



PUNJAB DRINKING WATER POLICY



GOVERNMENT OF PUNJAB

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This policy articulates the vision of the Government of the Punjab for drinking water, the direction of the Government's planning, investment and institutional reform.

1. Preamble

Pakistan's commitment to the Millennium Development Goals (MDGs) has reaffirmed the Government's resolve towards reducing the proportion of the population without sustainable access to safe drinking water to one half by 2015. The formulation of an adequate framework for the implementation of this particular agenda has been done through the National Drinking Water Policy, which acknowledges access to safe drinking water as a fundamental right of every citizen.

The Government of the Punjab is cognizant of its responsibility to ensure provision of safe drinking water for the entire population of the Province. The Government of Punjab is, therefore, committed to create an enabling environment for the drinking water sector to ensure reliable, sustainable and affordable drinking water to its growing population. The policy document will provide a framework for addressing the institutional, administrative, legal, regulatory, fiscal, social & environmental issues and challenges faced by both its rural and urban population.

The "Punjab Drinking Water Policy" provides guiding principles under which the efforts of provincial and local authorities shall be planned and coordinated. To keep the policy framework in line with the aims of the Federal Government, the Government of Punjab has adopted the key principles outlined in the National Drinking Water Policy of 2009. Apart from creating policy coherence, this alignment ensures that the province is playing its part in meeting the requirements of the MDGs for the provision of safe drinking water within the stipulated timeframe.

2. Background / Current Status

Punjab is a province of almost ninety million people. Less than 50% of this population has access to piped drinking water. The percentage of rural population which has access to clean drinking water is even less than 30%. There is an overwhelming dependence on ground water in this Province for provision of clean drinking water. There is a very little proportion of our population which is being provided water from surface water and even lesser is reliant on natural springs. The Province does not have major water storage facilities or rain water harvesting systems. While the Government of Punjab is investing more in every subsequent ADP for provision of drinking water to urban and rural populace and the number of rural and urban water supply schemes is increasing, the following issues beset the water sector and need to be addressed:

- ★ Water level depletion due to excessive mining of underground water and decreasing recharge of aquifers due to shortage in the movement of water through river basins. Wastage of sweet drinking water as a result of lack
- ★ of awareness, absence of regulatory frameworks, non existence of demand management tools like consumer meters and highly inappropriate tariffs.
- ★ Contamination of surface and underground water aquifers due to discharge of untreated industrial, domestic and commercial effluent.
- ★ Increase in arsenic levels and of other contaminants in the underground water aquifer.
- ★ Contamination of urban drinking water due to leakage in over aged water and sewerage pipes.
- ★ Water recharge is also affected by the growing and unbridled urbanization which is resulting in concretization of land.
- ★ Capacity of urban municipal institutions / WASAs at all levels in planning, implementation and monitoring of water supply programs and sustainable operation and maintenance of water supply systems is deficient.
- ★ Our rural water sector is being operated and maintained mostly by the rural communities, without any administrative, technical, and financial support from the Government.

- ★ There is a total absence of any mechanism to rehabilitate and augment rural water supply schemes after the passage of the designed life of the scheme.
 - ★ Absence of institutional mechanism to generate reliable data on water sector.
 - ★ Resource allocation is not based on need assessment, criteria and data.
 - ★ Unplanned and ad-hoc investment in the sector not yielding desired results.
- This policy document purports to lay the direction in which the Government of Punjab will channelize its efforts and investments.

3. Vision

The vision of the Government of the Punjab is provision of safe drinking water of an adequate quantity at an affordable cost through equitable, efficient and sustainable services to all citizens by 2020. In order to translate this vision into reality, the Government of Punjab shall introduce measures to ensure sector reforms, political consensus, judicious need based resource allocations and effective stakeholder / community partnerships.

The key objectives of the policy to achieve the vision include:

- i. Improving the standards of the public health through provision of improved services backed up by a legal, regulatory and binding framework.
- ii. Laying down a roadmap for mobilization of the resources required to ensure provision of drinking water to all by the target timeline, assigning a priority to unserved and under-served areas of Punjab.
- iii. Focusing on the capacity building of local governments and Private-Public Partnership to improve the operation and maintenance of water supply schemes.
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- iv. Mobilizing demand for improved water supply through a communication campaign, which takes cognizance of conservation, demand management, and contamination issues.
- v. Facilitating the introduction and institutionalization of an effective Monitoring and Evaluation System, which includes performance benchmarking in service delivery.
- vi. Ensure protection and conservation of water resources.
- vii. Serving basis for the development of sector strategies, both for urban and rural water sector, to translate policy principles into action.

4. Policy Principles

- ★ The key policy principles to be highlighted are as follows:
Water is a finite and essential resource, the use of which needs to be regulated and measured in order to avoid wastage and misuse.
- ★ Drinking water allocation for domestic purposes will have priority over all other usages.
- ★ Saving underground water aquifer as well as surface water from contamination of all kinds will be given top priority through legislation / regulation as well as increasing public awareness.
- ★ Resource allocation for provision and conservation of drinking water will be based on need based criteria and will be aimed at creating an equitable distribution between urban and rural Punjab. Areas where drinking water is scarce or contaminated will be given priority.
- ★ The community, particularly in rural areas, will be organized and provided administrative, technical and financial backup in order to effectively operate and maintain rural water supply schemes.
- ★ Public service provision institutions (WASAs, TMAs and others) will follow a reform program which will be based on rationalization of tariff, reduction of inefficiency cost and improvement of service delivery.
- ★ The private sector and non-governmental organizations will be encouraged to develop and implement service delivery models, in line with the objectives and principles of this policy.
- ★ The Policy is a step in the direction to introduce a performance based service delivery culture and releases to service providers (WASAs, TMAs and other public entities) will be linked to achievements to their performance targets set by this Policy and recognition of Community Based Organizations (CBOs) by awarding them performance awards.

5. Policy Targets

A. Legislation

As water resources become scarce and the growth in Punjab's population threatens to create an acute shortage of per capita availability of drinking water, the need to regulate drinking water and to save the aquifer through a comprehensive legislation is felt by the Government as well as by the civil society. The Government of the Punjab, with the consensus of all stakeholders (provincial departments, elected representatives, and the civil society) will enact the Punjab Municipal Water Act. This Act would provide a statutory, independent, institutional setup that will regulate policy principles; standards and the performance of service delivery agencies in the light of this policy. This law will be enacted and enforced by 2013.

B. Institutional reforms in the Urban Water Service Providing Government Agencies

Water & sanitation agencies exist in five major cities of the Punjab. They are responsible for provision of water & sanitation to the major portions of the city, by creating infrastructure which is invariably funded by the Provincial Government for operation & maintenance of this infrastructure and collection of tariff from the users. The inability of the WASAs to set a rationalized tariff & collect it from consumers is becoming an administrative and financial liability on the Government exchequer.

The Government will launch an institutional reform program which will not only focus on improvement in service delivery but also address allied issues such as rationalization of tariff, improvement in management of organization and introduction of performance monitoring systems so as to ensure that the WASAs are transformed into a progressive; accountable and financially viable institution by the year 2016. By the year 2016, the WASAs would also ensure installation of consumer meters on 100% connections. The Government will adopt measures to promote various proven community participation approaches to ensure community involvement in various aspects of service delivery.

The Government of Punjab will invest in major wastewater treatment facilities in all the WASAs to ensure conservation of underground water aquifers as well as water bodies like rivers & canals. The reduction of non revenue water and leakages which result in contamination of drinking water will be ensured by the year 2015.

The Government of the Punjab will invest in better water storage facilities in all WASAs as well as rain harvesting mechanisms.

C. Town / Tehsil Municipal Administrations

Other than the WASA run cities, all other cities & towns of the Punjab are managed by the Town / Tehsil Municipal Administration. Most of the issues faced by WASAs are also the cause of poor performance by TMAs. The Government of the Punjab invests in the Water & Sanitation infrastructure through the Public Health Engineering Department. It is, however, a common perception that the Town / Tehsil Municipal Administrations have serious capacity issues in operating & maintaining this infrastructure. Levying of appropriate tariff rates and recovery of O&M cost is a necessity that requires immediate attention. There is a need to focus on installation of water meters and conducting periodical surveys to ascertain the number of users (legal or illegal). Quality of service being provided to the consumers needs to be monitored and improved. The Government of the Punjab will take appropriate measures through legislation and administrative initiatives (with the help of private sector as well as donors) to ensure rationalization of tariff and improvement of capacity in the TMAs.

D. Rural Water Supply schemes

As already stated less than 30% of Punjab's rural population is being served with piped and clean drinking water. Various studies indicate that water borne diseases are a major and growing cause of sickness in the rural population of the Province. The rural population of the Punjab is suffering from the following:

- i. Insufficient resource allocation.
- ii. Lack of need based and criteria based investments.
- iii. Lack of administrative, technical and financial backup from the Government.

It is, however, to be noted that rural Community Based Organizations have shown a healthy will and organizational capacity to run water supply schemes which are handed over to them, It is important that the Community Based Organizations which are at present operating & maintaining more than 95% of the functional rural water supply schemes should be given administrative, technical and financial (in case of major repairs) support.

The Government of Punjab will devise plans to provide training to rural Community Based Organizations through Local Governments and Public Health Engineering Departments. Such a support mechanism and training programs will be in place by the year 2012.

6. Policy Instruments

A weak institutional environment is a major stumbling block in improving service delivery in the public sector. Multiple factors contribute towards this problem. For instance, a vague institutional framework prevents agencies, at different levels, from clearly understanding and performing their respective roles. This gets complicated by unclear functional assignment of respective institutions; weak capacities and overlapping mandate. Among other things, this ambiguity exacerbates coordination problems within government agencies and with donors, thus making it difficult for the water sector to capture synergies that are possible by circumventing duplication and overlaps.

Despite its importance, the sector gets less resource allocation than it needs to achieve the MDGs and other development targets, and allocation has no linkage with socio-economic indicators of different regions. Further, capacity for planning, coordinating, implementing and monitoring water supply schemes continues to be limited. The drinking water policy factors in, and provides a comprehensive framework for the resolution of these institutional constraints.

A. Institutional Framework

The Drinking Water Policy brings forth various objectives which can be defined briefly as following:

- ★ Clean drinking water for All and protection of water resource is an objective that can be achieved when different government departments and the private sector perform their respective role in coordination with each other.

- ★ We will very briefly highlight the role to be played by various government departments and NGOs for achieving policy targets.

(i) Role of Planning & Development Department:

- a) Establishing and implementing need based criteria for resource allocation to the Water Sector.
- b) Ensuring equitable distribution of resource between urban & rural Punjab as well as appropriate allocation for under developed areas.
- c) Coordination between various government departments at federal and provincial level.
- d) Negotiations with donor agencies.
- e) Planning and resource allocation in the Water Sector will be in line with the approved policy principles and objectives.
- f) Monitoring the implementation of policy targets and achievements.

(ii) Role of Local Government & Community Development Department:

- a) To launch a reform program aimed at capacity building of the TMAs with an emphasis on their capacity to operate & maintain water systems, to notify and recover appropriate tariff and ensure enforcement of Laws regarding water.
- b) To adopt and ensure implementation of service delivery standards with regards to water quality.
- c) Ensure water quality monitoring and surveillance.
- d) Education and awareness of urban & rural community regarding water, their responsibilities and rights.
- e) To adopt the principles and objectives of this policy in their overall strategies.

(iii) Role of Housing, Urban Development & Public Health Engineering Department:

- a) The HUD & PHE Department will ensure, in coordination with P&D and LG&CD Departments, a reform program for all the five WASAs
- b) To coordinate with the Local Government for reform in TMAs.
- c) To assist the Provincial Government (P&D) in setting up of criteria and formulating specific plans for resource allocation as envisaged in this policy.
- d) To help organize and support Community Based Organizations in rural areas and to provide continuous administrative, financial and technical support.
- e) To establish appropriate database regarding water through its district laboratories, studies and reports.

- f) To execute the Provincial Government's ADP in coordination with the local bodies and the community.
- g) To formulate the basic draft of the "Punjab Municipal Water Act".
- h) To adopt the principles and objectives of this policy in their overall strategies.
- i) To associate Universities / Research Institutions in designing and execution water and sanitation schemes as well as training of staff.

(iv) Role of Environmental Protection Department:

- a) To ensure strict enforcements of Laws against contamination of ground and surface water.
- b) To monitor water quality standards.
- c) To assess the impact on ground and surface water resource of development, housing and industrial projects, before issuance of NOC.

(v) Role of CBOs:

- a) Delivery of services as per MoU and standards notified by PHED.
- b) Tariff setting and collection of revenues for services rendered.
- c) Outsourcing to other operators (domestic private entrepreneur etc).
- d) Consumer demand management and complaint redress.
- e) Participatory planning, oversight of construction work.
- f) Accountability to LGs (council) for compliance of service standards as specified in the provincial policy, LG bye-laws and O&M MoU signed by CBO.
- g) Periodic reporting to LGs and PHED.
- h) Supporting awareness campaign of Provincial Government.

(vi) Role of Communities:

- a) Willingness to support the Government initiatives.
- b) Willingness to pay for the services.
- c) Planning and needs assessment.
- d) Feedback on the performance of the CBOs to district PHED offices.

(vii) Role of Private Sector:

- a) Supporting Government's initiatives in provision of improved services in partnership with the sector stakeholders.
- b) Support in enhancing the capacity of Government institutions.
- c) Responding to the supply side aspects (provision of appropriate technology choices & material at door step of community).

(viii) Role of Donors:

- a) Supporting Provincial Government in undertaking informed institutional reform agenda.
- b) Financing Provincial Government's approved sector programs and strategies.
- c) Acquiring various policy components and strategy plans of Provincial Government.
- d) Strong coordination within donor community and with Provincial Government to avoid duplication at all tiers (planning, implementation, capacity building and oversight etc).
- e) Supporting Government commitments to meet the policy objectives and MDGs.

(ix) Role of NGOs:

- a) Strong coordination with Provincial Departments in general and with service providers (district PHED, TMAs, CBOs, WASAs) in particular to align their investments.
- b) Extend support in implementation of behaviour change communication strategy of Punjab.

(x) Role of Universities / Research Institutions:

- a) Enhance capacity of Departments, agencies and organizations at all levels in planning, implementation and monitoring of water supply programs and sustainable operation & maintenance of water supply systems through trainings of technical staff.
- b) Develop research programs for development of cost effective technological option that can be adopted by the public and the private sector organization for provision of clean drinking water.

(xi) Role of Irrigation & Power Department:

- a) Extend support to prohibit or control such activities by the owners or occupants thereof within the protected area (Any area of land adjacent to any surface water) which may damage or cause the deterioration of the surface water or interfere with the investigation, use, control, protection, management or administration of such water.
- b) Ensure surface water appropriation for drinking purpose on priority basis.

B. Inter-governmental coordination

Recognizing the value and importance of coordination within government agencies, and with other stakeholders, the Drinking Water Policy will provide a platform / mechanism of coordination, which, if implemented effectively, can lead to synergies being identified and captured to the advantage of society. The government of Punjab may notify a forum comprising of important sector stakeholders to meet regularly for effective sector coordination. Following are the key features of this framework for guidance:

- ★ It has been stated that in the Punjab, there is an overwhelming reliance on groundwater. It is obvious that in future apportionment from surface water would be required to meet the perceived shortfall. The Government would provide for a mechanism through legislation in order to create harmony between the needs of the agricultural sector and the drinking water sector. This would require coordination between the Irrigation Department and the Local Government / WASAs, especially for allocation of quota for drinking water from surface water.
- ★ The Government through the P&D Department will create a planning base where data regarding water sector being collected by concerned Departments like the Environment Department, the PHED and the LG & CD Department will be assimilated, analyzed and used for resource allocation and future planning.
- ★ The Government will ensure the formulation of development plans for each district, highlighting the existing water infrastructure and future projects. These plans would require inter Governmental coordination between Local Governments, PHED and WASAs.

C. Planning & Feasibility

While the Province will make efforts to integrate the vertical programs of Federal and Provincial Governments within the planning and development cycles down to district level, there are other structural stumbling blocks that need fixing. To ensure that the planning process is geared toward maximizing value creation for the public, the Drinking Water Policy emphasizes adherence to the following cardinal principles:

- ★ Technical and Operational feasibility, surveys and design.
- ★ Multi-year plans of districts.
- ★ Water Safety Plans, Operating plans, Service Improvement plans.
- ★ Setting of basic performance indicators for service providers.
- ★ Clarity of roles and responsibility during development cycle.
- ★ Economical, social, environmental and financial criteria.

D. Resource Allocation

The key problem faced by the public sector is that resource allocation for development activity is usually not tied to any objective criterion that captures, among other things, the degree of backwardness, lack of infrastructure and poverty within different parts of the Province. This is substantiated by the fact that lead to significant disparities in terms of access to improved water between different parts of the Province. Equally critical is the problem of investment not being tied to outcome. Instead, once first disbursement is made under a scheme, the second release is subject to the amount of first release being fully utilized for physical progress. Whether these physical outputs are translating into desirable outcome is something that rarely becomes a relevant consideration. Most importantly for the water sector, resource allocation trend clearly shows that a much larger commitment will have to be made to ensure that the sector achieves the MDGs and other targets of Provincial Governments. The drinking water policy gives the following roadmap, which will be detailed in the subsequent strategies to address the above-mentioned challenges;

- ★ A commitment that Government of Punjab will provide adequate allocation of resources out of provincial budget (or ADP) to finance the drinking water supply sector to meet the MDGs.
- ★ Resource allocation in the water sector will be done on the basis of need based criteria. It is the right of every citizen to be provided clean drinking water. For this purpose resources need to be used on the basis of criteria as under:
 - i. In order to conserve water aquifer from contamination, while legislation & regulation would have to be done and environmental standards have to be strictly enforced. Resources have to be allocated for wastewater treatment in urban & rural areas to ensure that underground water is not contaminated.
 - ii. Resources would have to be provided for introduction of new technologies and conducting studies to provide better facilities for conservation and storage of water.

- iii. Water provision is closely linked with energy resources. Except for a few areas where water is provided from springs through gravity, almost all water supply systems are run on electricity, this is a costly and scarce source of energy. Resource allocation needs to carry out energy audits, replacement old equipments with energy efficient equipments and studies on and adoption of alternate sources of energy.
- iv. In providing resources for urban & rural water supply schemes priority needs to be given to cities, towns and villages where the underground water is brackish or scarce or contaminated to a dangerous level.
- v. The existing infrastructure of sewerage and water supply pipes need to be constantly surveyed and replaced to avoid leakages and contamination through a surveillance system. Resources need to be allocated for this.

E. Monitoring

It is strongly felt that the quality of water being provided to the users need to be monitored in urban and rural communities at the source as well as the user end on a regular basis. The Government through water testing laboratories will ensure water profiling of each district on annual basis. This would be the basic data on which the quality of service delivery will be gauged. The EPD and the PHED / WASAs through their laboratories will establish a system of monitoring of water quality standards at the source as well as the users end. Such results will be regularly disseminated through websites as well as print / electronic media.

It is absolutely necessary that the resources being allocated for water sector are judiciously and equitably utilized. To ensure appropriate use of this resource a monitoring regime will be introduced which will ensure:

1. Proper identification of schemes on the basis of established criteria.
2. Proper designing and costing of the scheme and the same to be vetted by neutral consultant.
3. Involvement of the community as a third party validator.
4. Employing formal third party validators and resident supervisors.
5. Strict adherence to test based quality of each scheme.

6. Internal audit of schemes by the executing department and formal annual report submission of this mechanism.

The Public Health Engineering Department and the WASAs are the major engineering departments involved in laying of infrastructure. These Departments would adopt strategies to ensure the above mentioned goals.

7. Policy Implementation Arrangements / Legal and Regulatory Arrangements

A Provincial Drinking Water Policy Implementation Committee has been notified after the approval of the Policy, which will be chaired by Minister Planning & Development Department. The Committee consists of four parliamentarians (each from four water zones of Punjab Province), key Provincial Government stakeholders from various Departments, and representatives from the private sector / civil society and other co-opted members as deemed necessary by the Chair. The approved “Implementation Committee” is as under:

- | | | |
|--------|--|--|
| (i) | Minister, P&D Department | (In Chair) |
| (ii) | Four Elected Representatives representing four water zones | (Member) |
| (iii) | Chairman, P&D Board | (Member) |
| (iv) | Secretary, LG&CD Department | (Member) |
| (v) | Secretary, Irrigation & Power Department | (Member) |
| (vi) | Secretary, Environmental Protection Department | (Member) |
| (vii) | Project Director, Urban Unit, P&D Department | (Member) |
| (viii) | Representative of private sector/ civil society | (Member) |
| (ix) | Secretary, HUD&PHE Department | (Member /
Secretary of the Committee) |

(Note: “Implementation Committee” may co-opt other member(s) as deemed appropriate)

8. Policy Review

The Committee will review progress towards the achievement of Policy objective, assess the need for Policy changes annually, and recommend remedial steps & suggests improvements / changes to the Provincial Government.

This Committee shall once in a year present to the Chief Minister of Punjab, a comprehensive report on the progress of Policy objectives.

9. Policy Implementation

The sector Policy provides a vision and framework which needs to be translated into action to achieve the desired results. Concerned Departments like HUD & PHE, LG&CD, P&D and others will develop sector strategies to implement various principles of the Policy into action. Implementation of these strategies will be done by dedicated sector program and projects. These program and projects will be financed by the Provincial Government directly or through donor's collaboration.

10. Preparedness for Natural Calamities and other Disasters

The recent floods in Pakistan resulted in the displacement of hundreds and thousands of people. The Punjab was also severely affected by this catastrophe'. To provide clean drinking water to the displaced millions, the Punjab Government adopted a strategy based on the following tools:

- a) Provision of bottled water;
- b) Installation of handpumps in all camps;
- c) Use of chlorinated water in storage tanks placed in all camps;
- d) Early rehabilitation of water supply schemes;
- e) Disinfection of handpumps in villages where the water receded;
- f) Continuous testing of water by PHED laboratories;
- g) Installation of deep handpumps in flood affected villages;
- h) Installation of filtration plants (Ultra Violet and Reverse Osmosis) in towns.

The Government of Punjab's strategy was supported by donors and NGOs like the UNICEF, NRSP and WHO.

This event has helped in developing the following Policy guideline for disasters:

- i) The PHED will develop an emergency relief response for disasters of the Provincial and District levels keeping in view the diverse geographical and ecological circumstances of different regions.
- ii) Consultative workshops need to be organized, involving Federal and Provincial line agencies, donors, NGOs to develop guidelines for emergency relief, rehabilitation and rebuilding related to water supply in the wake of disasters of any kind and magnitude.

11. Public Awareness

This Policy is aimed at creating a future in which all citizens of the Punjab are provided with clean drinking water and in which water resources of the Province are safe from over mining, contamination and depletion. This is only possible if the user is made a part of the planning process, the execution of schemes and their maintenance. Unless and until the common man is aware of his responsibilities towards proper use of water and saving the collective resource from misuse and contamination, this target cannot be achieved. The Government will launch major awareness programs through the media, NGOs, community networks and the educational institutions to create awareness about water and our responsibilities. It is this awareness that will ultimately create public empowerment and the Government's accountability to the public.

Glossary

“Drinking Water” means water used for municipal purposes including drinking, cooking, hygiene and other domestic uses.

“Safe Drinking Water” refers to the water complying with national/provincial drinking water quality standards.

“Public sector” refers to all ministries, departments, entities, bodies and local governments at the provincial, federal and local levels

“LG&CDD” refers to the Local Government and Community Development Department and its attached and affiliated entities

“HUD&PHED” refers to the Housing, Urban Development Department & Public Health Engineering Department

“Service Providers” refer to local government institutions (District Government / Tehsil Municipal Administrations / Town Committees, etc) WASA, CBOs responsible for the management, treatment and distribution of municipal water.

“National Environmental Quality Standards” means the standards issued by the Pakistan Environmental Protection Agency established under the Pakistan Environmental Protection act, 1997.

“Groundwater” means subsurface water that exists beneath a water table in soils and rocks, or in other ecological formations.

“Groundwater Vulnerability” is defined as the tendency and likelihood for general contaminants to reach the water table after introduction at the ground surface

“Surface Water” means water, which lies above the surface of the ground, is open to the atmosphere and is subject to surface runoff.

“Water Quality” means the quality of water which conforms to the national drinking water quality standards

“National Drinking Water Quality Standards” means the standards approved the Pakistan Environmental Protection Council in March 2010

“Water Supply Services” means the appropriation, conveyance, treatment and distribution of municipal water, or water (through withdrawal and abstraction of ground or surface water or harvesting of rainwater) intended to be converted to municipal water.

“Water safety planning approach” is a plan to ensure the safety of drinking water through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer.

“Compliance to service standards” means service providers are required to ensure the continuity of quality services that they supply to customers. This involves developing and adopting a customer service standard that documents:

- The level of service to be provided to customers;
- Processes for customer interaction with the service provider; and
- Any other matter stated in the guidelines, including any issued by the regulator for preparing customer service standards.

“Water Pollution” means any alteration of the physical, chemical, biological, or radiological properties of a water body resulting in the impairment of its purity or quality. Underground and Surface water level **contamination** is primarily suggestive of high levels of fluoride contents. Total dissolved solids (often abbreviated **TDS**) is an expression for the combined content of all inorganic and organic substances contained in a liquid which are present in a molecular, ionized or micro-granular (colloidal sol) suspended form.

“Arsenic Contamination” is the natural contamination of drinking water caused by application of insecticides, wood preservatives, mining activities and petroleum refining. The water quality guidelines mentioned by the NDWQS state that the level of arsenic contamination for safe drinking water should not exceed 0.05 mg/L (50 ppb).

“Bacterial contamination” is usually measured by the fecal coliform levels in the water. Fecal coliform is an **indicator** organism; it is easily measured and can signal the presence of other harmful bacteria in water.

“Chemical contamination” is measured by a test specific to a particular chemical. Chemicals contaminations can naturally occur or can be caused by anthropogenic activities entering from either point sources (such as a specific leak from a pipe or a dumping site) or from **non-point sources** (such as oil or other gasoline products from large-scale runoff from a highway or parking lot), and are considered to be very harmful.

“Water Coverage” refers to the proportion of the population that has access to safe drinking water.

“CBO” refers to Community Based Organization; Organize and motivate community of the village(s) of WSS Scheme for ascertaining need for the scheme, Providing support to Public Health Engineering for planning, designing, estimation, execution and operation of the scheme and operate & maintain rural water supply schemes.

“TMA” refers to Town / Tehsil Municipal Administration

Figure 1: Water Quality in Punjab

