.82
11	Karnataka	723.178	12.13	1048.906	15.95	1772.084	14.13	40.81	59.19
12	Kerala	23.954	0.4	8.922	0.14	32.876	0.26	72.86	27.14
13	Madhya Pradesh	322.181	5.4	249.036	3.79	571.217	4.56	56.40	43.60
14	Maharashtra	1314.779	22.05	561.647	8.54	1876.426	14.96	70.07	29.93
15	Manipur	0.358	0.01	2.584	0.04	2.942	0.02	12.17	87.83
16	Mizoram	5.088	0.09	1.688	0.03	6.776	0.05	75.09	24.91
17	Nagaland	2.424	0.04	5.855	0.09	8.279	0.07	29.28	70.72
18	Odisha	26.134	0.44	105.095	1.6	131.229	1.05	19.91	80.09
19	Punjab	36.025	0.6	13.704	0.21	49.729	0.4	72.44	27.56
20	Rajasthan	264.298	4.43	1685.006	25.62	1949.304	15.55	13.56	86.44
21	Sikkim	6.35	0.11	5.26	0.08	11.61	0.09	54.69	45.31
22	Tamil Nadu	686.572	11.51	252.573	3.84	939.145	7.49	73.11	26.89
23	Telangana	195.831	3.28	71.009	1.08	266.84	2.13	73.39	26.61
24	Tripura	0.444	0.01	1.651	0.03	2.095	0.02	21.19	78.81
25	Uttar Pradesh	32.442	0.54	178.624	2.72	211.066	1.68	15.37	84.63
26	Uttarakhand	10.965	0.18	7.944	0.12	18.909	0.15	57.99	42.01
27	West Bengal	10.329	0.17	78.182	1.19	88.511	0.71	11.67	88.33
28	Other States and UT	0.401	0.01	0.364	0.01	0.765	0.01	52.42	47.58
<b>All India</b>		<b>5962.707</b>	<b>100</b>	<b>6576.982</b>	<b>100</b>	<b>12539.689</b>	<b>100</b>	<b>47.55</b>	<b>52.45</b>

Source: Government of India Ministry of Agriculture & Farmers Welfare Department of Agriculture, Cooperation & Farmers Welfare Directorate of Economics and Statistics (2020)



## 3 Digitally Connected and Socially Disconnected Youth in India: Some Empirical Evidences from Social Media Platforms

Dr. Vijay M. Kumbhar<sup>1</sup>

### **Abstract:**

*The aim of this study was to examine the level of social media addiction in youth. This study is mainly focused to examine the digital connection verses mental connection. The study was conducted with 1,000 students receiving education in a district located in the Maharashtra (India). For the collection of the data, a online survey was conducted in the study region. The study reveals that social media leads to increase digital friends but they are not mentally connected to each other's. The social media friends are not contributing as physical friends for solving problems, supporting each other, not taking care of each other, encouraging the friends for betterment. Overall results of the study indicates that the purpose of friendship is not survived in the social media friendship.*

**Keywords:** Social Media, Youth, Friendship, Digital Connectivity, Social Connectivity

### **I. Introduction**

In today's digital world, almost of young generation rely on social media platforms such as Facebook, Twitter, YouTube, LinkedIn, WhatsApp, Instagram and other social media platforms in India. Every person either male or female are trying to connect each other through social media. Everyone has tries to share their good and bad events, filling and emotions to friend and colleagues who are connected digitally. Even though, everyone is much interested about the events, good happening among our friends and peers, fillings and emotions of other persons who are connected through social media. The social media users are trying to show, trying prove that we are much connected to each other, however, in real life most of the social media users are mentally and socially disconnected. The present research is an attempt to know the facts with empirical evidences from Indian youth.

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## **II. Research Methodology and Database :**

### **Research Problem**

The social media and social networking sites are become more popular to connect with our friends, colleagues, relatives, partially and fully known persons in this world. However, according to Lawrence and Melinda (2021) social media can never be a replacement for real-world human connection. It requires in-person contact with others to trigger the hormones that alleviate stress and make you feel happier, healthier, and more positive. Mark Engler (2019) mentioned that, the people may have hundreds or even thousands of online friends, but they may have few actual friends in their real life. It is not only in India but also in the all over world, most of people have many male and female friends. although is real life these persons have very few friends who are really connected and knowing each other very well. The social media platforms are creating networks of friends and receiving frequent updates from people in our lives, and attempting build a sense of community. However, the main problem of this study is to find out that the social media friends are really connected or not?

### **Friendship and Social Connection**

The dynamics of friendship and social relationships, such as friendship or mental connection is a complex field of study. However, several philosopher and researchers have studied these aspects of human life and described nature of friendship and mental connections. The friend is a person who has a strong liking for and trust in another person, a person who gives helps or supports in bad days and unhealthy situations in human life. According to Mahzad Hojjat and Anne Moyer (2017) The words “friend” and “friendship” are used to describe a gamut of human relationships-ranging from long-standing attachments of considerable affection and loyalty. It means friendship is not only the gathering of two or more persons, it is mental bonding of each other and strong connection that supports each other. A friendship is a mutual relationship of person who have great bonding and understanding. According to Aristotle (1980) In light of close friendship’s voluntary, personal, affective, mutual, and equal qualities, such friends negotiate a private moral sphere within the constraints of the cultural and public moralities shaping their possibilities. Bilecen B. (2014) argues that friendship patterns



are affected by age because, depending on the life stage of the persons involved, daily routines and activities and social circles change. It has been stated that younger people have more diverse networks that include friends, whereas networks of older generations are dominated by family and kin relations. According to Wright (1978), friendships exhibit gender-based patterns. He characterizes women's friendships as face-to-face and men's as side-by-side – that is, women share their emotions and tend to express more empathy, intimacy, identity affirmation and self-disclosure, whereas men share activities and are more likely to be sociable, share hobbies and do things as a group. Robert Paine (1969) described friendship as an institutionalized non-institution, It means friendship is such bonding or attachment that works as social institution, which create pure bonding of persons who take care of each other and support.

Now a day's friendship through social media is increased at high level in every region of the world however there is problem of social connections among them. Almost all youth population rely on the digital means of interaction and social connections, but several researchers have found that such type of friendship is not able to build social connectivity in real sense. Décieux et al.(2019) argue that although offline interactions remain very important for young people, they have been complemented and partially replaced by interactions via social media. Modes of young people's social media interactions can be characterized as mixed modalities. Döring, N. (2010) explained that the online interactions do not completely replace offline interactions. offline interactions are most important thing in human life it can't be substituted. However, we found that the youth are mostly depends upon the social media for building friendship and developing social connection through the online mode. it is dangerous for the society and individual human being also.

### **Objectives and Hypotheses**

1. To analyze the profile of social media user youth in study region
2. To analyze the level of social media addiction in youth
3. To understand the perception of youth regarding social connections through social media

The present study was carried out to test following hypotheses;

- **Hypothesis-1** The usefulness of Social Media is the same across all Age groups.
- **Hypothesis-2** The usefulness of Social Media is the same across gender.
- **Hypothesis-3** The usefulness of Social Media is the same across rural, semi-urban and urban.
- **Hypothesis-4** The usefulness of Social Media is the same across income groups.

#### **Data and methods:**

The present study is mainly focused on to understand the level of use of social media by youth in rural and urban area and to understand their perceptions toward social connectivity through social media. For this study author has collected data through primary and secondary data sources. secondary data was collected through various research papers and reports, and primary data was collected through online survey and formal discussions with youth in rural and urban area of Maharashtra state of India. For the data collection purposive sampling method was used for sampling and 1000 college students has been selected as sample for this study. The collected data was analyzed using statistical software SPSS 21.00. The hypothesis under study are tested using Independent-Samples Kruskal-Wallis Test and Independent-Samples Mann-Whitney U Test.

### **III. Results and Discussion :**

#### **Profile of young social media users:**

The profile of social media users are different in different nations and regions, However, author has analyzed the profile of youth social media users in the Maharashtra state of India. The author found that rural social media users are more than urban and semi-urban youth, WhatsApp and Instagram is more used by youth followed by Facebook and YouTube (Table 1)

**Table:1 - Rural and Urban Users**

Place	Group	Facebook	WhatsApp	Instagram	YouTube	Twitter
Rural	Count	342	651	441	383	60
	%	76.3%	67.7%	77.4%	56.7%	78.9%
Semi-Urban	Count	47	122	108	113	10
	%	10.5%	12.7%	18.9%	16.7%	13.2%
Urban	Count	59	189	21	180	6
	%	13.2%	19.6%	3.7%	26.6%	7.9%
Total	Count	448	962	570	676	76
	%	100.0%	100.0%	100.0%	100.0%	100.0%

*Source: Compiled by Author*

Table 2 reveals that the female youth are using social media more than male youth in the study region. WhatsApp and YouTube are more used by the female social media users. However, Twitter and Facebook is least preferred by the female as compared to male social media users in study region.

**Table:2 - Gender wise Social Media Users**

Place	Group	Facebook	WhatsApp	Instagram	YouTube	Twitter
Male	Count	208	297	239	176	34
	%	46.4%	30.9%	41.9%	26.0%	44.7%
Female	Count	240	665	331	500	42
	%	53.6%	69.1%	58.1%	74.0%	55.3%
Total	Count	448	962	570	676	76
	%	100.0%	100.0%	100.0%	100.0%	100.0%

*Source: Compiled by Author*

According to Baker (2016), 67% of the people between the ages of 18 and 29 actively use social media. In addition, 22% of all people use social media for a specific reason. Table 3 indicates that most of social media users are belongs to age group of 19 years to 21 years followed by below 18 years. It is also notice that the respondents from 26 to 30 years age group are less as compared to other age groups. It also directs that the youth ageing 22 year and more are more preferring their work and livelihood than use of social media.

**Table 3 Age Group Wise Social Media Users**

Age Group	Group	Facebook	WhatsApp	Instagram	YouTube	Twitter
Below 18	Count	63	172	100	119	18
	%	14.1%	17.9%	17.5%	17.6%	23.7%
19-21	Count	296	692	377	511	48
	%	66.1%	71.9%	66.1%	75.6%	63.2%
22-25	Count	58	66	62	28	4
	%	12.9%	6.9%	10.9%	4.1%	5.3%
26-30	Count	17	17	17	7	4
	%	3.8%	1.8%	3.0%	1.0%	5.3%
Above 30	Count	14	15	14	11	2
	%	3.1%	1.6%	2.5%	1.6%	2.6%
Total	Count	448	962	570	676	76
	%	100.0%	100.0%	100.0%	100.0%	100.0%

*Source: Compiled by Author*

Table 4 shows that 42.2 percent of respondents have atleast 500 social media friends and 30.7 percent have 500 to 1000 social media friends, 18.6 percent have 1000 to 3000 friends and 8.5 percent have more than 3000 social media friends.

**Table: 4 - Number of Friends on Social Media**

No of Social Media Friends	Frequency	Percent	Cumulative Percent
Below 500	422	42.2	42.2
501 to 1000	307	30.7	72.9
1001 to 3000	186	18.6	91.5
Above 3000	85	8.5	100.0
Total	1000	100.0	

*Source: Compiled by Author*

### Level of social media addiction in youth:

It is observed that the youth populations of the country becoming addicted by social media and they are spending more and more time on social media. Maria Choudhury and Arif Ali (2020), Masthi et al., (2018), Raj, Bhattacharjee and Mukherjee, (2018) and Masthi, Pruthvi, & Mallekavu, (2018) explored that the college-going youth reveals 35 to 56 percent social media addiction among the users. The present study reveals that almost all youth are connected to social media and connected through the social media in study region (Table 1, Table 2, Table 3 and Table 4). Table 5 indicates that 20 percent (207) of the respondents are checking their social media profile in every five minutes, 11.4 percent are checking social media site once in half hour, 34.8 percent are once in hour, and 26.5 percent are checking social media at least once in a day. Only 6.6 percent of the respondents are not checking their social media sites frequently however, they are also checking their sites occasionally.

**Table: 5- Frequency of use**

		Frequency	Percent	Cumulative Percent
<b>Frequency</b>	Every 5 Minutes	207	20.7	20.7
	Once in 30 Minutes	114	11.4	32.1
	Once in 1 Hour	348	34.8	66.9
	Once in Day	265	26.5	93.4
	Not Frequent	66	6.6	100.0
	Total	1000	100.0	

*Source: Compiled by Author*

Table 5 shows that the commutatively 66.9 percent of the youth surfing their social media sites very frequently. Table 6 indicates that 53.8 percent of the youth post their five post, 116 percent are sending 6 to 10 post and remaining 5.2 percent are sending 11 to 30 posts at social media. Only 28.7 percent respondents are not sending any type of post on social media.

**Table: 6 - Daily Post on Social Media (Numbers)**

		Frequency	Percent	Cumulative Percent
<b>Post on Social Media</b>	No Post	287	28.7	28.7
	1 to 5 Post Daily	538	53.8	82.5
	6 to 10 Post Daily	116	11.6	94.1
	11 to 20 Post Daily	32	3.2	97.3
	20 to 30 Post Daily	20	2.0	99.3
	Above 30 Post Daily	7	.7	100.0
	Total	1000	100.0	

*Source: Compiled by Author*

We have to find out the reasons and effects of this increasing addiction among the youth. Aksoy (2018) the reasons for addiction were the need to socialize, while male participants were more interested in acquiring new friends, female participants were more interested in communicating with their real-life friends. Chen, et al (2017) found that perceived enjoyment, mood regulation, pastime, and conformity were antecedents of the smart phone addiction.

### **Hypothesis testing**

Hypothesis under study was tested through the non-parametric test Independent-Samples Kruskal-Wallis Test and Independent-Samples Kruskal-Wallis Test. The usefulness of the social media was checked through followings hypothesis;

- **Hypothesis-1** The usefulness of Social Media is the same across all Age groups.
- **Hypothesis-2** The usefulness of Social Media is the same across gender.
- **Hypothesis-3** The usefulness of Social Media is the same across rural, semi-urban & urban.
- **Hypothesis-4** The usefulness of Social Media is the same across income groups.

Independent-Samples Kruskal-Wallis Test is the statistical test for checking either distribution across the two groups is same or not, and the Independent-Samples Kruskal-

Wallis Test is the statistical test for checking either distribution across the three or more groups is same or not. The following hypothesis are tested accordingly;

**Table 7- Hypothesis 1 - Test Summary**

**Null** - The usefulness of Social Media is the same across all Age groups.

**Alt** - The usefulness of Social Media is not the same across all Age groups

	<b>Null Hypothesis</b>	<b>Independent-Samples Kruskal-Wallis Test</b>	<b>Sig.</b>	<b>Decision</b>
<b>1</b>	The distribution of Social Media is useful for connect new friends is the same across categories of Age.	Test Statistics - 5.462 DF - 4 N - 1000	.243	Retain the null hypothesis.
<b>2</b>	The distribution of Social Media is useful for develop relations is the same across categories of Age.	Test Statistics - 13.659 DF - 4 N - 1000	.008	Reject the null hypothesis.
<b>3</b>	The distribution of Social Media is useful for stay connected is the same across categories of Age.	Test Statistics - 1.959 DF - 4 N - 1000	.743	Retain the null hypothesis.
<b>4</b>	The distribution of Social Media is useful for sharing good and bad happening among our friends is the same across categories of Age.	Test Statistics - 9.508 DF - 4 N - 1000	.050	Reject the null hypothesis.
<b>5</b>	The distribution of Social Media is useful for knowing persons is the same across categories of Age.	Test Statistics - 2.623 DF - 4 N - 1000	.623	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05

Table 7 shows that the distribution of Social Media is useful for develop relations and for sharing good and bad happening among our friends is not same with all age groups. However, The distribution of Social Media is useful for connect new friends, staying connected and useful for knowing persons is the same across categories of Age groups.

**Table 8 - Hypothesis 2 - Test Summary**

**Null** - The usefulness of Social Media is the same across gender.

**Alt** - The usefulness of Social Media is not the same across gender.

	<b>Null Hypothesis</b>	<b>Independent-Samples Mann-Whitney U Test</b>	<b>Sig.</b>	<b>Decision</b>
<b>1</b>	The distribution of Social Media is useful for connect new friends is the same across categories of Gender.	Test Statistics - 114353.500 Mean Rank (male) -475.92 Mean Rank (Female) 511.49 N - 1000	.008	Reject the null hypothesis.
<b>2</b>	The distribution of Social Media is useful for develop relations is the same across categories of Gender.	Test Statistics - 123837.00 Mean Rank (male) - 445.23 Mean Rank (Female) 525.21 N - 1000	.000	Reject the null hypothesis.
<b>3</b>	The distribution of Social Media is useful for stay connected is the same across categories of Gender.	Test Statistics - 108348.00 Mean Rank (male) -495.36 Mean Rank (Female) 502.80 N - 1000	.573	Retain the null hypothesis.
<b>4</b>	The distribution of Social Media is useful for sharing good and bad happening among our friends is the same across categories of Gender.	Test Statistics - 110146.00 Mean Rank (male) -489.54 Mean Rank (Female) 505.40 N - 1000	.278	Retain the null hypothesis.
<b>5</b>	The distribution of Social Media is useful for knowing persons is the same across categories of Gender.	Test Statistics - 118848.00 Mean Rank (male) - 461.38 Mean Rank (Female) 517.99 N - 1000	.001	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05



Table 8 indicates that the distribution of Social Media is useful for connect new friends, useful for develop relations and useful for knowing persons is not same in male and female. However, usefulness for staying connected and usefulness for sharing good and bad happening among our friends is the same in male and female.

**Table 9 - Hypothesis 3 - Test Summary**

**Null** - The usefulness of Social Media is same across rural, semi-urban & urban

**Alt** - The usefulness of Social Media is not same across rural, semi-urban & urban

	<b>Null Hypothesis</b>	<b>Independent-Samples Kruskal-Wallis Test</b>	<b>Sig.</b>	<b>Decision</b>
<b>1</b>	The distribution of Social Media is useful for connect new friends is the same across categories of Location.	Test Statistics - 1.510 DF - 2 N - 1000	.470	Retain the null hypothesis.
<b>2</b>	The distribution of Social Media is useful for develop relations is the same across categories of Location.	Test Statistics - 1.469 DF - 2 N - 1000	.480	Retain the null hypothesis.
<b>3</b>	The distribution of Social Media is useful for stay connected is the same across categories of Location.	Test Statistics - 2.534 DF - 2 N - 1000	.282	Retain the null hypothesis.
<b>4</b>	The distribution of Social Media is useful for sharing good and bad happening among our friends is the same across categories of Location.	Test Statistics - 1.155 DF - 2 N - 1000	.561	Retain the null hypothesis.
<b>5</b>	The distribution of Social Media is useful for knowing persons is the same across categories of Location.	Test Statistics - 1.558 DF - 2 N - 1000	.454	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05

Table 9 indicates that the distribution of Social Media is useful for connect new friends, useful for develop relations, useful for knowing persons, usefulness for staying connected and usefulness for sharing good and bad happening among our friends is the same in case of rural, semi-urban and urban respondents.

**Table 10 - Hypothesis 4 - Test Summary**

**Null** - The usefulness of Social Media is the same across income groups.

**Alt** - The usefulness of Social Media is the same across income groups.

	<b>Null Hypothesis</b>	<b>Independent-Samples Kruskal-Wallis Test</b>	<b>Sig.</b>	<b>Decision</b>
<b>1</b>	The distribution of Social Media is useful for connect new friends is the same across categories of Income.	Test Statistics -4.921 DF - 4 N - 1000	.295	Retain the null hypothesis.
<b>2</b>	The distribution of Social Media is useful for develop relations is the same across categories of Income.	Test Statistics -3.474 DF - 4 N - 1000	.482	Retain the null hypothesis.
<b>3</b>	The distribution of Social Media is useful for stay connected is the same across categories of Income.	Test Statistics -1.427 DF - 4 N - 1000	.839	Retain the null hypothesis.
<b>4</b>	The distribution of Social Media is useful for sharing good and bad happening among our friends is the same across categories of Income.	Test Statistics -7.027 DF - 4 N - 1000	.134	Retain the null hypothesis.
<b>5</b>	The distribution of Social Media is useful for knowing persons is the same across categories of Income.	Test Statistics -2.339 DF - 4 N - 1000	.674	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05

Table 10 indicates that the distribution of Social Media is useful for connect new friends, useful for develop relations, useful for knowing persons, usefulness for staying connected and usefulness for sharing good and bad happening among our friends is the same in case of respondents belongs to all income groups (DF-4 and Sig. .295, Sig.- .482. Sig.- .839 Sig. .134, Sig. .674)

### **Reality of Social Media in Social Connection :**

The World Health Organization (WHO, 2017) reported that 10–20% of children and adolescents worldwide experience mental health problems. It is estimated that 50% of all mental disorders are established by the age of 14 and 75% by the age of 18 (Kessler

et al., 2007; Kim-Cohen et al., 2003). Betul Keles, et al (2020) mentioned that The most common disorders in children and adolescents are generalized anxiety disorder and depression, respectively (Mental Health Foundation, 2018; Stansfeld et al., 2016). According to the Royal Society for Public Health, & Young Health Movement (2017). The present study reveals that the 67.90 percent respondents are not sure about the social media friends not useful to guide properly, 69.30 percent of respondents says the social media friends are not taking care of their friends, 59.70 percent of social media friends not supports morally to their friends, 51.90 percent of friends are not encourage their friends for wellbeing and 52.60 percent of social media friends are not contributing for solving the problem of their friends (Table 11).

**Table: 11 - Social Media and Social Connection**

Response	Friends guide you properly	Take care of your emotions	Friends support you morally	Friends encourage your for best	Friends solve your problems
Yes	32.1%	29.7%	40.3%	48.1%	37.5%
Not Sure	50.6%	39.7%	37.6%	35.7%	33.2%
No	17.3%	30.6%	22.1%	16.2%	29.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Compiled by Author

#### IV. Conclusions:

Overall study indicates that the social media addition has been increased in rural and urban youth specially aging 19 to 22 years. These are specially college going students who are using more social media networks for building relationship and extend friendship. Basically the friendship is assumed for guiding the friends, take care of each others, moral support to friends, encourage their friends and friendship is for contribute to solve problems of their friends. However, the data shows that the social media friends are not useful to handle the said issues as friends. hence, we can conclude that the social media is becoming network for increasing digital friends but they are not mentally connected to each others. The purpose of friendship is not survive in the social media friendship in the study region.

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4

## Urban Local Body Issues of Revenue: A Periodic Budgetary Review of Solapur Municipal Corporation

Dr. Babar Pravin Gulabrao<sup>1</sup>

### **Abstract:**

*The 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendment Acts of 1992 were the most noteworthy milestones in strengthening of local governance in India. These Amendments, aimed at strengthening both the municipal bodies and Panchayati Raj institutions. Until the amendments, local governments were under the State Governments 'direct control in an 'ultra vires' fashion, without legislative provisions. To improve the performance, accountability, and credibility of local bodies, an attempt was made by these amendments to include important functions like devolution of financial and administrative responsibilities, to the third tier of governance, therefore, making path for fiscal 'federalism! The existing pattern of municipal finances is unable to meet the required expenditure on infrastructure development. Municipal finance involves the planning of revenue and expenditure decisions. Municipal budgets comprise plans with details regarding proposed expenditure and sources of financing during a financial year. Revenues of municipalities come from different sources but are limited in amount. Municipal revenue is classified; a) municipal own revenue comprising tax and non-tax revenue, (b) shared taxes with the state government, (c) grants-in-aid from the state and central government; and(d) borrowings from financial institutions.*

**Keywords:** *Urban Local Bodies (ULBs), 74<sup>rd</sup> Amendment, Public Finance, Public Revenue, Urban Development.*

### **I. Introduction**

While rural local governments received attention through the 74<sup>rd</sup> amendment, it was recognized that Urban Local Bodies (ULBs) too had been neglected for the past many years. Urban Local Bodies also faced similar issues like Panchayat Raj Institutions. The

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74<sup>th</sup> Amendment Act enacted in 1992, addressed these issues by the creation of local governments, devolution of financial and administrative powers, and their effective and efficient functioning. It was sought that these local governments would bridge the gap between citizens and the higher tiers of government, by taking into account immediate as well as long term needs of their respective jurisdiction. The objectives and responsibilities of these municipalities were outlined in the 12<sup>th</sup> schedule and included urban planning, slum improvement, sanitation conservancy and public amenities.

Till 1992 India functioned as a two-tier structure (Centre and states). The third tier (local bodies) was recognized after the 73<sup>rd</sup> and the 74<sup>th</sup> amendments in 1992. In India, in 2011, 4041 towns had urban local bodies. In the country, there are three different types of urban local. The municipal corporations for major cities in the country, like Ahmadabad, Bangalore, Delhi, Chennai, Hyderabad, Kolkata and Mumbai, can raise and generate resources by some techniques but in the case of smaller towns, dependence on the government is significantly large. In general, the financial resources of urban local bodies are not sufficient, and therefore are unable to meet the expenditure requirements.

The following table lists out the revenue sources of Urban Local Bodies under each major revenue head.

## **II. Research Methodology and Database :**

The present paper is an attempt to study the role of urban local bodies in the process of urban development with special reference to Solapur Municipal Corporation which is with the help of the data for the period from 2001-02 to 2013-14. This study is based on the secondary data mainly sourced from the annual budgetary documents of Solapur Municipal Corporation for the period mentioned above. The collected data are tabulated by employing appropriate statistical tools such as the Compound Growth Rates, Percentage and ratio analysis, averages, Standard deviation, Coefficient of Variation and correlation for the period.

### III. Results and Discussion :

#### 1. The Growth and Composition of Total Revenue Of Solapur Municipal Corporation:

Total Revenue of Solapur Municipal Corporation consists of Revenue Receipts and Capital Receipts. The revenue receipts and capital receipts are two components of the total revenue of the corporation.

**Table 1: Revenue Sources of Municipal Corporations in India**

Revenue Head/Category	Sources of Revenue
Tax Revenue	Property Tax, Octroi, Advertisement Tax, Tax on Animals, Vacant Land Tax, Taxes on Carriages and Carts
Non-Tax Revenue Other Receipts	User Charges, Municipal Fees, Sale and Hire Charges, Lease amounts Other receipts Sundry receipts, Law charges costs recovered, Lapsed deposits, Fees, Fines and Forfeitures, Rent on Tools and Plants, Miscellaneous Sales etc.
Assigned (Shared) Revenue Grants-In-Aid	Entertainment Tax, Surcharge on Stamp duty, Profession Tax, Motor Vehicles Tax i) Plan Grants made available through planned transfers from the upper tier of Government under various projects, programmes and schemes ii) Non-Plan Grants made available to compensate against the loss of income and some specific transfers
Loans	Loans borrowed by the local authorities for capital works etc. - HUDCO, LIC, State and Central Governments, Banks and Municipal Bonds

Source: Budget Documents, GOI

**Table: 2 Trends and Composition of Total Revenue of Solapur Municipal Corporation**

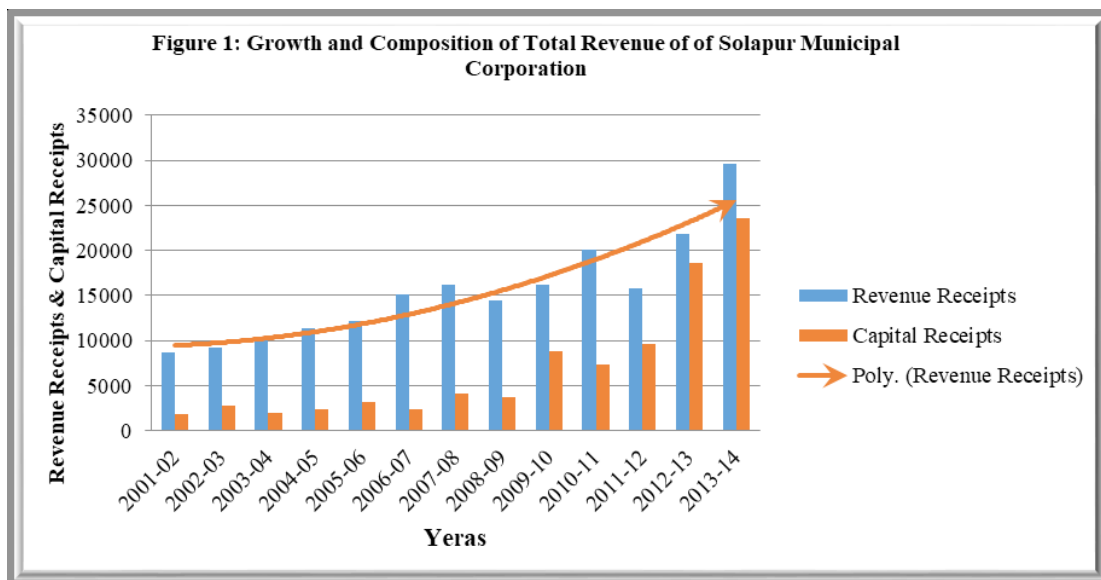
Year	Revenue Receipts	Percent	Capital Receipts	Percent	Total Revenue
2001-02	8716.11	81.98	1915.54	18.02	10631.65
2002-03	9235.39	76.90	2774.4	23.10	12009.79
2003-04	10342.48	83.48	2046.3	16.52	12388.78



2004-05	11372.11	82.35	2438.09	17.65	13810.20
2005-06	12150.84	78.93	3243.54	21.07	15394.38
2006-07	15087.59	86.35	2385.04	13.65	17472.63
2007-08	16144.49	79.59	4139.22	20.41	20283.71
2008-09	14445.49	79.36	3756.69	20.64	18202.18
2009-10	16251.8	64.80	8826.96	35.20	25078.76
2010-11	20038.15	73.12	7365.11	26.88	27403.26
2011-12	15754.19	61.99	9660.60	38.01	25414.79
2012-13	21871.25	54.04	18597.96	45.96	40469.21
2013-14	29581.30	55.71	23517.79	44.29	53099.09
<b>CGR</b>	<b>8.93</b>	<b>-</b>	<b>22.23</b>	<b>-</b>	<b>12.64</b>
<b>AVERAGE</b>	<b>15460.86</b>	<b>-</b>	<b>6974.40</b>	<b>-</b>	<b>22435.26</b>
<b>STDEV</b>	<b>6926.03</b>	<b>-</b>	<b>6827.22</b>	<b>-</b>	<b>13280.96</b>
<b>C.V</b>	<b>0.45</b>	<b>-</b>	<b>0.98</b>	<b>-</b>	<b>0.59</b>

Source: Annual Budget Documents.

(Note: Figures into column 3 and 5 are percentages of the total revenue of corresponding year.)



The entire picture indicates that the Solapur Municipal Corporation, for its total revenue collection does heavily rely on the Revenue Receipts. Total revenue as well as, both the revenue receipts and capital receipts have shown considerable growth during the period under review. Total Revenue, Revenue Receipts and Capital Receipts of the corporation indicate fluctuating trends and inconsistencies as indicated by the coefficient of variation (0.45, 0.98, and 0.59 per cent). The Collection of Capital Receipts by the corporation is more or less satisfactory but is not up to the expected mark. The correlation analysis reveals that both the Revenue Receipts (0.84 per cent), as well as Capital Receipts (r.71), have a positive and high degree relationship with the total Revenue of Solapur Municipal Corporation. Regression analysis indicates that Revenue Receipts were (std. Beta .97) dominant in Total Revenue mobilization than the Capital Receipts (Std. Beta .91) which is a salient feature of revenue mobilization by the Solapur Municipal Corporation.

## 2. Revenue Receipts of Municipal Corporation:

Composition of Revenue Receipts means the heads of which Revenue Receipts form. It refers to the items of which consist of the Revenue Receipts. Shims to avoid overlapping classified the public income into different categories as the Tax Revenue and Non-Tax Revenue.

Tax Revenue of the Corporation comprises of revenue collected by the Corporation by imposing taxes assigned to it which include the all taxable components. The information regarding the composition of Revenue Receipts of the Corporation is given in the subsequent figures.

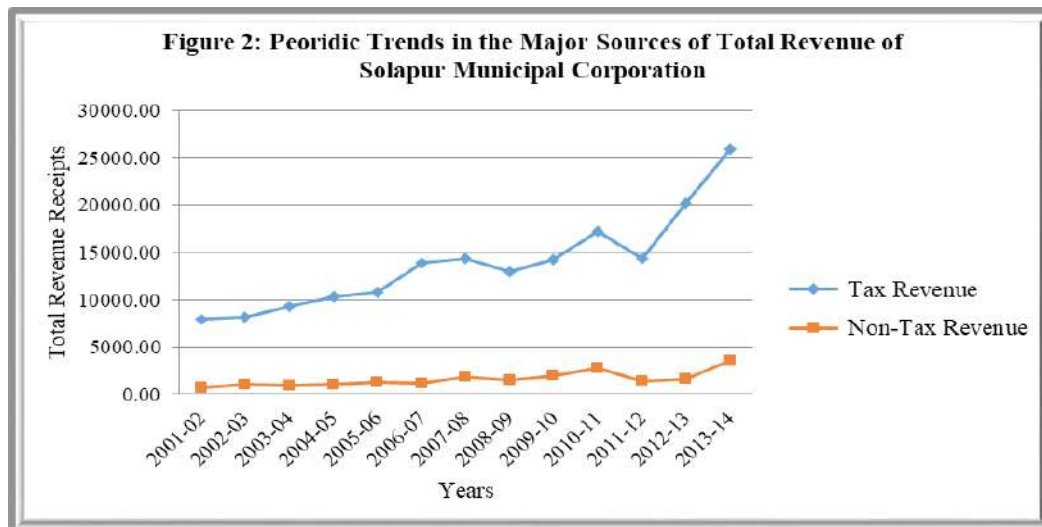
**Table 3: Major Sources and Growth of Total Revenue of Solapur Municipal Corporation (Rs/Lac)**

Year	Tax Revenue	Percent	Non-Tax Revenue	Percent	Total Revenue Receipts
2001-02	7947.10	91.18	769.01	8.82	8716.11
2002-03	8137.91	88.12	1097.48	11.88	9235.39
2003-04	9360.01	90.50	982.47	9.50	10342.48
2004-05	10336.83	90.90	1035.28	9.10	11372.11

2005-06	10807.72	88.95	1343.12	11.05	12150.84
2006-07	13898.13	92.12	1189.46	7.88	15087.59
2007-08	14324.76	88.73	1819.73	11.27	16144.49
2008-09	12942.42	89.59	1503.08	10.41	14445.49
2009-10	14223.63	87.52	2028.17	12.48	16251.80
2010-11	17245.95	86.07	2792.20	13.93	20038.15
2011-12	14368.63	91.21	1385.56	8.79	15754.19
2012-13	20219.65	92.45	1651.60	7.55	21871.25
2013-14	25959.27	87.76	3622.04	12.24	29581.30
<b>CGR</b>	<b>8.82</b>	<b>-</b>	<b>9.64</b>	<b>-</b>	<b>8.93</b>
<b>Average</b>	<b>13828.62</b>	<b>-</b>	<b>1632.24</b>	<b>-</b>	<b>15460.86</b>
<b>STDVE</b>	<b>5077.92</b>	<b>-</b>	<b>799.16</b>	<b>-</b>	<b>5787.21</b>
<b>CV</b>	<b>0.37</b>	<b>-</b>	<b>0.49</b>	<b>-</b>	<b>0.37</b>

*Source: Annual Budget Documents.*

(Note: Figures in parentheses indicate proportion to total revenue of the corresponding year.)

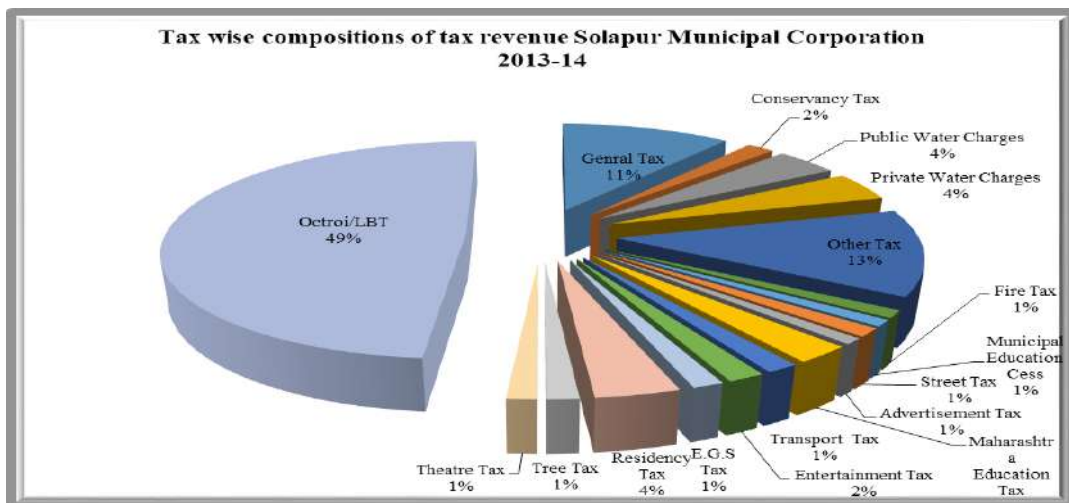
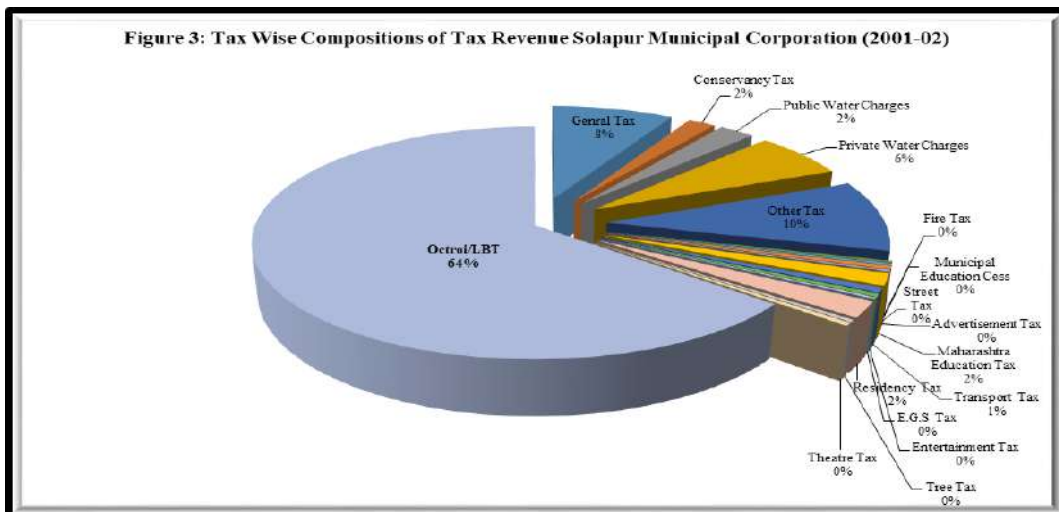


Perusal of the data presented in Table 3 brings out that the Total Revenue Receipts of the Corporation show a gradual growth without any fall. The foregoing analysis based on the perusal of the data presented in the afore presented two tables respectively show that the Total Revenue of Solapur Municipal Corporation has shown a trend of

increase during the period under observation. It is dominated more by the Tax than the Non-Tax Revenue. The tax revenue has grown at a significant rate with Wide fluctuations. Also, the Tax Revenue emerges as a salient feature of the revenue for the Corporation (CV 0.37 per cent). Tax Revenue (r.99), as well as Non-Tax Revenue (r.90), was positively and highly associated with Total Revenue Receipts of the corporation of Solapur. However, it was dominated by the Tax Revenue (Std. beta .99) than the Non-Tax Revenue (Std. beta .81) in the Revenue Receipts collections of the corporation during the period of the present analysis.

**3. Composition of Tax Revenue:**

The data regarding composition of the tax revenue of the Corporation is presented through the subsequent figures 3 and 4.



#### **IV. Conclusions:**

The preponderance of urban-centric industrialization has led India towards the path of fast rural-urban migration and thereby made it one of the fastest urbanizing nations in the world. The increasing speed of urbanization does also congest the urban public amenities and demand more resources for the same which has pushed many urban local bodies in a state of the financial crunch. With about 49 per cent of its people living in the urban areas, the urban local bodies of the state of Maharashtra are not an exception to it. Termination of Octroi in 2003 by the government of Maharashtra has resulted in high dependence of such bodies on the state and central for meeting the increasing demands of spiraling urbanization in the state.

In the present study we have attempted to look at the financial situation of the Solapur Municipal Corporation for over a period of thirteen years comprising from 2001-02 to 2013-14. Overall impression that we get from the data extracted from the budget documents of the corporation is that the major expenditures both on the revenue and capital accounts of the council are on the non-developmental heads such as the salary and pension bills and other maintenance heads. Based on the data and the computations that comprises the entire exercise of the present study we have attempted to extract and enlist the conclusions which are as under;

#### **V. Post Script and the Way Forward :**

Based on the tabulation exercise of the financial data of the Solapur Municipal Corporation conducted particularly in the context of the revenue mobilization and the management of expenditure, we arrived at the following interventions;

In the light of the abolition of the Octroi since 2013 and the replacement of the same by the Local bodies tax (LBT), we find that the corporation ever since has been facing the problem of revenue mobilization hence the corporation needs to concentrate more on efficient collection of revenue so as to meet its ever increasing expenditure responsibilities. The revenue of the Solapur Municipal Corporation does clearly reflect the preponderance of revenue receipts against the capital receipts in case which the corporation administration needs to put in more effort so that the share of capital receipts in the total revenue can increase in future. In order to

increase preponderance of capital receipts over the revenue receipts the corporation administration should put in more efforts to get greater amount of funds through the central transfers such as the JNURM, Ministerial transfers and the transfers from the finance commission. In order to bring in efficiency in revenue collection the corporation may link its supply of public amenities to the ward wise performance of the local tax payment by the people such as the payments of water charges and the payments of property tax. Tax administrative attempt to increase the ratio of direct tax revenue to the total revenue is required for the better and fast development of the corporation limits. This also will lead will to the greater participation of relatively richer people in the development process of the city.

The Solapur Municipal Corporation needs to concentrate more on increase in the share of taxes other than the LBT in its total tax revenue so that the over dependence on a single tax such as the LBT can be reduced or avoided in future. The administration needs to put in effort of better recovery of rental dues of its properties so that the proportion of non-tax revenue in total revenue collection will go up. For the infrastructural development and the provision of better amenities the corporation needs to undertake more capital expenditure instead and attempt to cut down on its comparatively huge revenue expenditure. Corporation administration needs to be made more proactive so that the corporation can maintain its general administration with less amount of expenditure and the saved money can be diverted to the capital expenditure which will be helpful in building urban infrastructure. The Solapur municipal corporation also needs to control its high degree of expenditure on general administration and put in more resources on the provision of merit public goods such as the health and education. Solapur Municipal Corporation, instead of having the pattern of administration through eight regional offices which insures a huge expenditure can go in centralized or the administration through less number of such regional offices so that the administration expenditure of the corporation can be reduced and the development expenditure enhanced.

In order to provide better health services, the corporation needs to recruit full time medical officer and the other specialized doctors at its hospitals so that the poor people can have an access to quality health services. For the supply of adequate and

safe drinking water the Solapur municipal corporation needs to undertake greater expenditure on the drinking water infrastructure. Based on the quinquennial growth rates of the forecasts of the revenue and capital receipts of the corporation we suggest that the Solapur municipal corporation needs to undertake precautions and efforts so as to increase the proportion of its capital receipts against the revenue receipts in future.

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5

## An Overview of the Ancient Empire Numismatic of Southern Indian History

Mr. Vishwanath M.Ainapur<sup>1</sup>

### **Abstract:**

*Ancient coins are significant historical shapes that illustrate other sources. Excavations and other places the coins found are very useful for the rule of the kings. Numismatic is the study of coin, numismatic evidence important to determine, chronology property, territorial extent, religious and relation with the neighboring country of reasoning king and dynasty and In the southern Indian rise of number of dynasty and Empires ruled like Shatavana's, Chola's, Chera, Pandya, Badami Chalukyaru, Pallava, Rashtrakota, Kakatiya, Hosalaya's and Vijayanagara Empire Tirvankur dynasties, Mysoru arasaru etc. all these dynasties give very hugs of contribution of the southern place. In the research paper going on numismatic evidence of the South Indian history of Archaeological sources. In the coin study give the knowledge of metals and history of the dynasty trade and commerce, religious, social, economy, cultural tradition, each and everything know about by coin study. In the historical source introduce that many dynasty have give own name of coins and coin shape like Dramappa, Gadyana, Panna, Karshapa, Pagoda, Varaha etc. My papers focus on the how the coins introduce the history and culture contribution of the society. Many historians told that number of dynasty have their seal of trading and the mark of the kingdom for example some Kings have swastika, fish, arrow, tree and elephants like many, the thing is ancient Greek and Roman trade by their own coins and some seals in the Chola Pandya Chera and many Karnataka dynasty trade with Greek and Rome this history know the study of coins and seals evidence. South Indian history connected to global history South Indian Kings not only rule in southern part but also ruled and conquer north, West and east e.g. Gujarat Chalukya, Devagiri Yadva, kannad vansha Nepal etc. Inscription and coins sources are most notable it deals with the king's habits relationship and his kindness is gifting of the poor people and brotherhood of the other neighboring Kings all things we know about by these historical evidence.*

**Keywords :** Archaeology source, Dynasties, Relationship, Culture controversy, Mantels, Coins

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## **I. Introduction:**

South India comprising Karnataka, Andhra, Tamil Nadu and Kerala, has a distinctive system of coinage from ancient times which continued till recently when the Britishers introduced almost a common system of coinage for the entire country with some exceptions of kingdoms ruled by Maharajas or Sultans like those of Mysore, Hyderabad, etc. Varieties of coins look like cumbersome today, but it has to be remembered that it worked fairly well. Coins study is one of the archaeological sources it deals with their lifestyle trade and Commerce culture heritage social economic and political backgrounds of the many dynasties and kingdoms. In the southern India many of Kings ruled various dynasty and Empire all these ruler have own coins it is depicted the time how the Empire rich in the coin system. In the southern India many of coins are found like Punch mark coin, Gold coin, Silver coin, Copper coin, Lead coin these coins are evidence of the historical source.

Earliest coins are called punch-marked coins because five or six punches were made on them and each punch represented a particular entity. In fact these coins have been taken to be of the Mauryan rulers including Ashoka. In South India punch-marked coins are the earliest. It is noteworthy that a silver punch-marked coin was found at Banavasi in Karnataka, and this is perhaps the earliest coin of Karnataka. Similar coins have come from Tamil Nadu also. Thus these coins were in circulation in South India till the Pallava coins came into vogue. In this connection I should hasten to add that Sangam age is a highly accomplished culture in Tamil Nadu and Sangam age coins have been discovered in many places there. This brings great antiquity to the South Indian coinage perhaps to the first or second century CE.

## **II. Methodology:**

The present research paper is based on Secondary data like books, journals, magazines, museum and related source.

## **III. Results and Discussion :**

**Satavahana Dynasty :** Coins of the Satavahana Dynasty were built in various shapes, metals and weights like Lead, copper, potin, brass, bronze and silver were all the metals used for these coins. As far as the techniques were considered cast, die-struck and punch-

marked coins were all very famous. These coins also dominantly displayed symbols such as the hill, river, tree, Goddess Lakshmi, lion, tiger, elephant, bull, horse, camel, wheel, Ujjain symbol and ship. Brahmni and Prakrit were the major scripts used for the coins. All these coins depicted the Satavanhanas political Social Cultural and Religions aspects, here some coins images.



### Southern Major Dynasties



**Satavahana Coins**

### **Kadamba Dynasty:**

The Kadambas (345–525 CE) were an ancient royal family of Karnataka India that ruled northern Karnataka and the Konkan from Banavasi in present-day Uttara Kannada district. Kadamba coins are generally known as padmatankas or lotus coins. This is because the central symbol on the face of most of them is the lotus. On some coins the frontage of some Kadamba coins features the lion. Some early coins of Kadamba Dynasty bear the Kannada inscription Vira and Skandha. Kadambas coins were one of the heaviest and perhaps purest all medieval and Kadamba gold coin issue 2 types of gold coin namely punch marked coins and die struck gold coins (pagoda), Kadamba was first issue the Punch mark coins these coins tell the Economic condition and metals using that times also tell the kings ruling and relationship between other kings. In Karnataka, gold coins known as Padmatankas have been found and they are ascribed to the Kadambas of Banavasi. They are made of gold. In fact they are the earliest gold coins found in Karnataka. Vishnukundin kings continued this tradition in Andhra. In the meantime, Satavahanas minted coins predominantly in lead and these coins have been synonymous with the early period of Andhra and Karnataka. About 20 places in Karnataka and 15 places in Andhra have yielded varieties of Kadamba coins.



Potin Unit - Krishnavarman II - 516 to 540 AD - Kadambas - Banavasi - Circle divided in to Five Wedges, Kannada Legend - 0.53 gms & 12 mm - 4

### Punch mark Coins

Punch marked coins are earlier Indian coins and day derived their name from the method of their manufacturing techniques style, shape, weight, metal, technique, symbols ,legend all these aspects it has and these coins were showing historical background of Satavahana kingdom.

### Ganga Dyansty :

Western Ganga was an important ruling dynasty of ancient Karnataka(350CE to 100CE). Ganga Dynasty as many as 96 various of coins used during the period of the Western Ganga which ruled southern Karnataka and The Elephant was the emblem of the Ganges, which has been reflected on the coins of those period, the Ganga use many coins their most issue coin Pagoda (0.4v -6mmm) all these coin explain of the Ganga period values.



Gold Pagoda - Western Ganga Dynasty - Elephant Series - 3.74 gms - 1



### Chalukya Dynasty :

The Chalukya Dynasty was a classical Indian royal dynasty that ruled large part of Southern and Central India between the 6th and 12th century. The chalukyas issued large number of silver coins featuring degraded sasanian designs these coins are normally referred to as Gadyana paisa, the weight around 4-4.5gm. Gold coin of Kalyani Chalukya bears Boar standing in the profile right on a pedestal sun and crescent moon above and floral motives around and line legend in old Kannada. Chalukyas of Badami anonymous issue gold Varaha(Gadyana). The Kalyana Chalukyas minted punch type coins and each punch had a letter which read together gave the name of the king. This gold ¼ fanam which weighs around 0.11g was issued by the Chalukyas. The obverse of this coin is inscribed with the image of the lion facing towards left. The reverse of the coin is inscribed with Kannada letter.



### Rashtrakuta Dynasty :

Rashtrakutas was an Indian royal dynasty which ruled in major part of Indian from 6th century to 10th century CE. Recently archaeology activities and findings have reported gold and copper rashtrakutas coins. The coinage denomination is known with different inscriptions and coffer plates of the Rashtrakuta dynasty and different denominations of coins go as Damma, Suvarna, Gadyana, Pana, Ponna, Kalanju, Kasu, Manjadi.

### Chola Dynasty :

The coins issued during the reign of Chola Empire traced their roots back to Hindu Mythology and were a perfect mirror to the socio-cultural aspects of society at that point. The emblem of Chola, which is defined by a standing tiger with its tail upraised on one side and an elephant on the other side is inscribed on the coins. Raja Raja Chola struck coins both in Sri Lanka and India. They differed much in fabric, style and in

the gold purity. The monetary economy was well defined with the Imperial Cholan conquest. In Tamilnadu, Cholas introduced coinage much prior to Raja raja's campaign in Sri Lanka. They adopted 'Tiger facing two fishes' as their emblem on the coinage. Having developed a strong navy, they traded with Sri Lanka and soon conquered them too. They also set voyages as far as the islands of Indonesia and Maldives through the ocean. Subsequently they felt the need to mint coins to trade. Chola's coinage issues were in all the three metals Gold, Silver and Copper. Though the coinage was mainly destined for general currency, very few commemoratives could be observed. Uttama Chola struck silver with the royal emblem of "Tiger facing two fishes" on the obverse and the Nagari legend "Uttama Chola". Raja Raja struck gold fanams bearing the legend "Yuddha Malla" on the obverse and the usual insignia on the reverse. He also struck silver and gold kahavanas with the standing king on the obverse and the seated king on the reverse. Nagari legend "Raja Raja" surrounded him on the obverse of some types, and the reverse image of some types.

Imperial Cholas of Tamilnadu Rajaraja Chola(985-1016CE and Rajendra chola (1012-1044CE)expanded the Chola kingdom and in keeping with their status minted coins in gold, silver and copper. Rajendra Chola struck coins with the legend "Sri Rajendrah" beneath the usual insignia on both reverse and obverse. The copper Kasu of Chola started off with the reign of Raja Raja, which passed onto next generations (even Kulottunga) with the same standard "Standing King on the obverse" and "Seated King on the reverse". Sometime legend "Raja Raja" and sometime the legend "Ku appears on the coinage surrounding the image. These coins can be seen abundantly as the same types of coins with little deformed images were circulated till the Cholas ceased to exist. The coins of the Chola Empire bear similarities with other South Indian dynastic issue coins. Chola coins invariable display a tiger crest. The appearance of the fish and bow on Chola issue coins that were emblems associated with the Pandyas and Cheras respectively suggests successful political conquest of these powers as well as co-option of existing coin issuing practices.



### **Rajraj Chola and Rajendra Chola Gold Coins**

#### **Pandya Dynasty and Pallava Dynasty :**

The earlier coins of the Pandya Kingdom were copper squares and were struck with a die typically in the coins around Korkai their ancient capital and in Northern Sri Lanka these rectangular coins of the earlier Pandys also featured the nandi bull and contain Chakras. The coins were with five distinct images on one side, often an image of an elephant on that side and a stylised fish on the other, seen typically in the coins found around Korkai, their ancient capital and in Northern Lanka. These rectangular coins of the early Pandys also featured the Nandi bull and contain Chakrams. Pandyan and Pallava coins Edit The Bull, elephant and fish symbols figure prominently on the coins used in northern Sri Lanka by the Pandyan Dynasty during the early period. The lion features prominently on the Pallava coins. Pallava ruled in Tondainadu Northern part of Tamil country in 600 CE to 900CE. The Pallava coins were maintained in Lead Copper and brown.

#### **Hoysalas Dynasty:**

The Hoysalas famous for temples in Belur, Halebid and Somanathapura also minted coins in gold, silver and copper. Vishnuvardhana the greatest ruler of the dynasty minted coins with lion on the obverse and his titles such as Talakadugonda (Conqueror of Talakad) and Nolambavadigonda (Conqueror of Nolambavadi). One unique coin of this dynasty contains the portrait of Sri Ramanujacharya with the writing Sripattana which is near Tonnur and Melkote where Ramanujacharya stayed for sometime after his flight from TN. The Yadavas of Devagiri also minted coins with lion motif and the name of the ruling king in Nagari. Hoysalas issued varieties of gold pagodas bearing an Elephant or



Shardula on the obverse and King's title on the reverse. Of the pagodas, Vishnuvardhana's issues seems to have many varieties. They were issued during different period of his reign signifying his conquest of different regions. Varieties of legends on different coins like "Sri Ganga vadha Bala", Sri Nolambavadi Gonda", "Sri Talakad Gonda", "Sri mad, Gangai Konda", "Sri Chalukya Gonda", "Sri Vanavadi Konda" and "Sri Valla bhana" are to be mainly noted.



Gold Pagoda - Vishnuvardhana - 1108 to 1152 AD - Durga on Lion - Hoysalas of Dorasamudram - 1



### Vijayanagara Empire:

Vijayanagara empire's golden period is seen in South India. This empire practically encompassed the whole of South India. This period is really the golden age of South Indian coinage. Almost all the kings of this dynasty minted coins in all metals but gold coins predominate during the period. Another unique feature is the predominance of Kannada writing on Vijayanagar coins which perhaps shows their love of Kannada or Karnataka. Among these the gold coins of Krishnadevaraya occupy a unique place. The standard unit of coin issued by the Vijayanagara Empire was the gold Pagoda in English or Varaha of 3.4 gm. The Varaha was also called the Hon, Gadyana or a Pon and came in the Ghattivaraha, Doddavaraha and Suddhavaraha coin. In the gold issue the different coins came in Varaha, this is used as a reference for the other coins values. 1 gold Varaha = 2 Pratapas = 4 Katis = 8 Chinna = 4 Haga = 2 Bele. 1 Pana or Varaha equaled 16 tara silver coin, with the 1 Tara to 3 copper Jital. The copper Duggani was equal to 2 copper kani or kakin, 5 Kasu and 10 Ara Kasu There were also other units of silver and

copper based on their relationship with the Pagoda. In the later part of the 10th century, Karnataka, Tamilnadu and Sri Lanka kingdoms adopted coinage once again after a brief break of four centuries. But this time, it triggered off with the gold coinage to initiate major transactions. Soon silver and copper coinage was minted in plenty to meet the day to day needs of commodities.

**Gold Varaha coins of Krishnadevaraya**



**Coffer Coins of Shri Ranga Raya**



### **Yadava Dynasty :**

The Yadava coins contain a lion on one side and the name of the king on the other. The Kadambas of Goa and Hanagal though considered as minor dynasties, minted coins in great variety which made a deep impact on the contemporary political scene.

### **Trade between Rome and Ancient South India**

In the meantime, there was an active trade between Rome and South India in the early centuries of the Christian era and it continued till the 6th century AD of the Byzantine empire. South India was rich in spices which were in great demand. Particularly black pepper was in great demand as it was considered an antidote for Malaria. Roman merchants came to South India and purchased spices and semi-precious stones by paying Roman gold and silver coins and this made great impact on South India. This trade activity was at its peak during the rule of Roman emperors Augustus and Tiberius from 23BC onwards. The HAL-Airport (Bengaluru) premises have yielded many Roman silver coins. Roman and Greek traders frequented the ancient Tamil country present any southern India and Sri Lanka searching trade with the seafaring tamil state of the Pandyan, Chola, and Chera dynasties.

### **IV. Conclusion:**

Coins studies is the one of the virtual sources of history and southern part of India many dynasty rule also their culture contribution was very rich in the society. Southern part of India connect to sri Lanka, Maldives, Myanmar, Malaysia, Singapore ancient time this country connected many dynasty southern part and also culture contribution and trade political aspects. Ancient part of India rich in the dynasties also there ruling and there contribution of cultural in the southern part. In this article showing the numismatic history of South India and coins showing the that time kings ruling system and his bravery war ,helps the other king ,religious ,social reforms, hunting bravery ,relationship of neighboring king and trade and Commerce all these aspect showing the coins designs and issuing the variety of coins in the kings in kingdom.

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6

## Evaluation of Financial Performance of Sangli District Central Co-Operative Bank Ltd. Sangli

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### **Abstract:**

*Sangli DCC Bank integrates rural and urban resources and sends them to the needy and priority areas for the development of rural, agriculture, industrial and cooperative sectors in the district. Sangli DCC Bank is one of the leading banks in finance for poor, agriculture and Small Business. A Bank established in 1927 for the upliftment of the poor. Bank provided various types of loans short term, long-term, medium-term loans to the people. Bank implemented various government schemes in the working area for BPL people. In the study, the period researcher found that bank suffer from losses. It found by the using of the ratio analysis technique. The bank was not maintaining a sensible level of solvency, liquidity and profitability position. If the bank does not take effective steps, the bank will have to face many difficulties in the near future.*

**Keywords:** Ratio analysis, Sangli DCC Bank, Financial position, Solvency, Liquidity

### **I. Introduction**

Sangli DCC bank was established on 28 March 1927 by Late His Highness Chintamanrao Appasaheb Patwardhan. The head office is at Sangli and its 218 branches are mostly located in urban and rural areas. After independence the princely state merged, consequently this district bank was registered as “South Satara District Central Co-operative Bank” on 27 July 1950. Sangli district became independent in 1960 and this district bank naturally started and working as “Sangli District Central Cooperative Bank Limited”. The objective of this district bank is to fulfill the credit needs of the member societies as well as the smaller sector of the society. This bank has also played an important role in the drought prone area. From moderate beginnings, the cooperative movement in India has reached a lofty position like another form of cooperatives. Sangli DCC Bank

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is one of the most important banks which have played a vital role in the improvement and development of cooperative movement in a Sangli district. The Bank has introduced various modern banking services like ATM, RTGS, SMS alert, ATM Mobile Van, POS machine, e-commerce, RuPay Debit card & Kisan Credit Card, Adhar linked payment services, CTS Clearinf Services etc. for the benefit of its members, customers and all the people of the district. Nowadays, Sangli District Central Co-operative Bank Ltd., Sangli, has emerged as a fully computerized and modern, innovative service bank in Maharashtra.

## **II. Research Methodology and Database :**

### **Methodology**

The research is based on the financial aspect of the bank social factor does not consider in it. The research study is based on the secondary data. Secondary data of various financial aspects of Sangli DCC Bank which was collected from the annual reports and records of the bank. This data was subjected to meticulous financial ratio analysis.

Financial ratio analysis was considered an effective tool to measure the performance of a business organization. The ratios relating to Liquidity, solvency, profitability, efficiency and strengths and weaknesses of the bank for the selected period have been analyzed. In this research study, an attempt has been made to evaluate the financial performance of Sangli DCC Bank for 5 years from 2015-16 to 2019-2020.

### **Objectives**

1. To know the current financial condition of the Sangli DCC Bank.
2. To understand every year financial growth of Sangli DCC Bank.
3. To provide feasible suggestion after evaluation of financial performance of Bank.

## **III. Results and Discussion :**

Described below are various financial ratios that are used for analysis of financial performance of Sangli DCC Bank.

## 1. Liquidity/Quick Ratio:

Liquidity ratios are an important class of financial metrics used to determine a debtor's ability to pay off current debt obligations without raising external capital. The liquidity ratio measures a bank's ability to pay its debt obligations and its margin of safety. These ratios measure a bank's ability to cover its short-term obligations from its short-term resources.

### i. Current Ratio

It is ratio of current asset to current liability. The ratio is calculated by dividing the current assets by the current liabilities.

$$\text{Current ratio} = \frac{\text{Current Assests}}{\text{Current Liabilities}} \times 100$$

### ii. Inventory Ratio

The inventory of bank list includes cash balances, balances with other banks, interest receivable, and bills receivable.

$$\text{Inventory Ratio} = \frac{\text{Inventory}}{\text{Net Working Capital}} \times 100$$

## 2. Solvency Ratio:

The solvency ratio measures the ability of a bank to survive over a long period of time and also provide the basis for measuring the leverage effect on the bank. These ratios are very important to shareholders and creditors.

### i. Total liabilities to owned fund Ratio

Total liabilities include all liabilities including external liabilities while owned fund includes share capital, all reserves and surplus of Bank.

$$\text{Total Liabilities to Own Fund Ratio} = \frac{\text{Total Liabilities}}{\text{Own Funds}} \times 100$$

**ii. Fixed Assets to owned fund Ratio**

The fixed assets to equity ratio measure the contribution of shareholders and debt sources to a bank's fixed assets. It is calculated by dividing fixed assets by shareholders' equity. Fixed assets are considered on their book value.

$$\text{Fixed Assests to Own Fund Ratio} = \frac{\text{Fixed Assests}}{\text{Own Funds}} \times 100$$

**3. Efficiency ratio**

An efficiency ratio measures a bank's ability to use its assets to generate income.

**i. Credit Deposit Ratio**

This ratio is the difference between total advances and total deposits.

$$\text{Credit Deposit Ratio} = \frac{\text{Total Adavances}}{\text{Total Deposits}} \times 100$$

**ii. Expenses to Gross Income Ratio**

Expenses to gross income ratio provides a clear picture of the financial efficiency of the bank. It indicates the profit of every rupee spent. Gross income includes interest and discounts. Commissions, exchange and brokerage, subsidies and donations, income from non-banking assets, and other receipts of the bank.

$$\text{Expenses to Gross Income Ratio} = \frac{\text{Total Expenses}}{\text{Gross Income}} \times 100$$

**4. Profitability Ratio**

The profitability ratio reflects a bank's ability to generate income relative to costs over a given period. The ratio shows how well a bank is using its assets to generate profit. This ratio provides a fairly good method of diagnosing a bank's financial position and overall efficiency. It indicates the profitability of the investments and loans given by the bank. Profitability ratio is used to study the overall efficiency of any business organization. Profit is the measure of efficiency and is the key to the survival and expansion of an organization.



**i. Net Profit to Total Asset Ratio**

This ratio shows that the percentage of profit earned by a company with respect to its overall resources. It is usually defined as net income divided by total assets. Net income is derived from the company's income statement and net profit includes profit earned by the bank after appropriation.

$$\text{Net Profit to Total Asset Ratio} = \frac{\text{Net Profit}}{\text{Total Asset}} \times 100$$

**ii. Net profits to Owned fund Ratio**

It is the ratio of net profit to owned funds shows the percentage of net profit to own fund.

$$\text{Net profits to Owned fund Ratio} = \frac{\text{Net Profit}}{\text{Owned fund}} \times 100$$

**5. Test of Strength:**

This test of strength provides the basis for knowing the true value of the bank. The term net worth refers to the owned funds employed in the business.

**i. Net Worth**

The net worth ratio describes the return that shareholders might receive on their investment in a bank if all profits earned passed directly to them. Net worth is the value of all assets, minus the total of all liabilities.

$$\text{Net Worth} = \text{Total Assets} - \text{Total Liabilities}$$

**ii. Net Capital Ratio**

Total assets and liabilities do not include profit and loss account balance and appropriations. This ratio shows the relationship between the total assets and liabilities of the bank. The net working capital ratio is the net amount of all elements of working capital.

$$\text{Net Capital Ratio} = \frac{\text{Total Assests}}{\text{Total Liabilities}} \times 100$$

### Limitation of the study

#### 1. Periodical Limitation:

Only Cover five financial years.

#### 2. Data Limitation:

The study is based on secondary which data provided by bank.

### Analysis and Interpretation

**Table No. 1: Evaluation of financial analysis by Liquidity ratio**

Sr. No.	Year	Current Ratio	Inventory Ratio
1	2015-16	1.14	5.32
2	2016-17	1.15	4.86
3	2017-18	1.12	3.98
4	2018-19	0.96	4.72
5	2019-20	0.73	8.56
<b>Total</b>		<b>5.1</b>	<b>27.44</b>
<b>Average</b>		<b>1.02</b>	<b>5.48</b>

*(Sources: Annual Report)*

### Current Ratio

This ratio was larger than unity in all the years of study. The standard type is 2:1. The ratio fluctuated throughout the research period and it moved from 1.14 in 2015-2016 to 0.73 in 2019-20. Thus, the average being 1.02 %. As this ratio actually shows a very low trend it could be concluded that the bank had not sustain a reasonable level of the liquidity position.

### Inventory Ratio

It measures the scope to which the net working capital finances the current assets. This ratio was not more than unity during the study period. It varied between 5.32 and 8.56 and the average for the study period was 5.48. It indicated that the net working capital of the Sangli DCC bank was not tied up in inventory.

**Table No. 2: Evaluation of financial analysis by Solvency ratio**

Sr. No.	Year	Total liabilities to owned fund Ratio	Fixed Assets to owned fund Ratio
1	2015-16	10.48	5.28
2	2016-17	10.72	3.98
3	2017-18	12.04	3.12
4	2018-19	12.32	2.31
5	2019-20	13.04	2.22
<b>Total</b>		<b>58.6</b>	<b>16.91</b>
<b>Average</b>		<b>11.72</b>	<b>3.38</b>

(Sources: Annual Report)

#### **Total liabilities to owned fund Ratio**

This ratio shows the amount of debts per rupee of owned funds. This ratio moved from 10.48 in year 2015-16 to 13.04 in 2019-20. Thus, the average ratio for the study of Sangli DCC Bank was 11.72 which indicates that the bank heavily depends on external funds. The prescribed form is 3:1, but even the average ratio for the Bank was not within the prescribed norm. This shows that the Banks incapability to cover its medium and long-term obligations.

#### **Fixed assets to owned fund Ratio**

This ratio changed between 5.28 in 2015-16 to 2.22 in 2019-20. Hence, the average being 3.38 during the study period. This indicates that the bank better fixed Assets position on account of construction of building for branches, purchasing land, vehicles and furniture for them. A higher ratio is associated with the problems of liquidation because the claim of the owner has to be met by the sale of fixed assets which are in non-liquid form.

**Table No. 3: Evaluation of financial analysis by Efficiency ratio**

Sr. No.	Year	Credit Deposit Ratio	Expenses to Gross Income Ratio
1	2015-16	86.48	95.71
2	2016-17	85.75	93.22
3	2017-18	98.80	95.24
4	2018-19	81.59	92.35
5	2019-20	62.48	90.34
<b>Total</b>		<b>415.1</b>	<b>466.86</b>
<b>Average</b>		<b>83.02</b>	<b>93.37</b>

(Sources: Annual Report)

### Credit Deposit Ratio

The credit deposit ratio of Sangli DCC bank during study period moved from 86.48 in 2015-16 to 62.48 in 2019-20 which was declined during the same period. Thus, the average being 83.02%. It reaches its high in year 2017-2018 where as low 62.48 in 2019-20. This ratio indicated that the Sangli DCC Bank had not taken serious steps for mobilize deposits.

### Expenses to Gross Income Ratio

The gross ratio of Sangli DCC Bank fluctuated in the study period. It varied between 90.34 to 95.71. This ratio moved from 95.71 in 2015-16 to 90.34 in 2019-20. Thus the average working out to 93.37. It indicated that the expenses were less than the gross income.

**Table No. 4: Evaluation of financial analysis by profitability ratio**

Sr. No.	Year	Net Profit to Total Asset Ratio	Net profits to Owned fund Ratio
1	2015-16	-3.62	-11.12
2	2016-17	-0.87	-3.80
3	2017-18	0.84	-2.51
4	2018-19	0.18	0.43
5	2019-20	-1.36	-3.31
<b>Total</b>		<b>-4.83</b>	<b>-20.31</b>
<b>Average</b>		<b>-0.96</b>	<b>-4.06</b>

(Sources: Annual Report)

### Net Profit to Total Asset Ratio

The ratio of net profit to total assets was in negative in 2015-16, 2016-17 and 2019-20 due to this DCC Bank suffered by losses during this period. This moved from -3.62 in 2015-16 to -1.36 in 2019-20. Thus, the average turned in out to be negative. This indicated that the profit level was very low relation to total assets of the bank.

### Net profits to Owned fund Ratio

This ratio was also negative in 2015-16, 2016-17, 2017-18 and 2019-20 of Sangli DCC

Bank. It was a very much fluctuating for the entire period and was very lowing the last four year. The highest ratio 0.43 in 2018-19 which indicated a return of 10 % on owned funds. The average worked out to -4.06 It indicated that the overall performance was low for the program of the Bank.

**Table No. 5: Evaluation of financial analysis by strength then**

Sr. No.	Year	Net Worth	Net Working Capital Ratio
1	2015-16	972.40	0.65
2	2016-17	941.12	0.40
3	2017-18	852.84	0.34
4	2018-19	801.34	0.26
5	2019-20	800.39	0.24
<b>Total</b>		<b>4368.09</b>	<b>1.89</b>
<b>Average</b>		<b>873.62</b>	<b>0.38</b>

(Sources: Annual Report)

### Net Worth

The net worth position of the bank worsened year after year through out the study period and was not sufficient to meet out the total liabilities in the study period. It varied between 800.39 to 972.40 and the average worked out to 873.62. It indicated that the owned funds of the Bank were not sufficient to meet the liabilities.

### Net Working Capital Ratio

This ratio was less than unity during the study period. It moved from 0.65 in 2015-2016 to 0.24 in 2019-20. The overall average for the research study was 0.38. It's indicated that the assets of the bank were not enough to cover its liabilities.

### IV. Conclusion:

The financial position of Sangli DCC Bank was analyzed by Ratio Analysis Techniques. The bank was not maintaining a sensible level of solvency, liquidity and profitability position. The credit deposits ratio was not satisfactory indicating a lower deposit mobilization, current ratio of Sangli DCC bank indicating less and unsystematic utilization of deposits meant for not current operations. The net working capital of the

Bank was found not to be tied up in the inventory. The gross ratio percentage indicated a medium level of the expenditure over the gross income. Profitability of the bank was low due to the heavy dues and less recovery. Sangli DCC Bank also suffered losses in the last five years. The net worth of the bank was decreased year by year and net capital ratio was less than unity indicating the assets of the bank were not sufficient to cover its all liabilities. To recover over dues bank has to provide effective training to the employees. Considering the needs and financial status of the customers, the bank implements various schemes to their customers out of which the bank has to suggest to them the appropriate loan scheme. This will help them to recovery of the loan and reduce over dues. If effective steps will not be taken by Sangli DCC bank within the time to recover dues it might to be lead the near collapse of the Co-operative movement.

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## तनाव प्रबंधनके परिप्रेक्ष्य में सी.बी.एस.ई. बोर्ड के शिक्षकों एवं एम.पी.बोर्ड के शिक्षकों का तुलनात्मक अध्ययन

डॉ. वीरेन्द्र जैन

### I. भूमिका :

जब से मानव सभ्यता का सूर्य उदय हुआ है, तभी से भारत, अपनी शिक्षा पद्धति तथा दर्शन के लिए प्रसिद्ध रहा है। भारत की प्राचीन शिक्षा आध्यात्मिकता पर आधारित थी। शिक्षा, मुक्ति एवं आत्मबोध के साधन के रूप में थी। प्राचीन काल में शिक्षा का उद्देश्य जीवन का निर्वाह नहीं, निर्माण करना था। प्राचीन काल में शिक्षा को अत्यधिक महत्व दिया गया था। भारत की शिक्षा प्रणाली जब अपने चरम पर थी। विभिन्न विद्वानों ने शिक्षा को प्रकाशस्रोत, अन्तर्दृष्टि, अन्तर्ज्योति, ज्ञानचक्षु और तीसरा नेत्र आदि उपमाओं से विभूषित माना है। शिक्षा से भवसागर की बाधाओं को पार करके अन्त में मोक्ष को प्राप्त कर सके जो कि मानव जीवन का चरम लक्ष्य है।

मानव के जीवन यापन एवं अंतिम लक्ष्य की प्राप्ति के लिए प्राचीन काल में वैदिक कालीन शिक्षा काशी, तक्षशिला, नालंदा, विक्रमशिला, मिथिला, प्रयाग आदि विश्वविद्यालयों में वेद-वेदान्त, अष्टादश विद्याएँ, दर्शन, व्याकरण, अर्थशास्त्र, राजनीति, युद्धविद्या, शस्त्र-संचालन, ज्योतिष, आयुर्वेद, ललितकला, हस्तविद्या, अश्वविद्या, मन्त्रविद्या, विविध भाषाओं में नैपुण्य, शिल्प आदि का शिक्षण कराया जाता था। प्राचीन शिक्षा के उद्देश्य पवित्रता, शांति, आध्यात्मिकता, सद्भावना, चरित्र निर्माण, व्यक्तित्व का विकास, नागरिक एवं सामाजिक कर्तव्यों का विकास, सामाजिक कुशलता तथा सुख की उन्नति, संस्कृति का संरक्षण तथा विस्तार करना था। इस काल में छात्रों की दिनचर्या सुनियोजित तथा संतुलित थी, तनाव तथा चिंता के लिए कोई स्थान रिक्त नहीं था।

मैकाले की आधुनिक विद्यालय प्रणाली अंग्रेजी सिखाने के लिए स्कूलों का जाल बिछा देने का विचार सबसे पहले ईस्ट इंडिया कंपनी के एक सिविल सेवक चार्ल्स ग्रांट के मन में आया। उसने शिक्षा के प्रचार के लिए अंग्रेजी भाषा को ही सबसे उपयुक्त माध्यम बताया। वास्तव में, अंग्रेजी शिक्षा की अग्रिम रूपरेखा का निर्माण चार्ल्स ग्रांट ने ही किया। इसीलिए उसे भारत में आधुनिक शिक्षा का जन्मदाता कहा जाता है।

भारत में शिक्षा एम.पी. बोर्ड के शिक्षक हो या सी.बी.एस.ई. बोर्ड के शिक्षक दोनों को ही मानसिक तनाव का सामना करना पड़ता है। दोनों ही बोर्डों का पाठ्यक्रम और शिक्षण पद्धति इतनी ज्यादा दोषपूर्ण है कि न चाहते हुए भी शिक्षक और विद्यार्थियों पर मानसिक, शारीरिक व संवेगात्मक दबाव का शिकार हो ही जाता है, जिसके कारण तनाव की स्थिति उत्पन्न हो जाती है। शोधार्थी ने इन दोनों बोर्डों के आधार पर शिक्षकों में तनाव की स्थिति को जानने, समझने व उसे दूर करने के उपाय करने के लिए ही इस विषय को शोध अध्ययन के लिए चुना है।

१ सह - प्राध्यापक, ८४३/ए. २७ स्कीम न. १११४ विजय नगर, इंदौर ४०२०१०,  
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## II. अनुसंधान कार्यप्रणाली और डेटाबेस :

### शोध का महत्व :

मनोवैज्ञानिकों के अनुसार तनाव को कई भागों में बांटा गया है- मानसिक तनाव, दिमागी तनाव, कार्य-तनाव, प्रतिस्पर्धा-तनाव। अब सवाल यह है कि तनाव क्यों होता है? इस सवाल के जवाब के लिए हमें सबसे पहले यह जान लेना चाहिए कि आज का युग, प्रतियोगिता का युग है, अर्थात् हर कोई एक दूसरे से आगे बढ़ना चाहता है, इसी वजह से आजकल व्यक्ति तनाव में है। अतः आज आवश्यकता है कि शिक्षकों में आजीविका प्रधान वृत्ति न होकर, शिक्षा के महत्व तथा जागरूकता को विकसित किया जाए, जिससे वे उत्पन्न होने वाले तनाव के साथ समायोजन कर सके, अथवा उसका प्रबंधन कर सके। "शिक्षा मनुष्य के सम्यक विकास के लिए उसके विभिन्न ज्ञान तंतुओं को प्रशिक्षित करने की प्रक्रिया है। इसका उद्देश्य व्यक्ति को परिपक्व, परिष्कृत व परिमार्जित बनाना है।" जो कि वर्तमान में विपरीत परिस्थितियों को लिये हुए है। इसलिए आवश्यकता है कि शिक्षकों के तनाव का प्रबंधन के ज्ञान के लिए शोध किया जाए।

### शोध के उद्देश्य :

1. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में शारीरिक स्थिति, मानसिक स्थिति, सामाजिक स्थिति, आर्थिक स्थिति, संवेगात्मक स्थितियों के कारण उत्पन्न तनाव का अध्ययन करना।
2. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में शिक्षण व्यवहार (मूल्यांकन कारक, नवीनपाठन विधि) के कारणों से उत्पन्न तनाव का अध्ययन करना।
3. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में विभिन्न कारणों से उत्पन्न तनाव प्रबंध का अध्ययन करना।

### शोध की परिकल्पना :

1. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में शारीरिक स्थिति के कारण तनाव में सार्थक अंतर नहीं है।
2. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में मानसिक स्थिति के कारण तनाव में सार्थक अंतर नहीं है।
3. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में सामाजिक स्थिति के कारण तनाव में सार्थक अंतर नहीं है।
4. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में आर्थिक स्थिति के कारण तनाव में सार्थक अंतर नहीं है।



५. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में संवेगात्मक स्थिति के कारण तनाव में सार्थक अंतर नहीं है।
६. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में शिक्षण व्यवहार (मूल्यांकन कारक, नवीनपाठन विधि) के कारणों से उत्पन्न तनाव में कोई सार्थक अंतर नहीं है।
७. सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में विभिन्न कारणों से उत्पन्न तनाव के प्रबंध में कोई सार्थक अंतर नहीं है।

### परिसीमन :

तनाव अद्यकालीन विश्व व्यापी समस्या है, इस विषय पर कार्य भी वैश्विक स्तर पर होना चाहिए, परन्तु देश, काल और परिस्थितियों के आधार पर देखा जाए तो एक शोधकर्ता को ऐसा कर पाना लगभग असाध्य सा ही है, अतः कुछ सीमाएँ निश्चित की जाती हैं, जो इस प्रकार है- इस शोध में मध्यप्रदेश के इंदौर जिले के सी.बी.एस.ई. तथा मध्यप्रदेश बोर्ड के शिक्षकों के शिक्षिकाओं को स्वीकार किया गया है। जिनकी संख्या क्रमशः ७५-७५ है।

### शोध प्रविधि :

प्रस्तुत शोध में वर्णनात्मक शोधविधि के अन्तर्गत सुविधाचयन विधि का प्रयोग किया गया है। जिसमें इंदौर शहर के ६ विद्यालयों से प्रदत्तों का संकलन किया गया है। जो कि तीन सी.बी.एस.ई. बोर्ड के- गुरुकुल अकेडमी, इंदौर, लोकमान्य विद्या निकेतन, इंदौर एवं विद्यांजली हायर सेकेंडरी स्कूल, इंदौर। मध्यप्रदेश बोर्ड से तीन विद्यालय- लवकुश विद्या बिहार, इंदौर, पिक फ्लावर हायर सेकेंडरी स्कूल, इंदौर एवं मयूर हायर सेकेंडरी स्कूल, इंदौर में अध्यापनरत् ७५ शिक्षक तथा ७५ शिक्षिकाओं को न्यादर्श के रूप में चुना गया।

### उपकरण :

शिक्षकों के तनाव को मापने के लिए स्वनिमित्त मापनी का उपयोग कर शारीरिक, मानसिक, सामाजिक, आर्थिक, संवेगात्मक, मूल्यांकन पद्धति, शिक्षण व्यवहार, पाठन विधि इन ८ कारकों के आधार पर १६ कथन सकारात्मक अभिवृत्ति (हाँ) अथवा १६ कथन नकारात्मक अभिवृत्ति (न) इस प्रकार ३२ कथन वाली मापनी का निर्माण किया। प्रत्येक आधार पर कारक को उद्देश्य बना कर मापनी में ४ कथनों का निर्माण किया गया है। इसी प्रकार तनाव प्रबंध को जानने के लिए स्वनिमित्त २० वाक्यात्मक तीन बिंदुमापनी के आधार से प्रदत्तों का संकलन किया गया। जिसका विश्लेषण इस प्रकार है-

**III. परिणाम और चर्चा :****प्रदत्तों का प्रतिशत के आधार पर विश्लेषण :**

तालिका क्र:-१ सी.बी.एस.ई. बोर्ड तथा मध्य प्रदेश बोर्ड के शिक्षक एवं शिक्षिकाओं में शारीरिक स्थिति, मानसिक स्थिति, सामाजिक स्थिति, आर्थिक स्थिति, संवेगात्मकस्थिति के कारण उत्पन्न तनाव का विश्लेषण-

क्र.	तनावस्तर	सी.बी.एस.ई. बोर्ड		म. प्र. बोर्ड	
		शिक्षक	शिक्षिकाएं	शिक्षक	शिक्षिकाएं
		N-35	N-40	N-32	N-43
१	शारीरिक:	७१.८	७०.९	६०	६५
२	मानसिक:	५९.३	६९.७	७०.७	६३
३	सामाजिक:	६७.१	६९.७	६३.५	६८.७
४	आर्थिक:	८४.८	६६.८	५७.१	५३.७
५	संवेगात्मक:	६४.८	५५.२	५८.५	६२.६

तालिका क्र.-१ से स्पष्ट होता है कि सी.बी.एस.ई. बोर्ड की शिक्षकों के शारीरिक तनाव प्रतिशत ७१.८ और शिक्षिकाओं का ७०.९ है। म. प्र. बोर्ड के शिक्षकों का तनाव प्रतिशत ६० और शिक्षिकाओं का ६५ है। सी.बी.एस.ई. बोर्ड की शिक्षकों के मानसिक तनाव प्रतिशत ५९.३ और शिक्षिकाओं का ६९.७ है। म. प्र. बोर्ड के शिक्षकों का तनाव प्रतिशत ७०.७ और शिक्षिकाओं का ६३ है। सी.बी.एस.ई. बोर्ड की शिक्षकों के सामाजिक तनाव प्रतिशत ६७.१ और शिक्षिकाओं का ६९.७ है। म. प्र. बोर्ड के शिक्षकों का तनाव प्रतिशत ६३.५ और शिक्षिकाओं का ६८.७ है। सी.बी.एस.ई. बोर्ड की शिक्षकों के आर्थिक तनाव प्रतिशत ८४.८ और शिक्षिकाओं का ६६.८ है। म. प्र. बोर्ड के शिक्षकों का तनाव प्रतिशत ५७.१ और शिक्षिकाओं का ५३.७ है। सी.बी.एस.ई. बोर्ड की शिक्षकों के संवेगात्मक तनाव प्रतिशत ६४.८ और शिक्षिकाओं का ५५.२ है। म. प्र. बोर्ड के शिक्षकों का तनाव प्रतिशत ५८.५ और शिक्षिकाओं का ६२.६ है।

उक्त तालिका के निर्दषन से ज्ञात होता है कि सर्वाधिक तनाव का सामना सी.बी.एस.ई. बोर्ड के शिक्षक और शिक्षिकाओं के द्वारा ही किया जाता है। उसमें भी आर्थिक समस्याओं के संबंध में तनाव अधिकाधिक प्रगट होता हुआ दिखा। वही म. प्र. बोर्ड की शिक्षिकाओं में आर्थिक तनाव निम्नतम प्रतिशत में दिखाई देता है।

तालिका क्र. :-२ सी.बी.एस.ई. बोर्ड तथा म.प्र. बोर्ड के शिक्षक और शिक्षिकाओं के शिक्षणव्यवहार (मूल्यांकन कारक, नवीनपाठनविधि)के कारण उत्पन्न तनाव का विश्लेषण-

क्र.	तनावस्तर	सी.बी.एस.ई. बोर्ड		म. प्र. बोर्ड	
		शिक्षक N-35	शिक्षिकाएं N-40	शिक्षक N-32	शिक्षिकाएं N-43
१	मूल्यांकनके कारणतनाव	६४	७०.९	७२.१	५८.७
२	नवीनपाठनविधि के कारणतनाव:	५०.७	५१.७	६२.१	६१.२

सी.बी.एस.ई. बोर्ड एवं म.प्र. बोर्ड के शिक्षक और शिक्षिकाओं में शिक्षण व्यवहार संबंधी कारक भी तनाव को उत्पन्न करते हैं। सी.बी.एस.ई. बोर्ड की शिक्षकों के मूल्यांकन के कारण तनाव प्रतिषत ६४ और शिक्षिकाओं का ७०.९ है। म. प्र. बोर्ड के शिक्षकों का मूल्यांकन के कारण तनाव प्रतिषत सर्वाधिक ७२.१ और शिक्षिकाओं का ५८.७ है।

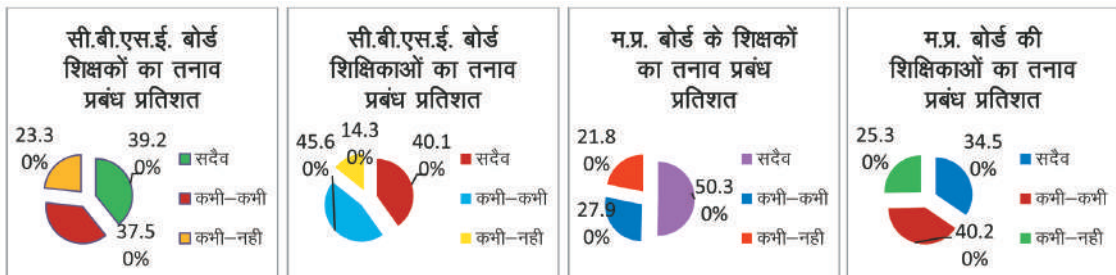
वहीं नवीन पाठन विधियों के द्वारा पाठन करने के कारण सी.बी.एस.ई. बोर्ड के शिक्षकों में तनाव ५०.७, शिक्षिकाओं में ५१.७ है एवं म.प्र. बोर्ड के शिक्षकों में तनाव ६२.१, शिक्षिकाओं में ६१.२ है। अतः कहा जा सकता है कि म.प्र. बोर्ड के शिक्षकों को नवीन शिक्षण विधियों के प्रयोग के कारण तनाव उत्पादित होता है जिसका स्तर उच्चतम ६२.१ प्रतिषत तक पहुँच सकता है।

### तालिका क्रमांक ३- सी.बी.एस.ई. बोर्ड तथा म. प्र. बोर्ड के शिक्षक और शिक्षिकाओंके तनावप्रबंधन का तुलनात्मक विश्लेषण

श्रेणी	सी.बी.एस.ई. बोर्ड		म. प्र. बोर्ड	
	शिक्षक प्रतिषत	शिक्षिका प्रतिषत	शिक्षक प्रतिषत	शिक्षिका प्रतिषत
सदैव	३९.२०%	४०.१०%	५०.३०%	३४.५०%
कभी-कभी	३७.५०%	४५.६०%	२७.९०%	४०.२०%
कभी-नहीं	२३.३०%	१४.३०%	२१.८०%	२५.३०%

तालिका क्रमांक ३ से स्पष्ट होता है कि सी.बी.एस.ई. बोर्ड के शिक्षकों तनाव प्रबंधन सदैव में ३९.२ प्रतिषत कभी-कभी में ३७.५ प्रतिषत और कभी नहीं में २३.३ प्रतिषत है। तात्पर्य २३.३ प्रतिषत शिक्षकों का मानना है कि जब तनाव का वेग आता है तो वह अनियंत्रित ही रहता है, लेकिन ३९.२ प्रतिषत का मानना है कि तनाव सदैव नियंत्रण में ही रहता है, ३७.५ प्रतिषत का मानना है कि कभी तनाव नियंत्रण तो कभी नियंत्रण से बाहर होता है।

सी.बी.एस.ई. बोर्ड के शिक्षिकाओं का तनाव प्रबंधन सदैव ४०.१ प्रतिषत कभी-कभी ४५.६ प्रतिषत और कभी नहीं १४.३ प्रतिषत है। म.प्र. बोर्ड के शिक्षकों में तनाव प्रबंधन सदैव ५०.३ प्रतिषत कभी-कभी २७.९ प्रतिषत और कभी नहीं २१.८ प्रतिषत है। म. प्र. बोर्ड के शिक्षिकाओं में तनाव प्रबंधन सदैव ३४.५ प्रतिषत कभी-कभी ४०.२ प्रतिषत और कभी नहीं २५.३ प्रतिषत है। इसे और स्पष्ट आरेखों के माध्यम से देखा जा सकता है-



### परिकल्पनाओं का सत्यापन :

पूर्वोक्त परिकल्पनाओं का सत्यापन करने के लिए सांख्यिकीय विधियों से मध्यमान, मानकविचलन, टी परीक्षण का उपयोग किया, टी परीक्षण मान की विश्वसनीयता की जाँचने के लिए टी तालिका मान के 0.05 स्तर को लिया गया, जिसका विश्लेषण निम्न तालिका ४ में किया गया है।

शोध में निर्मित परिकल्पनाओं का सत्यापन करने के लिए टी परीक्षण का प्रयोग किया गया। जिसमें पाया कि सी.बी.एस.ई. बोर्ड के शिक्षकों तथा मध्यप्रदेश बोर्ड के शिक्षकों में शारीरिक स्थिति, आर्थिक स्थिति, संवेगात्मक स्थिति, और तनाव प्रबंध करने में सार्थक अंतर पाया जाता है। तनाव के लिए शारीरिक स्तर, आर्थिक स्तर, संवेगात्मक स्तर, और तनाव प्रबंध करने के स्तर पर दोनों बोर्ड के शिक्षक और शिक्षिकाओं की कार्य प्रणाली अलग-अलग है, लेकिन मानसिक स्तर सामाजिक स्तर और विभिन्न शिक्षण व्यवहारों के प्रति कोई सार्थक अंतर नहीं पाया गया। अर्थात् मानसिक स्तर सामाजिक स्तर और विभिन्न शिक्षण व्यवहारों के प्रति दोनों की कार्य प्रणाली समान है।

### सामान्यीकरण :

शारीरिक, मानसिक, सामाजिक, आर्थिक, संवेगात्मक, शिक्षण व्यवहार इन कारकों के आधार पर सीबीएसई बोर्ड व मध्य प्रदेश बोर्ड के शिक्षकों के तनाव का तथा तनाव प्रबंधन का अध्ययन कर सामान्यीकरण एवं निष्कर्ष निरूपण हैं-

- सीबीएसई बोर्ड शिक्षकों के शिक्षकों का शारीरिक तनाव प्रतिशत सीबीएसई बोर्ड के शिक्षिकाओं की तुलना में अधिक पाया गया।
- मध्यप्रदेश बोर्ड की शिक्षिकाओं का शारीरिक तनाव प्रतिशत मध्यप्रदेश बोर्ड के शिक्षकों की तुलना में अधिक पाया गया।
- सीबीएसई बोर्ड के शिक्षकों का मानसिक तनाव प्रतिशत सीबीएसई बोर्ड की शिक्षिकाओं के तुलना में कम पाया गया।
- मध्यप्रदेश बोर्ड के शिक्षकों का मानसिक तनाव प्रतिशत मध्यप्रदेश बोर्ड की शिक्षिकाओं की तुलना में अधिक पाया गया।
- सीबीएसई बोर्ड के शिक्षकों का सामाजिक तनाव प्रतिशत सीबीएसई बोर्ड शिक्षिकाओं की तुलना में कम पाया गया।
- मध्यप्रदेश बोर्ड की शिक्षकों का सामाजिक तनाव प्रतिशत मध्यप्रदेश बोर्ड की शिक्षिकाओं की तुलना में कम पाया गया। लेकिन सामाजिक तनाव दोनों बोर्ड की शिक्षिकाओं में अधिक ही पाया गया।

- सीबीएसई बोर्ड के शिक्षकों का आर्थिक तनाव प्रतिशत सीबीएसई बोर्ड की शिक्षिकाओं की तुलना में काफी अधिक पाया गया।
- मध्यप्रदेश बोर्ड के शिक्षकों का आर्थिक तनाव प्रतिशत मध्यप्रदेश बोर्ड की शिक्षिकाओं की तुलना में अधिक पाया गया। तात्पर्य है आर्थिक तनाव शिक्षकों को अधिक होता है शिक्षिकाओं की तुलना में।
- सीबीएसई बोर्ड के शिक्षकों का संवेगात्मक तनाव प्रतिशत सीबीएसई बोर्ड की शिक्षिकाओं की तुलना में अधिक पाया गया।
- मध्यप्रदेश बोर्ड शिक्षकों का संवेगात्मक तनाव प्रतिशत मध्यप्रदेश बोर्ड की शिक्षिकाओं की तुलना में कम पाया गया। तात्पर्य है कि सीबीएसई बोर्ड के शिक्षक और मध्यप्रदेश बोर्ड की शिक्षिकाओं में संवेगात्मक तनाव प्रतिशत अधिक पाया गया।
- सीबीएसई बोर्ड के शिक्षकों का शिक्षण व्यवहारगत तनाव प्रतिशत सीबीएसई बोर्ड शिक्षिकाओं की तुलना में अधिक पाया गया।
- मध्यप्रदेश बोर्ड के शिक्षकों के शिक्षकों का शिक्षण व्यवहारगत तनाव प्रतिशत मध्यप्रदेश बोर्ड की शिक्षिकाओं की तुलना में अधिक पाया गया।
- सीबीएसई बोर्ड शिक्षकों का तनाव प्रबंधन प्रतिशत इसी बोर्ड की शिक्षिकाओं की तुलना में कम पाया गया।
- मध्यप्रदेश बोर्ड की शिक्षकों का तनाव प्रबंधन प्रतिशत इसी बोर्ड की शिक्षिकाओं की तुलना में अधिक पाया गया। तात्पर्य है कि सीबीएसई बोर्ड के शिक्षक, शिक्षिकाओं की अपेक्षा कम तनाव प्रबंधित करते हैं, लेकिन मध्यप्रदेश बोर्ड के शिक्षक अधिक तनाव प्रबंधित करते हैं, शिक्षिकाओं की अपेक्षा।

#### IV. भावी शोध हेतु सुझाव :

१. प्राथमिक स्तरीय विद्यार्थियों के तनाव एवं उसके प्रबंधन का अध्ययन किया जा सकता है।
२. उच्च स्तर के विद्यार्थियों के तनाव एवं उसके प्रबंधन का तुलनात्मक अध्ययन किया जा सकता है।
३. उच्चतर स्तर के तनाव एवं उसके प्रबंधन का तुलनात्मक अध्ययन किया जा सकता है।
४. माध्यमिक विद्यालय स्तर के तनाव एवं उसके प्रबंधन का तुलनात्मक अध्ययन किया जा सकता है।
५. विष्वविद्यालय स्तर के तनाव एवं उसके प्रबंधन का तुलनात्मक अध्ययन किया जा सकता है।
६. सरकारी तथा गैर सरकारी विद्यालय के प्राचार्य के तनाव एवं उसके प्रबंधन का तुलनात्मक अध्ययन किया जा सकता है।

७. सीबीएसई तथा आईसीएसई के विद्यालय के विद्यार्थियों के तनाव एवं उसके प्रबंधन का तुलनात्मक अध्ययन किया जा सकता है।

**सन्दर्भ ग्रन्थ सूची :**

१. अग्रवाल आर एन और अस्थाना बी (१९८७), मनोविज्ञान ज्ञान और शिक्षा में मापन एवं मूल्यांकन, विनोद पुस्तक मन्दिर, आगरा
२. अग्रवाल वाई पी (१९९८), शैक्षिक अनुसंधान एक परिचय, आर्य बुक डिपो, नई दिल्ली।
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