

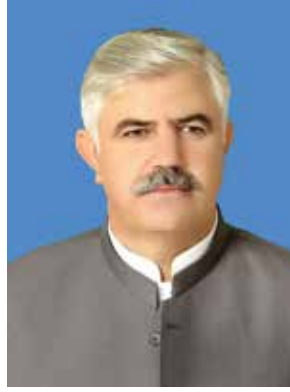


Government of Khyber Pakhtunkhwa  
Planning and Development Department

# INTEGRATED WATER RESOURCE MANAGEMENT STRATEGY



BRIEF



## Message from **Mr. Mahmood Khan**

Chief Minister  
Khyber Pakhtunkhwa

**“With faith, discipline and selfless devotion to the duty, there is nothing worthwhile that you cannot achieve”,  
(Quaid-e-Azam Muhammad Ali Jinnah).**

Pakistan today is facing a severe shortage of water, something we as a nation have to overcome taking guidance from the above quote from the founder of our country, Quaid-e-Azam Muhammad Ali Jinnah. Water is life and soul of the planet earth. With rapidly growing population however, Pakistan is heading towards a situation of water scarcity which is a threat to food security of our people. This situation warranted taking emergency steps to improve availability of water in the country and the provinces.

Taking cognizance from the situation, the federal government approved the first National Water Policy 2018 aimed at improving water quantity and quality in the country. The Policy recognizes the actions taken in the provinces as important and that they collectively contribute to containing the situation from worsening. Provinces are encouraged to develop provincial plans and strategies for sustainable management of water resources. As the Chief Executive of the province it is my pleasure to share that the KP province has taken a lead in formulating the first provincial Integrated Water Resource Management Strategy. The strategy has been completed in a highly participatory manner involving relevant stakeholders including government departments, community representatives, civil society and the development sector. I also proudly note that the provincial authorities have taken a lead in preparation of this strategy and sector papers which have informed this strategy. This indigenous effort brings international, and rich practical experiences of provincial authorities in one document.

Effective policy formulation and implementation for sustainable management of natural resources is the top priority of the federal and provincial governments. With this commitment, the next task for us is to bring the IWRM strategy to implementation. The provincial government is all set to take this challenge. I am sure that the strategy will prove a landmark in sustainable use of water resources in the province through integration and cooperation among all relevant water sector stakeholders. The provincial government will provide all the needed support for capacity building of relevant institutions aimed at improved integration of water uses at the provincial as well as at district levels.

I appreciate efforts of all those involved in the development of the Khyber Pakhtunkhwa Integrated Water Resource Management Strategy and extend best wishes for its successful implementation.

## Message from **Dr. Kazim Niaz**

Chief Secretary  
Government of Khyber Pakhtunkhwa



Water Governance is an extremely important precondition for effective water conservation, especially in the contexts where water scarcity is rampant and leads to low human development indicators. Improving water governance is important because per capita surface water availability in the country has reportedly declined from 5260 cubic meters per year in 1951 to around 1000 cubic meters in 2016. This quantity is believed to decrease further to about 860 cubic meters by 2025 pushing Pakistan from water stressed to water scarce country. The effects of this decline will trickle down to the provinces. The Khyber Pakhtunkhwa has high incidence of multi-dimensional poverty. Among others, lack of access to water is a major driver of poverty and deprivation.

According to the water apportionment accord 1991, a total of 8.78 MAF of water has been allocated to the province against which the province utilizes 5.97 MAF with an annual unused resource of 2.81 MAF due to lack of infrastructure, something the National Water Policy 2018 has also highlighted. Around 32% of the total population is yet to be provided potable drinking water. Around 93% wastewater remains un-treated and 42% population is without basic sanitation. In addition, agricultural water productivity in the province is low. The yield of cereal crops in province is considerably below the national average. The province cannot afford to continue long with the above noted indicators related to water sector.

In line with the recommendations of the National Water Policy 2018, the provincial government has developed the Integrated Water Resource Management Strategy for the province aiming at improving water management and governance so that water sector related indicators are improved to benefit the population. The strategy identifies main pillars and associated actions to improve water governance in the province. The Provincial Planning and Development Department will be the focal department for coordinating implementation of the strategy and ensure integrated thinking across relevant water sectors. All other relevant departments of the government will pool necessary technical and financial support to make the implementation of the strategy a success.

I wish all the success to the relevant departments and actors in successful implementation of the strategy.

## Message from **Mr. Shakeel Qadir Khan**

Additional Chief Secretary  
Government of Khyber Pakhtunkhwa



It is a moment of great satisfaction that Khyber Pakhtunkhwa launches its first Integrated Water Resource Management Strategy for the province. More than two hundred experts from the government line departments and other relevant institutions including private and development sector have contributed towards the development of this document. The document therefore brings together rich practical experiences and indigenous knowledge.

The strategy encourages integration of all uses of water to improve overall water governance in the province. Such an integration is imperative and a bold step in the wake of decreasing per capita water resources in the county and the provinces. Water is a vital natural resource and its integrated management is essential for sustainable development. Conflicting and competing uses often result in water resource management issues, mainly in terms of securing water for people, food production, protecting ecosystems and gender disparities. Water is the lifeline for the livelihoods of Pakistanis and several actors are engaged in the sector directly or indirectly as users, managers and regulators. Therefore, engaging in water sector development and improving access to water may improve wellbeing of the people as well as promote harmony.

According to National Water Policy 2018, 'water crisis is descending like a thunder bolt'. The Policy further noted that 'fresh water being a finite resource is progressively becoming more scarce, due to persistent increase in its competing demands'. The National Water Policy is based on the principles of integrated water resource management and provides a framework for the provinces to develop provincial plans and strategies for sustainable management of water resources. The Khyber Pakhtunkhwa has remained a flag bearer for integrated resource management through several international and Government financed development projects at various scales using various tools and approaches. The development of IWRM Strategy is another addition to these achievements.

The provincial government will make sure that the recommendations of the strategy are implemented in its true sense where stakeholders, particularly multiple water users, understand their rights as well as obligations in relation to good management and governance of water resources of the province. The provincial government will also ensure close cooperation with federal ministry of water resources for seeking support in operationalizing this strategy.

## Message from **Mr. Atif Rehman**

Secretary  
Planning & Development Department  
Government of Khyber Pakhtunkhwa



Integrated Water Resources Management is a collaborative approach to improve water governance by involving relevant stakeholders especially the user communities and the private sector. Improved water governance through this approach is believed to optimize socio-economic returns of resource management while ensuring sustainability of vital ecosystem. The development of the Integrated Water Resources Management was a lengthy and tedious work involving more than a hundred contributors and stakeholders. The Planning and Development Department of the province successfully provided coordination support to the contributing departments and individual experts.

Khyber Pakhtunkhwa faces multifaceted challenges in water sector development. At the core of these challenges is the way water is managed and governed. Enabling equitable, inclusive and sustainable development of the sector requires shared, concrete solutions, and an integrated framework to manage competing uses of the depleting resource in face of the expected population growth and climate changes. Strengthening partnerships is an integral part of the development policies of KP Government whereas the KP Public Private Partnership Act 2014 provides for the participation of the private sector in different sectors including water supply, sanitation, treatment or distribution; power generation; canals or dams; sewerage or drainage and; solid waste management, among others.

The IWRM strategy provides strategic pillars and priority areas influencing the water sector performance and creating conditions for private sector involvement with advance technology and performance. Besides, the private sector is expected to invest in environmental protection in response to services provided by the government and as social corporate responsibility. Public Private Partnership as one of four key pillars of the KP IWRM strategy aims at regulating use of water by private sector and ensuring its contribution in water sector promotion.

I acknowledge the efforts of all contributors and hope and pray that this strategy is successful in motivating engagement of all the relevant actors including industry, communities, academia and citizens for better management of water resources of the province.

## Acknowledgement

### Mr. Shah Mahmood Khan

Additional Secretary  
Planning and Development Department  
Government of Khyber Pakhtunkhwa



This gives me an immense pleasure to acknowledge institutions and individuals who have contributed to the Khyber Pakhtunkhwa Integrated Water Resource Management Strategy. This landmark document has been prepared as a result of untiring efforts during the last one year by over 200 experts and professionals belonging to provincial line departments, a number of federal departments, universities, development sector organizations, civil society and water users. The Planning and Development Department, Government of Khyber Pakhtunkhwa coordinated the entire exercise and provided secretariat for the development of the strategy. Unfortunately, it will not be possible to list all the institutions and individuals who have contributed, on one page. However, it is compulsory to mention the secretaries of all relevant departments including Mr. Atif Hussain, Secretary P&D, Mr. Zahir Shah, Secretary Local Government and Rural Development, Mr. Behramand Khan Secretary Public Health and Engineering Department (PHED), Mr. Muhammad Israr, Secretary Agriculture, Mr. Daud Khan, Secretary Irrigation and Mr. Naeem Khan former Secretary and water expert.

I also acknowledge the immense contribution of all the actors who played a leading role in completion of the strategy. All relevant line departments of the Government of Khyber Pakhtunkhwa provided technical support and contributed to the sectoral papers as well as to the strategy. A Core Committee notified by the provincial government played a central role in its development. The sectoral papers were written by designated committees led by learned focal persons. Each sectoral paper is a wealth of knowledge and brings together all the facts and figures as a baseline available today and will continue to be improved in future. Findings of the sectoral papers provided inputs to the strategy in hand. The Water for Livelihoods Project of the Helvetas Swiss Intercooperation funded by the Swiss Agency for Development and Cooperation (SDC) provided technical and financial support for the development of sectoral papers as well as for the strategy. Helvetas also assisted in the consultative process. Being long-standing partners of the Provincial Government, and highly committed stakeholders in water sector, the provincial government is thankful to SDC and Helvetas for this partnership.

Final product of this joint effort is a dynamic document in your hands. This is the first ever strategy in KP on water with an integrated water resource management approach. It is therefore an important challenge and a test case for the Provincial Government in favour of improved water resource management and governance in the province. Departments are highly encouraged to frame their project pipelines taking ideas from the strategy action lines.



Government of  
**Khyber Pakhtunkhwa**  
حکومت خیبر پختونخوا

# Integrated Water Resource Management Strategy

## Khyber Pakhtunkhwa

**The goal of the IWRM strategy**

Strive for a **coordinated development and management of water and land resources** in a **sustainable and equitable manner** for the **greater provincial interest** and welfare of the **people of Khyber Pakhtunkhwa.**

**OVERALL OBJECTIVE**

OPTIMISE THE ECONOMIC, SOCIAL AND ENVIRONMENTAL RETURNS ON WATER RESOURCES.

ENSURE EQUITABLE ALLOCATION

JUDICIOUS USE BY CONSUMERS

SAFE DISPOSAL OF POST-USE EFFLUENTS.



**SUSTAINABLE WATER RESOURCE MANAGEMENT**

- Ensure 100% coverage of population for WASH
- Improve water balance in the province
- Enhance water productivity through infrastructure and technology
- Manage watersheds to regulate flow and recharge aquifer



**IMPROVED WATER GOVERNANCE**

- Effective coordination and collaboration among actors
- Formulate missing policies and improve existing regulations
- Build capacities of government departments
- Structured participation of water users



**EFFECTIVE PUBLIC PRIVATE PARTNERSHIP**

- Regulate use of water by private sector
- Acquire knowledge of private sector in water sector promotion



**IMPROVED KNOWLEDGE AND AWARENESS ON WATER**

- Improve database on water resources
- Increase citizens' awareness

**P&D Department**  
Government of Khyber Pakhtunkhwa  
[www.pndkp.gov.pk](http://www.pndkp.gov.pk)

**Financial Assistance**  
Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

**Swiss Agency for Development and Cooperation SDC**

## Executive summary

Water is a lifeline for Khyber Pakhtunkhwa's (KP) predominantly agricultural based livelihoods and also a factor of vulnerability due to water governance issues and frequent extreme hydro-meteorological events. With 35.5 million people (83.5% rural), KP has a high incidence of multi-dimensional poverty, lack of access to water for drinking and irrigation being an important factor. Therefore, engaging in water sector development for improved access to water is a key driver to improve people's well-being. The KP province comprises of diverse landscape with substantial seasonal variations which is an asset as well as a challenge. The province faces high vulnerability to climate variability and change, especially in mountain areas. The province is rich in water resources playing an important role in the regional hydrological cycle. This potential needs to turn into an opportunity for the people of the province. A culture of cross-sectoral coordination exists among various actors within the government. However key challenges yet to be addressed in the province include water management and governance.

The National Water Policy 2018 supports Integrated Water Resource Management (IWRM) and suggests the provinces to arrive with their own water related strategies including IWRM. The IWRM approach takes water as one shared, finite and economic entity. The Government of KP recognises the competing demands for water from various sectors. The provincial Government has formulated an Integrated Water Resource Management (IWRM) strategy for the province. This strategy takes into account all competing uses of water with respective challenges and attempts to suggest necessary measures that may lead to equitable access of water resources by all sectors. The strategy recognises water as a precious and economic good for encouraging its rational use. The core rationale of the strategy is to maximize the resultant economic development and social welfare in an equitable manner from available water resource. The strategy believes in integration of natural (quality, quantity, type, nature) and human systems (sectoral demands and supply, coordination, participation) without compromising the sustainability of vital ecosystems. The strategy believes that improved coordination will lead to reducing cost of water management and increasing revenues by introducing paradigms that influence rational and efficient use of water resources.

### Contextual realities related to water sector in KP:

- Unserved 21% rural and 2% urban population for drinking water supply and sanitation services.
- Water Apportionment Accord 1991 allocates 8.78 MAF (7.5%) to KP against which 5.97 MAF is utilized. An annual amount of 2.81 MAF goes unutilized due to inadequate infrastructure.



- Out of total 18.40 million acres of area, KP's cultivable area is 6.72 million acres of which 2.28 million acres (34%) could be brought under irrigation as opposed to 60.67% at country level. The balance 4.44 million acres (66%) is either barren or rainfed with uncertain crop growth.
- Out of 2.28 million acres, the government canals irrigate 1.247 million acres, while civil canals, lift irrigation schemes and tube wells irrigate 0.82, 0.109 and 0.101 million acres respectively.
- Overall there is a low agricultural and water productivity in the province with 50% losses in the field.
- Water tables at different locations are dropping fast with excessive abstraction and inadequate recharge.
- Climate change is expected to change seasonal availability of water with temporal shifts. Annual precipitation in most districts will remain stable or slightly increase till 2030 and then decline.
- About 142 hydropower project sites, with a total capacity of about 24,000 MW have been identified with high, medium and small heads.

KP has been a forerunner in introducing participatory approaches in development sector. The promotion of participatory approaches in water sector however have been random. This strategy strongly urges the inclusion of water users in management of water resources by providing an institutional infrastructure and systematic planning mechanism to maximise benefit from limited water and financial resources.

**The goal of the IWRM strategy** is to strive for a coordinated development and management of water and land resources in a sustainable and equitable manner for the greater provincial interest and welfare of the people of Khyber Pakhtunkhwa.

**An overall objective of the strategy** is to optimise the economic, social and environmental returns on water resources, ensure equitable allocation among its competing demands as well as judicious use by consumers and safe disposal of post-use effluents.

The strategy has four main pillars and twelve priority areas as under:

#### **Sustainable Water Resource Management**

1. Ensure 100% coverage of population for WASH
2. Improve water balance in the province
3. Enhance water productivity through infrastructure development and adoption of improved technology
4. Manage critical watersheds to regulate water flow and recharge aquifer

#### **Improved Water Governance**

5. Effective coordination and collaboration among actors
6. Prepare / formulate missing policies and improve existing regulations
7. Build capacities of government departments
8. Structured participation of water users

#### **Effective Public Private Partnership**

9. Regulate use of water by private sector
10. Acquire knowledge of private sector in water sector promotion

#### **Improved Knowledge and Awareness on Water**

11. Improve database on water resources
12. Increase citizens' awareness

The main strategy document provides indicative targets set for Khyber Pakhtunkhwa under the strategy.

There are 100 action lines under various pillars and priority areas. The details are as under:



# 1. SUSTAINABLE WATER RESOURCE MANAGEMENT



This strategic pillar pertains to the resource itself for its multiple uses, sources, type and handling. It has four priority areas and thirty-nine action lines:

- 1. Ensure 100% coverage of population for WASH**
  - 1) Clarify roles, jurisdiction, TORs and mandates and ensure effective coordination to avoid overlap (LGE&RDD, Local Council Board, TMA, WSSCs, PHED and private sector).
  - 2) Prioritise rural access to drinking water, sanitation, waste management and hygiene services for women, men and children.
  - 3) Urban water management, sanitation and solid waste management.
  - 4) Upgrade existing drinking water infrastructure and improve maintenance system.
  - 5) Ensure compliance to acquire minimum quality standards for drinking water by all providers.
  - 6) Promote decentralised waste-water treatment, reuse, and safe disposal in domestic and commercial sectors.
  - 7) Citizens' awareness raising on making efforts in waste reduction and recycling.
  - 8) Introduce state of the art solid waste management systems.
  - 9) Promote Open-Defecation-Free (ODF) environment.
  - 10) Introduce domestic water metering, pricing and monitoring (start with urban / WSSC areas).
- 2. Improved water balance in the province**
  - 11) Build new water storages (small, medium, large).
  - 12) Integrate rainwater harvesting techniques in district IWRM plans and development schemes where feasible.
  - 13) Upgrade existing water infrastructure and improve maintenance system.
  - 14) Improve conveyance efficiency of irrigation system (including lining of channels, remove leakages due to wear and tear).
  - 15) Improve farm irrigation efficiency through introduction of high efficiency technologies.
  - 16) Define and ensure minimum quality standards for irrigation water.
  - 17) Conduct groundwater study for KP and maintain groundwater atlas and database for planning finances and strict monitoring on abstraction trends.
  - 18) Regulate groundwater mining through creating a centralised system of licenses, water metering and pricing.
  - 19) Further quantify spate potential in KP as a contribution to water account.
  - 20) Equitable distribution of Rudh Kohi water (western hill torrent) based on proven experiences in DI Khan.
  - 21) Deploy all structural and non-structural means to improve aquifer recharge of groundwater.
- 3. Enhance water productivity through infrastructure development and adoption of improved technology**
  - 22) Conduct research on new and appropriate technology and approaches at farm level.
  - 23) Promote new water efficient technology in agriculture including precision land levelling, tunnel farming, furrow irrigation.
  - 24) Raise farmers' awareness on the need to follow crop per drop approach.
  - 25) Make arrangement for disseminating climate related information to the farmers for early preparedness through mobile phones.
  - 26) Extend existing irrigation facilities to new cultivable command areas.

- 27) Develop agro-ecological and crop zones based on land and water suitability.
- 28) Prioritise water consumptive crops for rigorous promotion of water productivity campaign and support.
- 29) Promote small dams, development of infiltration galleries and sub-surface dams for irrigation in rain-fed areas for low delta crops.
- 30) Improve farmers-led Rudh Kohi water distribution system for up, mid and downstream irrigation efficiency.
- 31) Study power generation potential from small dams on perennial flow beside other uses of water.
- 32) Devise a system of water supply, based on crop-water demand as opposed to standard warabandi system in irrigated areas.

#### **4. Manage critical watersheds to regulate water flow and recharge aquifer**

- 33) Improve vegetative cover in all the watersheds including state and private lands.
- 34) Support and augment integrated watershed management initiatives especially in high altitude areas (including tree plantation, grazing management, encouraging natural growth).
- 35) Promote appropriate measures and techniques for enhancing groundwater recharge.
- 36) Remove encroachments of streams, riverbeds, and drains to ensure safe disposal of water.
- 37) Implement a network of small dams in the south to support rainfed areas.
- 38) Harness KP's full potential to generate power through small and micro-hydel power projects.
- 39) Integrate watershed management costs in water storage infrastructure projects and ensure initiation of action before physical work begins.

## **2. IMPROVED WATER GOVERNANCE**



KP will follow standard international definitions to put a good water governance in place. The aim is to provide a frame to look at the use and management of water in a holistic way. This pillar has four priority areas and thirty-three action lines:

#### **1. Effective coordination and collaboration among actors**

- 40) Establish KP Water Council, KP Water Commission and KP Groundwater Authority
- 41) Establish district Integrated Water Resource Management committees.
- 42) Formulate district Integrated Water Resource Management plans.
- 43) Update Rules of Business and regulations of individual departments with respect to IWRM functions.
- 44) Assign single authority for water and sanitation functions as per administrative jurisdiction for improved accountability.
- 45) Establish and strengthen water user associations at tehsil / town levels.
- 46) Clarify roles and mandates of actors for maintenance of spate irrigation systems including Rudh Kohi infrastructure development and management.
- 47) Enactment of KP Water Council, Commission and Authority, define procedures and rules of business.

#### **2. Prepare / formulate missing policies and improve existing regulations**

- 48) Conduct groundwater mapping and identify hotspots of problem.
- 49) Prepare necessary regulation for independent GW monitoring through GW Authority.
- 50) Formulate KP water pricing policy.
- 51) Prepare necessary regulation for district IWRM committees.

- 52) Review and update Canal and Drainage Act 1873.
- 53) Review and update KP Water Users' Associations Ordinance 1981 for governing on-farm water management and a systemic community participation in improving water productivity.
- 54) Legislation on establishing urban settlement based on land and water suitability and conservation.
- 55) Review all subsidies in water sector and strategise step-wise reduction.
- 56) Review and regularise funds collection in Rudh Kohi areas for development and maintenance of the system.
- 57) Devising a system to check water theft from water bodies including streams, canals and illegal wells.
- 58) Reinforce implementation of EPA Act 2014 to regulate water and air quality in the province.

### 3. Build capacities of government departments

- 59) Equip water departments with new technology for better monitoring of water (ICT tools and real time data simulators).
- 60) Build capacities of monitoring cells on water resource monitoring and data management.
- 61) Equip devolved administrative units with up to date operational equipment and machinery.
- 62) Enhance capacity on real time river flow monitoring using telemetric system.
- 63) Develop and install effective early warning system and communication based on hydrometric models and radars.
- 64) Strengthen capacities of EPA to regulate and enforce powers entrusted to them by EPA Act 2014.
- 65) Awareness regarding importance of citizens' participation in water management.
- 66) Harness recreational and reuse potential from water to generate funds for water sector.
- 67) Strengthen capacities of relevant universities to conduct proactive and demand-based research on water issues in the province.

### 4. Structured participation of water user women and men

- 68) Develop a system to establish and strengthen Water User Associations (WUAs) at tehsil and town levels.
- 69) Strengthen organizational capacities of water users and their associations.
- 70) Strengthen user specific capacity in water sector to manage water issues.
- 71) Provide legal legitimacy to WUAs for playing appropriate role in district IWRM planning with other actors.
- 72) Include representatives from WUAs and amongst farmers' representatives in district IWRM committees.

## 3. EFFECTIVE PUBLIC PRIVATE PARTNERSHIP



Public-Private-Partnership (PPP) is crucial for sustainable resource management, especially to overcome financial constraints that the public sector institutions have traditionally faced. The PPP however, will need enabling policies to encourage partnerships. This pillar has two strategic priorities and sixteen action lines:

#### 1. Regulating use of water by private sector

- 73) Update information regarding size and typology of private sector.
- 74) Maintain record of size and typology of private sector in the office of Secretary Industries.
- 75) Enforce rules for industries to ensure in-house waste-water treatment and reuse before disposal.
- 76) Develop systems of incentives for promoting / adopting clean technology.
- 77) Water charges from private sector through metering and revenue collection.
- 78) Develop easy-to-practice revenue collection system for private sector including online licensing and payment system.

- 79) Facilitate and build capacity of private sector (including industry and services sector) on efficient use of water resources and quality management.
  - 80) Enforce existing and new regulations through business associations.
  - 81) A thorough study on demand and current use of water by private sector by typology:
    - a. Map urban water management (including domestic and commercial)
    - b. Ascertain demand for water by private sector for their business
    - c. Ascertain quality and quantity of water released by private sector
- 2. Acquire knowledge of private sector in water sector promotion**
- 82) Collaboration for identification, calibration, and promotion of clean technology (commercial and domestic):
    - a. Water efficient technologies
    - b. Minimize reliance on freshwater
    - c. In house technologies for water treatment and recycling
  - 83) Motivate private sector to invest their Corporate Social Responsibility (CSR) resources on action lines given in the IWRM strategy.
  - 84) Encourage corporate sector to finance research on demand-based topics in water sector.
  - 85) Motivate private sector to raise awareness of citizens on water conservation through public interest advertisement e.g. on judicious use of water and conservation.
  - 86) Ensure structured participation of private sector in IWRM decision making forums (e.g. KP Water Commission, district IWRM Committees) along regular inclusion in water related task forces.
  - 87) Encourage PPP model in low head hydropower projects.
  - 88) Promote sustainable tourism in natural environments (including wetlands) for all types of recreational use.

## 4. IMPROVED KNOWLEDGE AND AWARENESS ON WATER



Managing water resources effectively requires appropriate information on the resource and related areas. The government will address a number of challenges related to water informatics in order to improve water management in the province. This pillar has two priority areas and twelve action lines:

**1. Improved database on water resources**

- 89) Estimate water demand by all sectors and update on regular basis.
- 90) Establish integrated data repository on water at provincial + district levels under the auspices and supervision of Water Commission.
- 91) Regularly update infrastructure data including inventory of channels, tube-wells, storage, water schemes, Operation and Maintenance).
- 92) Establish GIS and web-based infrastructure inventory and monitoring system.
- 93) Maintain hydrological data with reliable equipment (KP water account).
- 94) Install automated weather stations equipped with early warning system in all major gaps.

**2. Increased citizens' awareness**

- 95) Establish and update water related studies, data and easy to use information for generating mass awareness and interest.

- 96) In collaboration with private sector and donor-funded initiatives, create mass awareness on safe WASH and water conservation behaviour:
  - a. Using attractive visuals and messages
  - b. Well-maintained website meant for citizens with room for periodical citizens' perception survey
  - c. Dramatized messages / skits or animations
- 97) Acquire support from print and electronic media on the awareness messages of public interest.
- 98) Create a system of (i) warning, (ii) fine, and (iii) disconnection on misuse of drinking water.
- 99) Encourage youth involvement in promoting water efficient practices.
- 100) Encourage private sector in funding awareness campaigns in the education institutions on efficient use of water and behavioural change

## IWRM IMPLEMENTATION STRATEGY

The implementation framework for this strategy constitutes five structural levels to ensure coordinated implementation of the strategy with all the relevant departments and other actors in the province:

1. The KP Water Council – housed in the office of the Chief Executive of the province
2. The KP Water Commission – housed in the Planning and Development department.
3. Provincial Groundwater Authority, an independent structure to govern groundwater.
4. District IWRM Committees to steer IWRM planning at district level and implementation. At this level, the strategy is supported by a district IWRM planning manual and all districts are bound to prepare their plans within one year of the notification of the strategy.
5. District / tehsil Water Users Associations to ensure integration of community / citizens' perspective in IWRM planning and play their role as duty bearer towards their fellow community.

This strategy has been devised for a period of 10 years. While the strategy should remain a living document with the possibility to make amendments, it is essential to let the strategy work in the field and be revisited in five years, or earlier only in case of any critical change in the context.

## CONTRIBUTIONS

### IWRM CORE WORKING GROUP

1. **Mr. Zahir Shah Khan**, Secretary, Planning & Development Department
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1. **Mr. Muhammad Abid Khan Wazir**, Deputy Commissioner (Chair), Administration Department

<sup>1</sup>All the above-mentioned participants also participated in consultation process – including three large scale workshops.

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