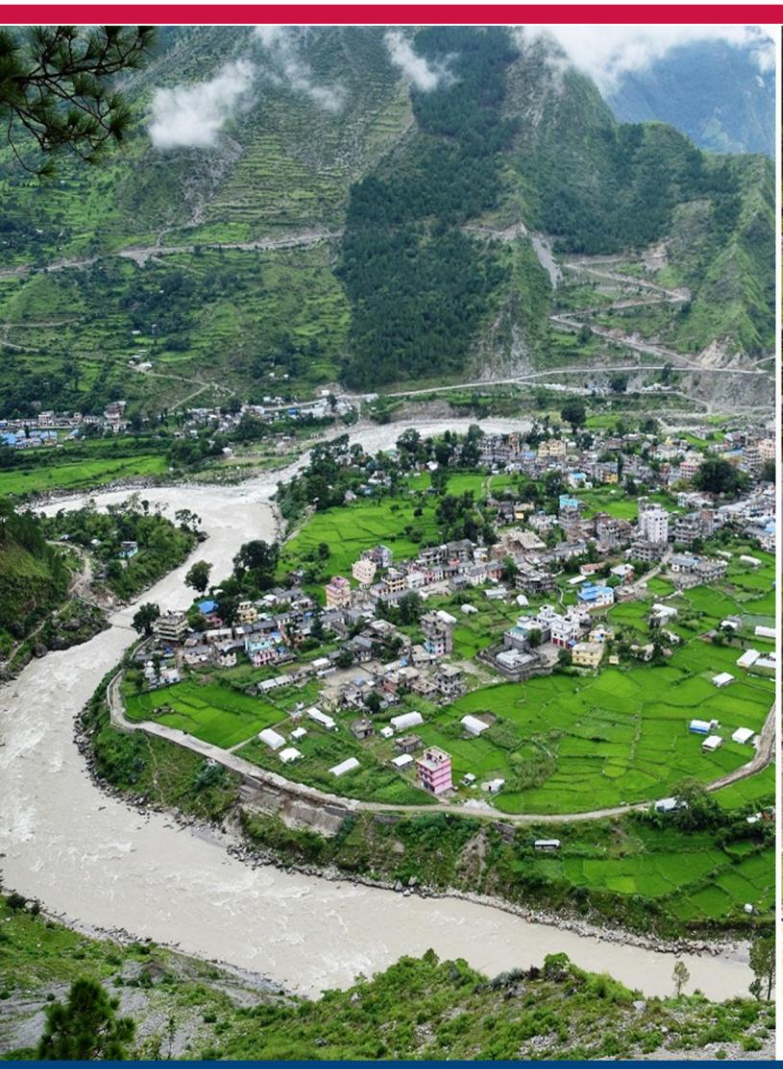
WEST SETI
WATERSHED HEALTH REPORT



Vision Statement: “A healthy watershed with sustainable management of natural resources and aquatic biodiversity, eco- tourism, and Inclusive economic opportunities creation”

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What is a watershed?

A watershed is an area of land that contains a common set of rivers, streams or wetlands that drain into a single larger body of water, such as a river or stream (Figure 1). But watersheds include more than streams and rivers; they also consist of all the people, forests, wildlife, terrain, climate, and agriculture within the landscape, settlements and infrastructure.

A watershed should be understood in its entirety – upstream and downstream – rather than by looking only at one element of the watershed. Water flows connect various aspects of a watershed, and what happens upstream has an impact on what happens downstream. For example, landslides and soil erosion upstream can increase sedimentation for downstream residents. Similarly, water diversions upstream for irrigation reduce water available downstream for people and aquatic species.

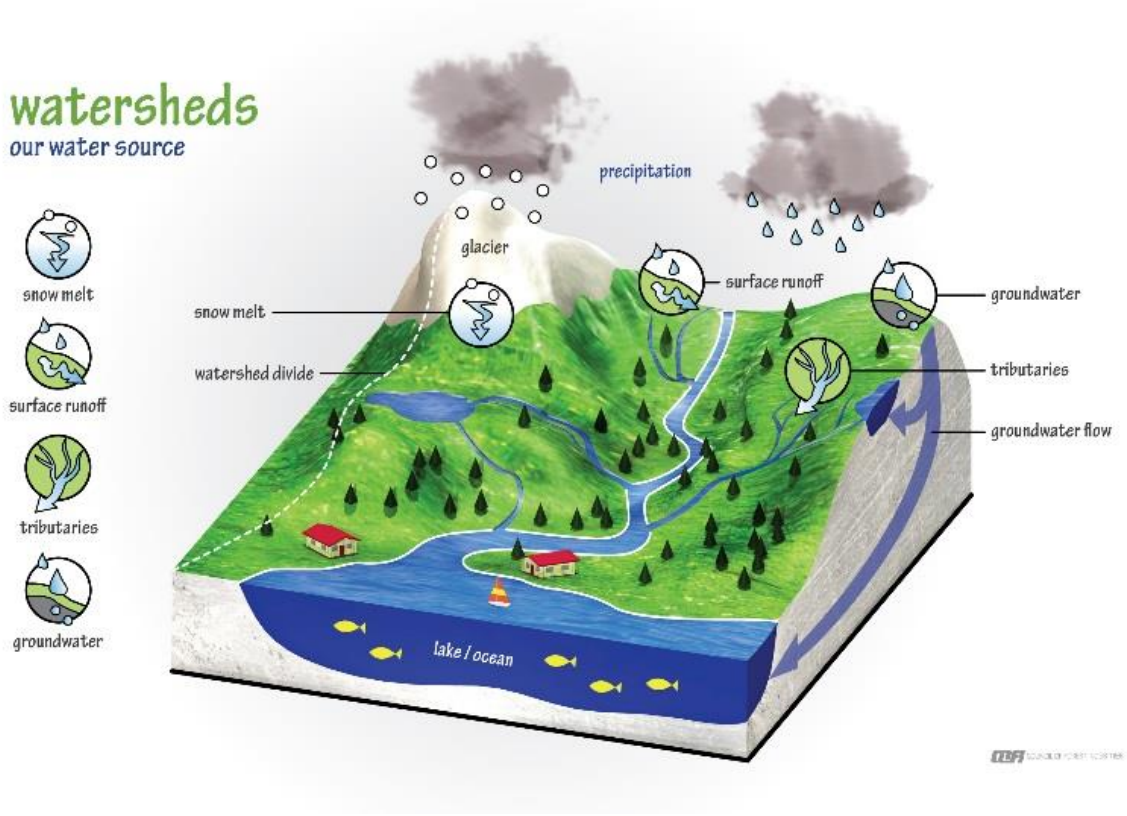


Figure 1: Diagram of a typical watershed

This watershed health report is one of several being written for watersheds across Nepal to inform development visions and processes. The goal of this watershed health assessment is to help people living in the West Seti Watershed make better decisions, protect and restore the watershed, reduce risks, and create sustainable economic opportunities.

This watershed health report uses indicators to measure different aspects of a watershed to determine if the landscape is healthy and able to provide ecosystem services to people living in that watershed. The indicators in this report were determined through a combination of local stakeholder use priorities and watershed health as defined in the literature.

The health indicators in this report are grouped under larger categories of 1) nature 2) wealth and 3) power, each of which explores related aspects of the watershed from that particular viewpoint. A full profile of the West Seti Watershed has also been prepared.

Watershed	West Seti (327)
River basin	Karnali
Province	Sudurpashchim (No. 6)
Total watershed area	1,488 km^2
Physiographic zone	High Himal (15%), high mountain (78%), middle mountain (7%)
No. of streams	22
Major rivers	Sunikotgaad, Baluligaad,
Lakes and wetlands	Dau Tal, Khaptad Tal,
Land use	Forest and shrub (51%), followed by grazing land (15%), barren land and rock (13 %) and agricultural land 20%
Total drainage length	963 km
Drainage density	647 km^3
Municipalities	Ten rural municipalities, and one municipality
Population	130,539 (53% female; 47% male)
Population Density	88 person/sq. km
Ethnic groups	Brahmin (9.6%), Chhetri (66.2%), Janajati (8.8%), and Dalit (15.2).

The West Seti Watershed sits in the Karnali Basin in western Nepal (Figure 2). Ninety-seven percent of the watershed is contained in Bajhang District, with nominal parts located in neighboring Doti and Bajura. The total area of the West Seti watershed is 1,488 km^2 and its drainage density is 647 m^3. The total drainage length of the watershed is 963 km, as the many rivers of the watershed run southward to the confluence with the Karnali River and eventually to the Ganges Basin in India.

Due to Nepal's unique altitudinal variation and geographical diversity, the West Seti Watershed – like many watersheds in Nepal – contains a wide range of ecosystems, providing habitats to an impressive floral (567 species) and faunal diversity. As a reflection of more recent efforts to protect and conserve this diversity, the government of Nepal established Khaptad National Park (KNP) at the watershed's southern boundary in 1984. The park extends over four districts: Bajhang, Bajura, Doti and Achham. In addition to KNP's biological importance, the area also attracts religious devotees who visit the Shiva shrine, the temple of Khaptad Mai, and the ashram of the Khaptad Swami. Full moons during July and August draw thousands of pilgrims from all over the country who come to worship Shiva.

The Seti River is the primary waterway of the area, a snow-fed river enriched by numerous tributaries that are both snow and rain fed. However, in recent years, residents in the areas have noted significant changes to the watershed's hydrological flow - changes they attribute to a range of causes, including increasing landslides and soil erosion, improper road construction, deforestation, and shifting cultivation practices on steep hillsides. The landslides and soil erosion in the area are exacerbated by increasingly erratic rainfall patterns.

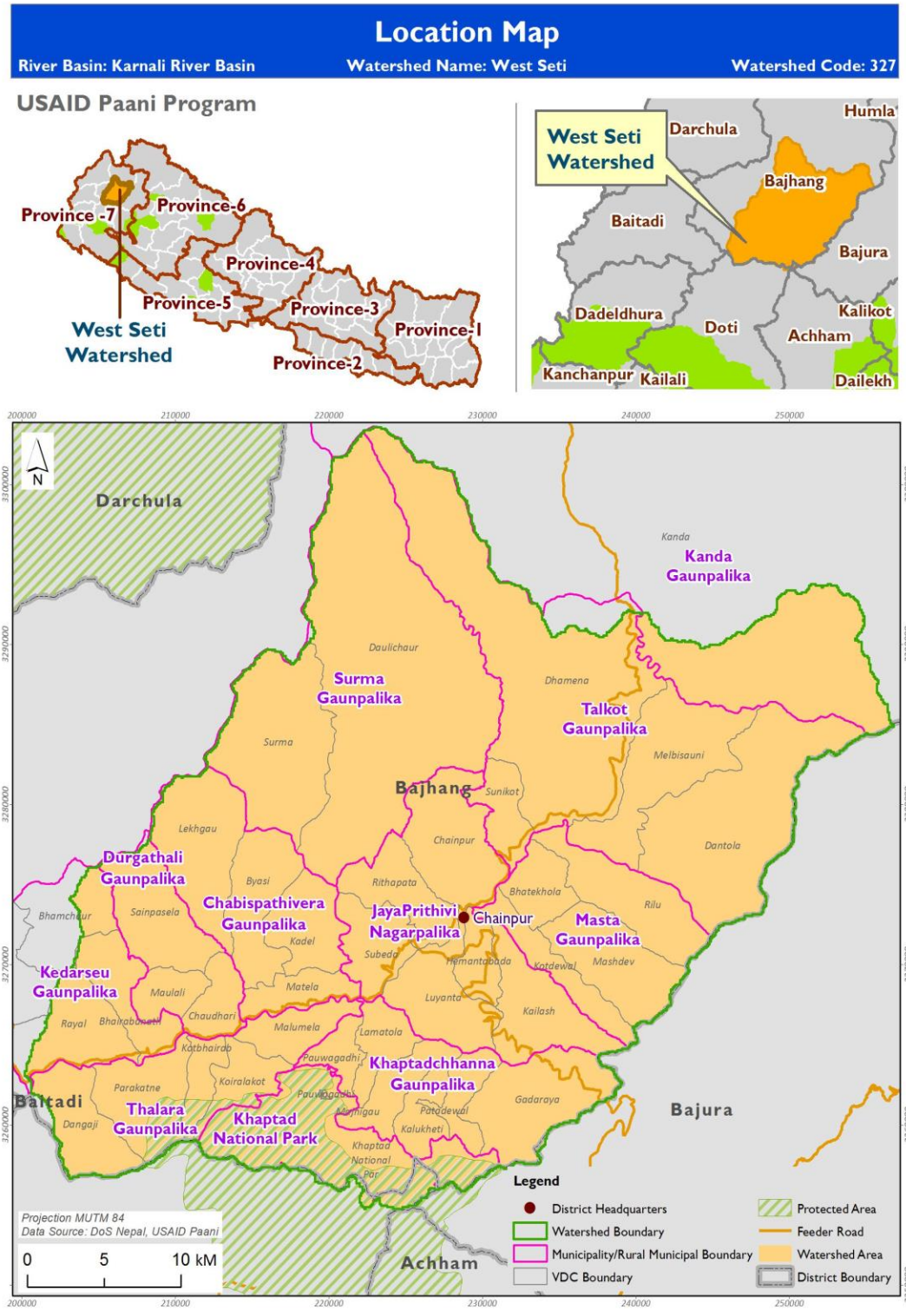


Figure 2: Location map of the West Seti Watershed

Nature

This section examines the environmental and natural resource dimensions of the watershed, including climate and weather, hydrology, biodiversity, and land use within the West Seti Watershed, paying special note to trends and changes that may threaten the health and sustainability of these assets.

Water

The condition of water resources within a watershed depends on a large number of factors that affect the water cycle. In the West Seti Watershed, these include rainfall, infiltration, and withdrawals for irrigation, among other factors.

Rainfall

Within West Seti, long-term records are available only at Chainpur. Therefore, additional data from Pipalkot, Silgadi, Khaptad, and Bajura were used to derive a fuller picture of rainfall in the watershed. Monthly averages from the individual stations compared to the full watershed monthly averages are shown in Figure 3.

The Theissen polygon method was used to estimate the mean rainfall of the West Seti Watershed. The highest and lowest rainfall months in the watershed are observed in July and December, respectively. The mean rainfall during winter (Dec – Feb), pre-monsoon (Mar – May), monsoon (June – Sept), and post-monsoon (Oct-Dec) was estimated as 136 mm, 193 mm, 1408 mm, and 64 mm, respectively. The mean annual rainfall is estimated at 1,800 mm.

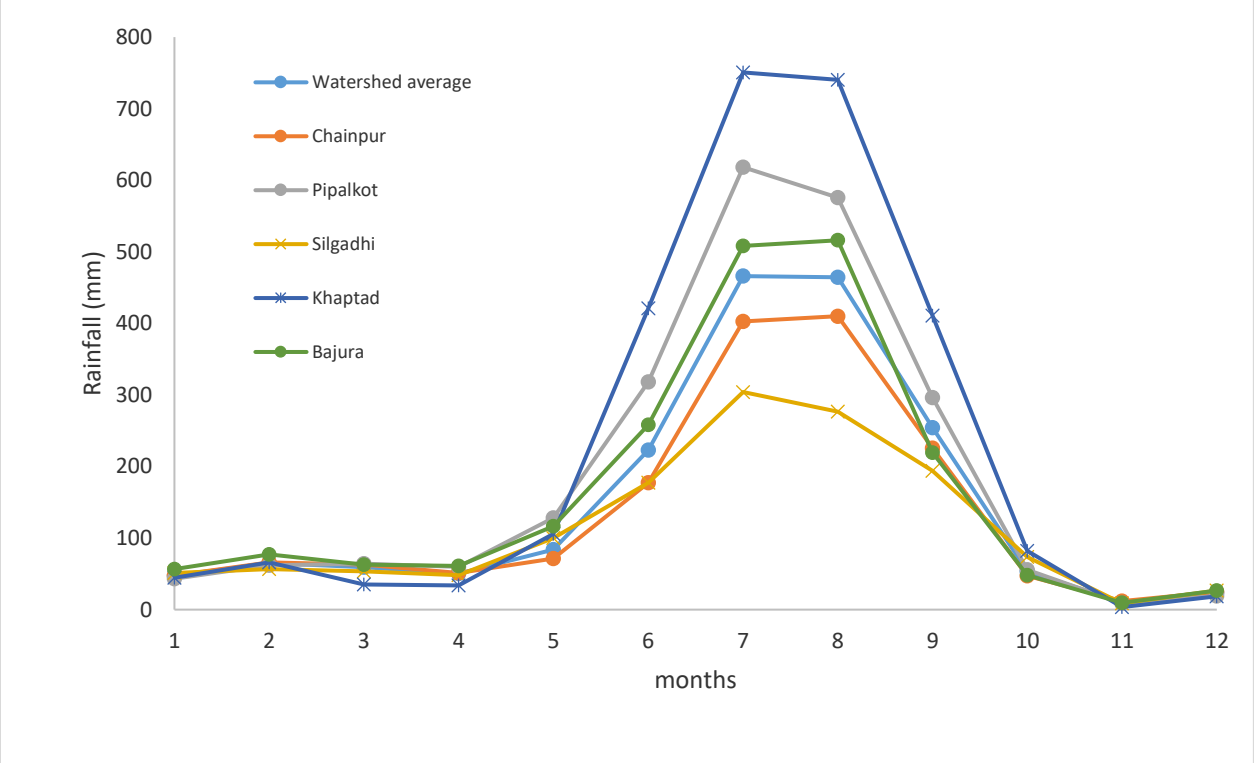


Figure 3: Long-term average monthly rainfall (in mm) estimated in West Seti Watershed. Estimates were drawn from rain gauge stations at Chainpur (202), Pipalkot (201), Silgadhi (203), Khaptad (211) and Bajura (204).

Water availability and accessibility

The West Seti Watershed features a rain- and snow-fed river system comprised of both perennial and seasonal streams throughout. The watershed contains 151 rivers and streams, and seven sub-watersheds with a combined total drainage density of 647 m^3. The total drainage length of the watershed is 963 km, as the many rivers of the watershed run southward to the confluence with the Karnali River and eventually the Ganges Basin in India.

Household surveys conducted in 2018 (n=1,016) found that 76.5% of households obtain sufficient daily water within 30 minutes of home, while 5.3% require between 30-60 minutes to reach their water source, and 5.3% require more than an hour to reach it. Twelve percent of families have private taps; therefore, no travel is necessary for collection. A large majority of water is provided to households through a piped systems (76.3%), followed by river withdrawal (11.2%), and stone taps (9.4%). The water supply for the piped systems comes primarily from springs (89.3%), while another 10.7% draw piped water directly from the river.

In terms of water access, 92% of respondents said they had equal access to available sources, and nearly 10% of Dalit households said they did not have equal access. Ninety percent of water sources are public, and the rest are private.

River and lake water quality

Major rivers of the watershed include Kalanga Khola, Bauligaad, Tarugaad, Sunigaad, Talkotgaad, Thalairgaad, Jadarigaad, Bhayagutegaad, and Listigaad. The most important lake in the watershed is Dau Lake, located at 2,233 meters near Surma GP, which provides water for domestic and agricultural needs. Other key lakes include Timadaha, Khaptad Tal, Lokund Daha, and Khapar Daha. The Seti Nadi is the primary waterway of the watershed, originating high in the northern reaches and flowing through the middle valley.

Water quality in the watershed was determined by testing a range of parameters, including pH, nitrate nitrogen, ammonium, and phosphate (Figure 4). All were found to be in the normal range for drinking, domestic use, and irrigation. Low pH levels and slightly elevated ammonium (max 8 mg/l) levels were found in a few sites, which could be dangerous for aquatic habitat if that those factors persist. The water was sampled at several locations in the watershed using an Akvo Caddisfly kit.

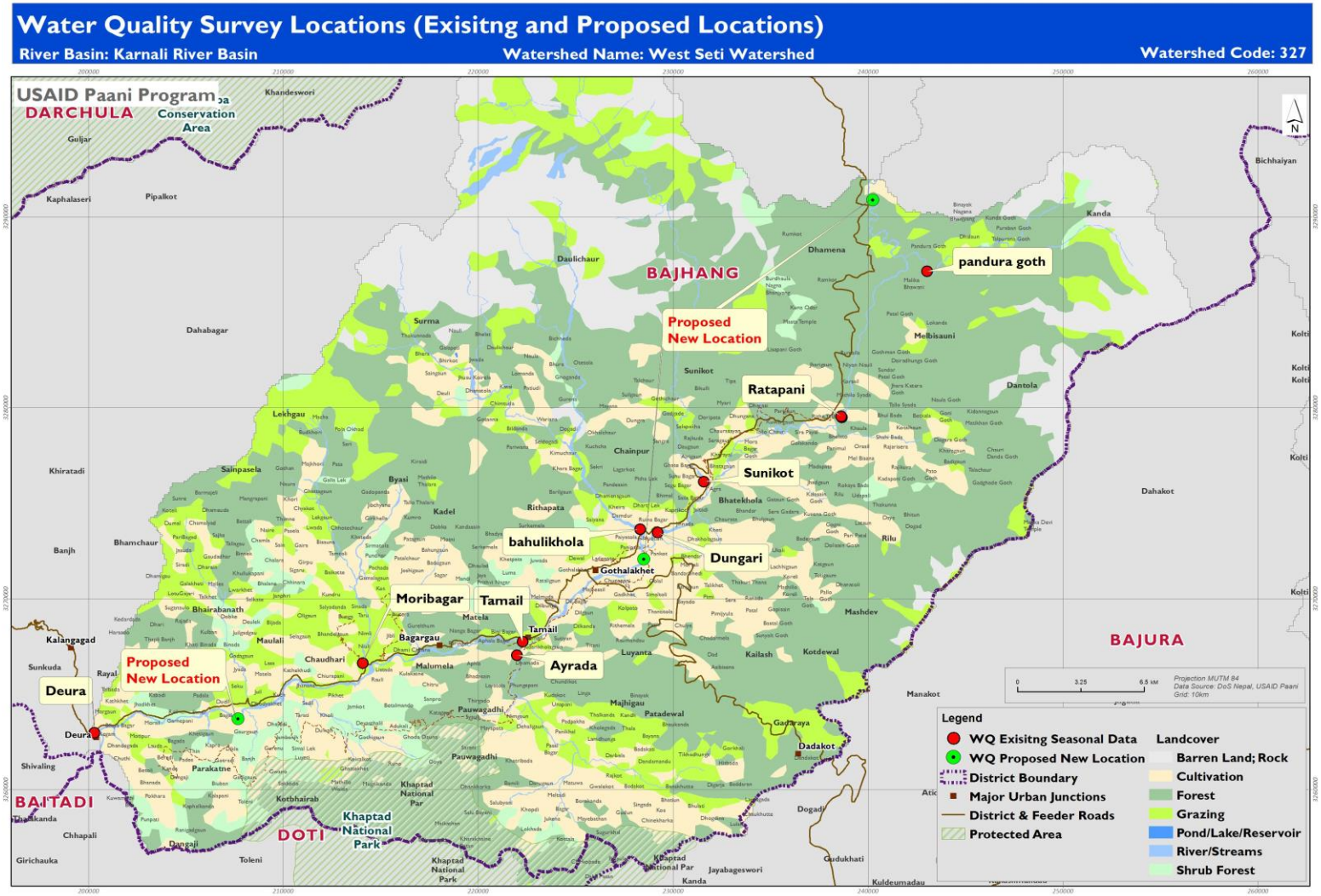


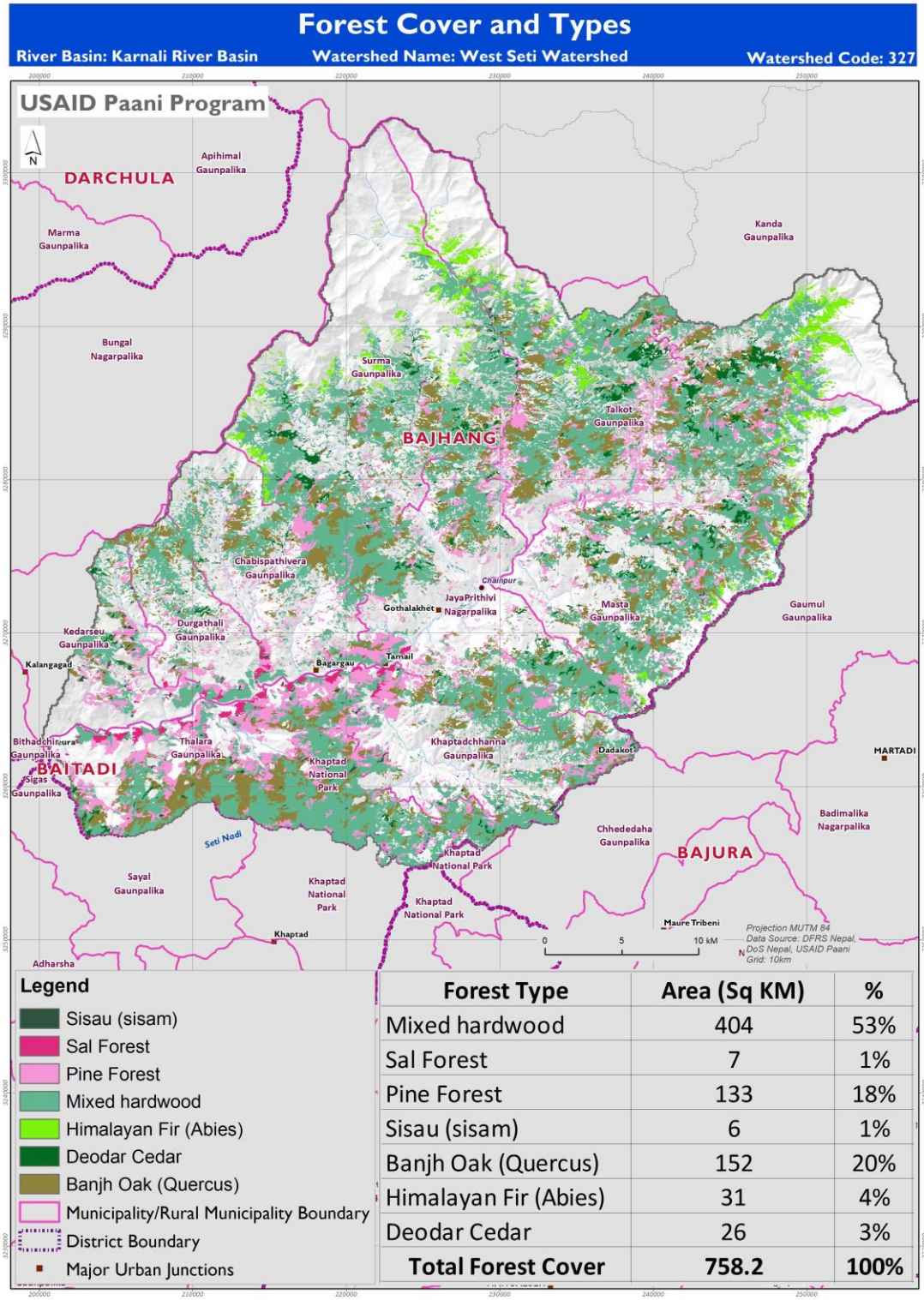
Figure 4: Water sampling points in the West Seti Watershed

Biodiversity and habitat

The West Seti Watershed contains diverse habitats for aquatic and terrestrial species among its various ecological zones. The Khaptad National Park along the southern border offers sanctuary to a large diversity of floral species (567) and fauna, including 217 bird species. Some of the more common tree species include Chir pine, spruce, fir, maple, bird, alder, and rhododendron. Dense stands of bamboo and several medicinal herbs – such as Bojho (Acorus calamus), Chutro (Berberis), Eklevir (Lobelia pyramidalis) and Bhojpatra (Betula utilis) – are cultivated for personal use and for sale.

Land use and land cover

Given its high mountain location, land cover in the West Seti Watershed (Table 3) is primarily forest and shrub-land (51%), followed by cultivation (20%), barren land (13%), and rivers and streams (2%). The forest is the primary natural resource for the area, providing timber and numerous non-timber forest products (NTFPs), such as medicinal and aromatic plants. In the forest cover, mixed hardwoods are most common (53%), followed by Banjh oak (20%), pine (18%), fir (4%), Deodar cedar (3%), and Sal and Sisau (1% each). Figure 5 illustrates the forest cover by species.



Forest Type	Area (Sq KM)	%
Mixed hardwood	404	53%
Sal Forest	7	1%
Pine Forest	133	18%
Sisau (sisam)	6	1%
Banjh Oak (Quercus)	152	20%
Himalayan Fir (Abies)	31	4%
Deodar Cedar	26	3%
Total Forest Cover	**758.2**	**100%**

Figure 5: Map of Forest cover and types in the West Seti Watershed

Fish diversity

Twenty-two tributaries, the Seti River, and numerous ponds provide plentiful freshwater for fish habitats. The largest lake in the watershed is Khaptad Lake, which sits at 3,050 m in the eastern part of KNP. Thirteen fish species have been identified in the watershed.Major species include Asala (Schizothorax), Kathyal (Acrossocheilus hexagonolepis), and Sahar (Tor). In the dry season, fishing groups harvest approximately 40-50 kg per person, much of which is sold in markets at Chainpur, Tamail, and Deuda.

There is little researched-backed information about fish in the watershed. A fish vulnerability study was conducted in February 2019 in which stakeholders identified locations where fish spawn and nurse their young, and where overfishing was present. Such maps help build a foundation of aquatic knowledge for use in long-term conservation planning.

Wealth

Indicators in this category refer to the current economic conditions within the watershed as well as future prospects. This section highlights the most prominent forms of industry and livelihood in West Seti.

Infrastructure and extractives

The design and construction of infrastructure, such as roads and hydropower plants, impacts watershed health if preventive, mitigated, control measures are not adopted. For example, poorly designed rural roads on steep slopes can increase soil erosion and landslides. Similarly, hydropower plants that divert or impound water will restrict the amount of water available for aquatic life that people depend on for livelihoods. Irrigation canals, while benefitting one group of farmers, can also reduce the water available to other farmers. Thus, it is important that the design, construction, and operation of infrastructure projects account for the full range of social, economic, and environmental impacts within the watershed. Sustainable infrastructure should provide equitable distribution of benefits with minimal long-term, environmental impacts.

Hydropower

West Seti has long been the focus of hydropower development, as its remote location and large valleys along the Seti River made it a favorable location for a storage dam. However, political instability and a lack of financial resources have deterred the construction of such a dam. In 2013, a Chinese hydropower company secured the license to build a 750 MW storage dam in West Seti, but to date the start of construction has been delayed numerous times. The pros and cons for this project are many. The revenue from hydroelectric sales could promise high revenues for local governments, and the dam itself would electrify a significant part of the watershed. However, the dam would displace 1,000 households, and the environmental impact would be high, as the storage reservoir would alter water flows up and down river.

Apart from the West Seti project, there are eight smaller schemes currently licensed in the watershed, but not yet operational (Figure 6). It should be noted here that the district micro-hydropower office in Chainpur has been closed since the transition to the federal system. Officials have not yet revealed which office will take responsibility for hydropower oversight, and this absence deprives locals of an important outlet with which they can communicate their concerns.

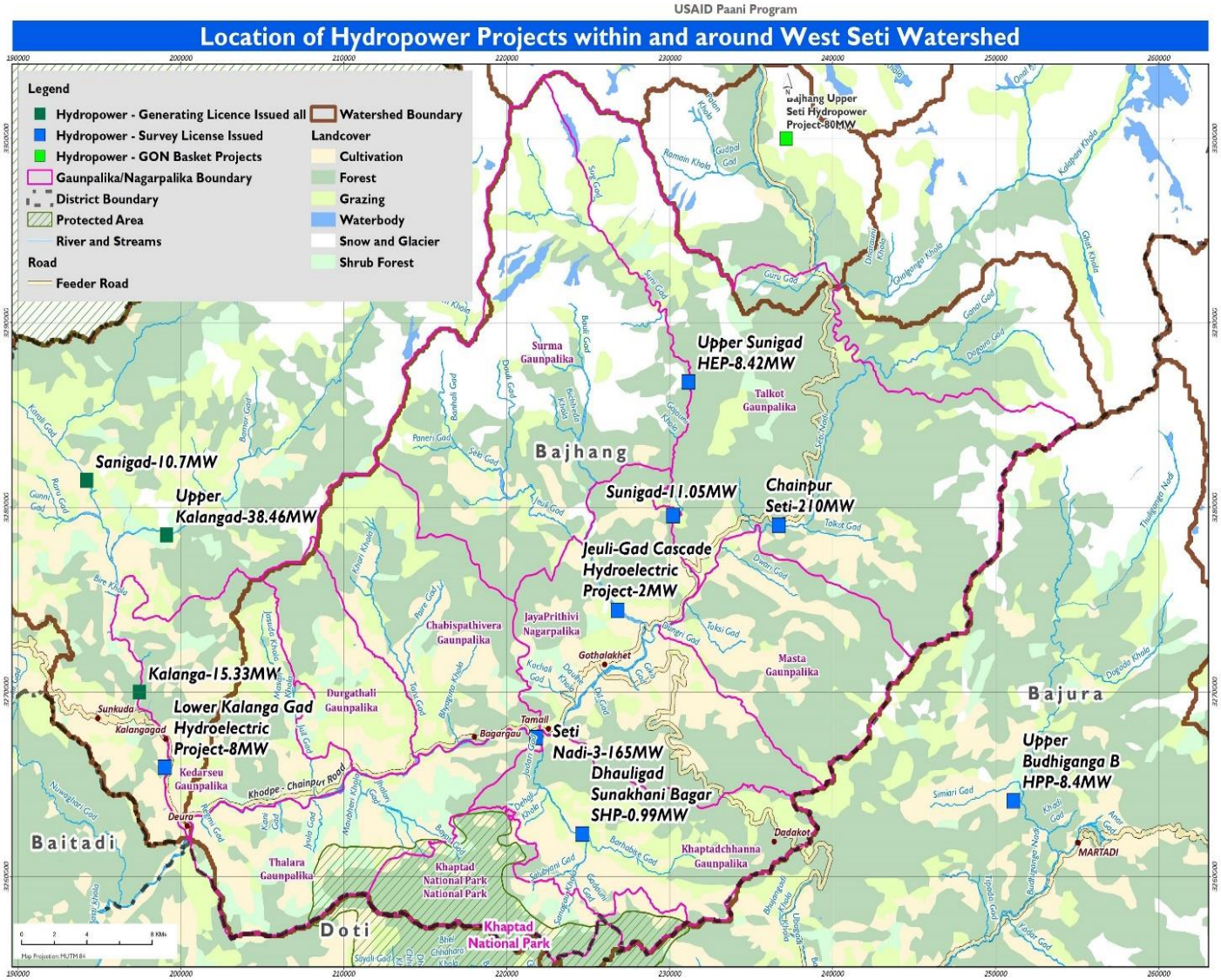


Figure 6: Map of hydropower operations in the West Seti Watershed

Capture fishery practices

Fishing in West Seti is characterized by a mix of traditional and non-traditional methods. Many fishermen still prefer time-tested tools such as gill nets, fishing hooks and casting. However, the increasing market demand for fish has inspired some to adopt more harmful practices such as explosives and electric current. Focus group discussion (FGD) participants reported in 2018 that one person died of electrofishing in Juligaad. The Paani survey of fishermen found that they catch up to 2 kg per day and 190 kg per year.

In West Seti, fears of fish number declines are also well founded. Sixty-two percent of households reported that fish stocks had decreased over the past decade, and 58% said fish species had also declined. When probing these questions in FGDs, the following reasons were offered to explain these trends:

- Rise in the number of new fishermen
- Increased use of pesticides and electric current
- Increased use of small mesh nets
- Changes in aquatic habitats due to landslides and solid waste disposal
- Hydropower projects restricting water flow

Sustainable agriculture

As noted above, agriculture is overwhelmingly the most common livelihood in the watershed. In spite of the high altitudinal variation in West Seti, more and more subsistence farmers have attempted to move to commercial modes of farming and with the support of local governments and NGOs.

There are 28,240 hectares of cultivated land in West Seti, and approximately 35.3% is irrigated. However, in terms of households, 41% have access to irrigation. Major crops in the area vary by altitude and include maize, millet, barley, wheat, potatoes, lentils, and soybean.

Concerns about production levels are high. Eighty-one percent of households said productivity had declined over the past decade, and climate change was the most commonly cited reason for this. Accordingly, nearly 87% of households said soil fertility had also declined over the same period.

Farmers that produce a surplus have many options for markets to sell their products. Road connectivity is good in the watershed for this purpose.

Gravel mining

The Seti River and its tributaries offer high volumes of mining materials that are in high demand for construction. Formerly, the District Development Committee (DDC) office issued licenses for this work, but under the new federal structure, that authority will rest with the nagarpalika (NP) and gaunpalika (GP)[1]. Though revenues per truck of material were not available in all locations, in Mastha GP, local authorities are collecting 100 rupees for stone, 200 for sand, and 300 for gravel. In Jaya Privthi NP, where extraction rates are historically high, the local government collects 500 rupees for stone, 600

[1] Gaunpalika (rural municipality) and nagarpalika (municipality) are the new local administrative units of government in Nepal, replacing the Village Development Committee, or VDC.

for gravel, and 500 for aggregate per truck. In Kedarsyu GP, officials reported that mining extraction was its largest single revenue source in 2018.

While the Environment Protection Rules 1997 require an environmental impact assessment prior to excavation in a new site, respondents in the watershed said this was not a regular practice.

Roads

There are two major road networks in the West Seti watershed: the district core road network (DRCN) and village core road network (VRCN). These networks feature 106 and 107 kms of road, respectively.

Unsustainable and improper rural road building (VRCN) was a consistently-voiced concern among respondents throughout the watershed. Due to the steep topography in West Seti, landslides are more easily triggered by road construction compared to other parts of the country. These landslides decimate households and destroy water sources, and the sediment degrades aquatic habitats in the rivers below. Many respondents (in Kedarsue GP, Chhabis Pathibhera GP, and Khaptad Chhana GP) noted that road building firms are legally required to conduct environmental impact assessments prior to construction, but that low monitoring of the process meant few firms actually did.

Irrigation

While irrigation is necessary to improve livelihoods and economic development in the watershed, the amount of water diverted directly affects aquatic life. The costs, benefits and trade-offs must be considered carefully.

In West Seti, fertile plots situated on low terrain benefit from small and medium-sized irrigation schemes, which belong to either a modern or traditional system. The traditional irrigation schemes in West Seti date back to the previous century, built by local landlords and the request of land-owning elites. Irrigation at this time typically benefits BCTS farmers at the expense of Dalits and Janajatis. This particular history means that certain inequities in terms of access persist to modern times.

Thanks to government and international development efforts, the number of systems available to farmers has increased to 65. Through FGDs, repeated concerns about the effects of drying water sources and hydropower on existing schemes were voiced. These concerns were corroborated by Paani during a transect walk across the watershed.

More than half of the 65 irrigation schemes (51%) depend on rainfall as a water source, while 41% draw from nearby rivers, 3% use local ponds and lakes, 4% lack agricultural land to irrigate, and the remaining 1% use ground water.

Climate resilience and disaster risk reduction

As climate change impacts continue to influence freshwater conservation and biodiversity in the West Seti watershed, local governments and NGOs are stepping up to anticipate and address these challenges in the future. In addition to the government-level offices appointed to water, forests and soils, several civil society organizations have offered their resources to strengthen livelihoods against threats of natural hazards and climatic variability.

Early warning systems

Only 14% of households said an early warning system (EWS) exists in their community. Of that 14%, 92% reported that they had equal access to the information. Given the rising incidence and intensity of floods and landslides in the watershed, EWS is highly recommended. Occasionally the disaster risk information is broadcast over radio, but a more sophisticated and comprehensive system is needed.

Power

In this section of the report, we detail and analyze the social, institutional, and regulatory structures through which water resources management, aquatic biodiversity management, and adaptation to climate change are planned and operationalized within the West Seti watershed. Indicators in this section refer to the strength and accessibility of governance institutions in the watershed, as well as the level of inclusiveness across gender, caste, and ethnicity in decision-making processes.

Local institutions and inclusiveness

As forest and water resources are a shared resource, the formation of user groups to collectively manage these resources has become common in West Seti. These user groups serve under various government authorities (e.g., District Coordination Committee (DDC), Division Forest Office (DFO), District Agriculture Knowledge Center (DAKC) and seek to improve sustainable use of water, timber, and non-timber forest products. However, under the new federal form of government, it has yet to be specified how responsibilities will be distributed among new local authorities in the gaunpalika and nagarpalika.

In West Seti, forests are managed under one of several modes (e.g., community, religious, leasehold, or protected) by a community forest user group, or CFUG. There are 315 CFUGs currently overseeing forests in the watershed. CFUGs are affiliated with the Federation for Community Forestry Users, Nepal, who represent their needs to the government at the national level.

By mandate, CFUGs must spend 25% of their revenue on management, protection, and forest development, and 35% must be allocated to livelihood-related activities for poor and marginalized groups, whose households are rated in participatory fashion for well-being and supported according to these ratings.

Concerns about water access and sustainable water use also draw strong participation from watershed residents. In West Seti, water supply and sanitation are addressed through a variety of organizations: Mothers' groups, savings and credit groups, agricultural groups, youth clubs, water user groups, and irrigation committees. In the watershed, 88% of households claimed membership in one of these water-related user groups.

Policies, frameworks and regulations

The Constitution of Nepal 2015 guarantees the right of every person to live in a clean and healthy environment. Accordingly, the national government has ratified numerous policy provisions and programs for conserving natural resources and promoting environmental management. A few examples of these policies include the National Park and Wildlife Conservation Act - 2029 (1973); the Soil Conservation and Watershed Management Act – 2039 (1983); the Forest Act – 2049 (1993); and the Environmental Protection Act – 2053 (1997).

The Local Government Operation Act 2017 (LGOA) provides municipalities and rural municipalities' powers, functions and duties to formulate, implement and regulate local policies. LGOA also authorizes local governments to develop plans related to local level disaster preparedness and response planning, early warning systems, and distribution and coordination of relief materials. Observations and focus group discussions revealed that all nagarpalika and gaunpalika authorities have been executing these powers related to disaster management; however, local civil society organizations say that not enough energy has been devoted to conservation.

Through FGDs and KIIs, respondents expressed their growing awareness of the need to develop stronger relations between upstream, middle-stream and downstream communities, and to understand better the interconnection between surface and ground water. In spite of the many regulations providing vision on issues related to watershed health, there was general consensus that a lack of implementation could lead to conflict between communities on resources such as fish, forests and water. Moreover, increasing infrastructure development, in the form of roads, cities, and hydropower, has raised general concerns about e-flows and maintaining sustainable agricultural production.

Survey responses indicate that coordination among local governments, district coordination committees, and provincial levels of government is quite low. Women and marginalized persons are not well represented in formal and informal institutions and organizations in West Seti watershed. Even when included in these groups, their input and leadership is often not valued. Similarly, representation of poor and marginalized groups in local level planning and budgeting processes (e.g., LAPA, CAPA, WUMP) are very poor and neither inclusive nor participatory. Building consensus and ownership between government and citizens will improve the potential to create conditions favorable to conserving aquatic biodiversity and promoting community resilience.

Watershed health assessment – Summary

The list of health indicators presented in this section takes into account factors related to biophysical health, infrastructure, socio-economic and governance within the watershed. Each of these indicators was assessed through consultation with stakeholders in the West Seti Watershed and assigned a score between 0-5 points.

We are concerned with assessment *and* monitoring, and employ the following rating system.

Color Symbol	Description	Treatment measures
[4-5 points] 	Good health condition, no additional treatment required	Intervention required to keep condition intact
[2-4 points]	Fair condition, functioning at risk, be alert to maintain and improve condition of the watershed	Promotion of good practices needed to improve health condition; special attention if not additional treatment may be necessary.

[<2 points] 	Poor condition, impaired functioning, decreased quality and quantity of ecosystem services in the watershed	Special measures must be adopted to restore watershed health conditions and ecosystem services

Based on the designated indicators for assessment, we rate the health status of the West Seti watershed as ***moderately good*** (Table 1)**.** Water quality, household sanitation practices, and general land cover are among the most positive factors impacting watershed health. Water availability and declining agricultural productivity pose the most serious and immediate challenges to residents in the area. Unsustainable irrigation, fishing practices and gravel mining are areas that need more attention in the future.

Table 1: Summary of health indicators for the West Seti Watershed

Theme	Watershed health indicators	Rating	Rationale for rating
WATER 	Water availability		76.5% of households obtain sufficient daily water within 30 minutes of home, while 5.3% require between 30-60 minutes, and 5.3% require more than an hour.
	Water accessibility for community, agriculture		More than half of the 65 irrigation schemes (51%) depend on rainfall as a water source, while 41% draw from nearby rivers, 3% use local ponds and lakes, 4% lack agricultural land to irrigate, and the remaining 1% use ground water.
	Water quality for drinking, irrigation and energy generation		All key water quality components found to be in the normal range for drinking and irrigation.
BIODIVERSITY & HABITAT 	Household sanitation		In the West Seti watershed, 9.7% of Dalit households and 7.5% of BCTS households reported unequal access to public water sources. Factors attributed to this inequality included caste discrimination, long distances to available water sources, and religious restrictions.

	Solid waste disposal		Fifty-nine percent of households incinerate solid waste, while 39.5% use it for compost. Only 22.8% of households reported taking their waste to a landfill, while 14.4% dump directly into nearby water bodies
	Land use and land cover		The watershed is more than 50% forest cover and rates of deforestation are low. Residents voiced concerns about over-grazing and excessive firewood collection, but overall land cover is robust.
	Species diversity [Fresh water]		Sixty-two percent of households reported that fish stocks had decreased over the past decade and 58% said fish species had also declined.
	Invasive species [Aquatic]		No invasive species have been recorded in West Seti.
	Quantity of fish [Local]		Fishermen catch up to 2 kg per day and 190 kg per year.
	Fishing practices		Fishing in West Seti is characterized by a mix of traditional and non-traditional methods. Some destructive methods (e.g., gill nets) have been increasing.
SUSTAINABLE AGRICULTURE	Soil management [conservation, fertility]		Eighty-one percent of households said productivity had declined over the past decade, and climate change was the most commonly cited reason for this. Accordingly, nearly 87% of households said soil fertility had also declined over the same period.
	Sustainability of hydropower		A planned 750 MW hydroelectric project would impound water for several kilometers upstream and displace hundreds of households. Residents are also concerned about lesser known environmental impacts

			that may not be properly addresses ahead of construction.
	Sustainability of gravel mining and construction materials		The Seti River and its tributaries offer high volumes of mining materials that are in high demand for construction.
SUSTAINABLE INFRASTRUCTURE & MINING [environment-friendly framework]	Sustainability of rural roads		Due to the steep topography in West Seti, landslides are more easily triggered by road construction compared to other parts of the country. These landslides decimate households and destroy water sources, and the sediment degrades aquatic habitats in the rivers below.
	Sustainability of irrigation		Thanks to government and international development efforts, the number of systems available to farmers has increased to 65. Through FGDs, repeated concerns about the effects of drying water sources and hydropower on existing schemes were voiced.
	Climate induced threats – intensity and severity [landslides, floods and landslides]		Prone to landslides due to natural complex geography and haphazard infrastructure development.
CLIMATE RESILIENCE AND DISASTER RISK REDUCTION	Community response, measures to adapt to CC impacts		Response is low overall – the government and household levels.
	Community access to early warning systems		No early warning system in place.
	Inclusive participation in local natural resource management (NRM) planning		Awareness and participation are low. Only 34.5% of households said they knew about NRM planning in their local government offices. Of that group, 82.6% of households said they did participate in these planning processes. Only 24% of women claimed they knew about this work as compared to 43% of men. In terms of ethnicity, almost 38%

			of BCTS reported knowledge of government-level NRM planning as compared to 23.6% of Dalits. Only 17.5% of women and marginalized groups hold leadership positions.
	Persistence of active NRM groups [Biodiversity, disaster, climate change, water, agriculture, forest, irrigation, farmers]		Limited resources and knowledge, plus many households in remote locations, inhibit idea-sharing and communication.
GOVERNANCE AND EQUALITY 	People comply with laws and policy provisions, including local norms and standards		Changing environmental policies are not communicated to local levels
	Mechanism in place to resolve outstanding issues, benefit sharing, sand mining, irrigation, hydropower		By mandate, community forest user groups (CFUGs) must spend 25% of their revenue on management, protection, and forest development, and 35% must be allocated to livelihood-related activities for poor and marginalized groups, whose households are rated in participatory fashion for well-being and supported according to these ratings.
	Equitable access and benefit sharing arising from use of natural resources (ecosystems services and products)		Only well-established systems for forests. Irrigation and water use benefit sharing requires more development.
	Coordination between the, municipalities [rural] municipalities, provinces and line agencies		Survey responses indicate that coordination among local governments, district coordination committees, and provincial levels of government is quite low.

	Adoption of climate-smart, environment and watershed management friendly practices [across all thematic areas]		Based on observation and survey, no climate-smart technologies nor practices appear to be in use.

References

Central Bureau of Statistics, Nepal (CBS). 2*015 Statistical Year Book Nepal*. Kathmandu: Government of Nepal. Accessed January 11, 2018. (http://cbs.gov.np/image/data/2017/Statistical%20Year%20Book%202015.pdf).