

## Working Paper on Formulation of a National Drinking Water Policy

1. Water is the most important basic human need, the most widely supplied and used public utility. Governments are responsible for providing this basic service as a “public good”. The General Assembly of the United Nations has set the objective to "halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation".<sup>1</sup>

2. Contaminated drinking water is an undisputed determinant of health, mentioned amongst ten (10) risks to health in the World Health Report (WHO-2002). A hospital admissions' data of WHO mentions 25-30% admissions connected with water-borne bacterial and parasitic conditions. According to the Pakistan National Conservation Strategy report of 1992, about 40% of communicable diseases are water-borne. Major diseases linked to drinking water in Pakistan are diarrhea, gastro-enteritis, typhoid, cryptosporidium infection, giardiasis, intestinal worms and some strains of hepatitis. According to International Union on Conservation of Nature (IUCN), 60% of infant deaths are caused by water-borne diarrhea in Pakistan.<sup>2</sup>

3. Improving people's health through provision of safe drinking water has long-term results through people's healthy participation in national economic development. The importance of investing in preventive health has been greatly underestimated, not only by analysts but also by developing-country governments and the international donor community. Increased investments in health would translate into hundreds of billions of dollars per year of increased income in the low-income countries.<sup>3</sup> While millions are invested in rural drinking water supply schemes, seldom the question is asked if the water-source itself is protected. Protecting the water-source or eliminating pollution in transporting water will be a fraction of the total cost but it will save at least about 40% in family health costs resulting from polluted water supply<sup>4</sup>.

4. Pakistan lies in an arid and semi-arid climate zone. Rainfall in Pakistan is markedly variable in magnitude, time of occurrence and its aerial distribution. Water availability per capita in the country was more than 5,000 cubic meters in early 50s and is around 1,300 cubic meters

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<sup>1</sup> Target 7, sub-target 10 of Millennium Development Goals

<sup>2</sup> <http://edu.iucnp.org/edu/water.htm>

<sup>3</sup> Macroeconomics and Health: Investing in Health for Economic Development Report of the Commission on Macroeconomics and Health, December 2001 <http://www.cid.harvard.edu/cidcmh/CMHReport.pdf>

<sup>4</sup> Usman A. Iftikhar, 2001, IUCN/WSSD

per person presently. With rapidly growing population and non-judicious use of water, per capita water availability is bound to decrease further in coming years. Projections of population growth together with increasing and competing water needs indicate further reduction in per capita water availability necessitating water conservation measures. The average annual flow-rates of major rivers (Indus, Jehlum, Chenab, Ravi, Sutlej and Kabul) have shown a major decline from 189 Million Acre Feet (MAF) in 1961 to approximately 93 MAF in 2001-02.<sup>5</sup> There has been little thrust on conserving water. Large quantities of municipal water are used for non-potable uses, while treatment of wastewater and its re-use continue to be neglected. Specific measures need to be undertaken by Local governments to optimize the available water and to conserve water sources.

5. Pakistan's population was estimated to be 137.51 million in 2000, with 33.3 percent urban and 66.7 percent rural.<sup>6</sup> As per projections the country's population will exceed 200 million after 2020; urban-rural ratio will drastically change during the period as well and become equal by 2025. Considering the present status of meager civic facilities to urban population, it is very likely that pressure on already shrinking water sources will also increase manifold in terms of quantity and quality. Thus the gap in water demand and availability is expected to widen further in the years to come. Present estimates show that in all major cities the per-capita water availability falls short of the minimum requirement.<sup>7</sup>

6. Inter-sectoral water competition such as between agriculture, domestic and industrial requirements is also likely to grow. It is estimated that domestic and industrial water uses would grow to around 15 percent of the available water resources as against the present 3 percent. There is a need for greater efficiency in the use of water and fair allocation to balance the limited supply with rising demand.

7. Water for human consumption should be free from contamination to ensure good health. Some of the reasons of bad water quality are increasing water scarcity; pollution caused by the domestic, industrial and agriculture water consumption patterns, and lack of efficient wastewater treatment systems. Specific causes of impaired water quality are numerous, including:

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<sup>5</sup> Pakistan Water Gateway website

<sup>6</sup> 1998 census, Population Census Organization

<sup>7</sup> Supplement to the Framework for Action for Achieving the Pakistan Water Vision 2025 -Civil Society Response to FFA, Pakistan Water Partnership, July 2001)

agricultural runoff containing the residues of fertilizers, pesticides and other chemicals, industrial pollution, either directly from the facility, or indirectly from the leaching of chemicals from sanitary landfills, present mostly within city premises. The bad quality of water has been highlighted in almost all reports carried out by the Pakistan Council for Research in Water Resources, which mentions an array of bacterial, protozoal, fungal and organic contamination, the most recent being presence of Arsenic in drinking water samples from 10 districts of southern Punjab.<sup>8</sup> Despite the alarming situation, there exists no regular mechanism to monitor water quality, which leads to delays in mitigation measures in the event of emergencies. One such emergency occurred in four villages of Punjab in 2000, where an epidemic of Skeletal Fluorosis – a disease resulting in life-long disability – was caused by unmonitored excessive fluoride in drinking water. News clippings attracted attention of the Government towards Kalalanwala bone deformation issue among children. Preliminary investigations by local authorities could not uncover the root cause.<sup>9</sup> Another such debacle occurred in 2004, when over 100 people died of gastroenteritis from the supply of contaminated drinking water in Hyderabad.

8. Drinking water supply and management is a provincial subject, implemented through Tehsil Municipal Administrations. According to the Local Government Ordinance 2001 local governments are “responsible for supply of wholesome water, sufficient for public and private purposes.”<sup>10</sup> Public water supply is mostly limited to the urban population; even out of these only about 60-70% population<sup>11</sup> is served through water supply pipelines. Rural consumers that form 66% of our country’s population<sup>11</sup> get water on their own mostly from ground water sources and in some cases from surface sources. The rural drinking water sector is almost completely uncatered for and drinking water is rarely if ever tested for quality.

9. Systems at the water supply agencies show a multitude of problems – the treatment systems are not adequate, no quality testing laboratories at district level, there is lack of trained staff, materials, maintenance and finances at the district level; the water treatment plants lack trained staff, lack appropriate funds to purchase / repair equipment when required, or are grappling with cumbersome procurement procedures. To add insult to injury pipelines are not

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<sup>8</sup> Water Quality Status in Pakistan – PCRWR, 2001-02

<sup>9</sup> “Stepping forward towards better Environment”, An article by Asif S. Khan, Director General, Pakistan Environmental Protection Agency

<sup>10</sup> Schedule VI – Sections: 94, 95, 96, Local Government Ordinance, 2001

<sup>11</sup> Population Census Organization, Government of Pakistan, 1998

replaced after completing their life resulting in sewage-mixed highly contaminated water reaching end-users, posing major public health threat along with economic and social burden.

10. As a result of low tariffs, inadequate cost recoveries and administrative inefficiencies, the financial position of urban water supply and sewerage sector agencies is very poor. In the medium and small towns these entities typically do not collect sufficient revenue to even cover the operating expenses. The issues of municipal finance for enhancing infrastructure investments, including water and sanitation services funds can be addressed comprehensively, within the new devolved set-up, where considerable and/or total responsibility has been transferred to the Provinces and cities for the delivery of basic infrastructure and utility services to end-users. In order to establish the city and local governments on a self-sustaining basis, a long term and structured funding program targeting the municipalities need to be established. Such financing, accompanied with capacity building components should aim to establish these entities on a financially self-sustaining basis.

11. In rural areas, in addition to scarce resources, water and sanitation development has been impeded due to inadequacies in the management of resources. There is need for enhancing mechanisms for more effective and efficient service delivery through increased local/community participation. In case of rural areas, there is also a need to adopt a uniform policy for establishing and financing rural water supply schemes, to avoid the almost complete subsidization that occurs now, and ensure that rural water supply scheme are demand-led rather than supply driven.

12. Recognizing that private sector participation can improve performance and efficiency in water supply and other services in urban areas, modalities for public- private partnerships in the management of physical infrastructure and framework can be considered as an option, regulating the private sector in a manner that ensures provision, operation and maintenance of the water supplies at a reasonable price and quality.

13. First draft of drinking water standards was developed by the Pakistan Standard Institute in 1999. These were quickly made, randomly selected parameters, which did not serve the need of having standards against which drinking water could be tested. Later on in the year 2000 a committee was constituted to study the concept of standards and to formulate viable standards for the country. This committee took a couple of years to come up with recommendations in this regard. Finally in November 2002, the Pakistan Standards and Quality Control Authority

(PSQCA) issued drinking water standards document (*PS-1932-2002*) in line with the WHO's guidelines for drinking water. The nature of standards is voluntary for water service providers, something which gives an opportunity to the bottled water manufacturers to capitalize upon – providing water which does not meet the requisite standards, as evident from monitoring reports of bottled water by the PCRWR. Moreover the drinking water standards for ordinary piped water are so sophisticated that they cannot be followed and tested completely at the district level – which also lack complete testing facilities, factors that make the standards impractical. Fully equipped water testing laboratories can only be found at the federal level and provincial capitals. It is notable that the Standards document quotes the same maximum permissible limits for parameters as suggested by WHO guidelines, with no adaptation for local conditions. There is a dire need to revise the standards according to local conditions, so as to bring into ambit the various geographical locations of the country. An initial effort to compare various Standards by the PCRWR, as seen on their web-site, is a laudable step, as it offers an in-depth comparison of various parameters. The need is that Standards for our country need to be re-formulated in light of this comparison.

14. The growing population, and its basic need for access to the most crucial natural resource has placed new demands on this precious, limited and depleting resource that can easily become polluted or over-used. Management and supply of drinking water is common responsibility of as many as four to five line departments at the national, provincial and local governments' level: health, science and technology, environment, local government and rural development being some.

15. Appointment of a focal point to take an integrated approach to all different aspects of drinking water is need of the hour; one of the ways ahead is development and implementation of a national drinking water policy. A national policy will not only help in providing guidelines and standards from drinking water supply and management but will also help in allocation of necessary financial resources at national level to develop required infrastructure and systems. The urban bias in provision of safe drinking water need to be corrected and water supply facility needs to be extended to consumers living in rural areas like other public utilities. Connecting all households to a reliable source of water that is reasonably protected from contamination would be an important step toward improving health and reducing the time spent collecting water.

16. There is a strong need of a drinking water quality monitoring system both for piped and ground water to help formulate an early warning system to avoid any water-borne disease outbreak. Testing facilities and requisite quality testing systems need to be developed at district level for testing drinking water quality to ensure provision of safe drinking water to consumers. Drinking water needs of communities affected by mega water projects, public awareness on water conservation and water quality are other important components of water policy. New mechanisms are required to conserve the depleting resource and allocate rationally among increasing and competing uses. The policy should be developed in a manner consistent with other federal policy objectives, including fiscal constraint and public health.

17. The major areas of focus for the national drinking water policy would be:

- (i) Preamble
- (ii) Drinking water issues in Pakistan;
- (iii) Objectives of the policy;
- (iv) Policy principles;
- (v) Definition of terms;
- (vi) Water Scarcity;
- (vii) Water Conservation;
- (viii) Water Resource Management;
- (ix) Public Health Importance of Water;
- (x) Water Quality;
- (xi) Metropolitan Water Supplies;
- (xii) Water Pricing;
- (xiii) Rural Drinking Water Needs;
- (xiv) Private Sector;
- (xv) Research, Planning and Development;
- (xvi) Water Management Information System;
- (xvii) Donor / Non-Governmental Co-operation;
- (xviii) Legal Instruments;
- (xix) Implementation; and
- (xx) Monitoring and Assessment.

18. The proposed process of formation of a national drinking water policy is as follows:

- (i) Approval of the working paper for national drinking water policy;

- (ii) Preparation of a background paper on drinking water policy by consultant;
- (iii) Consultation on background paper at the Tehsil, district, provincial and federal level;
- (iv) Preparation of draft national drinking water policy;
- (v) Stakeholders consultation on the draft policy and revision;
- (vi) Presentation of the draft policy to Environmental Advisory Board for approval and revision;
- (vii) Release of policy for public comments; and
- (viii) Revision and presentation to cabinet.