

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

- 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).



Enhance water productivity through infrastructure and 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 PREPARED-NESS 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) PRIORITIES 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.

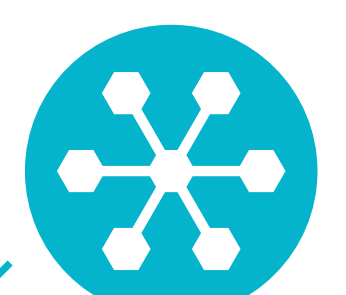


Improve water balance in the province

- 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 FARM IRRIGATION MINING THROUGH CREATING A CENTRALIZED 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.



IMPROVED WATER GOVERNANCE



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.



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.



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.



EFFECTIVE PUBLIC PRIVATE PARTNERSHIP



Regulate 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



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.

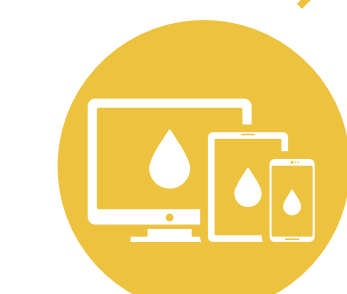


Acquire knowledge of private sector in water sector promotion

- 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.



IMPROVED KNOWLEDGE AND AWARENESS ON WATER



Increase citizens' awareness

- 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.
- 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 BEHAVIOR:
 - 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 BEHAVIORAL CHANGE

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:

IWRM IMPLEMENTATION STRATEGY

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.



Government of
Khyber Pakhtunkhwa
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