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| **Climate Inclusive** **Vulnerability and Capacity Assessment****Ward No-3 &4,** **Dandatole, Isibu Community, IsibuVDC, Terthum****August 2013** |

**Facilitate by**

**RACE Programme**

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| **District** | **Terathum** |
| **VDC** | Isibu |
| **Ward** | 3 &4 Dandatole |
| **Date** | August 2013 |
| **Total Household** | 118 |
| **Total Population** | 597 |
| **Facilitators** | NRCS district staff and volunteer |
| **VCA Tools and Methods Used** | Review of secondary data, resource mapping, vulnerability mapping, hazard mapping, transect walk, historical profile, hazard matrix, vulnerability matrix, capacity matrix, stakeholder analysis, problem and solution tree analysis, ranking, focus group discussion, semi-structured interview, direct observation. |

# Background Information:

Isibu ward no 3 and 4 composed and make a community named Dandatole. Dandatole is a rural farming community located approximately 35 kilometers North from Manglung, District headquarters of TerathnumDistrict. The adjacent areas surrounding the community are utilized as agricultural purpose especially for the production of paddy, maize and millet. The climate has pronounced dry season during summer and the start of wet season comes with the onset of the monsoon. The ward No- 3 and 4 (Dandatole) hasearthen road network with Manglung road network; however, access to the communityin whole year is quite unpredictable during the monsoon season. The community boarded by Naminta VDC in East, mill in West, Higuwakholain North and Rithkhola is in South.

The communities’ main stay of income comes from the farming whereas some of families are engaged in additional professions like foreign labor, teacher, business and income generation activities. The main crops harvested according to the season are paddy, corn, millet and wheat.

The community has a population of 579in 118households;all of them are representBramin, Chettri, limbu and dalit. Total number of female is 289 while male is308.

# Prevalent hazards and likely climate risks:

The community has identified three main risk based on their perception of risk. This perception is based on the conditions that have affected their lives and belonging at present and previous experiences of hazard events.

Wash related risks are ranked as first topmost risk of the community due to open defecation practices, poor services of health facilities, improper management of communal and household level solid and liquid waste. The disaster profile of the community shows that diarrhea affected in 2000 where one woman died life and 5 people severely impacted. Moreover other various communicable vector and water borne diseases also experienced by communities. The community faces health complaints every year but severity is not seen yet. Elderly, children and women are generally suffering from the health complaints. As per the assessment, improper management of drainage system pass through local school, poor sanitation practices and limited access on safe drinking water triggered community in Wash related risk. Total 108 household are from ward no 3 and 4 at high risk.

Landslide is ranked as the second topmost hazard of community that put around 6 households, one school ground and 25 meter road and many taker and school children (Community visitor) at risks as they are close to the landslide prone area. The landslide is one of the most frequent events in the community as the community has witnessed several events since past 30 years. The community has experienced landslides in 2002, 2006 and 2007claiming 1 person death, more than 19hectares of farmlands, and destroying 13 households. The small-scale events happen in every monsoon season that has potentiality to affect farmlands, foot-trails, and water schemes. The community considers landslides are frequent events both in small and large-scale mostly during the monsoon season. The community observes shift in rainfall gapping certain time-period. This allows rainwater to saturate mud-mass to decompose resulting into occurrence of rapid dry small-scale landslide events.

The community has identified fire as third prevailing hazard of the community as risk of disaster is aggravated by organic materials used, including the wall and roofing which act as cinders. The materials used by the community are already fire hazard. Besides, families are using the traditional cooking stoves that emit smoke and hefty flames that can easily dry the fuel and initiate fire at any times. The historical profile has recorded fire incidents in 2001, 2006 and 2010 that damaged 3household along with animal shed.

At the same time, the community gives hints to several other forms of risk possibly experienced from the past and gives experiential level of effects at present. This includes wash related risk, Earthquake, irregular rain fall and slight shift in period of monsoon season, extreme heat condition in comparison to the past and irregular events of hailstone. These schemes of risk observed by the community have potentiality of affecting mainly livelihood resources of farming community, and give a simple indication of changing patterns of natural hazard events. This may not be completely proven scientific fact but still meaningful as community have witnessed changes over certain period.

# Vulnerability conditions to natural hazards, risks and those triggered by likely climate risks:

The community Dandatole of Isubu is vulnerable to Wash related risk, landslide, domestic fire and earthquake. Vulnerability factor relating to hazard and its risk is linked with physical in some case, while most of them are related with social and attitudinal factors. The community people identify Wash related problem and landslides poses risk of deaths and affecting properties of communities while earthquake and fire comes as other affecter hazards in the community. Vulnerability factor related with physical factors is manifested as the settlement and agriculture lands close to the potential landslide area and unplanned settlements which puts in risk to several families being affected by the landslides. Physical vulnerability is related to the landslide and the Wash problems. Physical vulnerability factor is also contributed by the presence of social and attitudinal vulnerability.

Social vulnerability is mainly linked with Wash problems due to presence of poor sanitation practices in the community, social cast system that relates with the access of service and facilities of the poor and marginalized families in the community. These social facts are also observed during the risk assessment process and identified that they have very limited access to the service offered by the authorities, whereas, having no information on how to access and or are excluded in the decision making process.

Attitudinal vulnerability is indicated in the cultural practices and social system developed habits and practices which contributes to hazards and aggravates the social vulnerability of the lower caste and poor families. It is observed that Wash risks are mostly due to the presence of attitudinal vulnerability and less due to the physical and social vulnerability.

The section above explains the existence of hazards, its exposure and likely impact of the climate variability in these events. In general, the community is highly exposed to physical vulnerability compounded with social and attitudinal vulnerabilities.

 Physical vulnerabilities related with existing pattern of hazard event is related with insecure source of livelihoods, occurrence of seasonal food shortage, occurrences of diseases, decaying water source facilities, prolonged dry spell and disaster prone locations of the community and farmlands. There are likely climatic vulnerabilities, which limits community capacity to cope with hazards events, in other words reducing possible scale of vulnerabilities. This includes season dependent farming system, high exposure of diseases to crops and pest infestations.

# Existing capacities, coping mechanisms and adaptation strategies:

The community has physical and social capacity in the community. Community needs add-on component of capacities to change face of at-risk to resilient community.

Physical capacity is present in the available natural resource of agricultural lands and livestock which is the main livelihood of the community. The community has water taps supply system, which is not enough for community people to access water for domestic needs and other social needs. Similarly, most of families have limited access to health services, while many of the families do not have access to the latrines. Stone and forest is present in the surrounding areas which are utilized to repair damage brought about by landslide mitigation. Moreover, the community does have indigenous construction skill to build and repair dry masonry walls, bamboo spur using the available organic materials. The community has open space in school and community center being used for the communal gathering that is used for self-evacuation during emergencies.

The community has access to basic facilities offered by the authorities e.g. VDC, health facility, and post office. The community can benefit of positive attitude towards involvement of women in decision-making, as most of the female are the member of the mother groups.

The community experiences shifts of the weather patterns influence them to change practices to adapt. The community is aware of protecting existing water sources that are dying out may not be available for the future. There is a gradual change observed in the farming system including shift in period for planting, growing and harvesting for the main crops, and selection of the seeds that germinates quickly as changing pattern.

# General recommendations:

It is of utmost importance that a community needs to develop DRM plan immediately after based on the findings of the VCA. This plan should provide catalog of options to the community addressing the vulnerabilities that are cost effective, and within management capacity of the community and most, importantly their existing capacities are valued for vulnerability reduction. It suggested that VDC, local health facility, local formal and informal groups should be part of the participatory planning exercise to ensure they understand issues faced by community and do partnership with them in future. The intervention plan formulated by the community should be updated based on the findings of other need-based assessment. In general, VCA has outlined need for intervening on Drainage management, sanitation and hygiene awareness and support to construct sanitary unit, health treatment camp, Small scale landslide mitigation measures, plantation, awareness raising activities on sanitation and hygiene, domestic fire risk simulation and drill, protection and maintenance of water sources and income generation activities in the community.

# Possible solutions to address the vulnerabilities including those triggered by climate risks:

| **Sector** | **Vulnerability reduction measures**  |
| --- | --- |
| Hazard mitigation, preparedness, response and prevention | 1. Application of mitigation measures in selected locations
2. Awareness on landslide risk reduction, HHs preparedness and response
3. Skill and provision of materials for the care and treatment of injured
4. Establish response system in community includes training and equipment for fire response
5. Plantation, soil and slope management in catchment area to protect water sources
 |
| Water and sanitation (Wash) | 1. Protection of water sources
2. Establishment of proper system water collection, distribution and maintenance
3. Awareness of vector and water-borne diseases
4. Alert authorities on pattern of diseases
5. Promote plantation in catchment area for water conservation
6. Establish sanitation units at HH level
7. Establish system for solid and liquid waste (HHs and livestock) including awareness
8. Improve HHs, individual practices
 |
| Health | 1. Awareness on different health complain
2. Promote MCH and preventive health measures
3. Mobilize local volunteers for HHs level awareness activities on MCH, nutrition, and food handling
4. Advocate authorities to conduct awareness session on womb prolapsed and provide treatments
5. Awareness on vaccination and immunization facilities provided by the authority
 |
| Livelihood  | 1. Provide Income opportunities through new alternatives
2. Increase productivity of existing farmlands
3. Strengthen ways to revive yielding capacity of failed crops
4. Promote organic farming
 |

# Annexes

1. **Population demography**

|  |  |
| --- | --- |
| **Age wise population** |  |
| **<5yrs** | **6-12yrs** | **13-19yrs** | **20-59yrs** | **60>yrs.** | **Total** |
| **Female** | **Male** | **Female** | **Male** | **Female** | **Male** | **Female** | **Male** | **Female** | **Male** | **Female** | **Male** |
| **29** | **33** | **37** | **49** | **52** | **42** | **141** | **155** | **30** | **29** | **289** | **308** |

1. **Comparative Hazard-Vulnerability and Capacity Mapping**

|  |  |
| --- | --- |
| F:\Photo Bank 2013\VCA  Map\DSC08743.JPG | F:\Photo Bank 2013\VCA  Map\DSC08739.JPG |
| **Current Mapping** | **Historical Mapping** |

1. **Hazard/Risk Ranking**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hazard** | Landslide | Wash risk | Earthquake | Strong wind | Fire | **Ranking**  |
| Landslide |  | Wash risk | Landslide | Landslide | Landslide | **2** |
| Wash Related Risk |  |  | Wash Risk | Wash Risk | Wash Risk | **1** |
| Earthquake |  |  |  | Strong wind | Fire | **5** |
| Strong Wind |  |  |  |  | Fire | **4** |
| Domestic Fire |  |  |  |  |  | **3** |
| **Score**  | **3** | **4** | **0** | **1** | **2** |  |

1. **Hazard Matrix**

| **Hazard/Risks** | **Type of Hazard** | **Warning Sign** | **Speed of onset** | **Frequency** | **Duration** | **Element at risk** | **Impact** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| WASH related risks (weak sanitation facilities, diseases-pneumonia, diarrhea, wombs prolapsed, child health) | Man-made and partially contributed by the impact of other hazards/risks mentioned above  | Fever, weakness, bad smell | Slow to fast | Contributed by different factors  | Every year  | 45HHs of ward no 3 having weak domestic sanitation practices, children <5 age, elder and pregnant women | Deaths mainly in children <5 age and pregnant women,  |
| Landslides | Man-made/natural  | Creeps in the slopes of hills mainly during rainy season, decomposition of soil | Fast | 2-3 times during rainy season  | 2-3 minute | 8 Households of ward no 3 and 4,31 hectare of farmlands health post officeand livestock, school and school children | Deaths, injuries, decomposition of lands, sedimentation to farmlands and gradual losses to annual income  |
| Fire (domestic)  | Man-made/natural  | Smoke and flames  | Fast | 1-2 times in a year  | 1-2 hours  | 4 HHs of ward no 4 RitheRamduwali cluster that have thatched houses and member of the families of those HHs, cattle and cattle-sheds  | Deaths, injury, loss of livelihoods and properties and possibility of ravaging forest  |

1. **Vulnerability Matrix**

| **Hazards** | **Elements at risk** | **impacts of hazards to the elements at risk** | **Characteristics of elements at risk that contribute to vulnerability** | **Vulnerability factors** |
| --- | --- | --- | --- | --- |
| WASH related risks (weak sanitation facilities, diseases-pneumonia, diarrhea, wombs prolapsed, child health) | 45HHs of ward no 3 having weak domestic sanitation practices, children <5 age, elder and pregnant women | Deaths mainly in children <5 age and pregnant women,  | Poor HHs and community sanitation practices  | Physical and attitudinal  |
| Lack of awareness about neo-natal care, pre and postpartum care  | Social and attitudinal  |
| Lack of awareness on general health risk and its prevention  | Attitudinal |
| Lack of basic services for health care, referral and counseling  | Social and physical  |
| Landslides | 8 Households of ward no 3 and 4,31 hectare of farmlands health post office and livestock, school and school children | Deaths, injuries, decomposition of lands, sedimentation to farmlands and gradual losses to annual income  | Slope and steep geography ( weak structure of slopes)  | Physical |
| Shallow and flash river crossing over landslides area  | Physical |
| House and farmlands close to the landslides area  | Physical |
| Water sources close to the landslide area  | Physical |
| Risky sources of livelihoods  | Physical  |
| lack of awareness (forest conservation and protection of landslides)  | Motivational  |
| Change in precipitation | Physical |
| Fire (domestic)  | 4 HHs of ward no 4 RitheRamduwali cluster that have thatched houses and member of the families of those HHs, cattle and cattle-sheds  | Deaths, injury, loss of livelihoods and properties and possibility of ravaging forest  | Use of organic material for construction of dwellings  | Physical  |
| Traditional practices on use of fire (cooking) and traditional stoves risks to the incidents of fire  | Physical and attitudinal  |
| Settlements are close to each-others  | Physical  |
| Low or no awareness in proper handling of flammable materials | Motivational |

1. **Capacity Matrix**

| **Hazards** | **Elements at risk** | **Coping mechanism**  | **Resources used**  | **Capacity factors** |
| --- | --- | --- | --- | --- |
| Landslides | 8 Households of ward no 3 and 4,31 hectare of farmlands health post office and livestock, school and school children | Plantation | Use of local plants | Physical  |
| controlled grazing fields and laws to protect uncontrolled grazing close to the | Establishment of local laws  | Social  |
| Protect sliding area | Mobilization of local people  | Social  |
| Dry walland spur | Use of locally available (Bamboo, shrubs and trees, Stone/boulders) Indigenous skill in construction | Social  |
| Use of school and community center | Open space/community centers (schools)  | Social/Physical  |
| Domestic fire | 4 HHs of ward no 4 RitheRamduwali cluster that have thatched houses and member of the families of those HHs, cattle and cattle-sheds  | Use of organic materials and water to put out fire,  | Locally available organic materials  | Physical  |
| Plantation of banana tree surrounding of HH | Local tools, plant and people  | Social and Physical |
| water reserve at HH level | Utensil | Physical/Motivational |
| WASH related risks (weak sanitation facilities, diseases-pneumonia, diarrhea, wombs prolapsed, child health) | 45HHs of ward no 3 having weak domestic sanitation practices, children <5 age, elder and pregnant women | Counseling with witch doctors and traditional healer (Ayurveda), visiting traditional birth attendants, awareness and mass cleaning sessions run by the mothers groups and local youth clubs  | Youth clubs and mothers groups  | Social  |
| Traditional healer and witch doctors  | Social and attitudinal  |
| Female health volunteer  | Social  |

1. **Historical Profile and Time-line:**

| **Year (A.D)** | **Disaster** | **Impacts** |
| --- | --- | --- |
| 1988 | Earthquake | 16 houses destroyed,, 150 meter irrigation canal damaged and one water source impacted |
| 2011 | All houses of ward no 3 and 4 were partially crack |
| 1990 | Domestic fire | 1 house destroyed |
| 2007 | 1 house and 1 animal shed destroyed |
| 2012 | 1 house and 1 animal shed destroyed |
| 2000 | Diarrhea  | 1 person died and 5 suffered  |
| 2002 | Landslide | Destroyed 21 hector of farmland |
| 2008 | 1 people and 1 buffalo died, 1 house completely destroyed and 10 houses were partially damage |
| 2009 | 2 destroyed |

1. **Comparative Seasonal Calendar**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Events**  | **Time scale**  | **Months** |
| **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sept** | **Oct** | **Nov** | **Dec** | **Jan** | **Feb** | **Mar** |
| 1 | Farming Time  | Present  | ☸ |  | ☸ | ☸ |  | ☸ | ☸ |  |  |  |  | ☸ |
| Past  |  | ☸ | ☸ |  |  |  | ☸ | ☸ |  |  | ☸ | ☸ |
| 2 | Human diseases (Diarrhea and pneumonia, ) | Present  |  |  | ☸ | ☸ | ☸ |  |  |  |  | ☸ | ☸ | ☸ |
| Past  |  |  | ☸ | ☸ |  |  |  |  | ☸ | ☸ |  |  |
| 3 | Domestic Fire | Present  | ☸ | ☸ |  |  |  |  |  |  |  |  | ☸ | ☸ |
| Past  | ☸ |  |  |  |  |  |  |  |  |  |  | ☸ |
| 4 | Thundering  | Present  |  |  |  |  |  |  |  |  |  |  | ☸ | ☸ |
| Past  | ☸ | ☸ |  |  |  |  |  |  |  |  |  |  |
| 7 | Strong Wind  | Present  | ☸ | ☸ |  |  |  |  |  |  |  |  | ☸ | ☸ |
| Past  | ☸ |  |  |  |  |  |  |  |  |  |  | ☸ |
| 8 | Drought  | Present  | ☸ |  |  |  |  |  |  |  |  |  | ☸ | ☸ |
| Past  | ☸ |  |  |  |  |  |  |  |  |  |  | ☸ |
| 9 | Flash flood  | Present  |  |  | ☸ | ☸ | ☸ | ☸ |  |  |  |  |  |  |
| Past  |  | ☸ | ☸ | ☸ | ☸ |  |  |  |  |  |  |  |
| 10 | Animal diseases  | Present  |  | ☸ | ☸ | ☸ |  |  |  |  |  |  |  |  |
| Past  | ☸ | ☸ |  | ☸ | ☸ | ☸ |  |  |  |  |  |  |
| 11 | Festivals  | Present  |  |  |  |  |  | ☸ | ☸ |  |  |  |  |  |
| Past  |  |  |  |  |  | ☸ | ☸ |  |  |  |  |  |
| 12 | Free Time  | Present  |  |  |  |  |  |  |  |  | ☸ | ☸ | ☸ |  |
| Past  |  |  |  |  |  |  |  |  | ☸ | ☸ | ☸ |  |
| 13 | Rainy Season  | Present  |  |  | ☸ | ☸ | ☸ |  |  |  |  |  |  |  |
| Past  |  | ☸ | ☸ | ☸ |  |  |  |  |  |  |  |  |
| 14 | Dry Season  | Present  | ☸ |  |  |  |  |  |  |  |  |  | ☸ | ☸ |
| Past  | ☸ |  |  |  |  |  |  |  |  |  |  | ☸ |

1. **Stakeholder Analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Name of Organization** | **Address** | **Contact Person** | **Available Resources and capacity** |
| 1  | VDC Office | Isibu-7 | Mr. DurgaBhandari | Building with 2 staff, regular fund |
| 2  | Jagriti Women Group | Isibu-4 |  |  |
| 3  | HybungJarana Saving Cooperative |  | Ms. Manju Baral | Fund and human resources |
| 4  | Naminta Cooperative |  |  |  |
| 5 | HybungJarana Youth Club | Isibu-4 | Mr. PadamChobang | Furniture, Utensil and fund |
| 6 | Singabahini Primary School | Isibu-3 | Mr. Bishnu Prasad Ghimire | 3 building, open space, 6 teacher |
| 7 | Isibu Cooperative Farmer Group | Isibu-3 | Mr. PurusotamTimilsena | Fund and human resources |
| 8 | Community Forest |  | Mr. PurusotamTimilsena |  |
| 9 | HybungJarana Reading Center | Isibu-4 | Mr. SesehangChobang | NA |
| 10 | Isibu Higher Secondary School | Isibu-4 | Mr. Ram Prasad Timilsena | 13 block building, 10thousend fund with JRC, open sapce |

1. **Livelihood Analysis**

| **S.** **No.**  | **Activities** | **Available resources for livelihood** | **Hazards that threaten these resources**  | **Ways of strengthening** |
| --- | --- | --- | --- | --- |
| 1 | Agriculture (farming ) | Land  | Landslides, seasonal drought (extended dry spell), extreme heat, and irregular and erratic rainfall  | * Strengthening seasonal irrigation facilities (improvements of community canals)
* Establishment of mitigation measures along the hazard prone area including bio-engineering strengthening
* Change in cropping patterns considering climatic variability (e.g. cash crops)
* Technical support for improved farming from the district and VDC authorities
 |
| Cattle  | Cattle diseases, and lack of livestock clinics in the community  | * Promotion campaigns in the target communities to aware community people on possible diseases on cattle, its prevention and care
* Advocating authorities to establish regular clinical services in the communities including need based counseling
 |
| Seeds, equipment and water facilities  | Landslide, flash flood, seasonal drought and irregular and erratic rainfall  | * selection of seeds according to the seasons
* Protection of water sources (including those exists in communities)
* Establishment of artificial water protection/collection ponds in the community
 |
| 2 | Livestock | Forest and open field for fodder management  | Landslides, flash floods, seasonal drought (extended dry spell), extreme heat, and irregular and erratic rainfall  | * Protection/conservation of forest
* Additional plantation in areas those deforested
* Promoting community laws for protected fodder lands (land zoning)
 |

**Problem Tree**

Injuries and Death of people and livestock

Poverty

Destroyed Water source and supply system

Impact in Environment

Migration

Destroyed farmland

Environment pollution

Impact in education

Affect in health

Loss of economic condition

Injuries and Death

Forest detonation

Impact in education

Impact in health

Damage of houses

Death

Loss of property

Illness

Damage of houses

**Domestic Fire**

Impact in crops

**Landslide**

**Wash related risk**

Strong wind

Use of organic materials in house construct

Sloping geophysical condition

Heavy rainfall

Lack of awareness

Use of Contaminate water

Traditional practices (stock of fire)

Unplanned road construction

Open defecation practices

Houses are closed to jungle

Deforestation

Improper management of electricity

Traditional agro practices

Poor sanitation practices

Solution Tree

Reduce the communicable disease

Improve the livelihood

Decrease injuries and death case

Improve in sanitation and hygiene condition

Increase the production

Improve the livelihood

Access of health facility

Safe the houses and property

Safe the houses and farmland

Having toilet and sanitation practices at all HHs

Reduce the risks level

Reduce the fire case

**Wash risk**

**Fire**

**Landslide**

Toilet construction and proper use

Application Mitigation Meausres

Awareness rising

Regular sanitation practices at personal, household and community level

Plantation

Training on first aid and responder and kits management

Awareness rising

First Aider, search and rescue training and kits

Proper Management of flammable item

Awareness raising activities on health and hygiene

Water treatment and use of safe water

Construct of fire pit

Training and preparedness at household and community level