

# National Drinking Water Policy

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## A. Context

Water is essential for the sustenance of life [in all its forms]<sup>i</sup>. Access to safe water supply is a basic human right<sup>ii</sup>. Pakistan is committed to achieving the Millennium Development Goals (MDGs). Specific to the current context, it is committed to reducing by half the population without access to safe and sustainable water supply by 2015. It is committed to reducing the 1990 child mortality rate by two-thirds.

Despite a recent increase in coverage, less than one in four rural households is connected to a tap. The majority rely on hand or motorized pumps. A quarter of rural households continue to draw water from un-improved sources, such as open dug wells, rivers, streams, canals and ponds<sup>iii</sup>. Water from these sources is mostly unfit for consumption unless treated.

Public water supply to urban households is intermittent; sewage and other effluents are sucked into the pipes while they are empty, and most water is unsafe by the point of use. Furthermore, 40 percent of urban households have no access to piped water supply. They mainly use hand- or motor-pumps and dug wells to draw up water. The shallow groundwater under cities and towns is mostly contaminated and unfit for consumption before treatment.

Water-borne diseases, such as diarrhoea and dysentery, worm infestation and scabies, and Hepatitis A, are common, while there are regular outbreaks of cholera and typhoid. The incidence of diarrhoea among children has in fact risen in recent years<sup>iv</sup>. Pakistan has one of the highest child mortality rates in Asia<sup>v</sup>.

Drinking water is the constitutional responsibility of provincial governments. Local Government Ordinance 2001 has further devolved the provision of water supply to Town and Tehsil Municipal Administrations (TMAs). Macro-functions for coordination and joint implementation across TMA jurisdictions have been devolved to City District Governments. However, decentralization is still in transition on ground. Strategic planning, budgeting and monitoring functions generally remain limited to district and higher levels, and there is considerable duplication in implementation<sup>vi</sup>.

National Drinking Water Policy (NDWP) is an enabling framework to address the key issues and challenges facing people in sustainable access to safe drinking water. It is a part of the Medium Term Development Framework (MTDF) 2005-10<sup>vii</sup>. It provides guidelines to provincial and local governments for the discharge of their responsibilities. It is expected that Federal, Provincial, Azad Jammu and Kashmir, and Northern Area

Governments will devise their own strategies, plans and programmes in pursuit of this policy. National Water Quality Standards will be implemented in the light of this policy.

Federal Government has recently approved a National Sanitation Policy. NDWP is to be read and put into operation alongside the approved sanitation policy.

## **B. Objectives**

1. To reduce the incidence of death and illness caused by water-borne diseases by ensuring sustainable access to adequate and safe drinking water for all;
2. To improve the quality of life of urban and rural populations by facilitating affordable and convenient access to water for hygiene, sanitation, and other essential domestic uses;
3. To encourage water conservation by facilitating provincial regulatory authorities to assess the life cycle costs of water supply services and set appropriate tariffs for the discretionary uses of municipal water<sup>viii</sup>; and
4. To facilitate identification of programmes for the protection of watersheds and groundwater, and partnerships for maintenance of stream flow, groundwater recharge and quality that reduce the investments required for water diversion and treatment.

## **C. Principles**

1. Water Security:
  - 1.1. Access to safe drinking water is the basic human right of every citizen and it is ultimately the responsibility of the State to ensure adequate and timely provision of safe water to all citizens.
  - 1.2. The right to water for drinking [for humans and livestock] {and hygiene and sanitation} takes precedence over rights for water of all other uses such [as other domestic uses], agriculture, environment, industry, and so on.
2. Empowerment:
  - 2.1. Safe water is a daily need. Under normal circumstances, it should be provided by the competent organization that is most proximate to the citizen. The capacities of Union Councils (UCs) and TMAs may be built up to implement a community-centred demand-driven approach to water supply. Citizen Community Boards (CCBs) have a key role in the designing, planning, and implementation and operation of [local components of] water supply.
  - 2.2. A broad range of providers are operating in the sector. Alternate water supply options through private provision, public-private partnerships, NGOs and

community organizations may be encouraged, [while weeding out system-wide distortions and inefficiencies, indicated by bribery in contracts, tanker mafias and clandestine connections].

### 3. Equity:

3.1. The existing inequities in the provision of safe drinking water must be removed. The needs of poor and vulnerable people may be addressed by making adequate financial allocations for low-income and risk-prone areas; and reducing capital and operating costs by adopting more flexible service levels, technologies, and modes of provision.

3.2. Women play a key role in the drinking water sector and NDWP seeks to ensure their participation in decision-making in the sector at all stages and levels.

### 4. Sustainability:

4.1. Public sector service providers should improve revenue collection and raise tariffs to recover their operational costs as the first step toward financial sustainability.

4.2. NDWP seeks a clear segregation between the functions of the State as a service provider and the authority that it must exercise as a regulator. Service provision, tariff collection and investment decision-making must be delegated to legally and functionally autonomous sector agencies [of Local Governments]. This is essential for the sustainability of the service provider and of the sector as a whole.

## **D. Instruments**

NDWP reflects the experiential learning from recent knowledge-based, institutional and technical innovations at global, regional and national scales.<sup>ix</sup>

### 1. Watershed and Groundwater Protection

Measures for protection of watersheds and groundwater quality are practically feasible and cost-effective if a direct partnership between upstream-downstream agencies is established<sup>x</sup>. Downstream users pay upstream inhabitants for land conservation and effluent management. Payments are based on water quality improvements, including reductions in salinity, pollutants and nutrients, and wetland or stream protection and restoration. It is estimated, for example, that Re.1 invested in the treatment of the effluents prior to their discharge from the chicken farms in Murree Tehsil could save Rs.20 in the operational costs of the water treatment plants for Islamabad and Rawalpindi.

## 2. Maintaining Water Quality through Continuous Supply

It is known that intermittent supply is not OK from a health standpoint, and that total water consumption is not reduced as consumers respond to periodic supply by installing their own ground and overhead tanks. However, the practice has been tolerated on the excuse of limited water resource development. Recent experiences in South Asia have shown that upgrading an intermittent public distribution to a continuous water supply system is feasible with little or no increase in the quantity of water supplied or consumed, and no increase in pipe diameters, and little or no increase in pumping and electricity charges<sup>xi</sup>. Continuous water supply also enables leak detection and metering. Reduction in non-revenue water (NRW) and moderate tariff increases exert demand side management while enabling the water utility to provide a much better quality of service.

## 3. Suite of Point of Entry/Use Measures for Water Purification

The standard prescription is to boil water before drinking it. It is indeed an effective method, but with some limitations, for example, at high altitudes and wherever fuel wood is the source of energy for cooking and is scarce. After research, World Health Organization (WHO) has approved a range of methods for home water purification, including solar water disinfection, the use of ceramic pot filters, chlorine or iodine tablets, and ultraviolet lamps. These methods are practically feasible, low or moderate in cost, and effective in removing germs from water. They empower housewives to save their children from infections, and should be widely disseminated across Pakistan.

Ministry of Health (MOH) runs an advertisement on television, radio and the print media urging households to boil their drinking water. But person-to-person or small group meetings and follow-ups are essential for attitudinal and behaviour change.

## 4. Differential Tariff Setting by Geographical Districts

Poor people pay much more for the water that they buy from vendors than the non-poor do for public water supply<sup>xii</sup>. Many studies show that the poor are willing to pay higher tariffs than currently charged by water utilities. However, the poor cannot afford to pay the full cost of 30 m<sup>3</sup> that engineers estimate is the monthly requirement of a household.

Experiments with increasing block tariffs (IBT), such as Pakistan has for electricity and gas, have proved to be regressive in incidence for water. The demand for water is less income-elastic and seasonal than those for electricity and gas. IBT would more likely reduce the incentive for the service provider to extend water connections to low-income groups. On the other hand, means testing and qualification of groups (such as pensioners) for cross-subsidy are administratively cumbersome and carry considerable risks of misclassification.

In addition to higher rates for commercial uses, differential tariff setting is recommended for low-, medium- and high-income geographical wards of cities and towns. The residents of high income sectors can certainly afford cost plus rates, and may not mind paying them, as it would enhance the prestige and real estate values of their city districts. The sectors where the poor and vulnerable reside are equally easy to demarcate on maps, and [after the zoning is ratified by local communities], the subsidized tariffs for poor neighbourhoods can be conveniently and transparently administered.

#### 5. Water Safety Plans

Stand alone water quality testing is reactive, sporadic and insufficient to ensure the safety of consumers. Water safety planning comprises setting up an operational system for the surveillance, testing, monitoring and disseminating of information regarding water quality to all managers and regulators, and local organizations of users. Water safety planning is a core component of the 2003 WHO Water Quality Guidelines. Water safety planning may be introduced in all Union Councils under the supervision of MOH and provincial departments of health.

#### 6. Performance Grants

Grants from provincial governments to Public Health Engineering Departments (PHEDs), Water and Sanitation Agencies (WASAs) and TMAs to meet their staff salary and electricity bills has lead to over-staffing and under-performance of water utilities. In contrast, recent South Asian experience confirms that local governments and sector agencies respond positively to rewards and awards. A fair and transparent system of performance grants is practically feasible, and can be improved with experience.

National Reconstruction Bureau (NRB) may establish a system of awards to the best Union Councils [in each Province/Division] that achieve total coverage of drinking water free from pathogens. This may inspire excellence and promote innovation with a modest quantum of funds, though the sums allocated for the individual first prizes may be quite high.

Provincial Governments should establish a system of rewards to TMAs and WASAs that attain process benchmarks towards commercial viability. The performance standards must be objective, quantifiable and verifiable. As such, top quality monitoring systems are a pre-requisite.

### **E. Targets**

The targets set out in MDGs for 2015 and MTFD for 2010 apply to the country as a whole. Provincial and local government may establish their own detailed plans and programs for the achievement of these targets. Some [agreed] intermediate targets are:

1. All existing public water distribution systems in cities and towns should be upgraded to continuous (24/7) supply through improved supply and demand management by 2015;
2. [Karachi Water and Sewerage Board (KWSB) and WASAs may commence zone-wise upgrading to continuous water supply in FY 2007-08. The key elements comprise introduction of metering and leak detection in the selected pilot areas along with tariff revisions to recover the incremental investment;]
3. All public water supplies should comply with National Water Quality Standards at source by 2010. This may be achieved by the rehabilitation of existing water treatment plants and installation of additional ones, where necessary;
4. Water safety plans should be in place in all Union Councils by FY 2007-08;
5. The program for extension of water purification messages to homes, schools and institutions should be in place by 2008. Key indicators are communication and adoption of skills for home water purification techniques that are appropriate to specific locality/water source/housewife education/household income. Reports on adoption rates by each segment would be due by 2010; and
6. On-ground monitoring for performance rewards and awards to Union Councils, TMAs and WASAs should commence in 2008, and the system of performance grants should be operational by 2009.

## **F. Roles**

Federal Government has a goal-setting, supporting and coordinating role. Federal Ministries will integrate NDWP into their sector policy frameworks. Specifically:

- MOE is responsible for national policy on environmental pollution. National Environmental Action Plan (NEAP) and National Environmental Quality Standards (NEQS) are its main operational frameworks. MOE will periodically review these policies for mutual consistency. MOE will align its oversight of NDWP implementation with that of the National Sanitation Policy;
- MOH is responsible for National Health Policy and National Water Quality Standards. Preventive health is one of the three pillars of the National Health Policy, 2001, and more than three-fourth of the Federal health budget is allocated for primary healthcare. Lady Health Workers (LHWs) are being trained at district human development centres. Millions of free packets of ORS have been placed at primary health centres for treatment of diarrhoea. LHWs are well placed for delivery of hygiene messages, including home water purification;
- MOWP is responsible for the policy on water resources allocation. National Water Policy (NWP) is at draft stage. The final NWP may reiterate the First Call

for Drinking Water<sup>xiii</sup>, and re-instate the explicit high priority to water for hygiene and sanitation. NWP should also give high priority to protection of watersheds and groundwater. It may envisage bilateral arrangements between upstream communities and downstream cities for water quality. It may consider introducing water trading regimes, inter alia, to ensure an adequate supply of water for growing urban needs<sup>xiv</sup>.

Drinking water is the constitutional responsibility of provincial governments. The enforcement of policies and standards is a major lacuna. Provincial governments should establish province-wide Water Supply and Sanitation Regulatory Authorities (PWSSRA). These independent regulatory agencies would assess the economic costs of complying with service provision, water quality and environmental standards, and set tariffs and oversee compliance. In addition to engineers, PWSSRAs would require qualified economists, lawyers, and management professionals equipped to exercise oversight over corporate entities. The water supply and sanitation regulatory authorities may be established by executive orders and ratified by provincial assemblies;

Service providers will need technical assistance in upgrading their distribution systems to continuous supply mode. Continuous Water Supply Support Units (CWSSUs) may be set up to help KWSB and WASAs to achieve the transition.

## **G. Finance**

MTDF 2005-10 has made sufficient financial allocations for the sector in the Public Sector Development Programme (PSDP), especially for urban water supply and sanitation<sup>xv</sup>. The binding constraint is the capacity to formulate and implement sound programmes.

## **H. Implementation Strategy**

Looking at the internal strengths and weaknesses of institutions in the water supply sector, and the external opportunities and risks in the coming decade, the following priorities and sequence of implementation are envisaged:

1. The first priority shall be given to ensuring the satisfactory operations of existing water supply systems. Hundreds of water supply schemes are lying abandoned for technical and institutional reasons. The schemes which UCs and TMAs commit to revive and manage under their own responsibility may be provided technical assistance in the first instance.
2. All public water distribution in City Districts should be systematically upgraded through supply and demand management and rehabilitation to continuous water supply (CWS) mode. Zone-wise implementation of CWS may commence with the most practically feasible city wards that demonstrate a consensus or general willingness for metering and higher tariffs along with better services.

3. Town Municipal Administrations may adopt a demand-led approach in providing access to safe water to currently un-served populations. TMAs will ensure sustainability of the schemes by involving [entering into contracts/MoUs with] Citizen Community Boards and their Forums in [for] project identification, planning, execution, and maintenance.
4. Tehsil Municipal Administrations will accord priority to un-served and under-served areas, disadvantaged areas, brackish water zones and those areas where there is shortage of sweet water in the underground aquifers.
5. Those areas will be especially targeted where women have to walk more than 0.5 kilometres or have to wait more than 30 minutes to acquire safe drinking water.
6. Public stand-posts with auto-shut off valves may be provided for Katchi Abadis, whose registered inhabitants agree to pay for the water and for the replacement of broken or stolen infrastructure. TMAs will not require any certification of tenure for such connections. TMAs may choose to subsidize such connections or recover the costs in instalments.
7. Provincial regulatory bodies will supervise the transition envisaged under NDWP so that scarce resources are properly utilized and ownership and sustainability of schemes is ensured for the long-term. A regulatory body for water supply and sanitation may first be set up in one province, so that other provinces and territories learn from its experience.
8. Arsenicosis is a rare disease in Pakistan. It is a slow onset disease occurring in vulnerable segments of the exposed population after 5-20 years of drinking groundwater that contains more than 50 parts per billion of arsenic. Such concentrations are found in 2-4% of water samples of some districts, mainly those along the rivers. The main option is to shift to safe sources usually available nearby. Situations where all the local sources are contaminated occur in only 1% of the villages investigated. In such localities, Arsenic Reduction Technology (ART) is needed. The programme may continue to be managed by the Pakistan Council for Research in Water Resources (PCRWR) in collaboration with provincial agencies.
9. Bottled water (retail trade and home & office delivery combined) meets around 0.1 percent of drinking water needs in Pakistan (compared to 10% in France and 5% in Thailand)<sup>xvi</sup>. PCRWR may continue to assure that bottled water that marketed in Pakistan adheres to standards set by the Pakistan Standards Quality Control Authority for water that needs to be stored for a considerable period of time.
10. Clean Drinking Water for All (CDWA) is a vertical programme of the Federal Government to deliver one filter plant to each Union Council across the country and to maintain it for three subsequent years<sup>xvii</sup>. CDWA may be best developed as



- a technology demonstration platform that enables UCs and CCBs to set up other filter plants in the UC and to learn how to manage and maintain them.
11. Over and above these priorities, National Disaster Management Authority will develop water supply contingency plans as part of its disaster risk mitigation strategy to deal with areas at risk and areas affected by calamities, such as floods, droughts and earthquakes, and so on.
  12. Performance measurement and benchmarking is an important tool to build capacities across the range of agencies operating in the sector. A set of relevant, useful, and commonly understood performance indicators may be established during FY 2007-08. Provincial regulatory authorities should commence the collection and dissemination of the agreed data sets by FY 2008-09. Embedding the practice of sector-wide learning from the analyzed data should follow.
  13. Federal Government {NRB} [Provincial Governments] shall constitute an award and reward system for safe and sustainable water supplies. Performance grants shall be awarded to:
    - a. Union Council where no-one is drinking water contaminated by pathogens;
    - b. TMAs that are recovering operational costs; and
    - c. WASAs that have commenced/accomplished CWS; are recovering operational costs and are on route to full cost recovery.

## **H. Monitoring Mechanisms**

National Coordination Committee for Water Supply and Sanitation (NCCWS) chaired by the Federal Secretary Environment is in place. It shall exercise oversight over NDWP implementation. It will establish a system for Monitoring and Reporting on Selected Drinking Water Quality and Sustainability Indicators. In the longer term, it will seek to put in place an Integrated Policy Development, Implementation, Monitoring and Review Mechanism.

For the immediate and medium-term, Pakistan-Environment Protection Agency will provide secretariat functions to NCCWS. WES Coordinator, Pak-EPA is the designated focal person.

In 2009, a full scope evaluation of NDWP implementation will be due. The results of the evaluation would feed into the next MDTF 2010-15. The evaluation may be undertaken by an independent third party.

## References and Endnotes:

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- <sup>i</sup> Pakistan Engineering Council (PEC, 2002), Pakistan Water Policy, P&DD, accessed on 16.12.2006
- <sup>ii</sup> GOP, MoE, 2006, National Drinking Water Policy, Draft 001, accessed on 14.12.2006, Section D.4.1
- <sup>iii</sup> GOP, Statistics Division, 2002 & 2006, PIHS 2001-02, and PSLM 2004-05
- <sup>iv</sup> GOP, Statistics Division, 2002 & 2006, PIHS 2001-02, and PSLM 2004-05.
- <sup>v</sup> UNICEF, 2007, State of the World's Children
- <sup>vi</sup> WSP-SA, 2006, Formulating Strategic Plans, DI Khan Tehsil Municipal Administration, Field Note
- <sup>vii</sup> GOP, Planning Commission, 2005, Medium Term Development Framework, Section 10.4
- <sup>viii</sup> Derived from GoP, Planning Commission, 2005, MTDF, Section 10.4
- <sup>ix</sup> The absence of recommendations for privatization also reflects a lesson - the problematic results with the privatization of water utilities in a number of developing countries, especially privatization along with trade liberalization under bilateral investment treaties. Pakistan also needs to be aware of the opportunities and risks associated with opening up water utilities under the General Agreement on Trade in Services (GATS).
- <sup>x</sup> That is neighbours in terms of The Problem of Social Cost (Coase, 1960).
- <sup>xi</sup> For example, Male, Maldives maintains CWS with just 35 l/c/d with proper supply and demand management.
- <sup>xii</sup> Bhatia and Falkenmark, 1993 report that the poor in Karachi pay 23 to 83 times more per unit water.
- <sup>xiii</sup> Draft NWP (MOWP, June 2004) also has a particularly pertinent article under Drought Management, "In drought prone areas, non-water related economic activities shall be promoted, and the available groundwater resource used for domestic water, ..."
- <sup>xiv</sup> PEC draft of NWP (2002) explicitly ranks water for hygiene and sanitation as the third priority after water for drinking and food. The ranking is implicit in Draft NWP (MOWP, June 2004).
- <sup>xv</sup> Rs.50 billion for UWSS and Rs.10 billion for RWSS in PSDP under MTDF 2005-10 are equal to 79 percent and 38 percent respectively (on an annualized constant cost basis) of the resources required for achieving universal water supply coverage in urban areas and 75% coverage in rural areas by 2025. (An infrastructure driven estimate generated by Water Resources Strategy Study, 2002, but not including the Rs.9 billion to be spent on filter plants under CDWA).
- <sup>xvi</sup> [www.nestle-waters.com](http://www.nestle-waters.com), accessed on 29.10.2006
- <sup>xvii</sup> The average population of a UC is 20,000 persons. It is estimated that one filter plant could serve 2 to 20% of its population, depending on the density and pattern of settlement. Scaling up the Rs.9 billion CDWA may be financially unfeasible. Local replication or scaling out is essential.