

## Steep Analysis of Water Governance in Azad Jammu and Kashmir(AJK): An Exploratory Study

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### Abstract

The River water is an essential and crucial resource for not only AJ&K but also for the economic and food security of Pakistan. The collective impacts of past and future infrastructural development specially roads and dams combined with the veracities of nature through earth quakes and climate change poses new threats and raises questions about the current regime of water governance in the entire region. At present, multiple institutions control different aspects of water governance in AJ&K. This study is a preliminary assessment of water governance efficacy in the region. The study is exploratory in nature based on primary data collected from key stakeholders as informants using the method of structured interviews of key informants. PESTLE/ STEEP analysis is done based on SWOT regarding the strengths, weaknesses, and opportunities regarding water governance in the region. The findings of this study suggest that the disadvantages of the current fragmented, multi institution regime of water governance in the region are outnumbered by the advantages.

**Keywords:** AJ&K; water governance; Jhelum River Basin; Watershed, Multi agency governance

### Introduction

Kashmir is a conflict zone and this conflict is a bone of contention between India and Pakistan for over a half century now. Three wars have been fought between India and Pakistan over this dispute. The state of Kashmir is divided by the Line of Control (LoC) into Pakistan administered Azad Jammu and Kashmir (AJ&K) and Indian occupied Jammu and Kashmir. Azad Jammu & Kashmir and Gilgit Baltistan two parts affiliated with Pakistan but these areas are unique in idiosyncrasy that they are neither independent in their administrative affairs nor are they part of Pakistan for administrative purposes like other provinces of Pakistan (Akram & Shahzad 2015). In view of unresolved status of the area its constitutional and administrative structure remained ambiguous as well. This has negatively impacted the lives of the people in both areas. All the five main rivers of Pakistan originate from Kashmir and flow towards Pakistan. Sindh river and Jhelum river AJK are also major contributory watersheds for Tarbela and Mangla Dams in Pakistan respectively. The watershed area of the AJK covers mainly two divisions of AJ&K (Mirpur and Muzafferabad) but on broader terms all of the hilly terrain of the entire region of AJK and JK on Indian side contribute to this watershed through so many nullas (small rivers mainly fed through monsoon rains) and small streams This water shed system provides water and other related services and opportunities to over four million people in AJK. One million hectares area of (combined) state of Jammu and Kashmir constitutes the crucial part of Mangla Dam catchment area, remaining 0.335 million makes Chenab catchment (SOE, ERRA 3013)

Currently there exists no single water management organization to oversee the multiple uses and growing human impacts across this vast watershed. The great earthquake of 2005 which took 73000 lives has great impacted the water resources and watershed of the region. The earth quake affected area in NWFP and AJK carries significant eco system and environmental importance for the entire country. Most of the forest areas of AJK fall in the area which was most devastated in earth quake. The whole region is known for its scenic beauty and richness in natural resources but also very exposed to environmental degradation. The 2005 earthquake, not only caused huge losses to life and physical infrastructure but has also resulted in considerable destruction to an already fragile bio-physical milieu. The winding road network on hilly terrain has been severely damaged, whole mountains have been cleaved apart, land-sliding has been intensified since then, and forested areas have suffered immensely. At the same time, as all the big towns and cities are situated on banks of some river the unplanned urban expansion has only exacerbate cumulative impacts on the watershed Recently, new phenomenon of climate change has struck the region that is the volatile heat waves and heavy rains prevail throughout the year. This unpredictable and sudden climate change has again compelled to divert attention toward an impending water

crisis across AJK and Pakistan. Management of water resources poses challenges for any government, and these challenges can be particularly difficult as they are when they are worsened by a fragmentation of legalized responsibilities or where the water resources cross political boundaries like the situation in AJK region where natural calamities, political conflicts and lack of water management system prevail. In research paper examine the efficacy of the multi-tiered water governance structure that exists in the AJK. This preliminary assessment uses structured interview of key informants to identify strengths, and weaknesses of the existing water governance regime. This will also present potentials and Opportunities to enhance and improve the efficacy of water governance in the AJK region.

In the different sections that follow firstly context to the current state of watershed Governance through literature review would be presented. In the next section theoretical frame work of the study will be present. It will include objectives/purpose of study and research methodology. Then the in the next section the situation analysis will be presented in form of STEEP analysis (having Social, Technological, Environmental, economic and political dimensions). In the last section recommendations for policy makers will be presented. This is not an exhaustive case study but rather an exploratory introduction to regional dynamics impacting the effective water governance AJK.

### **Literature review**

Water governance is a restively new field for researchers but the climate uncertainty and development pressure from human beings through industry and infrastructural development has posed many questions in the face of uncertain water management frameworks (Schindler & Donahue 2006). Saunders and Wenig (2007), also pointed out that management of water resources poses challenges for any government, and these challenges can be particularly difficult as they are when they are worsened by a fragmentation of legalized responsibilities or where the water resources cross political boundaries like the situation in AJK region where not only natural calamities, political conflicts and lack of water management system prevail. Watershed governance is an essential component to successfully maintaining a sustainable watershed ecosystem (de Loë & Kreutzwiser, 2007). As defined by Nowlan and Bakker (2007), water governance includes “[t]he range of political, organizational and administrative processes through which interests are articulated, input is absorbed, decisions are made and implemented, and decision makers are held accountable in the development and management of water resources and delivery of water services.” UN World Water Development Report, has emphasized that good governance depends on “participation by all stakeholders, transparency, equity, accountability, coherence, responsiveness, integration and ethical issues” (World Water Assessment Programme, 2003). It is worth mentioning that the purposes of this research, “governance” is defined as any agent, organization or individual that is influencing, controlling, planning or managing water resources” (deLoë et al., 2007)

### **Study Area and Methods**

The study area of this study consists of Jhelum river Basin(JRB). Due to complexity of conflict zone status of the region , only the AJK portion of different river systems will be discussed.

#### **Jhelum River Basin**

The Jhelum river Basin is a vital and essential natural resource for a large geographic region, with great influence on the social, economic and environmental well-being of a large population within AJK. The Jhelum river basin is one of the longest flowing river systems in Pakistan with the catchment surface area of -16,731km<sup>2</sup>, of which 9308 km<sup>2</sup> lies in Indian occupied Kashmir and 7423km<sup>2</sup> is situated in Pakistan administered Kashmir(AJK). It hosts a population of over 5 million people. Because the JRB is a system of waterways which flows through three five districts of AJK and into Pakistan , multiple agencies and organizations at various levels develop, plan, govern, allocate ,regulate, and manage water in these river systems.

#### **Research Issues**

The purpose of this study is to identify the current and potential impacts of fragmentation of constitutional responsibilities over water governance in the wake of regional dynamics of natural calamities/climate change, political conflicts and lack of water management system. In research paper examine the efficacy of the multi-tiered water governance structure that exists in the AJK.

For these purposes following are the specific objectives;

- Situation analysis of the current state of affairs of water governance in the region
- To evaluate Economic and non economic gains and losses of the existing system.
- To gauge the perception, (dis)satisfaction , of all the stakeholders market pressures and failures.
- To determine the future Path /optimal way forward.
- To identify the current and potential impacts of regional dynamics
- To identify hurdles in moving forward

### Regional Focus / Importance

This research study is first of its kind involving all the stake holders in this part of Kashmir ( Pakistan administered Azad Jammu and Kashmir AJK). This study is also first effort to identify and quantify impacts of good or bad water governance. This study will help not only in presenting situational and SWOT analysis of current scenario but also highlight factors threatening the food, economic and human security in the region. It will also be beneficial in providing an understanding of entire process and a model to the policy makers to follow. And it will serve as database for short term and long term planning and future research.

### Research Methodology

This study will presents a STEEP analysis of current and potential impacts identified. To explore the research objectives outlined earlier, two pronged research methodology was be adopted. The study is qualitative as well as quantitative in nature. Some aspects for the research are exploratory insight sought for identification of factors and a quantitative survey through structured questionnaire to complement findings of qualitative analysis. questionnaire was distributed to 30 representatives (key informants) of various water management agencies and organizations in the four districts of AJK. The list was compiled of possible key Informants through secondary data and personal meetings. In the absence of accurate and complete secondary data, the statistical estimates and analysis are based on a primary data set of a survey and scheduled interviews, which were undertaken in field study. An attempt was made to gather responses from various tiers of management in the different levels of federal , local governmental and non governmental organizations. A total of 26 key informants responded the questionnaire.

### Results and Discussions

Table 1. *Key Informants*

Organization Type (location)	Organization Name (number)
Non-governmental organizations	Civil society group
	YES ACTS
	AJKWFPO
Provincial/AJK Watershed Groups	Watershed management program
	SERRA
AJK Government Agencies	Mangla Dam upraising Authority
	Mangla dam organization (Regional office of WAPDA)
	AJK planning and Development Department
Watershed Planning and development Advisory bodies	AJK planning and Development department
Inter-jurisdictional government organization	WAPDA,
	State disaster management authority (SDMA),
	SERRA AJK
	Hydroelectric board of AJK
	District administration
Federal Government Agencies	WAPDA
	Ministry of planning and development Pakistan
<b>Total</b>	<b>14</b>

### STEPP analysis

#### Social Analysis

Within AJK water bodies and water projects are managed by public institutions (e.g., government) in the name of best interest of the general public, it is therefore important that the general public is aware of issues and concerns which occur or could occur in the future Therefore a comprehensive public engagement is necessary and sufficient condition for any good governance of water any region. When survey about the social governance structure of AJK it transpired that there is lack of awareness and awareness compaigns in social sector for taking collective responsibility of watershed area management. consequently there is lack of connectivity between the social sector organizations (representing real stake holders) and publicsector organisations who have the say in decision making about watershed management.)

Table 2. *Social governance structure*

Attributes	Number of responses
Lack of awareness about the issue	16
Lack of communication and consistency	5
Lack of monitoring and available data	14
Lack of NGO or Watershed groups/ groups are underfunded/not supported	11
Little opportunity for locals to involve in water governance	12
<b>Total</b>	

It is evident from this response table that most of the respondents opined that there is no system in place for educating the people about this important issue as there are only a few NGOs are working for the cause only on limited scale. These responses also suggests a disconnection between those making decisions and those affected by decisions.

### **Technological Analysis**

Key informants informed that one of the agency WAPDA is an overarching organization in water governance in AJK , which has all the expertise and resources for managing dams and hydroelectric projects, but the river basin or watershed management and governance is a wider context. And coordination is needed from at least 4-6 agencies to remain alert and up to date in technological progress in water governance and disaster mitigation policies.

Table 3. *Technological situation analysis*

Attribute	Number of responses
one overarching organization	20
Lack of Umbrella setup for all stakeholder organizations	24
Proactive management strategy	03
Early flood warning systems in place	04
Lack of monitoring and forecasting	22
<b>Total</b>	

The majority of the respondents maintained that also one institution WAPDA has the expertise but it works with the slow burecratic style which lacks proactive water management strategies and as there is no umbrella organization to cover and utilize the expertise of individual and fragmented other organisations the technological collaboration and sharing of expertise is not exploited yet. The JICA report(JICA 2013) on national disaster management also highlited that “ Installation of rainfall gauges and observation in mountain ranges and flashflood risk areas; and Study on the flashflood risk management plan for Bagh, Neelem and Muzaffaraabad” are urgently needed actions.

### **Economic analysis**

AJK fresh water resources contribute largely to the world’s largest irrigation system of indus plains on which agricultural economy of Pakistan largely depends. Rivers of AJK(mainly Neelum Jhellum and Poonch river which merge the bigger amongst them Jhelum river and its other tributaries ) has capacity of producing 8701.07 mega watts MWs of hydropower the main source of Pakistan and Kashmir. This production of hydro electricity is being made in Public as well as private sector. Again there are overlapping and ambiguities about management of dams and different hydroelectric projects. In Public sector recovery period of cost of the project, after its completion is 3-5 years and the cost of electricity after 3-5 years is Rs 0.30/unit but for projects in private sector the WAPDA purchases electricity from private sector (for a period of 30 years) on an Average Rate of Rs.10-13/unit. So much so that Dam income from three projects is as under;

Table 3: *income of three hydro power projects*

<u>Kohala ,Karot and Mahl hydral projects</u>	
Total production	=2560 MW
One time investment	=Rs 500 bn
Total income /year	=Rs.124 .bn
Income of private parties in 30 years	@124Rs bn/year =Rs.3720 bn

Source: official document

### **Environmental management.**

The climate change phenomena which has hit the world in recent years has impacted heavily in this region and

created an emergency like situation has again compelled to divert attention toward impending water crisis across AJK and Pakistan. Management of water resources poses challenges for any government, and these challenges can be particularly difficult as they are when they are worsen by a fragmentation of legalized responsibilities or where the water resources cross political boundaries like the situation in AJK region where natural calamities political conflicts and lack of water management system prevail. Disasters are natural or man-made phenomenon which has adverse social and economic consequences for the affected population. Floods and earthquakes are major disasters in AJ&K. The disaster Preparedness is critical for organizations, households and communities, but they continue to remain unprepared. The loss of life and challenges that were faced aftermath of October 2005 earthquake exhibit the need for formulating appropriate policies and remedial measures to reduce losses from disasters. The study analyzed the structure and efficacy of Disaster Management/state of preparedness in case of Natural calamities, like floods which are very common in different areas of Jhelum river watershed. And Challenges faced by disaster management.

Table 4. water related *Disaster mitigation strategies*

Negative Attribute	Number of responses
Lack of inter-jurisdictional/regional policy making	16
Lack of communication and coordination	20
Little opportunity for locals to involve in water governance	10
Ambiguity of roles and responsibilities in different agencies	20
Lack of disaster mitigation strategies planning	18
<b>Total responses</b>	<b>84</b>

#### **Floods 2014: a special case study**

Heavy rains struck AJ&K from 3-6 September, 2014 and triggered floods/flash floods in rivers, streams and hill torrents resulting in loss of 56 human lives and causing extensive damage to infrastructure. A district Rawalakot (Which has an Average of 109.6mm rain in Sep) had 464mm, southern district Kotli: (Which has an Average of 83.3 mm rain in Sep) had 428mm of rain like wise all small tributaries of Jhelum river swelled due to these extra ordinary heavy rains. there was huge Damage to Houses & Private Property/Government Buildings & Infrastructure and many lands were blocked due to land sliding (Around 150 landslides in 6 districts (Muzaffarabad, Bagh, Poonch, Sudhnuti, Kotli and Haveli) and resulting flooding caused Complete/partial damage to 18 bridges in 6 Districts: Muzaffarabad, Bagh, Poonch, Sudhnuti, Kotli and Haveli.

JICA report also indicated "Heavy snow melt from the Jhelum basin and heavy rainfalls in the watershed of its steep hill torrents are causing flashfloods, which cause severe damage to the down stream areas." The report suggested priority districts (Bagh, Neelem and Muzaffarabad) should develop and adopt some disaster mitigation strategy for the risk of flashfloods from hill torrents.

ENVIRONMENT RELETED LEGISLATION		
Agency	Legislation	Status
Environment Protection Agency	AJK Environmental protection Act IV of 2000	Enforced but comprehensive Implementation mechanism is Not in place
Wildlife and Fisheries	AJK Wildlife and Fisheries Ordinance 2010	Enforced and implemented
Forestry & Watershed	AJK Forests Act of 1930	Enforced but comprehensive Implementation mechanism is Not in place
AKLASC	The AK Logging & saw milling Corporation Act, 1971	Enforced and Implemented
Crops and Horticulture	AJK Seed Act 2010 AJK Fertilizer & pesticide Act	Enforced and implementation Mechanism is not in place Under process of approval
Irrigation Department	No Special law	-

#### **Political analysis**

Azad Jammu & Kashmir is a region which is although administered by Pakistan, but this area is unique in idiosyncrasy that it is neither independent its administrative affairs nor it is part of Pakistan for administrative purposes like other provinces of Pakistan. In view of unresolved status of the area its constitutional and administrative structure remained ambiguous as well. This has negatively impacted the working and management of many organisations like water governance agencies in the region. Key respondents while reflecting on the role of their institution in the AJK water governance structure. The actual or perceived role that each organization is playing in watershed governance in the AJK is indicated in Table 2. Most of the respondents answered that their organization was not responsible, or had a limited role, or no direct role in watershed governance. Some have

informed that although their organization has some role in advisory and policy planning of the water governance but there is ambiguity about roles and responsibilities of the their respective organizations.

Table 5. *political/ legal roles and responsibilities*

<b>Role in Watershed Governance</b>	<b>Responses</b>
Not responsible, ,no direct role, or limited role	22
Provides advice, planning, input, but no legislated authority basin wide	03
Lead government agency on watersheds in AJK	02
Reports to governments of AJK and Pakistan on Master Planning and feasibility of projects	02
Provide land use planning framework	01
1	
Provincial umbrella group to preserve fresh water eco systems which or represents watershed groups to governments	0
<b>Total Responses</b>	<b>30</b>

Understanding participant perspectives on legal jurisdiction of the different organization with respect to their perceived role their organization is an glaring example how things are managed in peculiar administrative set up. Numerous agencies have some role in watershed management, yet most agencies reported ambiguity about no responsibility, a limited role, or no direct role.

### **Recommendations And Conclusion**

All other respondents acknowledged a watershed governance a model based on and governed by political and regional whims and agenda. The different responses indicate that governance of the AJK is spatially divided, with no single organization charged with basin -wide governance. Instead, multiple organizations play different roles and hold different responsibilities over various politically defined spatial areas, a strong indication of a fragmented governance regime. The negative attributes which this study indicated include the fragmentation of the current governance structure, a lack of region wise single policy and governance structure. Institutional and financial capacity of even these fragmented institutions is again very poor. These attributes, point to a lack of priority, focus and coordination among federal and provincial government organizations

For Political /legal dimension there should be Promulgation of AJ&K Disaster Management Act (2008), Winter and Summer/Monsoon contingency planning should be done in consultation with NDMA stakeholders and line departments. For environmental Purposes Installation of Early Warning System for Earth Quakes/Floods should be in place .On social aspects ,School safety pilot projects should be initiated including mock drills in all the state schools. For financial gains huge potential of hydro power should be tapped , but for that instead of opting costly private invest ment government should secure international Financing from Asian Development Bank, World Bank, Islamic Development Bank ,IMF etc. with the sovereign guarantee from Government of Pakistan, or Loaning from Banking Sector of Pakistan and Floating the shares to public for a specific period including the Pakistani/Kashmiri Diaspora etc. most importantly the Key informant recommendations for improving water governance from this study Emphasized creating an inter-jurisdictional body with basin-wide planning as apriority, ensuring more communication and cooperation between organizations.

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