

(SJIF) Impact Factor-8.575  
ISSUE No. (CCCXXXIX) 339

ISSN-2278-9308

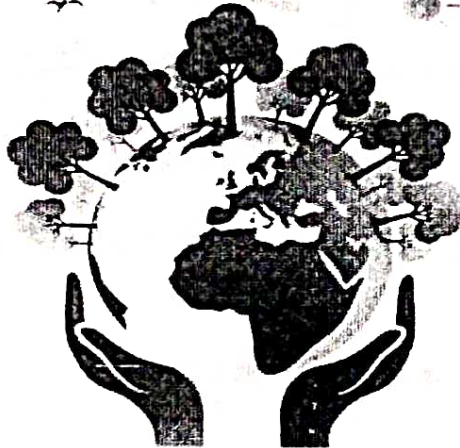
# *B. Aadhar*

Peer-Reviewed & Refereed Indexed

Multidisciplinary International Research Journal

February -2022

## Sustainability Management: Concept, Applications and Research Opportunities



Prof. Virag.S.Gawande  
Chief Editor  
Director

Aadhar Social Research & Development Training Institute, Amravati.

Dr.Vijay Tompe  
Editor

G. S. Tompe Arts Comm & Sci. College Chandur Bazar Dist. Amravati

Dr. Sachin Bombe  
Dr. Shashikant Dupare  
Co-Editors

G. S. Tompe Arts Comm & Sci. College Chandur Bazar Dist. Amravati

**Aadhar International Publication**

For Details Visit To : [www.aadharsocial.com](http://www.aadharsocial.com)

© All rights reserved with the authors & publisher



Impact Factor - 8.575

ISSN - 2278-9308

# B.Aadhar

Peer-Reviewed & Refereed Indexed  
Multidisciplinary International Research Journal

**February -2022**

ISSUE No- (CCCXXXIX ) 339

**Sustainability Management: Concept,  
Applications and Research Opportunities**

**Prof. Virag.S.Gawande**

Chief Editor

Director

Aadhar Social Research & Development Training Institute, Amravati.

**Dr.Vijay Tompe**

Editor

G. S. Tompe Arts Comm & Sci. College Chandur Bazar Dist. Amravati

**Dr. Sachin Bhombe**

**Dr. Shashikant Dupare**

G. S. Tompe Arts Comm & Sci. College Chandur Bazar Dist. Amravati

**Aadhar International Publication**

For Details Visit To : [www.aadharsocial.com](http://www.aadharsocial.com)

© All rights reserved with the authors & publisher



**INDEX**

No.	Title of the Paper	Authors' Name	Page No.
1	Technology Boost in Production of Cotton Crop in India	Dr. Mahesh Lavate / Dr. Vijay Tompe	1
2	A Geographical Analysis Of Density, Distribution And Spacing Of Rural Settlement In Shirpur Tahsil Of Dhule District (M.S)	Dr. Rupesh R. Deore / Dr. N. N. Gajare	5
3	The Need To Prevent Global Warming For Sustainable Development	Machhindranath Kailas Aarte / Dr. Sachin Himmatrao More	10
4	General Land Use and Rice Cropping Pattern of Chandrapur District 2011 – 2012 & 2017 -18	Dr. Vijay P. Gorde / Prof. Parag S. Meshram	14
5	Urban Slum Prevalence and Problem in West Vidarbha Region :- A Need for Sustainable Development	Dr. Nilesh Chopade / Dhiraj Raut	20
6	Climate Justice and Planning	Asst. Prof. Nilkantha V. Narule	23
7	Sodium Percent of Groundwater Suitability for Irrigation in Purna Alluvial Basin, Maharashtra	P. S. Parimal	26
8	Need Of Water Conservation In Sustainable Development	Sambhaji Sitaram Dhage / Dr. Chatrugan U Bhole	29
9	Contribution of English Literature in Disseminating the Environmental Awareness: A Critical Survey	Dr. Subhash P. Shirsat / Dr. Kiran R. Dhatrak	32
10	Differential Levels of Educational Development in District Budgam, J&K: A Block Wise Analysis.	Rafiq Ahmad Dar / Dr. Ajay Janrao Solanke	35
11	The Need for Afforestation for Sustainable Development	Dr. Ajay J. Solanke	40
12	Sub-Division wise Analysis of Rainfall and Coefficient of Variation in Maharashtra State (1901 to 2015)	Dr. Anita J. Chavan / Dr. Pramod Asaram Wadate	43
13	Changes in Pattern of Crop Diversification in Amravati District	Dr. Deepak P Thakare	48
14	Deforestation - An Important Issue In Sustainable Development	Dr. Rajesh Pandurang Meshram	52
15	Review of Water Problems and Drought in Maharashtra	Dr. Sagar Prabhakar Rao Padole	55
16	Impact of Climate Change in Agriculture of Maharashtra	Dr. Sawan M Deshmukh	58
17	COVID - A CURSE Or BOON For Human Beings	Dr. Jyoti j. Chore / Dr. Priya s. Deole / Dr. Nidhi S. Dixit	61
18	Environmental Pollution In Pune City Due To Dust And Noise	Dr. Vijay B. Kharate	66
19	Spatio-Temporal Analysis of Soybean Crop Cultivation in Northern Part of Nandurbar District: A Case Study	Dr. B. S. Patil	70



20	Environmental Status And Impact Of Air Pollution In Chandrapur District Dr. Nikhil M. Deshmukh	76
21	Environment And Environmental Justice Dr. Wasudeo J. Uike	80
22	Traditional Practices of tribals to Biodiversity conservation and Sustainability management through cultural heritage. Dr. Y. M. Rajgure /Miss M. N. Pawar	84
23	Effects of Temperature Rise on Various Factors in India Prof Gopal Bhalavi	87
24	Impact Of Physical And Climatic Factors On Settlement Distribution Of Dhule District, Maharashtra Prof.Punam Deore / Dr. Vidya Patil	90
25	Level of Industrial Development in Amravati District Dr. Anilkumar Gopi Prasad	96
26	Impact of Climate Change on Indian Agriculture and its Measures Dr. Omprakash B Munde	102
27	Need of Environment Conservation for Sustainable Development Dr. Manoj Dhondbaji Mudholkar	106
28	Nutritional Status of Rural Population in West Vidarbha Region of Maharashtra Anupama B. Ramekar (Jathe)/Narendra M. Jathe	109
29	Impact of Industrialization on Environmental Condition: A Global Prospective Review Dr. Manisha Shashikant Pawar/Dr. Prakash K. Patil	114
30	Preserving Books: An Approach In Upkeeping Environment Dr. Parwati K. Shirke	117
31	Protection of Environment and Sustainable Development Dr. Sadhana S Khandar (Bhendkar)	120
32	An Assessment of Changing Paradigms of Scheduled Caste Population in Pune District of Maharashtra (1991 - 2011) Mr. Dilip Dnyaneshwar Muluk /Dr. Arjun Haribhou Musmade	124
33	Changing Population Composition Of Age Group 0-6 In Jalgaondistrict Of Maharashtra 2001 – 2011 Devendra Anantramji Maski /Dr Sanjay Devidas Bhaise	133
34	The Importance Of Vegetable Production In Western Jalgaon District Prof. Dr. Sanjay D. Bhaise	139
35	Role of Education on Sustainable Development Dr. Chandrashekhar D. Thakare	145
36	Role of Paani Foundation in Sustainable Watershed Development under the Marathwada Region. Dr. Shivanand Tanajirao Jadhav	147
37	A Geographical Study of Literacy Trends in Jalgaon District Dr. Pankaj Yuvraj Shinde /Mr.Arun Bhabutrao Mahajan	151
38	Structural Development and Disparities in Educational Zones: A Zone Wise Analysis of District Anantnag, J&K. Harris Bin Salam /Dr. Ajay Janrao Solanke	159
39	Thermal pollution: Introduction, Effects and Control measures Suyog Surendra Mankar	164
40	Impact of Rainfall on Water Resources in Marathwada Region Dr. Khadke V.V./ Dr. Hulpalle S.D	168



41	Water Pollution in India: Causes, Effects and Management and Control Dr.Anand Rameshrao Dhote	172
42	Carbon Footprint Analysis: Towards a measures suggesting for carbon fixation. Gunwant H. Kurhade/ Bliimrao B. Wankhade /Farooque Haider Z. Haider	177
43	Geographical study of Drainage Pattern in Marathwada Region Dr. Hulpalle S.D./Dr.Khadke V.V.	181
44	हुंगा टोंगा द्विपसमुहातील ज्वालामुखी उद्रेकाच्या वैश्विक प्रभावाचे भौगोलिक विप्लेशन डॉ. सचिन एन. भोवे	185
45	पर्यावरणीय समतोल काळाची गरज प्रा.डॉ. शशिकांत पी. दुपारे	190
46	अमरावती विभागातील ग्रामीण - नागरी व स्त्री - पुरुष साधरतेतील विषमता प्रा. किशोर मारोतराव ताकसांडे /डॉ. सुनील आखरे	194
47	अमरावती जिल्ह्यातील जलसिंचन व कृषी उत्पादकता यांच्या सहसंबंधावर पर्यावरण बदलाच्या परिणामाचे अध्ययन डॉ. नितीन पा. भालेराव	199
48	सद्यःस्थितीतील हवामान बदलाच्या संदर्भात पृथ्वीच्या भूशास्त्रीय काळातील हवामान बदलाचा अभ्यास प्रा. संजीव वि. भुयार	206
49	महाराष्ट्र राज्यातील वनक्षेत्र आणि वणव्यामुळे जळलेले वनक्षेत्र - भौगोलिक आढावा प्रा. दिपक उ अंबोरे	214
50	जनमामान्यांमध्ये हॉट विषय जागतिक तापमान वाढ डॉ.वैशाली विजय विजवे	220
51	हवामान बदल आणि कृषी डॉ. तिलकचंद जि. धोटे	223
52	उर्जा समाधन नियोजन व व्यवस्थापन प्रा.डॉ. दिलीप नि. लांजेवार	229
53	शाश्वत विक्रामामात्री शाश्वत व्यवस्थापनाच्या भूमिकेचा अभ्यास डॉ.दीपा अनिल पाटील	235
54	भारतातील वायुप्रदूषणाचामानवी आरोग्यावर होणारापरिणाम - एक भौगोलिक अध्ययन डॉ. मनोज बी. गाथे	239
55	महाराष्ट्रातील पाणी संकट समस्या आणि उपाययोजना डॉ. स्वाती डी. गिरासे	244
56	निसर्ग पर्यावरण संवर्धन - उत्पादकतेत वृद्धी अर्थप्राप्तीतील आर्थिक विकास - एक समीक्षात्मक अभ्यास प्रा. डॉ. जयंत एम. बनसोड	248
57	महाराष्ट्र राज्यातील वैनगंगा खो-यातील नदी प्रदूषण समस्या व उपाययोजना डॉ. जयश्री वाय. पडोळे/श्री. रामकृष्ण महादेवराव सिरसकर	253
58	शाश्वत विक्रामाचे घटक आणि मार्ग डॉ. कुंदन अ. अलोणे	257



59	मेळघाट प्रदेशातील व्याघ्र प्रकल्प प्रभाव क्षेत्रातील पुर्नवसित वसाहतीच्या व्यवस्थापनाचे भौगोलिक विश्लेषण डॉ. प्रमोद म. बावणे	261
60	अमरावती जिल्ह्यातील कृषी उत्पादकता निर्देशांक - एक भौगोलिक अध्ययन डॉ. मनीष प्र. गायकवाड / डॉ. राजेंद्र ज. ढगेकर	267
61	जिला भिण्ड (म०प्र०) में जनसंख्या का स्थानिक वितरण : एक भौगोलिक अध्ययन डॉ० आर वी एस सिसौदिया/शिवम वर्मा	271
62	चंद्रपूर जिल्ह्यातील संसाधनाचे वितरण अमोल का. बावणे / प्रा. डॉ. निखिल म. देशमुख	278
63	अमरावती जिल्ह्यातील वन साधनसंपत्तीचे भौगोलिक विश्लेषण सचिन रा. राऊत	282
64	अमरावती जिल्ह्यातील पिक उत्पादकतेचे व पीक व्यवस्थापनाचे भौगोलिक विश्लेषण संदीप देशमुख	285
65	मेळघाट प्रदेशातील वनक्षेत्राचा भौगोलिक अभ्यास. उमेशकुमार पुरूषोत्तम गायगोले	290
66	पश्चिम वन्हाडातील पर्यटन: एक भौगोलिक अभ्यास प्रा. अभिजीत प्र. दोड	294
67	यवतमाळ जिल्ह्यातील पर्जन्याचे तालुकानिहाय वितरण : एक भौगोलिक अध्ययन (2019 - 2020) यशवंत प्रयाग राठोड/प्रा.डॉ.कल्पना देशमुख	300
68	अमरावती जिल्ह्यातील शेती विकामाचे प्रारूप : एक भौगोलिक अध्ययन प्रा. प्रताप राजाभाऊ सर्वगोड	304
69	नैसर्गिक अधिवामाचा ऱ्हास आणि वन्यजीवन : यवतमाळ जिल्हा प्रा. डॉ. कल्पना देशमुख	308
70	जालना जिल्ह्यातील भूमी उपयोग एक भौगोलिक अभ्यास डॉ. यु. बी. मडावी	312
71	हवामानातील बदल आणि पर्यावरणीय ऱ्हास प्रा. डॉ. तिलकचंद जि. धोटे / प्रा. कुणाल अनिलराव झोटींग	316
72	लोकसंख्यावाढ आणि नैसर्गिक साधनसंपत्ती प्रा.डॉ. सुनिल विक्रम कुवर	320



## Water Pollution in India: Causes, Effects and Management and Control

Dr. Anand Rameshrao Dhotre

Yuvashakti Arts and Science College, Amravati

### Abstract:-

Water pollution is one of the burning issues of India. Urbanization, untreated Sewage, industrial waste etc. are the source of water pollution in India. In fact, it is said that almost 80% of the water bodies in India are highly polluted. The Ganga Action Plan and the National River Action Plan and many others steps are taken to control water pollution. Environmental education, mitigation and management at government and public level are the steps taken for the control the water pollution. This paper tries to discuss water pollution in India particularly river pollution and source, effect control and water pollution management as a whole in India.

**Keyword:** Urbanization, untreated Sewage, industrial waste, The Ganga Action Plan, National River Action Plan, mitigation and management

### Introduction:-

Water pollution is one of the biggest issues facing India right now. As may be evident, untreated sewage is the biggest source of such form of pollution in India. There are other sources of pollution such as runoff from the agricultural sector industrial waste. The situation is so serious that perhaps there is no water body in India that is not polluted to some extent or the other. In fact, it is said that almost 80% of the waterbodies in India are highly polluted. Ganga and Yamuna are the most polluted rivers in India.

### Causes of water pollution in India:-

Following are some important reasons of increasing levels of water pollution in India:

- Urbanization.
- Untreated Sewage.
- Industrial waste.
- Improper practices in agricultural sector.
- Reduction in water quantity in rivers in plains.
- Social and religious practices like dumping dead bodies in water, bathing, throwing waste in water.
- Oil leaks from ships.
- Acid rain.
- Global warming.
- Eutrophication.
- Inadequate industrial treatment of wastes.
- Denitrification.

Out of this some important reasons are as follow:-

### Urbanization:-

Urbanization is main reasons of water pollution in India. last decade the rate of urbanization is very high. In our country, Uncontrolled urbanization in these areas has also led to generation of sewage water. In the urban areas water is used for both industrial and domestic purposes from waterbodies such as rivers, lakes, streams, wells, and ponds. Worst still, 80% of the water that we use for our domestic purposes is passed out in the form of wastewater. In most of the cases, this water is not treated properly and as such it leads to tremendous pollution of surface-level freshwater. According to



the Union Ministry of Urban Development (MoUD), 31 per cent of the country was urbanised. (MoUD) data also suggests 54 per cent increase in the number of cities and towns between 2001 and 2011. The ministry says almost 50 per cent of the country will be urbanised by 2050.

Table 1: Trends in Urbanisation, India, 1901 to 2001

Census Year	Number of UAs/Towns	Urban Population (in million)	Per cent Urban
1901	1,827	25.85	10.84
1911	1,815	25.94	10.29
1921	1,949	28.07	11.17
1931	2,072	33.46	11.99
1941	2,250	44.15	13.86
1951	2,843	62.44	17.29
1961	2,365	78.94	17.29
1971	2,590	109.11	19.91
1981	3,378	159.46	23.34
1991	3,768	217.18	25.72
2001	4,378	286.12	27.86

**Untreated Sewage:-**

The treatment and disposal of wastewater has also been a major issue in this regard. The areas near rivers have seen plenty of towns and cities come up and this has also contributed to the growing intensity of problems.

There is a large gap between generation and treatment of domestic waste water in India. The problem is not only that India lacks sufficient treatment capacity but also that the sewage treatment plants that exist do not operate and are not maintained.

The majority of the government-owned sewage treatment plants remain closed most of the time due to improper design or poor maintenance or lack of reliable electricity supply to operate the plants, together with absentee employees and poor management. The waste water generated in these areas normally percolates into the soil or evaporates. The uncollected waste accumulates in the urban areas causing unhygienic conditions and releasing pollutants that leach into surface and groundwater.

Major cities of India produce 38.354 million litres per day (MLD) of sewage, but the urban sewage treatment capacity is only 11.786 MLD. A large number of Indian rivers are severely polluted as a result of discharge of domestic sewage

Table 19.1 Wastewater Treatment Capacity in Urban Areas in India, 2008

Category	No. of cities	Total water supply (in MLD)	Wastewater generation(in MLD)	Treatment capacity(in MLD)
Class-I City	498	44,769.05	35,558.12	11,553.68 (32%)
Class-II town	410	3,324.83	2,696.7	233.7 (8%)
Total	908	48,093.88	38,254	11787.38 (31%)

Source: CPCB (2008).

**Industrial waste:-**

Thousands of small scale and bigger industrial units simply dump their waste, more often toxic and hazardous, in open spaces and nearby water sources. Over the last three decades, many





cases of serious and permanent damage to environment by these industries have come to the fore. In industrial sectors such as sugar, pulp and paper, fruit and food processing, sago / starch, distilleries, dairies, tanneries, slaughterhouses, poultries, etc. generate more industrial waste. Despite requirements for pollution control measures, these wastes are generally dumped on land or discharged into water bodies, without adequate treatment, and thus become a large source of environmental pollution and health hazard.

The study estimates that nearly 74.6 lakh tonnes of hazardous waste is generated in India annually. Of this, waste which can be disposed in landfills constitutes for about 34.1 lakh tonnes or 46 per cent of the total. Recyclable hazardous waste consists of 33.5 lakh tonnes or 45 per cent of the total.

#### **Improper practices in agricultural sector:-**

Improper practices in agricultural sectorsuch as increased use of chemicals, as fertilizer and pesticide, has disturbed the natural composition of nutrients in the soil. Today, most farmers overuse these products. If a farmer overuses the NPK fertilizer, the nitrogen, phosphorous and potassium content of the soil drastically increases. The excess amount of macronutrients, particularly nitrogen and phosphorus, get washed away with irrigated water to local water bodies, leading to eutrophication.

#### **Water pollution in India:-**

Out of India's 3,119 towns and cities, just 209 have partial treatment facilities, and only 8 have full wastewater treatment facilities (WHO 1992) 114 cities dump untreated sewage and partially cremated bodies directly into the Ganges River. Downstream, the untreated water is used for drinking, bathing, and washing. This situation is typical of many rivers in India

This polluted water also seeps through the surface and poisons groundwater. It is estimated that cities with populations of more than one lakh people generate around 16.662 million litres of wastewater in a day. Cities and towns located on the banks of Ganga generate around 33% of wastewater.

The scientific analysis of water samples from 1995 to 2008 indicates that the organic and bacterial contamination is severe in water bodies of India. This is mainly due to discharge of domestic waste water in untreated form, mostly from the urban centres of India.

In 2010 the water quality monitoring found almost all rivers with high levels of (BOD) Biochemical oxygendemand (a measure of pollution with organic matter). The levels of BOD are severe near the cities and major towns.

Rivers Yamuna, Ganga, Gomti, Ghaghara, Chambal, Mahi, Vardha and Godavari, are amongst the other most coliform polluted water bodies in India. In 2006, 47 percent of water quality monitoring reported coliform concentrations above 500 MPN/100 ml. During 2008, 33 percent of all water quality monitoring stations reported a total coliform levels exceeding those levels. The Ganges River is the largest river in India. The extreme pollution of the Ganges affects 600 million people who live close to the river. The river water starts getting polluted when it enters the plain. The commercial exploitation of the river has risen in proportion to the rise of population

Water pollution in India has grown significantly as a result of a rapidly developing economy and subsequently growing population. In 2015, the country's central pollution control board found that the number of polluted rivers and water sources more than doubled in five years. Industrial waste and regular trash have consistently been dumped into waterways. This has not only affected visible waterways but also groundwater. As it stands, water pollution compounds the danger of water scarcity,



More than 38,000 million litres of waste water enters the major rivers, water bodies and even percolates into the ground every day.

Still pollution level in rivers of India has not shown any sign of improvement. Around 302 polluted stretches on 275 rivers have been reported recently. The top five states showing maximum number of polluted stretches are Maharashtra, Assam, Madhya Pradesh, Gujarat and West Bengal. Estimated polluted riverine length is 12,363 km, which is almost five times the length of Ganga main stem.

#### **Water Pollution Management and Control:-**

The key challenges to better management of the water quality in India comprise of temporal and spatial variation of rainfall, uneven geographic distribution of surface water resources, persistent droughts, overuse of ground water and contamination, drainage and salinization and water quality problems due to treated, partially treated and untreated wastewater from urban settlements, industrial establishments and runoff from irrigation sector besides poor management of municipal solid waste and animal dung in rural areas (CPCB Report, 2013). Some of the control measures are given below:

1. The Ganga Action Plan and the National River Action Plan are being implemented for addressing the task of trapping, diversion and treatment of municipal wastewater.

2. In most parts of the country, waste water from domestic sources is hardly treated, due to inadequate sanitation facilities. This waste water, containing highly organic pollutant load, finds its way into surface and groundwater courses near the vicinity of human habitation from where further water is drawn for use. Considerable investments should be done to install the treatment systems.

3. With rapid industrialization and urbanization, the water requirement for energy and industrial use is estimated to rise to about 18 per cent (191 bcm) of the total requirements in 2025 (CPCB Report, 2013). Poor environmental management systems, especially in industries such as thermal power stations, chemicals, metals and minerals, leather processing and sugar mills, have led to discharge of highly toxic and organic wastewater. This has resulted in pollution of the surface and groundwater sources from which water is also drawn for irrigation and domestic purpose. The enforcement of regulations regarding discharge of industrial wastewater and limits to extraction of groundwater needs to be considerably strengthened, while more incentives are required for promoting waste water reuse and recycling.

4. For the agricultural sector, water and electricity for irrigation are subsidized for political reasons. This leads to wasteful flood irrigation rather than adoption of more optimal practices such as sprinkler and drip irrigation. Optimized irrigation, cropping patterns and farming practices should be encouraged for judicious use of water.

5. The water quality management in India is accomplished under the provision of Water (Prevention and Control of Pollution) Act, 1974 that was amended in 1988. The basic objective of this Act is to maintain and restore the wholesomeness of national aquatic resources by prevention and control of pollution. The Water (Prevention and Control of Pollution) Cess Act was enacted in 1977, to provide for the levy and collection of a cess on water consumed by persons operating and carrying on certain types of industrial activities.

6. The Central Pollution Control Board (CPCB) has established a network of monitoring stations on aquatic resources across the country. The water quality monitoring and its management are governed at state/union territory level in India. The network covers 28 states and 6 Union Territories (CPCB Report, 2013). Water quality monitoring is therefore an imperative prerequisite in order to assess the extent of maintenance and restoration of water bodies.

7. There should be ban on washing of clothes and laundry alongside the river bank.



8. Industries should install Effluent Treatment Plant (ETP) to control the pollution at source.
9. All towns and cities must have Sewage Treatment Plants (STPs) that clean up the sewage effluents.
10. Improper use of fertilizers, herbicides and pesticides in farming should be stopped and organic methods of farming should be adopted. Cropping practices in riparian zone should be banned to protect the riparian vegetation growing there.
11. Religious practices that pollute river water by dumping colourful paints of idols containing harmful synthetic chemicals should be stopped.
12. Rain water harvesting should be practiced to prevent the depletion of water table.
13. Making people aware of the problem is the first step to prevent water pollution. Hence, importance of water and pollution prevention measures should be a part of awareness and education programme.
14. Polluter pays principle should be adopted so that the polluters will be the first people to suffer by way of paying the cost for the pollution. Ultimately, the polluter pays principle should be designed to prevent people from polluting and making them behave in an environmentally responsible manner.
15. As riparian vegetation helps in making the river water clean because of the multiple functions, to prevent people from felling and clearing down of riparian forest zones for road construction, agricultural practices, recreational and tourism, sand mining, quarrying and clay mining etc. community should play a regulatory role.

**References:-**

- Central Pollution Control Board [CPCB] (2008), Status of Water Supply, Wastewater Generation and Treatment in Class-I Cities and Class-II Towns of India. Control of Urban Pollution Series, CUPS/70/2009-10, New Delhi.
- Gupta, S. and B. Goldar (2005), 'Do Stock Markets Penalize Environment-unfriendly Behaviour? Evidence from India'. Ecological Economics, Vol. 52, pp. 81-95.
- Gupta, D.B., M.N. Murty, and R. Pandey (1989). 'Water Conservation and Pollution Abatement in Indian Industry: A Study of Water Tariff', (mimeo), National Institute of Public Finance and Policy, Delhi.
- Kumar, R., Singh, R.D. and Sharma, K.D. (2005), Water resources of India. Current Science, 85(5): 794-811.
- Maria, A. (2003). 'The Costs of Water Pollution in India', paper presented at the conference on Market Development of Water & Waste Technologies through Environmental Economics, 30-1 October 2003, Delhi.
- Musa H. (2013). Water Pollution. "Water Pollution in Focus" Contribution from the former Suleja LGA Chairman 21/6/2013 9:39am
- Webster.com. (2010). Definition from Webster Dictionary 08-13 Retrieved 2010-08-26 Wikipedia, the free encyclopedia. <http://en.wikipedia.org/wiki/pollution>. Retrieved 20-06-2013.
- CPCB Report.(2013). Status of Water Quality in India, 2011. Monitoring of Indian National Aquatic Resources, Series: MINARS/35/2013-14. Pp. 1-212.