

# Social Safeguards Due Diligence Report

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Project Number: 52195-001  
June 2020

## Nepal: Priority River Basins Flood Risk Management Project

Prepared by Department of Water Resources and Irrigation, and the Department of Hydrology and Meteorology, Ministry of Energy, Water Resources and Irrigation for the Asian Development Bank.

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## **CURRENCY EQUIVALENTS**

(as of 11 June 2020)

Currency unit	–	Nepalese Rupee (NRe)
NRe1.00	=	\$ 0.0082658291
\$1.00	=	NRe120.98

## **ABBREVIATIONS**

ADB	-	Asian Development Bank
AP	-	Affected person
CBDRM	-	Community-Based Disaster Risk Management
CBS	-	Central Bureau of Statistics
CDMC	-	Community Disaster Management Committee
DWRI	-	Department of Water Resources and Irrigation
FFEW	-	Flood Forecasting and Early Warning
GIS	-	Geographic Information System
GoN	-	Government of Nepal
GRC	-	Grievance Redress Committee
HH	-	Household
IP	-	Indigenous people
IR	-	Involuntary Resettlement
MoU	-	Memorandum of Understanding
NGO	-	non-governmental organization
PIU	-	Project Implementation Unit
PMU	-	Project Management Unit
PRBFRMP	-	Priority River Basins Flood Risk Management Project
PRTW	-	Proposed River Training Works
SPS	-	ADB's Safeguard Policy Statement
TA	-	Technical Assistance
VDC	-	Village Development Council
VDLUR	-	Voluntary Donation of Land Use Rights

## **WEIGHTS AND MEASURES**

1 ha (hectare)	–	Is equivalent to 29.58 katthas
km	–	Kilometre

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## GLOSSARY

***Affected Person (AP)*** – Affected persons are people (households) who may lose their land use right or source of livelihood due to the project. It may be all or part of their physical and non-physical assets, irrespective of legal or ownership titles. The term has been used in this report to broadly indicate people (households) willing to voluntarily donate land use right for the project.

***‘Ailani Land’*** – All the land not registered as private land in the government record – people informally ‘own’ and transact this land – i.e. sell occupied govt land use rights to other informal people [de facto land use rights].

***Economic Displacement*** – Loss of land, assets, access to assets, income sources, or means of livelihood as a result of (i) involuntary acquisition of land, or (ii) involuntary restriction on land use or on access to legally designated parks and protected areas.

***Project Beneficiaries*** – People who stand to benefit from the project

***Physical Displacement*** – Relocation, loss of residential land, or loss of shelter as a result of (i) involuntary acquisition of land, or (ii) involuntary restriction on land use or access to legally designated parks and protected areas.

***Lalpurja*** – Title of Land Ownership Certificate which literally means “Red Certificate” – land ownership certificate officially distributed by the Land Revenue Office; also known as the land title in the international context.

***Terai*** – Lowland region in southern Nepal that lies south of the outer foothills of the Himalayas, the Siwalik Hills and the north of Indo-Gangetic Plains.

## **Executive Summary**

1. The Priority River Basins Flood Risk Management Project (“the Project”) will implement physical infrastructure, including about 36km of embankments, about 4.6 km of additional revetments and 439 spurs to protect against flooding and erosion. In addition, modelling for flood forecasting and early warning systems (FFEWS) will be carried out and systems put in place to provide warning of impending floods to communities along the rivers. Community based disaster risk management (CBDRM) measures will be implemented to provide communities with the warnings procedures to move themselves and their livestock safely to higher ground when flooding is imminent. Flood shelters will be designed and built in collaboration with local communities in each subproject area, especially for the population which will still be outside the protected areas after subproject implementation.

2. This social safeguard due diligence report has been prepared by the project’s implementing agency, the Department of Water Resources and Irrigation (DWRI). The report demonstrates: (i) The project’s approach to addressing social impacts and risks in relation to Safeguard Requirements; (ii) Involuntary Resettlement and Safeguard Requirements; and (iii) Indigenous Peoples.

3. The Project is comprised of six sub-projects: Mohana Khutiya, Mawa Ratuwa, East Rapti, West Rapti, Lakhandei and Bakraha River Basins. Safeguards due diligence screening is based on the most updated project designs as of December 2019. The Mohana Khutiya, and Mawa Ratuwa sub-projects have detailed embankment design, West Rapti, Lakhandei and Bakraha have feasibility embankment design and the East Rapti and all other subprojects will involve community flood shelter design during the project implementation period. The findings of this report are subject to verification and/or updating by the implementing agency ahead of the construction season in all sub-projects, including the subprojects with detailed design. Project designs are subject to minor changes due to the monsoon season as the river course may erode lands earmarked for embankment. DWRI is required to submit finalized social due diligence to ADB for all sub-projects ahead of construction starting.

4. DWRI undertook an extensive social safeguards due diligence screening between August and November 2018 and March and November 2019 to determine social impacts and risks associated with the project. The following safeguards screening methods were utilized in review of the six-sub-projects: (i) desk-based review of sub-project technical plans, social assessment reports prepared by the TA consultants, analysis of secondary data sources; and (ii) primary data collection, including repeated field site visitations to all sub-projects; 432 total household surveys and 48 documented community consultations with 1,596 people total participants, of which 64% were male, 36% women and 66% indigenous (as per the ADB definition). Throughout the social safeguards screening exercise, ADB Social Safeguard Staff worked closely with DWRI and consultants to ensure that ADB’s Safeguard Policy Statement (SPS 2009) due diligence requirements were met. Staff periodically participated in community consultations, provided DWRI with safeguards training and participated in the review and validation of due diligence findings.

5. This Social Safeguards due diligence report finds that the project is classified as category C for the Involuntary Resettlement safeguard in accordance with ADB’s SPS 2009. Land for embankment construction will require approximately 58.79 ha of total land. The social safeguards screening identified 432 households with lands impacted by the embankment construction. Of this total, 182 households are private landowners and 250 households are non-title holders or encroachers occupying government lands on a seasonal basis to plants crops.

6. The report finds that no involuntary land acquisition, economic or physical displacement will be required for the project. No structures are present in the corridor of impact and crop losses will be avoided as local people unanimously agree to avoid planting seasonal crops in the project corridor ahead of the construction season. All 182 private landowners were found eligible to voluntarily donate land to the project; 179 memorandums of understanding (MoU) for land use were signed by landowners and third party witnessed during the screening exercise. Two landowners were not present to undertake signing at the time of the due diligence exercise, however their family members expressed high willingness to donate lands for the project. The safeguard screening exercise finds that people who own and use the embankment lands are highly willing to contribute lands to the project. Household surveys confirm that the donation will not cause significant income losses or impoverishment. Rather, landowners and users will directly benefit as project works will increase utility and value of protected lands. Landowners or users will be able to plant year-round crops on the protected land and will have increased security.

7. The project is classified as category B for Indigenous Peoples safeguards in accordance with ADB's Safeguard Policy Statement. Due diligence screening confirmed that the targeted beneficiary population are *majority* indigenous as per the ADB definition; ethnically distinct and vulnerable. The Thru and Chaudhari are the ethnic minority groups identified in the sub-project areas; they are defined as indigenous according to the Nepal Federation of Indigenous Nationality.<sup>1</sup> Safeguards due diligence consultations with the Thru and Chaudhari highlight that the indigenous people groups interact and participate in the broader community activities however they also maintain their own local Tharu and Chaudhari languages, customs and rituals. They also maintain a collective attachment to place, but they do not consider their land ancestral territories, nor do they claim an indigenous or distinct attachment to any natural resources. The government has not specifically allocated any specific place only focusing on the ancestral domain. Rather in some places land has been allocated and even with ownership transfer for the victims of flood in the past and recently for the emancipated bandaged labors which also include other caste and ethnic groups.

8. The Thru and Chaudhari peoples participate in the same governance system to the broader community, including in the same educational, economic, and political activities and the broader community. They also participate in organization focused on their ethnic group, particularly initiatives that seek to contribute to their development, welfare, and cultural protection. While the stance of the Thru and Chaudhari ethnic groups has been improving since government reforms introduced in the 90s, these indigenous people groups have been historically marginalized, economically disempowered and socially excluded from the broader society as a result of their indigeneity. There is an Act on National Foundation for the upliftment of Aadibasi Janajati 2002 to consider these groups present in the project area as ethnic minority indigenous groups.

9. Consultations with the Thru and Chaudhari community members indicates that the proposed project works will provide direct benefit to the Indigenous people by protecting them from floods, land cutting, and loss of crop production. Protection of land, infrastructures such as a house, schools, health facilities, community structures and life from the flood. The social safeguards due diligence screening finds that that no adverse impacts are anticipated as a result of the project. The project will not physically displace indigenous people, affect indigenous

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<sup>1</sup> <http://www.nefin.org.np/list/Categorization-of-Indigenous-People-based-on-development-/5/95/6>.



people common property resources or indigenous people ancestral lands. The indigenous people population expects to benefit from flood protection and enhanced disaster readiness.

10. projects, and (iii) can participate actively in projects that affect them. As per ADB's SPS 2009, the project is not required to produce a separate indigenous people plan because the majority of direct project beneficiaries are indigenous peoples and only positive impacts are identified.<sup>2</sup> The project meets these criteria and as such, the indigenous people plan elements have been integrated throughout the project design.

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<sup>2</sup> ADB. 2009. *Safeguards Policy Statement*. Manila. See Appendix 3, Safeguards Requirements 3: Indigenous Peoples, para. 17.

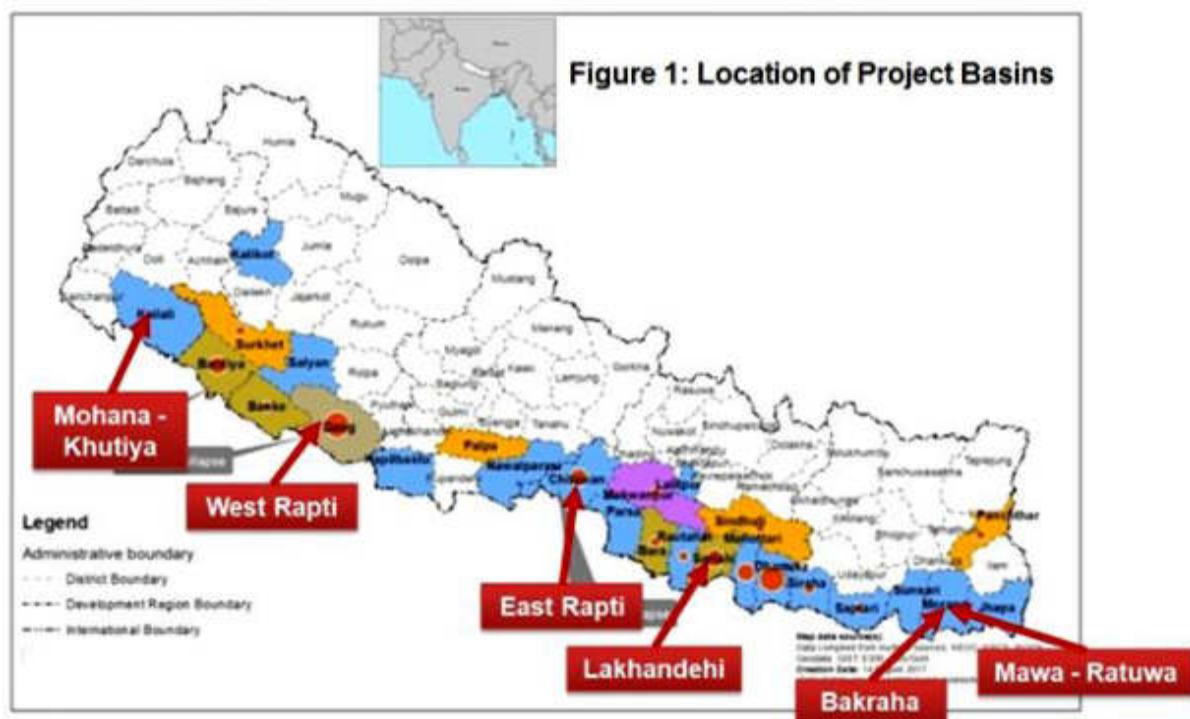


## I. Project Overview

1. Nepal is considered one of the most disaster-prone countries in the world. The Terai region, also known as the sub-Himalayan hills, at low altitude is severely affected by recurrent annual flooding that cause damage to infrastructure, crops and erodes agricultural land affecting the lives and livelihood of the population living in the area, public infrastructure and communities annually.
2. Communities vulnerable to floods in the Terai have been increasing due to migration of people from the mountains and hilly regions in search of better livelihood and settling in the flood prone areas. Farmers and communities are not fully prepared for flooding due to limited precautionary measures like; absence or limited river training works, preparedness to manage the issues associated with flood (e.g. skill of rescuing the flood victims and their rehabilitation, handling and rescuing of vulnerable persons like; women, senior citizens, children, lack of flood shelter house and warnings of impending flood events. The region's inadequate investment in disaster risk management including flood protection affects the poor and marginalized who are occupying the most hazard exposed areas along the river embankments.
3. The Priority River Basins Flood Risk Management Project aims to reduce the incidence and severity of flooding in the prioritized river basins in the Terai. It will contribute to a reduction in potential loss of life, economic and natural resource degradation. Various components under the project are (i) provide flood control through bio-engineering and river training infrastructure (ii) enhance flood forecasting and early warning systems (FFEWS) and (iii) enhance emergency preparedness and response readiness; including investing in community-based disaster risk management (CBDRM) and capacity building for DWRI officials, stakeholders and beneficiaries in best practice flood risk management
4. This social safeguards due diligence report aims to understand the social impacts and safeguards issues to support decision making about funding the proposed investment program. Social safeguards due diligence is one of the requirements of the Asian Development Bank for project processing. This due diligence report addresses the Involuntary Resettlement and Indigenous Peoples safeguards assessment of the five subprojects with feasibility and detailed designs, including: (i) Mohana-Khutiya; (ii) Mawa Taruwa; (iii) West Rapti; (iv) Lakhandei; and (v) Bakraha. Due diligence activities for the East Rapti subproject will be undertaken by the Project PMU during implementation as the subproject will involve design of community flood shelters during implementation. This due diligence report is based on the most updated project design as of December 2019. The report will require updating and finalization prior to embankment construction in each subproject as the river course is likely to have moved following the monsoon season and design modifications may be required.
5. The Department of Water Resources and Irrigation (DWRI) is responsible for all protection works related to water-induced disasters. The Government of Nepal has requested the Asian Development Bank (ADB) to support the development of the 'Priority River Basins Flood Risk Management Project' which focuses on flood control and river training infrastructure in six rivers basins in the Terai region.<sup>3</sup> The location of the six river basins is shown in **Figure 1** and a summary of the embankment technical detail is incorporated in **Table 1**.

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<sup>3</sup> Mohana – Khutiya basin, Mawa – Ratuwa basin, Lakhandei basin, West Rapti basin, East Rapti basin and Bakraha basin.



**Figure 1: Location of Project Basins**

6. The details of works to be carried out in the project river basins are summarized in Table-1 below.

**Table 1: Summary Technical Detail of the Proposed Embankments<sup>4</sup>**

River Basin	District	Number of embankments	Embankment Length (m)	Additional Revetments (m)	Spurs	Outlets
Mawa Ratuwa	Jhapa, Morang	13	10,485	1,330	188	19
Mohana Khutiya	Kanchanpur Kailali	11	10,280	2,150	146	16
West Rapti	Dang	6	12,530	0	36	-
Lakhandehi	Sarlahi	2	1,600	1,160	27	-
Bakraha	Morang	8	4,365	0	42	-
East Rapti	Chitawan	0	-	-	-	-
<b>Total</b>		49	36,230	4,640	439	36

7. The project aims to achieve the following outputs.

<sup>4</sup> Several embankments were dropped in the Lakhandehi River Basin since this due diligence exercise was undertaken. This table will be updated to reflect actual figures once due diligence is finalized.

- (i) **Output 1-** Flood Protection Infrastructure Improved: Specifically, the project will reduce direct impacts from flooding through a) rehabilitation and construction of flood control infrastructure b) demonstration of nature-based solutions for better flood risk management such as bio-engineering along the river embankments with suitable flora/vegetation to reduce embankment cutting and prevent soil erosion; and c) development of flood protection infrastructure manuals and monitoring systems.
- (ii) **Output 2.** Flood forecasting and response systems enhanced: The project will support government and communities in flood-prone areas to improve early warning systems through a) installation of hydro-meteorological stations and strengthening capacity for flood forecasting, b) strengthening early warning communications system, possibly using sirens, mobile phone technology, to communicate advance flood warnings to local communities, and c) maintenance of flood forecasting and early warning system.
- (iii) **Output 3.** Flood Prevention and Preparedness Capacity Improved: This will be delivered by a) preparing and implementing a project stakeholder communication and outreach program, b) undertaking organizational capacity building program on flood risk management and infrastructure planning for DWRI and c) developing CBDRM plans in line with local development plans and budgets that integrates disaster risk information.

## II. Social Due Diligence Methodology

8. This social safeguard due diligence report has been prepared to determine the social safeguards categorization for both Involuntary Resettlement and Indigenous Peoples. Impacts and mitigation measures were assessed and determined based on the following methods: (i) desk-based review of technical plans, social assessment reports prepared by the TA consultants, relevant secondary data; (i) primary data collection: household survey and focus groups discussions with local community and affected persons across the Mohana-Khutiya river basin covering all the proposed construction sites.

9. Land use requirements and proposed arrangements were further investigated and verified by a team of two social safeguard officers who examined GIS maps of the sub-project designs against the cadastral maps. The social safeguards officers held community meetings along all the proposed embankments and spoke directly with families whose lands would be impacted by embankment construction to determine their eligibility and interest to donate lands to the project. Local government representatives and DWRI engineers also participated in this verification/due diligence exercise in order to explain the project and clarify questions from the beneficiary population. The following steps were involved in carrying out the due diligence.

10. **Step 1: Preparatory Activities** On 16 June 2019, ADB Social Development Consultants held a one-day training workshop at the DWRI project office, in Kathmandu to explain the requirements of ADB SPS 2009. The workshop was attended by the DWRI Dy. Project Director, the DWRI Sociologist, project engineers, and other field survey staff comprising male and female members to be deployed for safeguards due diligence. The ADB Social Development Consultants clarified the due diligence process requirements, including for community consultation and information sharing and the eligibility criteria and process for negotiated settlements and voluntary donation. During the training workshop, the participants developed a field work plan and reviewed survey tools for community consultations and household surveys, as well as the MOU in the event of voluntary land use donations. **Appendix 1** presents the list of participants in the workshop.

11. **Step 2: Fieldwork Verification.** The Project social safeguards team visited the project sites in July and August 2019 for due diligence assessments. The aim of the social safeguards due diligence was to consult local beneficiary communities about the project and anticipated impacts; determine the extent to which Indigenous Peoples were present and impacted by the project development and agree on an approach to land use. Field notes from all community consultations and household level surveys were recorded and stored at the DWRI office.

12. Prior to initiating the social safeguards due diligence, considerable effort was made to ensure affected persons (project beneficiaries) were present for community consultation and household meetings. First, the DWRI engineers and ward representatives contacted persons owning/occupying land at the proposed embankment construction sites and invited them to participate in the due diligence assessment. Landowners and users (both titled and non-titled) were identified by comparing the PRTWs designs against the cadastre maps. The cadastre maps had been earlier retrieved for the identified villages from District Land Survey Office. Second, local community members, including persons representing different caste and the ethnic groups; indigenous people, women, seniors, disabled persons etc were invited and informed about the consultation meetings and invited to participate.

13. Social safeguards assessments were carried out along proposed PRTWs. The assessment initially involved holding the community consultations, which were facilitated by the DWRI engineer, Ward representative and the Social Safeguards Officers. The community

consultations initially sought to inform local people about the proposed project works, its intended benefits and land use requirements. The meetings also focused on obtaining feedback from local people about any perceived adverse impacts, particularly to vulnerable and marginalized groups such as indigenous peoples, lower caste and women.

14. Detailed information on the fieldwork completed for each subproject is presented in Section III.

### III. Subproject Description

15. The following section provides a brief description of the six subprojects and proposed project interventions. Common to all subprojects is the proposed flood control and river training infrastructure (embankments, spurs and outlets), Flood Forecasting and Early Warning Systems (FFEWS) and a training program for Community Based Disaster Risk Management (CBDRM).

The following activities and infrastructure are included under the FFEWS and CBDRM;

- (i) Rain gauge network installation
- (ii) Hydrometric gauge network installation
- (iii) Hydrometric equipment
- (iv) A topographic survey cross-section
- (v) Training of trainers to guide the communities in the event of a flood warning and to increase their resilience to respond
- (vi) Where not existing, a Community Disaster Management Committee (CDMC) per community will be established
- (vii) An inventory of the different houses and buildings in the agreed community to identify the vulnerable and non-vulnerable places.
- (viii) Community flood shelters

16. The community flood shelters will be designed under the CBDRM project component in collaboration with flood affected people. This component will be designed during the implementation phase and hence, DWRI will need to undertake social safeguards screening and reporting to ensure that lands for the community shelter will not trigger the SPS Involuntary Resettlement safeguard. In principle, the project will identify government lands to construct the shelters, or if preferred, local people will have the option to donate lands for the flood shelter where eligibility criteria is met. The project's principles for undertaking land negotiation and/or voluntary land use donation is included within the Project Administration Manual and meets the criteria of ADB, national and international best practice.

17. **The East Rapti Subproject.** For East Rapti Basin (Figure- 2) there will be no structural measures along the river. The catchment of the East Rapti Basin lies between Northing 3,024,000 m to 3,080,000 m (84°8'42.905"N to 27°20'22.455"N), and between Easting 219,000 m to 324,000 m (longitude 85°11'38.029 E– 27°46'56.346 E) in WGS 84, UTM Zone 45 N. the basin extends from the southern slopes of the Mahabharata Range in the north, Chure Hills (Siwalik Hills, also known as sub-Himalayan hills, at low altitude) in the Middle and in Terai (meaning low flat land) in the south up to the Indo-Nepal border. East Rapti is the main water body, which is joined by the Mahanahari, Lothar and Budhi Rapti in the west. In the east it is joined by the Karra Khola, and Khukreni Khola and in the Southwest by Riu Khola. The catchment covers an area of 2,963 km<sup>2</sup> in the central Nepal, Province No. 3. East Rapti River system lies in the districts Makwanpur and Chitwan. The basin has 1,564 settlements distributed over rural and urban municipalities with a population about 610,000 and households about 13,000 (CBS, 2011). Hetuada Municipality, Bhandara, Bhimphedi, Makwanpur Gadi, Bhainse, Bharatpur Metropolitan City, Ratnanagar, Ayodhapuri are the major cities, towns and settlements. East Rapti Basin has two valleys, i.e., East Rapti Valley and Madi Valley in the south. The famous Chitwan National Park, and a part of Parsa Wildlife reserve are located in this basin. As mentioned above, only FFEWS and CBDRM components will be developed in this sub-project. The project will need to perform a social due diligence screening when the locations for the community flood shelters are identified.



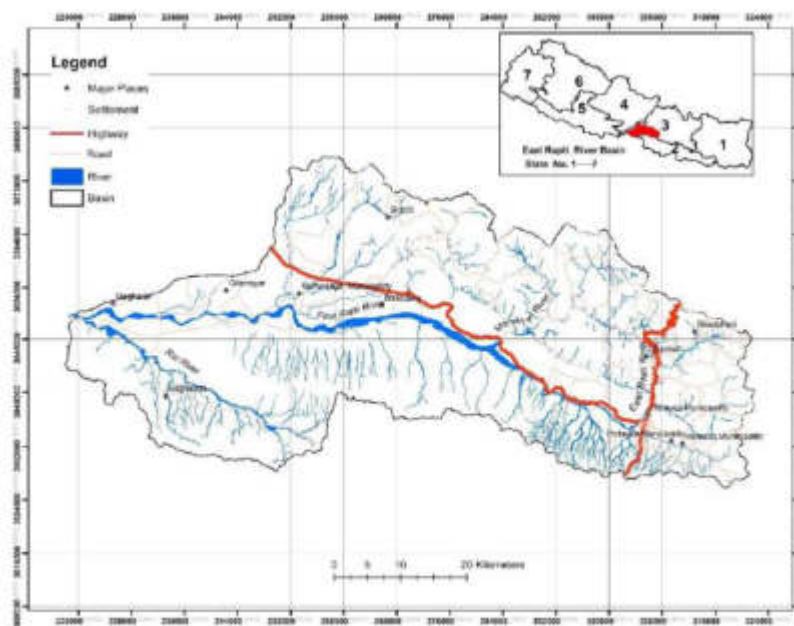


Figure 2: East Rapti River Basin

18. **The Mohana-Khutiya Sub-project.** The Mohana-Khutiya (Figure-3) extends from Chure Hills (Siwalik Hills, also known as sub-Himalayan hills, at low altitude) in the north and the Terai plains in the north to Nepal - India border in the south. The catchment covers an area of 702.4 km<sup>2</sup> and is located in the far west of Nepal. The Mohana - Khutiya basin system lies in the districts of Kailali and Kanchanpur in Province no 7. This river system has 359 settlements distributed over rural and urban municipalities with a population of 190,063 and 37,681 households (CBS, 2011). Dhangadhi and Atrariya are the two major towns located in this catchment.

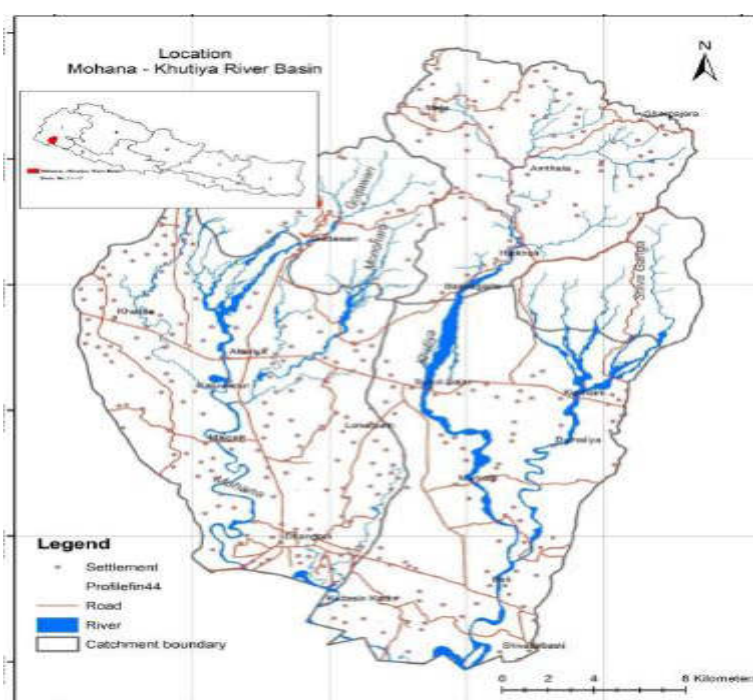


Figure 3 Mohana-Khutiya

19. In addition to FFEWS and CBDRM mentioned in para 15, the Mohana – Khutiya Subproject will involve 12 Priority River Training Works (PRTW). The PRTW includes construction of embankments, revetments, spurs, and outlets. The embankments will be between 9 m–12 m wide and have gravel surfacing and used for road access, revetments, spurs, and outlets. **Table 2** provides details of the proposed PRTWs in the Mohana – Khutiya subproject.

**Table 2: Details of Proposed Mohana-Khutiya PRTW<sup>5</sup>**

PRTW No	Location and Length		
	Nagar/ Village Palika and Ward No.	Village	Embankment <sup>7</sup> Length (m)
PRTW 01	Krishnapur- 7	Shantipur	700
PRTW 02	Krishnapur-7	Majgain	800
PRTW 03	Dhangadhi, Nagar Palika-13	Srilanka	330
PRTW 06	Godawari Nagar Palika -9	Arjun Tole	1630
PRTW 07	Godawari Nagar Palika -9	Murkatti	715
PRTW 08	Dhangadhi Nagarpalika -17	Uttar Khairini	800
PRTW 09	Dhangadhi Nagarpalika-15	Tarbaria	520
PRTW 10	Krishnapur Nagarpalika -9	Rajghat	400
PRTW 11a	Krishnapur Nagarpalika -9	Sanagaun	1345
PRTW 11b	Krishnapur Nagarpalika -9	Joroyal Tole	510
PRTW 12	Dhangadhi Nagarpalika -3	Chatakpur (Gaushala)	750
PRTW 13	Godawari Nagar Palika-9	Dhanchauri	1000

20. **The Mawa – Ratuwa Subproject.** The Mawa - Ratuwa catchment of the Mawa - Ratuwa Basin (Figure-4) lies between Northing 2,919,087 m to 2,973,609 m (latitude 26°25' 56.89"–26°49' 05.14"N), and between Easting 561,528 m to 580,023 m (longitude 87°36'36.31"E–87°47'24.97"E) in WGS 84, UTM Zone 45 N. The basin extends from Chure Hills (Siwalik Hills, also known as sub-Himalayan hills, at low altitude) in the North and in Terai in the south up to the Nepal - India border. Ratuwa is the main water body, which is joined by the Mawa in the West, and Bidhawa and Chanju Khola in the East. The catchment covers an area of 413 km<sup>2</sup> is located in the East of Nepal. The Mawa - Ratuwa Basin shares the districts of Morang and Jhapa, both in Province No. 1. The basin has 366 settlements distributed over rural and urban municipalities with a population of 165,260 and 36,871 households (CBS, 2011). Damak and Urlabari are the two major towns located in this catchment.

21. In addition to FFEWS and CBDRM mentioned in para 15, the Mawa – Ratuwa subproject proposed to develop 17 PRTWs (Table-3). The embankments will be between 9 m- 12 m wide and have gravel surfacing and used for road access, revetments, spurs, and outlets. Embankments are proposed at the following locations.

**Figure 4: Mawa Ratuwa River Basin**

<sup>5</sup> PRTW 4 and PRTW 5 have been excluded from the proposal for ADB funding.

**Table 3: Details of Proposed PRTW in Mawa-Ratuwa**

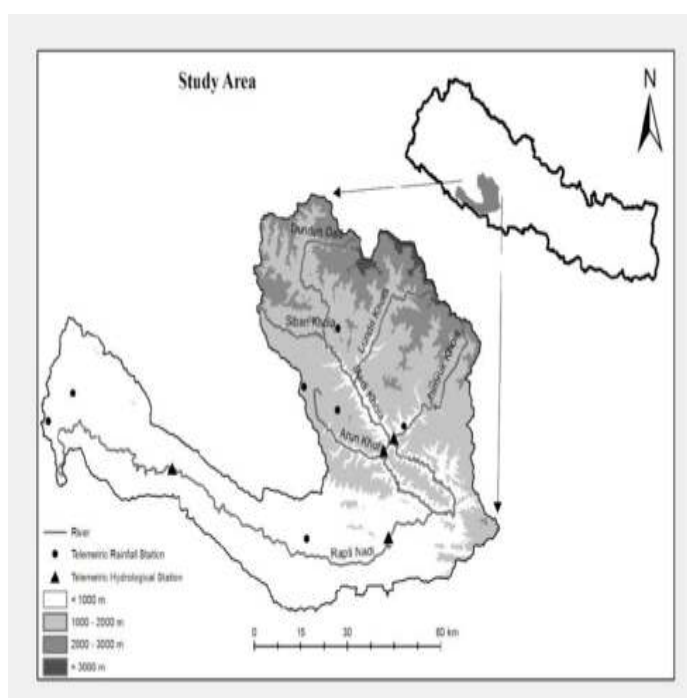
PRTW	Site Name	Municipality/ Village	Ward No	Embankment Length (m)
01	Chandra Dovan	Gauradaha Municipality	5	2200
02	Mangalbare	Ratuwamai Village Municipality	10	825
03	Dumse	Damak Municipality	3	535
04	Shanti Tole	Urlabari Municipality	7	785
05 A	Tapu	Urlabari Municipality	1	470
05 B	Tapu	Urlabari Municipality	1	250
07	Mirchagadi	Urlabari Municipality	3	930
08	Chaukighat	Ratuwamai Municipality-	3&4	1330
09 (a)	Nayabasti, Triveni Tole	Damak Municipality	2	205
09 (b)	Nayabasti, Triveni Tole	Damak Municipality	2	820
9 (c)&(d)	Himalaya Tole	Damak Municipality	1	1005
10.	Rubber Plant Area	Damak Municipality	6	265
11.	Near Mahesh Chowk	Urlabari Municipality	9	650
12 LB	Khayarbari	Kamal Rural Municipality	6	500
12 RB	Panchthare Tole	Damak Municipality	10	500
13 LB	Udaya Tole	Damak Municipality	4	175
13 RB	Shanti Tole	Urlabari Municipality	7	370

Source: Census Survey, July/August 2019

22. **The West Rapti Sub-project:** West Rapti river drains Rapti Zone in the Mid-Western Region, Nepal and Purvanchal regions of India before joining the Ghaghara (Figure-5)- a major left-bank tributary of the Ganges known as the Karnali inside Nepal. It rises south of a prominent E-W ridgeline midway between the western Dhaulagiri Himalaya and the Mahabharat Range. A 3,500 meter (11,500 ft) summit on this ridgeline marks a triple divide. North of the triple divide the Karnali and Gandaki basins are adjacent; south of it the Rapti and similar but smaller Babai River separate the two larger basins. After crossing into India, the Babai and Rapti separately join the Karnali's continuation called Ghaghara. The Ghaghara ultimately joins the Ganges. The main river emerges from its gorge into the lower Siwalik Hills and Dang District at Bhalubang Bazaar, Nepal's east-west Mahendra Highway bridges the river.

23. In addition to FFEWS and CBDRM mentioned in para 15, the West Rapti subproject proposed to develop 8 PRTWs (Table-4). The embankments will be between 9-12 meters wide and have gravel surfacing and used for road

access, revetments, spurs, and outlets. Embankments are proposed at the following locations.

**Figure 5: West Rapti River Basin**

**Table 4: Details of Proposed PRTW in West Rapti**

PRTW	Site Name	Municipality/ Village	Ward No	Embankment Length
01*	(a) Pachaha	Gadhawa, Rural Municipality-Ward -2	2	2340
	(b) Mahadeva			
	(c) Kothari			
02*	(a) Khadkapur	Gadhawa, Rural Municipality	4	2100
	(b) Chingatpur			
03	(a) Parsiya (b) Lokharpur (c) Lokharpur	Gadhawa	2,3,5,7	5655
04	(a) Batkauwa (b) Semarhawa (below Rapti bridge)	Lamahi Municipality	4	500
05	(a) Balarampur (b) Dhikpur	Lamahi Municipality	7	500
06	(a) Kanchhi Gaun (b) Jharbaira	Gadhwa Village Municipality	7	750
07* & 08	(a) Nahartole (b) Kachanapur (c) Gurukhola	Rapti sonari Rural Municipality	2	500+730

Source: Feasibility Report by TA Consultants

\*PRTW will not be funded under ADB project (after not passing economic assessment)

24. For the subproject's FFEWS the project will install 12 rain gauge network installation and 9 Hydrometric gauge network installation. Flood shelters will also be constructed. At this stage, only four communities during the community consultations have desired to have floods rehabilitation shelters in their respective area as per Table 5.

**Table 5: Flood Shelters Desired by Local Community in West Rapti Basin**

S.N.	PRTW	Location	Land Available Place as suggested
1.	01	Gadhwa Rural Municipality-2 Kothari	The land is available at Kothari, Gadhwa-2
2	06	Lamahi Municipality-4 Batkauwa	Ailani land is available in the ward
3	07	Rapti Sonari Rural Municipality -2, Kachanapur	The land is available within Ward No. 2 itself. About 10 Kattha (3380 sqm) can be managed
4	08	Gadhwa Rural Municipality-7, Karchha Village	There is always a flood risk in this village. People are willing to donate land if there is no Ailani land available.

Source: Census Survey, July/August 2019

25. **Bakraha Subproject.** The Bakraha Basin is located in the eastern Terai region of Nepal. It is severely affected by floods causing loss of cultivating land, community infrastructure and even life and properties in the settlements along the basin. The Bakraha river basin extends from Chure Hills (Siwalik Hills, also known as sub-Himalayan hills, at low altitude) in the North and in Terai in the south up to the Nepal - India border. The catchment of the Bakraha Basin lies between latitude 26°25' 56.89"–26°49' 05.14"N, and between longitude 87°36'36.31"E–87°47'24.97"E in Morang district of Province No. 1. The basin has 366 settlements distributed over rural and urban municipalities with a population of 165,260 and 36,871 households (CBS, 2011). Damak and Urlabari are the two major towns located in this catchment.

26. In addition to FFEWS (6 rain gauges and 5 hydrometric gauges) and CBDRM mentioned in para 15, the Bakraha subproject proposed to develop 8 PRTWs (Table-6). The embankments will be between 9 m12 m wide and have gravel surfacing and used for road access, revetments, spurs, and outlets. Embankments are proposed at the following locations.



**Figure 6: Bakraha River Basin**

**Table 6: Details of Proposed PRTW in Bakraha Basin**

PRTW	Site Name	Municipality/ Village	Ward No	Embankment Length	Remarks
01*	Kasani	Miklajung, Morang	7	600	LB
02*	Chisapani	Urlabari Municipality	1	250	RB
03*	Jhumra, Bishal Tole	Urlabari Municipality	4&5	380	LB
04	Thapadangi	Urlabari Municipality	4	200	RB
06	Bistadanda, Pipalchowk	Sanischare Municipality	3	1300	RB
07	Kasani, Leti	Ratuwa Mai Municipality	5	2365	LB
08	Bardanga, Chauki tole	Sanbarasi Municipality-	6	500	RB
09*	Urlabari, Miklajung	Urlabari Municipality	9	1000	RB

Source: Census Survey, July–August 2019

\*PRTW will not be funded under ADB project (after not passing ADB economic threshold)

27. Based on community consultation, local community in 6 PRTW sites<sup>6</sup> expressed their need for the rehabilitation building. For this purpose, government and community lands is available and even in case of unavailability of such land the community is willing to voluntarily donate land for the shelters.

28. **Lakhandehi Subproject.** Lakhandehi River lies in the Central part of the country's province number 2 in Sarlahi district and is a tributary of Bagmati River. It originates in the Chure range of Central Nepal and flows in a southerly direction to the Nepal-Indian border. The river flows west of Lalbandi city which is one of the fast-growing cities of Central Nepal. The topography of the catchment area is steeped in the upper reaches of the basin and very mild in the lower part of the basin which is also referred to as the Terai region. The total catchment area of the Lakhandehi basin up to the Nepal-Indian border is 344km<sup>2</sup>.

29. Lakhandehi River is a non-perennial river and the flooding in this river is characterized as being flashy in nature. There has been a history of 69 flood events between 1993 and 2015 with widespread damage and loss of life, particularly in the downstream part of the basin in the border region. In recent years, the river has experienced high sediment loads often aggravated by landslides in the upper catchment. This has led to a slow rise in the bed level over time.

30. The basin extends from Chure Hills (Siwalik Hills, also known as sub-Himalayan hills, at low altitude) in the North and in Terai in the south up to the Nepal - India border. The Sarlahi district has a population of 769,729 and 132,844 households (CBS, 2011). Lalbandi and Hariaun are the two major towns except the district headquarter Malangwa which is located in this catchment.



31. In addition to FFEWS (5 rain gauges and 4 hydrometeorological stations) and CBDRM mentioned in para 15, the Lakhandehi subproject proposed to develop 2 PRTWs (Table-7). The embankments will be between 9 m-12 m wide and have gravel surfacing and used for road access, revetments, spurs, and outlets. Embankments are proposed at the following locations.

**Table 7: Details of Proposed PRTW in Lakhandehi**

PRTW No	Site Name	Municipality/ Village	Ward No	Embankment Length	Remarks
01	Pattharkot, Jiyajor	Lalbandi Municipality	12	2324	RB
08	Kachhariya Tole	Haripur Municipality	8	420	LB

*Source: Census Survey, July/August 2019*

32. In case of the absence of appropriate buildings for use, flood shelters will be constructed. Based on community consultation, local community in both the PRTW sites expressed their need for the rehabilitation building. For this purpose, government and community lands is available and even in case of unavailability of such land the community is willing to voluntarily donate land for the shelters.

<sup>6</sup> 1) PRTW 01: Miklajung Rural Municipality-7 (PRTW 2: rehab center necessary, but land uncertain), 2) PRTW 02: Chisapani, Urlabari-2, land available at ward No.2, 3) PRTW 04: Thapadangi, Urlabari-4, Land can be arranged for rehab center, 5) PRTW 06: Bistadanda, Sanischare-3, land can be managed, 6) PRTW 07: Bardanga-Sonbarsi-7, land can be made available at ward no 7 near temple.



## IV. Subproject Social Due Diligence

### A. Mohana – Khutiya

33. **Fieldwork Verification.** The Project social safeguards team visited the Mohana – Khutiya basin from 22 to 28 July 2019. The aim of the social safeguards due diligence was to consult local beneficiary communities about the project and anticipated impacts; determine the extent to which Indigenous Peoples were present and impacted by the project development and agree on an approach to land use. Field notes from all community consultations and household level surveys were recorded and stored at the DWRI office.

34. Social safeguard assessments were carried out along all 12 proposed PRTWs. The assessment initially involved holding the community consultations, which were facilitated by the DWRI engineer, Ward representative and the Social Safeguards Officers. The community consultations initially sought to inform local people about the proposed project works, its intended benefits and land use requirements. They were also informed that the embankment would be used for road access to their agriculture fields and constructed in a way convenient to river access with provision of the ramp and other facilities depending upon the location and size of the embankment. The meetings also focused on obtaining feedback from local people about any perceived adverse impacts, particularly to vulnerable and marginalised groups such as indigenous peoples, lower caste and women.

35. The meetings also covered the topic of voluntary land donations and eligibility criteria (see details on voluntary donation eligibility on page 24). As the embankments would pass through sections of private lands, landowners and users of public lands were asked about their willingness to donate lands to the project. The community consultation meetings were concluded after signing the minutes and attendance record of each participant including local Government representative (e.g. mayor/chairperson of rural municipality/ ward members and DWRI engineer). The meeting minutes contained texts in Nepali on all meeting details including the local people's general willingness to voluntarily donate land use right for the land at the embankment site to the project. The text was read out loudly to the community for their easy understanding.

36. A household survey was completed with present households in order to establish a baseline profile of the beneficiary population. Collected information included details such as the household size, major caste and ethnic composition of the population including Dalit, ethnic and disadvantaged groups, major occupation, information on flood and associated impacts and its management etc.

37. Ground verification of affected plot/ land parcel and its owners/occupants was conducted following the community consultation using data from GIS overlays on cadastral maps and other local information. The social consultants and the census team walked along the proposed embankment with a group of 5 to 10 local community members comprising the ward



representative, persons having land in the construction sites and DWRI engineer to invite additional participants to verify ownership details.

38. Two types of affected persons were identified during these walks i) persons with formal land title, known as 'lal purja' in Nepali language. It was observed that the cadastral maps were not always updated, with some persons having land titles in the construction site that were not formally mapped in the cadastral and ii) non-title holders' or persons without formal land title occupying Government/ Ailani land for agricultural activity that is likely to be affected.

39. The census team however, could not collect complete information from all the households likely to have their private lands in the proposed embankment sites as there were some absentees and some of the land parcels were not matching with the GIS overlay on the cadastral maps that are not updated. In such cases, information regarding land parcels of affected parties were collected from local government representatives and the local community. The social consultants explained that only the private landowner and/or non-title holder can give consent for land use arrangement and the project team would have to confirm eligibility and obtain signatures ahead of construction. **Appendix- 2** provides a sample English translation of the text read to the community.

40. In total, 12 community consultation sessions were organized, one at each PRTW location. Location of the consultation meetings and number of participants is presented in Table 8.

**Table 8: Community Consultation Meetings and Participants**

S.N.	Name of Place	District	Municipality /Village Palika	PRTW No	No. of Participants
1	Arjuntole	Kanchanpur	Godawari Municipality-9	06	47
2	Murkatti	Kanchanpur	Godawari Municipality-9	07	48
3	Uttarkhandini	Kanchanpur	Dhangadhi Submetropolitan-17	08	67
4	Tarvairiya	Kanchanpur	Dhangadhi Submetropolitan-15	09	65
5	Dhanchauri	Kanchanpur	Godawari Municipality-9	13	71
6	Srilanka	Dhangadhi	Dhangadhi Sub-metropolitan-14	03	58
7	Chatakpur, Gausala	Dhangadhi	Dhangadhi Sub-metropolitan-03	12	43
8	Rajghat	Dhangadhi	Krishnapur Municipality-9	10	44
9	Sanagaun	Kanchanpur	Krishnapur Municipality-9	11 (a)	64
10	Sanagaun	Kanchanpur	Krishnapur Municipality-9	11 (b)	28
11	Shantipur	Kanchanpur	Krishnapur Municipality-7	01	17
12	Majhgaun	Kanchanpur	Krishnapur Municipality-7	02	29
<b>Total Number of Participants</b>					<b>581</b>

41. Each consultation session was attended by at least one local government personnel (ward representative) and the field engineer of DWRI. Of the total 581 participants, 238 (40.96%) were women and 243 (59.04%) were men. In terms of indigenous people and *Dalit*; the representation of indigenous people was 311 persons (53.53%) and 51 persons (8.78%) were Dalits. Table 8 presents summary details of participants in the consultation meetings and Key findings of the community consultation and issues raised are summarized in Appendix 3.



**Table 9: Summary of Participants in Community Consultations**

S.N.	Participants	No.	% of Total Participants
<b>Participation by Gender</b>			
1	Women	238	40.96
2	Men	343	59.04
3	<b>Total</b>	<b>581</b>	<b>100.00</b>
<b>Participation by Vulnerable and Non-vulnerable Groups</b>			
1	Dalit	51	8.78
2	Indigenous People	311	53.53
3	Brahmins and Other Caste Groups	219	37.69
4	<b>Total</b>	<b>581</b>	<b>100.00</b>

*Source: Community Consultation Record, July 2019*

42. The census team with the help of local representatives and community listed names of all affected persons covering those having land at the site of the proposed embankment with officially verified land ownership certificates as well as HHs not having verified land ownership certificate including the occupants of government or *Ailani* land. The census team collected socioeconomic information along with the details of assets owned by administering a semi-structured questionnaire. A set of the socio-economic questionnaire is presented in **Appendix 4**.

43. The census team also collected signatures of the landowner/occupant on the MOU for voluntary land use. The MOU was countersigned by a representative of local Government (independent third party) and the DWRI engineer.

## **1. Project Impacts to Land**

44. The Safeguards due diligence finds that the project will not cause involuntary land acquisition or involuntary economic or physical displacement. Consultations with persons living along the river embankment and nearby communities highlighted that no structures are present at any site of the proposed 12 PRTW project sites. Further, no economic displacement will occur at the time of project construction as community members, landowners and non-title holders expressed their interest and willingness to avoid planting seasonal crops in the project corridor of impact ahead of construction. Local people will directly benefit from the embankments construction because they will have year-round access to the lands protected by the project works. Affected people expect that following the PRTW construction, they will increase their crop productivity as a result of year-round access to the remaining land and the certainty that the land will not be washed into the river.

45. The estimated area required for construction of 12 embankments in Mohana Khutiya basin is 12.29 ha.<sup>7</sup> The social due diligence exercise involved interviews with 73 affected households, of which 13 households are private landowners and 60 households are non-title holders (*Ailani* land users). These households were identified as owning or using lands within the project corridor of impact. Details of the affected households, land parcels and estimated annual income loss as a result of not being able to plant crops in the project corridor of impact are provided in **Appendix-5**. All identified affected households were found to be eligible for voluntary donation and signed MoUs; all land use agreements (MOUs) made must be verified ahead of civil works. **Table 10** outlines the total number of landowners and non-title holders.

<sup>7</sup> As per estimate of GIS overlay on cadastral maps

Note that no physical displacement is required for the project as no structures were located within or near the project corridor of impact, hence non-title or Ailani land users will not be moved or restricted from ongoing use of the remaining government lands.

**Table 10: Type of Land Owned/Occupied by Affected Households**

Landowners Type	No. of Owning HHs
Private Land only	13
Encroachers	24
Squatters	36
<b>Total</b>	<b>73</b>

*Source: Census Survey, July 2019*

46. **Private Landowners:** Thirteen private landowners will be impacted by embankment construction in PRTW no. 2, 3 and 10. Six landowners were able to produce land ownership certificates (*Lal purja*) and were verified on the cadastral maps. The remaining seven landowners were not verified as their plots were not reflected on the cadastral map and/or they did not produce their certificate at the time of the census. All 13 households signed MOUs confirming their willingness to voluntarily contribute land use for the project purposes. Details of land parcels owned at the construction site is provided in **Table 11**.

**Table 11: Details of Private Land ownership**

S.N.	Interviewed Landowners	Land Parcel No.	Area in (Bigha-Kattha-Dhur)	Area in sq.m.	Land Type
Krishnapur Municipality-9, Rajghat, Kanchanpur District PRTW 10					
1	Deumani Dagaura#	11	1-19-5		Not Verified
		12	1-7-1		
Krishnapur Municipality-8, Majgain, Kanchanpur District PRTW 08					
2	Phulpati Dagaura	45	-	1,6940	Verified ownership and parcel number with GIS Sheet
3	Buddhiram Chaudhari	697		6,839	
4	Hargudi Dagaura	15	0-3-0		
		27	0-5-0		
5.	Bhangiram Dagaura	42	0-7-0		
6	Kabir Bhagat#				Not Verified
7	Nanda Lal Rana\$	672			Not Verified
8	Banda Chaudhari\$	Not having ownership document during census survey			Not Verified
9	Dhani Ram Chaudhari	16	-	03620	Verified
10	Jaggu Dagaura Chaudhari\$				Not Verified
11	Phaku Ram Dagaura	17 & 28	-	15570	Verified
12	Bhaktaram Chaudhari	18 & 30	-	14872	
Dhangadhi Municipality – 13, Srilanka					
13	Ram Bahadur Chaudhari	Not having ownership document during census survey			Not Verified

*Source: Census Survey, July 2019*

# not matching the parcel number with GIS

\$ Could not produce ownership certificate during the survey

47. One man claimed to own a land plot affected by the project corridor of impact and stated that he did not want to donate lands to the project. The social due diligence team were unable to locate the man's land plot on the cadastral map as the man did not have any documentation

and would not show the location of the plot. Community members and local officials could verify the location of this man's land holding. The man was requested to produce documentation, which will be verified ahead of construction. As per the voluntary donation eligibility criteria, if this man is found to have land within the corridor of impact then the land cannot be donated to the project. The DWRI project director and design engineers are aware of this case (the only case in the whole project) and have agreed to find design solutions to avoid the land once verified. This verification will be finalized ahead of construction.

48. **Non-titleholders:** Sixty non-titled households were identified as using *Ailani* (government) land for economic purposes in the subproject. Socio economic information as well as information on the area of occupied *Ailani* land was estimated by the respondents and collected from all the 60 households. Of the 60 non-title holders encroaching on government land, 24 have private lands elsewhere and 36 are using land in the project corridor of impact for seasonal crops..

49. **Crop and associated income loss:** Sixty-seven households indicated that seasonal crops are planted on the affected land area (7 private landowners and 60 non-title holders). Crops generally include wheat, rice and maize. Affected households explained that paddy is generally planted between June and July, wheat in February and maize in April, At the time of the social safeguard due diligence assessment during the monsoon season (June-August) few crops were present along the embankment. The impact to crops as a result of the project land use requirement was therefore estimated on the basis of the landowner and users feedback recorded in the household's survey.

50. **Appendix-5** indicates that affected households' livelihoods will not be significantly impacted by land use donation for the project. All households are expected to lose less than 10% annual income as a result of land use donation.<sup>8</sup> Screening activities highlighted that households already plant crops about 4 m –5 m from the river's edge to create a buffer zone between the crop and river. As the embankment construction is expected to take up about 9 m-12 m, embankment construction is expected to impact a strip of around 6 m-7 m of crop land. As agreed with the local communities, affected households will be given advance notice about the construction timeline so that they can avoid planning crops in the project corridor of impact. In the unlikely event that crops are planted in the corridor of impact, the contractor will pay for any damages at the prevailing district rate at the district level agriculture office. The provision is included in the contractor bidding documents.

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<sup>8</sup> For estimation of income loss by these households, the census team collected information on average annual income of the affected HHs from different sources including farming from all the land owned as well as from the *ailani* land. Total land requirement for each PRTW was available from the GIS overlay on the old cadastral map. As all the affected HHs were not identified in the GIS overlay, census team first estimated the government land available at each PRTW site with help of the local community and subsequently the gross total non-government land (private and *ailani*) required at each PRTW was estimated leaving out the government land available. This land required at the site was apportioned by the local community among the HHs required to donate land use right according to the total size of the land parcel that is affected. Income loss to the affected HHs is estimated by applying this loss of land to the total land owned by the HH and apportioning the percentage of land loss to the income from farming by the HHs. An estimation of Loss of Income by affected HHs and their vulnerability by category is provided in **Appendix 5**.

## 2. Socio-economic Information and Profile of Affected Persons

51. A baseline socio economic survey was conducted covering 100% of the affected households: total 73 affected households. Key findings of the survey are summarized in the section below.

### Demographic Characteristics

#### (i) Household and Population

52. Total population of the 73 affected households is 373 with 184 (49.33%) male and 189 (50.67%) females, with an average household size of 5.12 people.

#### (ii) Households by Caste and Ethnicity

53. There are two major ethnic groups in the project districts (Kailali and Kanchanpur). They are “Tharu” also known as Chaudhari, Rana Tharu, Dagaura Tharu and the hill community broadly known as “Pahadiyas” (including Brahmins, Chhetries, and other schedule caste population). The census data presented in **Table 12** shows that the proportion of indigenous people is higher both among private landholders as well as *Ailani* land occupants along the Mohana-Khutiya basin. Percentage of indigenous people among the 13 private landowners is 92.31 percent and among the *Ailani* land occupiers it was 70%.

**Table 12: Composition of HHs by Caste and Ethnic Groups**

Caste and Ethnic Group	HH having Private Land in the project Area and also other places		HHs Owning <i>Ailani</i> Land	
	No	%	No	%
Ethnic minority/indigenous (Chaudhari, Rana Tharu, Dagaura Tharu)	12	92.31	42	70
Brahmin Chhetries and others (1 Bhagat)	1	7.68	17	28.33
Dalit and Disadvantaged	-	-	1	1.67
<b>Total</b>	<b>13</b>	<b>100.00</b>	<b>60</b>	<b>100.00</b>

Source: Census Survey, July 2019

#### (iii) Literacy and Educational Attainments

54. Illiterates (77 nos.) comprised 20.6% of the total population. Among the literates 262 nos. (88.51%) were educated maximum up to high school level. Only 6 nos (2.03%) were educated up to bachelors and above. **Table 13** provides details of the level of education among the family members of affected households.

**Table 13: Educational Status of the Affected Households**

S.N.	Educational Status	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	27	14.7	50	26.5	77	20.6
2	Literate	15	8.2	30	15.9	45	12.1
3	Primary	43	23.4	27	14.3	70	18.8
3	Lower Secondary	47	25.5	34	18.0	81	21.7
4	High School	35	19.0	31	16.4	66	17.7
5	10+ 2	14	7.6	14	7.4	28	7.5
6	Bachelor	2	1.1	3	1.6	5	1.3
7	Master and Above	1	0.5	0	0.0	1	0.3
<b>Total</b>		<b>184</b>	<b>100.0</b>	<b>189</b>	<b>100.0</b>	<b>373</b>	<b>100.0</b>

Source: Census Survey, July 2019

(iv) **Average Landholding Size**

55. The average landholding size of the 73 affected households is 0.80 Kattha (270.40 sqm). Majority households (44 HHs – 60.3%) had landholding size less than 0.5 Kattha (87.88 sqm), followed by 16 HHs (21.9%) owning land between 0.5 to 1 Katha. Only 13 out of the 73 HHs (17.8%) owned land above 1 Kattha. **Table 14** provides a summary of the landholding sizes of the affected households.

**Table 14: Average landholding size of affected HHs**

SN	Land Holding on Ranges	Households		Average Landholding Size	
		No.	%	Kattha	Sqm
1	< 0.5 Kattha	44	60.3	0.26	87.88
2	0.5 - 1 Kattha	16	21.9	0.72	243.36
3	1-1.5 Kattha	3	4.1	1.42	479.96
4	1.5-2 Kattha	2	2.7	1.97	665.86
5	2- 5 Kattha	7	9.6	2.93	990.34
6	> 5 Kattha	1	1.4	7.15	2416.70
<b>Overall</b>		<b>73</b>	<b>100.0</b>	<b>0.80</b>	<b>270.4</b>

Source: Census Survey, July 2019

(v) **Major Occupation**

56. Agriculture was reported as the major occupation of most households (106 nos-28.4%) followed by skilled labor (10.5%), wage labor (4%), overseas employment (6.4%) and service (2.4%). Students comprised 110 nos (29.5%) and 37 nos (9.9%) were housewives. Table 15 presents the occupation wise distribution of the affected HH members.

**Table 15: Major Occupation of Affected HHs**

S.N.	Occupations	Male		Female		Total	
		No	%	No	%	No	%
1	Agriculture	43	23.4	63	33.3	106	28.4
2	Student	49	26.6	61	32.3	110	29.5
3	Skilled Labour	35	19.0	4	2.1	39	10.5
4	Housewife		0.0	37	19.6	37	9.9
5	Overseas	23	12.5	1	0.5	24	6.4
6	Business	9	4.9	9	4.8	18	4.8
7	Wage Labour	12	6.5	3	1.6	15	4.0
8	Service	8	4.3	1	0.5	9	2.4
9	Teaching	1	0.5	1	0.5	2	0.5
10	Others	4	2.2	9	4.8	13	3.5
<b>Total</b>		<b>184</b>	<b>100.0</b>	<b>189</b>	<b>100.0</b>	<b>373</b>	<b>100.0</b>

Source: Census Survey, July 2019

(vi) **Ownership of Household Assets/Amenities**

57. All the affected households have their own houses for residential purpose. Ownership of bicycle, fan/cooler, and cell/mobile among the 73 HHs was 86.3%, 82.2%, and 89.0% respectively. About 26% households owned motor bike/scooter while 34% households have television in the house. Table 16 presents ownership of household amenities by the affected HHs.

**Table 16: Major Assets/Amenities Owned by the Affected Households**

S.N.	Type of HH Amenities	Total	
		No.	%
1.	Own Residential House	73	100
2.	Bicycle	63	86.3
3.	Motorbike/scooter	19	26.0
4.	Motor Car	0	0.0
5.	Jeep/van/Truck/Tractor	1	1.4
6.	Tempo	0	0.0
7.	TV	25	34.2
8.	Invertors	3	4.1
9.	Solar Panel	3	4.1
10.	Drinking-Water Tank	2	2.7
11.	Fan/cooler	60	82.2
12.	Cell/Mobile	65	89.0
13.	House on rent	0	0.0
14.	Other assets gave on rent (e.g. land, transport etc)	0	0.0
15.	Have land in other places	8	11.0

Source: Census Survey, July 2019

(vii) **Households Income and Expenditure**

58. Farming, service, wage earnings, foreign remittance, and small business are the major sources of household income. Average annual income from all sources works out to NPR 223,095. Income from farming contributes 21.54 percentage of the average annual income followed by foreign remittance (15.01%), wage earnings (33.92%), sell of animals (36.39%) and so on. Table 17 provides source wise average share the annual household income.

**Table 17: Average Annual Income of the Interviewed Households**

S.N.	Sources of Income	Average Annual Income	
		Income (NPR)	Percentage
1	Farming	48,055	21.54
2	Service	29,726	13.32
3	Business/Small Industry	26,780	12
4	Wage earnings	75,685	33.92
5	Foreign Remittance	33,493	15.01
6	Interest	-	-
7	Rent received by renting house/ land etc	-	-
8	Sell of animal	8,041	36.39
9	Sell of Milk	-	-
10	Social Security Allowance	1,315	0.5
	<b>Overall HH Income</b>	<b>223,095</b>	<b>100.00</b>

Source: Census Survey, July 2019

59. The average annual expenses of the households are NPR **170,767** which is less than the average annual household income with an average surplus of NPR. 52,328. Major heads of expenses are food items (45.84%) followed by education (12.31%), celebrating festivals (12.70%), clothing (10.96%), and health care (7.25%). Table 18 provides breakdown of the average annual expenditures of the interviewed households.

**Table 18: Average Annual Expenditure of the Affected HHs**

S.N.	Expenditure Items	Average Annual Expenditure NPR	
		Expenditure (NPR)	Percentage
1	Food	78287	45.84%
2	Education	21027	12.31%
3	Health Care	12383	7.25%
4	House Repair	8000	4.68%
5	Clothing	18726	10.96%
6	Festivals	21685	12.70%
7	Sending family member abroad	3424	2.00%
8	Loan/Interest Repayment	7235	4.24%
9	Other Specify	-	-
<b>Overall HH Expenditure</b>		<b>170,767</b>	<b>100.00</b>

Source: Census Survey, July 2019

#### a. Vulnerable Households

60. ADB guidelines considers; indigenous people, Dalit (including schedule caste) people, households headed by senior members, single women headed households, households with physically handicapped person, and Below Poverty Level (BPL) HHs as vulnerable. Similarly, these categories of households have also been classified under constitution of Nepal. In Nepal, the standard method of calculating BPL has been determined by Central Bureau of Statistics (CBS) under the National Planning Commission (NPC). As per NPC/CBS<sup>9</sup> 2011 an individual in Nepal is considered poor if his/her per-capita total annual consumption is below NPR 19,261. The socio-economic survey recorded one of the 73 affected HHs falling below this criterion to be termed as Below Poverty Line (BPL).

61. **Table 19** presents distribution of affected HHs by vulnerability types.

**Table 19: HHs by Vulnerability Type****Table 19: HHs by Vulnerability Type (MOHANA-KHUTIYA)**

S.N.	Vulnerability Type	Existing	
		No. of HH	%
1	Below Poverty Line Households	1	1.37
2	IP Households	55	75.34
3	Dalit Households	1	1.37
4	HHs headed by senior citizens (>65 Years old)	12	16.44
5	Women Headed Households	3	4.11
6	Households with Disable Persons	1	1.37
7	Households having more than one vulnerability	-8	-10.96
8	<b>Total Vulnerable Households (All 73 Interviewed HHs)</b>	<b>73</b>	<b>100.00</b>

Source: Census Survey, July 2019

<sup>9</sup> National Planning Commission/Central Bureau of Statistics

### 3. Gender Impacts and Mitigation Measures

62. Among the affected HHs due to the project three female-headed households have been identified to have their land in the construction sites. Discussions carried out with the affected families and local communities showed concerns relating to gender inclusiveness in the project design and mitigation of adverse impacts especially to women. The concerns specifically related to access to river and use of natural resources (river water), extracting materials from the river (e.g. boulders, sand etc) embankment safety, employment opportunity during construction and post-construction phases.

63. The project is categorized as 'Effective Gender Mainstreaming' and a Gender and Social Inclusion (GESI) Plan has been prepared for the project. The DWRI will be responsible for overseeing the timely and appropriate implementation of the GESI and any other technical assistance or grant-related funds/activities that may be mobilized for the project to optimize social and gender benefits. All consultative and participatory processes will be followed socially and gender inclusively, ensuring timely disclosure of information, and providing a platform for open, fair and transparent dialogue and communication.

#### B. Mawa – Ratuwa Sub Project

##### 1. Field Work

64. The social safeguards team carried out fieldwork at Mawa-Ratuwa basin from 20 August to 29 August 2019. During the site visit, the team carried out social safeguard assessments in the locations of all the proposed PRTWs. Stakeholder consultations were held with the local community (project beneficiaries) residing near each construction site followed by the census of affected families having land in the construction sites and collection of socioeconomic information of HHs.

65. Prior to conducting community sessions, DWRI engineers with assistance from the ward representatives, contacted persons owning/occupying land at the proposed embankment construction sites. Various sections/groups of the local community including persons representing different caste and the ethnic groups, indigenous people, women, etc participated in the consultation meetings held at all construction sites.

66. At the start of the field activities, the social consultants and the census team walked along the proposed embankment sites with a group of 5 to 10 local community members comprising the ward representative, persons having land in the construction sites and DWRI engineer. Ground verification of affected plot/ land parcel and its owners/occupants was conducted during the walk using data from GIS overlays on cadastral maps and other local information. It was observed that the cadastral maps were not updated and not matching in some cases with the GIS overlays; also, there were other persons having land in the construction site but have not been formally mapped in the cadastral. Two types of affected persons were identified during these walks: (i) persons with formal land title having 'lal purja'. Some of them were





already mapped and some have not been formally mapped as the cadastral maps were not updated, and (ii) persons without formal land title but are occupying Government/ Ailani land for agricultural activity that is likely to be affected.

67. The Social Development consultants with support of the DWRI engineer and Ward representative held consultations with the local community. Initially, the community was informed about the proposed project works, its benefits and the need for voluntary permission for use of land. It was followed by collection of key socio economic baseline information of the construction sites (e.g. information of HHs size, major caste and ethnic composition of the population including *Dalit*, ethnic and disadvantaged groups, major occupation, information on flood and associated impacts and its management etc). They were also informed that the embankment would be used for road access to their agriculture fields and constructed in a way convenient to river access with provision of the ramp and other facilities depending upon the location and size of the embankment. The community consultation meetings were concluded after signing the minutes and attendance record of each participant including local Government representative (e.g. mayor/chairperson of rural municipality/ ward members and DWRI engineer). Each signed document was officially attested by the relevant Government organizations in the project district. Among others the minute contained texts in Nepali on willingness to voluntarily donate land use right for the land at the embankment site to the project. The text was read out loudly to the community for their easy understanding.

68. The census team however, could not collect complete information from all the households likely to have their private land in the proposed embankment sites as there were some absentees and some of the land parcels were not matching with the GIS overlay on the cadastral maps that are not updated. In such cases, information regarding land parcels affected and consent for VDLUR at community level was collected with the support of local government representatives and the local community. **Appendix- 2** provides a sample English translation of the text read to the community.

69. In total 15 community consultation sessions were organized, one at each PRTW location. Locations of the consultation meetings and number of participants in the meetings is presented in **Table 20**.

**Table 20: Community Consultation Meetings and Participants**

S.N.	Name of Place	District	Municipality /Village Palika	PRTW No	No. of Participants
1	Chapramari Bazaar	Jhapa	Gauradaha Municipality-5	01	37
2	Mangalbare Satmedi	Jhapa	Ratuwa Mai Municipality	02	34
3	Dumse	Jhapa	Damak Municipality-3	03	54
4	Shanti Tole	Morang	Urlabari Municipality-7	04	16
5	Tapu	Morang	Urlabari Municipality-1&7	5A,5B	23
6	Borderline	Morang	Urlabari Municipality-9	7	42
7	Chaukighat	Jhapa	Ratuwamai Municipality-3	8	27
8	Pragati Tole	Jhapa	Damak Municipality-2	9a,9b	44
9	Buddha Tole	Jhapa	Damak Municipality-1	9c	49
10	Srijana Tole	Jhapa	Damak Municipality-7	9D	50
11	Magar Tole	Jhapa	Damak Municipality-3	10	14
12	Mahesh Chowk	Morang	Miklajung Rural Municipality-9	11	52
13	Panchghare Tole	Jhapa	Damak Municipality-10	12	18
14	Khayar Bari	Jhapa	Kamal Rural Municipality-6	12L	21

15	Udaya Tole	Jhapa	Damak Municipality	13	15
<b>Total Number of Participants</b>					496

70. Each consultation session was attended by at least one local government personnel (ward representative) and the field engineer of DWRI. Of the total 496 participants, 272 (54.83%) were men and 224 (45.17%) were women. In terms of IP and *Dalit*; the representation of IP was 206 persons (41.53%) and 81 persons (16.33%) were Dalits. **Table 21** presents summary details of participants in the consultation meetings and Key findings of the community consultation and issues raised are summarized in **Appendix 3**.

**Table 21: Participants in Community Consultation**

S.N.	Participants	No.	% of Total Involved
<b>Participation by Gender</b>			
1	Women	224	33.97
2	Men	272	66.03
3	<b>Total</b>	<b>496</b>	<b>100.00</b>
<b>Participation by Vulnerable and Non vulnerable Groups</b>			
1	Dalit	81	16.33
2	Indigenous People	206	41.53
3	Brahmins and Other Caste Groups	209	42.14
4	<b>Total</b>	<b>496</b>	<b>100.00</b>

Source: Community Consultation Record, July-August 2019

71. The census team with the help of local representatives and community, listed names of all affected persons covering those having land at the site of the proposed embankment with officially verified land ownership certificates as well as HHs not having verified land ownership certificate including the occupants of *Ailani* land. The census team collected socioeconomic information along with the details of assets owned by administering a semi-structured questionnaire. A set of the socio-economic questionnaire is presented in **Appendix 4**.

72. The census team also collected signature of the land owner/occupant on the Memorandum of Understanding (MoU) for voluntary permission of land use right to the project and also got countersigned by representative of local Government and DWRI engineer.

## **2. Scope of Impact on Land**

### **a. Impact on Private Land**

73. The estimated area required for embankment construction in Mawa-Ratuwa basin is 118521.8 sqm<sup>10</sup>. All together 85 households were recorded to be affected by the proposed construction of 12 embankments along prioritized sections along the basin. Out of these 85 HHs, 43 HHs are private landowners. These 43 affected HHs owning private land are of two types, **type 1** having land ownership certificate (*Lal purja*) matching with the parcel number arrived through GIS overlay on the cadastral, and **type 2** private land owners who could not be verified as they were not appearing in the list arrived through GIS overlay. The remaining 42 affected HHs were occupants of *Ailani* land without formal ownership over the land (**type 3** affected HHs). Details of landowners and land parcels owned at the construction site are provided in **Appendix-5**.

<sup>10</sup> As per estimate of GIS overlay on cadastral maps

74. Of the 43 affected households having private land 18 households were of type 1 who could be verified with their land ownership certificates at PRTWs 1,2,4,6,7,10 and 12. However, all these 43 households were interviewed for collecting socio economic data and MOUs were obtained for voluntary permission of land use right to the project authorities. **Table 22** presents the types of affected HHs owning private land in Mawa-Ratuwa basin.

**Table 22:Types of Affected HHs owning private land**

S.N.	Type of Affected Private Landowners	No. of HHs
Type 1	Private Land: Ownership Verified	18
Type 2	Private Land: Ownership but could not be verified	25
<b>Total</b>		<b>43</b>

*Source: Census Survey, July 2019*

75. The affected lands are part of either remaining portions of land parcels after river erosion or land where the river was flowing earlier. Among them, some are being used for cultivation only once in a year at the owner/occupant's risk as it is uncertain when which part of the land will get affected by change in the flow of the river and some are left as fallow or abandoned for the purpose of protecting the remaining portion of the land parcel away from the river. Based on the information collected during community consultations it was evident that the increasing trend of floods and river erosion has been threatening the land put to cultivation and the residential areas in the main village habitation since the early seventies due to increased migration, deforestation and encroachment of river side area followed by practice of continuous uncontrolled and unmanaged exploitation of construction materials from the river bed. Therefore, people at all the construction sites of in Mawa-Ratuwa basin expressed strong support for the project and their willingness to voluntary permission of land use right to the project authorities. It was also revealed that the local community had submitted demand to DWRI office for construction of embankments at critical locations.

#### **b. Impact on Ailani Land**

76. During survey 42 households were identified occupying *Ailani* land at different embankment construction sites. Socio economic information as well as information on the area of occupied *Ailani* land (estimated by the respondent) was collected from all the 42 households.

77. A breakup of the affected 42 HHs by land ownership is presented in **table 23**. The data shows them to be of two categories: those owning both private and *Ailani* land, and only *Ailani* land respectively. About 50% of households having land in the construction sites belong to those who are occupying only *Ailani* land.

**Table 23:Type of Land Owned/Occupied by affected Households**

Landowners Type	No. of Owning HHs	%
Having both private and Ailani land	21	50.00
Ailani land only	21	50.00
<b>Total</b>	<b>42</b>	<b>100.00</b>

*Source: Census Survey, July 2019*

#### **c. Affected Households by Caste and Ethnicity**

78. There mixed population groups in the project districts (Morang and Jhapa). They are; indigenous groups (e.g. Tharu, Rajbansi, Dhimal, Satar, Newar, Magar, Rai, Limbu, etc) and

caste groups; (e.g. Brahmin, Chhetries, Giri/Puri/Sanyasi, Yadav, Mandal, and other schedule caste subgroups. The census data presented in **Table 24** shows that the proportion of Brahmin Chhetries and others is higher among the affected HHs. Percentage of Ethnic minority/indigenous people among affected HHs is 36.47 percent.

**Table 24: Composition HHs by Cast and Ethnic Groups**

Caste and Ethnic Group	HH having Private Land in the project Area and also other places	
	No	%
Ethnic minority/indigenous (Chaudhari, Rana Tharu, Dagaura Tharu)	31	36.47
Brahmin Chhetries and others (1 Bhagat)	48	56.47
Dalit and Disadvantaged	6	7.05
<b>Total</b>	<b>85</b>	<b>100.00</b>

*Source: Census Survey, July-August 2019*

**d. Impact on Trees**

79. **Table 25** shows that altogether 3 households reported having trees in their land at the proposed embankment sites. Among them, two households have fruit trees while one has a fodder/firewood tree.

**Table 25: Households having Trees in the Lands in Construction Sites**

S.N.	Description	Total	
		No.	%
1.	Fruit Trees	2	66.66
2.	Fodder/ firewood Trees	1	33.33
3.	Community Plantation	-	-
4.	Community Plantation	-	-
5.	Others	-	-
<b>Total</b>		<b>3</b>	<b>100</b>

*Source: Census Survey, July-August, 2019*

**e. Loss of Income**

80. During the transect walk along the proposed PRTW alignment local community members in different sections identified the government land available and households who are required to donate land use right for the project. For estimation of income loss by these households, the census team collected information on average annual income of the affected HHs from different sources including farming from all the land owned as well as from the ailani land. Total land requirement for each PRTW was available from the GIS overlay on the old cadastral map. As all the affected HHs were not identified in the GIS overlay, census team first estimated the government land available at each PRTW site with help of the local community and subsequently the gross total non-government land (private and ailani) required at each PRTW was estimated leaving out the government land available. This land required at the site was apportioned by the local community among the HHs required to donate land use right according to the total size of the land parcel that is affected. Income loss to the affected HHs is estimated by applying this loss of land to the total land owned by the HH and apportioning the percentage of land loss to the income from farming by the HHs. An estimation of Loss of Income by affected HHs and their vulnerability by category is provided in **Appendix 6**.

81. No structure or community property resources will be affected due to the project.

### 3. Socio-economic Information and Profile of Affected Persons

82. The baseline socio economic survey was conducted covering all the 85 affected households. Key findings of the survey are summarized in the section below.

#### a. Demographic Characteristics

##### (i) Household and Population

83. The total population of the 85 affected households is 443 with 235 (53.05%) male and 208 (46.95%) females. Average household size works out to 5.72.

##### (ii) Literacy and Educational Attainments

84. Illiterates (52 nos.) comprised 11.7% of the total population. Among the literates 295 nos. (66.59%) were educated maximum up to high school level. Only 33 nos (7.4%) were educated up to bachelors and above. **Table 26** provides details of the level of education among the family members of affected households.

**Table 26: Educational Status of the Interviewed Households**

S.N.	Educational Status	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	13	5.5	39	18.8	52	11.7
2	Literate	30	12.8	42	20.2	72	16.3
3	Primary	51	21.7	30	14.4	81	18.3
3	Lower Secondary	36	15.3	22	10.6	58	13.1
4	High School	49	20.9	35	16.8	84	19.0
5	10+ 2	37	15.7	26	12.5	63	14.2
6	Bachelor	12	5.1	12	5.8	24	5.4
7	Master and Above	7	3.0	2	1.0	9	2.0
<b>Total</b>		<b>235</b>	<b>100</b>	<b>208</b>	<b>100</b>	<b>443</b>	<b>100</b>

Source: Census Survey, July-August 2019

##### (iii) Average Landholding Size

85. The average landholding size of the 85 affected households is 16.09 Kattha (5712.2 sqm). Majority households (44 HHs – 60.3%) had landholding size less than 0.5 Kattha (87.88 sqm), followed by 16 HHs (21.9%) owning land between 0.5 to 1 Kattha. Only 13 out of the 73 HHs (17.8%) owned land above 1 Kattha. Table 10 provides a summary of the landholding sizes of the affected households.

**Table 27: Average landholding size of affected HHs**

SN	Land Holding on Ranges	No of HHs	Average Landholding Size	
			Kattha	Sqm
1	Less than 1 Kattha	8	0.4	135.20
2	1-1.5 Kattha	1	1	338
3	1.5-2 Kattha	0	-	-

SN	Land Holding on Ranges	No of HHs	Average Landholding Size	
			Kattha	Sqm
4	2- 5 Kattha	7	4.5	1521
5	5-10 Kattha	11	8.2	2771.6
6	10 Kattha-20 Kattha (1 Bigha)	14	15.9	5374.2
7	1 Bigha to 2 Bigha	14	31.0	10478
8	2 Bigha – 5 Bigha	27	63.4	21429.2
9	>5 Bigha	3	12.4	4191.2
<b>Overall</b>		<b>85</b>	<b>16.9</b>	<b>5712.2</b>

Source: Census Survey, July 2019

(iv) **Major Occupation**

86. Agriculture was reported as the major occupation of most households (162 nos-36.6%) followed by overseas employment (9.7%) skilled labor (4.7%), business (4.7%) and service (4.3%). Students comprised 108 nos (24.4%) and 37 nos (84%) were housewives. Table 28 presents the occupation wise distribution of the affected HH members.

**Table 28: Major Occupation of Affected HHs**

S.N.	Occupations	Male		Female		Total	
		No	%	No	%	No	%
1	Agriculture	74	31.5	88	42.3	162	36.6
2	Wage Labour	8	3.4	3	1.4	11	2.5
3	Overseas	40	17.0	3	1.4	43	9.7
4	Business	12	5.1	9	4.3	21	4.7
5	Skilled Labour	19	8.1	2	1.0	21	4.7
6	Service	13	5.5	6	2.9	19	4.3
7	Teaching	1	0.4		0.0	1	0.2
8	Student	60	25.5	48	23.1	108	24.4
9	House Wife	0	0.0	37	17.8	37	8.4
10	Others	8	3.4	12	5.8	20	4.5
<b>Total</b>		<b>235</b>	<b>100.0</b>	<b>208</b>	<b>100.0</b>	<b>443</b>	<b>100.0</b>

Source: Census Survey, July-August 2019

(v) **Ownership of Household Assets/Amenities**

87. Of the total 85 households interviewed, 84 (99%) have their own houses for residential purpose; remaining 1 household was just separated from the joint family but sharing the same house. Ownership of bicycle, fan/cooler, and cell/mobile among the 85 HHs was 75.3%, 89.4%, and 97.6% respectively. About 35% households owned motor bike/scooter while 80% households have television in the house. **Table 29** presents ownership of household amenities by the affected HHs.

**Table 29: Major Assets/Amenities Owned by the Affected Households**

S.N.	Type of HH Amenities	Total	
		No.	%
1.	Own Residential House	84	98.8
2.	Bicycle	64	75.3
3.	Motorbike/scooter	30	35.3
4.	Motor Car	4	4.7

S.N.	Type of HH Amenities	Total	
		No.	%
5.	Jeep/van/Truck/Tractor	1	1.2
6.	Tempo	-	-
7.	TV	68	80.0
8.	Invertors	10	11.8
9.	Solar Panel	37	43.5
10.	Drinking-Water Tank	15	17.6
11.	Fan/cooler	76	89.4
12.	Cell/Mobile	83	97.6
13.	House on rent	7	8.2
14.	Other assets gave on rent (e.g. land, transport etc)	-	-
15.	Have land in other places	23	27.1

Source: Census Survey, July-August 2019

#### (vi) Households Income and Expenditure

88. Foreign remittance, wage earnings, farming, service and business are the major sources of household income. Average annual income from all sources works out to NPR 352762. Income from foreign remittance contributes 36.63 percentage of the average annual income followed by wage earnings (17.72%), farming (13.99%), service (12.99%) and business (9.54%). **Table 30** provides source wise average share the annual household income.

**Table 30: Average Annual Income of the Interviewed Households**

S.N.	Sources of Income	Average Annual Income	
		Income (NPR)	Percentage
1	Farming	49,365.00	13.99
2	Service	45,835.00	12.99
3	Business/Small Industry	33,647.00	9.54
4	Wage earnings	62,529.00	17.72
5	Foreign Remittance	129, 223.000	36.63
6	Interest	-	
7	Rent received by renting house/ land etc	-	
8	Sell of animal	16,658.00	4.72
9	Sell of Milk	12,000.00	3.40
10	Social Security Allowance	3,505.00	0.99
<b>Overall HH Income</b>		<b>352762.00</b>	<b>100.00</b>

Source: Census Survey, July 2019

89. The average annual expenses of the households are NPR 233343 which is less than the average annual household income with an average surplus of NPR. 119419. Major heads of expenses are food items (40.15%) followed by celebrating festivals (13.9%), education (12.5%), clothing (10.56%), and health care (7.36%). **Table 31** provides breakdown of the average annual expenditures of the interviewed households.

**Table 31: Average Annual Expenditure for the Interviewed HHs**

S.N.	Expenditure Items	Average Annual Expenditure NPR	
		Expenditure (NPR)	Percentage
1	Food	93,695.00	40.15
2	Education	29,176.00	12.50

3	Health Care	17,188.00	7.36
4	House Repair	6,059.00	2.59
5	Clothing	24,659.00	10.56
6	Festivals	34,458.00	13.90
7	Sending family member abroad	12,470.00	5.34
8	Loan/Interest Repayment	15,638.00	6.70
9	Other Specify	-	-
<b>Overall HH Expenditure</b>		<b>233,343.00</b>	<b>100.00</b>

Source: Census Survey, July-August 2019

#### b. Vulnerable Households

90. ADB guidelines considers; Indigenous People (IP), Dalit (including schedule caste) people, households headed by senior members, single women headed households, households with physically handicapped person, and Below Poverty Level (BPL) HHs as vulnerable. Similarly, these categories of households have also been classified under constitution of Nepal. In Nepal, the standard method of calculating BPL has been determined by Central Bureau of Statistics (CBS) under the National Planning Commission (NPC). As per NPC/CBS<sup>11</sup> 2011an individual in Nepal is considered poor if his/her per-capita total annual consumption is below NPR 19,261. None of the HHs interviewed in Mawa Ratuwa basin fall Below Poverty Line (BPL).

91. **Table 32** presents distribution of affected HHs by vulnerability types.

**Table 32: HHs by Vulnerability Type**

S.N.	Type	No. of HH	%
1	Below Poverty Line Households	0	0.00
2	IP Households	28	32.94
3	Dalit Households	11	12.94
4	HHs headed by senior citizens (>65 Years old)	22	25.88
5	Women Headed Households	9	10.59
6	Households with Disable Persons	4	4.71
7	<b>Total Vulnerable HHs (out of 85 Interviewed HHs)</b>	<b>74</b>	<b>87.06</b>

Source: Household Survey of Affected HHs, Jul-Sep, 2019

Source: Household Survey of Affected HHs, Jul-Sep, 2019

## 4. Gender Impacts and Mitigation Measures

92. Among the affected HHs due to the project twelve female-headed households have been identified to have their land in the construction sites. Discussions carried out with the affected families and local communities showed concerns relating to gender inclusiveness in the project design and mitigation of adverse impacts especially to women. The concerns specifically related to access to river and use of natural resources (river water), extracting materials from the river (e.g. boulders, sand etc) embankment safety, employment opportunity during construction and post-construction phases.

<sup>11</sup> National Planning Commission/Central Bureau of Statistics



93. The project is categorized as 'Effective Gender Mainstreaming' and a Gender and Social Inclusion (GESI) Plan has been prepared for the project. The DWRI will be responsible for overseeing the timely and appropriate implementation of the GESI and any other technical assistance or grant-related funds/activities that may be mobilized for the project to optimize social and gender benefits. All consultative and participatory processes will be followed socially and gender inclusively, ensuring timely disclosure of information, and providing a platform for open, fair and transparent dialogue and communication.

## C. West Rapti Sub project

### 1. Field Work

94. The social safeguard team visited the West Rapti basin from Jul 29- Aug 7, 2019 for the field works. During the site visit, the team carried out social safeguard assessments in the locations of all the proposed PRTWs. Stakeholder consultations were held with the local community (project beneficiaries) residing near each construction site followed by the census of affected families having land in the construction sites and collection of socioeconomic information of HHs.

95. Prior to conducting community sessions, DWRI engineers with assistance from the ward representatives, contacted persons owning/occupying land at the proposed embankment construction sites. Various sections/groups of the local community including persons representing different caste and the ethnic groups, indigenous people, women, etc participated in the consultation meetings held at all construction sites.

96. At the start of the field activities, the social consultants and the census, the team walked along the proposed embankment with a group of 5 to 10 local community members comprising the ward representative, persons having land in the construction sites and DWRI engineer. Ground verification of affected plot/ land parcel and its owners/occupants was conducted during the walk using data from GIS overlays on cadastral maps and other local information. It was observed that the cadastral maps were not updated and not matching in some cases with the GIS overlays; also there were other persons having land in the construction site but have not been formally mapped in the cadastral. Two types of affected persons were identified during these walks i) persons with formal land title having 'lal purja'. Some of them were already mapped and some have not been formally mapped as the cadastral maps were not updated ii) persons without formal land title but are occupying Government/ Ailani land for agricultural activity that is likely to be affected.



97. The Social Development consultants with support of the DWRI engineer and Ward representative held consultations with the local community. Initially, the community was informed about the proposed project works, its benefit and the need for voluntary permission for use of land. It was followed by collection of key socio economic baseline information of the construction sites (e.g. information of HHs size, major caste and ethnic composition of the population including *Dalit*, ethnic and disadvantaged groups, major occupation, information on flood and associated impacts and its management etc). They were also informed that the embankment would be used for road access to their agriculture fields and constructed in a way convenient to river access with provision of the ramp and other facilities depending upon the location and size of the embankment. The community consultation meetings were concluded after signing the minutes and attendance record of each participant including local Government representative (e.g. mayor/chairperson of rural municipality/ ward members and DWRI engineer). Each signed document was officially attested by the relevant Government organizations in the project district.



Among others the minute contained texts in Nepali on willingness to voluntarily donate land use right for the land at the embankment site to the project. The text was read out loudly to the community for their easy understanding.

98. The census team however, could not collect complete information from all the households likely to have their private lands in the proposed embankment sites as there were some absentees and some of the land parcels were not matching with the GIS overlay on the cadastral maps that are not updated. In such cases, information regarding land parcels affected and consent for VLUDR at community level was collected with the support of local government representatives and the local community. **Appendix- 2** provides a sample English translation of the text read to the community.

99. In total, 10 community consultation sessions were organized, one at each PRTW location except in the location of PRTW 04 where local people denied for responsive participation and to sign in the community consultation session and other associated activities (e.g signing on meeting minute, interviewing with the people having land in the construction site, preparation of memorandum of understanding for voluntary land use right, etc) expressing their disagreement for the proposed embankment location below the Rapti bridge. Location of the consultation meetings and number of participants in the meetings is presented in **Table 33**.

**Table 33: Community Consultation Meetings and Participants**

S.N.	Name of Place	District	Municipality /Village Palika	PRTW No	No. of Participants
1	Kothati	Dang	Gadhwa Village Palika-3	01 <sup>a</sup>	13
2	Mahadeva	Dang	Gadhwa Village Palika—2	01 <sup>a</sup>	18
3	Pachaha	Dang	Gadhwa Village Palika-2	02 <sup>a</sup>	15
4	Khadgapur	Dang	Gadhwa Village Palika-4	02 <sup>a</sup>	23
5	Parsiya	Dang	Gadhwa Village Palika-5	03	67
6	Semrahawa	Dang	Lamahi-4	04	NA <sup>b</sup>
7	Butkauwa	Dang	Lamahi-4	04	21
8	Dhikpur	Dang	Lamahi-7	05	12
9	Kanchhi Gaun	Dang	Gadhwa-7	06	29
10	Kanchhi Gaun	Dang	Rapti Sonari-2	07 <sup>a</sup> +08	20
<b>Total Number of Participants</b>					<b>218</b>

Source: Census Survey July 2019

<sup>a</sup>PRTW will not be funded under ADB project (after not passing ADB economic threshold)

<sup>b</sup>Minutes not signed by participants.

100. Each consultation session was attended by at least one local government personnel (ward representative) and the field engineer of DWRI. Of the total 218 participants, 48 (22.02%) were women and 170 (77.98%) were men. In terms of IP and *Dalit*; the representation of IP was 194 persons (88.99%) and 1 person (0.42%) was *Dalit*. **Table 34** presents summary details of participants in the consultation meetings and Key findings of the community consultation and issues raised are summarized in **Appendix 3**

**Table 34: Summary of Participants in Community Consultations**

S.N.	Participants	No.	% of Total Participants
<b>Participation by Gender</b>			
1	Women	48	22.02
2	Men	170	77.98
3	<b>Total</b>	<b>218</b>	<b>100.00</b>
<b>Participation by Vulnerable and Non-vulnerable Groups</b>			
1	Dalit	1	0.42
2	Indigenous People	194	88.99
3	Brahmins and Other Caste Groups	22	10.09
4	<b>Total</b>	<b>218</b>	<b>100.00</b>

Source: Community Consultation Record, July-August 2019

101. The census team with the help of local representatives and community listed names of all affected persons covering those having land at the site of the proposed embankment with officially verified land ownership certificates as well as HHs not having verified land ownership certificate including the occupants of *Ailani* land. The census team collected socioeconomic information along with the details of assets owned by administering a semi-structured questionnaire. A set of the socio-economic questionnaire is presented in **Appendix 4**.

102. The census team also collected signature of the land owner/occupant on the Memorandum of Understanding (MoU) for voluntary permission of land use right to the project and also got countersigned by representative of local Government and DWRI engineer.

## **2. Scope of Impact on Land**

### **a. Impact on Private Land**

103. The estimated area required for embankment construction in West Rapti basin is 203508.4 sqm<sup>12</sup>. All together 170 households were recorded to be affected by the proposed construction of embankments in the basin. Out of these 170 HHs, 89 HHs are private land owners located at PRTW no. 1, 2, 3, 6, 7 and 8. These 89 affected HHs owning private land are of two types, **type 1** having land ownership certificate (*Lal purja*) matching with the parcel number arrived through GIS overlay on the cadastral, and **type 2** private land owners who could not be verified as they were not appearing in the list arrived through GIS overlay. Rest 81 affected HHs are occupants of *Ailani* land without formal ownership over the land (**type 3** affected HHs).

104. Of the 89 affected households having private land 74 households were of type 1 whose ownership certificates could be verified and the rest 15 HHs were of type 2 whose ownership certificates could not be verified. However, all these 89 households were interviewed for collecting socio economic data and MOUs were obtained for voluntary permission of land use right to the project authorities. Of the 89 private landowners 79 persons are male and 10 are women. **Table 35** presents the types of affected HHs owning private land and **Table 36** presents location wise verified number of private landowners in West Rapti basin.

<sup>12</sup> As per estimate of GIS overlay on cadastral maps

**Table 35: Types of Affected HHs owning private land**

Types of Identified Land in the Construction Sites	No. of HHs Having Land	%
Ownership Verified Private Land	74	83.15
Private Land Required Ownership Verification	15	16.85
Total	89	100.00

Source: Census Survey, July – August 2019

**Table 36: Distribution of HHs by Number of Verified Land in Locations**

PRTW No	Location	No. of HHs with Verified Land	%
PRTW-1 <sup>a</sup>	Gadhwa	49	66.22
PRTW-2	Gadhwa:Khadgapur	9	12.16
PRTW-3	Gadhwa:3 Lokharpur	3	4.05
PRTW-6	Gadhwa_Kanchi Gaun	8	10.81
PRTW-7 <sup>a</sup> & 8	Kachanapur	5	6.76
Sub Total of Ownership Verified HHs		74	83.15
Ownership Not verified HHs		15	16.85
Total Interviewed HHs Having Private Land		89	100

Source: Census Survey, July – August 2019

<sup>a</sup>PRTW will not be funded under ADB project (after not passing ADB economic threshold)

105. The affected lands are part of either remaining portions of land parcels after river erosion or land where the river was flowing earlier. Among them, some are being used for cultivation only once in a year at the owner/occupant's risk as it is uncertain when and which part of the land will get affected by change in the river flow and some are left as fallow or abandoned for the purpose of protecting the remaining portion of the land parcel which are away from the river. Based on the information collected during community consultations it was evident that the increasing trend of floods and river erosion has been threatening the land put to cultivation and the residential areas in the main village habitation since the early seventies due to increased migration, deforestation and encroachment of river side area followed by practice of continuous uncontrolled and unmanaged exploitation of construction materials from the river bed. Therefore, people at all the proposed construction sites in West Rapti basin except at PRTW 4 expressed strong support for the project and their willingness to voluntary permission of land use right to the project authorities. The local community at the location of PRTW 4 had submitted demand to DWRI office for construction of embankment at a location closer to the river.

#### **b. Impact on Ailani Land**

106. During survey 81 households were identified occupying *Ailani* land at different embankment construction sites. **Appendix 5** provides detailed list of the 81 HHs. Socio economic information as well as information on the area of occupied *Ailani* land (estimated by the respondent) were collected from these households.

107. A breakup of the affected 81 HHs by land ownership is presented in **Table 37**. The data shows them to be of two categories: those owning both private and *Ailani* land, and others only *Ailani* land. About 35% of households having land in the construction sites belong to those who are occupying only *Ailani* land.

**Table 37: Type of Land Owned/Occupied by affected Households**

Landowners Type	No. of HHs	%
Occupying only Ailani land	28	34.57
Having both private and Ailani land	53	65.43
Total	81	100.00

Source: Census Survey, July 2019

**c. Land Owning/Occupying Households by Caste and Ethnicity**

108. There are two major ethnic groups in the project basin area; namely “Tharu” also known as Chaudhari, and the hill community broadly known as “Pahadiyas”. The census data presented in **Table 38** shows that the proportion of indigenous people is higher both among private landholders as well as Ailani land occupants. Percentage of indigenous people among the 89 private landowners is 97.7% and among the Ailani land occupiers it was 97.53%.

**Table 38: Composition of HHs by Caste and Ethnic Groups**

Caste and Ethnic Group	HH having Private Land in the project Area		HHs Owning Ailani Land	
	No	%	No	%
Ethnic minority/indigenous (Chaudhari/Tharu)	87	97.7	79	97.53
Brahmin Chhetries	2	2.3	2	2.47
<b>Total</b>	<b>89</b>	<b>100.00</b>	<b>81</b>	<b>100.00</b>

Source: Census Survey, July-August 2019

**d. Impact on Tree**

109. **Table 39** shows that altogether 4 households reported having trees in their land at the proposed embankment sites.

**Table 39: Households having Trees in the Lands in Construction Sites**

S.N.	Description	No.	%
1.	Fruit Trees	4	100
2.	Fodder/ firewood Trees	-	-
3.	Community Plantation	-	-
4.	Community Plantation	-	-
5.	Others	-	-
<b>Total</b>		<b>4</b>	<b>100</b>

Source: Census Survey, July-August 2019

**e. Loss of Income**

110. During the transect walk along the proposed PRTW alignment local community members identified the government land available and households who are required to donate land use right for the project. For estimation of income loss by these households, the census team collected information on average annual income of the affected HHs from different sources including farming from all the land owned as well as from the ailani land. Total land requirement for each PRTW was available from the GIS overlay on the old cadastral map. As all the affected

HHs were not identified in the GIS overlay, census team first estimated the government land available at each PRTW site with help of the local community and subsequently the gross total non-government land (private and ailani) required at each PRTW was estimated leaving out the government land available. This land required at the site was apportioned by the local community among the HHs required to donate land use right according to the total size of the land parcel that is affected. Income loss to the affected HHs is estimated by applying this loss of land to the total land owned by the HH and apportioning the percentage of land loss to the income from farming by the HHs. An estimation of Loss of Income by affected HHs and their vulnerability by category is provided in **Appendix 6**.

111. No structure or community property resources will be affected due to the project.

### 3. Socio-economic Information and Profile of Affected Persons

112. The baseline socio economic survey was conducted covering all the 170 households. Donating land use right for project. Key findings of the survey are summarized in the section below.

#### a. Demographic Characteristics

##### (i) Household and Population

113. The total population of the 170 affected households is 908 with 470 (51.76%) male and 438 (48.24%) females. Average household size works out to 5.34.

##### (ii) Literacy and Educational Attainments

114. Illiterates (160 nos.) comprised 17.6% of the total population. Among the literate population, 209 persons (23%) have obtained education only up-to primary level and another 176 persons (19.4%) have acquired education up-to lower secondary level. The population obtaining their education up-to high school and above is 26.3%. Table 40 provides details of the level of education among the family members of affected households.

**Table 40: Educational Status of the Affected Households**

S.N.	Educational Status	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	57	12.1	103	23.5	160	17.6
2	Literate	49	10.4	76	17.4	125	13.8
3	Primary	117	24.9	92	21.0	209	23.0
3	Lower Secondary	111	23.6	65	14.8	176	19.4
4	High School	83	17.7	61	13.9	144	15.9
5	10+ 2	32	6.8	27	6.2	59	6.5
6	Bachelor	16	3.4	13	3.0	29	3.2
7	Master and Above	5	1.1	1	0.2	6	0.7
<b>Total</b>		<b>470</b>	<b>100.0</b>	<b>438</b>	<b>100.0</b>	<b>908</b>	<b>100.0</b>

Source: Census Survey, July 2019

##### (iii) Average Landholding Size

115. The average landholding size of the 170 affected households is 32.7 Kattha (1268.76 sqm). Majority households (74 HHs – 43.53%) had average landholding size of 10 kattha

followed by 41 HHs (24.11%) owning average land between 1 to 2 bigha. Table 41 provides a summary of the landholding sizes of the affected households.

**Table 41: Average landholding size of affected HHs**

S.N.	Average Land Holding on Ranges	No. of HHs	Average Landholding Size	
			In Kattha	In sqm
1	Less than 1 Kattha	1	0.4	15.52
2	1-1.5 Kattha	2	1.2	46.56
3	1.5-2 Kattha	2	2	77.6
4	2- 5 Kattha	9	3.6	139.68
5	5-10 Kattha	22	8.5	329.8
6	10 Kattha 20 Kattha (1 Bigha)	74	15.6	605.28
7	1 Bigha-2 Bigha	41	29.4	1140.72
8	2 Bigha-.5 Bigha	12	64.2	2490.96
9	>5 Bigha	7	312.1	12109.48
<b>Total</b>		<b>170</b>	<b>32.7</b>	<b>1268.76</b>

Source: Census Survey, July-August 2019

(iv) **Major Occupation**

116. Only 630 out of the 908 persons in affected HHs are involved in income-generating activities while the rest were students, housewives or senior citizen. Agriculture was reported as the major occupation of most households (391 nos- 43.1%) followed by skilled labor (8.3%), service (6.6%), wage labor (6.3%), business (2.9%). Students comprised 213 nos (23.5%) and 34 nos (3.7%) were housewives. Table 42 presents the occupation wise distribution of the affected HH members.

**Table 42: Major Occupation of Affected HHs**

S.N.	Occupations	Male		Female		Total	
		No	%	No	%	No	%
1	Agriculture	149	31.7	242	55.3	391	43.1
2	Wage Labour	41	8.7	16	3.7	57	6.3
3	Overseas	22	4.7	1	0.2	23	2.5
4	Business	17	3.6	9	2.1	26	2.9
5	Skilled Labour	70	14.9	5	1.1	75	8.3
6	Service	45	9.6	15	3.4	60	6.6
7	Teaching	2	0.4	2	0.5	4	0.4
8	Student	110	23.4	103	23.5	213	23.5
9	House Wife	0	0.0	34	7.8	34	3.7
10	Others	14	3.0	11	2.5	25	2.8
<b>Total</b>		<b>470</b>	<b>100.0</b>	<b>438</b>	<b>100.0</b>	<b>908</b>	<b>100.0</b>

Source: Census Survey, July 2019

(v) **Ownership of Household Assets/Amenities**

117. Of the total 170 households interviewed, 169 (99.4%) have their own houses for residential purpose; remaining 1 household was just separated from the joint family but sharing the same house. Ownership of bicycle, fan/cooler, and cell/mobile among the 170 HHs was 86.5%, 89.4%, and 95.3% respectively. About 16% households owned motor bike/scooter while



32% households have television in the house. Table 43 presents ownership of household amenities by the affected HHs.

**Table 43: Major Assets/Amenities Owned by the Affected Households**

S.N.	Type of HH Amenities	Total	
		No.	%
1.	Own Residential House	169	99.4
2.	Bicycle	147	86.5
3.	Motorbike/scooter	27	15.9
4.	Motor Car	1	0.6
5.	Jeep/van/Truck/Tractor	9	5.3
6.	Tempo	1	0.6
7.	TV	55	32.4
8.	Invertors	6	3.5
9.	Solar Panel	7	4.1
10.	Drinking-Water Tank	11	6.5
11.	Fan/cooler	152	89.4
12.	Cell/Mobile	162	95.3
13.	House on rent	1	0.6
14.	Other assets gave on rent (e.g. land, transport, etc)		
15.	Have land in other places	16	21.9

Source: Census Survey, July–August 2019

(vi) **Households Income and Expenditure**

118. Farming, wage earnings, sell of animals, service and small business are the major sources of household income. Average annual income from all sources works out to NPR 2,30,920. Income from wage earning contributes 30.66 percentage of the average annual income followed by service (27.2%), farming (23.34%) and small business (8.47%). Table 44 provides source wise average share the annual household income.

**Table 44: Average Annual Income of the Affected Households**

S.N.	Sources of Income	No. of Reported Households	Average Annual Income NPR	%
1	Farming	166	53,906	23.34
2	Service	58	62,812	27.20
3	Business/Small Industry	22	19,558	8.47
4	Wage earnings	106	70,802	30.66
5	Foreign Remittance	11	10,647	4.61
6	Interest	-		
7	The rental amount received by renting House/ land etc	-	-	-
8	Sell of animal	68	10,877	4.71
9	Sell of Milk	5	1,000	0.43
10	Social Security Allowance	5	1,318	0.57
<b>Overall</b>		<b>170</b>	<b>2,30,920</b>	<b>100.00</b>

Source: Census Survey, July-August 2019

119. The average annual expenses of the households are NPR 1,88,161 which is less than the average annual household income with an average surplus of NPR. 42,759. Major heads of

expenses are food items (38.98%) followed by celebrating festivals (14.21%), education (13.78%), clothing (12.75%), and health care (6.67%). Table 45 provides breakdown of the average annual expenditures of the interviewed households.

**Table 45: Average Annual Expenditure for the Affected HHs**

S.N.	Expenditure Items	No. of Reported Households	Average Annual Expenses of the HHs NPR
1	Food	170	73,341
2	Education	129	25,926
3	Health Care	169	12,556
4	House Repair	17	9,747
5	Clothing	170	23,982
6	Festivals	170	26,732
7	Sending family member abroad	3	7,141
8	Loan/Interest Repayment	56	8,736
9	Other Specify	-	0
	<b>Overall</b>	-	188,161

Source: Census Survey, July-August 2019

#### **b. Vulnerable Households**

120. ADB guidelines considers; Indigenous People (IP), Dalit (including schedule caste) people, households headed by senior members, single women headed households, households with physically handicapped person, and Below Poverty Level (BPL) HHs as vulnerable. Similarly, these categories of households have also been classified under constitution of Nepal. In Nepal, the standard method of calculating BPL has been determined by Central Bureau of Statistics (CBS) under the National Planning Commission (NPC). As per NPC/CBS<sup>13</sup> 2011an individual in Nepal is considered poor if his/her per-capita total annual consumption is below NPR 19,261. The socio-economic survey recorded five of the 170 affected HHs falling below this criterion to be termed as Below Poverty Line (BPL).

121. Table 46 presents distribution of affected HHs by vulnerability types.

**Table 46: HHs by Vulnerability Type**

S.N.	Vulnerability Type	No. of HH	%
1	Below Poverty Households	5	2.94
2	IP Households	166	97.65
3	Dalit Households	0	0.00
4	HHs headed by senior citizens (>65 Years old)	27	15.88
5	Women Headed Households	18	10.59
6	Households with disable persons	4	2.35
7	HHs having more than one type of vulnerability	-52	-30.59
8	<b>Total Vulnerable HHs (out of 170 interviewed HHs)</b>	<b>168</b>	<b>98.82</b>

Source: Census Survey, July-August 2019

<sup>13</sup> National Planning Commission/Central Bureau of Statistics

### **c. Indigenous People and Project Impact:**

122. Almost all households interviewed in the West Rapti river basin area belong to the ethnic minority groups known as Tharu/Chaudhari/Dagaura etc. This community has been defined as an indigenous group by the Nepal Federation of Indigenous Nationality<sup>14</sup>. The social safeguard team had detailed discussion with ethnic households belonging to Chaudhari/Tharu community and it revealed that they have been following the same socio-economic practices that are followed by other local community members. No involuntary physical or economic displacement is anticipated as the proposed project will be constructed in the existing “buffer” zone between the cultivated areas and the riverbank that is used by the local community to access the agricultural fields including the affected land. The project will not affect traditional lands. Furthermore, the project is unlikely to impact indigenous peoples’ identity, dignity, human rights, livelihood systems, or cultural uniqueness. The project will protect their land from erosion by recurring floods and positively contribute to improve their economic condition.

### **4. Gender Impacts and Mitigation Measures**

123. Among the affected HHs due to the project three female-headed households have been identified to have their land in the construction sites. Discussions carried out with the affected families and local communities showed concerns relating to gender inclusiveness in the project design and mitigation of adverse impacts especially to women. The concerns specifically related to access to river and use of natural resources (river water), extracting materials from the river (e.g. boulders, sand etc) embankment safety, employment opportunity during construction and post-construction phases.

124. The project is categorized as ‘Effective Gender Mainstreaming’ and a Gender and Social Inclusion (GESI) Plan has been prepared for the project. The DWRI will be responsible for overseeing the timely and appropriate implementation of the GESI and any other technical assistance or grant-related funds/activities that may be mobilized for the project to optimize social and gender benefits. All consultative and participatory processes will be followed socially and gender inclusively, ensuring timely disclosure of information, and providing a platform for open, fair and transparent dialogue and communication.

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<sup>14</sup> <http://www.nefin.org.np/list/Categorization-of-Indigenous-People-based-on-development-/5/95/6>.

## D. Bakraha Sub Project

### 1. Field Work

125. The social safeguards team carried out fieldwork at Bakraha basin during 18–27 August 2019. During the site visit, the team carried out social safeguard assessments in the locations of all the proposed PRTWs. Stakeholder consultations were held with the local community (project beneficiaries) residing near each construction site followed by the census of affected families having land in the construction sites and collection of socioeconomic information of HHs.

126. Prior to conducting community sessions, DWRI engineers with assistance from the ward representatives, contacted persons owning/occupying land at the proposed embankment construction sites. Various sections/groups of the local community including persons representing different caste and the ethnic groups, indigenous people, women, etc participated in the consultation meetings held at all construction sites.

127. At the start of the field activities, the social consultants and the census team walked along the proposed embankment sites with a group of 5 to 10 local community members comprising the ward representative, persons having land in the construction sites and DWRI engineer. Ground verification of affected plot/ land parcel and its owners/occupants was conducted during the walk using data from GIS overlays on cadastral maps and other local information. It was observed that the cadastral maps were not updated and not matching in some cases with the GIS overlays; also, there were other persons having land in the construction site but have not been formally mapped in the cadastral. Two types of affected persons were identified during these walks i) persons with formal land title having 'lal purja'. Some of them were already mapped and some have not been formally mapped as the cadastral maps were not updated ii) persons without formal land title but are occupying Government/ Ailani land for agricultural activity that is likely to be affected.



128. The Social Development consultants with support of the DWRI engineer and Ward representative held consultations with the local community. Initially, the community was informed about the proposed project works, its benefits and the need for voluntary permission for use of land. It was followed by collection of key socio economic baseline information of the construction sites (e.g. information of HHs size, major caste and ethnic composition of the population including *Dalit*, ethnic and disadvantaged groups, major occupation, information on flood and associated impacts and its management etc). They were also informed that the embankment would be used for road access to their agriculture fields and constructed in a way convenient to river access with provision of the ramp and other facilities depending upon the location and size of the embankment. The community consultation meetings were concluded after signing the minutes and attendance record of each participant including local Government representative (e.g. mayor/chairperson of rural municipality/ ward members and DWRI

engineer). Each signed document was officially attested by the relevant Government organizations in the project district. Among others the minute contained texts in Nepali on willingness to voluntarily donate land use right for the land at the embankment site to the project. The text was read out loudly to the community for their easy understanding.

129. The census team however, could not collect complete information from all the households who have their land in the proposed embankment sites as there were some absentees and some of the land parcels were not matching with the GIS overlay on the cadastral maps that are not updated. In such cases, information regarding land parcels affected and consent for VLUDR at community level was collected with the support of local government representatives and the local community. **Appendix- 2** provides a sample English translation of the text read to the community.

130. In total 7 community consultation sessions were organized, one at each PRTW location. Location of the consultation meetings and number of participants in the meetings is presented in **Table 47**.

**Table 47: Community Consultation Meetings and Participants**

S.N.	Name of Place	District	Municipality / Village Palika	PRTW No	No. of Participants
1	Kasheni	Morang	Miklajung-VP-7	01 <sup>a</sup>	19
2	Chisapani,	Morang	Urlabari Municipality-1	02 <sup>a</sup>	41
3	Bishal Tile, Juhumra	Morang	Urlabari-4&5	03 <sup>a</sup>	23
4	Thapadangi	Morang	Urlabari Municipality-4	04	20
5	Pipalchowk,Bistadada	Morang	Sanischare Municipality -3	06	23
6	Bardanga Chauki Tole	Morang	Sunbarse Municipality-7	08	27
7	Katle	Morang	Urlabari Municipality-06	09 <sup>a</sup>	37
<b>Total Number of Participants</b>					190

<sup>a</sup>PRTW will not be funded under ADB project (after not passing ADB economic threshold)

131. Each consultation session was attended by at least one local government personnel (ward representative) and the field engineer of DWRI. Of the total 187 participants, 161 (86.1%) were men and 124 (13.9%) were women. In terms of IP and *Dalit*; the representation of IP was 68 persons (36.36%) and 33 persons (18.54%) were Dalits. **Table 48** presents summary details of participants in the consultation meetings and Key findings of the community consultation and issues raised are summarized in **Appendix 3**

**Table 48: Participants in Community Consultation**

S.N.	Participants	No.	% of Total Involved
<b>Participation by Gender</b>			
1	Women	30	15.79
2	Men	160	84.21
3	<b>Total</b>	<b>190</b>	<b>100.00</b>
<b>Participation by Vulnerable and Non vulnerable Groups</b>			
1	Dalit	33	17.37
2	Indigenous People	68	35.79
3	Brahmins and Other Caste Groups	89	46.84
4	<b>Total</b>	<b>190</b>	<b>100.00</b>

Source: Community Consultation Record, July-August 2019

132. The census team with the help of local representatives and community, listed names of all affected persons covering those having land at the site of the proposed embankment with officially verified land ownership certificates as well as HHs not having verified land ownership certificate including the occupants of *Ailani* land. The census team collected socioeconomic information along with the details of assets owned by administering a semi-structured questionnaire. A set of the socio-economic questionnaire is presented in **Appendix 4**.

133. The census team also collected signature of the land owner/occupant on the Memorandum of Understanding (MoU) for voluntary permission of land use right to the project and also got countersigned by representative of local Government and DWRI engineer.

## 2. Scope of Impact on Land

### a. Impact on Private Land

134. The estimated area required for embankment construction in Bakraha basin is 130993.2 sqm<sup>15</sup> All together 53 households were recorded to have land at the location of the 8 proposed embankments in the basin. The Memorandum of Understanding was signed between the identified private landowners and the DWRI engineer in the presence of the Ward representative for voluntary donation of land-use rights for construction of the PRTWs. In case of *Ailani* land owners, their consent for voluntary donation of land-use rights (VDLUR) was obtained through signing of community meeting minutes. Out of these 53 HHs, 23 HHs are private land owners. These 23 affected HHs owning private land are of two types, **type 1** having land ownership certificate (*Lal purja*) matching with the parcel number arrived through GIS overlay on the cadastral, and **type 2** private land owners who could not be verified as they were not appearing in the list arrived through GIS overlay. Rest 30 affected HHs were occupants of *Ailani* land without formal ownership over the land (**type 3** affected HHs).

135. Of the 23 affected households having private land 18 households were of type 1 who could be verified with their land ownership certificates. However, all these 23 households were interviewed for collecting socio economic data and MOUs were obtained for voluntary permission of land use right to the project authorities. **Table 49** presents the types of affected HHs owning private land in Bakraha basin.

**Table 49: Types of Affected HHs Owning Private Land**

S.N.	Type of Affected Private Land Owners	No. of HHs
Type 1	Private Land: Ownership Verified	18
Type 2	Private Land: Ownership but could not be verified	5
Total		23

Source: Census Survey, July-August 2019

136. The affected lands are part of either remaining portions of land parcels after river erosion or land where the river was flowing earlier. Among them, some are being used for cultivation only once in a year at the owner/occupant's risk as it is uncertain when which part of the land will get affected by change in the flow of the river and some are left as fallow or abandoned for the purpose of protecting the remaining portion of the land parcel away from the river. Based on the information collected during community consultations it was evident that the increasing trend

<sup>15</sup> As per estimate of GIS overlay on cadastral maps

of floods and river erosion has been threatening the land put to cultivation and the residential areas in the main village habitation since the early seventies due to increased migration, deforestation and encroachment of river side area followed by practice of continuous uncontrolled and unmanaged exploitation of construction materials from the river bed. Therefore, people at all the construction sites of in Bakraha basin expressed strong support for the project and their willingness to voluntary permission of land use right to the project authorities. It was also revealed that the local community had submitted demand to DWRI office for construction of embankments at critical locations. Details of landowners and land parcels owned at the construction site are provided in **Appendix-5**.

#### **b. Impact on Ailani Land**

137. During survey 30 households were identified occupying *Ailani* land at different embankment sites. Socio economic information as well as information on the area of occupied *Ailani* land (estimated by the respondent) was collected from all the 30 households.

138. A breakup of these 30 HHs by land ownership type is presented in **Table 50**. The data shows them to be of two categories: those owning both private and *Ailani* land, and only *Ailani* land.

**Table 50: Type of Land Owned/Occupied by affected Households**

<b>Land Owners Type</b>	<b>No. of Owning HHs</b>	<b>%</b>
Having both private and Ailani land	20	66.67
Ailani land only	10	33.33
<b>Total</b>	<b>30</b>	<b>100.00</b>

Source: Census Survey, July-August, 2019

#### **c. Affected Households by Caste and Ethnicity**

139. There are mixed population groups in the project district (Morang). They are; indigenous groups (e.g. Tharu, Rajbansi, Dhimal, Satar, Newar, Magar, Rai, Limbu, etc) and caste groups; (e.g. Brahmin, Chhetries, Giri/Puri/Sanyasi, Yadav, Mandal, and other schedule caste subgroups. The census data presented in **Table 51** shows that the proportion of Brahmin Chhetries and others is higher among the affected HHs. Percentage of Ethnic minority/indigenous people among affected HHs is 36.47 percent.

**Table 51: Composition of HHs by Caste and Ethnic Groups**

<b>Caste and Ethnic Group</b>	<b>HH having Private Land in the project Area and also other places</b>	
	<b>No</b>	<b>%</b>
Ethnic minority/indigenous (Chaudhari, Rana Tharu, Dagauna Tharu)	32	60.4
Brahmin Chhetries and others (1 Bhagat)	17	32.1
Dalit and Disadvantaged	4	7.5
<b>Total</b>	<b>53</b>	<b>100.00</b>

Source: Census Survey, July-August, 2019

#### **d. Impact on Trees**

140. **Table 52** shows that altogether 3 households reported having trees in their land at the proposed embankment sites. Among them, two households have fruit trees while one has a fodder/firewood tree.

**Table 52: Households having Trees at the Embankment Sites**

S.N.	Description	Total	
		No.	%
1.	Fruit Trees	1	11.1
2.	Fodder/ firewood Trees	5	55.6
3	Community Plantation	-	-
4	Others	3	33.3
<b>Total</b>		<b>9</b>	<b>100</b>

*Source: Census Survey, July-August 2019*

#### **e. Loss of Income**

141. During the transect walk along the proposed PRTW alignment local community members identified the government land available and households who are required to donate land use right for the project. For estimation of income loss by these households, the census team collected information on average annual income of the affected HHs from different sources including farming from all the land owned as well as from the ailani land. Total land requirement for each PRTW was available from the GIS overlay on the old cadastral map. As all the affected HHs were not identified in the GIS overlay, census team first estimated the government land available at each PRTW site with help of the local community and subsequently the gross total non government land (private and ailani) required at each PRTW was estimated leaving out the government land available. This land required at the site was apportioned by the local community among the HHs required to donate land use right according to the total size of the land parcel that is affected. Income loss to the affected HHs is estimated by applying this loss of land to the total land owned by the HH and apportioning the percentage of land loss to the income from farming by the HHs. An estimation of Loss of Income by affected HHs and their vulnerability by category is provided in **Appendix 6**.

142. No structure or community property resources will be affected due to the project.

### **3. Socio-economic Information and Profile of Affected Persons**

143. The baseline socio economic survey was conducted covering all the 53 affected households. Key findings of the survey are summarized in the section below.

#### **a. Demographic Characteristics**

##### **(i) Household and Population**

144. The total population of the 53 affected households is 257 with 133 (51.75%) male and 124 (48.25%) females. Average household size works out to 4.84.

##### **(ii) Literacy and Educational Attainments**

145. Illiterates (32 nos.) comprised 12.41% of the total population. Among the literates 184 nos. (71.59%) were educated maximum up to high school level. Only 11 nos (4.3%) were



educated up to bachelors and above. Table 53 provides details of the level of education among the family members of affected households.

**Table 53: Educational Status of the Interviewed Households**

S.N.	Educational Status	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	10	7.5	22	17.7	32	12.5
2	Literate	11	8.3	19	15.3	30	11.7
3	Primary	28	21.1	18	14.5	46	17.9
3	Lower Secondary	26	19.5	17	13.7	43	16.7
4	High School	37	27.8	28	22.6	65	25.3
5	10+ 2	14	10.5	16	12.9	30	11.7
6	Bachelor	6	4.5	4	3.2	10	3.9
7	Master and Above	1	0.8		0.0	1	0.4
<b>Total</b>		<b>133</b>	<b>100</b>	<b>124</b>	<b>100</b>	<b>257</b>	<b>100</b>

Source: Census Survey, July-August 2019

(iii) **Average Landholding Size**

146. The average landholding size of the 53 affected households is 16.9 Kattha (5712.2 sqm). Majority households (19 HHs – 35.84%) have landholding size between 1 to 2 Bigha, followed by 11 HHs (20.75%) each in the category 10 to 20 Kattha and 2 to 5 Bigha, 5 HHs (9.43%) between 5 to 10 Kattha, 4 HHs (7.55%) owning land above 5 Bighas and 3 HHs (5.66%) between 2 to 5 Katthas. Table 54 provides a summary of the landholding sizes of the affected households.

**Table 54: Average landholding size of affected HHs**

SN	Land Holding on Ranges	No of HHs	Average Landholding Size	
			Kattha	Sqm
1	Less than 1 Kattha	-	-	-
2	1-1.5 Kattha	-	-	-
3	1.5-2 Kattha	-	-	-
4	2- 5 Kattha	3	4.5	1521
5	5-10 Kattha	5	8.3	2805.4
6	10 Kattha-20 Kattha (1 Bigha)	11	16.5	5577
7	1 Bigha to 2 Bigha	19	28.5	9633
8	2 Bigha – 5 Bigha	11	66.6	22510.8
9	> 5 Bigha	4	121.3	40898
<b>Overall</b>		<b>53</b>	<b>16.9</b>	<b>5712.2</b>

Source: Census Survey, July-August 2019

(iv) **Major Occupation**

147. Agriculture was reported as the major occupation of most households (98 nos-38.1%) followed by overseas employment (7.8%). Business and service each contributed 3.9% of the occupations followed by skilled labor (3.5%), Students comprised 64 nos (24.9%) and 26 nos (10.1%) were housewives. Table 55 presents the occupation wise distribution of the affected HH members.

**Table 55: Major Occupation of Affected HHs**

S.N.	Occupations	Male		Female		Total	
		No	%	No	%	No	%
1	Agriculture	53	39.8	45	36.3	98	38.1
2	Wage Labour	3	2.3	2	1.6	5	1.9
3	Overseas	17	12.8	3	2.4	20	7.8
4	Business	6	4.5	4	3.2	10	3.9
5	Skilled Labour	8	6.0	1	0.8	9	3.5
6	Service	6	4.5	4	3.2	10	3.9
7	Teaching	1	0.8	1	0.8	2	0.8
8	Student	35	26.3	29	23.4	64	24.9
9	House Wife	-	0.0	26	21.0	26	10.1
10	Others	4	3.0	9	7.3	13	5.1
<b>Total</b>		<b>133</b>	<b>100.0</b>	<b>124</b>	<b>100.0</b>	<b>257</b>	<b>100.0</b>

Source: Census Survey, July-August 2019

(v) **Ownership of Household Assets/Amenities**

148. All the total interviewed households 53 (100%) have their own houses for residential purposes. Ownership of bicycle, fan/cooler, and cell/mobile among the 53 HHs was 77.4%, 84.9%, and 96.2% respectively. About 24.5% households owned motor bike/scooter while 79.2% households have television in the house. Table 56 presents ownership of household amenities by the affected HHs.

**Table 56: Major Assets/Amenities Owned by the Affected Households**

S.N.	Type of HH Amenities	Total	
		No.	%
1.	Own Residential House	53	100.0
2.	Bicycle	41	77.4
3.	Motorbike/scooter	13	24.5
4.	Motor Car		0.0
5.	Jeep/van/Truck/Tractor	4	7.5
6.	Tempo		0.0
7.	TV	42	79.2
8.	Invertors	6	11.3
9.	Solar Panel	10	18.9
10.	Drinking-Water Tank	3	5.7
11.	Fan/cooler	45	84.9
12.	Cell/Mobile	51	96.2
13.	House on rent	1	1.9
14.	Other assets gave on rent (e.g. land, transport etc)		
15.	Have land in other places	10	18.9

Source: Census Survey, July-August 2019

(vi) **Households Income and Expenditure**

149. Foreign remittance, wage earnings, farming, service and business are the major sources of household income. Average annual income from all sources works out to NPR 310471. Income from foreign remittance contributes 24.55 percentage of the average annual income followed by farming (20.61%), wage earnings (20.52%), service (15.71%) and business (7.4%). Table 57 provides source wise average share the annual household income.

**Table 57: Average Annual Income of the Interviewed Households**

S.N.	Sources of Income	Average Annual Income	
		Income (NPR)	Percentage
1	Farming	63981	20.61
2	Service	48774	15.71
3	Business/Small Industry	22981	7.40
4	Wage earnings	63698	20.52
5	Foreign Remittance	76226	24.55
6	Interest	-	-
7	Rent received by renting house/ land etc	-	-
8	Sell of animal	25792	8.31
9	Sell of Milk	-	-
10	Social Security Allowance	9019	2.90
<b>Overall HH Income</b>		<b>310471</b>	<b>100.0</b>

Source: Census Survey, July 2019

150. The average annual expenses of the households are NPR 222,392 which is less than the average annual household income (310471) with an average surplus of NPR. 88079. Major heads of expenses are food items (39.51%) followed by celebrating festivals (12.81%), education (12.41%), clothing (9.9%), and health care (6.82%). Table 58 provides breakdown of the average annual expenditures of the interviewed households.

**Table 58: Average Annual Expenditure for the Interviewed HHs**

S.N.	Expenditure Items	Average Annual Expenditure NPR	
		Expenditure (NPR)	Percentage
1	Food	87886	39.51
2	Education	27604	12.41
3	Health Care	15189	6.82
4	House Repair	13019	5.84
5	Clothing	22038	9.90
6	Festivals	28490	12.81
7	Sending family member abroad	14717	6.61
8	Loan/Interest Repayment	13449	6.04
9	Other Specify	0	-
<b>Overall HH Expenditure</b>		<b>222,392</b>	<b>100.00</b>

Source: Census Survey, July-August 2019

#### **b. Vulnerable Households**

151. ADB guidelines considers; Indigenous People (IP), Dalit (including schedule caste) people, households headed by senior members, single women headed households, households with physically handicapped person, and Below Poverty Level (BPL) HHs as vulnerable. Similarly, these categories of households have also been classified under constitution of Nepal. In Nepal, the standard method of calculating BPL has been determined by Central Bureau of Statistics (CBS) under the National Planning Commission (NPC). As per NPC/CBS<sup>16</sup> 2011an individual in Nepal is considered poor if his/her per-capita total annual consumption is below NPR 19,261. None of the HHs interviewed fall Below Poverty Line (BPL).

<sup>16</sup> National Planning Commission/Central Bureau of Statistics

152. Table 59 presents distribution of affected HHs by vulnerability types.

**Table 59: HHs by Vulnerability Type**

S.N.	Vulnerability Type	No. of HH	%
1	Below Poverty Households	0	0.00
2	IP Households	32	52.46
3	Dalit Households	4	6.56
4	HHs headed by senior citizens (>65 Years old)	13	21.31
5	Women Headed Households	7	11.48
6	Households with disable persons	5	8.20
7	<b>Total Vulnerable HHs (out of 170 interviewed HHs)</b>	<b>61</b>	<b>100.00</b>

*Source: Census Survey, July-August, 2019*

*Source: Household Survey of Affected HHs, Jul-Sep, 2019*

### **c. Indigenous People and Project Impact:**

153. Tharu/Chaudhari, Rajbansi, Rai, Limbu, Magar, Dhimal, Newar, etc have been defined as indigenous group according to the Nepal Federation of Indigenous Nationality<sup>17</sup>. The social safeguard team had detailed discussion with ethnic households belonging to these communities and it revealed that they have been following the same socio-economic practices that are followed by other local community members. No involuntary physical or economic displacement is anticipated as the proposed project will be constructed in the existing “buffer” zone between the cultivated areas and the riverbank that is used by the local community to access the agricultural fields including the affected land. The project will not affect traditional lands. Furthermore, the project is unlikely to impact indigenous peoples’ identity, dignity, human rights, livelihood systems, or cultural uniqueness. The project will protect their land from erosion by recurring floods and positively contribute to improve their economic condition

## **4. Gender Impacts and Mitigation Measures**

154. Among the affected HHs due to the project twelve female-headed households have been identified to have their land in the construction sites. Discussions carried out with the affected families and local communities showed concerns relating to gender inclusiveness in the project design and mitigation of adverse impacts especially to women. The concerns specifically related to access to river and use of natural resources (river water), extracting materials from the river (e.g. boulders, sand etc) embankment safety, employment opportunity during construction and post-construction phases

155. The project is categorized as ‘Effective Gender Mainstreaming’ and a Gender and Social Inclusion (GESI) Plan has been prepared for the project. The DWRI will be responsible for overseeing the timely and appropriate implementation of the GESI and any other technical assistance or grant-related funds/activities that may be mobilized for the project to optimize social and gender benefits. All consultative and participatory processes will be followed socially

<sup>17</sup> <http://www.nefin.org.np/list/Categorization-of-Indigenous-People-based-on-development-/5/95/6>.

and gender inclusively, ensuring timely disclosure of information, and providing a platform for open, fair and transparent dialogue and communication.

## E. Lakhandei Sub Project

### 1. Field Works

156. The social safeguard team visited the Lakhandehi basin starting 7<sup>th</sup> September 2019 for the field works. During the site visit, the team carried out social safeguard assessments in the locations of all the 12 PRTWs. Stakeholder consultations were held with the local community (project beneficiaries) residing near each construction site followed by the census of affected families having land in the construction sites and collection of socioeconomic information of HHs.

157. Prior to conducting community sessions, DWRI engineers with assistance from the ward representatives, contacted persons owning/occupying land at the proposed embankment construction sites. Various sections/groups of the local community including persons representing different caste and the ethnic groups, indigenous people, women, etc participated in the consultation meetings held at all construction sites.

158. At the start of the field activities, the social consultants and the census team walked along the proposed embankment with a group of 5 to 10 local community members comprising the ward representative, persons having land in the construction sites and DWRI engineer. Ground verification of affected plot/land parcel and its owners/occupants was conducted during the walk using data from GIS overlays on cadastral maps and other local information. It was observed that the cadastral maps were not updated and not matching in some cases with the GIS overlays; also, there were other persons having land in the construction site but have not been formally mapped in the cadastral. Two types of affected persons were identified during these walks i) persons with formal land title having 'lal purja'. Some of them were already mapped and some have not been formally mapped as the cadastral maps were not updated ii) persons without formal land title but are occupying Government/ Ailani land for agricultural activity that is likely to be affected.



159. The Social Development consultants with support of the DWRI engineer and Ward representative held consultations with the local community. Initially, the community was informed about the proposed project works, its benefits and the need for voluntary permission for use of land. It was followed by collection of key socio economic baseline information of the construction sites (e.g. information of HHs size, major caste and ethnic composition of the population including *Dalit*, ethnic and disadvantaged groups, major occupation, information on flood and associated impacts and its management etc). They were also informed that the embankment would be used for road access to their agriculture fields and constructed in a way convenient to river access with provision of the ramp and other facilities depending upon the

location and size of the embankment. The community consultation meetings were concluded after signing the minutes and attendance record of each participant including local Government representative (e.g. mayor/chairperson of rural municipality/ ward members and DWRI engineer). Each signed document was officially attested by the relevant Government organizations in the project district. Among others the minute contained texts in Nepali on willingness to voluntarily donate land use right for the land at the embankment site to the project. The text was read out loudly to the community for their easy understanding.

160. The census team however, could not collect complete information from all the households likely to have their private lands in the proposed embankment sites as there were some absentees and some of the land parcels were not matching with the GIS overlay on the cadastral maps that are not updated. In such cases, information regarding land parcels affected and consent for VDLUR at community level was collected with the support of local government representatives and the local community. **Appendix- 2** provides a sample English translation of the text read to the community.

161. In total 2 community consultation sessions were organized, one at each proposed PRTW sites. Location of the consultation meetings and number of participants in the meetings is presented in **Table 3**.

**Table 60: Community Consultation Meetings and Participants**

S.N.	Name of Place	District	Municipality /Village Palika	PRTW No	No. of Participants
1	Kachhadiya Tole	Sarlahi	Haripur Municipality-8&2	8	36
2	Jiyajor	Sarlahi	Lalbandi Municipality-11,12,13	1	74
<b>Total Number of Participants</b>					<b>110</b>

*Source: Community Consultation Record, September 2019*

162. Each consultation session was attended by at least one local government personnel (ward representative) and the field engineer of DWRI. Of the total participants in the community consultation; 34 (31%) were women and 76 (69%) were men. Representation of IP was 87 persons (79%) whereas in case of dalits it was 11 persons (10%). **Table 4** presents summary details of participants in the consultation meetings and Key findings of the community consultation and issues raised are summarized in **Appendix 3**.

**Table 61: Summary of Participants in Community Consultations**

S.N.	Participants	No.	% of Total Participants
<b>Participation by Gender</b>			
1	Women	34	31
2	Men	76	69
3	<b>Total</b>	<b>110</b>	<b>100.00</b>
<b>Participation by Vulnerable and Non-vulnerable Groups</b>			
1	Dalit, Madhesi and Muslim	11	10
2	Indigenous People	87	79
3	Brahmins and Chhetri	12	11
4	<b>Total</b>	<b>110</b>	<b>100.00</b>

*Source: Community Consultation Record, September 2019*

163. The census team with the help of local representatives and community listed names of all affected persons covering those having land at the site of the proposed embankment with officially verified land ownership certificates as well as HHs not having verified land ownership certificate including the occupants of *Ailani* land. The census team collected socioeconomic information along with the details of assets owned by administering a semi-structured questionnaire. A set of the socio-economic questionnaire is presented in **Appendix 4**.

164. The census team also collected signature of the landowner/ailani land occupant on the Memorandum of Understanding (MoU) for voluntary permission of land use right to the project and also got countersigned by representative of local Government and DWRI engineer.

## **2. Scope of Impact on Land**

### **a. Impact on Private and Ailani Land**

165. The estimated area required for embankment construction in Lakhandehi basin is 1312.55 sqm<sup>18</sup>. All together 51 households reported to have land in the proposed two embankment sites in the basin. Out of these 51 HHs, 6 HHs are private landowners, 8 are owners of both private and ailani Land and the rest 37 HHs have only *ailani* land.

166. Out of the 14 households reporting to have private land in the proposed construction area, none could be verified as their land ownership certificate did not match with old plot numbers in the cadastral obtained through GIS overlay. Among these 14 HHs 6 (11.8%) have only private land and rest 8 HHs reportedly owned both private and Ailani land. Out of the total 51 HHs, Ailani land of 37 HHs will be affected.

167. The affected lands are part of either remaining portions of land parcels after river erosion or land where the river was flowing earlier. Among them, some are being used for cultivation only once in a year at the owner/occupant's risk as it is uncertain when which part of the land will get affected by change in the flow of the river and some are left as fallow or abandoned for the purpose of protecting the remaining portion of the land parcel away from the river. Based on the information collected during community consultations it was evident that the increasing trend of floods and river erosion has been threatening the land put to cultivation and the residential areas in the main village habitation since the early seventies due to increased migration, deforestation and encroachment of river side area followed by practice of continuous uncontrolled and unmanaged exploitation of construction materials from the river bed. Therefore, people at all the construction sites of in Lakhandehi basin expressed strong support for the project and their willingness to voluntary permission of land use right to the project authorities. Details of landowners and land parcels owned at the construction site are provided in **Appendix-5**.

### **b. Land owning/Occupying Households by Caste and Ethnicity**

168. There mixed population groups in the project district Sarlahi under the Lakhadehi basin. They are; indigenous groups (e.g. Chaudhari, Kachhadiya, Tamang, Majhi, Newar, Magar, and Rai, etc) and caste groups; (e.g. Brahmin, Chhetries, Giri/Puri/Sanyasi, and other Dalit/Disadvantage caste subgroups like; Danuwar. The census data presented in **Table 5** shows that indigenous people comprise 70% of the HHs having their land at the embankment construction sites.

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<sup>18</sup> As per estimate of GIS overlay on cadastral maps



**Table 62: Composition HHs by Cast and Ethnic Groups**

Caste and Ethnic Group	HH having their Land at the Embankment Construction Sites	
	No	%
<b>HHs having Private Land in Construction Sites</b>		
Ethnic minority/indigenous (Danuwar, Cahudhari, Tamang, Majhi, and Newar ,	44	86.3
Brahmin Chhetries and others	5	9.8
Dalit and Disadvantaged	2	3.9
<b>Total</b>	<b>51</b>	<b>100.00</b>

Source: Census Survey, September 2019

### c. Impact on Tree

169. Table 6 shows that only 1 out of the 51 HHs interviewed reported trees in his land in the Proposed PRTW sites.

**Table 63: Households having Trees in the Proposed PRTW Sites**

S.N.	Description	HHs	
		No.	%
1.	Fruit Trees		
2.	Fodder/ firewood Trees	1	100
3	Community Plantation	-	-
4	Community Plantation	-	-
5.	Others	-	-
<b>Total</b>		<b>1</b>	<b>100</b>

Source: Census Survey, September 2019

## 3. Loss of Income

170. During the transect walk along the proposed PRTW alignment local community members identified the government land available and households who are required to donate land use right for the project. For estimation of income loss by these households, the census team collected information on average annual income of the affected HHs from different sources including farming from all the land owned as well as from the ailani land. Total land requirement for each PRTW was available from the GIS overlay on the old cadastral map. As all the affected HHs were not identified in the GIS overlay, census team first estimated the government land available at each PRTW site with help of the local community and subsequently the gross total non-government land (private and ailani) required at each PRTW was estimated leaving out the government land available. This land required at the site was apportioned by the local community among the HHs required to donate land use right according to the total size of the land parcel that is affected. Income loss to the affected HHs is estimated by applying this loss of land to the total land owned by the HH and apportioning the percentage of land loss to the income from farming by the HHs. An estimation of Loss of Income by affected HHs and their vulnerability by category is provided in **Appendix 6**

171. No structure or community property resources will be affected due to the project.

#### 4. Socio-economic Information and Profile of Affected Persons

172. The baseline socio economic survey was conducted covering all the 51 households having their land (both private and *alani*) at the proposed embankment sites. Key findings of the survey are summarized in the section below.

##### a. Demographic Characteristics

##### (i) Household and Population

173. The total population of the 51 interviewed households is 308 with 162 male (52.6%) and 146 females (47.4%). Average household size works out to 6.03.

##### (ii) Literacy and Educational Attainments

174. Illiterates (55 nos.) comprised 17.9% of the total population. Among the literates 190 nos. (61.69%) were educated maximum up to high school level. Only 6 nos (1.6%) were educated up to bachelors and above. Table 7 provides details of the level of education among the family members of the HHs donating for the project.

**Table 64: Educational Status of the Interviewed Households**

S.N.	Educational Status	Male		Female		Total	
		No	%	No	%	No	%
1	Illiterate	21	13.0	34	23.3	55	17.9
2	Literate	10	6.2	20	13.7	30	9.7
3	Primary	32	19.8	25	17.1	57	18.5
3	Lower Secondary	34	21.0	16	11.0	50	16.2
4	High School	29	17.9	24	16.4	53	17.2
5	10+ 2	28	17.3	20	13.7	48	15.6
6	Bachelor	7	4.3	6	4.1	13	4.2
7	Master and Above	1	0.6	1	0.7	2	0.6
<b>Total</b>		<b>162</b>	<b>100.0</b>	<b>146</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>

Source: Census Survey, September 2019

##### (iii) Average Landholding Size

175. The average landholding size of the 51 interviewed households is 25.7 Kattha (8686.6sqm). Majority households (14 HHs – 27.45%) had landholding size between 10 to 20 Kattha (4664.4 sqm), followed by 13 HHs (25.49%) owning land between 1 to 2 bigha (8957.0). Table 8 provides summary of the landholding sizes.

**Table 65: Average landholding size of HHs at Construction Sites**

SN	Land Holding on Ranges	Households No.	Average Landholding Size	
			Kattha	Sqm
1	Less than 1 Kattha	Nil	-	-
2	1-1.5 Kattha	Nil	-	-
3	1.5-2 Kattha	Nil	-	-
4	2- 5 Kattha	6	3.4	1149.2
5	5-10 Kattha	9	7.3	2467.4
6	10 Kattha-20 Kattha (1 Bigha)	14	13.8	4664.40
7	1 Bigha to 2 Bigha	13	26.5	8957.0
8	2 Bigha – 5 Bigha	7	54.0	18252.0
9	>5 Bigha	2	155.0	52390.0
	<b>Overall</b>	<b>51</b>	<b>25.7</b>	<b>8686,6</b>

Source: Census Survey, September 2019

(iv) **Major Occupation**

176. Agriculture was reported as the major occupation of most households (131 nos- 42.5%) followed by service (7.5%), skilled labor (6.5%), and business (4.2%). Students comprised 83 nos (26.9%) and 13 nos (4.2%) were housewives. **Table 9** presents the occupation wise distribution of affected HH members.

**Table 66: Major Occupation of Affected HHs**

S.N.	Occupations	Male		Female		Total	
		No	%	No	%	No	%
1	Agriculture	51	31.5	80	54.8	131	42.5
2	Wage Labour	5	3.1	1	0.7	6	1.9
3	Overseas	11	6.8	1	0.7	12	3.9
4	Business	10	6.2	3	2.1	13	4.2
5	Skilled Labour	20	12.3	0	0.0	20	6.5
6	Service	17	10.5	6	4.1	23	7.5
7	Teaching	0	0.0		0.0	0	0.0
8	Student	43	26.5	40	27.4	83	26.9
9	Housewife		0.0	13	8.9	13	4.2
10	Others	5	3.1	2	1.4	7	2.3
	<b>Total</b>	<b>162</b>	<b>100.0</b>	<b>146</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>

Source: Census Survey, September 2019

(v) **Ownership of Household Assets/Amenities**

177. All the affected households have their own houses for residential purpose. Ownership of bicycle, fan/cooler, and cell/mobile among the 51 HHs was 78.4%, 86.3%, and 96.1% respectively. About 43% households owned motor bike/scooter while approximately 69% households have television in the house. **Table 10** presents ownership of household amenities by the affected HHs.

**Table 67: Major Assets/Amenities Owned by the Affected Households**

S.N.	Type of HH Amenities	Total	
		No.	%
1.	Own Residential House	51	100
2.	Bicycle	40	78.4
3.	Motorbike/scooter	22	43.1
4.	Motor Car	0	0.0
5.	Jeep/van/Truck/Tractor	2	3.9
6.	Tempo (three-wheeler vehicle)	2	3.9
7.	TV	35	68.6
8.	Invertors	3	5.9
9.	Solar Panel	24	47.1
10.	Drinking-Water Tank	4	7.8
11.	Fan/cooler	44	86.3
12.	Cell/Mobile	49	96.1
13.	House on rent	2	3.9
14.	Other assets gave on rent (e.g. land, transport, etc)	-	-
15.	Have land in other places	5	9.8

Source: Census Survey, September 2019

(vi) **Household Income and Expenditure**

178. The average annual income of the affected household is NPR 291430.00. Main sources of income are farming (20.43%), service (22.64%), wage labour (25.48%) and remittance (36.63%). **Table 11** provides source wise average annual household income.

**Table 68: Average Annual Income of the Affected Households**

S.N.	Major Sources of Income	Average Annual Income (NPR)	
1	Farming	59549.00	20.43
2	Service	65980.00	22.64
3	Business/small business	28804.00	9.88
4	Wage	74274.00	25.48
5	Remittances	36255.000	36.63
6	Interest	-	-
7	Rental of house, land, vehicle, etc	-	-
8	Sell of animal	24411.00	8.37
9	Other Sources	00.00	3.40
10	Social Security Allowance	2157.00	0.74
	<b>Overall HH Income</b>	291430.00	100

Source: Census Survey, September 2019

179. The average annual expenses of the households are NPR **190020.00**. Major heads of expenses are food items (36.45%) followed by celebrating festivals (20.02%), education (15.81%), clothing (14.69%), and health care (9.01%). **Table 12** provides breakdown of the average annual expenditures of the interviewed households. The average households annual

expenditure (NPR. 190020.00) is NPR 101, 410.00 less, than the average annual income (NPR. 291430.00).

**Table 69: Average Annual Expenditure for the Interviewed HHs**

S.N.	Expenditure Items	Average Annual Expenditure NPR	
		Expenditure (NPR)	Percentage
1	Food	69,275.00	36.45
2	Education	30,060.00	15.81
3	Health Care	17,137.00	9.01
4	House Repair	0.00	0.00
5	Clothing	27922.00	14.69
6	Festivals	38,058.00	20.02
7	Sending family member abroad	0.00	0.00
8	Loan/Interest Repayment	7,568.00	3.98
9	Other Specify	-	-
<b>Overall HH Expenditure</b>		<b>190,020.00</b>	<b>100.00</b>

Source: Census Survey, September 2019

#### **b. Vulnerable Households**

180. ADB guidelines considers; Indigenous People (IP), Dalit (including schedule caste) people, households headed by senior members, single women headed households, households with physically handicapped person, and Below Poverty Level (BPL) HHs as vulnerable. Similarly, these categories of households have also been classified under constitution of Nepal. In Nepal, the standard method of calculating BPL has been determined by Central Bureau of Statistics (CBS) under the National Planning Commission (NPC). As per NPC/CBS<sup>19</sup> 2011an individual in Nepal is considered poor if his/her per-capita total annual consumption is below NPR 19,261. As per the findings of the socio-economic survey, none of the 51 HHs interviewed fall Below Poverty Line (BPL). **Table 13** presents distribution of affected HHs by vulnerability types.

**Table 70: HHs by Vulnerability Type**

S.N.	Vulnerability Type	No. of HH	%
1	Below Poverty Line Households	0	0.00
2	IP Households	44	86.27
3	Dalit Households	2	3.92
4	HHs headed by senior citizens (>65 Years old)	9	17.65
5	Women Headed Households	5	9.80
6	Households with disable persons	2	3.92
7	Households having more than one Vulnerability	-22	-43.14
8	<b>Total Vulnerable HHs (out of 51 interviewed HHs)</b>	<b>51</b>	<b>78.43</b>

Source: Census Survey, September 2019

<sup>19</sup> National Planning Commission/Central Bureau of Statistics

**c. Indigenous People and Project Impact:**

181. Chaudhari/Tharu, Rajbansi, Rai, Limbu, Magar, Dhimal, Newar, etc are the mixed groups of people found in the river basin. Tharu/Chaudhari has been defined as indigenous group according to the Nepal Federation of Indigenous Nationality<sup>20</sup>. The social safeguard team had detailed discussion with ethnic households belonging to Chaudhari/Tharu, Rajbansi, Rai, Limbu, Magar, Dhimal, and Newar community and it revealed that they have been following the same socio-economic practices that are followed by other local community members. No involuntary physical or economic displacement is anticipated as the proposed project will be constructed in the existing “buffer” zone between the cultivated areas and the river bank that is used by the local community to access the agricultural fields including the affected land. The project will not affect traditional lands. Furthermore, the project is unlikely to impact indigenous peoples’ identity, dignity, human rights, livelihood systems, or cultural uniqueness. The project will protect their land from erosion by recurring floods and positively contribute to improve their economic condition.

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<sup>20</sup> <http://www.nefin.org.np/list/Categorization-of-Indigenous-People-based-on-development-/5/95/6>.

## **V. Grievance Redress Mechanism**

182. A grievance redress mechanism has been proposed for the project. This grievance redress mechanism will have three levels: VDC Level, District/PIU level and PMU level. Simple and easily manageable grievances will be addressed at the VDC level and more complex grievances will be addressed at the District/PIU level. Grievances that could not be resolved at the VDC and PIU level will be referred to the PMU located at the project headquarters at Kathmandu. Further details have been provided in the Project Administration Manual.

183. The key functions of the GRCs are to (i) provide support for APs to lodge their complaints; (i) record the complaints, categories and prioritize them; (iii) settle the grievances in consultation with APs and project officials; (v) report to the aggrieved parties about the decision/solution; and (vi) forward the unresolved cases to higher authorities

## VI. Voluntary Land Use Donation/Permission for land use

184. As per the SPS 2009, voluntary land donation should be limited to less than 10% of the total landholding. During the community consultations it emerged that some of the affected HHs will be losing more than 10% of their landholding. It was observed that the community has been suffering due to the loss of land and crops every year caused by recurring floods and river erosion. Local people are desperate to have the embankments built to save their existing assets located nearby the embankments.

185. It has been envisaged that the project will not seek voluntary land donation (title transfer) but only voluntary *land use* donation. The land will stay in the name of the private land owner so that in future when the river course changes, private land owners can re-gain access to their land and will not have the title cut in half from donation of a land strip to the project.

186. The transect walk along the embankment alignments and community consultations revealed that some affected landowners are very poor and were provided small land lots in the flood plain as part of the governments land for land less scheme. These people stand to lose a percentage of their livelihood source which could make them poorer. Providing cash compensation to people in these areas will cause complications due to jealousy and will also create a legacy for future embankment projects (both bank funded, and non-bank funded).

187. In view of the urgent requirement and community's eagerness for the project, meaningful criteria for voluntary donation here is not the percentage of land (use) loss, but the extent of (i) income loss and (ii) household vulnerability. The project risk is to people, who depended on income from the affected land plots, and particularly, people who have limited or no other livelihood source.

188. For the affected households, the project has an economic assistance programme integrated with the project construction and maintenance viz. ensuring that these people especially the vulnerable ones get employment as unskilled labor in the project during the construction, setting up nurseries to be maintained by them to supply plants to minimize river erosion through bio engineering measures etc.

189. The project also envisages to train and organized embankment neighbors having their land in the area, for the sustainability of embankment and effective/productive utilization of land along the embankment corridor. DWRI will examine options to facilitate the local community on forming maintenance groups, get training associated to embankment protection and utilization of land along the embankment side and, help to coordinate with relevant agencies at the district levels. There could be several options to implement the program during construction and post-construction phase (i) either under the regular program of DWRI or in collaboration with relevant district level relevant stakeholder agencies (e.g. district agricultural office, forest office, etc) or with the assistance of interested external sources. Some of the potential activities that can be carried out under such program may also include; (i) formation of embankment location and length specific Embankment Maintenance Groups, (ii) Train local people on regular maintenance of embankments, commercial utilization of the land along the corridor of embankment through agro-farming, agro-forestry, desert cultivation (watermelon, sugarcane, peanuts, pumpkins, ladies fingers, gourds) fish farming, etc for income generation.

190. Before the construction phase, final design drawings will require review as the river is likely to have moved and design modifications may be required. After the final verification, information of persons contributing their land to be recorded officially in the GIS database and linked to the project assistance program for the APs. Eligibility criteria for voluntary donation is available in the Project Administration Manual.



## Proposed Procedure for Voluntary land donation or negotiated settlement

191. The project will satisfy land use requirements through a combination of government land, negotiated settlement and voluntary land contributions from direct project beneficiaries. The following paragraphs outline the project's procedures for undertaking negotiated land settlements and or voluntary land or land use donations in a transparent, consistent, and equitable manner so that people entering into agreements maintain the same or better income and livelihood status. Details are found in the Project Administration Manual (PAM).<sup>21</sup>

192. **Procedure for voluntary land or land use donation.** Land for embankment construction will be contributed on a voluntarily basis by eligible project beneficiaries. Landowners and users are deemed eligible to contribute land or land use to the project when: (i) the donation is verified as voluntary and not resulting from coercion or force,<sup>22</sup> (ii) the donation is verified to not negatively impact or impoverished the land owner or user,<sup>23</sup> (iii) the project benefit will realistically offset the affected party's land or land use donation, (iv) the donation is verified in verbal and written records as confirmed and witnessed by an independent third party.<sup>24</sup> Recognizing that landowners and users living in flood affected areas are majority poor and marginalized, the project will provide livelihoods enhancement training for all landowners and users that contributed to the project.<sup>25</sup> Private land owners will choose to transfer the contributed land title deed to the government or maintain the land title deed in their own name; whichever option is deemed preferable in the landowner interest.<sup>26</sup> All land and land user contributions must be verified by the field office Social Development Officers in collaboration with local representatives (ward members) before land is provided by PMU to the contractors. The PMU will ensure that all voluntary land and land use donations are documented, overseen by an independent third party and reported within the project's semi-annual Social Safeguards Monitoring Reports.

193. **Procedure for negotiated settlement.** Where landowners or users are ineligible or do not wish to donate land, the project has the option to enter into a negotiated settlement. Compensation for the negotiated settlement will be provided in the form of replacement of assets (land for land) or cash compensation. Embankment user associations will be formed with the ward representative to identify cases and appropriate compensation provisions. As per ADB SPS 2009, negotiated settlement is achieved by providing fair and appropriate compensation and other incentives to the willing seller, negotiated through meaningful and well documented consultations. To the extent negotiation is based on the concept of willing buyer and willing

<sup>21</sup> PAM (accessible from the list of linked documents in RRP Appendix 2).

<sup>22</sup> Including from other community members, government authorities or any other party.

<sup>23</sup> Donations resulting in a loss of more than 10% of the household annual income *OR* a loss of more than 10% of the household total land holding cannot be contributed on a voluntary basis to the project, irrespective of the affected party's willingness to do so. Furthermore, no structures including residential, business, animal or food storage can be donated to the project on a voluntary basis.

<sup>24</sup> An independent third party is a designated nongovernmental organization, government or legal authority who does not serve to benefit from the Project and is impartial to the donation outcome.

<sup>25</sup> The Social Safeguard Focal will be responsible for overseeing the design, preparation and implementation of the livelihood's enhancement for eligible households. A budget has been assigned to the activities; a time-bound work plan will be submitted to ADB following the verification of land use arrangements.

<sup>26</sup> Landowners will not be obliged to transfer their land title deeds to the government as the river course will change in time and the landowner may be able to reclaim their land. As per the Memorandum of Understanding, landowners will only be able to access the donated land once the embankment is no longer functional. The expected life of the embankment is 25 years.

seller, negotiated settlement is voluntary (para 67). If negotiations fail, the project must avoid the affected asset by changing the project design. The project management will ensure that negotiated settlements are documented, overseen by an independent third party and reported within the project's semi-annual Social Safeguards Monitoring Reports.

## **VII. Gender Impacts and Mitigation Measures**

194. Discussions carried out with the affected families and local communities showed concerns relating to gender inclusiveness in the project design and mitigation of adverse impacts especially to women.<sup>27</sup> The concerns specifically related to access to river and use of natural resources (river water), extracting materials from the river (e.g. boulders, sand etc) embankment safety, employment opportunity during construction and post-construction phases.

195. The project is categorized as 'Effective Gender Mainstreaming' and a Gender and Social Inclusion (GESI) Plan has been prepared for the project. The DWRI will be responsible for overseeing the timely and appropriate implementation of the GESI and any other technical assistance or grant-related funds/activities that may be mobilized for the project to optimize social and gender benefits. All consultative and participatory processes will be followed socially and gender inclusively, ensuring timely disclosure of information, and providing a platform for open, fair and transparent dialogue and communication.

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<sup>27</sup> Among the affected HHs due to the project female-headed households have been identified to have their land in the construction sites – Mawa Ratuwa – 12 HHs; West Rapti 3 HHs, Bakraha – 12, Lakhandei – 3 HHs

### VIII. Indigenous People and Project Impact:

196. Tharu/Chaudhari, Tamang, Newar, Rajbansi, Rana Tharu, has been defined as indigenous group according to the Nepal Federation of Indigenous Nationality<sup>28</sup>. The social safeguard team had detailed discussion with ethnic households belonging to Chaudhari/Tharu and other indigenous community and it revealed that they do not have differentiated impacts or expectations of the project compared to other local community members. No involuntary physical or economic displacement is anticipated as the proposed project will be constructed in the existing “buffer” zone between the cultivated areas and the riverbank that is used by the local community to access the agricultural fields including the affected land. The project will not affect traditional lands. Furthermore, the project is unlikely to impact indigenous peoples’ identity, dignity, human rights, livelihood systems, or cultural uniqueness. The project will protect their land from erosion by recurring floods and positively contribute to improve their economic condition. The anticipated positive impact to indigenous people’s livelihoods has triggered the project as a category B for IP.

197. ADB’s SPS 2009 indigenous people safeguard seeks to ensure that indigenous peoples (i) receive culturally appropriate social and economic benefits, (ii) do not suffer adverse impacts as a result of projects, and (iii) can participate actively in projects that affect them. As per ADB’s SPS 2009, the project is not required to produce a separate indigenous people plan when the majority of direct project beneficiaries are indigenous peoples and only positive impacts are identified.<sup>29</sup> The project meets these criteria and as such, the indigenous people plan elements have been integrated throughout the project design. The following paragraphs describe how the project has ensuring meaningful and ongoing consultations with indigenous people and culturally appropriate benefit sharing mechanisms

<sup>28</sup> <http://www.nefin.org.np/list/Categorization-of-Indigenous-People-based-on-development-/5/95/6>.

<sup>29</sup> ADB. 2009. *Safeguards Policy Statement*. Manila. See Appendix 3, Safeguards Requirements 3: Indigenous Peoples, para. 17.

## IX. Social Due Diligence Conclusions

198. The Mohana-Khutiya and the Mawa Ratuwa sub projects were screened for involuntary resettlement and indigenous peoples impacts based on the detailed design. The Lakhandehi, West Rapti and Bakraha subprojects were screened for involuntary resettlement impacts and indigenous peoples impacts based on the feasibility design.

199. The objective of the screening exercise was to determine the impacts and appropriate mitigation measures to avoid or reduce adverse impacts to local people and increase the benefits.

200. No physical displacement will occur as the proposed project will be constructed in the existing “buffer” zone or abandoned land between the agriculture fields and the riverbank or on the land given for user right to the DWRI. The social safeguard team noted that the proposed project is unlikely to trigger involuntary resettlement (IR) safeguards and would be **category ‘C’** as per the SPS 2009. The project is also unlikely to impact indigenous peoples’ identity, dignity, human rights, livelihood systems, or cultural uniqueness. On the other hand, it will protect their land from erosion by recurring floods and positively contribute to improve their economic condition. Thus, the project would be **category ‘B’** as per the SPS 2009 for impact on indigenous people.

201. Following are some of the key findings of the field surveys:

- (i) Each year land is eroding into the river system therefore landowners are losing their land and no compensation is provided from the government.
- (ii) Once the embankments are built, landowners (and non-title holders or ‘Alaini’ land users) will directly benefit by gaining all year-round access to the remaining portion of land. Land value would likely increase, and people can potentially plant crops in the monsoon season as well.
- (iii) No physical displacement will occur.
- (iv) No structures are located on the land earmarked for embankment construction and this is because of the recurrent annual flooding.
- (v) Local people are desperate to have the embankments built to save their existing assets located nearby the embankments.

202. During the field surveys and consultations with local community the social safeguard team held focus group discussions with communities along all proposed embankments and available landowners and non-title holders using embankment land. All affected households have agreed to donate land for construction of the embankment and signed MoUs in presence of local Government representative and DWRI engineer.

203. A four-tier grievance redress mechanism will be in place for addressing any grievance that may arise. Land use agreements (MoUs) will be verified by the DWRI PMU/PIU ahead of construction.

# APPENDICES

## Appendix-1: Participants of the Orientation Workshop

WRPPF: Nepal Terai Flood Project  
Surveyors' Orientation Workshop  
June 16, 2019

## Participants Attendance Sheet

S.N.	Name	Designation	Office	Contact Cell No	Signature
1	Binodhwar P. Yadav			9841474428	
2	Sushil K. Joshi			9841236899	
3	Tej bdr. Khadka			9841789131	
4	Anita Gautam			9849287122	
5	Pramila Karki			9861790053	
6	Tirtha Gautam			9851058958	
7	Kripendra Bhatta			9841696851	
8	Hari Sharan Suradi			9854040723	
9	Simran Pokharel			9860536320	
10	Ramika Khatri			9851206717	
11	Rabiprabha Awasthi	Sub-engineer	WRPPF	9860614750	
12	Shabnam Samal	Sociologist	WRPPF	9841623280	
13	Biplav Parajuli	GIS	WRPPF	9849238954 984258954	
14	Rabinara Bdr. Thapa	WRPPP	WRPPF	984131437	
5	Sunil K.C.	Engineer	WRPPF	9841576322	

16	P K Kar				
17	Sachin Upadhyaya	ADP Consultant		9841368251	26
18	Rabin Dharwal	11		9851023144	2
19	Muraj Magrati	Accountant		9844228726	2
20	Kamala Shah	Accountant			
21	Saranwati Dange			9841378483	21
22	Unile Regni			9841469565	2
23	Parbati K.C			9880985541	2
24	Ujwal K.C			9841-023529	Ujwal
25	Dipak Raj Acharya			9841-355767	25
26	गोविंद गोविंद			9841852590	26
27	रवि शर्मा			9849856826	27
28					
29					

**Appendix-2: Sample Meeting Minute of Social Consultation (Translation from Nepali)**

This minute has been signed today on the date of 08-04-2076 (.....) at Arjun Tole of Godawari Municipality in Kailali district, after a social consultation chaired by Mr. Lahanu Chaudhari, Chairperson of the Ward regarding construction of an embankment along the Mohana-Khutiya basin at Arjun Tole under the Nepal Priority River Basin Flood Risk Management Project to be implemented by Department of Water Resources and Irrigation (DWRI). The meeting was also participated by the Government engineer representing DWRI.

All the participants in the social consultation meeting have been found happy after knowing about an embankment construction in this section along the basin. Construction of the proposed embankment will ensure the protection of life and properties in this area from the likely inundation including loss of life and properties due to floods. On the other hand, this will also let the local people get freely involved in the cultivating activities being free from the fear of floods and associated problems protecting from the likely floods and other water-induced disasters.

The construction works of embankments and other structures will be carried out mainly at the bank of river focusing on river way or Ailani land. However, private lands may also be required at several locations for embankment construction. Nevertheless, such land will be limited only up to the extent required to construct embankment and associated project structures to protect the valuable cultivating land in the area owned by the titleholders in the construction sites and even for protecting others' life and properties. In consideration of the benefits of embankment on protecting the lands in the area mainly owned by local people, they have unanimously voluntarily agreed to delegate their users' right to use the portion/s of their land likely to be influenced by the design drawing of the proposed embankment. However, the ownership of the land will remain intact in the name of respective titleholders/users and the landowners will also not be supposed to pay any sort of tax or fees for the embankment construction.



### Appendix-3: Key Findings of Social Consultations

#### Key Findings of Social Consultations in Mohana Khutiya -

Following are some of the key findings derived from the consultation carried out with local community in the construction locations are summarized in Table below:

community in the construction locations are summarized in Table below.

S.N.	Variables:	Findings			
1	Estimated number of Immediately beneficiary HHs	2447			
2	Caste and ethnic composition	IP	Brahmin/Chhetries /Other	Dalit	Total
		62.21%	22.72%	15.07%	100%
3	Type of land owned	Both private and Government land ( <i>Ailani</i> )			
4	Use of land	Cultivation and settlement			
5	Dominant Cast and ethnic group	Chaudhari, Brahmin/Chhetries, Dalits			
6	Settlement composition	Mostly mixed group with a majority of ethnic groups Chaudhari and in someplace all ethnic group (Chaudhari).			
7	Major sources of HH income	Agriculture, wage labor, seasonal migration to India overseas migration and small business.			
5	Major existing infrastructures in the area	Ward office, public structures like; temple and shrines, community building, health facility building, and the local club, women's cooperative group in some community.			
6	Flood related experiences	The community in all locations experience flood			
7	Gender role in managing flood	Generally, both male and female of the household facing flood use to get involved in rescuing life. However, women were found with more difficulties due to several roles they have to play in the family-like: taking care of senior family members, children, cattle, managing energy and grins for food, managing safe drinking water, etc. As learned from the discussion pregnant women and mothers of young children have even more physical difficulties during the flood and its impact up-to household level and even due to spread of several diseases like; fever, diarrhoea, scabies, fever to themselves and family members. Next, this sort of situation may also cause serious loss of stored grains required for day to day consumption.			
8	Experience of flood	As responded by the community in all sections, they experience flood each year. However, generally, the flood becomes sever only if there is heavy rain in the upstream area bringing the result of; (i) riverbank and land cutting, (ii) deposition of silt in cultivated land, (iii) occasional impact on residential houses also swiping away depending upon its extremity.			

9	Average land loss due to the flood	Based on information culled from community consultation on and average within five years the flood had affected agricultural land ranging from 10 to 50 Bigha [ 1 Bigha = 1621.344 sqm].
10.	Methods being adopted to combat flood's effect	In some community, local people were found trained on rescuing and managing during the flood. Red Cross support in the task of rescuing the people and distributing the materials of immediate needs to some extent (e.g. instant foods, biscuits, blankets etc).
11.	Provision/system of notifying about flood	No flood notification found.
12	Type of diseases that use to be spread during flood	Diarrhoea, fever, skin diseases, eye infection, etc
13	Knowledge about upcoming embankment construction.	Most of the people were aware of the program as they have also submitted their request to DWRI through local government.
14.	Information about the upcoming embankment construction program	All people were found familiar about the project.
15	People's expectation after the embankment construction	People expect to get relieved permanently from the flood
16	Peoples willingness to get involved in embankment protection and small-scale community development program.	People showed interest and willingness on embankment protection and other small-scale community development program
17	People's felt need for rehabilitation centers	People expect rehabilitation center in all sites as they don't have any such center which may be useful in several difficult situations (fire, flood, earthquake, gathering for social works, etc.)
18	Availability of land for community rehabilitation centers.	Availability of land will not be an issue for constructing community rehabilitation centers as there is adequate government land in all construction site in Mohna-Khutiya basin.

### Key Findings of Community Consultation in Mawa-Ratuwa

Following are some of the key findings derived from the consultation carried out with local community in the construction locations are summarized in Table below:

#### Summary of Key Findings of the Social Consultation

S.N.	Variables:	Findings			
1	Estimated number of Immediately beneficiary HHs	1939 HHs			
2	Caste and ethnic composition	IP	Brahmin/ Chhetries /Other	Dalit Others	Total
		206 (41.53%)	209 (42.14%)	81 (16.33%)	496 (100)
4	Type of land owned	• Both private and			

		<ul style="list-style-type: none"> <li>Government land (<i>Ailani</i>)</li> <li>In some cases, the proportion of HHs having Ailani land is higher than private land ownership (e.g. PRTW 9A,9B, 9c, 9d, 11 etc)</li> </ul>
5	Use of land	<ul style="list-style-type: none"> <li>Cultivation and</li> <li>Settlement</li> </ul>
6	Dominant Cast and ethnic group	<ul style="list-style-type: none"> <li>Chaudhari,</li> <li>Rajbansi</li> <li>Dhimal</li> <li>Rai,</li> <li>Limbu,</li> <li>Magar, Tamang</li> <li>Brahmin/Chhetries,</li> <li>Dalits, and other disadvantaged groups like Madhesi and Muslims</li> </ul>
7	Settlement composition	<ul style="list-style-type: none"> <li>Mostly mixed group. In some caes In some construction sites proportion of IP has been notices (eg. PRTW 5a&amp;5b, PRTW8, PRTW 9a, 9b, 9c,9d,11, PRTW 3 etc)</li> </ul>
8	Major sources of HH income	<ul style="list-style-type: none"> <li>Agriculture</li> <li>wage labor,</li> <li>seasonal migration and</li> <li>overseas migration (in some places it is higher after agriculture)</li> <li>small business.</li> </ul>
9	Major existing infrastructures in the area	<ul style="list-style-type: none"> <li>Ward office,</li> <li>Public structures like; temple and shrines, community building, health facility building, and the local club,</li> <li>Cooperative group in some community.</li> </ul>
10	Flood related experiences	<ul style="list-style-type: none"> <li>Generally, the community in all location have experience flood directly or indirectly</li> </ul>
11	Gender role in managing flood	<ul style="list-style-type: none"> <li>Both male and female of the household facing flood and use to get involved in rescuing life,</li> <li>Women were found feeling more difficulties due to several roles they have to play in the family-like; taking care of senior family members, children, cattle, managing energy and grins for food, managing safe drinking water, etc. As learned from the discussion pregnant women and</li> <li>Fever, diarrhoea, scabies, serious loss of stored grains required for day to day consumption.</li> </ul>
12.	Experience of flood	<ul style="list-style-type: none"> <li>Community in all sections experience flood each year.</li> <li>The flood becomes sever only if there is heavy rain in the upstream area bringing the result of; (i) riverbank and land cutting, (ii) deposition of silt in cultivated land, (iii) occasional impact on residential houses also swiping away depending upon its extremity.</li> <li>However, due to lack of outlet for the tributary water and canal water the people are also facing water logging problems in addition to flood.</li> </ul>
13.	Average land loss due to the flood	<ul style="list-style-type: none"> <li>Maximum 1000 Bigha to Minimum 10 Bigha) * 1 Bigha = 6772.41 sqm.</li> </ul>

14	Methods being adopted to combat flood's effect	<ul style="list-style-type: none"> <li>Local support for immediate management</li> <li>Red Cross support for rescuing and distributing assistance (e.g. instant foods, biscuits, blankets etc).</li> </ul>
15	Provision/system of notifying about flood	<ul style="list-style-type: none"> <li>No flood notification found</li> </ul>
16.	Type of diseases that use to be spread during flood	<ul style="list-style-type: none"> <li>Diarrhoea, fever, skin diseases, eye infection, etc</li> </ul>
17	Knowledge about upcoming embankment construction.	<ul style="list-style-type: none"> <li>Generally, people were aware about embankment construction project</li> </ul>
18	Information about the upcoming embankment construction program	<ul style="list-style-type: none"> <li>Through DWRI district office and local leaders they were found aware</li> </ul>
19	People's expectation after the embankment construction	<ul style="list-style-type: none"> <li>People expect to get relieved permanently from the flood</li> <li>People also expect for the proper management for the water coming from tributary rivers and other flash streams,</li> <li>People also expect to get back the land in the river while constricting embankment as far as possible</li> </ul>
20	Peoples willingness to get involved in embankment protection and small-scale community development program.	<ul style="list-style-type: none"> <li>Interested</li> </ul>
21	People's felt need for rehabilitation centers	<ul style="list-style-type: none"> <li>Expect rehabilitation centre also to combat several local difficulties (fire, flood, earthquake, etc.</li> </ul>
22	Availability of land for community rehabilitation centers.	<ul style="list-style-type: none"> <li>Availability of land will not be an issue for constructing community as there is adequate government land in all construction site in Mawa-Ratuwa basin.</li> </ul>

**West Rapti - Key Findings of Social Consultations**

S.N.	Variables:	Findings					
1	Estimated number of Immediately beneficiary HHs	1939 HHs					
2	Caste and ethnic composition	IP	Brahmin/Chhetries/Other	Dalit	Others	Total	
		1579 (81.93)	278 (14.34)	53 (2.73)	29 (1.50)	1939 (100)	
3	Major sources of livelihood	<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• Wage Labour</li> <li>• Remittance</li> </ul>					
4	Type of land owned	<ul style="list-style-type: none"> <li>• Both private and</li> <li>• Government land (Ailani)</li> </ul>					
5	Use of land	<ul style="list-style-type: none"> <li>• Cultivation and residential settlements</li> </ul>					
6	Dominant Cast and ethnic group	<ul style="list-style-type: none"> <li>• Chaudhari,</li> <li>• Brahmin/Chhetries,</li> <li>• Dalits, Madhesi and Muslims</li> </ul>					
7	Settlement composition	<ul style="list-style-type: none"> <li>• Mostly mixed group</li> </ul>					
8	Major sources of HH income	<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• wage labor,</li> <li>• seasonal migration and</li> <li>• overseas migration</li> <li>• small business.</li> </ul>					
9	Major existing infrastructures in the area	<ul style="list-style-type: none"> <li>• Ward office,</li> <li>• Public structures like; temple and shrines, community building, health facility building, and the local club,</li> <li>• The cooperative group in some communities.</li> </ul>					
10	Flood related experiences	<ul style="list-style-type: none"> <li>• Generally, the community in all location have experience flood</li> </ul>					
11	Gender role in managing flood	<ul style="list-style-type: none"> <li>• Both male and female of the household facing flood and use to get involved in rescuing life,</li> <li>• Women were found feeling more difficulties due to several roles they have to play in the family-like: taking care of senior family members, children, cattle, managing energy and grins for food, managing safe drinking water, etc. As learned from the discussion pregnant women and</li> <li>• Fever, diarrhea, scabies, serious loss of stored grains required for day to day consumption.</li> </ul>					
12.	Experience of flood	<ul style="list-style-type: none"> <li>• The community in all sections, they experience flood each year.</li> <li>• The flood becomes sever only if there is heavy rain in the upstream area bringing the result of; (i) riverbank and land cutting, (ii) deposition of silt in cultivated land, (iii) occasional impact on residential houses also swiping away depending upon its extremity.</li> <li>• However, due to lack of outlets for the tributary water and canal water the people are also facing water logging problems in addition to floods.</li> </ul>					

S.N.	Variables:	Findings
13.	Average land loss due to the flood	<ul style="list-style-type: none"> <li>74.37 Bigha (3.81 ha) [1 bigha=19.5 ha]</li> </ul>
14	Methods being adopted to combat flood's effect	<ul style="list-style-type: none"> <li>Local support for immediate management</li> <li>Red Cross support for rescuing and distributing assistance (e.g. instant foods, biscuits, blankets, etc).</li> </ul>
15	Provision/system of notifying about flood	<ul style="list-style-type: none"> <li>No flood notification found</li> </ul>
16.	Type of diseases that use to be spread during flood	<ul style="list-style-type: none"> <li>Diarrhoea, fever, skin diseases, eye infection, etc</li> </ul>
17	Knowledge about upcoming embankment construction.	<ul style="list-style-type: none"> <li>Generally, people were aware of embankment construction project</li> </ul>
18	Information about the upcoming embankment construction program	<ul style="list-style-type: none"> <li>Through DWRI district office and local leaders, they were found aware</li> </ul>
19	People's expectation after the embankment construction	<ul style="list-style-type: none"> <li>People expect to get relieved permanently from the flood</li> <li>People also expect the proper management for the water coming from the tributaries of Rapti river and other flash streams</li> </ul>
20	People's willingness to get involved in embankment protection and small-scale community development program.	<ul style="list-style-type: none"> <li>Interested</li> </ul>
21	People's felt need for rehabilitation centers	<ul style="list-style-type: none"> <li>Expect rehabilitation center also to combat several local difficulties (fire, flood, earthquake, etc.</li> </ul>
22	Availability of land for community rehabilitation centers.	<ul style="list-style-type: none"> <li>Availability of land will not be an issue for constructing the community as there is adequate government land in all construction sites in West Rapti basin.</li> </ul>

### Key Findings of Community Consultation in Bakraha Basin

Following are some of the key findings derived from the consultation carried out with local community in the construction locations are summarized in Table below:

#### Summary of Key Findings of the Social Consultation

Summary of Key Findings of the Social Consultation					
S.N.	Variables:	Findings			
1	Estimated number of Immediately beneficiary HHs	1939 HHs			
2	Caste and ethnic composition	IP	Brahmin/ Chhetries/ Other	Dalit Others	Total
		68 (26.26%)	86 (45.49%)	33 (18.54%)	187 (100)
4	Type of land owned	• Both private and Government land ( <i>Ailani</i> )			
5	Use of land	• Cultivation and • Settlement			
6	Dominant Cast and ethnic group	• Chaudhari, • Rajbansi • Dhimal • Rai, • Limbu, • Magar, Tamang • Brahmin/Chhetries, • Dalits, and other disadvantaged groups like Madhesi and Muslims			
7	Settlement composition	• Mostly mixed group. In some construction sites proportion of IP has been notices higher			
8	Major sources of HH income	• Agriculture • wage labor, • seasonal migration and • overseas migration (in some places it is higher after agriculture) • small business.			
9	Major existing infrastructures in the area	• Ward office, • Public structures like; temple and shrines, community building, health facility building, and the local club, • Cooperative group in some community.			
10	Flood related experiences	• Generally, the community in all location have experience flood directly or indirectly			
11	Gender role in managing flood	• Both male and female of the household facing flood and use to get involved in rescuing life, • Women were found feeling more difficulties due to several roles they have to play in the family-like; taking care of senior family members, children, cattle, managing energy and grins for food, managing safe drinking water, etc. As learned from the discussion pregnant women and • Fever, diarrhoea, scabies, serious loss of stored grains required for day to day consumption.			
12.	Experience of flood	• Community in all sections experience flood each year. • The flood becomes sever only if there is heavy rain in the upstream area bringing the result of; (i)			

S.N.	Variables:	Findings
		<p>riverbank and land cutting, (ii) deposition of silt in cultivated land, (iii) occasional impact on residential houses also swiping away depending upon its extremity.</p> <ul style="list-style-type: none"> <li>• However, due to lack of outlet for the tributary water and canal water the people are also facing water logging problems in addition to flood.</li> </ul>
13.	Average land loss due to the flood within five years	<ul style="list-style-type: none"> <li>• Maximum 200 Bigha to Minimum 20 Bigha) i different locations * 1 Bigha = 6772.41 sqm.</li> </ul>
14	Methods being adopted to combat flood's effect	<ul style="list-style-type: none"> <li>• Local support for immediate management</li> <li>• Red Cross support for rescuing and distributing assistance (e.g. instant foods, biscuits, blankets etc).</li> </ul>
15	Provision/system of notifying about flood	<ul style="list-style-type: none"> <li>• No flood notification found</li> </ul>
16.	Type of diseases that use to be spread during flood	<ul style="list-style-type: none"> <li>• Diarrhoea, fever, skin diseases, eye infection, etc</li> </ul>
17	Knowledge about upcoming embankment construction.	<ul style="list-style-type: none"> <li>• Generally people were aware about embankment construction project</li> </ul>
18	Information about the upcoming embankment construction program	<ul style="list-style-type: none"> <li>• Through DWRI district office and local leaders they were found aware</li> </ul>
19	People's expectation after the embankment construction	<ul style="list-style-type: none"> <li>• People expect to get relieved permanently from the flood</li> <li>• People also expect for the proper management for the water coming from tributary rivers and other flash streams,</li> <li>• People also expect to get back the land in the river while constricting embankment as far as possible</li> </ul>
20	Peoples willingness to get involved in embankment protection and small-scale community development program.	<ul style="list-style-type: none"> <li>• Interested</li> </ul>
21	People's felt need for rehabilitation centers	<ul style="list-style-type: none"> <li>• Expect rehabilitation centre also to combat several local difficulties (fire, flood, earthquake, etc.</li> </ul>
22	Availability of land for community rehabilitation centers.	<ul style="list-style-type: none"> <li>• Availability of land will not be an issue for constructing community as there is adequate government land in all construction site in Bakraha basin.</li> </ul>

### Key Findings of Community Consultation in Lakhandei

Key Findings of Community Consultation in Larkhander					
S.N.	Variables:	Findings			
1	Estimated number of Immediately beneficiary HHs	110			
2	Caste and ethnic composition	IP	Brahmin/ Chhetries /Other	Dalit	Total
		79.09%	10.90%	10%	100%
3	Use of land	Cultivation and settlement			
4	Major sources of livelihood	• Cultivation, agriculture labour, small business			
5	Type of land owned	• Both private and • Government land ( <i>Ailani</i> )			



S.N.	Variables:	Findings
6	Use of land	<ul style="list-style-type: none"> <li>• Cultivation and</li> <li>• Settlement</li> </ul>
7	Dominant Cast and ethnic group	<ul style="list-style-type: none"> <li>• Kachhadiya,</li> <li>• Brahmin/Chhetries,</li> <li>• Dalits</li> </ul>
5	Settlement composition	<ul style="list-style-type: none"> <li>• Mostly mixed group</li> </ul>
6	Major sources of HH income	<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• wage labour,</li> <li>• seasonal migration to India and</li> <li>• overseas migration</li> <li>• small business.</li> </ul>
7	Major existing infrastructures in the area	<ul style="list-style-type: none"> <li>• The location is near to high way</li> <li>• Ward office,</li> <li>• Public structures like; temple and shrines, community building, health facility building, and the local club,</li> <li>• Women's cooperative group in some communities.</li> <li>• Local market in the accessible area</li> </ul>
8	Flood related experiences	<ul style="list-style-type: none"> <li>• The community in all location have experience flood</li> </ul>
9	Gender role in managing flood	<ul style="list-style-type: none"> <li>• Both male and female of the household facing flood use to get involved in rescuing life,</li> <li>• Women were found feeling more difficulties due to several roles they have to play in the family-like; taking care of senior family members, children, cattle, managing energy and grins for food, managing safe drinking water, etc. As learned from the discussion pregnant women and</li> <li>• Fever, diarrhoea, scabies, serious loss of stored grains required for day to day consumption.</li> </ul>
10.	Experience of flood	<ul style="list-style-type: none"> <li>• The community in all sections, they experience flood each year.</li> <li>• The flood becomes sever only if there is heavy rain in the upstream area bringing the result of; (i) riverbank and land cutting, (ii) deposition of silt in cultivated land, (iii) occasional impact on residential houses also swiping away depending upon its extremity.</li> </ul>
11.	Average land loss due to the flood	<ul style="list-style-type: none"> <li>• On and average within five years the flood had affected hundreds of bigha of cultivated land..</li> </ul>
12	Methods being adopted to combat flood's effect	<ul style="list-style-type: none"> <li>• Local people for immediate support,</li> <li>• Red Cross support the task of rescuing the people and distributing the materials of immediate needs</li> <li>• Health post for in case of an epidemic</li> </ul>
13	Provision/system of notifying about flood	<ul style="list-style-type: none"> <li>• No flood notification found</li> </ul>
14.	Type of diseases that use to be spread during flood	<ul style="list-style-type: none"> <li>• Diarrhoea, fever, skin diseases, eye infection, etc</li> </ul>
15	Knowledge about upcoming embankment construction.	<ul style="list-style-type: none"> <li>• Most of the people were aware of the program as they have also submitted their request to DWRI through local government.</li> </ul>
16	Information about the upcoming embankment construction program	<ul style="list-style-type: none"> <li>• All people were found familiar about the project.</li> </ul>

S.N.	Variables:	Findings
17	People's expectation after the embankment construction	<ul style="list-style-type: none"> <li>• People expect to get relieved permanently from the flood</li> </ul>
18	People's willingness to get involved in embankment protection and small scale community development program.	<ul style="list-style-type: none"> <li>• People has shown their interest and willingness on embankment protection and other small-scale community development program</li> </ul>
19	People's felt need for rehabilitation centres	<ul style="list-style-type: none"> <li>• People expect rehabilitation centres in all sites as they don't have any such centre which may be useful in several difficult situations (fire, flood, earthquake, gathering for social works, etc.</li> </ul>
20	Availability of land for community rehabilitation centres.	<ul style="list-style-type: none"> <li>• The availability of land will not be an issue for constructing the community as there is adequate government land in all construction sites in Lakhandehi basin.</li> </ul>

**Appendix-4: Questionnaire for Socioeconomic Survey**  
**Government of Nepal**  
**Department of Water Resources and Irrigation**  
**Flood Protection Project in the Selected River Basin of the Country**  
**Socio-economic Information of Affected HHs**

Date of Interview: \_\_/\_\_/2076 V.S.

DD /MM / YY

Section A: General Information		
<b>S.N</b>	River Basin's Name:	
1	Province:	
2	District:	
3	Municipality/VDC:	
4	Ward No.	
5	Name of City or Village:	
6	Construction site chain- age	
7	Contact No. of respondent	
8	Interviewers Name	
9	Interviewers contact No	
10.	Name of Affected Landowner	

**Section- B: Respondent's Background**

1. Respondent's Name : .....
2. Respondent's Contact Number: .....
3. Relation with HH Head : .....
4. Completed Age (in years):.....
5. Gender : 

(a)	Male	(b)	Female	(c)	Others
-----	------	-----	--------	-----	--------
6. Caste/Ethnic Group : .....
7. Do you belong to any of the following group; (IP) (Dalit) .....
8. Religion : (a) Hindu (ii) Muslim (iii) Buddhist (iv) Christian (v) Others .....
9. How long you have been staying here?.....
  - (i) Was born here, (ii) since 10 years, (iii) since 10-20 years, (iv) before 20 years
  - (v) Even before 20 years (v) Others.....

## Section-C: Demographic Information of the HHs

### C-1. Total family members in the HHs (Pls write in the column):

S.N.	Family Members' Name	Relation with HH Head [1]	Sex [2]	Completed Age [3]	Marital Status [4]	Education (> 5 years) [5]	Current Main Occupation [6]	Disability Y/N[7]
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

*(Can be added table back side to this page for more family members in the HHs as applicable)*

#### **Coding instructions:**

[1] Relation: (a) grandfather/ grandmother (c) Father/mother (d) Son/ daughter in laws (e) grandson/granddaughter (f) Relatives (g) Spouse, (h) others.....

[2] Gender/Sex: (a) Female (b) Male (c) Others

[3] Age: (1) < 1 year, (2) below 5 years, (3) 5- 16 Years, (4) 16-65 years (5) Above 65 years

[4] Marital Status: (1) Married (2) Unmarried (3) Others .....

[5] Education: (1) Can't read and write (2) Can sign only (3) Just can read and write (4) Primary, (5) Lower Secondary (up to 7) (6) Secondary or high school (8,9,10), (7) higher secondary, (8) Intermediate (9) Bachelor (Masters) (10) Above master and PHD

[6] Occupation (1) agriculture (2) wage laborer (3) Overseas employment, (4) business, (5) skill works (6) Business, (7) service (8) Others

## C.2: Major Household Amenities

### Please mentions Major Household Amenities in your HHs

S.N	Description	If Yes, Please Tick -v_	Number
1	Residential House		
2	Bicycle		
3	Motorbike		
4	Motorcar		
5	Jeep/van/truck/Tracktor		
6	Tempo		
7	TV		
8	Invertors		
9	Solar		
10	Drinking-Water Tank		
11	Fan/ Cooler		
12	Cell mobile		
13	House on Rent		
14	Other assets given in rent		
15	Have land in another place		

**Section-D: Land Holdings****D-1 Land Holding Size of HHs by Type and Estimated Area to be Affected by Project**

S. N.	Type of Land Owned	Total Area Owned (Bigha-Kattha-Dhur)	Sqm	Affected Area for Project work		Percent of Loss	
				Big-Kath-Dhr	sqm	Area (sqm)	Percent of total owned Land
1.	Private Land in project location with						
2.	Government Land						
Total							

**Section E: Information on Likely Affected Structures****E-1: Information on affected Structures:**

S.N	Description	Tick (✓)	No	Construction Type	Current Market Value Approx. (NPR)
1.	No loss of structures				
2.	Residential				
3.	Business shed				
4.	Animal or poultry shed				
5.	Other structures in any				
Total					

**F: Impact on Trees****F-1: Information on likely affected Trees**

S.N	Description	Tick (✓)	Major Species	Nos.	Per Year Productive Value(estimated NPR)
1.	Fruit Trees				
2.	Fodder/fire wood tree				
3.	Community plantation for flood protection				
4.	Others.....				
Total					

**G: Information on Community and Cultural Structures****G-1: Is there any of the following public places/structure near the riverbank in this area?**

S.N	Description	Tick (✓)	Associated Impacts
1.	School		
2.	Religious/Cultural Place		
3.	Playground		
4.	Grazing land		
5.	Ongoing construction works (e.g. or existing bridges or canals etc)		
6.	Other Specify		

**H: Impact of Flood and Water Induced Disasters**

H-1: Name of River causing a flood in this area : .....

H-2 How frequent rivers cause a flood in your area?

S.N	Frequency	Tick (✓)	Major Consequences					
			Embankment cutting	Land Cutting	Damage of Cultivated Crops	Flood Settlement in	Loss of animals	Loss of Human life
1.	Occasionally							
2.	Annually							
3.	Only during heavy rain							
4.	Other Specify							

**H-3 Flood Impact during Last Time**

S.N.	Type of Loosed Assets in Last Flood	Quantity/Area/Unit
1.	Damage/loss of crops	
2.	Loss of residential/cattle shed and other structure	
3.	Land Cutting	
4.	Loss of cattle/chickens/birds	
5.	Death of birds (chicken, duck, etc)	
6.	Loss of family members.....No	
7.	Trees plan and vegetable	
8.	Other specify.....	
9.	In which year the last flood was occurred	

H-4 Do you have any further to share about flood?

.....

.....

.....

.....

**I. Household Economy****I-1 What is the average expenditure (Based on last years income)**

S.N.	Major Sources of HHs Expenditures	Average Annual Expenditure
1	Food	
2	Education	
3	Medicine/treatment	
4	House repair	
5	Clothing	
6	Festival	
7	Wedding, and other ritual and cultural festivals	
8	For going to overseas employment	
9	Purchasing house, vehicle etc	
10.	Prepayment of loan or payment of interests	
11.	Other specify	

**I-2 Source and amount of gross income in last year****I-2-1: Estimated annual household expenditure**

S.N.	Major expenditure Items	Expenditure Amount in NPR
1	Food	
2	Education	
3	Medical Care	
4	Housing(maintenance/rent)	
5	Clothing, shoes and other personal effect	
6	Festivals	
7	Marriage/ birth or death of family	
8	Sending family member abroad for job	
9	Purchase of new land / house/ vehicle etc	
10.	Repayment of Loan	
11	Others (Specify)	

**I-2-2 Source and amount of gross income in last year**

S.N.	Major Sources of Income	Average Income Amount in NPR
1	Farming	
2	Service	
3	Business/small business	
4	Wage	
5	Remittances	
6	Interest	
7	Rental of house, land, vehicle etc	
8	Sell of animal	
9	Others (rental of properties, forest product sale/ gift	
<b>Total Average Annual Income</b>		

**J Right to utilize the Land**

J-1 Have you kept your land on mortgage? If yes for how long? .....

J-2 Name of Bank.....

J-3 When is the maturation day.....

**K** Do you want to say something about flood protection?

.....

.....

.....

**L** What are the major problems here related to flood protection?

.....

.....

.....

**M.** On behalf of my family and myself, I hereby would like to express my confirmation willingness to use my land for embankment construction to protect mine as well as other's land in the area.

- (i) Land Owners Name:.....
- (ii) Relationship in the HHs:.....
- (iii) Signature:.....
- (iv) Date:.....

**Thank You So Much and Namaste**

**Appendix- 5 -Details of landowners and land parcels owned  
Mohana Khutiya -Details of landowners and land parcels owned**

<b>HHs having Land In Construction Sites (Private+Ailani) Mohana-Khutiya</b>							
<b>S.N</b>	<b>PRTW No</b>	<b>Survey data</b>	<b>Land in Katha</b>	<b>District</b>	<b>GP_NP</b>	<b>Ward_ No</b>	<b>Village</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1	PRTW 2	Jaggu Dagaura	2.0	Kanchanpur	Krishnapur	8	Majghai
2		Kabir Bhagat	4.2	Kanchanpur	Krishnapur	8	Majghai
3		Bhangiram Dagaura	7.0	Kanchanpur	Krishnapur	8	Majghai
4		Harguhi Dagaura	8.0	Kanchanpur	Krishnapur	8	Majghai
5		Phakuram Dagaura	16.6	Kanchanpur	Krishnapur	8	Majghai
6		Dhaniram Chaudhari	18.0	Kanchanpur	Krishnapur	8	Majghai
7		Nanda Lal Rana	15.4	Kanchanpur	Krishnapur	8	Majghai
8		Buddhi Ram Chaudhari	42.0	Kanchanpur	Krishnapur	8	Majghai
9		Bhakta Ram Chaudhari	44.0	Kanchanpur	Krishnapur	8	Majghai
10		Banda Chaudhari	64.0	Kanchanpur	Krishnapur	8	Majghai
11		Phulpati Dagaura	143.0	Kanchanpur	Krishnapur	8	Majghai
12	PRTW 3	Lautan Chaudhari	0.60	Kailali	Dhangadi	13	SriLanka
13		Aashish Rana	0.60	Kailali	Dhangadi	13	SriLanka
14		Sante Kami	1.00	Kailali	Dhangadi	13	SriLanka
15		Man Bdr. Gurung	1.00	Kailali	Dhangadi	13	SriLanka
16		Rabi Lal Chaudhari	1.60	Kailali	Dhangadi	13	SriLanka
17		Lal Bdr. Saud	1.60	Kailali	Dhangadi	13	SriLanka
18		Raj Bdr. Chaudhari	4.00	Kailali	Godawari	9	Murkati
19		Sampat Lal Chaudhari	4.00	Kanchanpur	Krishnapur	9	Jorayal Tole
20		Jagat Ram Rana	4.00	Kailali	Godawari	9	Arjun Tole
21		Bandhu Ram Chaudhari	5.00	Kanchanpur	Krishnapur	9	SriLanka
22		Man Bdr. Dagaura	8.00	Kailali	Dhangadi	13	SriLanka
23		Chhotelal Chaudhari	9.00	Kailali	Dhangadi	13	SriLanka
24		Sunita Chaudhari	5.20	Kailali	Dhangadi	13	SriLanka
25		Bandhu Ram Chaudhari	5.60	Kailali	Godawari	9	Arjun Tole
26		Ram Kumar Chaudhari	4.20	Kailali	Godawari	9	Arjun Tole
27		Bir Bdr. Chaudhari	7.60	Kailali	Godawari	9	Arjun Tole
28		Ram Bdr. Chaudhari	5.60	Kailali	Dhangadi	13	SriLanka
29		Autoriya Chaudhari	5.60	Kailali	Godawari	9	Arjun Tole
30		Phul Chandra Rana	11.00	Kailali	Godawari	9	Arjun Tole
	PRTW 4		Govt. Land				
31	PRTW 6	Debendra Saud	2.60	Kailali	Godawari	9	Murkati
32		Bahali Rana	4.00	Kailali	Godawari	9	Dhanchauri
33		Jaumati Thapa	4.00	Kailali	Dhangadi	13	SriLanka
34		Chhabilal Saud	4.00	Kailali	Godawari	9	Arjun Tole



HHs having Land In Construction Sites (Private+Ailani) Mohana-Khutiya							
S.N	PRTW No	Survey data	Land in Katha	District	GP_NP	Ward_ No	Village
	1	2	3	4	5	6	7
35		Dhana Singh Bohora	5.00	Kailali	Godawari	9	Arjun Tole
36		Rasi Rana	5.00	Kailali	Dhangadi	13	SriLanka
37		Dal Bdr. Shah	5.00	Kailali	Godawari	9	Arjun Tole
38		Dirgha Air	6.60	Kailali	Godawari	9	Arjun Tole
39		Ishwor Datta Joshi	8.00	Kailali	Godawari	9	Murkati
40		Shahali Rana	8.00	Kailali	Godawari	9	Dhanchauri
41		Harka Bdr. Saud	9.00	Kailali	Godawari	9	Dhanchauri
42		Khadga Bdr. Mahara	10.00	Kailali	Godawari	9	Murkati
43		Dararu Chaudhari	74.00	Kailali	Godawari	9	Murkati
44		Shree Prasad Chaudhari	20.00	Kailali	Godawari	9	Dhanchauri
45		Phulchandra Rana	30.00	Kailali	Dhangadi	13	SriLanka
46	PRTW 7	Hukum Bdr. Shahu	1.60	Kailali	Godawari	9	Murkati
47		Manu Devi Bohara	5.20	Kanchanpur	Krishnapur	9	Jorayal Tole
48		Bhoj Raj Chaudhari	6.00	Kailali	Godawari	9	Dhanchauri
49		Lal Bdr. Bohara	7.00	Kailali	Dhangadi	13	SriLanka
50		Bal Bdr. Jethara	10.00	Kailali	Dhangadi	13	SriLanka
51		Sinha Raj Chaudhari	15.00	Kailali	Godawari	9	Arjun Tole
52		Sanu Ram Rana	15.00	Kailali	Dhangadi	13	SriLanka
53		Sheru Bohara	10.60	Kailali	Dhangadi	13	SriLanka
54		Lal Bdr. Chaudhari	10.80	Kailali	Godawari	9	Murkati
55		Chamaru Rana	13.00	Kailali	Godawari	9	Murkati
56		Chaudhari Rana	15.00	Kailali	Godawari	9	Dhanchauri
57		Hem Raj Rana	14.00	Kailali	Godawari	9	Murkati
58		Santa Ram Rana	14.00	Kailali	Godawari	9	Murkati
59		Gopal Rana	14.00	Kailali	Godawari	9	Dhanchauri
60		Gopi Ram Rana	43.00	Kailali	Godawari	9	Murkati
61	PRTW 10	Deumani Dagaura	57.4	Kanchanpur	Krishnapur	9	Majhgaun
62	PRTW 11 a	Sheer Dagaura	3.00	Kanchanpur	Godawari	9	Srilanka
63	PRTW 11 b	Bharat Thapa	2.00	Kanchanpur	Krishnapur	9	Jorayal
64		Purnaram Chaudhari	11.00	Kanchanpur	Krishnapur	9	Jorayal
65		Ganesh Bdr. Singh	86.00	Kanchanpur	Krishnapur	9	Jorayal
66		Harka Bdr. Shaud	39.00	Arjuntale	Godawari	9	Kailali
67	PRTW 13	Asharam Chaudhari	7.00	Kailali	Godawari	9	Dhanchauri
68		Tika Ram Chaudhari	10.00	Kailali	Godawari	9	Dhanchauri
69		Ram Bdr. Chaudhari	10.00	Kailali	Godawari	9	Dhanchauri
70		Bujhauna Dagaura	40.00	Kailali	Godawari	9	Dhanchauri
71		Sujhauna Dagaura	26.00	Kailali	Godawari	9	Dhanchauri

HHs having Land In Construction Sites (Private+Ailani) Mohana-Khutiya							
S.N	PRTW No	Survey data	Land in Katha	District	GP_NP	Ward_ No	Village
	1	2	3	4	5	6	7
72		Man Bdr. Chaudhari	17.00	Kailali	Dhangadhui	13	Srilanka
73		Kadhera Rana	29.00	Kailali	Godawari	9	Dhanchauri

**Mawa- Ratuwa - List of landowners having land at construction site****A) Households with Private Land**

S.N.	PRTW	Name of Land Owner	Private Area ( in Kattha)
1	012 L	Apsara Devi Nemwang	29.4
2	012 L	Harka Maya Bhandari	75
3	012 L	Man Bdr. Bhujel	39
4	08	Murari Mishra	80
5	07	Chandra Bdr. Rai	4.9
6	07	Krishna Bdr. Badaiwa	100
7	04	Sanchita Lamsal	9
8	02	Tulasa Devi Adhikari	72
9	02	Dev Kumari Karki	46.55
10	02	Sudan Limbu	20
11	02	Chandra Kumari Limbu	38
12	02	Bishnu Maya Thapa	40
13	02	Khem Raj Khadka	10
14	02	Bhim Bdr. Khadka	9.85
15	02	Rudra Bdr. Katuwal	21.6
16	02	Sammi Dhami	5
17	01	Taranath Rajbansi	80
18	01	Dukho Devi Rajbansi	15
19	01	Harish Chandra Rajbansi	61.6
20	01	Bajra Bdr. Basnet	60
21	01	Balaram Basnet	20
22	10	Rana Maya Neupane	58
23	08	Raj Singh	10
24	07	Nanu Baba Shakya	80
25	07	Tek Bdr. Dahal	43
26	05 A - 05B	Jit Maya Angdembu	15.5
27	04	Yogendra Bdr Karki	54
28	04	Sher Bdr. Baniya	55
29	04	Mahendra Karki	44
30	04	Kalpana Devi Lamsal	7
31	02	Bhakta Bdr. Basnet	52
32	02	Man Bdr. Katuwal	15

**B) Households with Private and Ailani Land**

S.N.	PRTW	Name of Land Owners	Ailani	Private	Total ( in Kattha)
1	12 L	Nara Kumari Shahi	3	25.5	28.5
2	12 L	Tulasa Devi Mishra	2	2	4
3	09 A - 09 B	Tika Ram Poudel	15	6	21
4	09 A - 09 B	Maniraj Iwa Limbu	40	8	48

S.N.	PRTW	Name of Land Owners	Ailani	Private	Total ( in Kattha)
5	09 A - 09 B	Deepak Tamang	7	4	11
6	09 A - 09 B	Harka Bdr. Limbu	30	1	31
7	09 A - 09 B	Rana Bdr. Adhikari	20	40	60
8	09 A - 09 B	Chudamani Regmi	2	40	42
9	09 A - 09 B	Deshu Sauden	5	40	45
10	07	Chhali Maya Rai	22	7.5	29.5
11	07	Bhakta Kumar Tamang	88.55	8	96.55
12	05 A - 05 B	Prem Limbu	6	0.5	6.5
13	05 A - 05 B	Mangal Kumari Darnal	10	0.5	10.5
14	05 A - 05 B	Sukmaya Chaudhari	1.5	3	4.5
15	03	Sabidra Bhandari	10	30	40
16	03	Dil Kumari Lawati	6.5	10	16.5
17	03	Prem Lawati	17	46	63
18	03	Tek Bdr. Limbu	10	6	16
19	03	Birendra Bohora	6	20	26
20	03	Gauri Pd. Bohora	15	18	33
21	01	Dambar Bdr. Basnet	10	1.5	11.5
22	012 L	Rupa Devi Gautam	25	83	108
23	07	Chakra Bdr. Shrestha	30	26	56
24	07	Bhim Bdr. Rai	40	23	63
25	02	Dil Bdr. Katuwal	55	70	125
26	02	Lila Devi Gautam	15	30	45
27	02	Deva Kumar Katuwal	15	15	30
28	02	Manama Adhikari	2.5	25	27.5
29	01	Bhagwan Pd. Rajbansi	50	90	140
30	01	Nara Bdr. Basnet	50	31.75	81.75
31	01	Min Pd. Dulal	30	70	100
32	01	Bandor Badai Sharma	1.5	18.25	19.75

### C) Households with *Ailani* Land only

S.N.	PRTW	Name of Land Owner	Ailani Land in Kattha
1	09 D	Ambar Bdr. Magar	0.35
2	09 C	Saraswoti Lamichhane	0.3
3	09 C	Mohan Limbu	5
4	09 C	Madan Darjee	0.25
5	09 C	Nir Bdr. Darjee	0.2
6	09 A - 09 B	Padam Bdr. Shrestha	6
7	09 A - 09 B	Nirajan Nepali	1
8	09 A - 09 B	Ganesh Bdr. Poudel	50
9	09 A - 09 B	Sharan Kumar Darjee	3
10	05 A - 05 B	Dil Bdr. Mahat	0.5
11	05 A - 05 B	Sukamaya B.K.	20
12	05 A - 05 B	Bhupal Mahat	0.5
13	05 A - 05 B	Prakash Mahat	0.5

S.N.	PRTW	Name of Land Owner	Ailani Land in Kattha
14	05 A - 05 B	Ramesh Karki	0.55
15	03	Kiran Devi Rai	7
16	03	Rajkumar Shrestha	8
17	03	Dudhraj Basnet	12
18	03	Bhim Pd. Lawati	20
19	03	Anita Tamang	7
20	03	Dhirendra Kumar Shrestha	5
21	03	Bhim Bdr. Khadka	10

### West Rapti - Details of landowners and land parcels owned

#### A) Private Land Owners

S.N.	PRTW No	Land Owners	Total Land in Kattha	District	GP/NP	Ward No.	Village/ Location
1	01	Dukhiram Chaudhari	20	Dang	Gadhawa	2	Mahadeva
2	01	Gyan Prasad Chaudhari	54	Dang	Gadhawa	2	Mahadeva
3	01	Jagani Chaudhari	15.6	Dang	Gadhawa	2	Kothari
4	01	Sagani Chaudhari	6	Dang	Gadhawa	2	Kothari
5	01	Chhoteram Chaudhari	8	Dang	Gadhawa	2	Pachaha
6	01	Theman Prasad Chaudhari	9	Dang	Gadhawa	2	Pachaha
7	01	Shyam Raj Chaudhari	60	Dang	Gadhawa	2	Pachaha
8	01	Brij Nanda Chaudhari	9	Dang	Gadhawa	2	Pachaha
9	01	Rukmaniya Chaudhari	7	Dang	Gadhawa	2	Kothari
10	01	Sarpal Chaudhari	22	Dang	Gadhawa	2	Kothari
11	07-08	Pujaram Chaudhari	40	Dang	Rapti Sonari	2	Kachanapur
12	07-08	Bhagilal, Kulram, Kali Prasad Tharu	19	Dang	Rapti Sonari	2	Kachanapur
13	01	Bhoj Raj Chaudhari	28.2	Dang	Gadhawa	2	Pachaha
14	01	Narendra Kumar Chaudhari	200	Dang	Gadhawa	2	Pachaha
15	01	Dev Prasad Chaudhari	17	Dang	Gadhawa	2	Kothari
16	01	Asaram Chaudhari	18	Dang	Gadhawa	2	Kothari
17	01	Khusiram Chaudhari	21	Dang	Gadhawa	2	Kothari
18	01	Jayarkhan Chaudhari	24	Dang	Gadhawa	2	Mahadeva
19	01	Guru Prasad Chaudhari	17	Dang	Gadhawa	2	Mahadeva
20	01	Kaliram Chaudhari	1.4	Dang	Gadhawa	2	Mahadeva
21	02	Kanhaiya Lal Chaudhari	22	Dang	Gadhawa	4	Khadagpur
22	02	Bodhi Lal Chaudhari	35	Dang	Gadhawa	4	Khadagpur
23	02	Rajaram Chaudhari	36.4	Dang	Gadhawa	4	Khadagpur
24	02	Ram Gopal Chaudhari	52.6	Dang	Lamahi	2	Chhigatpur
25	03	Hiramani Chaudhari	16.4	Dang	Gadhawa	5	Prasiya
26	02	Rajendra Pd. Chaudhari	292	Dang	Gadhawa	4	Khadagpur
27	06	Sukadevi Chaudhari	20	Dang	Gadhawa	7	Kanchhi Gaun
28	06	Basanta Dangi	17.6	Dang	Gadhawa	7	Jharbaira
29	01	Laxmi Prasad Chaudhari	9	Dang	Gadhawa	2	Pachaha
30	01	Paradeshi Chaudhari	11	Dang	Gadhawa	2	Pachaha
31	01	Shree Ram Chaudhari	15	Dang	Gadhawa	2	Pachaha
32	01	Mahesh Kumar Chaudhari	80	Dang	Gadhawa	2	Pachaha
33	01	Phiriya Chaudhari	5	Dang	Gadhawa	2	Kothari
34	01	Prithvi Raj Chaudhari	10	Dang	Gadhawa	2	Kothari

S.N.	PRTW No	Land Owners	Total Land in Kattha	District	GP/NP	Ward No.	Village/ Location
35	01	Ram Prasad Chaudhari	19	Dang	Gadhawa	2	Kothari
36	01	Ram Nath Chaudhari	14	Dang	Gadhawa	2	Mahadeva
37	01	Thagilal Chaudhari	2	Dang	Gadhawa	2	Mahadeva
38	02	Tilak Chaudhari	303	Dang	Gadhawa	4	Khadagpur
39	02	Kali Prasad Chaudhari	35	Dang	Gadhawa	4	Khadagpur
40	02	Shiva Narayan Chaudhari	19	Dang	Gadhawa	4	Khadagpur
41	02	Khusal Ram Chaudhari	40	Dang	Lamahi	2	Chhigatpur
42	03	Dash Chaudhari	130	Dang	Gadhawa	5	Lokharpur
43	06	Tularam Chaudhari	32.6	Dang	Gadhawa	7	Kanchhi Gaun
44	01	Bir Prasad Chaudhari	7	Dang	Gadhawa	2	Pachaha
45	01	Shiva Devi Chaudhari	34	Dang	Gadhawa	2	Pachaha
46	02	Prameshwori Devi Chaudhari	20	Dang	Gadhawa	4	Khadagpur
47	03	Thagu Chaudhari	18	Dang	Gadhawa	5	Prasiya
48	06	Shovaram Chaudhari	30	Dang	Gadhawa	7	Kanchhi Gaun
49	06	Laxman Chaudhari	56	Dang	Gadhawa	7	Kanchhi Gaun
50	07-08	Khushiram Tharu	40	Dang	Rapti Sonari	2	Kachanapur
51	07-08	Shanti Tharuni	15	Dang	Rapti Sonari	2	Kachanapur
52	07-08	Sundar Lal Tharu	18	Dang	Rapti Sonari	2	Kachanapur
53	01	Ramsworup Chaudhari	30	Dang	Gadhawa	2	Mahadeva
54	01	Hari Lal Chaudhari	30	Dang	Gadhawa	2	Kothari
55	01	Rajaram Chaudhari	20.2	Dang	Gadhawa	2	Kothari
56	01	Bidesh Chaudhari	45	Dang	Gadhawa	2	Pachaha
57	01	Dosh Haran Chaudhari	50	Dang	Gadhawa	2	Pachaha
58	01	Gokul Prasad Chaudhari	75	Dang	Gadhawa	2	Pachaha
59	01	Shyam Kishor Chaudhari	31.6	Dang	Gadhawa	2	Pachaha
60	01	Pradeshi Chaudhari	21.6	Dang	Gadhawa	2	Kothari
61	01	Kram Bdr. Chaudhari	7	Dang	Gadhawa	2	Kothari
62	01	Shiva Kumari Chaudhari	12	Dang	Gadhawa	2	Mahadeva
63	02	Hari Narayan Chaudhari	40	Dang	Gadhawa	2	Chhigatpur
64	02	Baikuntha Prasad Chaudhari	30	Dang	Gadhawa	4	Khadagpur
65	02	Lahanu Chaudhari	3.2	Dang	Gadhawa	4	Khadagpur
66	03	Jel Prasad Chaudhari	50	Dang	Gadhawa	5	Lokharpur
67	06	Girdhari Chaudhari	32	Dang	Gadhawa	7	Kanchhi Gaun
68	07-08	Prem Lal Chaudhari	12	Dang	Rapti Sonari	2	Kachanapur
69	01	Ganesh Chaudhari	3.4	Dang	Gadhawa	2	Kothari
70	01	Shuka Dev Chaudhari	4.4	Dang	Gadhawa	2	Kothari
71	01	Lalata Chaudhari	5.8	Dang	Gadhawa	2	Pachaha
72	01	Labaru Chaudhari	0.4	Dang	Gadhawa	2	Kothari
73	01	Ram Karan Chaudhari	2.4	Dang	Gadhawa	2	Kothari
74	01	Shiva Kumar Chaudhari	1	Dang	Gadhawa	2	Kothari
75	01	Dubaru Chaudhari	3.2	Dang	Gadhawa	2	Mahadeva
76	01	Paltu Chaudhari	3	Dang	Gadhawa	2	Mahadeva
77	01	Ram Lakhan Chaudhari	9.8	Dang	Gadhawa	2	Mahadeva
78	01	Dukhiram Chaudhari	12.4	Dang	Gadhawa	2	Pachaha
79	01	Prem Kumar Chaudhari	14	Dang	Gadhawa	2	Pachaha
80	01	Prem Lal Chaudhari	2	Dang	Gadhawa	2	Pachaha
81	02	Dukhiram Chaudhari	85.2	Dang	Gadhawa	4	Khadagpur

S.N.	PRTW No	Land Owners	Total Land in Kattha	District	GP/NP	Ward No.	Village/ Location
82	02	Shivahari Chaudhari	29.6	Dang	Gadhawa	4	Khadagpur
83	02	Bishnumati Chaudhari	20	Dang	Gadhawa	4	Khadagpur
84	03	Krishna Kumar Chaudhari	18	Dang	Gadhawa	5	Lokharpur
85	06	Sujita Chaudhari	83.2	Dang	Gadhawa	7	Kanchhi Gaun
86	06	Kesh Kumar Chaudhari	80	Dang	Gadhawa	7	Kanchhi Gaun
87	06	Ram Pati Chaudhari	320	Dang	Gadhawa	7	Kanchhi Gaun
88	07-08	Prem, Sushil, Sudhir and Surendra Bhandari	440	Dang	Rapti Sonari	2	Kachanapur
89	07-08	Keshab Raj Poudel	500	Dang	Rapti Sonari	2	Kachanapur

#### B) Households having Ailani Land in Construction Sites

S.N	PRTW No.	Name of Land Owner	Total Land Owned in Kattha	District	GP/NP	Ward No	Village /Place
1	03	Dhana Bdr. Chaudhari	17	Dang	Gadhawa	5	Prasiya
2	03	Phaguram Chaudhari	15	Dang	Gadhawa	5	Prasiya
3	03	Ramesh Chaudhari	18	Dang	Gadhawa	5	Prasiya
4	03	Bhojram Chaudhari	17	Dang	Gadhawa	5	Prasiya
5	03	Kalu Chaudhari	15	Dang	Gadhawa	5	Prasiya
6	03	Dhotiram Chaudhari	15	Dang	Gadhawa	5	Prasiya
7	03	Guruji Chaudhari	15	Dang	Gadhawa	5	Prasiya
8	03	Deumayi Chaudhari	15	Dang	Gadhawa	5	Prasiya
9	07-08	Sahayab Din Tharu	26	Dang	Gadhawa	5	Prasiya
10	07-08	Lal Bdr. Tharu	8	Dang	Gadhawa	5	Prasiya
11	03	Chandra Pd. Chaudhari	12	Dang	Gadhawa	5	Prasiya
12	03	Krishna Chaudhari	10	Dang	Gadhawa	5	Prasiya
13	03	Dukhiram Chaudhari	3	Dang	Gadhawa	5	Prasiya
14	03	Deu Kumari Chaudhari	15	Dang	Gadhawa	7	Kanchhi Gaun
15	03	Hema Chaudhari	15.4	Dang	Gadhawa	7	Kanchhi Gaun
16	03	Puran Lal Chaudhari	16	Dang	Rapti Sonari	2	Kachanapur
17	03	Ram Lal Chaudhari	36	Dang	Rapti Sonari	2	Kachanapur
18	03	Tularam Chaudhari	25	Dang	Rapti Sonari	2	Kachanapur
19	03	Shir Bdr. Chaudhari	7	Dang	Gadhawa	2	Mahadeva
20	03	Lahiya Chaudhari	16	Dang	Gadhawa	2	Kothari
21	03	Ramu Chaudhari	17	Dang	Gadhawa	2	Kothari
22	03	Indra Prasad Chaudhari	15.6	Dang	Gadhawa	2	Pachaha
23	03	Ganga Prasad Chaudhari	10	Dang	Gadhawa	2	Pachaha
24	03	Aasha Chaudhari	11	Dang	Gadhawa	2	Pachaha
25	03	Arjun Chaudhari	7	Dang	Gadhawa	2	Pachaha
26	03	Rajman Chaudhari	8	Dang	Gadhawa	2	Kothari
27	03	Ram Shankar Chaudhari	27	Dang	Gadhawa	2	Kothari
28	03	Santosh Chaudhari	31	Dang	Gadhawa	2	Mahadeva
29	03	Sitaram Chaudhari	26	Dang	Gadhawa	2	Chhigatpur
30	03	Om Prakash Chaudhari	23	Dang	Gadhawa	4	Khadagpur
31	03	Hari Prasad Chaudhari	16	Dang	Gadhawa	4	Khadagpur
32	03	Hari Charan Chaudhari	17	Dang	Gadhawa	5	Prasiya
33	03	Kali Ram Chaudhari	22	Dang	Gadhawa	5	Prasiya

S.N	PRTW No.	Name of Land Owner	Total Land Owned in Kattha	District	GP/NP	Ward No	Village /Place
34	03	Purna Bdr. Chaudhari	16	Dang	Gadhawa	5	Prasiya
35	03	Kallu Chaudhari	26	Dang	Gadhawa	5	Prasiya
36	03	Aasha Ram Chaudhari	18	Dang	Gadhawa	5	Prasiya
37	03	Laiparan Chaudhari	25	Dang	Gadhawa	5	Prasiya
38	03	Buddhi Ram Chaudhari	34	Dang	Gadhawa	5	Prasiya
39	03	Bharat Mani Chaudhari	16	Dang	Gadhawa	5	Prasiya
40	03	Laxman Chaudhari	5	Dang	Gadhawa	5	Prasiya
41	03	Shree Ram Chaudhari	20	Dang	Gadhawa	5	Prasiya
42	03	Prasadu Chaudhari	10.8	Dang	Gadhawa	5	Prasiya
43	03	Lal Bdr. Chaudhari	12.6	Dang	Gadhawa	5	Lokharpur
44	03	Bal Bdr. Chaudhari	13	Dang	Gadhawa	5	Prasiya
45	03	Hari Lal Chaudhari	18	Dang	Gadhawa	5	Prasiya
46	03	Dukhiram Chaudhari	13	Dang	Gadhawa	5	Prasiya
47	03	Bhojlal Chaudhari	14	Dang	Gadhawa	7	Kanchhi Gaun
48	03	Gyan Bdr. Chaudhari	10	Dang	Rapti Sonari	2	Kachanapur
49	03	Asaram Chaudhari	22	Dang	Gadhawa	2	Kothari
50	03	Manirami Chaudhari	20	Dang	Gadhawa	2	Kothari
51	03	Pateshwori Chaudhari	35	Dang	Gadhawa	2	Pachaha
52	03	Ishru Chaudhari	13	Dang	Gadhawa	2	Kothari
53	03	Madhu Chaudhari	18	Dang	Gadhawa	2	Kothari
54	03	Jallu Chaudhari	16.8	Dang	Gadhawa	2	Kothari
55	03	Hairam Chaudhari	18	Dang	Gadhawa	2	Mahadeva
56	03	Bhagmani Chaudhari	21	Dang	Gadhawa	2	Mahadeva
57	03	Lalawa Chaudhari	20.2	Dang	Gadhawa	2	Mahadeva
58	03	Shyam Bdr. Chaudhari	16	Dang	Gadhawa	2	Pachaha
59	03	Bhagmani Chaudhari	11.2	Dang	Gadhawa	2	Pachaha
60	03	Mangal Prasad Chaudhari	15	Dang	Gadhawa	2	Pachaha
61	03	Balak Ram Chaudhari	17	Dang	Gadhawa	4	Khadagpur
62	03	Chetram Chaudhari	13	Dang	Gadhawa	4	Khadagpur
63	03	Hirman Chaudhari	18	Dang	Gadhawa	4	Khadagpur
64	03	Kalluram Chaudhari	10	Dang	Gadhawa	5	Prasiya
65	03	Phahari Chaudhari	9	Dang	Gadhawa	5	Prasiya
66	03	Min Bdr. BC	40	Dang	Gadhawa	5	Prasiya
67	03	Dhruba Bdr. BC	15	Dang	Gadhawa	5	Lokharpur
68	03	Parema Chaudhari	15	Dang	Gadhawa	5	Prasiya
69	03	Shukku Chaudhari	15	Dang	Gadhawa	5	Prasiya
70	03	Sukhiram Chaudhari	15	Dang	Gadhawa	5	Prasiya
71	03	Satguru Chaudhari	15	Dang	Gadhawa	5	Prasiya
72	03	Chitamani Chaudhari	15	Dang	Gadhawa	5	Prasiya
73	03	Madhu Chaudhari	15	Dang	Gadhawa	5	Prasiya
74	03	Tara BC	40	Dang	Gadhawa	5	Prasiya
75	03	Yam Bdr. Chaudhari	12	Dang	Gadhawa	5	Prasiya
76	03	Saniram Chaudhari	10	Dang	Gadhawa	5	Prasiya
77	03	Bhagmani Chaudhari	11	Dang	Gadhawa	5	Prasiya
78	03	Devabhumi Chaudhari	12	Dang	Gadhawa	5	Prasiya
79	03	Mahabir Chaudhari	12	Dang	Gadhawa	5	Prasiya
80	03	Tulasi Ram Chaudhari	10	Dang	Gadhawa	5	Prasiya
81	07-08	Dhanabir Thapa	25	Dang	Gadhawa	5	Lokharpur



**Bakraha - Details of landowners and land parcels owned**

S.N.	Affect Type	Parcel No	Name of Respondent	Ailani in Kattha	Private Kattha	Total Kattha	sq.m	Area Required Sq m	% of Land Loss
1	Private	430,426,298,397,301, 296,40	Sanjaya Kumar Yadav	0	40	40	13520	426.22	3.15
2	Private	17,19,21,24,26,77,4,28,75	Bagalal Amat	0	40	40	13520	1717.58	12.70
3	Private	304,306,309,285,100,185,84,86223	Manmohan Singh Ganagai	0	110	110	37180	1585.26	4.26
4	Private		Kishan Prasad Amat	0	14	14		NA	
5	Private	343443483,51,410	Sanoth Kumar Yadav	0	40	40	13520	1060.11	7.84
6	Private	355	Binod Kumar Yadav	0	88.9	88.9	30048.2	NA	
7	Private/Ailani	446,441,38, 300,411	Sachida Nanda Yadav	10.5	60	70.5		NA	
8	Private/Ailani	3832,08,369	Om Prakash Yadav	5	53.35	58.35	19722	141.16	0.72
9	Private		Singeshwor Singh	0	110	110	37180	699.66	1.88
10	Private/Ailani	1,46,231	Lalit Prasad Yadav	31	131.85	162.85	55060	149.95	0.27
11	Private/Ailani	1831953,46,347	Sanjeev Kumar Yadav	15	60	75		NA	
12	Private/Ailani	27,127	Surendra Lingden	5	80	85	28730	871.25	3.03
13	Private	2,19,221	Ganesh Bdr. Basnet+Dal Bdr	0	38	38	12844	75.58	0.59
14	Private	19,103	Saulen Lingden	0	24	24	8112	380.24	4.69
15	Private	32	Krishna Kumar Lama	0	102.65	102.65	34712.6	306.16	0.88
16	Private		Ganesh Bdr. Basnet	0	45.4	45.4		NA	
17	Private/Ailani	1411,42,146	Sharmila Sewa	50	34	84	28392	830.79	2.93
18	Private	1,40,144	Sharmila Sewa	0	7.5	7.5	2535	451.01	17.79
19	Private/Ailani	108,96	Sharmila Rimal	20	21.05	41.05	13874.9	926.01	6.67
20	Private	80	Pushpa Bdr Thapa	0	31.25	31.25	10562.5	254.88	2.41
21	Private	7	Jagannath Kuikel	0	27	27	2366	1428.98	60.40
22	Private	501	Tej Bdr. Dhimal	0	4.5	4.5	1521	604.68	39.76
23	Private	336	Lok Prasad Bhattarai	0	14	14	4732	275.11	5.81
24	Private/Ailani		Dal Bdr. Rana Magar	23	0	23			

S.N.	Affect Type	Parcel No	Name of Respondent	Ailani in Kattha	Private Kattha	Total Kattha	sq.m	Area Required Sq m	% of Land Loss
25	Private/Ailani		Dhana Kumari B.K.	10	38	48			
26	Private/Ailani		Ram Bdr. Rana Magar	23	5	28			
27	Ailani		Tara Kumar Kurungbang	7	0	7			
28	Private/Ailani		Lila Bdr. Shrestha	10	1	11			
29	Ailani		Singha Bdr. Rai	18	0	18			
30	Ailani		Man Bdr. Limbu	25	0	25			
31	Ailani		Dal Bdr. Lawati	20	0	20			
32	Ailani		Bishnu Kumar Pyangu	15	0	15			
33	Private/Ailani		Rita Pariyar	27	40	67			
34	Ailani		Dambar Payangu	15	0	15			
35	Ailani		Tika Bdr. Jogi	4	0	4			
36	Ailani		Manju Dhimal	15	0	15			
37	Ailani		Kamal Maya Limbu	8	0	8			
38	Ailani		Jamuna Kurumbang	10	0	10			
39	Ailani		Tek Bdr. Limbu	5	0	5			
40	Private/Ailani		Gyanendra Lawati	20	3	23			
41	Private/Ailani		Dil Kumar Chemjong	22	2	24			
42	Private/Ailani		Ganesh Kumar Shrestha	20	5	25			
43	Private/Ailani		Ram Prasad Dhimal	16	4	20			
44	Private/Ailani		Dal Bdr. Limbu	20	2	22			
45	Ailani		Chandra Bdr. Limbu	20	0	20			
46	Private/Ailani		Lek Bdr. Shrestha	40	30	70			
47	Ailani		Devananda Limbu	20	0	20			
48	Ailani		Tara Devi Katuwal	30	0	30			
49	Private/Ailani		Kushmamaya Shrestha	8	1	9			
50	Ailani		Mani Kumar Kerung	22	0	22			

S.N.	Affect Type	Parcel No	Name of Respondent	Ailani in Kattha	Private Kattha	Total Kattha	sq.m	Area Required Sq m	% of Land Loss
51	Private/Ailani		Tika Dhwoj Chemjung	30	5	35			
52	Private/Ailani		Surya Bdr. Lawati	20	0.5	20.5			
53	Private/Ailani		Lok Bdr. Thapa	15	10	25			

**Lakhandehi Households having Land at embankment Sites**

<b>S.N.</b>	<b>PRTW</b>	<b>Name of Land Owner</b>	<b>Name of Location</b>	<b>Land Owned (in Kattha)</b>
1	08	Chhatiya Devi Kumar	Kachhadiya	31.00
2	01	Bhumika Shrestha	Pattharkot	3.00
3	08	Uga Kumar	Kachhadiya	9.00
4	01	Chandra Bdr. Shrestha	Pattharkot	13.45
5	01	Surendra Kr. Shrestha	Pattharkot	7.00
6	01	Hem Bdr. Shrestha	Pattharkot	12.00
7	08	Ram Prasad Shrestha	Kachhadiya	28.50
8	01	Shiva Prasad Timalisina	Jiyajor	1.00
9	08	Raj Narayan Kumar	Kacchhariya	23.00
10	01	Balaram Shrestha	Pattharkot	0.35
11	08	Dukhiya Devi Kumar	Kachhadiya	200.00
12	01	Bishnu Maya Timalisina	Jiyajor	25.00
13	01	Gokarna Bdr. Shrestha	Pattharkot	18.00
14	01	Shankar Timalisina	Pattharkot	4.25
15	08	Jugni Devi Kumar	Kachhadiya	2.50
16	01	Sheer Bdr. Majhi	Jiyajor	10.00
17	01	Talim Bdr. Guramchhan	Syangwa Danda	75.00
18	01	Krishna Das Shrestha	Pattharkot	20.00
19	01	Lal Bdr. Moktan	Pattharkot	10.00
20	01	Manbir Majhi	Pattharkot	24.00
21	01	Gyan Bdr. Majhi	Jiyajor	25.50
22	01	Jit Narayan Shrestha	Pattharkot	15.00
23	01	Bishnu Maya Yonjan	Pattharkot	0.40
24	01	Chakra Bdr. Shrestha	Pattharkot	7.00
25	01	Buddhi Bdr. Pariyar	Pattharkot	12.50
26	01	Narayan Das Shrestha	Pattharkot	10.00
27	01	Bhim Bdr. Majhi	Pattharkot	40.00
28	01	Rup Bdr. Thing	Pattharkot	70.00
29	01	Babu Lal Majhi	Jiyajor	4.40
30	01	Bishnu Majhi	Jiyajor	7.00
31	01	Man Bdr. Katuwal	Pattharkot	15
32	01	Chandra Dev Shrestha	Pattharkot	12.00
33	01	Tek Bdr. Majhi	Jiyajor	3.50
34	01	Hari Bdr. Timalisina	Jiyajor	3.00
35	01	Keshab Prasad Timalisina	Bahuni Danda	20.00
36	01	Khadag Man Lama	Jiyajor	0.75
37	01	Santabir Majhi	Jiyajor	17.00
38	01	Chanamaya Majhi	Jiyajor	1.60
39	01	Ram Bdr. Moktan	Jiyajor	9.00
40	01	Man Bdr. Shrestha	Jiyajor	8.00

<b>S.N.</b>	<b>PRTW</b>	<b>Name of Land Owner</b>	<b>Name of Location</b>	<b>Land Owned (in Kattha)</b>
41	01	Dayawati Majhi	Lalbandi	3.50
42	01	Raju Bardewa	Lalbandi	3.00
43	01	Lal Bdr. Ghising	Lalbandi	13.00
44	01	Dhogbir Majhi	Lalbandi	7.00
45	01	Purna Majhi	Lalbandi	2.00
46	01	Shree Lal Majhi	Lalbandi	11.00
47	01	Rajman Majhi	Lalbandi	2.00
48	01	Dil Bdr. Majhi	Lalbandi	12.00
49	01	Man Bdr. Majhi	Lalbandi	40.00
50	01	Chandra Bdr. Majhi	Lalbandi	16.00
51	01	Bishnu Majhi	Lalbandi	36.00

**Appendix-6. Estimation of Loss of Income by Affected HHs****Mohana Khutiya -Estimation of Loss of Income by Affected HHs**

<b>PRTW</b>	<b>Name of Land Owner</b>	<b>Total Land Owned (Kattha)</b>	<b>Avg. Annual Income</b>	<b>Income from Farming</b>	<b>Income Loss due to Project</b>	<b>% loss of Total Income</b>
02	Jaggu Dagaura	2	130000	10000	776	0.60
02	Kabir Bhagat	4.2	213000	0	0	0.00
02	Bhangiram Dagaura	7	185000	50000	3879	2.10
02	Harguhi Dagaura	8	270000	50000	3879	1.44
02	Phakuram Dagaura	16.6	170000	75000	5819	3.42
02	Dhaniram Chaudhari	18	340000	100000	7759	2.28
02	Nanda Lal Rana	15.4	295000	100000	7759	2.63
02	Buddhi Ram Chaudhari	42	265000	110000	8534	3.22
02	Bhakta Ram Chaudhari	44	301000	80000	6207	2.06
02	Banda Chaudhari	64	310000	90000	6983	2.25
02	Phulpati Dagaura	143	225000	225000	17457	7.76
03	Lautan Chaudhari	0.6	130000	10000	776	0.60
03	Aashish Rana	0.6	90000	0	0	0.00
03	Sante Kami	1	120000	0	0	0.00
03	Man Bdr. Gurung	1	180000	0	0	0.00
03	Rabi Lal Chaudhari	1.6	302000	2000	663	0.22
03	Lal Bdr. Saud	1.6	158000	8000	2653	1.68
03	Raj Bdr. Chaudhari	4	195000	15000	4975	2.55
03	Sampat Lal Chaudhari	4	190000	35000	11608	6.11
03	Jagat Ram Rana	4	270000	20000	6633	2.46
03	Bandhu Ram Chaudhari	5	160000	10000	3317	2.07
03	Man Bdr. Dagaura	8	195000	20000	6633	3.40
03	Chhotelal Chaudhari	9	340000	60000	19899	5.85
03	Sunita Chaudhari	5.2	190000	30000	9950	5.24
03	Bandhu Ram Chaudhari	5.6	185000	35000	11608	6.27
03	Ram Kumar Chaudhari	4.2	250000	0	0	0.00
03	Bir Bdr. Chaudhari	7.6	217000	22000	7296	3.36
03	Ram Bdr. Chaudhari	5.6	160000	35000	11608	7.25
03	Autoriya Chaudhari	5.6	210000	10000	3317	1.58
03	Phul Chandra Rana	11	150000	0	0	0.00
06	Debendra Saud	2.6	140000	15000	2171	1.55
06	Bahali Rana	4	67000	32000	4632	6.91
06	Jaumati Thapa	4	43000	19000	2750	6.40
06	Chhabilal Saud	4	134000	10000	1448	1.08
06	Dhana Singh Bohora	5	240000	20000	2895	1.21

PRTW	Name of Land Owner	Total Land Owned (Kattha)	Avg. Annual Income	Income from Farming	Income Loss due to Project	% loss of Total Income
06	Rasi Rana	5	102000	22000	3185	3.12
06	Dal Bdr. Shah	5	190000	20000	2895	1.52
06	Dirgha Air	6.6	280000	30000	4343	1.55
06	Ishwor Datta Joshi	8	167000	32000	4632	2.77
06	Shahali Rana	8	210000	50000	7238	3.45
06	Harka Bdr. Saud	9	240000	40000	5790	2.41
06	Khadga Bdr. Mahara	10	165000	45000	6514	3.95
06	Dararu Chaudhari	74	480000	200000	28952	6.03
06	Shree Prasad Chaudhari	20	210000	100000	14476	6.89
06	Phulchandra Rana	30	325000	80000	11581	3.56
07	Hukum Bdr. Shahu	1.6	160000	15000	2183	1.36
07	Manu Devi Bohara	5.2	225000	40000	5820	2.59
07	Bhoj Raj Chaudhari	6	365000	80000	11640	3.19
07	Lal Bdr. Bohara	7	172000	32000	4656	2.71
07	Bal Bdr. Jethara	10	250000	50000	7275	2.91
07	Sinha Raj Chaudhari	15	400000	80000	11640	2.91
07	Sanu Ram Rana	15	250000	60000	8730	3.49
07	Sheru Bohara	10.6	260000	40000	5820	2.24
07	Lal Bdr. Chaudhari	10.8	225000	75000	10913	4.85
07	Chamaru Rana	13	180000	55000	8003	4.45
07	Chaudhari Rana	15	153000	53000	7712	5.04
07	Hem Raj Rana	14	335000	60000	8730	2.61
07	Santa Ram Rana	14	130000	50000	7275	5.60
07	Gopal Rana	14	325000	40000	5820	1.79
07	Gopi Ram Rana	43	155000	120000	17460	11.26 <sup>30</sup>
10	Deumani Dagaura	57.4	254000	150000	18763	7.39
11A	Sheer Dagaura	3	150000	10000	3335	2.22
11B	Bharat Thapa	2	214000	10000	3159	1.48
11B	Purnaram Chaudhari	11	405000	45000	14217	3.51
11B	Ganesh Bdr. Singh	86	260000	40000	12638	4.86
11B	Harka Bdr. Shaud	39	385000	85000	26855	6.98
13	Asharam Chaudhari	7	220000	40000	4342	1.97

<sup>30</sup>Gopi Ram Rana was identified as losing 11.26% of annual income as a result of donating lands to the project on the embankment. Gopi Ram Rana estimates that this would be the annual crop loss associated with the embankment construction on a portion of his land. Consultation with Gopi confirms that he is nonetheless very interested to donate the strip of land because he will be able to use the remaining land portion all year round instead of on a seasonal basis and therefore expects to increase his annual income. The social Safeguardss due diligence team are satisfied that Gobi will not be impoverished as a result of the donation and will instead improve his livelihood outcomes as a result of the project.

PRTW	Name of Land Owner	Total Land Owned (Kattha)	Avg. Annual Income	Income from Farming	Income Loss due to Project	% loss of Total Income
13	Tika Ram Chaudhari	10	286000	46000	4994	1.75
13	Ram Bdr. Chaudhari	10	290000	140000	15199	5.24
13	Bujhauna Dagaura	40	270000	50000	5428	2.01
13	Sujhauna Dagaura	26	295000	35000	3800	1.29
13	Man Bdr. Chaudhari	17	110000	35000	3800	3.45
13	Kadhera Rana	29	250000	60000	6514	2.61

### Mawa- Ratuwa - Estimated Loss of Income by Affected Households

PRTW No	Respondent Name	Land owned in Katha	Avg. Annual Income	Avg. Annual Income from Farming	Income Loss due to Project	% loss of Total Income
1	Taranath Rajbansi	80	510000	60000	4109	0.81
1	Dukho Devi Rajbansi	15	295000	50000	3424	1.16
1	Harish Chandra Rajbansi	61.6	472000	32000	2192	0.46
1	Bajra Bdr. Basnet	60	459000	75000	5137	1.12
1	Balaram Basnet	20	420000	0	0	0.00
1	Dambar Bdr. Basnet	11.5	424000	124000	8492	2.00
1	Bhagwan Pd. Rajbansi	140	500000	100000	6849	1.37
1	Nara Bdr. Basnet	81.75	474000	70000	4794	1.01
1	Min Pd. Dulal	100	375000	45000	3082	0.82
1	Bandor Badai Sharma	19.75	275000	20000	1370	0.50
2	Tulasa Devi Adhikari	72	330000	90000	5904	1.79
2	Dev Kumari Karki	46.55	420000	90000	5904	1.41
2	Sudan Limbu	20	340000	15000	984	0.29
2	Chandra Kumari Limbu	38	337000	25000	1640	0.49
2	Bishnu Maya Thapa	40	204000	120000	7872	3.86
2	Khem Raj Khadka	10	225000	25000	1640	0.73
2	Bhim Bdr. Khadka	9.85	145000	55000	3608	2.49
2	Rudra Bdr. Katuwal	21.6	270000	70000	4592	1.70
2	Sammi Dhami	5	375000	25000	1640	0.44
2	Bhakta Bdr. Basnet	52	370000	110000	7216	1.95
2	Man Bdr. Katuwal	15	275000	25000	1640	0.60
2	Dil Bdr. Katuwal	125	410000	50000	3280	0.80
2	Lila Devi Gautam	45	305000	35000	2296	0.75
2	Deva Kumar Katuwal	30	472000	40000	2624	0.56
2	Manama Adhikari	27.5	330000	30000	1968	0.60
3	Sabidra Bhandari	40	335000	50000	2896	0.86
3	Dil Kumari Lawati	16.5	280000	20000	1158	0.41



PRTW No	Respondent Name	Land owned in Katha	Avg. Annual Income	Avg. Annual Income from Farming	Income Loss due to Project	% loss of Total Income
3	Prem Lawati	63	155000	35000	2027	1.31
3	Tek Bdr. Limbu	16	330000	30000	1737	0.53
3	Birendra Bohora	26	125000	80000	4633	3.71
3	Gauri Pd. Bohora	33	265000	100000	5791	2.19
3	Kiran Devi Rai	7	370000	35000	2027	0.55
3	Rajkumar Shrestha	8	305000	15000	869	0.28
3	Dudhraj Basnet	12	324000	65000	3764	1.16
3	Bhim Pd. Lawati	20	190000	80000	4633	2.44
3	Anita Tamang	7	340000	20000	1158	0.34
3	Dhirendra Kumar Shrestha	5	150000	50000	2896	1.93
3	Bhim Bdr. Khadka	10	286000	40000	2316	0.81
4	Sanchita Lamsal	9	444000	100000	23409	5.27
4	Yogendra Bdr Karki	54	378000	84000	19664	5.20
4	Sher Bdr. Baniya	55	621000	50000	11705	1.88
4	Mahendra Karki	44	640000	20000	4682	0.73
4	Kalpana Devi Lamsal	7	390000	25000	5852	1.50
05 A - 05B	Jit Maya Angdembu	15.5	260000	50000	9426	3.63
05 A - 05 B	Prem Limbu	6.5	207000	18000	3393	1.64
05 A - 05 B	Mangal Kumari Darnal	10.5	298000	18000	3393	1.14
05 A - 05 B	Sukmaya Chaudhari	4.5	125000	15000	2828	2.26
05 A - 05 B	Dil Bdr. Mahat	0.5	250000	0	0	0.00
05 A - 05 B	Sukamaya B.K.	20	225000	35000	6598	2.93
05 A - 05 B	Bhupal Mahat	0.5	145000	0	0	0.00
05 A - 05 B	Prakash Mahat	0.5	240000	0	0	0.00
05 A - 05 B	Ramesh Karki	0.55	210000	0	0	0.00
07	Chandra Bdr. Rai	4.9	415000	70000	2004	0.48
07	Krishna Bdr. Badaiwa	100	470000	70000	2004	0.43
07	Nanu Baba Shakya	80	354000	10000	286	0.08
07	Tek Bdr. Dahal	43	195000	30000	859	0.44
07	Chhali Maya Rai	29.5	230000	50000	1432	0.62
07	Bhakta Kumar Tamang	96.55	270000	60000	1718	0.64
07	Chakra Bdr. Shrestha	56	158000	40000	1145	0.72
07	Bhim Bdr. Rai	63	430000	80000	2291	0.53
8	Murari Mishra	80	325000	80000	26006	8.00
8	Raj Singh	10	195000	50000	16254	8.34
09 A - 09 B	Tika Ram Poudel	21	189000	65000	8387	4.44
09 A - 09 B	Maniraj Iwa Limbu	48	345000	100000	12903	3.74
09 A - 09 B	Deepak Tamang	11	290000	20000	2581	0.89

PRTW No	Respondent Name	Land owned in Katha	Avg. Annual Income	Avg. Annual Income from Farming	Income Loss due to Project	% loss of Total Income
09 A - 09 B	Harka Bdr. Limbu	31	274000	60000	7742	2.83
09 A - 09 B	Rana Bdr. Adhikari	60	420000	100000	12903	3.07
09 A - 09 B	Chudamani Regmi	42	405000	50000	6452	1.59
09 A - 09 B	Deshu Sauden	45	325000	80000	10323	3.18
09 D	Ambar Bdr. Magar	0.35	235000	10000	1290	0.55
09 C	Saraswoti Lamichhane	0.3	224000	0	0	0.00
09 C	Mohan Limbu	5	240000	15000	1935	0.81
09 C	Madan Darjee	0.25	200000	0	0	0.00
09 C	Nir Bdr. Darjee	0.2	230000	0	0	0.00
09 A - 09 B	Padam Bdr. Shrestha	6	195000	30000	3871	1.99
09 A - 09 B	Nirajan Nepali	1	314000	0	0	0.00
09 A - 09 B	Ganesh Bdr. Poudel	50	470000	80000	10323	2.20
09 A - 09 B	Sharan Kumar Darjee	3	210000	10000	1290	0.61
10	Rana Maya Neupane	58	289000	100000	14347	4.96
012 L	Apsara Devi Nemwang	29.4	178000	130000	3565	2.00
012 L	Harka Maya Bhandari	75	520000	100000	2742	0.53
012 L	Man Bdr. Bhujel	39	145000	100000	2742	1.89
12 L	Nara Kumari Shahi	28.5	380000	30000	823	0.22
12 L	Tulasa Devi Mishra	4	360000	60000	1645	0.46
012 L	Rupa Devi Gautam	108	500000	100000	2742	0.55

### West Rapti Estimated Loss of Income by Affected Households

PRTW	Name of Land Owner	Total Land Owned (Katha)	Avg. Annual Income	Income from Farming	Income Loss due to Project	% loss of Total Income
1	Dukhiram Chaudhari	20	305000	75000	5527	1.81
1	Gyan Prasad Chaudhari	54	195000	50000	3685	1.89
1	Jagani Chaudhari	15.6	156000	36000	2653	1.70
1	Sagani Chaudhari	6	170000	20000	1474	0.87
1	Chhoteram Chaudhari	8	325000	40000	2948	0.91
1	Theman Prasad Chaudhari	9	125000	30000	2211	1.77
1	Shyam Raj Chaudhari	60	280000	240000	17686	6.32
1	Brij Nanda Chaudhari	9	175000	25000	1842	1.05
1	Rukmaniya Chaudhari	7	355000	15000	1105	0.31
1	Sarpal Chaudhari	22	220000	40000	2948	1.34
1	Bhoj Raj Chaudhari	28.2	280000	70000	5158	1.84
1	Narendra Kumar Chaudhari	200	400000	200000	14738	3.68
1	Dev Prasad Chaudhari	17	380000	80000	5895	1.55
1	Asaram Chaudhari	18	275000	35000	2579	0.94
1	Khusiram Chaudhari	21	395000	55000	4053	1.03
1	Jayarkhan Chaudhari	24	300000	120000	8843	2.95
1	Guru Prasad Chaudhari	17	268000	112000	8253	3.08
1	Kaliram Chaudhari	1.4	133000	13000	958	0.72
1	Laxmi Prasad Chaudhari	9	425000	20000	1474	0.35

PRTW	Name of Land Owner	Total Land Owned (Kattha)	Avg. Annual Income	Income from Farming	Income Loss due to Project	% loss of Total Income
1	Paradeshi Chaudhari	11	280000	60000	4422	1.58
1	Shree Ram Chaudhari	15	140000	35000	2579	1.84
1	Mahesh Kumar Chaudhari	80	320000	80000	5895	1.84
1	Phiriya Chaudhari	5	280000	15000	1105	0.39
1	Prithvi Raj Chaudhari	10	180000	10000	737	0.41
1	Ram Prasad Chaudhari	19	155000	20000	1474	0.95
1	Ram Nath Chaudhari	14	195000	30000	2211	1.13
1	Thagilal Chaudhari	2	186000	6000	442	0.24
1	Bir Prasad Chaudhari	7	89000	54000	3979	4.47
1	Shiva Devi Chaudhari	34	135000	55000	4053	3.00
1	Ramsworup Chaudhari	30	245000	45000	3316	1.35
1	Hari Lal Chaudhari	30	145000	15000	1105	0.76
1	Rajaram Chaudhari	20.2	280000	40000	2948	1.05
1	Bidesh Chaudhari	45	195000	45000	3316	1.70
1	Dosh Haran Chaudhari	50	355000	55000	4053	1.14
1	Gokul Prasad Chaudhari	75	155000	100000	7369	4.75
1	Shyam Kishor Chaudhari	31.6	135000	50000	3685	2.73
1	Pradeshi Chaudhari	21.6	260000	40000	2948	1.13
1	Kram Bdr. Chaudhari	7	205000	25000	1842	0.90
1	Shiva Kumari Chaudhari	12	250000	15000	1105	0.44
1	Ganesh Chaudhari	3.4	366000	42000	3095	0.85
1	Shuka Dev Chaudhari	4.4	265000	45000	3316	1.25
1	Lalata Chaudhari	5.8	205000	35000	2579	1.26
1	Labaru Chaudhari	0.4	400000		0	0.00
1	Ram Karan Chaudhari	2.4	365000	65000	4790	1.31
1	Shiva Kumar Chaudhari	1	275000	15000	1105	0.40
1	Dubaru Chaudhari	3.2	210000		0	0.00
1	Paltu Chaudhari	3	275000		0	0.00
1	Ram Lakhan Chaudhari	9.8	267000	25000	1842	0.69
1	Dukhiram Chaudhari	12.4	280000	35000	2579	0.92
1	Prem Kumar Chaudhari	14	365000	30000	2211	0.61
1	Prem Lal Chaudhari	2	251000	35000	2579	1.03
2	Kanhaiya Lal Chaudhari	22	222000	60000	1351	0.61
2	Bodhi Lal Chaudhari	35	225000	65000	1463	0.65
2	Rajaram Chaudhari	36.4	204000	70000	1576	0.77
2	Ram Gopal Chaudhari	52.6	357000	112000	2521	0.71
2	Rajendra Pd. Chaudhari	292	500000	100000	2251	0.45
2	Tilak Chaudhari	303	350000	50000	1126	0.32
2	Kali Prasad Chaudhari	35	230000	80000	1801	0.78
2	Shiva Narayan Chaudhari	19	180000	50000	1126	0.63
2	Khusal Ram Chaudhari	40	360000	60000	1351	0.38
2	Prameshwori Devi Chaudhari	20	149000	65000	1463	0.98
2	Hari Narayan Chaudhari	40	225000	60000	1351	0.60
2	Baikuntha Prasad Chaudhari	30	255000	45000	1013	0.40
2	Lahanu Chaudhari	3.2	30500	20000	450	1.48
2	Dukhiram Chaudhari	85.2	345000	45000	1013	0.29
2	Shivahari Chaudhari	29.6	280000	55000	1238	0.44
2	Bishnumati Chaudhari	20	230000	45000	1013	0.44
3	Hiramani Chaudhari	16.4	155000	70000	8357	5.39
3	Dash Chaudhari	130	365000	15000	1791	0.49
3	Thagu Chaudhari	18	173000	36000	4298	2.48

PRTW	Name of Land Owner	Total Land Owned (Kattha)	Avg. Annual Income	Income from Farming	Income Loss due to Project	% loss of Total Income
3	Jel Prasad Chaudhari	50	385000	65000	7760	2.02
3	Krishna Kumar Chaudhari	18	304000	82000	9789	3.22
3	Dhana Bdr. Chaudhari	17	201000	66000	7879	3.92
3	Phaguram Chaudhari	15	185000	60000	7163	3.87
3	Ramesh Chaudhari	18	185000	55000	6566	3.55
3	Bhojram Chaudhari	17	197000	72000	8596	4.36
3	Kalu Chaudhari	15	176000	61000	7282	4.14
3	Dhotiram Chaudhari	15	220000	55000	6566	2.98
3	Guruji Chaudhari	15	105000	60000	7163	6.82
3	Deumayi Chaudhari	15	132000	42000	5014	3.80
3	Chandra Pd. Chaudhari	12	110000	50000	5969	5.43
3	Krishna Chaudhari	10	184000	20000	2388	1.30
3	Dukhiram Chaudhari	3	187000	10000	1194	0.64
3	Deu Kumari Chaudhari	15	152000	50000	5969	3.93
3	Hema Chaudhari	15.4	180000	30000	3582	1.99
3	Puran Lal Chaudhari	16	210000	50000	5969	2.84
3	Ram Lal Chaudhari	36	145000	30000	3582	2.47
3	Tularam Chaudhari	25	254000	80000	9551	3.76
3	Shir Bdr. Chaudhari	7	190000	20000	2388	1.26
3	Lahiya Chaudhari	16	220000		0	0.00
3	Ramu Chaudhari	17	160000	20000	2388	1.49
3	Indra Prasad Chaudhari	15.6	175000	40000	4775	2.73
3	Ganga Prasad Chaudhari	10	269000	60000	7163	2.66
3	Aasha Chaudhari	11	145000	20000	2388	1.65
3	Arjun Chaudhari	7	130000	20000	2388	1.84
3	Rajman Chaudhari	8	165000	70000	8357	5.06
3	Ram Shankar Chaudhari	27	340000	48000	5730	1.69
3	Santosh Chaudhari	31	200000	40000	4775	2.39
3	Sitaram Chaudhari	26	110000	45000	5372	4.88
3	Om Prakash Chaudhari	23	197000	42000	5014	2.55
3	Hari Prasad Chaudhari	16	154000	55000	6566	4.26
3	Hari Charan Chaudhari	17	175000	70000	8357	4.78
3	Kali Ram Chaudhari	22	242000	42000	5014	2.07
3	Purna Bdr. Chaudhari	16	234000	50000	5969	2.55
3	Kallu Chaudhari	26	290000	90000	10745	3.71
3	Aasha Ram Chaudhari	18	205000	80000	9551	4.66
3	Laiparan Chaudhari	25	260000	60000	7163	2.76
3	Buddhi Ram Chaudhari	34	165000	45000	5372	3.26
3	Bharat Mani Chaudhari	16	202000	42000	5014	2.48
3	Laxman Chaudhari	5	280000	15000	1105	0.39
3	Shree Ram Chaudhari	20	200000	45000	5372	2.69
3	Prasadu Chaudhari	10.8	294000	80000	9551	3.25
3	Lal Bdr. Chaudhari	12.6	215000	60000	7163	3.33
3	Bal Bdr. Chaudhari	13	240000	60000	7163	2.98
3	Hari Lal Chaudhari	18	294000	64000	7641	2.60
3	Dukhiram Chaudhari	13	185000	20000	2388	1.29
3	Bhojlal Chaudhari	14	225000	60000	7163	3.18
3	Gyan Bdr. Chaudhari	10	182000	25000	2985	1.64
3	Asaram Chaudhari	22	220000	60000	7163	3.26
3	Manirami Chaudhari	20	148000	40000	4775	3.23
3	Pateshwori Chaudhari	35	205000	55000	6566	3.20

PRTW	Name of Land Owner	Total Land Owned (Kattha)	Avg. Annual Income	Income from Farming	Income Loss due to Project	% loss of Total Income
3	Ishru Chaudhari	13	134000	30000	3582	2.67
3	Madhu Chaudhari	18	266000	30000	3582	1.35
3	Jallu Chaudhari	16.8	115000	25000	2985	2.60
3	Hariram Chaudhari	18	160000	40000	4775	2.98
3	Bhagmani Chaudhari	21	175000	40000	4775	2.73
3	Lalawa Chaudhari	20.2	215000	95000	11341	5.28
3	Shyam Bdr. Chaudhari	16	187000	45000	5372	2.87
3	Bhagmani Chaudhari	11.2	140000	35000	4178	2.98
3	Mangal Prasad Chaudhari	15	173000	25000	2985	1.73
3	Balak Ram Chaudhari	17	130000	25000	2985	2.30
3	Chetram Chaudhari	13	75000	30000	3582	4.78
3	Hirman Chaudhari	18	120000	30000	3582	2.98
3	Kalluram Chaudhari	10	375000	45000	5372	1.43
3	Phahari Chaudhari	9	305000	90000	10745	3.52
3	Min Bdr. BC	40	411000	150000	17908	4.36
3	Dhruba Bdr. BC	15	295000	25000	2985	1.01
3	Parema Chaudhari	15	175000	45000	5372	3.07
3	Shukku Chaudhari	15	200000	45000	5372	2.69
3	Sukhiram Chaudhari	15	160000	35000	4178	2.61
3	Satguru Chaudhari	15	260000	35000	4178	1.61
3	Chitamani Chaudhari	15	265000	45000	5372	2.03
3	Madhu Chaudhari	15	228000	35000	4178	1.83
3	Tara BC	40	260000	120000	14326	5.51
3	Yam Bdr. Chaudhari	12	125000	75000	8954	7.16
3	Saniram Chaudhari	10	260000	45000	5372	2.07
3	Bhagmani Chaudhari	11	285000	65000	7760	2.72
3	Devabhumi Chaudhari	12	370000	70000	8357	2.26
3	Mahabir Chaudhari	12	185000	50000	5969	3.23
3	Tulasi Ram Chaudhari	10	380000	55000	6566	1.73
6	Sukadevi Chaudhari	20	245000	45000	1578	0.64
6	Basanta Dangi	17.6	170000	70000	2455	1.44
6	Tularam Chaudhari	32.6	240000	20000	701	0.29
6	Shovaram Chaudhari	30	220000	80000	2806	1.28
6	Laxman Chaudhari	56	455000	80000	2806	0.62
6	Girdhari Chaudhari	32	205000	55000	1929	0.94
6	Sujita Chaudhari	83.2	286000	45000	1578	0.55
6	Kesh Kumar Chaudhari	80	310000	80000	2806	0.91
6	Ram Pati Chaudhari	320	210000	80000	2806	1.34
07-08	Pujaram Chaudhari	40	195000	175000	14796	7.59
07-08	Bhagilal, Kulram, Kali Prasad Tharu	19	155000	120000	10146	6.55
07-08	Khushiram Tharu	40	270000	100000	8455	3.13
07-08	Shanti Tharuni	15	242000	60000	5073	2.10
07-08	Sundar Lal Tharu	18	422000	60000	5073	1.20
07-08	Prem Lal Chaudhari	12	134000	10000	846	0.63
07-08	Prem, Sushil, Sudhir and Surendra Bhandari	440	250000	250000	21138	8.46
07-08	Keshab Raj Poudel	500	250000	250000	21138	8.46
07-08	Sahayab Din Tharu	26	345000	45000	3805	1.10
07-08	Lal Bdr. Tharu	8	132000	22000	1860	1.41
07-08	Dhanabir Thapa	25	287000	95000	8032	2.80

**Bakraha -Estimated Loss of Income by Affected Households**

<b>PRTW</b>	<b>Name of Land Owner</b>	<b>Total Land Owned (Kattha)</b>	<b>Avg. Annual Income</b>	<b>Income from Farming</b>	<b>Income Loss due to Project</b>	<b>% loss of Total Income</b>
1	Lok Bdr. Thapa	25	210000	40000	2400	1.14
2	Ram Bdr. Rana Magar	28	280000	60000	454	0.16
2	Tara Kumar Kurungbang	7	263000	40000	302	0.11
2	Lila Bdr. Shrestha	11	249000	45000	340	0.14
2	Singha Bdr. Rai	18	204000		0	0.00
2	Man Bdr. Limbu	25	382000	52000	393	0.10
2	Puna Raj Lawati	20	149000	35000	265	0.18
2	Bishnu Kumar Pyangu	15	241000	21000	159	0.07
2	Dhana Bdr. Pariyar	67	299000	65000	491	0.16
2	Dambar Payangu	15	204000	60000	454	0.22
2	Tika Bdr. Jogi	4	170000	25000	189	0.11
2	Kaluram Dhimal	15	289000	50000	378	0.13
2	Kamal Maya Limbu	8	157000	20000	151	0.10
2	Singha Bdr. Kurumbang	10	280000	20000	151	0.05
2	Tek Bdr. Limbu	5	544000	34000	257	0.05
2	Gyanendra Lawati	23	323000	70000	529	0.16
2	Dil Kumar Chemjong	24	390000	65000	491	0.13
2	Ganesh Kumar Shrestha	25	298000	18000	136	0.05
2	Ram Prasad Dhimal	20	370000	70000	529	0.14
2	Eit Maya Lawati	22	175000	80000	605	0.35
2	Chandra Bdr. Limbu	20	345000	60000	454	0.13
2	Lek Bdr. Shrestha	70	499000	130000	983	0.20
2	Devananda Limbu	20	215000	60000	454	0.21
2	Tara Devi Katuwal	30	210000	90000	680	0.32
2	Kushmamaya Shrestha	9	414000	80000	605	0.15
2	Mani Kumar Kerung	22	300000	45000	340	0.11
2	Tika Dhwoj Chemjung	35	189000	62000	469	0.25
2	Surya Bdr. Lawati	20.5	370000	70000	529	0.14
4	Tej Bdr. Dhimal	4.5	237000	17000	2066	0.87
4	Lok Prasad Bhattarai	14	399000		0	0.00
4	Karna Bdr. B.K.	48	222000	50000	6077	2.74
6	Pushpa Bdr Thapa	31.25	144000	20000	9961	6.92
6	Jagannath Kuikel	27	489000		0	0.00
7	Sharmila Rimal	41.05	260000	20000	4331	1.67
8	Sanjaya Kumar Yadav	40	375000	75000	1402	0.37
8	Bagalal Amat	40	242000	52000	972	0.40
8	Manmohan Singh Ganagai	110	490000	145000	2711	0.55

<b>PRTW</b>	<b>Name of Land Owner</b>	<b>Total Land Owned (Kattha)</b>	<b>Avg. Annual Income</b>	<b>Income from Farming</b>	<b>Income Loss due to Project</b>	<b>% loss of Total Income</b>
8	Kishan Prasad Amat	14	200000	80000	1496	0.75
8	Sanoth Kumar Yadav	40	225000	100000	1870	0.83
8	Binod Kumar Yadav	88.9	350000	50000	935	0.27
8	Sachida Nanda Yadav	70.5	580000	100000	1870	0.32
8	Om Prakash Yadav	58.35	300000	150000	2805	0.93
8	Singeshwor Singh	110	460000	100000	1870	0.41
8	Lalit Prasad Yadav	162.9	440000	120000	2244	0.51
8	Sanjeev Kumar Yadav	75	245000	200000	3740	1.53
9	Surendra Lingden	85	500000	80000	11455	2.29
9	Ganesh Bdr. Basnet+Dal Bdr	38	270000	50000	7159	2.65
9	Saulen Lingden	24	390000	70000	10023	2.57
9	Krishna Kumar Lama	102.7	432000	180000	25773	5.97
9	Ganesh Bdr. Basnet	45.4	397000	120000	17182	4.33
9	Sharmila Sewa	84	504000	80000	11455	2.27
9	Sharmila Sewa	7.5	220000	20000	2864	1.30
9	Dal Bdr. Rana Magar	23	214000	80000	11455	5.35

**Lakhandehi Estimated Loss of Income by Affected Households**

<b>PRTW No</b>	<b>Respondent Name</b>	<b>Land owned in Katha</b>	<b>Avg. Annual Income</b>	<b>Avg. Annual Income from Farming</b>	<b>Income Loss due to Project</b>	<b>% loss of Total Income</b>
1	Bhumika Shrestha	3	215000	50000	218	0.10
1	Chandra Bdr. Shrestha	13.45	325000	75000	327	0.10
1	Surendra Kr. Shrestha	7	268000	65000	283	0.11
1	Hem Bdr. Shrestha	12	244000	54000	235	0.10
1	Shiva Prasad Timalisina	1	353000	10000	44	0.01
1	Balaram Shrestha	0.35	315000	15000	65	0.02
1	Bishnu Maya Timalisina	25	104000	45000	196	0.19
1	Gokarna Bdr. Shrestha	18	299000	120000	523	0.17
1	Shankar Timalisina	4.25	345000	50000	218	0.06
1	Sheer Bdr. Majhi	10	374000	90000	392	0.10
1	Talim Bdr. Guramchhan	75	479000	120000	523	0.11
1	Krishna Das Shrestha	20	320000	100000	436	0.14
1	Lal Bdr. Moktan	10	300000	100000	436	0.15
1	Manbir Majhi	24	214000	60000	261	0.12
1	Gyan Bdr. Majhi	25.5	210000	100000	436	0.21
1	Jit Narayan Shrestha	15	250000	90000	392	0.16
1	Bishnu Maya Yonjan	0.4	282000	30000	131	0.05
1	Chakra Bdr. Shrestha	7	430000	85000	370	0.09
1	Buddhi Bdr. Pariyar	12.5	265000	35000	152	0.06
1	Narayan Das Shrestha	10	245000	65000	283	0.12
1	Bhim Bdr. Majhi	40	266000	35000	152	0.06
1	Rup Bdr. Thing	70	255000	55000	240	0.09
1	Babu Lal Majhi	4.4	385000	50000	218	0.06
1	Bishnu Majhi	7	333000	70000	305	0.09
1	Chandra Dev Shrestha	12	227000	50000	218	0.10
1	Tek Bdr. Majhi	3.5	375000	55000	240	0.06
1	Hari Bdr. Timalisina	3	375000	45000	196	0.05
1	Keshab Prasad Timalisina	20	525000	100000	436	0.08
1	Khadag Man Lama	0.75	270000	100000	436	0.16
1	Santabir Majhi	17	275000	50000	218	0.08
1	Chanamaya Majhi	1.6	310000	50000	218	0.07
1	Ram Bdr. Moktan	9	358000	100000	436	0.12
1	Man Bdr. Shrestha	8	343000	20000	87	0.03
1	Janga Bdr. Majhi	30	205000	45000	196	0.10
1	Dayawati Majhi	3.5	205000	60000	261	0.13
1	Raju Bardewa	3	292000	22000	96	0.03
1	Lal Bdr. Ghising	13	288000	40000	174	0.06
1	Dhogbir Majhi	7	218000	60000	261	0.12
1	Purna Majhi	2	255000	55000	240	0.09
1	Shree Lal Majhi	11	167000	45000	196	0.12



<b>PRTW No</b>	<b>Respondent Name</b>	<b>Land owned in Katha</b>	<b>Avg. Annual Income</b>	<b>Avg. Annual Income from Farming</b>	<b>Income Loss due to Project</b>	<b>% loss of Total Income</b>
1	Rajman Majhi	2	369000	55000	240	0.06
1	Dil Bdr. Majhi	12	139000	60000	261	0.19
1	Man Bdr. Majhi	40	106000	40000	174	0.16
1	Chandra Bdr. Majhi	16	220000	75000	327	0.15
1	Bishnu Majhi	36	389000	20000	87	0.02
8	Chhatiya Devi Kumar	<b>31</b>	304000	124000	412	0.14
8	Uga Kumar	<b>9</b>	185000	55000	183	0.10
8	Ram Prasad Shrestha	<b>28.5</b>	500000	45000	150	0.03
8	Raj Narayan Kumar	<b>23</b>	260000	60000	200	0.08
8	Dukhiya Devi Kumar	<b>200</b>	305000	15000	50	0.02
8	Jugni Devi Kumar	<b>2.5</b>	322000	22000	73	0.02

### Appendix-7: Project Screening Checklist for Involuntary Resettlement

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
<b>Involuntary Acquisition of Land</b>				
1. Will there be land acquisition?		√		The project does not involve any land acquisition. The project's construction works involve embankment construction in different sections to protect the cultivation land and settlements.
2. Is the site for land acquisition known?		√		No land acquisition involved
3. Is the ownership status and current usage of land to be acquired known		√		There are no land acquisition of resettlement impacts
4. Will easement be utilized within an existing Right of Way		√		All the activities will be carried out in construction sites
1. Will there be losses of shelter and residential land due to land acquisition?		√		
2. Will, there be loss of Agriculture and other productive assets due to land acquisition		√		
3. Will, there be losses of crops, trees, and fixed assets due to land acquisition		√		
4. Will the be losses of business or enterprises due to land acquisition?		√		
5. Will there be losses of income sources and means of livelihood due to land acquisition?		√		
<b>Involuntary Restrictions on Land Use or on Access to Legally Designated Parks and Protected Areas</b>				
6. Will people lose access to natural resources, communal facilities, and services?		√		
7. Will land use is changed, will it have an adverse impact on social and economic activities?		√		
8. Will access to land and resources owned community or by the state be restricted		√		
<b>Information on displaced persons:</b>				
Any estimate of the likely number of persons that will be displaced by the project? [ ] No [ ] Yes				
If yes, approximately how many? Not applicable as no one will be relocated				
Are any of the poor, female heads of house, or vulnerable to poverty risk? [ ] No [ ] Yes				
Are any displaced persons from Indigenous or ethnic community groups? [ ] No [ ] Yes				

## Appendix -8: Project Screening Checklist for Indigenous People

Key Concerns (Please provide elaborations on the remarks column)	Yes	No	Not Known	Remarks
<b>B. Indigenous People Identification</b>				
1. Are there socio-cultural groups present in or use the project area who may be considered as “tribes” (hill tribes, schedule tribes, tribal peoples), “minorities (ethnic or national minorities or cultural community)?	√			There are ethnic minority groups mainly known as Thru and Chaudhari in the location of construction sites.
2. Are there national or local laws or policies as well as anthropological research/studies that consider these groups present in or using the project area as belonging to “ethnic minorities”, scheduled tribes, tribal peoples, national minorities or cultural communities?	√			There is an Act on National Foundation for the upliftment of Aadibasi Janajati 2002 to consider these groups present in the project area as ethnic minority indigenous groups.
3. Do such groups self-identify as being part of a distinct social and cultural group?	√			Yes, however, they almost have also assimilated with the mainstream in every aspect (e.g. cultural, social, economic, political, etc) and they also share their cultural reciprocity with other mainstream groups. Both the mainstream community and the minority group equally interact in both Nepali as well as local Tharu and Chaudhari languages.
4. Do such groups maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories?	√			They are maintaining their collective attachments with the culture and place. However, they are not static on ancestral territories and on natural resources; rather they share their culture with other mainstream groups in terms of everything (social, cultural, geographical, educational, economic, political, etc aspects.
5. Do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society or culture?	√			They have also organized under different mainstream organizations as well as an organization focused on their group for their development, welfare, and cultural protection.
6. Have such groups speak a distinct language or dialect?	√			Even the senior citizens can communicate both in their language and national (Nepali) language. The educated persons can also communicate in different other national and even international languages.
7. Has such a group been historically, socially and economically marginalized disempowered, excluded, and/or discriminated against?	√			Earlier, the group had been historically, socially, and economically marginalized and disempowered, excluded. However, their overall social status and role have been changed

<b>Key Concerns</b> (Please provide elaborations on the remarks column)	<b>Yes</b>	<b>No</b>	<b>Not Known</b>	<b>Remarks</b>
				especially the imitative taken by the Government to liberate the poor and deprived community from the traditional bonded labor system, especially during the nineties.
8. Are such groups represented as "Indigenous People" or as "ethnic minorities", or scheduled tribes or "tribal population" in any formal decision making bodies at the national or local levels?	√			The constitution of Nepal and the relevant act has given equal opportunities even to the indigenous population to be part of any type of institution up-to capacity and even for formal decision making. Recently these communities have been participating and making the decision in several facets of society as politicians, ministers, diplomats, bureaucrats, teachers and academicians and so on.
<b>B. Identification of Potential Impacts</b>				
9. Will the project directly or indirectly benefit or target Indigenous People	√			The proposed will provide direct benefit to the Indigenous people by protecting them from floods, land cutting, loss of crop production.
10. Will the project directly or indirectly affect Indigenous Peoples' traditional socio-cultural and belief practices? (e.g. child-rearing, health education, arts, and Governance)		√		
11. Will the project affect the livelihood system of indigenous people? (e.g. food production system, rural resource management, crafts and trade employment status)	√			The implementation of the project also ensures increase food production due to possibilities of cultivation even in abandoned fallow land, protection of land, property, and life from the flood.
12. Will the project be in an area (land or territory) occupied, owned, or used by Indigenous peoples, and /or claimed as the ancestral domain?	√			The government has not specifically allocated any specific place only focusing on the ancestral domain. Rather in some places land has been allocated and even with ownership transfer for the victims of flood in the past and recently for the emancipated bonded labors which also include other caste and ethnic groups except Tharu and Chaudhari.
<b>C. Identification of Special Requirements:</b> <i>will the project activities include?</i>				
Commercial development of the cultural resources and knowledge of indigenous peoples?			√	The project is also accessing the scope of incorporating such viable activities in close consultation and coordination with the project office at the central level, district level as well as local communities neighboring to the embankment locations for the protection and sustainability of the

<b>Key Concerns</b> (Please provide elaborations on the remarks column)	<b>Yes</b>	<b>No</b>	<b>Not Known</b>	<b>Remarks</b>
				constructed embankments.
14. Physical displacement from traditional or customary lands			√	No physical displacement will occur. The embankment will be constructed along the bank of the river by maximum utilizing the lands along the river bed and government lands. Wherever such land is not available and unavoidable part of construction work, the project will use a portion of such private or another type of occupied land through the approach of voluntary land donation without transferring the ownership. This will be ensured by the official Memorandum of Understanding (MoU) made between the project and the landowners with the representation of government bodies.
15. Commercial development of Natural Resources (such as minerals, hydrocarbon, forest, water, hunting or fishing groups) within customary lands underuse that would impact the livelihood or the cultural ceremonial, spiritual usages that define the identity and the community of Indigenous People?	√			The project envisages to incorporate such components in collaboration with the Project at the central level, district level offices, and local community residing in the neighboring location of the embankments.
16. Establishing legal recognition of rights to land and territories that are traditionally owned or customary used or claimed by indigenous people?		√		Generally, this sort of task is being undertaken time to time by the Government since the beginning through the commission of different types (e.g. commission for providing land and ownership certificate to all sorts of landless people as well as for indigenous peoples in Dang districts.
17. Acquisition of lands that are traditionally owned or customarily used, occupied or claimed by indigenous peoples?		√		There will be no land acquisition at all. The project is just constructing the embankment at the edge of the river and government land. Wherever necessary permission will be granted with the landowners for Voluntary Land Donation through an MOU as described before to ensure relevant landowners' permission to protect their and their neighbors valuable productive land by constructing embankment based on their demand.
<b>D. Anticipated Project Impact on Indigenous People</b>				
<b>Project Component/ Activity/Output</b>	<b>Anticipated Positive Effects</b>			<b>Anticipated Negative Effects</b>

<b>Key Concerns</b> (Please provide elaborations on the remarks column)		<b>Yes</b>	<b>No</b>	<b>Not Known</b>	<b>Remarks</b>
Construction of embankments, revetments, spurs, and outlets	Flood protection to cultivating land, settlements, and infrastructures such as a house, schools, health facilities, community structures, and income-generating activities				None