RESEARCH FRONT

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WATER CONSERVATION PROBLEMS IN INDIA

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ABSTRACT

Anyone who can solve the problems of water will be worthy of two noble prizes - one for peace and one for science' John.F.Kennedy

More than two billion people worldwide live in regions facing water scarcity and in India this is a particularly acute crisis. Millions of Indians currently lack access to clean drinking water, and the situation is only getting worse. India's demand for water is growing at an alarming rate. India currently has the world's second largest population, which is expected to overtake China's by 2050 when it reaches a staggering 1.6 billion, putting increasing strain on water resources as the number of people grows.

Water is fast becoming a scare resource. India's growing economy will translate into increased demand for water across different sectors. Indian industry is realizing the importance of water, its conservation and management. This is not only because of the growing scarcity and poor water quality impacting industrial operations, but also the fact that Indian companies are becoming conscious of their responsibility to conserve natural resources.

The study will also make an attempt to better understand the risks facing each of the water intensive industrial sectors. With a population of more than 1.2 billion, an agricultural economy based on intensive irrigation, and fast developing large urban industrial centers, there are a wide range of activities that have the potential to jeopardize the sustainability of available water resources in India.

KEYWORD: Water Conversation, Problem of facing water, cleaning water.

INTRODUCTION

There is a universal reverence to water in almost all of the major religions of the world. Most religious beliefs involve some ceremonial use of "holy" water. The purity of such water, the belief in its known historical and unknown mythological origins, and the inaccessibility of remote sources, elevate its importance even further. In India, the water of the river Ganga is treated with such reverence.

- The densely populated Ganga basin is inhabited by 37 per cent of India's population.
- The entire Ganga basin system effectively drains eight states of India.
- About 47 per cent of the total irrigated area in India is located in the Ganga basin alone.
- It has been a major source of navigation and communication since ancient times.
- The Indo-Genetic plain has witnessed the blossoming of India's great creative talent.

The needs of India are unique. Nowhere else in the world does population growth and poverty play such a large role in affecting water resource issues? This reflects the importance of providing for basic human needs to ensure that the livelihoods of all can be improved. In the case of rural India, poverty and reduced access to safe water resources has limited the ability of the poor to improve their situation, which has only served to perpetuate the poverty cycle especially among rural populations and women.

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Water Consumption in India

Average water consumption around the world is about 53 liters per head per day. India expects to soon have only about 20 liters available per head per day. There has been extensive droughts lasting a long time and now with global climate change, things will become even more difficult. The glaciers are receding from the Himalayan Mountains. They are about one fifth the sizes they were about 60 years ago.

Implementation problems

The implementation of a project of this magnitude over the entire 2,500 km stretch of the river, covering 25 towns and crossing three different provinces, could only be achieved by delegating the actual implementation to the state government agencies which had the appropriate capabilities. The state governments also undertook the responsibility of subsequently operating and maintaining the assets being created under the programme

The overall inter-agency co-ordination was done by the GPD through the state governments. The defined project objectives were ensured by the GPD through appraisal of each project component submitted by the implementing agency. The overall fiscal control was exercised by the GPD by close professional monitoring of the physical progress through independent agencies.

Comprehensive Study of Water Risks across Industrial Sectors in India

The preliminary study as showcased here will ultimately evolve into a comprehensive cross-(industry) sectorial and geography specific water risk analysis. This endeavor would be the first of its kind in India and will provide the necessary information base for understanding the inherent and complex water and climate related risks and uncertainties - key in planning for water resources management for sustainable industrial, agricultural and economic growth.

Water Availability and Use

It was found that groundwater is the major source of water for different industrial sectors across India. 55% of those surveyed used groundwater with or without some other source of water (Figure 2). Surface water, with or without another source of water accounted for 51% of water sourcing; while municipal water, with or without another source accounted for 44% of water sourced

Our long term objective thus is aimed at the following broader questions:

(i) Which industrial sectors are at most risk and what kind of data needs to be collected and updated?

(ii) Which stakeholders, from central and state agencies should be participating on a regular basis?

(iii) How can existing ministries and agencies (Ministry of Water Resources, Ministry of Environment and Forests, Ministry of Agriculture.

(iv)How can we make this process of near real time data access self-sustaining throughout India?

REVIEW OF RELATED LITERATURE

Helsinki Rules, 1992: Europe now (in 2012) inviting other nations to join?

• UN Treaty on Non Navigation Use of Water, 1997: On brink of being effective with 35 required ratifications like to be in place?

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• WCD Report on Dams and Development, 2000: India participates in the process but "rejects" the outcome
• Others: UNEP, UNDP, UN Water, Ramsar, CBD, IPCC, UNFCCC, climate and water adaptation: big scope, little impact?
• Nov 2011 saw an International Conference pre Rio+20 on how there is a nexus between water, food and energy security that was useful, though they forgot the fourth leg: environment!!

Scientific awareness

There are 14 major river basins in India with natural waters that are being used for human and developmental activities. These activities contribute significantly to the pollution loads of these river basins. Of these river basins the Ganga sustains the largest population. The Central Pollution Control Board (CPCB), which is India's national body for monitoring environmental pollution, undertook a comprehensive scientific survey in 1981-82 in order to classify river waters according to their designated best uses. This report was the first systematic document that formed the basis of the Ganga Action Plan (GAP). It detailed land-use patterns, domestic and industrial pollution loads, fertilizer and pesticide use, hydrological aspects and river classifications. This inventory of pollution was used by the Department of Environment in 1984 when formulating a policy document. Realizing the need for urgent intervention the Central Ganga Authority (CGA) was set up in 1985 under the chairmanship of the Prime Minister.

The future

Apart from the visible improvement in the water quality, the awareness generated by the project is an indicator of its success. It has resulted in the expansion of the programme over the entire Ganga basin to cover the other polluted tributaries. The GAP has further evolved to cover all the polluted stretches of the major national rivers, and including a few lakes. Considering the huge costs involved the central and state governments have agreed in principle to each share half of the costs of the projects under the "National Rivers Action Plan".

The state governments are also required to organise funds for sustainable O&M in perpetuity. Initially, the plan was fully sponsored by the central Government.

The GAP is a successful example of timely action due to environmental awareness at the governmental level. Even more than this, it exhibits the achievement potential which is attainable by "political will". It is a model which is constantly being upgraded and improved in other river pollution prevention projects. Nevertheless, some very important lessons have been learned which are being incorporated into further projects. These include lessons learned about poor resource recovery due to poor resource generation, because of the lower organic content of Indian sewage.

This may be due to less nutritious dietary habits, higher water consumption, fewer sewer connections, higher grit loads, insufficient flows and stagnation leading to bio-degradation of the volatile fractions in the pipes themselves. The assumed BOD design loads of the plants were in some cases, considered much higher than the actual BOD loading. This was due to a lack of practical experience within India and the fact that western experiences were not entirely appropriate.

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CONCLUSION

The most important lesson learned was the need for control of pathogenic contamination in treated effluent. This could not be tackled before because of a lack of safe and suitable technology but is now being attempted through research and by developing a suitable indigenous technology, which should not impart traces of any harmful residues in the treated effluent detrimental to the aquatic life. This is an aspect difficult to control in surface waters in tropical areas, but it is very important for the Ganga because the river water is used directly by millions of devout individuals for drinking and bathing.

Water should be high on the agenda of corporates because the future of businesses depends on the sustainability of water resources, which are increasingly under pressure. Clear implications of a water-constrained world include loss of license to operate, increased production costs, tainted brand image and adverse impact on the health of employees and the communities of operations. Despite clear signs of a pending global crisis, only a few large corporates have made addressing the challenge a high priority.

A majority of the corporate water-related reporting has been qualitative, with companies providing descriptions of various water stewardship initiatives, principles, policies and programs, with a goal to reducing their internal water usage. The quantitative data however, has been more limited and limit comparison across similar or different sectors. At the national scale, data collection, assimilation and dissemination have been the exclusive role of government departments handling water. However, there are several problems with this mechanism. Problems range from lack of data in a digital form that can to be used, non-availability of primary data in the public domain, to the inability for a real time analysis and feedback on the accuracy.

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