

World Water Day

March - 2008

*On the theme of
Sanitation*



Celebrated by:

Pakistan Engineering Congress

Pakistan Engineering Congress

(4th Floor) PEC Building, 97-A/D-1, Liberty Market, Gullberg - III, Lahore.

Phone: 5784237 - 5784238 Fax: 5784236

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Compiled and Edited

By

Engr. S. M. A. Zaidi

Vice - President / Convener Publication Committee

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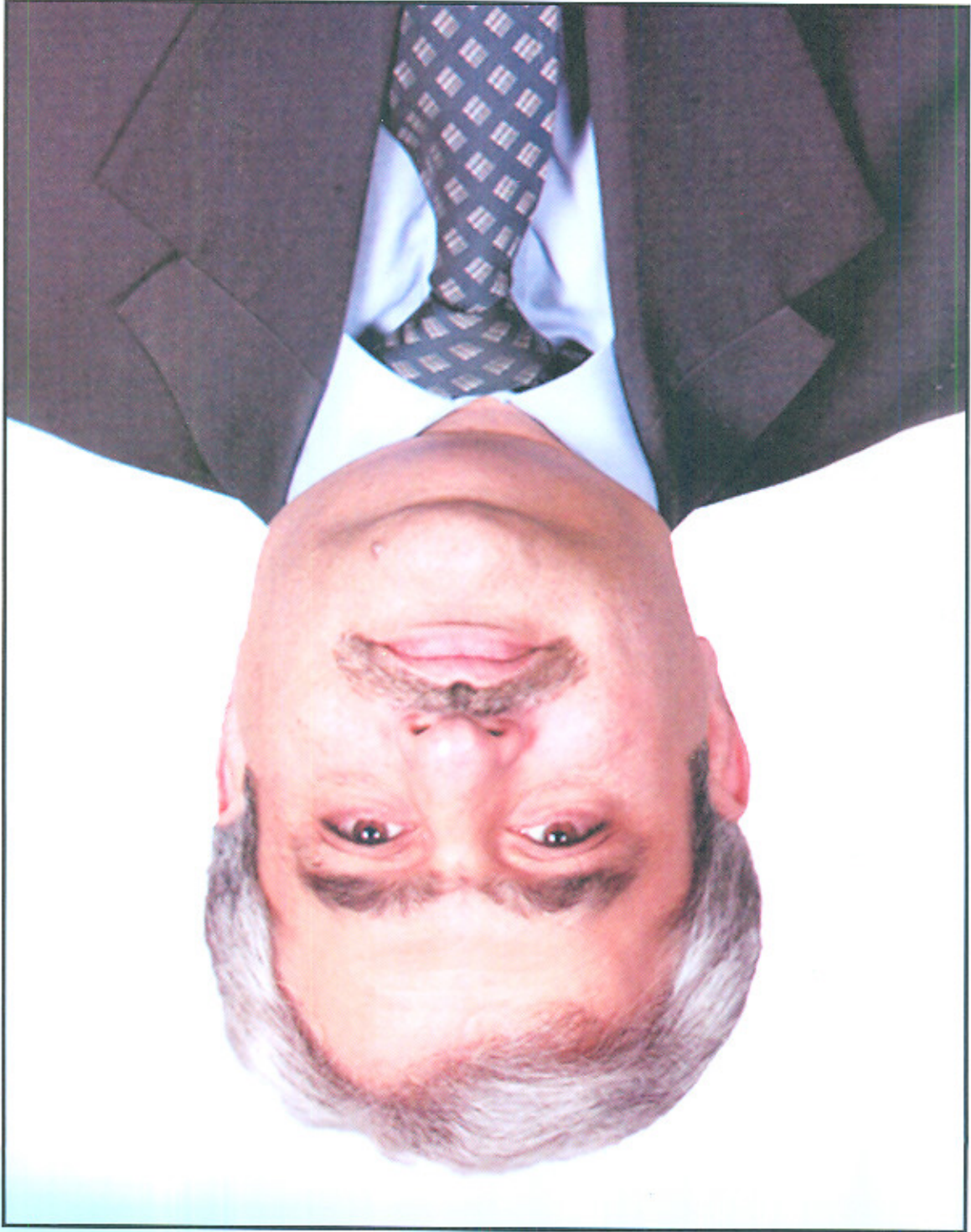
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Foreword
By
Engr. Ch. Ghulam Hussain
on
World Water Day 20th March 2008

Water is the rare commodity on earth on which hinges the existence of all biological and botanical life comprising human, animal, avian, all sorts of other creatures and trees and shrubs etc. Where there is water, this life is seen humming and throbbing and where it is non-existent, it is all desolate. Again water availability is not limitless and whatsoever it is, it is fast depleting with astronomical growth of population. The savants and visionary think-tanks foresaw that time was fast approaching when this rare commodity would slip out from the reach of the present generation. This phenomena would then culminate in wars between nations for garbling this commodity. Such an engagement would in all proportions be termed as struggle for existence.

Apprehending such a stark writ of the wall situation, the nations of the world mooted the acute problem to discuss as to how best water resources could be tapped, conserved and managed for usage of water in an orderly and frugal manner.

As a result, in 1992 during the “United Nations Conference on Environment and Development (UNCED)” in Rio de Janeiro the comity of nations took the initiative for observance of World Water Day starting on 22nd March of every year as of 1993.

Further, UNO during its 58th Session declared the period from 2005-2015 as the international decade for Action “Water for Life”. Starting on World Water Day – 22nd March 2005 it marked the start of it. The water for life decade 2005-2015 would boost the chances of achieving international water goals including those in UN millennium declaration. The aspects of available water resources, their conservation and usage are manifold. Every nation is engaged in addressing to the issue in the perspective of its respective requirements. In the context of Pakistan every year the World Water Day is observed with Seminars/Symposia where technical papers on various aspects of the issue are presented and discussed to enlighten and educate the engineers, scientists and the public at large.

The symposium on World Water Day for the year 2005 was held on 22nd March by Pakistan Engineering Congress in collaboration with Water and Power Development Authority (WAPDA). Six technical papers by eminent engineers/experts were then presented on the diverse fields from Large Dams to drinking water and public hygiene.

At the World water Day on March 22, 2006 eight technical papers on topics like:

- Risk perception towards flooding and environment in low income urban communities
- Bringing drainage towards integrated water resource management in the Indus Basin.
- Introducing Modern Environment friendly Technology for Water Management in Customary, Environment of Pakistan and most important.
- Water as instrument of peace, the vision of Indus Waters Treaty 1960' were presented and discussed.

In the last paper Engr. Jamaat Ali Shah, Pakistan commissioner for Indus Waters dwelt at length on the pros and cons of the historical treaty where three Eastern Rivers of the system i.e the Sutlej, the Beas and the Ravi were apportioned to India and the remaining three western, the Chenab, the Jhelum and the Indus fell to the lot of Pakistan with the proviso that India could use run of the river water at these rivers for generation of Hydro power. Quite arbitrarily India has constructed huge number of Dams for water conservation and diversion or exploitation of releases to meet its own ends and to cause huge devastation of irrigated lands of Pakistan.

At World Water Day in March 2007, the secretary Pakistan Engineering Congress in his key note address drew the attention of the audience about the unpleasant yet undeniable staggering figure of water availability the world over. He stressed that one in five people in Asia and the Pacific lacks access to safe drinking water. Two out of three people in the world will face water shortages by 2025. But the burden of water related problems falls most heavily on the poor. The vast majority of these people live in the rural areas of Asia. They are particularly vulnerable to water scarcity, pollution, drought and flooding. Problems with water are miserably affecting their health, productivity and quality of life. Improving access to clean water for poor people is a critical element in the battle against poverty and integrated water resources management.

In the context of Pakistan, he said development of water resources is essentially required for the sustained economic development.

Agriculture provides 90 percent of food and fiber requirements while the remaining 10 percent is contributed by "barani" (rainfed) agriculture, he went on to remark.

Due to construction of large number of irrigation networks and a huge number of tubewells, irrigated areas in Pakistan have increased from 8.40 Mha at the time of Independence to 18.9 Mha at present.

He went on to say, that storage capacity of reservoirs constructed on the Indus and its tributaries provided overall increase of about 22 percent in the canal supplies as compared to the pre-dams scenario. However, due to progressive sedimentation of these reservoirs, the storage capacities of these dams was anticipated to reduce by over 6.03 MAF by the year 2010 which is equivalent to a mega reservoir.

On the other side the current population of about 150 million was projected to become 220 million in 2025. Hence, without building another major storage dam by the year 2015, it would not be possible to feed the growing population. Accordingly immediate measures are required to start construction of Kalabagh, Basha and Akhori dams.

Eight technical papers on the topic of combating water scarcity were presented and discussed. Most important was the one presented by Usmane Ghani joint commissioner (Pakistan commissioner for Indus waters) on coping with water scarcity and Indus waters treaty vision. He dwelt at large on the signing of the treaty and highlighted major issues that have cropped up between Pakistan and India which are bringing to bear serious repercussions due to arbitrary mis-appropriation of waters of three western rivers by India.

This year 9-technical papers were presented and discussed on the subject of waste water and solid waste treatment and recycling for combating environmental and public health hazards etc.

All the proceedings of the World Water Day 2008, from address of welcome by the President Pakistan Engineering Congress to key note address by the Director General (Env) Govt. Of Pakistan, address by Chief Guest, Engr. Muhammad Mushtaq Chaudhry, Member (Water) WAPDA and the papers presented at the Seminar form part of this volume.

There can be many more topics for the technical papers which can be attended to in this specific field at the future moos.

There has been a great demand from the Engineering Congress Members for publication of the above papers in a memorable volume.

Papers published in this volume are open for written discussion where Engineers and Scientists are invited to take part. This is an important issue which merits continuous attention of the professionals as well as decision makers. Depending upon the volume of discussion on papers received, the congress would like to publish a discussion Volume in the intervening period 3 months before the next "World Water Day" on March 22, 2009.

Address of Welcome
By

Engr. Husnain Ahmad
President

Pakistan Engineering Congress

At

World Water Day March 2008

Engr. Muhammad Mushtaq Chaudhry Member (Water) WAPDA, respected Scholars, Executive Council Members, Distinguished Guests, Fellow Engineers, Ladies & Gentlemen.

Assalam o Alikum,

It is the importance of water in the life of individuals and nations that the United Nations Conference on Environment Development (UNCED) held in Rio de Janeiro in 1992 declared 22nd March as “World Water Day”. Since then, it is being celebrated the world over.

At the occasion of World Water Day experts on “Water Resources” speak on the Theme, and the related issues laid down for that particular year. The theme for this year is “Sanitation”.

In keeping with the Commitments of Millennium Development Goals (MDG’s) and the Dhaka Declaration at the First South Asia Conference on Sanitation (SACOSAN) held in Dhaka in 2002, a National Sanitation Policy was laid down in 2006, the main features of which are as under:

Sanitation facilities are available to 42% of 155 million people i.e. 65.1 million People in Pakistan. Rest 58% people i.e. 89.9 million are without any Sanitation facility.

It was decided that out of 50% of 89.9 Million of these have nots about 45 Million people will have Sanitation and safe drinking water facility by 2015 and by 2025 remaining 45 Million people will also enjoy the facility.

This will involve extending of following facilities to the people.

- Safe drinking water.
- Sewerage facilities, which are almost non – existent, particularly in rural areas except in few big cities.

- Underground sewerage system is highly inadequate and being very old is collapsing.
- Public toilets are a dire necessity from both hygienic / health safety viewpoint and almost non – existent even in big cities. Providing public toilets and their proper management is unavoidable for ensuring safe environment.
- Open sewerage / drains in big cities, a common sight, are highly hazardous for public health; source of pollution and diseases. These need to be made underground / covered without any delay.
- Katche Abadis / Slums are without any drainage facility and are a stinking sore in the socio – economic fabric of society i.e. a breeding ground of diseases.
- Removal of municipal, Industrial / Agriculture waste in a sustainable manner and to be deposited at a safe place away from the dwellings.
- Management and safe disposal of hazardous medical waste of hospitals / dispensaries (both of Public and Private Sector) as committed in Basel conventions.

In this connection, the installation of “Incinerator” at the Hospitals is a sine-qua-non. However, the position is not very encouraging. Thus the position at Lahore is as under:-

- No incinerator exists at MAYO Hospital. Their waste is sent to Shalimar Hospital.
- Sheikh – Zaid Hospital has an Incinerator.
- Children Hospital has an Incinerator.

- Position at Rawalpindi was previously not good. Now 2 Nos. Incinerators are being installed to cater to the health waste of all Hospitals.
- One incinerator is available at Pakistan Institute of Medical Sciences (PIMS) Medical Centre; and
- One Incinerator is at Post Graduate Medical Institute Lahore.

Civic Facilities.

Position of basic civic services to urban centers of Punjab especially in relatively under – developed areas of Southern Punjab is a cause of concern. Rapid urbanization in the towns / cities of these areas has resulted in mushroom growth of Katche – Abadis / slums devoid of civic amenities ensuring unhygienic living, disease, poverty and degradation of environment. Realizing the gravity of the issue, Government of Punjab with financial support from Asian Development Bank will be implementing following Schemes in Multan / Muzaffargarh, Bahawalpur, Khanewal & D. G. Khan Districts at a cost of Rs. 7.5 billion.

The strategic interventions and targets of the project include:-

- Coverage of municipal services in 425 low-income areas (21 towns of 6 districts).
- Provision of safe drinking water in seven (7) towns.
- Construction of sewerage / new waste water treatment plants (19Nos.).
- Construction / relocation / rehabilitation of slaughter houses (11 Nos.)
- Incremental land development for the poor in 01 TMA (Mian Channu)
- Municipal Management System development in 21 towns.
- Social Community Mobilization and Industrial Development.

It is hoped that timely and proper implementation of these projects will go a long way in arresting the environmental degradation and help improve the prevailing situation.

Domestic Water – Supply / Water Quality

No doubt population increases (and even that at a fast rate of 2.12%) adversely affects socio – economic progress.

Nonetheless, the journey of Pakistan from a “Water Surplus” country to a “Water Stressed” Country in 2006-2007 speaks volumes about the indifference of the society in dealing with this precious natural bounty.

Presently, the per capita availability of water in the country is little less than 1700 cubic meters per year (water stressed threshold). It is at Number 17 out of 23 developing countries, which is a cause for concern. If emergent actions are not taken to conserve and efficiently manage the drinking water supply, the country might become a “Water Short” country i.e. per capita 1000 cubic meters per year threshold. Asian Development Bank has advised Government of Pakistan to spend at least 1% of GDP (i.e. Rs.8.4 billion) instead of present negligible 0.25% (i.e. Rs.2.1 billion). It is ironical that at the same time 30-40 MAF of water is flowing un-tapped into the sea every year and a further 8 to 10 MAF of water is lost in 87000 watercourses. The panacea for the water issues is construction of Large / Small Dams, Lining of Canals & Water Courses on war footing. There is another dimension of the water – its quality. Here the situation is too grave and requires urgent remedial measures to avoid irreparable damages to people’s health / environment.

- It has been contaminated due to unchecked Industrial, Household & Agriculture activities.
- Due to improper sanitation system, the collapse of age old sewerage system, the effluents are continuously entering the water – pipes.
- A large segment of urban population lack availability of piped water. Ground water used by them through hand / electric pumps is polluted water.
- Water quality in rural areas is worse due to septic water tanks; entering of effluents / sewerage water through seepage in ground.

Toxic Waste

The unchecked and untreated toxic waste flowing freely in the canals / through the Storm Drains in the Rivers / Seas is another problem of alarming and full of catastrophic proportions.

A study carried – out in Bin – Qasim port area has revealed that the fertilizers / chemical & other plants located in that area are doing havoc to Human lives / live – stock and the Socio – economic fabric of the country.

- The proportion of the Ammonia present in the toxic waste has been found 1400% higher than the permissible limits.
- The content of Ammonia in the toxic waste has been found to be 560 mg / liter as against the “National Environment Quality Standards (NEQ’s) of 40 Mg / liter.
- The concentration of “Chloride” in the total dissolved solids (TDS) has been found 3176 mg / liter against permissible limit of 1350 mg / liter.
- The value of chemical Oxygen was found 194 mg/ litre against NEQ’s of 150 mg / liter.

Resultantly, the Ghara Creek / Korangi Creek / Kadero Creek have been visibly polluted. The installation of treatment plants and their working is a separate matter but the most important factor for controlling pollution is the fear of “un-announced” Inspections which appear non-existent other wise the situation should not have been so worse. The position of Canals / Rivers in other parts of the country is no better.

Electronic Waste

Massive and unchecked electronic waste consisting of used computers and obsolete electronic equipment is another serious hazardous waste. The equipment are being freely imported in the guise of “Second Hand Machinery” without any check / verification and in violation of Basel convention on the control of Trans – Boundary movement of Hazardous Wastes and their Disposal. These Equipments contain high amount of hazardous materials i.e. Lead, Mercury, Chromium and plastics. The un-useable materials / parts are removed and the rest after re-cycling is dumped in the seas, landfills. The health of persons coming in contact with the equipments can be seriously affected.

Disposal of Solid Waste

The disposal of solid waste especially of Towns / Big Cities is causing a serious “Sanitation” challenge. Apart from villages (no proper awareness has been inculcated in the people residing in villages), all the streets, roads and mohallas of towns and cities (including mega cities) are littered with solid waste and are a stinking sight.

The Departmental solution has failed and the “Karachi Solid Waste Management” Department has taken a bold step in awarding the contract for it to a Chinese firm (20-Year contract).

- The company will invest \$ 250 million for development of one more landfill site etc.
- The company will be collecting about 8000 Tons of solid waste from door to door.
- Re-cycle the waste and transfer the garbage to eight (8) garbage stations for onward disposal at landfill sites in the suburbs of Karachi.
- At a later stage, the Chinese firm will install a “Waste Energy Plant” to generate 560 megawatt of electricity.
- Disposal of re-cycled material will generate revenue 15% of which will be passed on by them to City District of Karachi.

The need of the “hour” is that the solid waste management function be “Privatized” if the ground situation is at all to be improved materially.

Recommendations

Ladies and Gentlemen: Now I take your indulgence to offer some humble recommendations.

- Supply of piped water to villages / towns / cities should be accorded priority being an essential human need.
- Conservation and efficient & economical usage of water is inevitable to keep the economic machinery operating un-interrupted.

- All open drains need to be made underground / covered.
- At least 1% (one percent) of GDP needs to be allocated for sanitation.
- Regulations concerning municipal / agriculture / industrial waste of fertilizer plants / chemical factories / tanneries and refineries need stringent enforcement & punishment for violators.
- Awareness for adoption of “Sanitation” measures should be inculcated in village people through establishment of model villages.
- There is a mushroom growth of Private Hospitals / Clinics and their Hazardous Waste disposal needs to be regulated through legal enactments.
- Every Hospital should be equipped with its own incinerator.

Thank you,

Pakistan Paindabad
