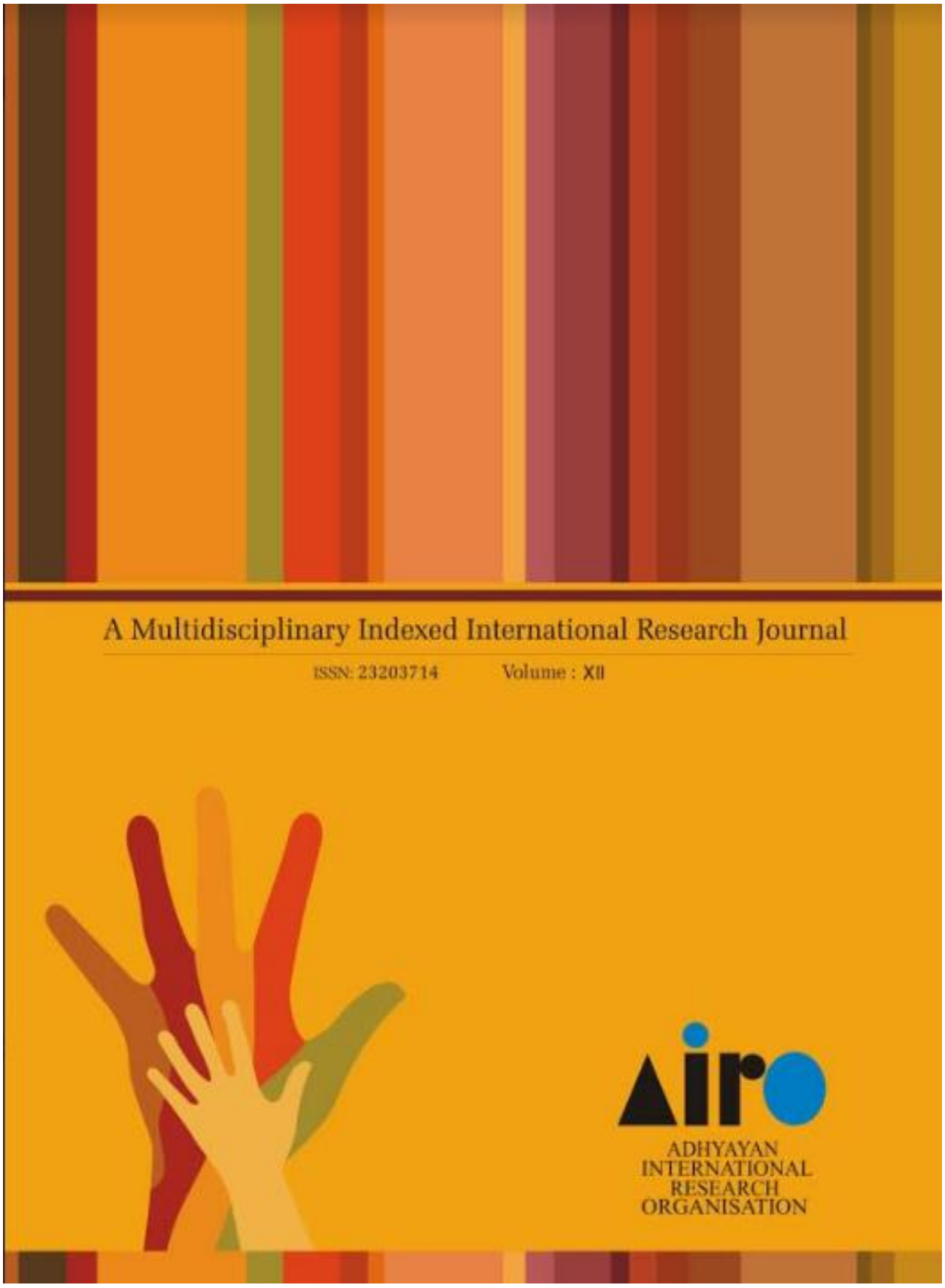
A Multidisciplinary Indexed International Research Journal
ISSN: 23203714
Volume : XII
Airo
ADHYAYAN
INTERNATIONAL
RESEARCH
ORGANISATION

STUDY OF QUALITY OF WATER AND WATER MANAGEMENT

AMIR HUSSAIN KHAN
BILAL AHMAD SOFI
Research Scholar, NIMS University, Shobhanagar, Jaipur
Guide: Bipin Kumar Singh
(Assistant Professor in Civil Engineering Department in NIMS University, Shobhanagar, Jaipur Rajasthan INDIA
Co-guide:- Vikas Kumar Pandey
Assistant Professor in Civil Engineering Department in NIMS University, Shobhanaga,r Jaipur, Rajasthan INDIA
Email id:

ABSTRACT

Water is most basic for livelihoods and for different utilizations. Here, the water supply in India was decided for the investigation. Due to over population, increase in water consumption was emerged. Appropriate proposals and suggestions were made to diminish the issue of water quality in a legitimate way. This endeavor will supportive to diminish the water quality and its quality issues in the investigation range and it prompt a practical case for who and what is to come and furthermore be a good fore stride for the research field as well. Water is a natural resource, major to life, livelihood, food security and manageable advancement. It is additionally a rare asset. In India, a water problem is man-made and has turned out to be extremely unpredictable. I trust with this national water quality policy, such issues will stop. People's health condition in any district can be straightforwardly identified with the quality of water. Subsequently it is very important to express the accessibility of "safe water quality to all". This must be incorporated into the national water policy of water management.

KEYWORDS: Water Quality, Water Management, India, population, increase, livelihoods, water, consumption, problem, etc.

INTRODUCTION: Water resources management occurs inside an exceptionally incorporated condition, where water quality, water quantity and aquatic ecosystems are

altogether interlinked and related. The National Water Act (NWA) makes arrangement for this by advancing integrated water resources management (IWRM). This is done both at a national level by the National Water Resource Strategy (NWRS), and by catchment management strategies (CMS) at a catchment/water management range/territorial level. These methodologies pull together the water quality, water quantity and amphibian biological community segments of the water resource into an intelligible management approach that plans to secure the beneficial, equitable and economical utilization of the water resource [1].

In any case, while it is important to incorporate the management of these segments, the complexities of the water environment more often than not request that they be tended to by various parts of a similar water management establishment (for instance the different Directorates of DWAF). Practicality thusly directs that water quality, water quantity and the amphibian biological system are additionally liable to be overseen to some degree freely at a catchment level [2]. It is all things considered still vital to coordinate these parts in suitable ways. This record gives rules and methods to coordinating the water quality management component into IWRM at catchment and provincial levels [3]. Be that as it may, the methodologies created are to a great extent nonspecific, and ought to be suitable to the amount/environment parts of IWRM.

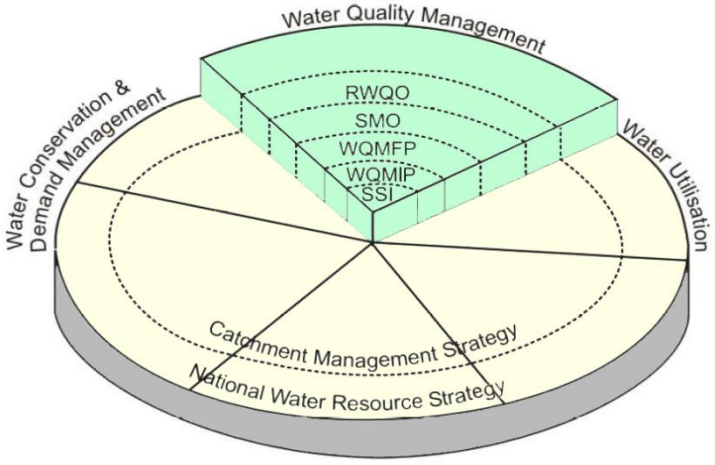

Figure 1: An illustration of the relationship between catchment water quality management strategies

REVIEW OF LITERATURE: One of the most important developments in the update of the Water Law in India was the distribution of the white Paper on a National Water Policy for India. This paper highlighted the larger arrangement contemplations for water resources management, which were later taken up into the National Water Act (NWA). The most important components of these were the necessities to guarantee manageable utilization of water resources and the impartial utilization of the asset for the "optimum social and economic benefit" of the country [4]. Combined with these were the requirement for a transparent and participative way to deal with water resources management, and the need to accommodate a “Reserve" [5]. The “Reserve" is that quantity and quality of water required for fundamental human needs, and also that quantity and quality required supporting oceanic biological systems. These larger arrangements must underlie the way to deal with water resources management on a catchment premise. Catchment water quality management is a segment of this procedure, and all things considered is liable to these policy principles. These principles have accordingly been coordinated into the Guideline for the Water Quality Management Component of a Catchment Management Strategy, the sister-report to this one. These standards ought to subsequently be considered as inalienable to every one of the means proposed in that record, even where not unequivocally expressed as such.

The National Water Resource Strategy: The National Water Act (NWA) makes arrangement for the advancement of a national water resource strategy (NWRS). The NWRS offers impact to incorporated water resources management at a national strategic level, by giving a system to water resources management between and inside Water Management Areas (WMAs). The NWRS in this manner makes arrangement for the water quality and quantity requirements of deliberately essential water users [6]. The NWRS is built up in law and may comprise of various utilitarian as well as issue-based techniques for the insurance, utilize advancement, preservation, administration and control of water resources.

The advancement of the NWRS is still in a temporary mode and the frame and substance of the related methodologies, destinations, plans, rules and strategies is up

'til now developing. In any case, the NWRS must "express the goals in regard of water quality to be accomplished through the order framework" [7]. Together, the quantity-related aspects of the NWRS and asset insurance give the requirements to water quality management within a WMA. Catchment Management Strategies (CMSs) must offer impact to the NWRS inside WMAs, and the NWRS in this manner gives the system inside which a CMS ought to be produced. The NWA additionally demonstrates that all water resources management activities must offer impact to these strategies.

The water resource classification system:

(i) Establish procedures for determining the Reserve;

(ii) Establish procedures which are designed to satisfy the water quality requirements of water users as far as are reasonably possible;

(iii) Set out water uses for instream or land-based activities which must be regulated or prohibited in order to protect the water resources.

The determination of a Water Resource Management Class, the RQOs and the Reserve for a water resource happens outside of the NWRS (in spite of the fact that the outcomes are reflected in the NWRS) [8]. Also, Classification can go before outside of the definition the CMS (in spite of the fact that the CMS must offer impact to the Classes). In any case, Classification of water resources, when at any rate done in parallel with the definition of the CMS, will increase the value of both the Classification and Catchment Management processes.

Water Use: Water use is broadly defined of the NWA to include:

(a) Taking water from a water resource;

(b) Storing water;

(c) Impeding or diverting the flow of water in a watercourse;

(d) Engaging in a stream flow reduction activity contemplated;

(e) Engaging in a controlled activity identified or declared;

(f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;

(g) Disposing of waste in a manner which may detrimentally impact on a water resource;

(h) Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;

(i) Altering the bed, banks, course or characteristics of a watercourse;

(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and

(k) Using water for recreational purposes.

Resource Quality and Water Quality: Management of Resource Quality requires management of water quantity, water quality and aquatic ecosystem quality. Functionally, water quantity and quality have been separated in the DWAF. While this document has been prepared as a Guideline for the water quality component of a CMS, the approaches outlined are appropriate for managing the water quality requirement of the habitat and biotic components, and could be integrated with the quantity component of a Catchment Management Strategy [9].

The National Water Act defines Resource Quality (RQ) as the quality of all the aspects of the water resource including –

(a) The quantity, pattern, timing, water level and assurance of instream flow;

(b) The water quality, including the physical, chemical, biological characteristics of the water;

(c) The character and condition of the instream and riparian habitat; and

(d) The characteristics, condition and distribution of the aquatic biota.

Framework for Catchment Water Quality Management: As stated prior, catchment water quality management must be educated by the necessities of the Water Resource Management Class, RQOs, the Reserve, and the NWRS. Together these build up the water quality, water quantity and amphibian biological system credits that are required to guarantee a given level of insurance for the asset, to meet essential human needs, and to meet the necessities of deliberately imperative water users [10]. The system proposed beneath depends on distinguishing

the partners' needs as for utilization of the water resource well beyond these requirements.

a. Establish resource water quality objectives for use of the resource to meet the requirements of the users and to dispose of water containing waste, based on the needs expressed by the stakeholders.

b. Determine source management objectives to meet these needs.

c. Formulate a WMA-wide water quality management framework-plan that indicates the management priorities, requirements, CMS linkages, and sectoral responsibilities and programme to achieve these objectives.

d. Develop individual water quality management implementation plans, which may be source-, issue- or sector-specific, or even, multi-sectoral, to give effect to the water quality management framework-plan.

Together, these make up the system for the water quality management component of the CMS. They will be reconsidered and refreshed on a five-yearly premise to suit the progressing advancement of the WMA, and are gone for securing a steady and staged acknowledgment of the partners' objectives for singular catchments in the WMA. These four steps may happen at any scale, and the outcomes could be sustained into the definition of the more extensive CMS. In these cases, the CMS would need to guarantee the similarity of these procedures with associated upstream and downstream procedures and approaches. Figure 2 shows conceptually how these four steps take into account the steady acknowledgment of the partners' objectives as per singular sub-catchments, or spatial "Administration Units" - in the WMA, by bridling the aggregate assets accessible at a local level.

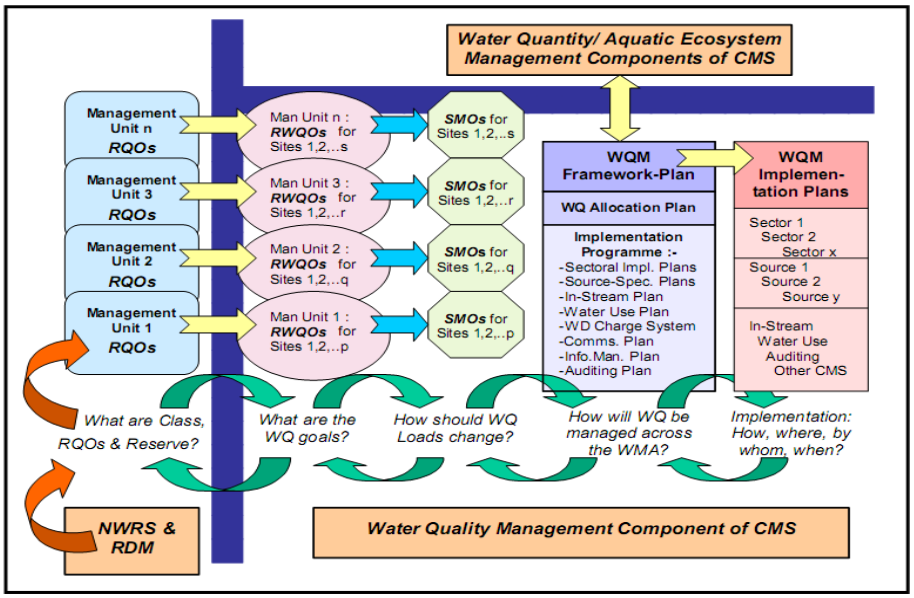

Figure 2: Conceptual Framework for Catchment Water Quality Management

Water Quality Component of a CMS: The "Roadmap" in Figure 3 below details the stages of the water quality component of the CMS (WQCMS). It also highlights the inputs required for, and outputs of, the process. These inputs are derived from the outputs of the water quality catchment assessment study (WQCAS) procedures described in this Guide.

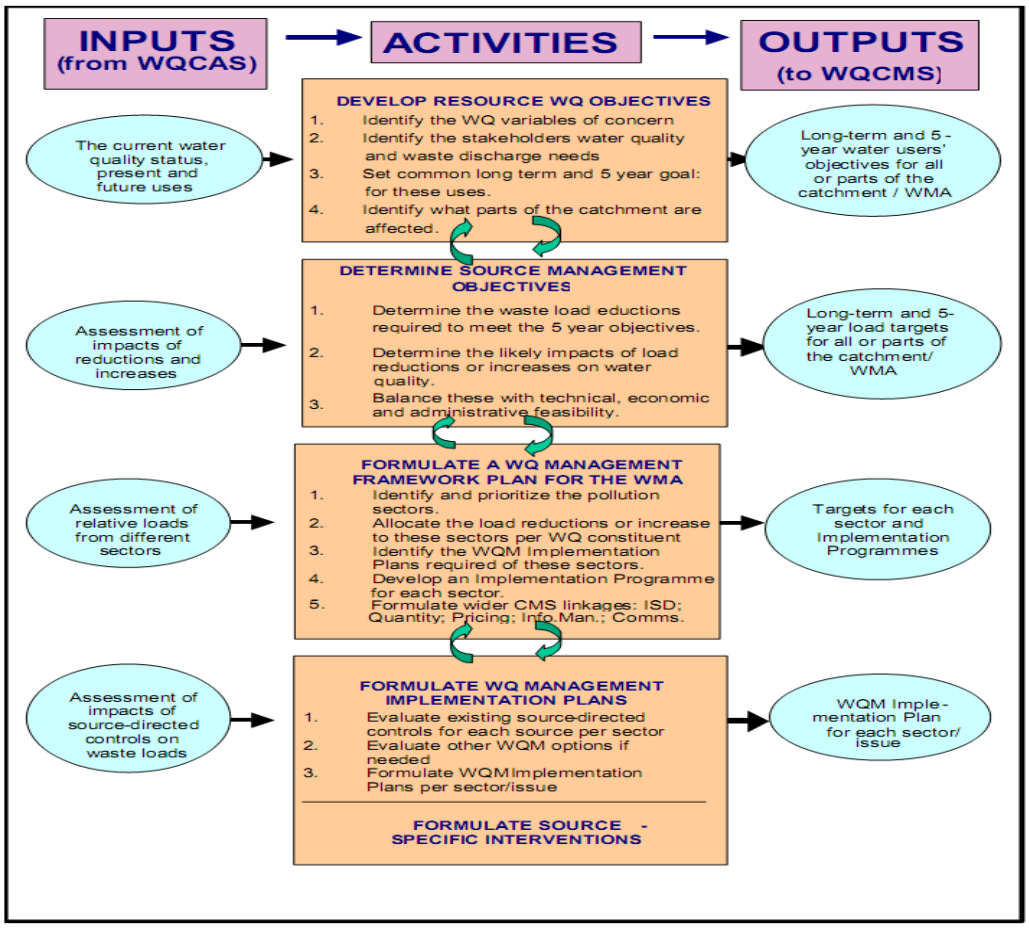

Figure 3: Water Quality Component of the Catchment Management Strategy

Data interpretation: In this paper the water demand in the domestic and industrial sectors could increase substantially. We assume that the average domestic water demand would increase from 85 litres per capita per day (lpcd) in 2010. In a rapidly booming economy, we expect the contribution of the industrial sector to increase very much, and the industrial water demand to also increase accordingly. However, the dearth of information the types of industries, their growth, water use and the extent of recycling is a constraint for future projections in the context of increasing economic growth. Figure 3 gives a schematic representation of how various government agencies are involved in supplying drinking water to the rural people.

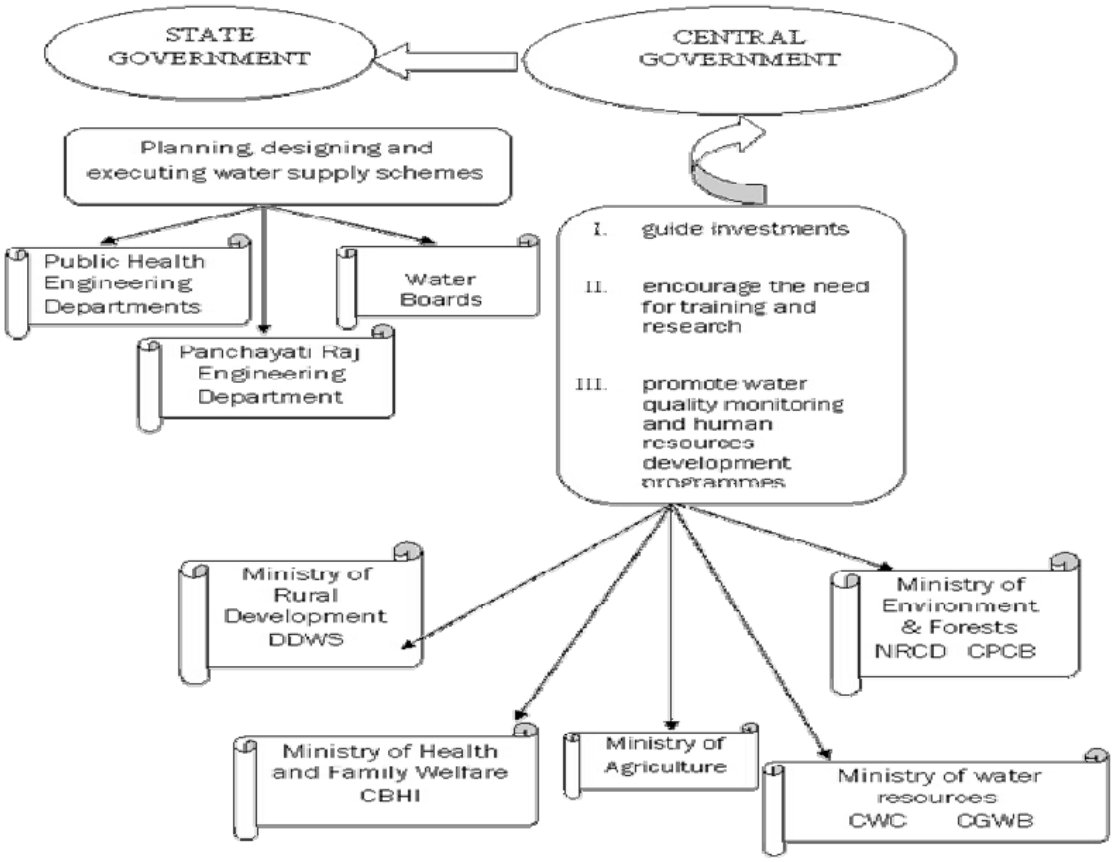

Figure 3-: Responsibility of various agencies in drinking water supply

In 2010, a Central Pollution Control Board countrywide survey found 66 per cent of samples had unacceptable organic values, while 44 per cent had coliform. Chemical contamination through over-exploitation of groundwater, resulting in excessive iron, nitrates, arsenic and fluoride is equally widespread. Arsenic contamination is now grim reality in, ironically, almost the entire Gangetic belt notwithstanding its ample rivers while fluoride contaminated drinking-water similarly affects 20 States. Reports say that there are high fluoride-levels in drinking-water in villages with a prevalence of deformed children from Madhya Pradesh, Jharkhand, Assam and Uttar Pradesh. The problems of chemical contamination are thus prevalent in India with 1, 95,813 habitations in the country are affected by poor water quality (Water aid background paper, 2008). Fig 4 and 5 indicate the crisis that exits in safe drinking water supply in terms of quality. It is surprising to note that states like Bihar and Haryana do not show any problem related to chemical contamination.

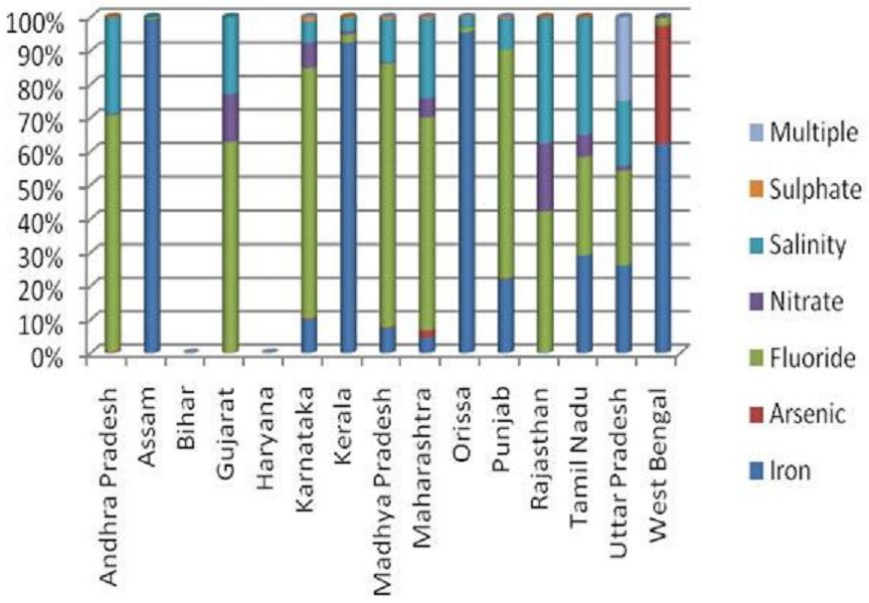

Figure 4- : Percentage of affected habitations chemical contamination wise (as per ARWSP Norms)

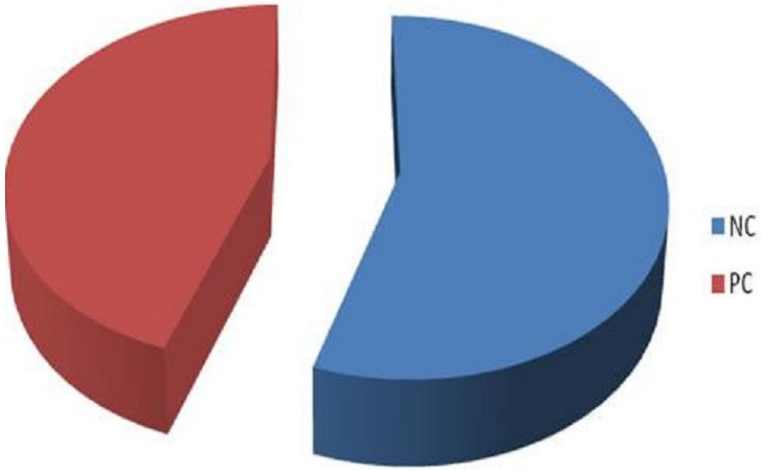

Figure 5: Percentage of chemically contaminated habitations -- Not Covered (NC) and partially covered (PC) (as per ARWSP Norms)

CONCLUSION: In India, interests in group water supply and sanitation ventures have expanded relentlessly from the 1stplanto the10thplan. In any case, the health benefits regarding decrease in waterborne disease have not been equivalent with the speculations made. In spite of the fact that health sector is bearing the weight of water

and sanitation related infectious diseases, directly it doesn't have satisfactory organization or mastery for observing and reconnaissance of group water supply programs in the country. India has seen huge change in water supply with expanding scope of territories and a huge volume of monetary assets made accessible. A progression of plans are aimed at improving the supply of drinking water for homes and now to monitor and ensuring quality The previous couple of years have seen more prominent accentuation on water quality observing and observation with particular portion being made under Central stipends. There has been incredible concentrate on setting up and overhauling research facilities at the state and area levels, and on water observing through field testing packs. Be that as it may, mindfulness, observation, checking and testing, moderation measures, accessibility of substitute water sources and appropriation of clean practices keeps on residual barricades. There is a need to advance clean review alongside the group based water quality monitoring and reconnaissance at the grassroots level as a system to recognize issues and to take restorative measures. One of the greatest challenges has been the merging of different offices related with water: water and sanitation programs have operated largely in segregation from programs in health and education. A more extensive approach is required where water and sanitation issues are taken a gander at with the point of decreasing disease, improving cleanliness, improving educational levels and lessening neediness. Safe drinking water can be guaranteed, if we set our brain to address it.

REFERENCES:

1. DWAF/WRC (2000). Generic Framework for Catchment Management Strategies. Report commissioned by Directorate Catchment Management, DWAF, Pretoria.

2. G Quibell, et al (2000). Case Studies of Non-Point Source Assessments in South Africa by, Water Research Commission, Pretoria.

3. Pegram G and A Görgens (2000). A Guide to Nonpoint Source Assessment to Support Water Quality Management of Surface Water Resources in South Africa. Water Research Commission Report. Pretoria.

4. STOWA/EDS (1998). DUFLOW for Windows, Version 3.0. EDS. Leidschendam. The Netherlands.

5. Görgens A, Pegram GC, Uys M, Grobicki A, Loots L, Tanner A, Bengu R. (1998) Guidelines for Catchment Management to support integrated water resource management in South Africa. WRC Report No KV 108/98.

6. Görgens A, A Bath, A Venter, K De Smidt, and G Marais (1994). The applicability of hydrodynamic reservoir models for water quality management in stratified water bodies in South Africa. WRC Report No. 304/1/93.

7. DWAF/WRC (1999). A Framework for Implementing Non-Point Source Management under the National Water Act. WRC Report No TT 115/99 and DWAF Report No WQP 0.1. Report commissioned by DWAF and the Water Research Commission. Pretoria.

8. DWAF/WRC (1998). A Strategic Plan for the DWAF to Facilitate the Implementation of Catchment Management in South Africa. WRC Report No KV 107/98. Report commissioned by DWAF and the Water Research Commission. Pretoria.

9. Dallas HF, JA Day, DE Musibono, EG Day (1998). Water quality for aquatic ecosystems: tools for evaluating regional guidelines. Water Research Commission Report 626/1/98.

10. Bath A, C Reid and A Görgens (1997) Amatola Water Resource System Analysis: Water Quality Modelling. DWAF Report No. PR 000/00/1798.