



Government of Sindh

Drinking Water Supply Policy



**Public Health Engineering and Rural Development Department (PHE&RDD)
Local Government and Housing Town Planning Department (LG&HTPD)**

Message by Chief Minister

The province of Sindh is home to the Indus waterway before it enters the Arabian Sea. Despite having a large riverine source of water, the province of Sindh faces many challenges in provision of potable drinking water owing to the growing urban population and presence of desert and brackish zones for its rural population. The Government of Sindh is making tireless efforts to ensure there is adequate infrastructure and capacity for supply of clean drinking water to its population.

The Government of Sindh has initiated a number of projects for water and sanitation and has planned to increase investments in water and sanitation in the future.

It is a matter of great satisfaction to learn that many water and sanitation projects are under way in collaboration with national and international development partners. I assure you that the Government of Sindh shall extend all possible assistance to further enhance this collaboration so that we can achieve our ultimate goal of water and sanitation for all.

I am delighted to learn that we have a new and forward looking drinking water policy for the province of Sindh. Provision of clean and safely managed drinking water of acceptable quality is not only a basic necessity of life, it has an enormous impact on preventing needless mortality and morbidity, and nutritional deficiency because of diarrhoea.

I look forward to seeing the implementation of this policy in letter and spirit as we strive to achieve the Sustainable Development Goal on water and sanitation. I further welcome national and international partners to join hands with the Government of Sindh in making this a reality.

Foreword by the Minister

Clean and safely managed drinking water is a basic necessity of life and its availability and access also determines to a large extent the health outcomes of any population. While the population of the province of Sindh has continued to grow, and there has been mass migration to the cities and towns, the Government of Sindh remains committed to ensure that its population has access to drinking water of acceptable quality.

Slow economic growth in recent years has meant that there were limited resources available for many priority development initiatives. The Government of Sindh has now prioritised development of the water and sanitation sector and in this regard, has developed a new drinking water policy.

The new policy aims to improve access to clean and safely managed drinking water to populations in both urban and rural areas, strengthen existing infrastructure and develop new drinking water delivery systems. This is especially important growing urban localities and rural areas with brackish zones.

I am delighted to launch this policy jointly with the Minister for Public Health Engineering and Rural Development as both our department's share the responsibility of providing safely managed drinking water to the population of Sindh province.

I assure my department's commitment to implement this policy in the spirit it is intended and support our government's initiatives to achieve the Sustainable Development Goal on water and sanitation.

Minister for Local Government and Housing Town Planning
Government of Sindh

Foreword by the Minister

It gives me immense pleasure to launch jointly with the Minister for Local Government and Housing Town Planning, this long-awaited policy on drinking water in Sindh.

I would like to commend the efforts of all those involved in the formulation of this policy as it not addresses a basic human necessity, but also provides a vision for development in accordance with the Sustainable Development Goal on water and sanitation.

The province of Sindh faces many challenges like rapid urbanisation, rural poverty, limited financial resources and insufficient capacities in its endeavour to provide adequate, clean and safely managed drinking water to its citizens.

The Government of Sindh is cognisant of these developmental challenges, but also recognises that if clean and safely managed drinking water of required quality is not provided to the population, Sindh will continue to lag behind in achieving improved health outcomes for its people especially due to high child mortality and poor nutritional status, a significant proportion of which are due to unimproved water supply and sanitation.

The new policy provides a direction to develop utility services for safely managed drinking water supply and it is hoped that it shall be used as the basis for development of new schemes by the government, non-government and private sectors, and provide a joint purpose for collaboration with national and international development organisations.

Minister for Public Health Engineering and Rural Development
Government of Sindh

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1. PREAMBLE

Water is a human necessity without which all life functions would cease. The Government of Pakistan recognises provision of safe drinking water as a fundamental human right. Water is used for not only drinking and sustenance, but also for agriculture, industry, energy sector, domestic uses and municipal requirements etc. Scarcity of water is a major impediment to development. In November 2002, the Committee on Economic, Social and Cultural Rights adopted General Comment No. 15 on the right to water. Article I.1 states that "The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights"¹.

In keeping with the National Drinking Water Policy 2009, which seeks to provide adequate quantity of safe drinking water to the entire population at an affordable cost and in an equitable, efficient and sustainable manner, the Government of Sindh therefore stands firm on its commitment to provide safely managed drinking water to the population of Sindh province. This policy is pursuant to the National Drinking Water Policy that directs the provinces to devise their own strategies, action plans, projects and programmes. The policy focuses on the supply of drinking water for domestic use of households that includes water for drinking, cooking, hygiene and other domestic uses.

Sindh has a large rural population and burgeoning urban areas especially the mega city of Karachi. This requires an enabling environment and strengthening of capacities, systems and infrastructure to ensure that the diverse drinking water needs of urban and rural areas are met while safeguarding the availability of affordable drinking water to the populace.

A "Domestic Water & Sanitation Policy" for Sindh was drafted in August 2006 (under TA 4432-PAK by ADB). It serves as a useful precursor to this Drinking Water Policy.

The Sindh Drinking Water Policy provides a development framework for the government, national and international development partners, and other service providers to systematically address the challenges being faced by the sub-sector and devise sound, coordinated and lasting solutions to enhance access of safe drinking water to the urban and rural populations.

The policy is aligned with and designed to meet the requirements of Vision 2025 of Government of Pakistan and the Sustainable Development Goal (SDG) for drinking water to provide universal and equitable access to safe and affordable drinking water for 100% of the population. This goal is different from the Millennium Development Goal (MDG), where the MDG goal aimed at basic water supply, while the SDG goal aims at a safely managed service. The policy takes into consideration the emerging needs of drinking water supply for a growing population, recognises the key constraints that impede progress, recommends a way forward to address these, and provides a strategic platform to

¹ Resolution A/RES/64/292. United Nations General Assembly, July 2010. General Comment No. 15. The right to water. UN Committee on Economic, Social and Cultural Rights, November 2002

foster collaboration, coordination, support and investment from international development partners and sector stakeholders actively involved in provision of safe drinking water.

The new policy proposes establishment of new drinking water supply systems, and rehabilitation and upgradation of existing systems in urban as well as rural areas to ensure sustainable access of drinking water to the entire population of Sindh.

2. VISION AND POLICY PRINCIPLES

2.1 Vision

Our vision for the population of Sindh is to provide safely managed drinking water whose supply is adequate, well maintained and sustainable; and to enhance public awareness about health, nutrition and hygiene related to safe drinking water.

2.2 Policy Principles

The main principles of Sindh Drinking Water Policy are adopted from the National Drinking Water Policy 2009. Therefore, the key Policy/Strategy principles are as follows:

- Access to safely managed drinking water is a fundamental right of every citizen and that it is the responsibility of the Government to ensure its provision to all citizens
- Water allocation for drinking purposes shall be given priority over other uses
- In order to ensure equitable access, special attention shall be given to removing the existing disparities in coverage of safe drinking and for addressing the needs of the poor and the vulnerable
- Recognising that inadequate and unsafe water supply and sanitation are a major cause of diarrhoea and nutritional deficiency in children, which as a consequence contribute towards child mortality, safely managed drinking water supply and sanitation shall be integrated in health, nutrition and school health programmes
- Access shall be increased to high quality nutrition-sensitive services, including access to water, sanitation facilities, and hygiene
- Key hygiene actions (safe drinking water, handwashing with soap, safe disposal of excreta, and food hygiene) shall be integrated as essential components in all nutrition programmes
- Realising the fact that access and availability of safe drinking water affects all aspects of life of citizen, a multi sectoral approach, involving different departments of the government, shall be adopted to address the issues related to safe drinking water
- Being cognisant of the fact that women are the main providers of domestic water supply and maintainers of hygienic household environment, their participation in planning, implementation,

monitoring and operation & maintenance of water supply systems shall be ensured, and WASH shall be integrated in maternal and neonatal health programmes

- Responsibilities and resources shall be delegated to local authorities to enable them to discharge their assigned functions with regard to provision of safe water supply
- A supportive policy framework shall be developed that encourages alternate options through private provision, public-private partnerships, the role of NGOs and community organisations
- The execution of component-sharing model for government programmes and projects shall be promoted to ensure financial sustainability and community and private sector involvement in development and O&M
- Low cost technologies in water and sanitation, that are easy and cost-effective to maintain shall be developed and used

3. GOALS AND OBJECTIVES

3.1 Goals and Objectives

Overall Goal: The goal of the Sindh Drinking Water Policy is to improve the quality of life of people of Sindh by reducing morbidity and mortality caused by water-borne diseases through provision of safely managed and potable drinking water to the entire population that is located on premises, available when needed, and free from contamination, affordable and of sufficient quantity, and in a way that is efficient, equitable and sustainable. The specific objectives of the Policy are as follows:

Objectives:

1. Introduce legislative measures and regulations to create an enabling framework for safely managed drinking water supply, regulation of water usage, extraction, treatment, transportation and distribution
2. Ensure that all drinking water resources and supply systems are protected with community involvement
3. Develop district level drinking water availability plans for urban and rural areas to ensure improved planning for equitable access
4. Enhance the coverage of safely managed drinking water supply in the province to achieve that Sustainable Development Goals (SDGs) targets of universal access
5. Develop criteria for installation of new drinking water supply schemes and ensure that all new schemes are safely managed, rationalised and constructed through need based criteria so that all areas and communities are served
6. Develop standardised service delivery models for both urban and rural drinking water supply schemes to improve efficiency, cost-effectiveness, improve monitoring and sustainability
7. Develop mechanisms for reuse, recycle and recharge of wastewater for other municipal and productive uses

8. Ensure that all drinking water supply systems are designed and constructed in line with the national drinking water quality standards and all municipal discharges comply with National Environment Quality Standards (NEQS)
9. Install water treatment plants at existing drinking water supply schemes where required and incorporate water treatment facilities in all new drinking water supply schemes
10. Ensure development of water safety plans for all drinking water supply systems
11. Develop and sustain regular drinking water quality monitoring and surveillance, and institute mechanisms for remedial action
12. Increase public awareness about water borne and water-related diseases (including polio), nutrition and hygiene, and enhance the role of communities for household water treatment/storage, water safety and conservation, and safe hygiene practices
13. Ensure that drinking water supply projects are nutrition sensitive and integrated in health, nutrition and school health programmes
14. Institutionalise WASH in schools (infrastructure and 3 stars) and introduce curricular change to incorporate health, nutrition and hygiene and improved and safe water and sanitation practices among school children
15. Institute adaptation measures and disaster risk reduction and mitigation strategies to minimise the impact of climatic events on drinking water supply systems

4. EXISTING SITUATION

Sindh has a geographical area of 140,914 sq. km and constitutes about 17.7% of the total area of Pakistan. According to the projections by the National Institute of Population Studies (NIPS), the population increased from 41.248 million in 2010 to 45.998 million in 2015² and accounts for about 24% of the country's population. It is the most urbanised of the provinces with almost 50% of its population residing in urban areas. It has 6 administrative Divisions and 28 Districts.

About 60% of the land area in Sindh is arid. The province has an annual average precipitation of five inches. Sindh is a lower riparian province and due to over dependence on Indus water, has seen the gradual decline of water availability per person. Sindh lies in the lower Indus Basin and the River Indus flows in the middle of the province. The economy of Sindh is predominantly agricultural and depends almost entirely on artificial irrigation. The principal source of water is the Indus River, and the manufacturing industries are concentrated in Karachi, Hyderabad, Nooriabad, Kotri and Sukkur.

Despite developments in the water sector, population growth, urbanisation, mining sector and industrialisation, are posing greater demands on the limited water resources of the province. The expanding imbalance between supply and demand, has led to shortages and unhealthy competition amongst end-users besides causing severe environmental degradation.

² Compendium on Environment Statistics of Pakistan. Pakistan Bureau of Statistics, Government of Pakistan. 2015

Generally, water supply schemes in urban areas are developed and maintained by the LG&HTPD, while schemes for rural areas are developed by Public Health Engineering and Rural Development Department (PHE&RDD) and then handed over to the communities. Further, the Karachi Water & Sewerage Board (KWSB) is responsible for production, transmission and distribution of potable water to the citizens of Karachi, while the Northern Sindh Urban Services Corporation (NSUSC) develops and maintains water supply schemes for seven cities (Khairpur Mirs, Sukkur, New Sukkur, Rohri, Larkana, Shikarpur and Jacobabad). The Water and Sanitation Authority (WASA) Hyderabad has the responsibility to provide water to the urban localities of Hyderabad. The multitude of stakeholders results in challenges in coordination, operation and maintenance, accountability and sustainability.

Drainage of Sindh especially for flood water of the north is a major challenge and needs to be addressed before planning for any infrastructure development.

Sindh's health sector indicators are poor with an Infant Mortality Rate of 82 and Under Five Mortality Rate of 104 per 1000 live births against the MDG targets of 40 and 52 per 1000 live births respectively. Diarrhoea is the second major leading cause of childhood mortality in Pakistan after pneumonia, and annually 53,000 children under five die because of diarrhoea which is generally caused by use of poorly treated drinking water and unimproved sanitation. In general men, women and children in rural areas of Sindh have little awareness and comprehensive information about the relationship between use of safe drinking water, safe sanitation, personal hygiene practices and health. The economic cost of poor water and sanitation services is estimated to be around 4% of GDP of Pakistan, and more than 87% of these are health costs.

The recent Sindh MICS has also found 42.0% children under five years with moderate and severe underweight, 48.0% children under five years with moderate and severe stunting, and 15.4% children under five years with moderate and severe wasting.

4.1 Situation Analysis of Drinking Water

Safe drinking water is a basic necessity for leading a healthy life. Unsafe drinking water can be a significant carrier of enteric diseases (including typhoid) and parasites such as roundworm. Drinking water can also be polluted with other bacteriological, chemical, physical and radiological contaminants that have harmful effects on human health. Access to drinking water is also of prime consideration for women and children, particularly in rural areas, because they also bear the responsibility for fetching water, often from long distances. In Sindh 90.5% of the population is using an improved source of drinking water, with 89.7% in urban areas and 91.3% in rural areas.

Sindh relies primarily on piped water in the household (42%) and hand pump (37%). Unimproved sources include river/pond/canal/stream (3%) and tanker/truck/water bearer (4%). Motorised pump (8%) and dug well (3%) are other sources.

The “improved source” does not necessarily imply safety. There are chances of potential contamination from pumps and wells, especially outside the household. Even piped water quality can be compromised by leakages and in certain situations, may come from suspect sources such as stagnant water. Adequate access implies availability in the household or within 2 km and/or less than half an hour away. Again, this does not necessarily imply sufficient amounts of water. Sindh MICS 2014 found that 3% of household members were using drinking water with over 10 ppb Arsenic concentration, and 39% of households are using drinking water indicating E.coli contamination. In 79% households, the source of drinking water supply is found in the house, while 15% of households have to travel up to 0.5 km to obtain water³.

Only 12.8% of household members in households using unimproved drinking water use an appropriate treatment method⁴.

4.2 Status of Water Supply Schemes

Pakistan Council of Research in Water Resources (PCRWR) conducted a technical assessment of water supply schemes in 22 districts in Sindh in 2010⁵. The survey found that the performance of these schemes in terms of providing water in an adequate quantity and of safe quality, was extremely poor. About 58% of the schemes were not functioning. Therefore, nearly 47% of the total enumerated population was unserved by the water supply schemes. Furthermore, 98% of the functional schemes were providing water to the consumers, which is unsafe for drinking purposes. About 95% water sources of the functional schemes were unfit for drinking purposes.

4.3 Key Issues

The following are some of the key issues impeding drinking water supply in Sindh:

Water availability and quality

- More than 95% of water sources and supply systems are contaminated with poor quality water not fit for consumption (as per the PCRWR survey 2010)
- There is brackish ground water in almost two-thirds of the province, which makes water supply schemes costly
- There is overexploitation of groundwater, which is threatening the water balance
- More than 90% of available water is being used for agriculture (irrigation) with centuries old methods leading to huge losses. There is need to employ more water efficient irrigation methods and to conserve water for other uses

³ Pakistan Social and Living Standards Measurement Survey 2013-14. Pakistan Bureau of Statistics, Government of Pakistan

⁴ Sindh Multiple Indicator Cluster Survey 2014, Key Findings. Government of Sindh; Pakistan Council of Research in Water Resources; and UNICEF

⁵ Technical Assessment Survey Report Water Supply Schemes, Sindh Province 2010. Pakistan Council of Research in Water Resources

- There is inadequate water treatment with low degree of sedimentation, inadequate flocculation, no addition of coagulant, inappropriate filtration and absence of chlorination
- A major challenge is availability of water in urban informal settlements which often have land rights and legal ownership issues
- Drought like situation in rain fed areas like Tharparkar is also a serious challenge

Sector Inefficiency

- Diffused and fragmented responsibilities in the sector leading to inefficient services and lack of accountability institutional structures impede delivery of drinking water supply systems
- Lack of a water supply regulator results in unregulated ground water extraction, water mafia in urban areas and duplicitous supply systems
- Insufficient allocation of funds to the sector hinder achievement of coverage and access targets
- Most of the water and sanitation schemes' infrastructure is old and dilapidated, and therefore hampers effective service delivery
- Low cost recovery leading towards ever deteriorating water and sanitation services

Monitoring, Coordination, and Operation and Maintenance

- Poor monitoring and little oversight due to inadequate governance systems
- Lack of coordination among various actors in the sector; leading to overlapping and duplication of resources and efforts

Community Participation

- Poor consultation with communities in case of public sector schemes
- Most of the sector schemes are supply driven and not demand driven; and as such more likely to fail when these are handed over to communities for post completion operation and maintenance (O&M)

Town and City Planning

- Haphazard development in absence of any master plan at city and town level
- Capacity building gaps among the policy makers, institutions and civil society organisations

Demographics

- Huge population influx in Karachi from all over Pakistan putting more pressure on already limited availability of water and sanitation services
- In urban areas, slums and poor settlements are often neglected for water and sanitation services

5. POLICY APPROACHES

5.1 Legislation

In view of the Sindh Local Government Act 2013 and ensuing water and sanitation functions of local government, and the various Acts, Regulations and Standards that relate to water and sanitation, environment and health, a legislative review shall be undertaken to harmonise duty bearer and stakeholder understanding about the implications of these legislative and administrative instruments. The Sindh Local Government Act 2013 shall be amended to clearly indicate the role of Public Health Engineering and Rural Development Department in rural water supply and operation and maintenance, and to direct full administrative transfer of staff and funds to enable them to undertake this role. Existing rules and regulations relating to drinking water supply shall be implemented and adhered to. Further, a 'Water Regulatory Body' shall be created to provide for a long-term sector perspective with regulatory functions to cover: (i) compliance with environmental regulations and monitoring of water quality; (ii) surface water use and groundwater abstraction; (iii) tariff setting; (iv) providers' performance; (v) rationalisation of competing uses of water; and (vi) protection of customer interests.

The Water Regulatory body, through legislative and institutional mechanisms and processes, shall adhere to principles of 'equity', 'universal coverage', 'social justice' for provision of drinking water as a basic human right to the populace. Further, transparency and accountability shall be ensured through new and existing provincial legislation and regulations.

For tariff setting, clear policy guidelines for the poor, marginalized and vulnerable, who are or will not be able to pay for services, shall be formulated indicating minimum criteria and options for them. Further, tariff setting shall take into consideration the social and economic status of the people and level of services (by service providers), in both urban and rural settings.

Legislative measures and regulations shall be introduced to create an enabling framework for safely managed drinking water supply, regulation of water usage, extraction, treatment, transportation and distribution to meet the requirements of SDGs.

5.2 Water Resources

The proportion of fresh water that is used for domestic, municipal and industrial purposes accounts for only 10%, while 90% is utilised by irrigation for agriculture. An integrated water resource management policy approach shall be adopted and multi-sectoral engagement undertaken to determine water conservation measures that can aid in meeting rising demand for drinking water and enhance the use of surface water. Mapping of fresh water sources for drinking water shall be conducted and capacities of water reservoirs enhanced. Where feasible, rainwater harvesting and desalinations options shall be pursued. Wastewater treatment plants shall be installed to recycle, recharge and reuse wastewater for municipal and horticultural purposes.

In view of the declining water resources, high risk drought areas and growing population in the province, a provincial water resource management strategy shall be formulated that takes into consideration the immediate, medium term and longer term agricultural, energy, municipal, domestic and industrial water needs for the province.

5.3 Water Supply

The minimum acceptable option for the provision of safely managed domestic water is that water shall be provided through an improved facility e.g. piped system, located on premises, available when needed, and free from contamination, to meet the minimum requirement of 50 litres (11 gallons) per person per day. In rural settlements, water shall be provided through communal points to meet the minimum requirement of 25 litres (5.5 gallons) per person per day. Where domestic water supply is not of acceptable quality, a provision of at least 4 litres per person per day of drinking water shall be provided, so that no household is more than 0.5 km from the point of supply. In development of new schemes, piped water supply shall be prioritised as the preferred approach, recognising that this may not be possible in all settings.

Cost-effective, environmental friendly and appropriate technological options to suit local conditions and social and cultural practices shall be used and developed. Operation and maintenance and availability of spare parts and supplies shall also be given due consideration in the selection of technological options to ensure sustainability. Academia and other research institutes shall be involved in developing the affordable solutions. The departments of Local Government, Public Health Engineering and other allied departments shall develop standard operating procedures for planning, designing, construction, monitoring, operation and maintenance of various categories of water supply schemes to ensure adherence to the technical standards and specifications, quality construction and sustainable services.

While designing water supply schemes, energy and environment issues shall be addressed, and a multi-sectoral approach shall be adopted where feasible.

Every water utility shall have an exclusive policy to expand its outreach in slums and katchi abadies, and in areas that are nutritionally vulnerable.

Advisories shall be issued so that all new water supply schemes ensure that distribution points are provided to nearby schools and health facilities. In addition, priority shall be given to completion of ongoing schemes. Where feasible, as a principle, water recycling shall be incorporated in all new schemes and used for municipal services.

5.3.1 WASH4Work

In collaboration with UN agencies and the private sector, a special WASH4Work⁶ umbrella campaign shall be undertaken to substantially increase the number of employees in Sindh who have access to safe water, sanitation and hygiene (WASH) in their workplace, across supply chains, and aligning those efforts with the broader objectives of mainstreaming water stewardship, improving worker welfare, and improving WASH in communities; with a particular focus on women and girls.

5.4 Water Quality

The National Drinking Water Quality Standards shall serve as a reference to adapt and develop Sindh Drinking Water Quality Standards. In collaboration with PCRWR and international partners, a district and taluka-wise status of water quality shall be ascertained. New schemes shall take cognisance of water quality data and ensure that drinking water quality standards are adhered to and water treatment options are incorporated at source. In the initial phase, district level water quality testing laboratories shall be established with provision of testing for Arsenic and heavy metals. Appropriate technical and support staff shall be deployed following a capacity needs assessment and human resource development and deployment plan. A mechanism for mobile water testing laboratories at district level shall be instituted to test potable water for rural areas.

Quality mapping of all urban water supply schemes shall be ensured to plan and implement a “Sindh Drinking Water Quality Improvement Plan” across the province.

In collaboration with Sindh Environmental Protection Agency (EPA), industrial effluent draining into freshwater sources shall be closely monitored and stipulations of the Sindh Environmental Protection Act 2014 and related regulations strictly enforced by EPA. Combined Effluent Treatment Plants (CETPs) shall be established for treatment of industrial wastewater, where feasible.

An Information, Education and Communication (IEC) campaign shall be launched to raise awareness amongst communities about the risks of poor quality and contaminated drinking water, and among industries about the hazards of untreated industrial effluent. The communities shall be educated about low cost but effective water treatment methods for use in home and communal settings.

Communities shall be encouraged and taught to adopt treatment of safe drinking water in the household e.g. by using chlorination; boiling; solar disinfection (SODIS) via heat and UV radiation; filtration with different types of filters; and combined chemical coagulation, flocculation, and disinfection. Further, communities shall be advised to ensure that all treated water is stored in a clean and appropriate vessel with a narrow neck and a tap and/or lid.

⁶ Nathaniel Mason, Mariana Matoso and William Smith. Private Sector and water supply, sanitation and hygiene - Driving catalytic engagement. ODI, 2015

5.5 Health, Nutrition and Hygiene

Health, nutrition and hygiene modules with special emphasis on water and sanitation shall be developed for incorporation in training programmes for LG&HTPD and PHE&RDD. Similar modules shall be developed for integration into training curricula of Lady Health Workers for health promotion in communities. All new drinking water supply schemes shall incorporate a mandatory health, nutrition and hygiene component as part of the community participation process.

Drinking water supply schemes shall be made nutrition sensitive and where feasible an integrated approach shall be adopted with health, nutrition and education programmes. This may include adopting an integrated WASH and Nutrition approach, which includes among others:

- Handwashing with soap at critical times
- Safe disposal of infant and animal faeces
- Safe water treatment and storage
- Exclusive breastfeeding
- Complementary feeding
- Prevent stunting and maternal and child anaemia in the first 1,000 days and improve infant and young child feeding
- Referring malnourished children to health care facilities
- Rehabilitating drinking water supplies
- Promoting point-of-use water treatment
- Conducting nutrition (cooking) and food hygiene demonstrations

Communities shall be encouraged to adopt essential food safety actions that include:

- Keep food preparation areas clean, including hands, surfaces, and utensils
- Separate raw and cooked food
- Cook food thoroughly
- Keep foods at safe temperatures
- Use safe water and raw materials

Essential Nutrition Actions shall be adopted within integrated WASH-nutrition programmes and include the following:

- Promotion of optimal breastfeeding during the first six months
- Promotion of optimal complementary feeding starting at six months with continued breastfeeding to 2 years old and beyond
- Promotion of optimal nutrition for women
- Promotion of optimal nutritional care of sick and severely malnourished children
- Promotion of adequate intake of iron and folic acid and prevention and control of anaemia for women and children

- Promotion of adequate intake of iodine by all members of the household
- Prevention of vitamin A deficiency in women and children

Public awareness campaigns on water and health and nutrition issues shall be promoted with the help of non-governmental bodies, educational institutions and mass media. Standardised messages and effective materials shall be developed for use within health, nutrition and WASH programmes.

5.6 Education

Curricular change that includes modules on health and hygiene with special emphasis on water and sanitation shall be introduced into teacher training curricula for pre- and in-service teacher training programmes. A health, nutrition and hygiene booklet and resource kit shall be developed for school children to create awareness and enhance health and nutrition promotion and hygiene practices and disseminate these messages to their families. Standardised school WASH infrastructure guidelines shall be developed so that infrastructure is inclusive and accessible for all.

5.7 Sector Efficiency

Mapping of all dysfunctional urban and rural water supply schemes shall be undertaken to determine those 'fit for repair' and their rehabilitation initiated on priority basis.

Standard operating procedures shall be developed for water supply schemes in urban and rural settings.

Sector governance shall be improved through various measures including e-procurement, ensuring market-based rate structures, which are standardised and regularly updated for civil works in water and sanitation scheme bids, and introduce mandatory design and supervision by consultants of civil works contracts above a threshold.

The monitoring of non-revenue water by virtue of system losses and wastage must be a continuous process. It is a specialised job, needing leakage detection equipment and allocating permanent monitoring points in the system. Water meters shall be installed in the system to monitor the flow in towns and cities. Training shall be imparted to the PHE&RDD, KW&SB, WASA and Local Government staff, under O&M training, to detect, manage and prevent leakages in the system. The provision for capacity building and leakage detection equipment and water meters shall also be included in financial plans.

5.8 Sector Capacity

A human resource review of cadres working in the sector shall be conducted to assess existing capacities and human resource needs for: (i) strategic planning and management; (ii) engineering and technical; (iii) financial management; (iv) urban management; (v) social/community development/customer focus.

Capacity building programmes shall be prioritised in areas of planning, monitoring and evaluation (M&E), asset management, regulation and financial management. Further, sector capacity needs shall be enhanced for humanitarian response, disaster risk reduction and disaster preparedness.

The capacities of local government training institutions shall be strengthened to meet the demands of capacity building. Financial allocation for capacity building shall be enhanced and collaboration shall be sought with international development partners.

5.9 Sector Financing

In the urban context, provision of water and sanitation schemes shall be well integrated within the overall urban sector planning. Overall sectoral development at provincial, district and utility levels shall be undertaken in a phased manner in line with the sectoral development plan and related development plans of the government.

Village development plans (VDPs) shall be prepared for each village and shall adhere to the general guidelines given in the rural development policy.

Before embarking on new schemes, budget allocation for on-going schemes shall be done on priority basis to ensure timely completion and to avoid cost over-runs.

Policy frameworks shall be reviewed to cover the critical issue of cost-recovery; both for capital investments and O&M. Where subsidies are to be provided, these shall be targeted and explicitly stated.

Demand-based budgeting shall be introduced that is responsive to identified and rationalised needs, and is based on clear mandates and jurisdictions between key sector institutions.

The KWSB, NSUSC, LG&HTPD, Hyderabad WASA, and PHE&RDD shall be empowered to generate sector funding within the provisions of existing legislation and regulations.

The providers shall be urged to promote metering of water consumption to discourage the indiscriminate use of water. This shall be done by individual, collective or bulk metering as appropriate.

The implementation of professional systems for billing and collection shall be encouraged through options such as strengthening the local governments, outsourcing to the private sector, community-based system of collection, etc.

“Public Private Partnerships” in water and sanitation shall be promoted through a clear policy, and an enabling environment that fosters integrated water and sanitation schemes.

A mechanism shall be developed to collate, analyse and disseminate comprehensive financial management information for the sector that incorporates sub-sector allocations and tracks expenditures for improved planning and execution.

Sectoral expenditures for drinking water supply shall be enhanced to 10% of the total provincial Annual Development Plans (ADP) in the mid to long-term from the current 7.5% in 2015-16⁷. These enhancements shall be reflected in the Medium Term Development Frameworks and Annual Development Plans.

The water tariff shall be revised periodically according to ground realities, feasibility for volumetric-based charging, affordability and in consultation with end-users, and ensure its timely collection.

5.10 Sector Coordination

A province-wide stakeholder analysis shall be undertaken to map and document the multiple stakeholders in the sector and their current roles, and identify a clear segregation of roles and responsibilities for ‘Policy’, ‘Regulation’ and ‘Service provision’ supplemented by support for sub-sector coordination and planning.

The roles and responsibilities of key stakeholders shall be clarified and delineated, and enshrined in policy, especially the role of elected representatives in relation to allocations for water and sanitation, the role of the administrative and technical arms of local governments and line departments, the roles of communities and community based organisations, the role of NGOs, and the potential roles of the private sector. A mechanism for sector coordination at provincial, district and taluka levels shall be defined and institutionalised, and would also include coordination for humanitarian response.

A policy shall be developed at government level to streamline administrative and coordination mechanisms for the executing agencies related to other department like irrigation, WAPDA, land acquisition etc.

5.11 Sector Monitoring

A review of departmental and existing systems of monitoring (at all tiers of government) shall be undertaken to determine capacity needs and where to strengthen existing structures for better and more systematic generation of information, in relation to physical assets, financial management and service delivery. Third Party Audit, monitoring and inspection shall be conducted by the Auditor General Sindh, Monitoring and Evaluation Cell (MEC), Planning and Development Department,

⁷ ADP allocations for drinking water supply under Local Government, Housing & Community, Physical Planning Housing, Public Health Engineering, Community Development Programme, and Special Initiatives. This does not include sectoral funding from Federal Government or grants to Members of National Assembly (some of which are used for water and sanitation).

Government of Sindh and Chief Minister Inspection Team (CMIT) with the governmental and non-governmental organisations. Performance monitoring shall be systematically carried out and built into the work-plans of oversight/regulatory bodies. High tech and low cost tool for GIS/SMS/IVR call based monitoring shall be introduced where feasible to enhance and facilitate monitoring mechanisms.

A sector information management system shall be prioritised for development that incorporates digital integration, web-based reporting applications, and GIS applications. The information system shall generate a district score card for the sector and sub-sectors that can be used to improve planning, monitor progress, determine coverage and access, and prioritise interventions.

A programme management unit shall be established to manage sector coordination and reporting, maintain the sector monitoring and information management system, liaise with institutionalised government monitoring systems, facilitate implementation of sector policies and sector development plan, act as a conduit for inter-sectoral collaboration, operate as a repository of information and knowledge, and generate sectoral progress reports for the Government of Sindh and other stakeholders.

LG&HTPD, PHE&RDD and KW&SB shall collect primary information on status of water availability, functional and dysfunctional scheme and quality of service.

All completed schemes/projects shall ensure that PC-V is duly completed and submitted.

5.12 Institutional Arrangements

5.12.1 Roles and Responsibilities under the Sindh Local Government Act 2013

All provincial, district, Taluka and UC level legislative bodies and government departments and agencies shall fulfil their roles strictly in keeping with the provisions of the Sindh Local Government Act 2013 (mainly based on the Local Government Ordinance 1979).

A system of feedback, consultation and coordination shall be established at the provincial, district and local government level between all agencies (such as Environment Protection Agency, Health, Education, and Urban and Regional Planning Departments and institutions) dealing with water and sanitation issues.

The local governments shall provide technical support to NGOs and CBOs working on water supply and sanitation related issues on the self-help component sharing model or other community initiatives.

5.12.2 Provincial and District Level Arrangements

The departments of Local Government and Public Health Engineering shall be responsible for the execution of the drinking water policy. The following mechanisms shall be adopted.

Multi-Sectoral Nutrition Steering Committee

The P&DD has established a Multi-Sectoral Nutrition Steering Committee represented by most sectors. This committee shall incorporate WASH and be renamed Multi-Sectoral Nutrition and WASH Committee. For projects that require collaboration with other sectors, LG&HTPD and PHE&RDD shall utilise the Steering Committee for improved coordination and high level planning. The Steering Committee shall provide policy guidance and coordination to the different sectors.

Departmental Technical Committees

The Departmental Technical Committees shall be operationalised and review ongoing and proposed new schemes for technical and financial oversight and guidance in relation to the Annual Development Plan (ADP).

Strategic WASH Technical Working Group

A Strategic WASH Technical Working Group, already notified by Government of Sindh, shall monitor overall progress and facilitate implementation of the WASH Sector Development Plan 2016-2026, provide a forum for inter-departmental coordination for the implementation of the plan, promote alignment of sector partner projects with the Sector Plan, and facilitate donor engagement and reporting.

Sector Coordination and Monitoring Unit (SCMU)

A SCMU shall be established under the auspices of P&DD as part of the Nutrition Unit to facilitate implementation of the sector development plan. The SCMU shall liaise with the Multi-Sectoral Steering Committee, Departmental Technical Committees, Strategic WASH Technical Working Group, Monitoring and Evaluation cell in P&DD, and the District Coordination and Monitoring Unit (DCMU).

District WASH Committees

A District WASH Committee shall be set up and operationalised under the DC Office.

Representation of relevant district staff of LG&HTPD, PHE&RDD, Health and Education on to this committee shall be required. Other sector representation shall be co-opted as required. The District WASH Committee shall perform the role of sector coordination, planning, and multi-sectoral collaboration.

District Coordination and Monitoring Unit

A District Coordination and Monitoring Unit (DCMU) shall be set up and operationalised under the DC Office. Each DCMU would be staffed by a District M&E Manager and supported by two Water and Sanitation Reporting Officers. The DCMU shall have reporting arrangements to the SCMU and shall liaise with the EXEN Office and LG tiers for information regarding schemes, and also with other sectors like health and education for issues related to the sector. The DCMU shall compile physical and financial progress data on ongoing and completed schemes, make monitoring visits to scheme sites, determine the status of O&M of schemes visited, and provide monthly reporting to the SCMU. DCMU data shall be used to develop district scorecards for water, sanitation and hygiene.

5.12.3 Local Government Arrangement

The line departments shall facilitate the development of plans in collaboration with the local governments. The staff of the departments of LG&HTPD and PHE&RDD shall be made skilful in mobilisation, organisation, implementation and operation and maintenance of any development scheme undertaken in a Union Council. Water Management Associations (WMAs) shall be formed for monitoring the operation and maintenance of the scheme by the WMAs. Water Supply Committees shall also be formed in each tier of local government.

5.12.4 Environmental Protection Agency (EPA)

Sindh EPA shall play its state function to regulate the overall sector activities, prepare legislation, and penalise the offenders through courts as per "polluter-to-pay" rule. EPA shall also provide technical support to Planning and Development Department (P&DD) and line departments in developing sector guidelines as per their respective mandates. EPA shall be responsible for development of a provincial Water Quality Monitoring and Surveillance Protocol in line with National Environmental Quality Standards (NEQS).

5.12.5 Health Department

The department shall raise awareness and institute behavioural change about safe water, sanitation and its related health, nutrition and hygiene implications among the beneficiary communities, through the Nutrition Support Programme and paramedical staff and Lady Health Visitors/Lady Health Workers (LHVs/LHWs). The department shall assist EPA and P&DD to set health standards for quality and quantity of safe drinking water required for human beings.

5.12.6 Education Department

The education department shall implement and integrate safe drinking water awareness, nutrition and behaviour change communication in schools and coordinate with P&DD, line departments and NGOs to set plans and programmes for safe water supply schemes. The department shall ensure implementation of national schools Water, Environment and Sanitation (WES) standards.

5.12.7 Non Government Sector

NGOs, Civil Society Organisations (CSOs), and Community Based Organisations (CBOs) shall be encouraged to participate in the provision of water supply and sanitation infrastructure in rural as well as urban areas. The NGOs shall be encouraged to assist the government in mobilising communities for water supply schemes related programmes and projects.

5.12.8 Private Sector

The Government of Sindh shall create an enabling environment to foster further interaction between the government, private sector, companies like NSUC, and semi-government agencies for development and promotion of safe drinking water supply.

5.12.9 Media

Electronic and print media shall be encouraged to disseminate awareness messages to the wider population. The Government and NGOs shall assist them to develop educational programmes on water and health related issues and implement such programmes.

5.12.10 Religious Leaders

Ulema and Khateebis shall be encouraged to raise awareness about water and sanitation among the wider population through their religious sermons and in their routine preaching to the general public.

5.12.11 Academia and Research Institutes

Key academic institutes shall be involved in research and gathering evidence for drinking water especially in identification, development, management and conservation of drinking water sources.

5.13 Community Participation

Communities shall be involved in the planning, implementation, monitoring and O&M of the water supply schemes. The O&M of the schemes especially in the remote areas/villages shall be handed over to the Drinking Water User Associations (DWUAs), which can generate ample revenue by collection of water charges to maintain the water supply schemes.

Local governments shall hold public consultations at the conceptual design of the development plan, schemes and projects.

5.14 Public Awareness

Intensive information, education and communication campaigns shall be designed and implemented to promote water safety, water conservation and safe health and hygiene practices. To this effect, a comprehensive programme shall be formulated that will concentrate particularly on the womenfolk of the area as they are the key players in domestic use of water.

5.15 Rules for Operation and Maintenance of the System

The rules for operation and maintenance shall be formulated by LG&HTPD and PHE&RDD by taking all stakeholders on board. Due emphasis shall be given to identify innovative approaches like one year O&M support as a part of development schemes, handing over to communities, etc.

5.16 Public-Private Partnership

Private entrepreneurship and public-private partnerships for enhancing access to safe drinking water, O&M of water supply systems, resource mobilisation and capacity development shall be explored specifically in urban areas. The role of civil society organisations to support the government's efforts in this context shall be encouraged.

5.17 Research and Development

Special efforts shall be undertaken to pilot new approaches and innovative ideas and arrangements in the drinking water sector, especially those which help to improve access, quality, efficiency, effectiveness and sustainability. Where these pilots are successful, they shall be widely disseminated and plans made to scale-up and replicate them.

5.18 Disaster Risk Reduction

Provincial, District and Taluka level risk reduction plans (emergency preparedness and response plans) shall be developed in line with the Sphere Standards to ensure provision of clean water to the people affected by emergencies such as floods, earthquakes, droughts and conflicts. Water supply systems shall be designed and constructed with due consideration to climatic events, natural disasters and emergencies, and training programmes on emergency preparedness, mitigation and response shall be arranged for the staff of line departments, civil society organisations and communities in the light of the strategy devised by the Provincial Disaster Management Authority (PDMA) in connection with LG&HTPD, PHE&RDD and other stakeholders. In view of the climatic risk, disaster risk reduction and mitigation strategies and actions shall be developed through community led water safety and security planning and its implementation.

5.19 Coordinated Planning and Implementation

A sector-wide approach shall be promoted for the water supply sub-sector. The indicators of existing data collection systems such as Pakistan Social and Living Standards Measurement Survey, Multiple Indicator Cluster Survey, Demographic and Health Survey and Population Census shall be streamlined to meet the requirements of SDGs.

In order to enhance sector coordination and minimise the risk of wasteful duplication of work, a Management Information System shall be developed, so that the database with all the relevant information about drinking water supply systems in the province can be used for improved planning and execution.

5.19.1 Education and Health

In view of the fact that about half the schools (especially primary schools) and many health care facilities in the province do not have a functional drinking water supply, adequate allocations shall be made by the respective line departments (Education and Health) for provision of safe drinking water supply facilities in educational institutions and health care facilities under the respective education and health sector programmes. Technical assistance for planning and execution of schemes shall be provided by LG&HTPD and PHE&RDD.

5.20 Implementation Arrangements

The policy shall be implemented by the Government of Sindh, local governments, and government agencies in accordance with the guidelines, principles and measures spelt out in this document.

Communities, NGOs and the private sector shall be supported and their involvement encouraged in accordance with the provisions of the Policy.

A policy and regulatory framework for coordination between the various sectors involved in water and sanitation related issues shall be put in place at the provincial and local government level.

A programme for the upgrading of informal settlements shall be instituted on lines similar to that of the katchi abadi improvement and upgrading programmes.

While conducting WASH assessments of communities, nutrition assessments shall also be integrated so that a WASH-Nutrition assessment is conducted. Similarly, WASH assessments shall be included in nutrition assessments.

The departments of Local Government and Public Health Engineering shall be responsible for the execution of the drinking water policy. Under the Sindh Local Government Act (2013), District and Union Councils are responsible to provide technical support to Community Based Organisations (CBOs) working on water supply and sanitation related issues on the self-help component sharing model or other community initiatives. The line departments shall facilitate the development of plans in collaboration with the local governments. The staff of the departments of LG&HTPD and PHE&RDD shall be made skilful in mobilisation, organisation, implementation and operation and maintenance of any development scheme undertaken in a Union Council. LG&HTPD and PHE&RDD can play a very positive role in community organisation, establishment of Water Management Associations (WMAs) and monitoring the operation and maintenance of the scheme by the WMAs.

The Drinking Water Policy goals and objectives can only be achieved through strong community mobilisation. It is envisaged that the Communities shall be involved in the planning, implementation, monitoring and O&M of the water supply schemes (WSS). The O&M of the schemes especially in

the remote areas/villages shall be handed over to the Drinking Water User Associations (DWUAs), which can generate ample revenue by collection of water charges to maintain the water supply schemes. Local governments shall hold public consultations at the conceptual design of the development plan, schemes and projects, while PHE&RDD provides technical assistance to DWUAs. PHE&RDD shall not be involved in the collection of revenue. Modifications in the designs shall be carried out to accommodate the concerns of the stakeholders. The PC-1s shall be prepared only after such a process has been carried out. Local Council Monitoring Committees shall oversee the programme/project/scheme.

For effective and sustainable rural water supply schemes (RWSS) management in Sindh:

- a) PHED shall appoint Social Mobilisation/Community Development Officers with proper qualifications to interact with communities
- b) Local government (LG) department in coordination with Social Mobilisation/Community Development Officers of PHED shall constitute the Local Council Monitoring Committee (LCMC) and hold public consultations at the conceptual design of the RWSS development plan, schemes and projects.
- c) The site selection of the RWSS shall require recommendation of the LCMC following which PHED will be responsible for Engineering Design, Procurement of Materials, Construction, Installation and Commissioning.
- d) Upon completion of the RWSS, the scheme shall be handed over to the respective Drinking Water User Association (DWUA) for operation and maintenance (O&M) of the RWSS. DWUAs shall be able to generate ample revenue by collection of water charges to maintain the water supply schemes. The water tariff shall be set as per recommendations of the DWUA in consultation with the community.
- e) The minor repair requirement of the RWSS shall be met within the revenue generated by the DWUA and major repairs of the RWSS shall be met from the budget of O&M Wing of the PHED. Moreover, technical support for minor/major repair shall also be provided by O&M Wing of PHED. O&M and minor repair manual shall be prepared by PHED and handed over to the DWUA for smooth functioning of the RWSS.
- f) DWUA shall sign a memorandum of agreement (MoA) with PHED to give their (DWUA) commitment to undertake regular monitoring and reporting to O&M Wing of PHED, and for carrying out O&M by the DWUA from the revenues generated from the scheme. The disbursement of revenues shall be the sole responsibility of the DWUA.
- g) Monitoring of RWSS shall be the sole responsibility of PHED and develop/maintain web based GIS/MIS of all RWSS and report the level of functionality of RWSS.
- h) PHED shall be designated as the lead agency for RWSS working in close coordination with LG department in Union and District Councils and its Rules of Business (ROB) shall be revised including design, construction, installation, commissioning, and monitoring (O&M, minor/major repair) of the rural water supply schemes.

- i) The Annual Development Plan (ADP) of PHED shall reflect the following:
- New and ongoing rural WSS (RWSS)
 - Rehabilitation of non-functional RWSS
 - Upgrading/extension of existing RWSS
 - Major repair of existing RWSS
 - Behavioural Change Communication Campaigns/activities, IEC production and dissemination, trainings (PHED staff & DWUAs)