WATER AND SANITATION PROGRAM: **TECHNICAL PAPER**

Scaling up Rural Sanitation and Hygiene in Pakistan

Water and Sanitation Sector Analysis of Azad Jammu and Kashmir

Baseline Survey Report

Water and Sanitation Program
Local Government and Rural Development Department,
Government of Azad Jammu and Kashmir

June 2016

wsp water and sanitation program

The Water and Sanitation Program is a multi-donor partnership, part of the World Bank Group's Water Global Practice, supporting poor people in obtaining affordable, safe, and sustainable access to water and sanitation services.

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Acknowledgments

A special thanks to the government officials in Azad Jammu and Kashmir (AJK) who generously shared their insights, resources and time during the baseline survey. The authors are grateful for the leadership and guidance of Additional Chief Secretary, Government of AJK, Secretary Planning and Development Department, and Secretary, Local Government and Rural Development Department (LG&RDD). The efforts and insights of Mr. Babar Minhas in the completion of the baseline survey who task-managed the execution of the survey, and contributed immensely during the data analysis and drafting stage are appreciated. A special thanks to Raja Zulqarnain for his apt IT skills and management of the mobile-based survey while acting as the interface with the IT firm on behalf of the Government of AJK. A note of appreciation for Sardar Gulzaman Khan who provided access to all project-related documents during the survey process. The survey team would like to thank all the community members whose valuable responses form the core of the report.

The team would like to thank Soma Ghosh Moulik, Regional Team Leader, Water and Sanitation Program – Pakistan Program for her support and encouragement for the study and report. The team further appreciates the insights and critique provided by our reviewers including Maha Ahmed, Antonio Rodriguez Serrano and Masroor Ahmad of the World Bank.

The Task Team Leader for supervising the development of this study was Mohammad Farhanullah Sami. Mahjabeen Qazi and Fatima Riaz were responsible for the research and drafting of the note.

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Peer Reviewers: Maha Ahmed, Antonio Rodriguez Serrano and Masroor Ahmad

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Foreword

In Azad Jammu and Kashmir (AJK), after the 1998 census, this is the first-ever comprehensive district-based cross-sectoral household survey conducted in the history of the state in terms of diversity, sample size and coverage. This survey report would be a valuable addition in term of reliable basic data regarding key socioeconomic indicators coupled with water and sanitation related in-depth data and analysis.

I am happy to note that this survey study is the first ever initiative of its kind not only in Pakistan but also in the South Asia region, which would have long lasting impact on the future development of AJK.

This survey was conducted with the technical and financial assistance of the Water and Sanitation Program (WSP), with the aim to provide baseline data for the use of development planners, donors and implementing partner in drawing up district-based integrated development plans, and formulating poverty reduction strategies based on key socio-development indicators.

I hope this publication will prove to be an informative and useful reference document for the nation building department of the Government of AJK, researches, scholars, planners, development partners and all others who may wish to benefit. The survey report will enable evaluation of the past polices, plans and programs and their reprioritization, problem identification and implementation of pertinent measures and interventions specifically focused at improving the delivery of services and the plight of the bottom 40 percent poor. The survey study further helped the Local Government and Rural Development Department (LG&RDD) and other stakeholders to learn and get on job training because of their active engagement through various phases of the survey study, ranging from selection of statistical methods, use of appropriate technology, survey tools, field testing, data collation, rechecking, hands on Global Positioning System (GPS)-based mobile technology, and analysis and discussion of the results in multiple stakeholders meetings.

Due to the application of GPS and android mobile technology, authenticity, reliability and accuracy of a wide range of statistics on diverse aspects of the socioeconomic condition of state have been strengthened and ensured.

I take this opportunity to appreciate the technical and financial support of WSP in spearheading this unique study and express my gratitude to Mr. Farhan Sami from WSP who contributed towards compilation of this document. I also commend the constructive efforts and professionalism of the Secretary, LG&RDD and his core team, who worked hard and came with a wonderful report. My special thanks also go to all other line departments for their inputs at various stages of the study.

At the end I would welcome feedback from all readers of this report to bring improvements into our first endeavor of this type of baseline survey and data generation for use by policy makers, planners and implementers both in the public and private sectors.

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Abbreviations and Acronyms

ADP	Annual Development Plan
AJK	Azad Jammu and Kashmir
CBO	Community Based Organization
FGD	Focus Group Discussion
HDI	Human Development Index
GDP	Gross Domestic Product
GPS	Global Positioning System
KII	Key Informant Interview
km^2	square kilometer
LG&RDD	Local Government and Rural Development Department
MDGs	Millennium Development Goals
NGO	nongovernmental organization
O&M	Operation and Maintenance
PCA	Principle Component Analysis
SOP	Standard Operating Procedure
UNDP	United Nations Development Programme
WSP	Water and Sanitation Program

Executive Summary

Background and Rationale

With over 180 million inhabitants, Pakistan is the sixth most populous country in the world. Despite gains in reducing poverty, Pakistan's low human development indicators undermine its labor force productivity and economic growth. Pakistan ranks 146 out of 187 countries in the 2014 Human Development Index (HDI) with indicators lower than most countries in South Asia. One key indicator relates to improved water and sanitation access; the economic impact of poor sanitation and hygiene results in an annual loss of 3.94 percent of the Gross Domestic Product (GDP).

Political reforms in Pakistan, especially with reference to the 18th amendment of the constitution, have shifted responsibilities from federal to provincial level, thus requiring provinces/state to formulate their own policies and implementation strategies. The Water and Sanitation Program (WSP) in partnership with other organizations has supported provincial governments to refocus and to concretize such strategies and policies into suitable action plans, promoting dialog for cross-learning and sharing of good practices. The primary objective of conducting this baseline survey is to document the existing knowledge and practices of communities in pastoral and hilly communities of AJK regarding water supply, sanitation infrastructure and service delivery, with the aim of guiding the service provider and the regulator in designing policies, strategies and interventions aimed at improving service delivery.

Azad Jammu and Kashmir (AJK) development indicators present a few disparities. While generally underserved in relation to basic services, it fares positively on some indicators; for example, the literacy rate has increased from 55 to 60 percent after the 1998 census, which is significantly higher than the national average of Pakistan. At present the gross enrolment rate at primary level is 95 percent for boys and 88 percent for the girls (between the ages of five to nine years). The rural to urban ratio is 88:12; population density is 270 per square kilometer (km^2) in comparison to 187 in Pakistan (PSDP AJK). A high proportion of the population lacks basic services and facilities like clean drinking water and safe disposal of waste. The region is also an area of extreme environmental vulnerability, characterized by frequent landslides and unchecked urban development. Besides others, some factors that lead to prevailing poverty in AJK are: arduous living conditions as witnessed by low quality of education, lack of access to information, overcrowded households, low use of latrines, and lack of latrines and poor access to safe drinking water. These factors collectively lead to scanty hygiene and undeveloped sanitation facilities, resulting in a high prevalence of waterborne diseases in the community.

AJK's situation reveals that numerous factors contribute to ongoing poverty. AJK falls within the highly vulnerable zones of climate change and natural disasters. The majority of the rural population depends on forestry, livestock, agriculture and non-formal employment to eke out its subsistence. The average per capita income in AJK has been estimated to be US$1,368.[1] Poor water and sanitation contribute greatly to the vicious cycle of poverty. The project targeted districts are predominantly agriculture based and a majority of the families are directly associated with the agricultural sector. Nevertheless, employment in public administration is also prominent. However, mounting population pressure and land fragmentation have overburdened subsistence agriculture, spurring widespread seasonal migration to urban centers and abroad. Remittances are thus an important source of income for large percentage of population even for the poorest quintiles in AJK. Based on the socio-economic characteristics, AJK is considered to be poor with a high level of poverty.

Eradicating poverty requires strategies, determination and the collaborative effort of the international community, governments and local communities. A high proportion

[1] Economic survey of Pakistan 2012-13.

of the population lacks basic services and facilities such as clean drinking water and safe disposal of waste. The Millennium Development Goals (MDGs) report of 2013 by UNDP, states on MDG 7 that environmental degradation along with poor home hygiene, lack of basic sanitation and unsafe drinking water have an impact on the health of the population, particularly children under five.

Methodology

Decision-making and formulation of development initiatives vitally depend on availability and accuracy of data. Addressing this critical need, WSP initiated a baseline survey on 'Water and Sanitation' in AJK with the objective of collecting baseline data and information on water supply, sanitation infrastructure and service delivery.

WSP provided technical and financial support to the baseline survey while the Local Government and Rural Development Department (LG&RDD) provided human resources for undertaking the survey in the field. The methodology was a mix of both quantitative and qualitative data collection, including structured questionnaires, Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs). The survey methodology was consultative, involving stakeholders from the community, nongovernmental organizations (NGOs), Government of AJK, and academia, through designing the questionnaire to finalizing the findings.

A baseline survey was conducted with 5 percent of the total AJK population. The survey was planned and conducted in all districts, urban, peri-urban and rural areas. The household survey questionnaire was drafted through a detailed consultative process was developed and the survey was conducted in the field by the LG&RDD of AJK.

Findings

Demographic Characteristics of Respondents

The survey findings confirm that a large majority of households are headed by adult males but with a low level of education. A large percent of the population is in the low wealth quintiles in the majority of the districts of AJK, with district Neelum on the lowest and district Mirpur on the highest quintiles. Assessment of wealth quintiles clearly indicates that access to a higher level of eductaion and better water and sanitation faclities are largely available to households in the higher quintiles. Female headed households are mainly present in the lower wealth quintiles, making them more vulnerable than the households headed by males.

The baseline report reveals the average family size in AJK is 7.8 members which is above the average family size in Pakistan More than half of the heads of households have either primary or no education. Farming and rearing livestock are the mainstays of the people of AJK engaging four out of 10 households as the main source of livelihoods.

Data further reflect that households' education level, and access to better water and sanitation facilities are directly linked with wealth quintiles. Households in higher quintiles enjoy better quality facilities compared to the ones in lower quintiles. Female headed households are vulnerable and are in lower quintiles with poor access to water and sanitation facilities.

Water

The baseline survey reveals that water borne diseases have become one of the major reasons for about 45 percent girls and boys missing school days. The overall results indicate that the prevalence of water borne diseases is high in households practicing open defecation, as a majority of households is dependent on community water sources with springs as a major source. A sizable number of people do not treat drinking water owing to traditional perceptions that running, clear and palatable water is of good quality. Lack of water treatment is less related to financial constraints and more to awareness and cognizance issues of households. About 56 percent of households have never paid for water facilities while the remaining has paid small amounts at varying time intervals. However, 78 percent of households are inclined to pay for safe water across all wealth quintiles.

The survey findings show that the proportion of the population with access to improved water sources has reached 57 percent in AJK, in comparison to national coverage, which is 89 percent. The survey further highlights that women are primarily responsbile for fetching water at the household level; this activity engages 78 percent girls and women irrespective of water source and distance. The average time for fetching water is 0 to 15 minutes for the majority of households.

Sanitation

Results show that open defecation is practiced in 52 to 71 percent of schools. The low availability and use of latrines in education institutes indicates that latrines were either not constructed in schools or are nonfunctional. The survey finds direct links with education, gender and wealth status of households in relation to improved water, sanitation and hygiene practices. Households in higher wealth quintiles have access to better sanitation facilities compared to households in lower quintiles. Households with poor sanitation practices have, however, shown low satisfaction levels in relation to their prevailing practices.

Baseline findings reveal that the overall situation in terms of access to improved water resources and sanitation facilities is poor in AJK. Poor sanitation practices have resulted in a high prevalence of water borne disease in AJK, with diarrhea and dysentery emerging as major diseases. Causes include lack of availability and low access to improved facilities and services and, more importantly lack of knowledge and awareness on the importance of improved water and sanitation practices.

Hygiene and Communication

Washing of hands without soap is practiced as a high percentage in critical household activities, especially in relation to sanitation practices. Behavioral change therefore emerges as a key ingredient for successful adoption of better sanitation practices in the rural areas of AJK. The prevalence of poor hygiene practices is higher in households with lower education levels. To be able to formulate an effective communication strategy to reach out to the local population with important messages, the baseline survey highlights the main sources of communication in AJK which include mobile phones (34 percent), followed by television, radio, mosques and word of mouth.

Recommendations

The recommended measures derived from the gaps identified in the baseline survey are focused on the policy, strategy and institutional levels.

- There is a need for comprehensive sector-specific policies on water, sanitation and hygiene to cover gaps and issues. These policies should be consistently reviewed over a reasonable period to achieve their goals and objectives. Under the supporting and enabling environment provided by the government, private entrepreneurship should be encouraged and established across AJK. Under the regulatory framework of LG&RRD, Community Based Organizations (CBOs) can effectively develop partnerships with the private sector, which needs to be fostered.
- Adequate budget should be allocated by the Government of AJK for the improvement of water, sanitation and hygiene under the Annual Development Plan (ADP) for a reasonable period of time under the approved policy guidelines.
- There is need for appropriate legislation, especially on sanitation, to ensure implementation of standards at all levels, for example, it should be mandatory for all schools and private houses to have toilets. Under this legislation steps need to be taken to:
  - Ensure construction and functionality of toilets in educational institutions;
  - Establish Water and Sanitation Management Committees under Standard Operating Procedures (SOPs) to ensure Operation and Maintenance (O&M) of toilets; and
  - Encourage school management to construct toilets, with motivational packages including rebates and incentives.
- There is need for a consistent strategic approach on awareness raising programs at the community level to improve knowledge, attitude and practices on water, sanitation and hygiene, with adequate funds allocated to this activity. The strategy will need to include a focus on various target groups/audiences and channels including youth, religious clerics, women and girls and the services of mobile companies.
- A dedicated directorate on sanitation should be established at the state level with implementing structures at the district level that should guide and monitor the implementation of policy guidelines.
- Under the institutional anchorage of the Planning and Development Department, a situation analysis should be repeated every three years to effectively monitor the progress on the water and sanitation program in AJK.

1. Background

KEY POINTS

- **AJK with a hilly terrain is engaged with broad service delivery challenges for water and sanitation**
- **The area significantly improved the access to water and sanitation in the last two decades**
- **AJK has the highest sanitation coverage (82%) in the entire country, while two third (66%) of the population enjoys water coverage**

The state of Azad Jammu and Kashmir (AJK) is divided into three divisions – Muzaffarabad, Poonch and Mirpur and 10 administrative districts, with Muzaffarabad city as the capital. The Muzaffarabad division includes Muzaffarabad, Bagh, Hattian and Neelum; Poonch includes Bagh, Haveli, Poonch and Sudhnutti while Mirpur division includes Mirpur, Kotli and Bhimber. These districts are further subdivided into 31 Rural Development Markaz, 189 union councils and 1,771 villages. The administrative setup in urban areas includes town committees, development authorities, municipal committees and municipal corporations. There are five Municipal Corporations, 13 Municipal Committees and 18 Town Committees On an average, a revenue village comprises 10-14 neighborhoods, where each neighborhood may comprise three to 12 houses in a scattered settlement and 100-400 houses in a more concentrated village. On an average, 30-60 houses determine the physical boundary of a neighborhood. Apart from pockets of concentrated populations, settlements are generally scattered over hills.[2]

According to the 1998 population census, the estimated population of AJK was 4,567,982 in 2008, which grew to 4.2 million in 2013 with an annual average growth rate of 2.4. Almost 100 percent of the population is Muslim. The rural to urban ratio is 88:12, while the population density is 320 persons per square kilometer (km^2). A high proportion of the population lacks basic services and facilities such as clean drinking water and safe disposal of waste. The region is also an area of extreme environmental vulnerability, characterized by frequent landslides and unchecked urban development with few environmental safeguards. At the time of partition in 1947, the economy of AJK was at a sustenance level. However, the current average per capita income of AJK is US$1,368, which is equal to the national per capita income.[3]

The water and sanitation situation in AJK in 1947 was not very encouraging but significant progress was made over time. The results of the 1998 census on household access to water supply and sanitary facilities highlight that 34.5 percent of the rural population had water supply access inside the house while 65.41 percent fetched water from community sources. AJK received a severe setback with the 2005 earthquake when a large number of schemes were completely or partially damaged and a majority of water sources were affected. The recovery and rehabilitation efforts in AJK have shown encouraging progress. The Millennium Development Goals (MDGs) report, 2013, published by the United Nations Development Programme (UNDP) on MDG 7 states that environmental degradation, along with poor home hygiene, lack of basic sanitation and unsafe drinking water, has a huge impact on the health of the population, particularly children under five. The estimated cost to the economy due to poor sanitation is PKR 954 billion (in 2014 terms) or 3.94 percent of the Gross Domestic Product (GDP).

A brief historical review of access to improved drinking water in AJK shows mixed trends. In the space of two years, between 2004-05 and 2006-07, the progress jumped from 49 to 68 percent, but again dropped to the range 56-66 percent between 2007-08 and 2011-12. In AJK access to sanitation at 82 percent of the population in 2011-12 is the highest in the country and fairly close to the MDG 2015 target of 90 percent. It increased steadily from 39 percent in 2004-05 to its current level.[4]

[2] AJK at a Glance, 2013, by Planning and Development Department, Muzaffarabad.
[3] AJK at a Glance, 2013, by Planning and Development Department, Muzaffarabad.
[4] Pakistan Millennium Development Goals Report 2013.

2. Objectives of the Baseline Survey

KEY POINTS
- The study aims to assess the economic and social capacity of communities to access and utilize available services and facilities
- Understanding local behavioral and cultural practices relating water, sanitation and hygiene by gender and age is also the aim of the study

Political reforms in Pakistan, especially with regard to the 18th constitution amendment in 2010, have shifted responsibilities from the federal to provincial level, thus requiring provinces/states to formulate their own policies and implementation strategies. In the water and sanitation sector, discussions are in progress at the provincial level and draft policies and strategies have been formulated. The Water and Sanitation Program (WSP) in partnership with other organizations has supported provincial governments and the state of AJK to refocus and to concretize such strategies and policies into suitable action planning, promoting dialog for cross-learning and sharing of good practices as a foundation.

To formulate an effective policy and implementation strategy, it is essential to have accurate data and information on the current status of water supply, sanitation infrastructure and service delivery to enable the service provider and regulator to design policies, strategies and interventions aimed at improving service delivery. For this reason, a baseline survey of the water and sanitation sector in AJK was jointly planned by the LG&RDD and Government of AJK with technical and financial support from the WSP. The baseline survey will contribute to the state-specific water and sanitation policy formulation process and improvement in service delivery resulting in achievement of the Sustainable Development Goals (SDGs). The specific objectives of the baseline survey are:

a. To assess the economic and social capacity of communities to access and utilize available services and facilities

An in-depth understanding of the economic and social capacity of communities is essential for policy makers to make responsive polices and strategies. In this regard, the baseline survey assessed the economic capacity of the communities on the basis of proxy indicators. This helped to categorize the local population on the basis of their economic status at the local level vis-a-vis access to and utilization of water and sanitation facilities. The survey also looked into some relevant social indicators and compared local practices and behavioral approaches to effective/proper utilization of water and sanitation facilities.

b. To understand local behavioral and cultural practices, sex and age wise

It is also important to understand local practices, behaviors, cultural approaches and knowledge on the basis of both age and sex to develop responsive and effective policies and strategies. This helped in the identification of effective strategies and interventions, designing mass/specific communication and awareness raising campaigns. In addition, it contributed to the identification of specific target groups, geographical locations and type of strategic approach that should be designed and applied for behavior change to achieve sustainable results. This objective was treated as a crosscutting area, which was reviewed and assessed in various relevant scenarios.

c. To understand quality and quantity issues in water and sanitation at the local level

Water quality is an important dimension in the water and sanitation sector, which has not yet been fully addressed in any policy thus far. It is an established fact that major health and mortality concerns are not only linked to quantity but mainly to water and sanitation quality issues. The survey provided data on existing water quality improvement practices, and level of knowledge and practice, and their relevance to health issues at the local level. This will help in prioritizing water quality improvement measures and developing guidelines at the provincial/regional level to address quantity issues.

d. To carry out a service delivery assessment of water and sanitation

It has been observed that the quality of infrastructure does not mean optimal service delivery, especially in water services, where often challenges in maintaining quality are linked to household end-user practices and environment. The baseline survey aimed at collecting information on available service delivery mechanisms, efficiency and gaps in the service delivery mechanisms, including market aspects, and local level stakeholders. This information will help in improving the service delivery mechanism and scaling up as part of future programming.

3. Survey Methodology

KEY POINTS

- **Led by Local Government and facilitated by WSP, the survey was planned, designed and implemented to collect and analyse data on WASH within poverty quintiles**
- **Real time data collection with geo-tagging through cell phone based android system was used to improve the data quality and reliability**

The baseline survey was a joint initiative of LG&RDD and WSP, where WSP provided technical and financial support involving data analysis and report compilation while LG&RDD contributed in data collection and supervisory support in the field. The baseline survey methodology was consultative during all stages of planning, design, execution and finalization of the report. Stakeholders with whom consultations were held included key government officials, LG&RDD staff, and academia, representatives from civil society organizations, local communities and WSP. Designing the questionnaire was of key importance in capturing the desired information, which was transferred to android-based smart phones during the survey at the field level.

The approach employed for the survey aimed at collecting data that were timely, accurate, and statistically representative. WSP piloted an electronic data collection technique for this survey using smart phone technology to ensure timely, accurate and efficient data collection from the field. The Global Positioning System (GPS)-based system and photograph with each household surveyed confirmed the location of the households interviewed and information collected. Data collected from the field were uploaded in real-time into the main system that enabled experts to review it on a daily basis while the senior staff of LG&RRD monitored and supervised the entire process in the field. The survey covered a 5 percent sample size (27,800 households) reaching all districts, subdivisions, union councils including rural, peri-urban areas and revenue villages. This ensured coverage of all geographical areas, and social and economic strata of the population. A software controlled sampling method was used to ensure neutrality in the selected sample with a error margin of 0.2 percent and confidence interval at 99 percent.[5] Based on the success of the pilot test in AJK, WSP is replicating this android-based technique for other provincial baseline surveys.

One of the survey objectives was to estimate poverty using wealth quintiles based on a relative poverty assessment method.[6] The purpose was to identify different economic strata of the population and gaps in services and facilities to be able to design specific strategies and interventions to address those gaps. For the baseline survey, 42 indicators were used to measure relative poverty applying Principle Component Analysis (PCA) to get wealth index scores for each household. The wealth index score is divided into five equal portions on a scale of 100, where the lowest 20 is the poorest and highest 20 is the richest in terms of wealth. In between, lay the second lowest quintile, middle and second highest quintiles.

[5] http://www.raosoft.com/samplesize.html

[6] Relative poverty refers to living standards that are lower than those of other people in the population. For example, poverty could be defined as being one of the poorest 20 percent of people in the population or, in other words, having material living standards that are lower than 80 percent of the people in the population. The wealth index is one way of determining relative poverty. Other definitions of poverty are based on ownership of assets and the characteristics of the person's household. For example, someone with a piped water supply and car would be wealthier than someone who has to retrieve water from a river and does not own a car (Rutstein & Johnston 2004).

4. Findings of the Baseline Survey

KEY POINTS

- **Water access in AJK is predominantly through unsafe water sources (unprotected springs) and water treatment is not a priority at household level**
- **Water is available within 15 minutes range for majority but weak cost recovery and tariff mechanism has induced operation and maintenance issues with infrastructure**

The baseline report presents survey findings on water, sanitation and hygiene related to key priority indicators for policy makers. The priority indicators are further compared with wealth quintiles as a cross-cutting indicator to be able to identify priority target groups, geographical areas and actions. The survey findings were followed by their analysis and recommended measures. A detailed database is also available on the website of the LG&RDD (www.lg.gok.pk) which can be accessed by planners to assess different scenarios against geographical areas, sex and age for prioritization, strategizing, implementation and monitoring purposes.

The baseline report presents responses of 99 percent of rural respondants and 1 percent of peri-urban areas. The survey targeted to interview heads of households. In the absence of the head of a household, the next senior and available member of the household was interviewed. About 77 percent of survey respondents were adults between 18-60 years of age. Only 7 percent were below the age of 18 years while 15 percent were above 60 years of age. Around 91 percent of respondents were male and 9 percent females.

4.1 Socioeconomic Status of Households in AJK

Family Size in AJK

The baseline data on family size show that the average family size in AJK is 7.8 members. Typical of pastoral areas, the household sizes are larger than the comparable national figure of about 7. The survey findings revealed that 57 percent had family sizes in the range of five to 10, while 21 percent of households had family sizes of one to five (Figure 1). Data indicated that 91 percent of households were headed by males.

Education of Heads of Households

Figure 2 reflects that a large majority of household heads have a poor educational background with more than half of household heads having either primary or no education. The percentage

FIGURE 1: FAMILY SIZE IN AJK

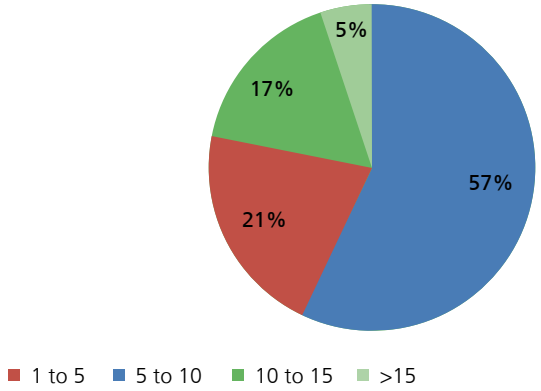
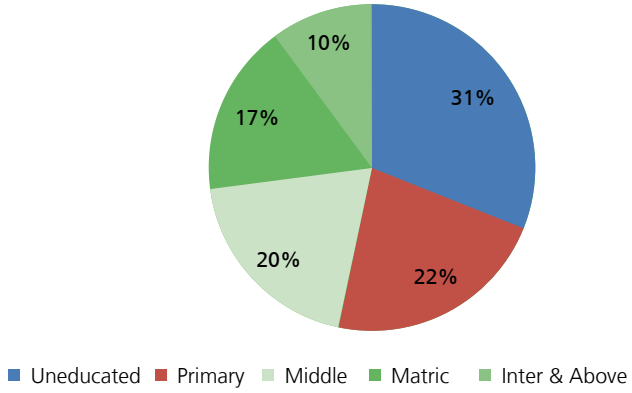


FIGURE 2: EDUCATION OF HEADS OF HOUSEHOLDS



of household heads with a higher level of education is quite low. Data supports the distinctive characteristics of rural areas where households generally do not continue study beyond the primary level. One key reason for discontinuing education may be the lack of livelihood opportunities that have forced households into making a transition to the labor market.

Occupation Trends in AJK

People of AJK have diversified means of livelihood, that is, farming, employment and labor are the mainstays of

FIGURE 3: OCCUPATION TRENDS IN AJK

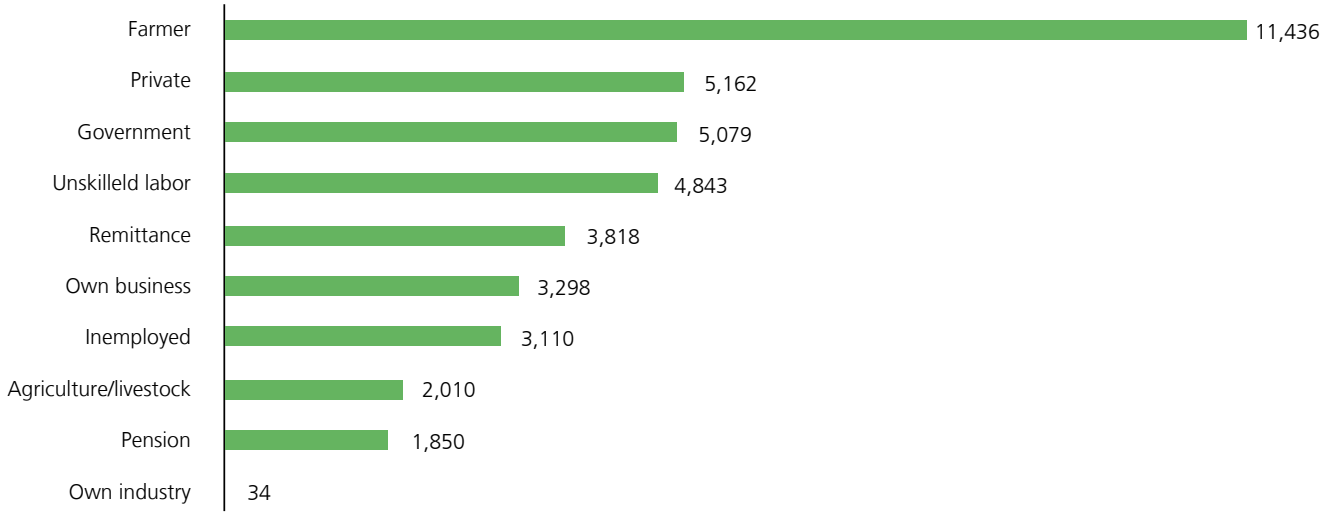
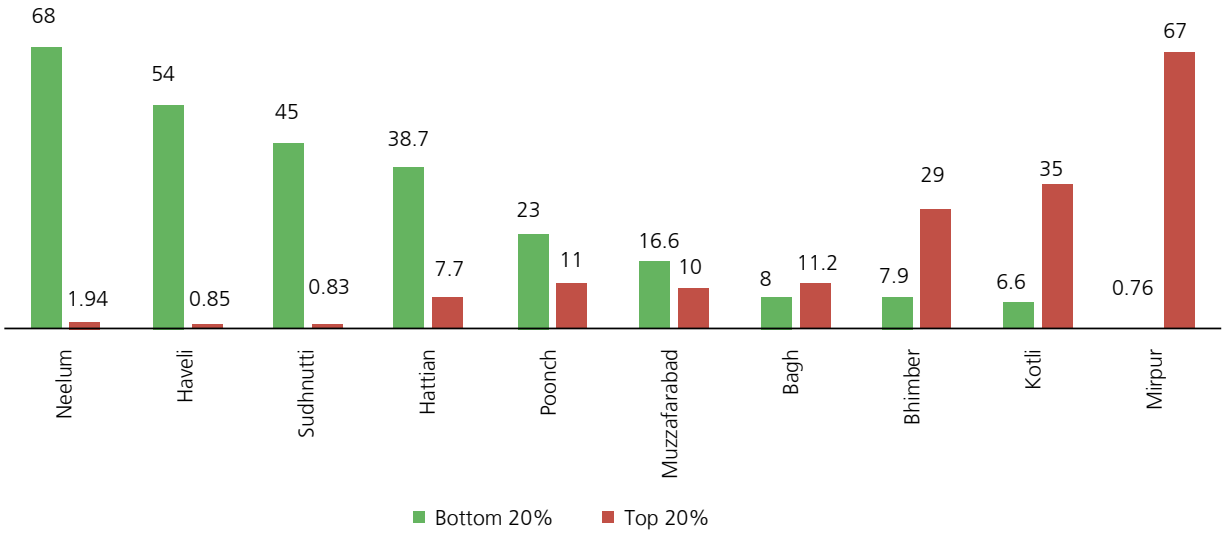


FIGURE 4: COMPARISON OF DISTRICT WEALTH QUINTILES



livelihoods, particularly among rural households (Figure 3). Due to small landholdings coupled with major demand and supply side constraints, agriculture remains at the subsistence level. As a result, output from these sources is only sufficient to supplement the consumption needs of families whereas, for earning income, they have to resort to wage employment.

Comparison of District Wealth Quintiles

Figure 4 provides an overview of the overall economic status of the districts assessed on wealth quintiles. For easy comparison, only the lowest and highest quintiles are reflected in the figure. The data highlight that the majority of districts has a high percentage of the poor while only a small percent lie in the higher quintiles. The majority of its population in district Neelum is in the lowest quintiles while district Mirpur shows the highest proportion of population in higher quintiles. The districts of Muzzafarabad and Bagh share rich and poor quintiles in almost equal proportion to each other. Overall, six out of 10 districts have a high percent of population that is in the lowest quintliles while only three

districts have a relatively higher percentage of households in higher quintiles.

In AJK, agriculture is fragile featuring nomadic pastoral practices and those employed in this sector are amongst the most vulnerable communities. The data further indicate that districts with populations in lower quintiles are those where livelihoods and economic opportunities are very limited.

Wealth Trends in Housing and Services

Figure 5 compares the wealth quintiles of households with the type of house structures and access to household tap and flush/latrine facilities. A large percentage of households dwelling in kutcha (mud or impermanent material) houses are in the lowest quintiles while the majority of households that have cement houses are in the highest wealth quintiles. A small percent of households that also live in shelters/tents are in the lowest quintile. Access to latrines and household tap water is also highest in cement houses and in higher quintiles compared to households in lower quintiles. Thus the figure clearly reflects that while the wealthy mostly reside in cement dwellings with improved water and sanitation facilities, the poor generally lag behind in all facilities. The data show that there is direct relationship between housing and services and the wealth status of the population. In particular, high levels of poverty were observed in households headed by women due to fewer economic opportunities, low literacy and skill levels and restricted mobility for women. This also indicates that households headed by men are generally wealthier than those headed by women. Figure 6 shows that a large proportion of those in the lowest income quintile are uneducated.

4.2. Water

This section looks into households' access to water sources which are further assessed in terms of time, quality and availability issues. These parameters are further assessed in relation to gender and wealth quintiles.

Drinking Water Source

Data show that a majority of respondents get their drinking water from unsafe water sources (springs). This indicates that the use of water from open sources is highly dependent on water availability. It is important to note that households in the lowest quintiles have the higher dependency on springs and other community sources. Sources such as household taps or standpost sources that are closer to households are generally available only to households in the higher wealth quintiles.Thus access to safe and convenient water sources have direct link with wealth quintiles (Figure 7).

Spring Water at District Level

Both quality and availability of water from springs cannot be ensured especially in the winter months. Respondents mentioned that during the winter months most springs become dry. Women noted that, sometimes, in the rainy

FIGURE 5: WEALTH TRENDS IN HOUSING AND SERVICES

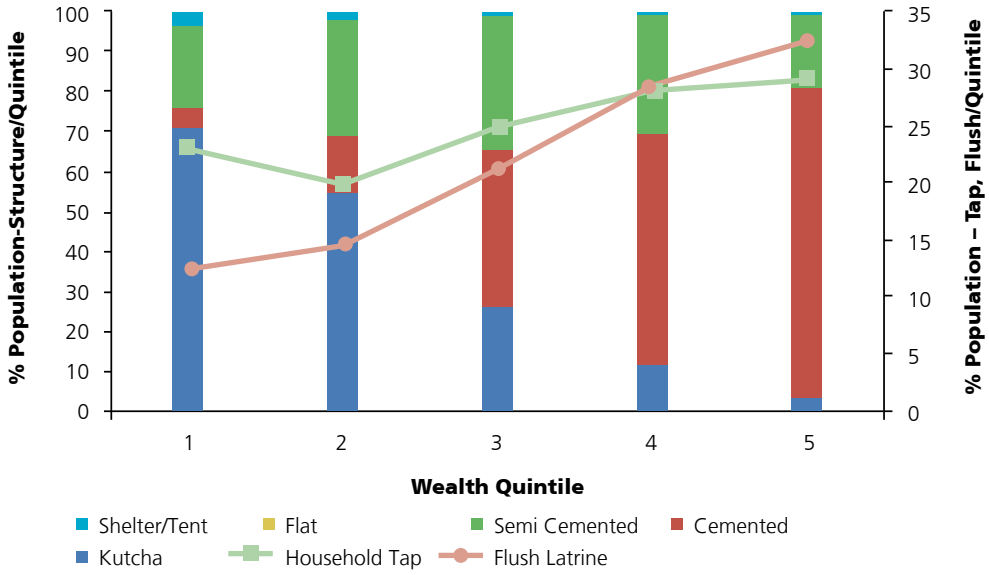


FIGURE 6: WEALTH TRENDS IN EDUCATION

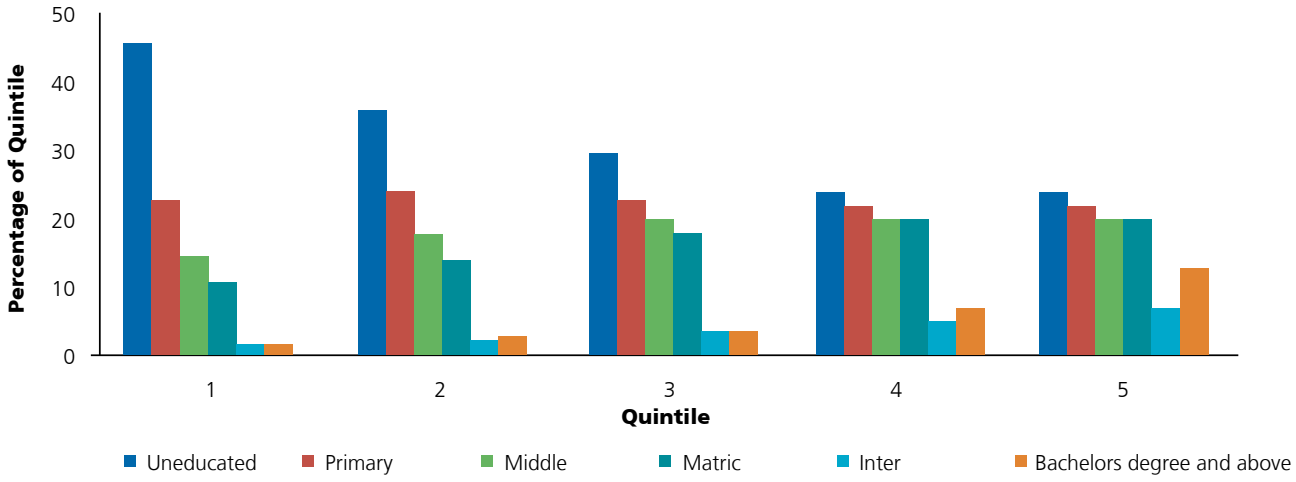
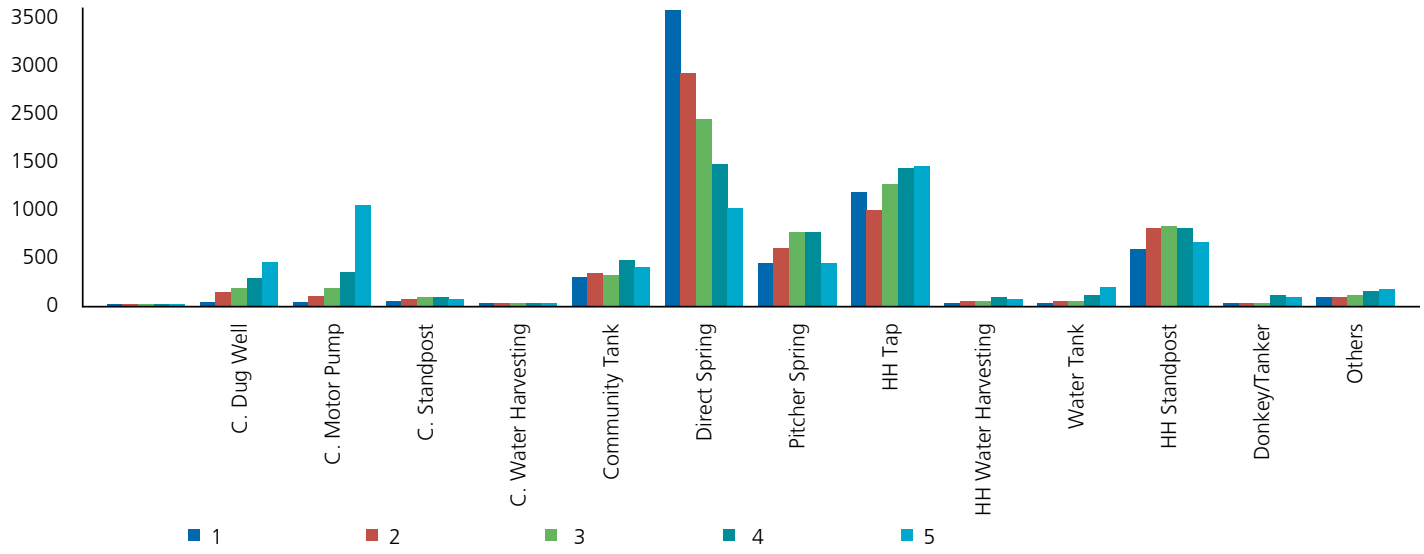


FIGURE 7: DRINKING WATER SOURCE AND WEALTH QUINTILE



season water quality worsens in some sources. It is also quite difficult in the hilly terrain of AJK to reach the springs for water collection which can ultimately result in decreasing water intake and increasing the chances of illness due to shortage of water.

Responsibility for Fetching Water

Figure 9 highlights that, irrespective of water source and distance, women predominantly collect water for everyday use in the household. About 78 percent of females including women and girls (less than 18 years of age) are responsible for fetching water while only 22 percent of males including both men and boys (less than 18 years of age) carry out this responsibility at the household level.

Travel and Queuing Time/Season

Data (Figure 10) further elaborate on the travelling and queuing time required for collecting water. The results highlight that water collection in zero to 15 minutes is the most common reporting time for traveling and queuing at a water source in both rainy and dry seasons. This indicates that the majority of households fall within the sphere

FIGURE 8: DEPENDENCY ON SPRING WATER AT DISTRICT LEVEL

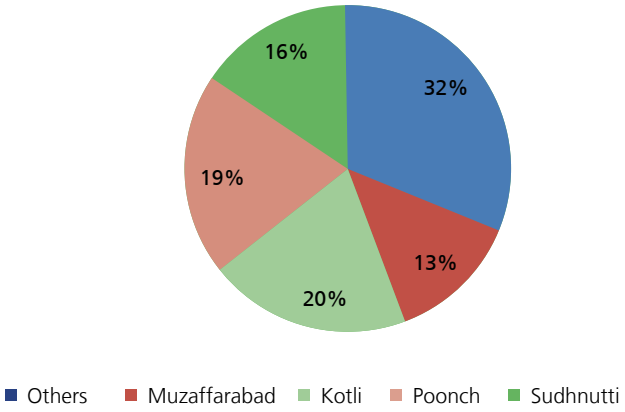


FIGURE 9: RESPONSIBILITY OF FETCHING WATER

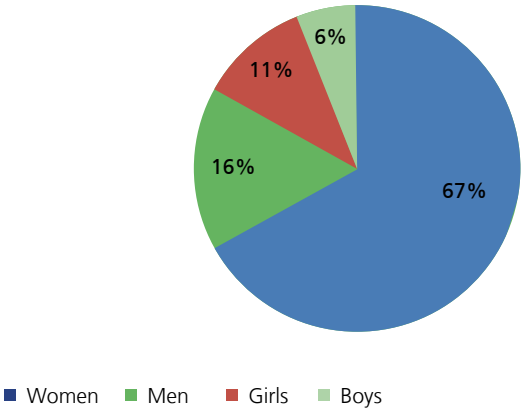
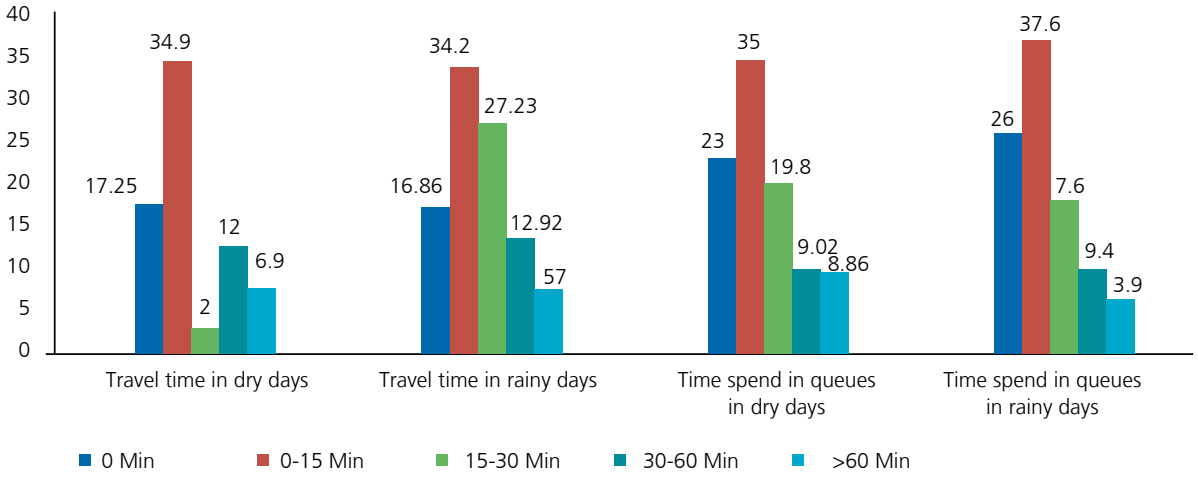


FIGURE 10: TRAVEL AND QUEUING TIME / SEASON



standard of less than 30 minutes for water collection. There are also a large number of households that have access to water in closer proximity with zero minute fetching time. It is interesting to note that fetching and queuing time does not vary according to season.

Perceptions on Improved Water Quality

Figure 11 shows that perceptions on the quality of water remain traditional among the local population where running water or clear water is considered as good quality water. A large percentage of households consider clean (33.6 percent), good taste (32 percent) and running water (21 percent) as improved and safe drinking water. Only about 5 percent consider boiled water, 2 percent bottled water and 1 percent considers chemically treated water as improved quality of water.

Water Treatment

Data indicate that the majority of households in AJK do not treat drinking water. Figure 12 shows that the majority of districts not treating their drinking water are those with springs as their main water source. These people mostly

FIGURE 11: PERCEPTION OF POPULATION ON IMPROVED WATER QUALITY

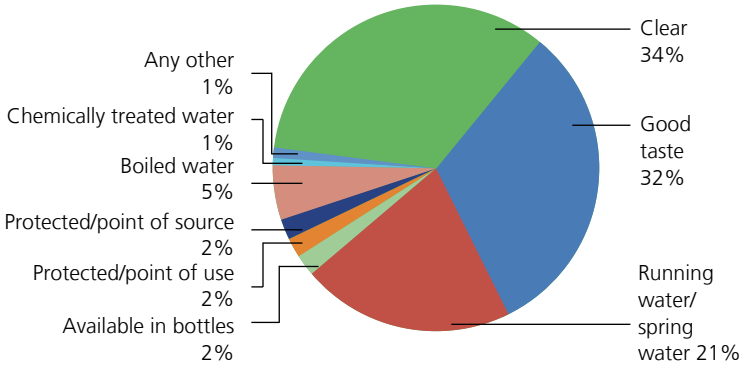
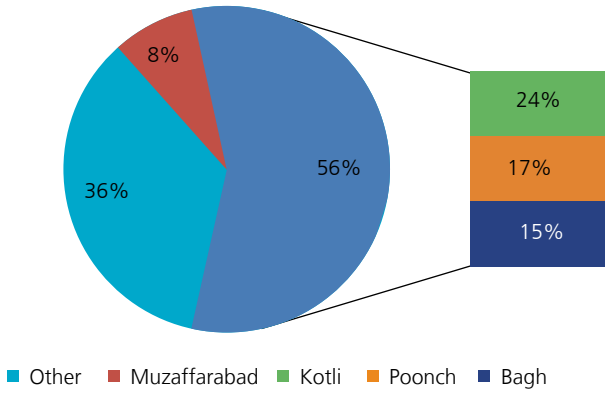


FIGURE 12: NO WATER TREATMENT, DISTRICT WISE



belong to districts of Kotli, Poonch, and Muzaffarabad. This further confirms that local perceptions on running water as clean water persist. Findings further indicate that, in households that treat water, the practice is not regularly followed. Lack of treatment of water implies that exposure to diarrheal and other water-borne diseases is likely to be high.

Reasons for Not Treating Water

Examining the reasons for not treating drinking water by wealth indicators as well as awareness/knowledge and purchasing power, results clearly indicate that lack of treatment of drinking water is more about knowldege and awareness than economic/financial affordibility. Households that do not treat drinking water cited several reasons, notable among these were:

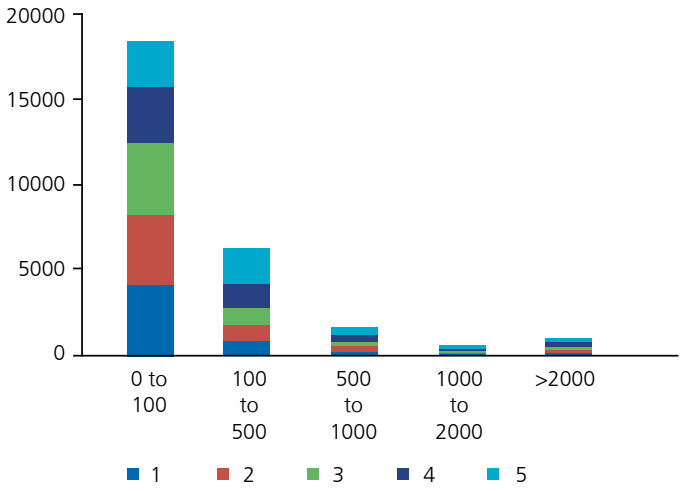
- Running water is already safe; and
- It is too expensive to treat water.

About 88 percent of households in the lowest quintiles and 24 percent in the highest quintiles lack knowledge and awareness on water treatment. In comparison, 51 percent in the lowest and 20 percent on the highest quintiles do not treat drinking water due to the financial costs involved. This further implies that, in the higher income quintiles, traditional beliefs in relation to the quality of clear and running water take precedence over having information about water treatment.

Monthly Expenses on Water

Figure 13 reflects that the majority of households spend less than PKR 100 on water across all wealth quintiles. Out of 18,000 people paying PKR 0-100, 16,000 are actually paying PKR 0 which is about 99 percent of the total households. Very few people are spending more than PKR 500 on drinking water.

FIGURE 13: MONTHLY EXPENSES ON WATER



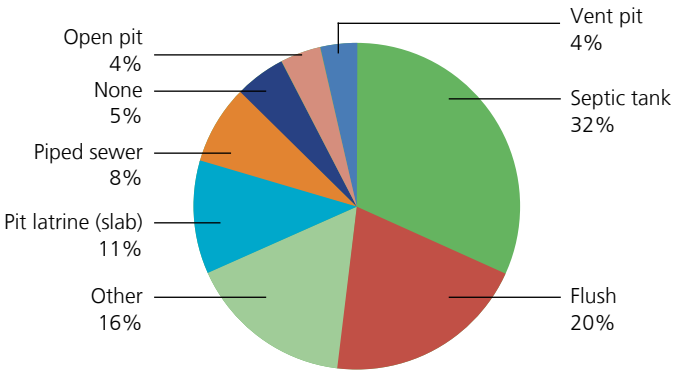
Data further confirm that only a small percentage of households pay water bills. About 19 percent pay monthly bills while 10 percent pay occasionally. A large majority of 56 percent has never paid for water facilities at all. The result once again confirms that the poor are also deprived of awareness and knowledge on safe drinking water

However, it is interesting to note that a large majority of households across all quintiles are willing to pay for better water facilities. Data from Figure 13 confirm that households give high importance to safe and improved water for household consumption purposes.

4.3 Sanitation

Sanitation Facilities

FIGURE 14: SANITATION FACILITIES

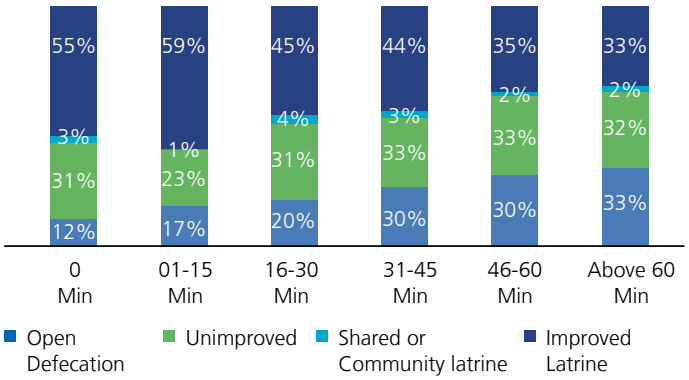


About half the population of AJK has either septic tanks or flush latrines (Figure 14). A small proportion (8 percent) is connected to a sewer (although it is not clear where the piped sewer disposes), while a small percentage (5 percent) possesses no facilities. The remaining has some form of pit latrine.

Sanitation Practices and Access to Water Sources

Figure 15 indicates that between 33 to 66 percent households use improved latrines despite their dependency on communal water sources. The percentage of households using improved latrines despite water constraints is a positive indication regarding their knowledge and awareness on the use of improved latrines and sanitation practices. Nevertheless, the combined percentage of households using unimproved latrines and practicing open defecation is also very high, ranging between 24 to 66 percent. This percentage is higher in areas where access to water is a constraint for the households.

FIGURE 16: TRAVEL TIME TO FETCH WATER AND SANITATION PRACTICES



Time to Access Water Sources and Sanitation Practices

Figure 16 further analyzes households with latrines compared with water access. Data indicate that people use better toilet types when water is available to them within easy reach or close proxmity. The percentage of such households reduces as the distance from water sources increases. The number of households with a proper sewerage system is small, ranging between 6 to 9 percent depending on their access to a water source. Similarly, the percentage of households using

FIGURE 15: HOUSEHOLDS USING WATER SOURCES AND SANITATION PRACTICES

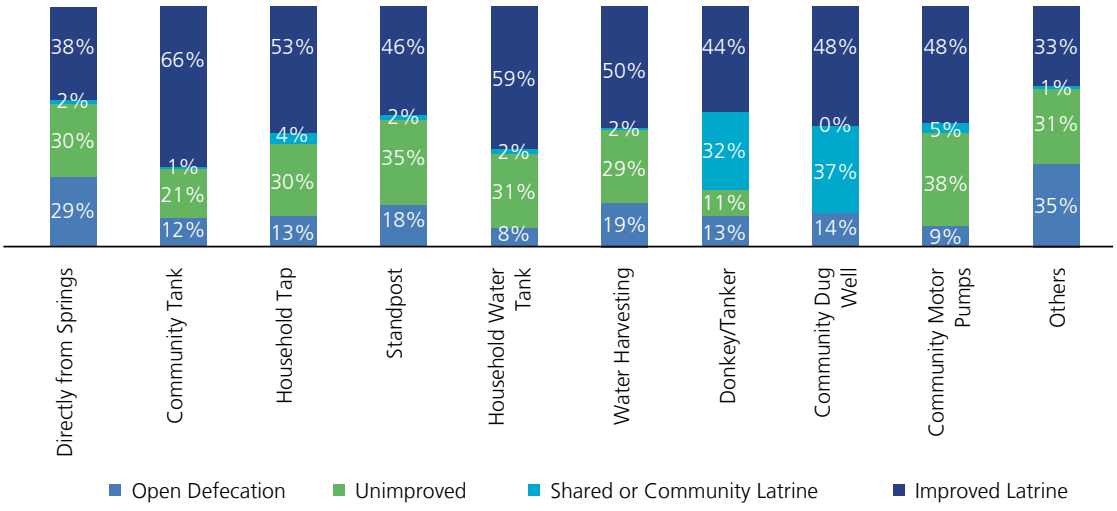
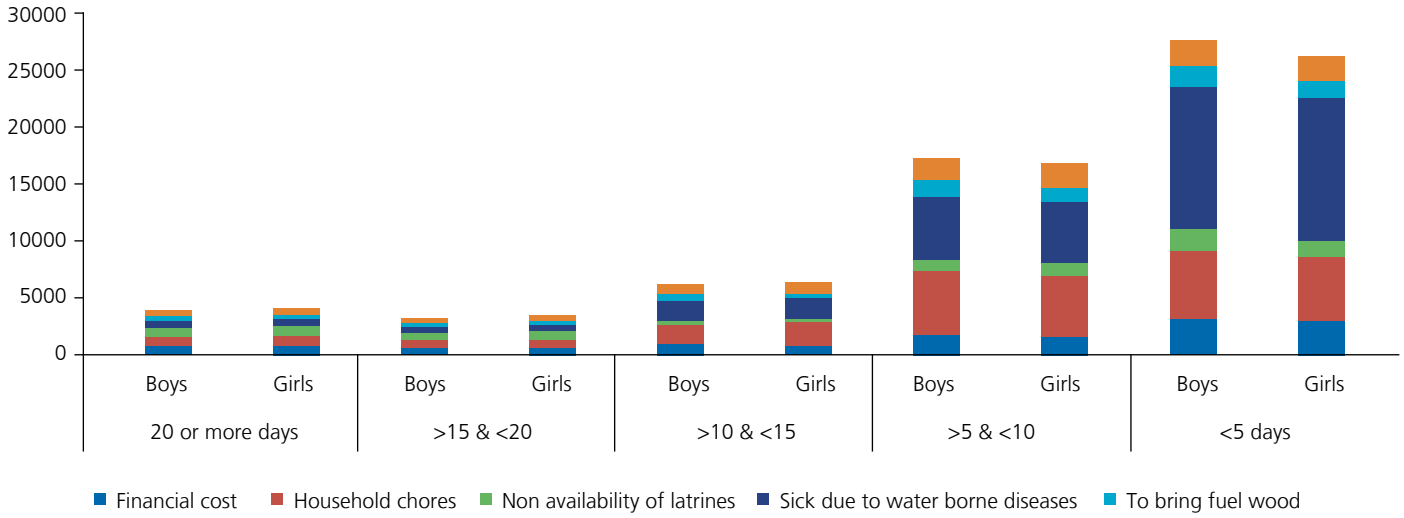


FIGURE 17: SCHOOL DAYS MISSED BY GIRLS AND BOYS FOR VARIOUS REASONS



ventilated pit latrines increases with increase in time to fetch water. This further implies that, due to lack of water, latrines may not be cleaned regularly.

Data from Figure 16 confirm that improved sanitation practices are directly proportional to easy access to water sources. However, there are a few households with improved sanitation practices despite access constraints to water sources. This indicates that these households have knowledge and awareness on the importance of improved sanitation practices and are willing to allocate resources to install latrines in their houses. In general, open defecation increases as access to water decreases; low levels of awareness on improved practices is also an important factor in determining sanitation practices.

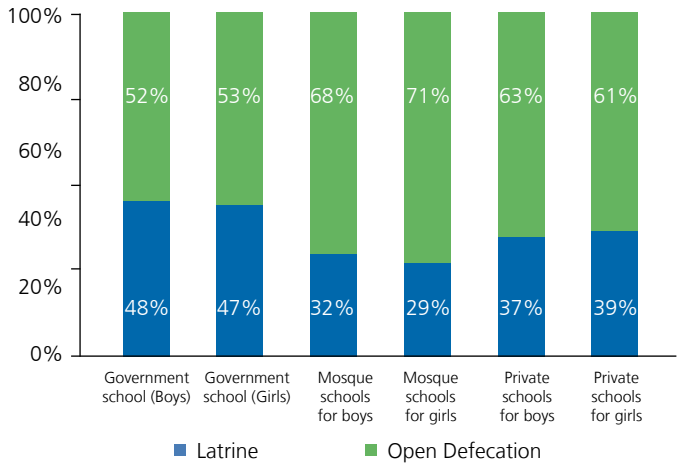
Reasons for Missing School Days

Figure 17 highlights various reasons for boys and girls missing schools days. Water borne diseases directly impact on health, which is considered one of the major reasons for both boys and girls missing school during the year. The other major cause was the involvement of both boys and girls in fetching water and other household chores.

Defecation Practices in Educational Institutions

Figure 18 indicates that open defecation is the more prevalent practice in all educational institutions for both boys and girls, with 52 to 71 percent practicing open defecation depending on the type of institution. This percentage is highest in mosque schools, especially for girls. Traditionally mosques are designed to be used by males with no specific arrangements for females. In the absence of latrines, there is a possibility that boys and girls do not excrete during study hours with resulting health impacts. In the case of government schools, sanitation facilities are available in less than 50 percent of schools. Interestingly, private schools are less likely to have functional latrines than government schools. The findings indicate that the majority of educational institutions has either not built latrines in their compounds or they are nonfunctional.

FIGURE 18: DEFECATION PRACTICES AMONG CHILDREN IN VARIOUS EDUCATIONAL INSTITUTIONS



Satisfaction with Sanitation Facilities

Figure 19 looks into satisfaction levels in relation to sanitation facilities available to both men and women. Data reflect that more women are dissatisfied with available sanitation facilities in relation to men. The reasons given include:

- Current facilities are in disrepair;
- Sanitation facilities are not functional; and
- Non-availability of water.

FIGURE 19: SATISFACTION ON SANITATION - GENDER WISE

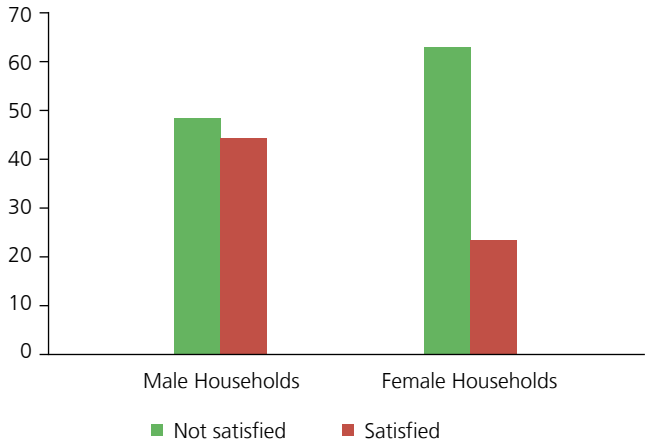
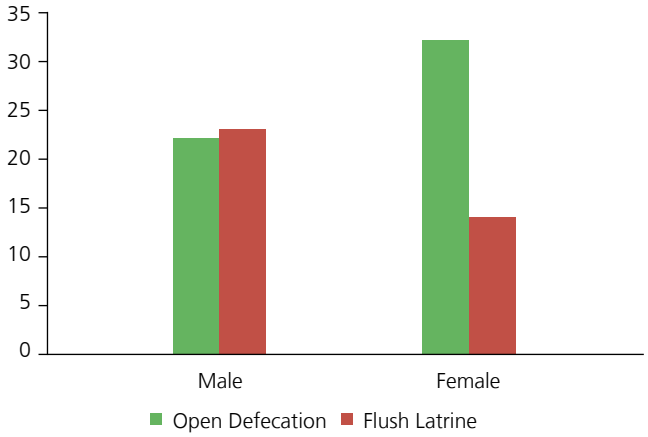


Figure 20 looks further into sanitation practices among households headed by men and women. There is a gender disparity in access to basic sanitation services with open defecation being more common and a flush latrine being less common in households headed by women. This is consistent with levels of poverty and low literacy amongst households headed by women. Nearly all latrine owners reported that adults and children usually use the household latrine for defecation, although children are slightly more likely to

FIGURE 20: SANITATION FACILITIES AND GENDER



continue the practice of open defecation. This highlights the importance of having functional facilities in schools to embed good sanitation practices.

Link between Open Defecation and Education

Figures 21 links improved sanitation practices and education level of heads of households. Open defecation is more common in households with heads having no to a low level of education. The trend sharply declines as the level of education of the head of the household improves (Figure 21).

Figure 22 confirms that sanitation facilities at the household level are used equally by men and women, boys and girls depending on the availability of facilities. There is no discrimination on use on the basis of age and gender at the local level. The majority of adults and children in non-latrine owning households usually defecate in the open, with children much more likely than adults to defecate near the house.

FIGURE 21: OPEN DEFECATION AND EDUCATION

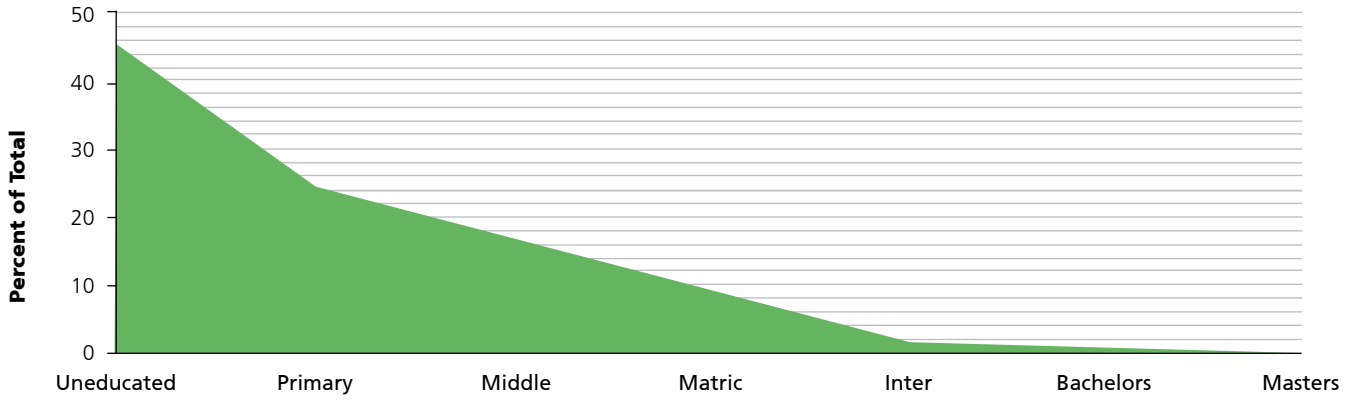
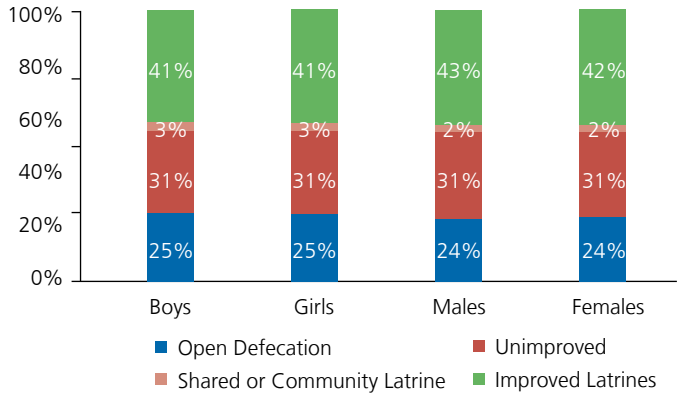


FIGURE 22: PLACE OF DEFECATION FOR MEN, WOMEN, BOYS AND GIRLS



Water Borne Disease and Sanitation Practices

Figure 23 highlights the occurrence of water borne diseases in AJK. The large majority of households does not practice any kind of water treatment while sanitation practices are also poor, resulting in water borne diseases, particularly diarrhea and dysentery.

Prevalence of Diseases

A comparison of disease prevalence in relation to sanitation practices highlights that about 55 percent of households have unimproved sanitation practices with diarrhea, cough and dysentery among the highest reported diseases (Figure 24). There is minimal to no trend for community sanitation

FIGURE 23: PERCENT OF TOTAL DISEASES REPORTED

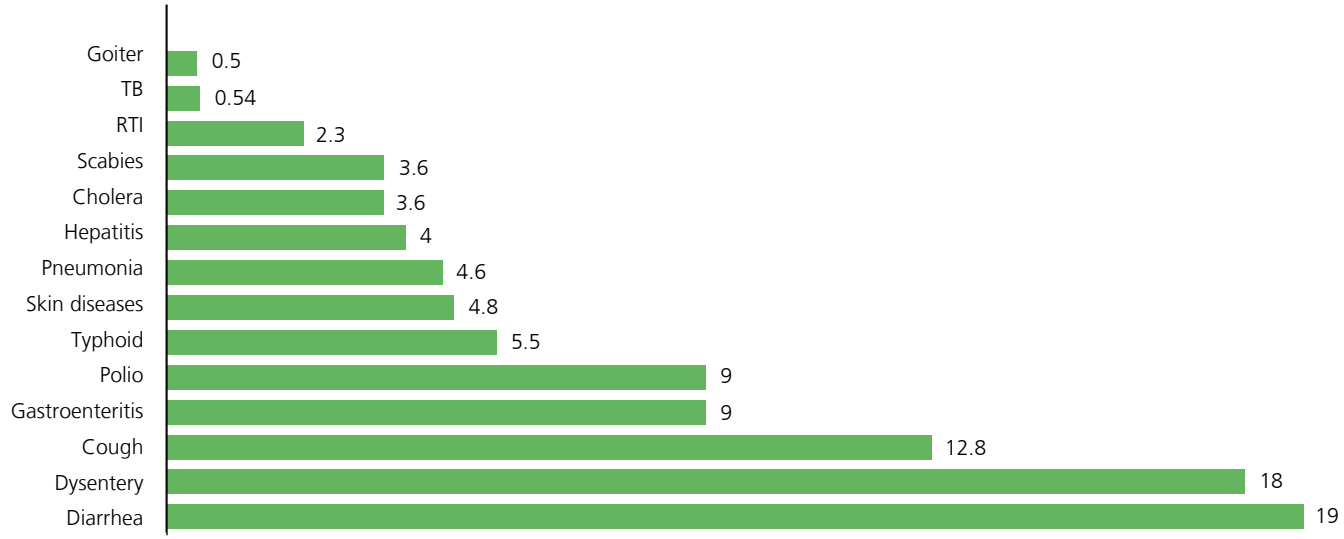


FIGURE 24: DISEASE PREVALENCE AGAINST SANITATION PRACTICES

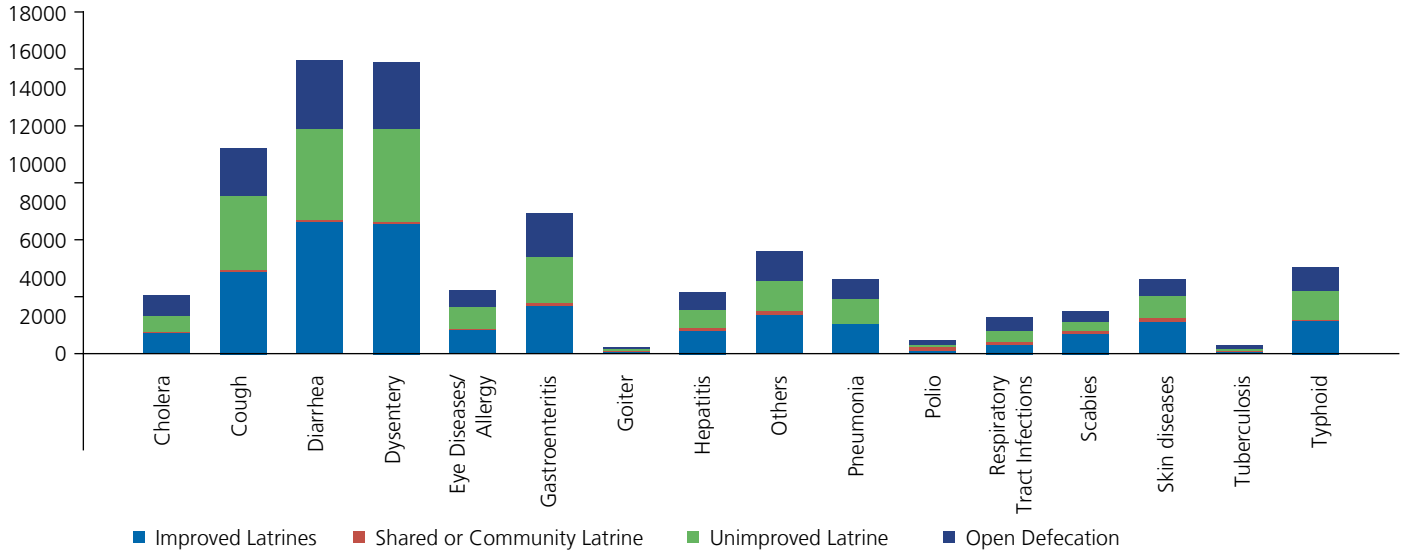
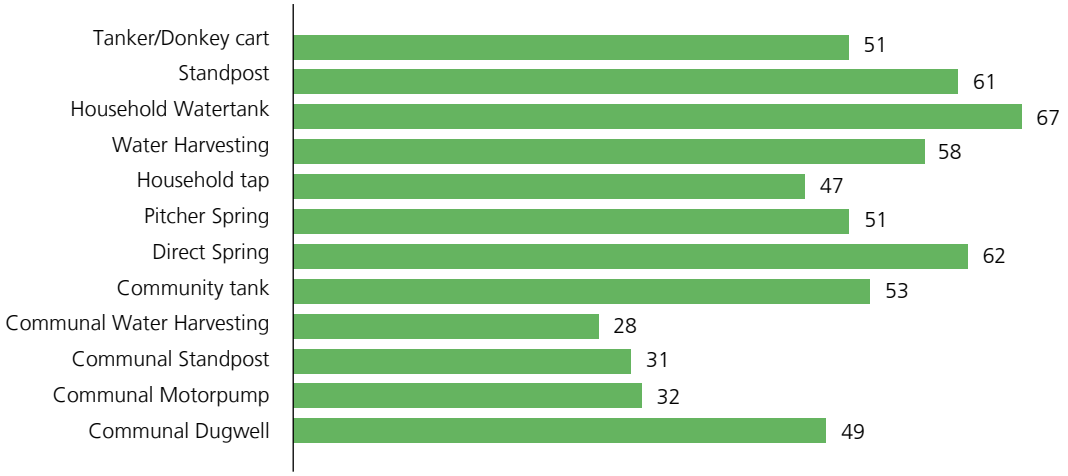


FIGURE 25: DIARRHEA AND DIFFERENT WATER SOURCES



practices in the cultural environment of AJK. Diarrhea and dysentery levels in the survey area are high. This is most likely a result of lack of knowledge and the prevailing poor hygiene and sanitation practices. Many of the respondents believe contaminated food is the major cause of diarrhea.

Occurrence of Diarrhea and Water Sources

Figure 25 further examines prevalence of diarrhea in relation to water source. The data confirm that almost all water sources including community and household water connections have caused diarrhea at the local level. This indicates that there is immense need for improving both water quality and sanitation practices at the household level to be able to improve the household health status.

Sanitation Practices against Wealth Quintiles

Figure 26 analyzes poor sanitation practices in relation to wealth quintiles. Open defecation and use of pit latrines are the most common practices in the lower quintiles compared to households in higher quintiles. However, households with poor sanitation practices are also dissatisfied with their current sanitation status.

Water Borne Diseases and Wealth

Figure 27 reflects that households across all wealth quintiles are almost equally affected by water borne diseases with only 2 percent difference between the highest and lowest quintiles. This further confirms that water borne diseases, safe drinking water and improved sanitation practices is a common matter across all of AJK and wealth quintiles.

FIGURE 26: OPEN DEFECATION AND WEALTH QUINTILE

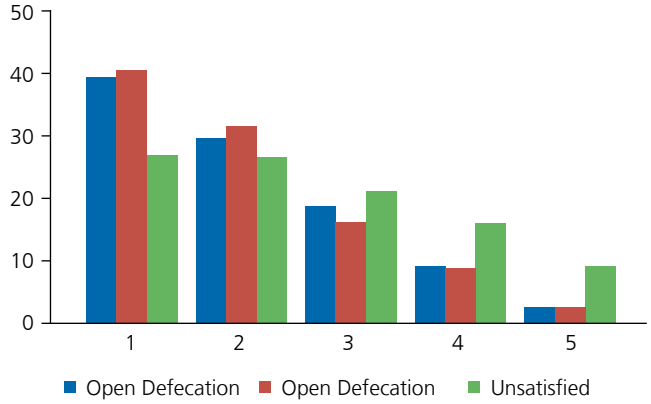
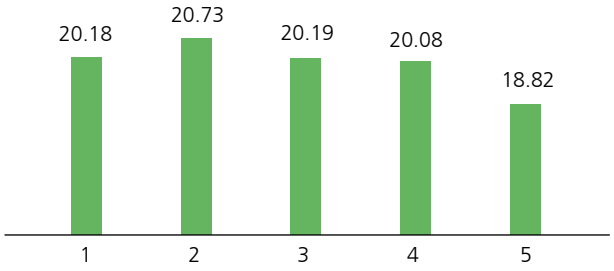


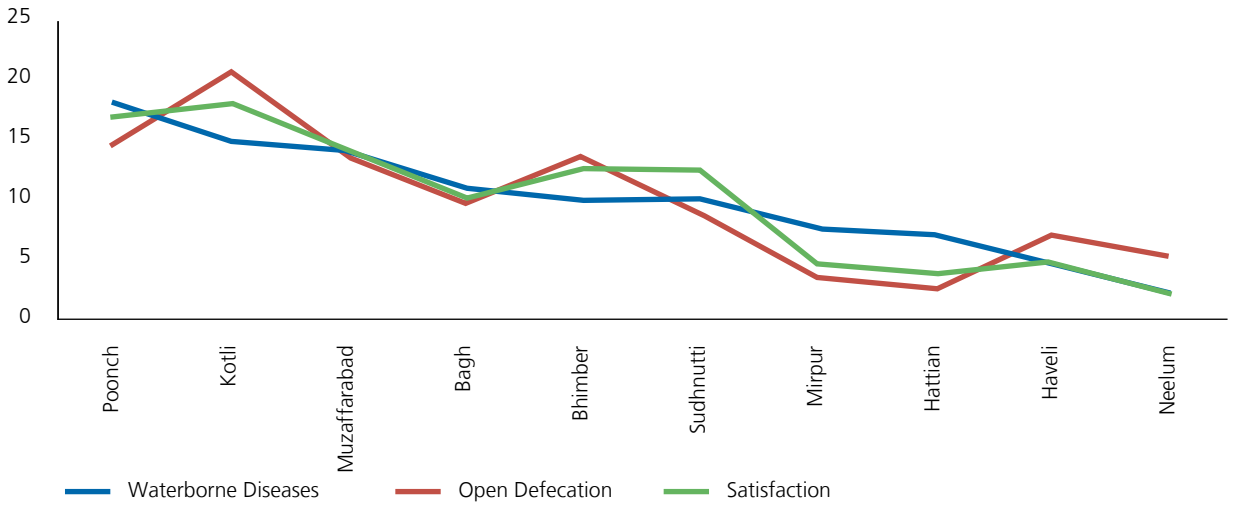
FIGURE 27: WATER BORNE DISEASES -WEALTH QUINTILES



Correlation between Water and Sanitation

Figure 28 shows the correlation across three indicators including water borne diseases, open defecation and satisfaction levels of households with regard to their prevailing sanitation practices/facilities. The figure confirms that water borne diseases are high in all districts with high

FIGURE 28: CORRELATION IN WATER AND SANITATION



open defecation practices. However, households have also shown dissatisfaction over their current poor sanitation practices. Data indicate that the districts of Poonch and Kotli fare the worst on poor sanitation practices and water borne diseases while the districts of Hattian, Haveli and Neelum are lowest on the scale.

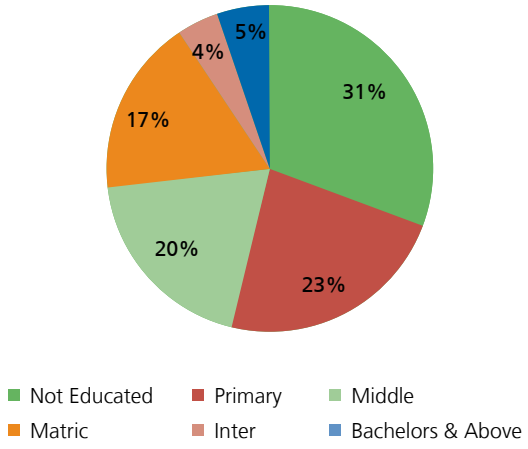
4.4. Hygiene Practices

Figure 29 indicates that a large proportion of households wash their hands with soap. Nevertheless, there are still a large number of households that do not wash their hands, especially after critical activities such as before and after eating and after defecation, or that do not use soap for various reasons. Washing hands with water alone is not enough to stop the transmission of diarrhea, and knowledge levels about this remain low.

Relationship between Hand Washing and Level of Education

Figure 30 further analyzes hand washing without soap against the education level of the head of the household. The figure confirms a direct relation between the education level and better hygiene practices; heads of households with no to low level of education do not wash their hands with soap. While the trend improves as the level of education improves, the practice also prevails in households with heads having better educational levels.

FIGURE 30: EDUCATION OF HOUSEHOLD HEADS WHERE HAND WASHING (WITH SOAP) IS NOT DONE AT CRITICAL POINTS



Sanitation and Improved Hygiene Practices

Quite a few respondents understand that washing hands with clean water and soap is a way to prevent diseases. Figure 31 further looks into sanitation and improved hygiene practices. The data reveal that a large percentage of girls and boys do not wash their hands with soap even if they are using improved latrines. Similarly, a large percentage is not using soap in unimproved latrines and open defecation. The results reveal that households do not consider it important enough to wash their hands with soap if they are using improved sanitation practices, believing use of the latrine is sufficient.

FIGURE 31: HAND WASHING PRACTICES WITH AND WITHOUT SOAP

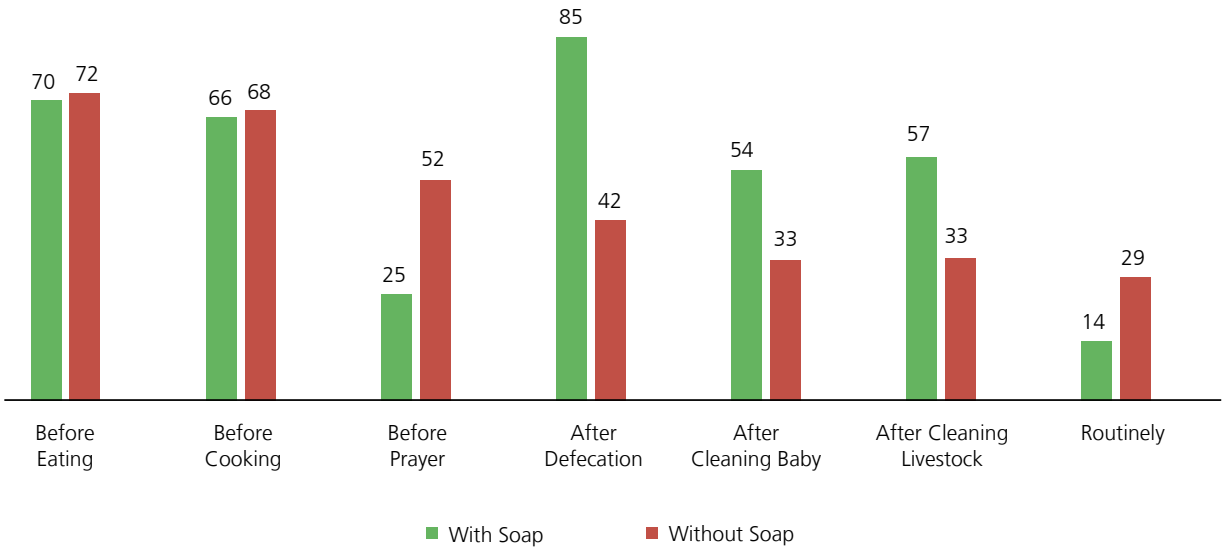


FIGURE 31: SANITATION PRACTICES IN HOUSEHOLDS WHERE HAND WASHING WITH SOAP IS NOT CARRIED OUT AT CRITICAL POINTS

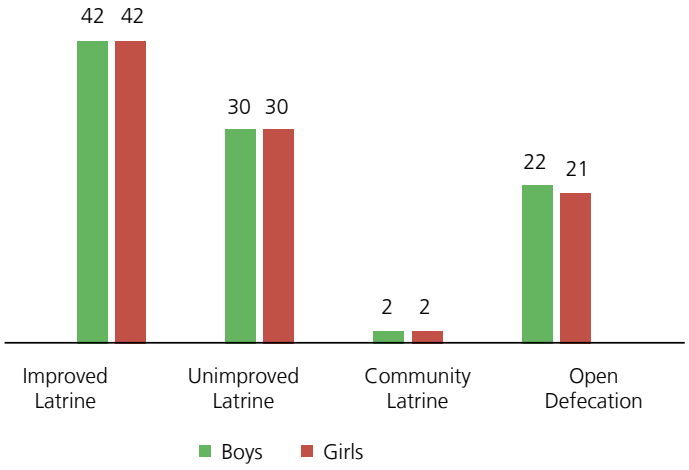
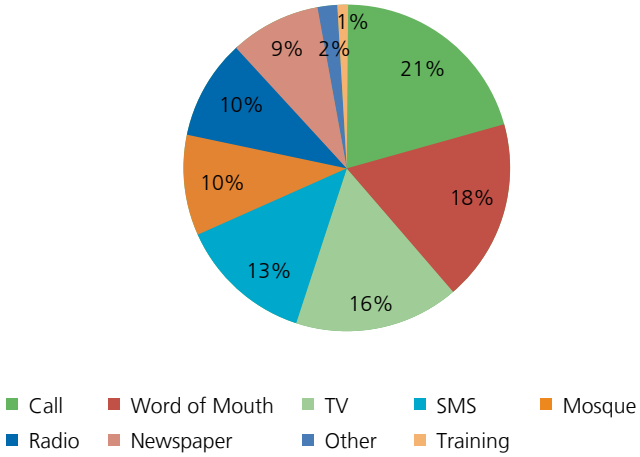


FIGURE 32: MEANS OF COMMUNICATION



4.5. Communication

The baseline looked into communication channels in practice by the local communities to be able to formulate the most effective communication strategy to reach the local population. Figure 32 shows the most used communication practices in AJK. The figure highlights that mobile phones have become the most common source of communication at the local level, with phone calls and SMS messages being the most common mode for about 34 percent of the population. Television and radio are other important sources of communication. Mosques and communication through word of mouth are also important sources of communication for about 28 percent of the local population.

5. Conclusion

KEY POINTS

- **Unsafe water is common across AJK with urban rural disparities and very low level of water treatment**
- **Open defecation is strongly linked to level of education and gender, where female are challenged due to the social norms**

AJK is one the most underserved areas of Pakistan in terms of water and sanitation infrastructure. Data show disparities between urban and rural areas in accessing water sources. The majority of households depend on spring water, a large percentage of whom are in the lower wealth quintiles. In rural households, women and girls are primarily responsible for fetching water from community sources. However, time taken to fetch water is longer for households in lower quintiles compared to households in higher quintiles. Local perceptions of water quality remain traditional, where running and pleasant tasting water is considered as clean. As a result, the majority of households do not treat water before drinking.

Low coverage of improved sanitation and inadequate availability and treatment of drinking water are major reasons for the prevalence of water borne diseases in AJK, especially diarrhea and dysentery. Data indicate a direct relation between open defecation or use of unimproved latrines in households with constrained access to water sources. Further, open defection is common in households where heads of households have no to low levels of education and are in lower wealth quintiles. Households headed by women fare poorly on this score.

Data indicate that sanitation facilities were either not constructed or are not functional in educational institutes. This is one of the major reasons for girls and boys missing school days. Poor hygiene practices, that is, washing hands without soap, prevail in high percentages in critical household activities, particularly in relation to sanitation practices. This is particularly so in lower income households; however, poor practices also persist in higher income groups.

6. Recommended Measures

KEY POINTS

- **Addressing the issues and gaps requires development and implementation of comprehensive sector-specific policies on water, sanitation and hygiene supported by conforming legislation**
- **Leveraging investments on water and sanitation is important to fill the fiscal gaps**

The following is a set of recommendations derived from the gaps identified in the baseline survey. The recommendations are focused at the policy, strategy and institutional levels. Baseline data clearly highlight gaps in availability and access to water and sanitation facilities, and knowledge and awareness levels. To address these issues and gaps, there is a need for developing comprehensive sector-specific policies on water, sanitation and hygiene. These policies should be consistently followed over a reasonable period. Further, the policies should have a particular focus on households headed by women, and those in lower wealth quintiles.

Adequate budget should be allocated for the improvement of water, sanitation and hygiene under AJK's Annual Development Plan (ADP) budget for a reasonable period of time. The allocation of budget should be dedicated to programs and projects designed in line with sectoral policies that should consistently contribute to the achievement of policy objectives. Area and population specific initiatives for improvement of water and sanitation services can be prepared and implemented to make a valuable change in coverage of water and sanitation. The budget allocation should be linked to targets and standards to ensure proper utilization of resources.

There is need for proper legislation, especially on sanitation, to ensure proper implementation of standards at all levels, for example, it should be mandatory for all schools and private houses to have toilets.

The infrastructure design and buildings should be subject to approval to ensure inclusion of toilets in buildings. In the case of schools, there should be proper guidelines on the number of toilets against number of children to be enrolled in the school or against the level of the school, for example, primary, middle or higher level schools. The following steps need to be taken to ensure functionality of toilet facilities and construction of toilets in old schools:

- School management should be encouraged to establish Water and Sanitation Management Committees under Standard Operating Procedures (SOPs) to ensure Operation and Maintenance (O&M) of toilets;
- Noncompliance with SOPs should be a finable offense for the Water and Sanitation Management Committee to be determined by the school management; and
- The school management should be encouraged to construct toilets in schools where they do not exist or do not meet requirements. In this regard, rebates and other subsidies may be given to schools when they construct or upgrade toilets in existing schools.

There is need for a consistent strategic approach on awareness raising programs at the community level to improve knowledge, attitude and practices on water, sanitation and hygiene. The baseline data highlight significant gaps in knowledge and awareness among local populations in relation to improved water, sanitation and hygiene practices.

- Youth is an important agent of change and messages on the importance of safe water, sanitation and hygiene practices in school circulars will help disseminate messages to the new generation and their families;
- Mosques and religious clerics have an important role in society and their engagement in the communication strategy would be an effective approach;
- Services of mobile companies can be availed of in disseminating messages through automatic SMS and calls. This could be an effective communication tool in an area where a large percentage of people is using mobile phones; and
- Women are mainly responsible for fetching and managing drinking water at the household level, therefore, they should be the primary target for such campaigns.

All efforts should be made to ensure access to safe drinking water and improved sanitation systems at the village level in AJK. Under a supporting and enabling environment provided by the government, private entrepreneurship should be nurtured across AJK. The regulatory framework developed and facilitated by LG&RRD also enables Community Based Organizations (CBOs) to develop partnerships with the private sector, which should be fostered.

To be able to effectively implement policy and strategic guidelines on improved sanitation in AJK, a Directorate on Water and Sanitation should be established at the state level with implementing structures at the district level. This will help in guiding the implementation and monitoring of a large-scale program at all levels and suggesting timely course corrections where required.

The sanitation program should be scaled up at the operational level to achieve Open Defection Free status by 2020 and improved sanitation by 2025. To make these programs effective and successful, special packages and incentives may be introduced to encourage households and communities to invest efforts and resources in improved sanitation practices.

Under the Planning and Development Department, the baseline survey should be followed up every three years to monitor progress. In this regard, it is important that the database should be institutionalized in Planning and Development and LG&RDD under appropriate IT expertise.

Notes:

Notes:

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