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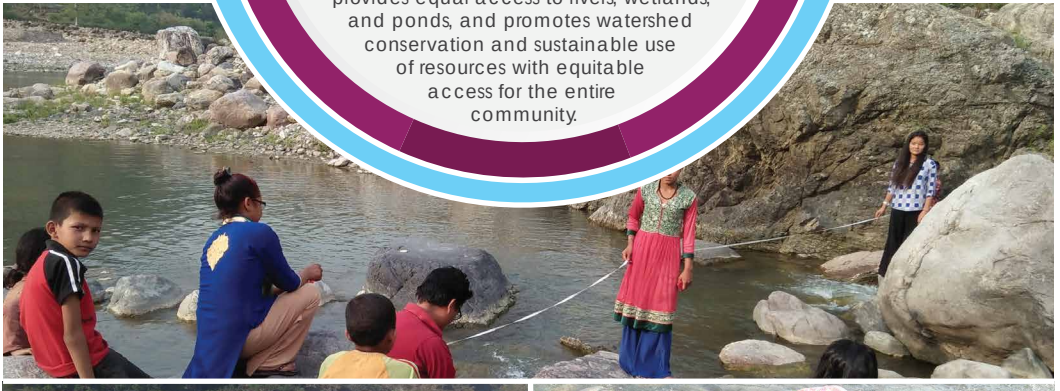
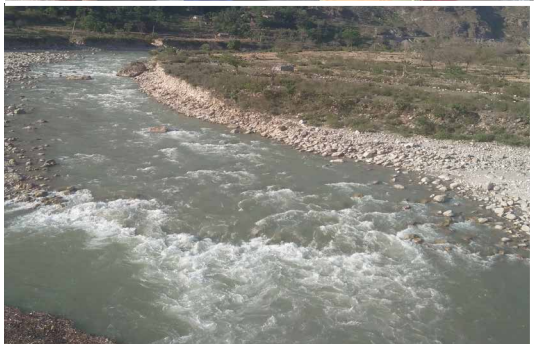
THULIGAAD

WATERSHED BRIEFER

Community Vision:

To establish a Thuligaad Watershed that provides equal access to rivers, wetlands, and ponds, and promotes watershed conservation and sustainable use of resources with equitable access for the entire community.





THE THULIGAAD WATERSHED

The Thuligaad Watershed is located within the Karnali River Basin that belongs to parts of Doti and Kailali districts. Water drains from the north between the Karnaso Gaad of Doti through to the Khimadi near Mohanyal in the south from where it eventually flows into Karnali River.

Agriculture is the most common livelihood and 37% of the land dedicated to crops is irrigated (15% with permanent irrigation). Rice, maize, wheat and millets are the main cereals.

The watershed is rich in biodiversity and agricultural land due to the altitudinal gradients in the watershed, which have produced a wide range of ecosystems from north to south. However, water remains a steady concern: only 16% of households reported having sufficient water all year round. At higher elevations, Chir pine (Pinus roxburghii) trees and other broad leaf tree species predominate in the forests. At lower altitudes, Sal forest (Shorea robusta) are the dominant species.

To bolster livelihood security, we observed several climate-smart technologies in use in the Thuligaad watershed. These technologies include green manure and composting, kitchen water reuse, and fruit tree plantation.

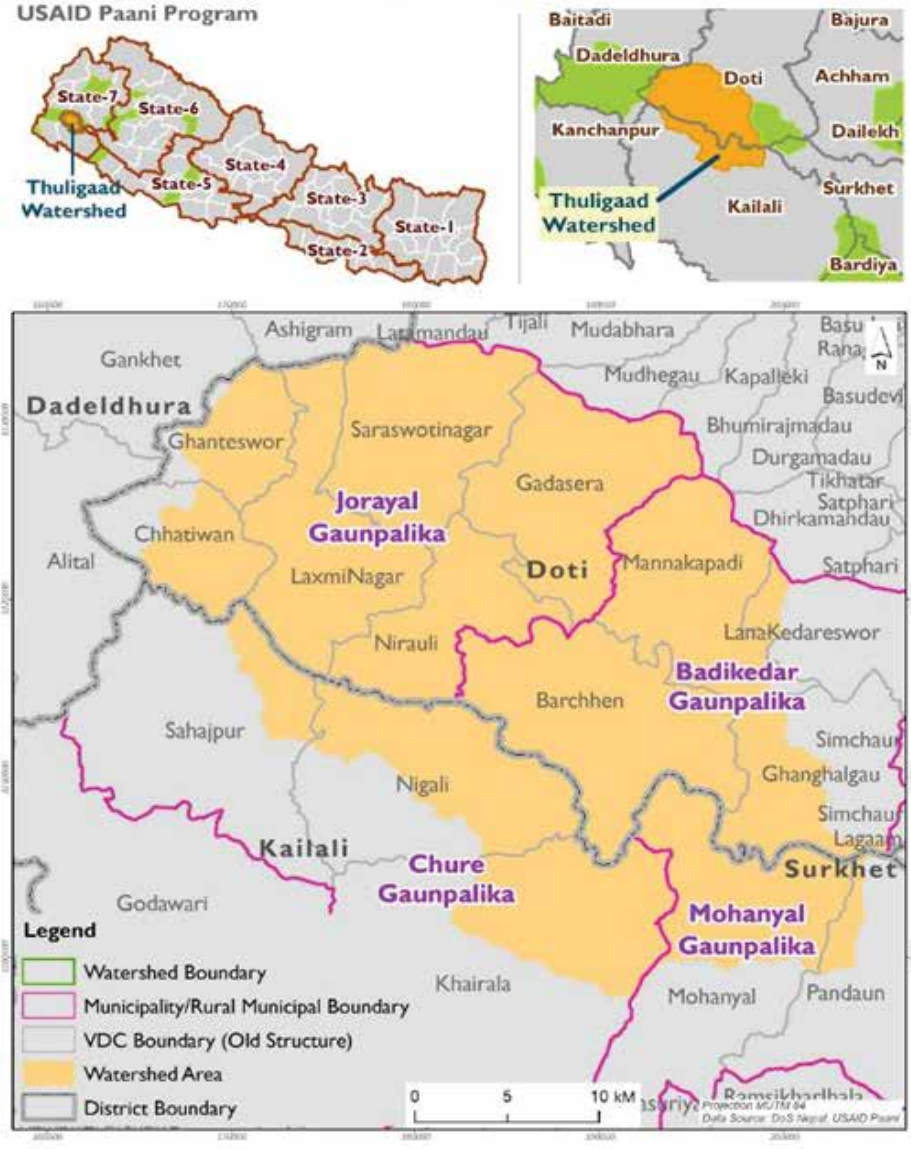
THULIGAAD BY NUMBERS

WATERSHED	Thuligaad
PROVINCE	Number 7
TOTAL DRAINAGE AREA	879 km2
NO. OF STREAMS	17
MAJOR RIVERS	Karnaso, Kapadi, Kamaladi
LAKES AND WETLANDS	Brahm Lake, Jwalaban Lake, Rakxes Lake and Chhatiwan Lake
LAND USE	Forest - 85.6%; Agricultural and pasture - 14.7; Shrub-forest mix - 0.7%
RURAL MUNICIPALITIES	Jorayal and Baddi Kedar (in Doti) and Chure and Mohanyal (in Kailali)
POPULATION	42,277 (50% male; 50% female)

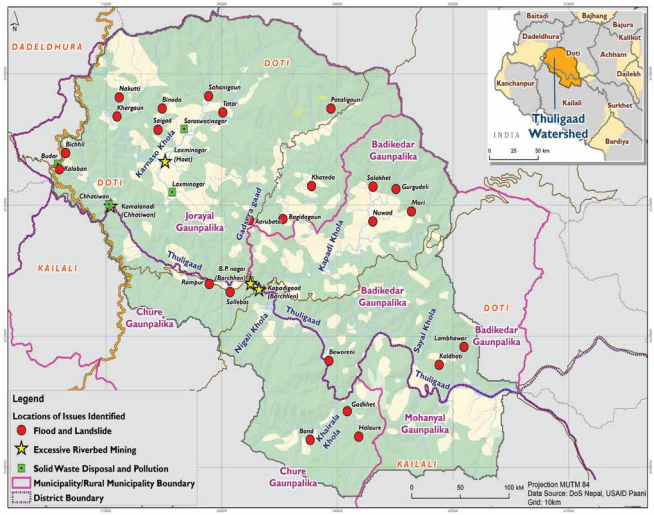
Location Map

Watershed Name: Thuligaad

River Basin: West Rapti **Watershed Code: 332**

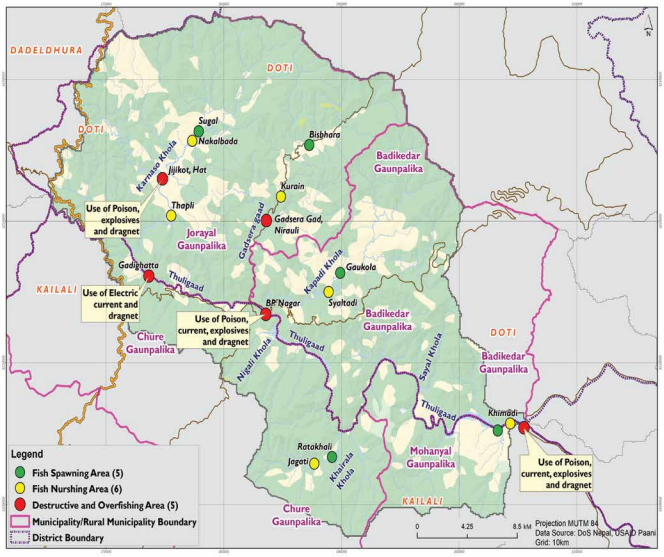


ENVIRONMENTAL ISSUES IN THE THULIGAAD WATERSHED



The environmental issues identified in this map were provided by watershed stakeholders who participated in Paani-sponsored entry and exit workshops. By identifying these issue "hotspots," it is hoped local governments and constituencies will be able to draw on this information to make short- and long-term plans to insure clean water, robust biodiversity, and sustainable use of natural resources.

THREATS TO AQUATIC BIODIVERSITY IN THE THULIGAAD WATERSHED



This aquatic biodiversity map was constructed with the assistance of various stakeholders who helped to locate places where they noted challenges specifically related to aquatic habitats and biodiversity. Combining GIS and ground-truthed data to create reference maps such as this one will be helpful in developing effective strategies to protect aquatic health in the watershed.

ENVIRONMENTAL REPORT CARD
FOR THE THULIGAAD WATERSHED

This health report card illustrates watershed health conditions measured against a set of pre-defined indicators chosen through a multi-stakeholder consultation process. These indicators show the current health status of Thuligaad and using a color code for the threats, opportunities, and challenges facing the watershed.

WATERSHED HEALTH CONDITIONS

GOOD | FAIR | POOR

GOVERNANCE AND EQUITY

- Households engaged in local level planning
- Community active in NRM groups
- Conflicts over NRM
- Women and marginalized groups in leadership positions
- Equitable access and benefit sharing with natural resourcces
- People comply with environmental laws and regulations
- Government enforces laws and regulations
- Coordination between local and provincial government

SUSTAINABLE INFRASTRUCTURE

- Hydropower
- Roads
- Gravel mining
- Irrigation

CLIMATE RESILIENCE AND DISASTER RISK REDUCTION

- Areas vulnerable to landslides, floods and landslides
- Use of climate resilience adaptation practices
- Households with access to early warning systems

BIODIVERSITY AND HABITAT

- Household sanitation
- Quantity of fish
- Fishing Practices
- Land use and land cover
- Solid waste disposal
- Invasive species
- Species diversity

WATER

- Water availability
- Water acccessibility
- Water quality

SUSTAINABLE AGRICULTURE

- Agricultural productivity
- Climate and physiography
- Soil management and fertility

WAYS FORWARD IN THE THULIGAAD WATERSHED

Numerous stakeholders from the watershed formulated these recommendations that represent a variety of viewpoints, from government officials to local business owners and residents. In that way, these actions and commitments seek to address environmental issues in Thuligaad that provide remediation or improvements for all groups in the watershed.

ISSUE	ACTION/RECOMMENDATIONS
FLOODING, LANDSLIDES, RIVER CUTTING, SAND DEPOSITION	• Support local technologies for retaining runoff water on-site, which will reduce erosion and protect agricultural land upstream; • Support locally-initiated and low-cost bioengineering and river bank management systems; • Raise awareness on better ways to manage forest fires and open grazing; • Support communities to establish and/or strengthen early warning system; • Produce and disseminate communication materials and radio programs on best practices for water management; • Conserve wetlands to improve flood control; • Construct raised drinking water taps and toilets; and • Relocate or raise infrastructure (e.g., water taps, wildlife watch towers and shelter houses) out of the floodplains and other vulnerable areas.
DRYING WATER SOURCES	• Improve implementation of water use master plans; • Implement low-cost techniques that stabilize slopes and riverbanks; • Adopt modern and simple technologies, such as solar water pumps, Dhiki pumps, drip irrigation, and rainwater harvesting; • Promote regulated gravel mining and excavation in upstream areas; • Encourage enforcement of existing laws and regulations related to watershed conservation and management.
DECLINING FISH POPULATION AND DIVERSITY	• Conduct advocacy, training, and capacity building for fishing groups at the local level; • Include civil service organizations, community-based organizations, community forest user groups, buffer zone management committees, and buffer zone community forest groups in creating plans for more sustainable fishing; • Develop and endorse capture fishery guidelines; • Initiate dialogues between district-level agencies and rural municipalities, and between government and non-governmental agencies (e.g., fishing groups, natural resource orgs); • Assess current sustainable capture fisheries practices; • Promote ecotourism (e.g., sport fishing, catch and release programs); and • Mobilize community-based anti-poaching units to combat destructive fishing practices.
FOREST DEGRADATION AND WILDFIRES	• Raise awareness about the dangers of wild fires and how to prevenT them; • Provide community training for firefighting and distribute equipment to support these trainings • Minimize livestock grazing where possible; and • Establish community patrols during the dry season to warn about potential fire risk areas.