



FLOOD

EARLY ACTION PROTOCOL 2023

Raptisonari Rural Municipality
Narainapur Rural Municipality



Raptisonari Rural
Municipality



Narainapur Rural
Municipality



GSK



Save the Children



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1. Introduction

This flood early action protocol has been prepared for the implementation of early actions based on the forecast of possible damage caused by the flood in West Rapti river that passes through Raptisonari and Narainapur rural municipality, Banke district in Nepal. It includes flood risk analysis, thresholds and triggers, list of early actions, pre-agreed beneficiary selection criteria and process, implementation process, estimated costs and pre-arranged financing, monitoring and evaluation process and the key implementers.

Raptisonari and Narainapur rural municipalities lie in the downstream of West Rapti river basin, Banke district, Lumbini province, western Nepal. The total area of Raptisonari rural municipality is 1041.73 square kilometers and according to the national census of 2021, there is a population of 67782 in 15491 families. Likewise the area of Narainapur rural municipality is 172.34 square kilometers and it has 34942 population in 7614 families. West Rapti River is the biggest river that passes through these municipalities. According to the recent survey, the number of flood at-risk households in Raptisonari rural municipality is 3910 (26.63%) and in Narainapur is 4080 (53.58%).

2. Objective

The main objective of this early action protocol is to minimize the impact of predictable floods in Raptisonari and Narainapur rural municipalities before it completely affects people and their properties.

3. Key implementing agencies

Raptisonari and Narainapur rural municipalities

Raptisonari and Narainapur rural municipalities will be the lead implementing government bodies. Exercising the rights related to disaster management delegated to the local level, in conjunction and alone, by Local Disaster Management Act and related policies as well as the Local Government Operation Act, the rural municipalities had approved this flood early action protocol, agreeing to lead actions and interventions.

Save the Children

Save the Children will be the key supportive agency for this flood early action protocol implementation. Save the Children is a development partner of Nepal Government and working in the sector of development and humanitarian response. Currently, Save the Children is working as a partner in Raptisonari and Narainapur rural municipalities for disaster risk reduction and management including floods.

Social Development Forum

Being local implementation partner of Save the Children, Social Development Forum (SDF) Banke will support the implementation of the flood early action protocol. The main responsibility of SDF will be to collaborate and support Raptisonari and Narainapur rural municipalities to implement the flood early action protocol.

Nepal Red Cross Society, Raptisonari and Narainapur sub-chapters

Nepal Red Cross Society, Raptisonari and Narainapur sub-chapters will be part of the implementation of the early action protocol. Both municipalities will work in coordination and cooperation with the Red Cross chapters as required.

Red Cross Red Crescent Climate Centre

Red Cross Red Crescent Climate Centre provides technical expertise in defining thresholds and triggers to develop flood early action protocol and monitors the weather forecasts during the monsoon season.

4. Risk analysis

4.1 Hazard selection

Raptisonari and Narainapur rural municipalities, located in the lower basin area of West Rapti river, is one of the areas that are frequently affected by floods. Analyzing based on the flood measuring station located at Kusum under West Rapti river basin, it is found that the flood incidents in the past 20 years are as follows.

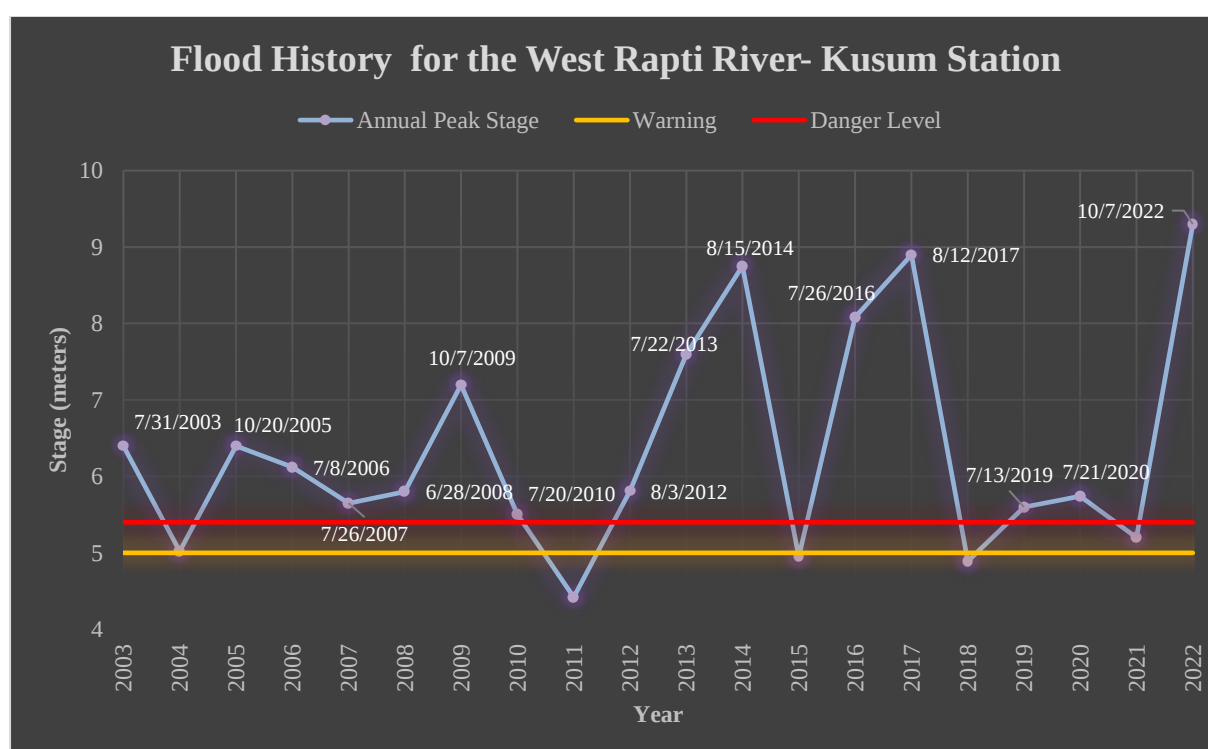
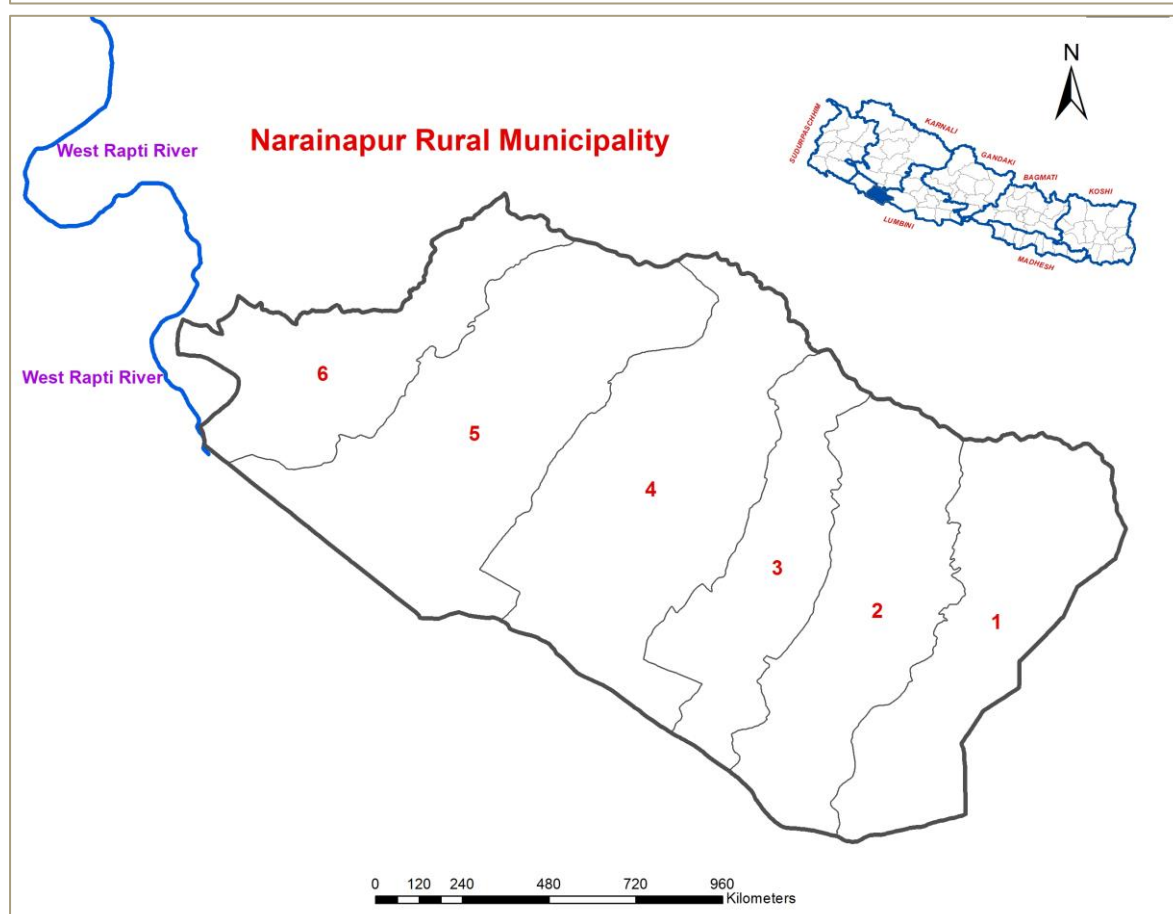
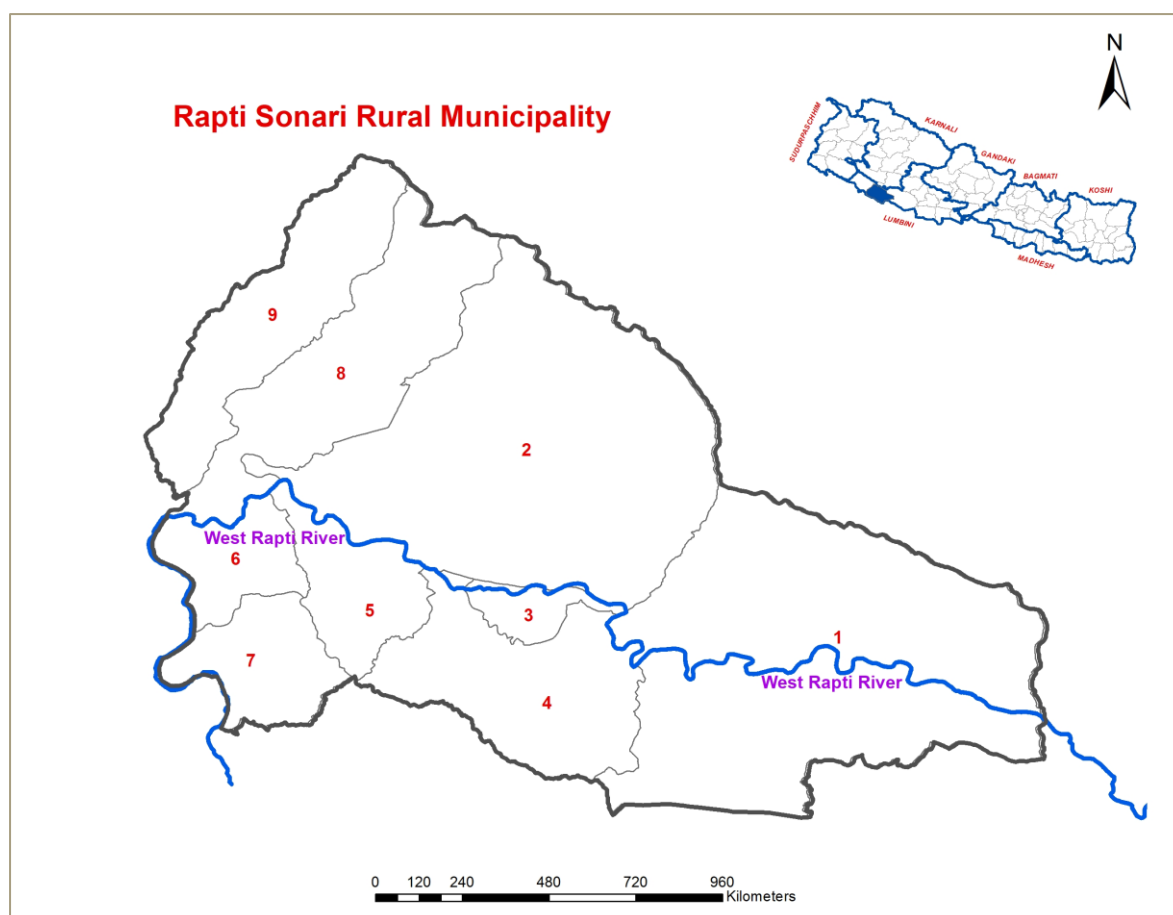


Figure 1 Flood history for West Rapti river- Kusum station

According to the statistics highlighted in the chart, both Raptisonari and Narainapur rural municipalities are at a high risk of flooding as the West Rapti river has crossed the danger level around fifteen times during the last two decades.

4.2 Impact area

As most parts of Raptisonari rural municipality are touched by the West Rapti river, it seems that the entire area of the rural municipality shall be in the flood risk while the settlements in wards number 1, 2, 3, 4, 5, 6, and 7 which are close to the river will be at high risk. Likewise, the settlements of ward no 5 and 6 of Narainapur rural municipality which are touched by the West Rapti river are at the high risk of floods.



4.3 Sector-wise impact

Flooding in Raptisonari and Narainapur rural municipality area for last thirty years reveals the following main effects especially on people and their properties.

Table 1: Impact of West Rapti river floods in Raptisonari and Narainapur rural municipality area

Year	Physical assets impacted	Human casualties	Economic and Natural assets impacted
2022			Food damaged of 1250 families 1650 hectares of agriculture land destroyed Number of livestock missed
2017	3167 houses fully damaged 1436 houses partially damaged 100 families displaced 2 bridges damaged	4 people injured 7 people died	Food and other assets damaged worth equivalent to 1.2 m USD 685 hectares of agriculture land destroyed 40 hectares of paddy damaged 200 livestock missed
2015	98 houses fully damaged		Food and other assets damaged worth equivalent to 9000 USD
2014	230 houses fully damaged 1724 houses partially damaged 700 families displaced	3 people died	Food and other assets damaged worth equivalent to 0.5 m USD 735 hectares of agriculture land destroyed 850 livestock missed
2013		1 people died	Food and other assets damaged worth equivalent to 0.4 m USD 250 livestock missed
2009	17 houses fully damaged		
2007			Food and other assets damaged worth equivalent to 40000 USD
2006	17 houses fully damaged	1 people died	150 hectares of agriculture land destroyed
2004	7 houses fully damaged		Food and other assets damaged worth equivalent to 15000 USD 5 hectares of agriculture land destroyed
2002	50 houses partially damaged		4 hectares of agriculture land destroyed
1998	70 families displaced 1 school displaced		
1996			2 hectares of agriculture land destroyed
1995	50 houses fully damaged		Food and other assets damaged worth equivalent to 60000 USD
1994	15 houses fully damaged		Food and other assets damaged worth equivalent to 20000 USD 2 hectares of agriculture land destroyed
1993		2 people died	

Source: Raptisonari and Narainapur Rural Municipality, Local Disaster and Climate Resilience Plan 2021 and District Administration Office Banke, Flood Impact Initial Rapid Assessment Report 2022

4.4 Vulnerability analysis

After analyzing the impact of floods on people and the property in Raptisonari and Narainapur rural municipalities, it seems that the following five groups can be prioritized for early actions.

1. Houses located near the river;
2. Houses having mud-wall which can be easily damaged by floods;
3. Households with persons with complete disability, senior citizens above 80 years of age; pregnant women, and children under five years of age;
4. Single woman headed households; and

5. Households having low income.

5. Trigger analysis

After analyzing the past floods in the West Rapti river and its impacts in Raptisonari and Narainapur rural municipalities area, the trigger has been divided into two stages.

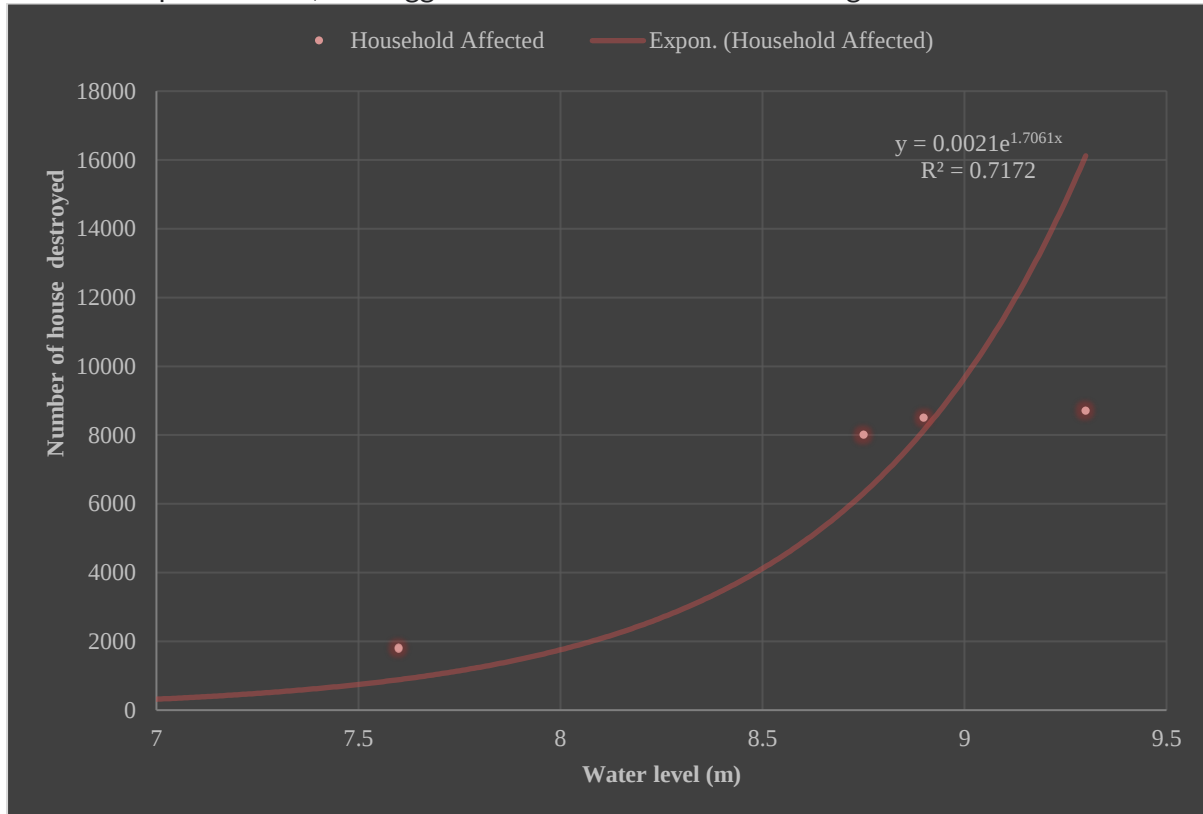


Figure 2 Correlation between floods in West Rapti river and household affected in Raptisonari rural municipality area

5.1 Readiness /Pre-activation trigger

When Global Flood Awareness System (GLOFAS) predicts more than 2-years return period flow in next 3 to 5 days with a probability of 50% or more at Kusum or Bagasoti station, the readiness (pre-activation) trigger is confirmed for a potential flooding in West Rapti with a minimum lead time of 3 days to maximum lead time of 5 days.

Or

When the rainfall forecasts from National Centre for Medium Range Weather Forecasting (NCMWRF India) i.e., any of the specific product/information mentioned below, predicts extreme widespread rainfall across Western Terai of Nepal especially around the West Rapti river basins and adjoining areas in next 3 to 5 days, readiness (pre-activation) trigger is confirmed for a potential flooding in West Rapti with a minimum lead time of 3 days to maximum lead time of 5 days.

- Weather monitoring indicates extreme rainfall (>95 percentile) – purple dots over the West Rapti river basins and its adjoining areas/watersheds in next 3-5 days.
- The Deterministic Prediction System predicts a cumulative rainfall of more than 300mm in the next 3 to 5 days in the West Rapti river basin and adjoining areas.
- Probabilistic Prediction System predicts heavy rain with more than 80 percent probability in next 3 to 5 days.

5.2 Activation trigger (two steps)

5.2.1 First step activation trigger (cash support and other early actions)

When Numerical Weather Prediction (NWP) from Department of Hydrology and meteorology (DHM) / Regional Integrated Multi-hazard Early Warning System for Africa and Asia (RIMES) or any special weather advisories/bulletin from DHM predicts extreme and widespread heavy rainfall (more than 200mm) for next 48 hours across West Rapti basin areas i.e., Banke, Dang and Pyuthan districts (orange or red highlights), provided that West Rapti is already flowing at stage level less than 2m from existing warning level, the first stage activation trigger is reached with a maximum lead time of 48 hours.

Or

When DHM flood forecast bulletin or any special flood advisories from DHM predicts the water levels of West Rapti to rise above the existing danger levels in Kusum station in the next 48 hours, the first stage activation trigger is reached with a maximum lead time of 48 hours.

5.2.2 Second step activation trigger (evacuation related early actions)

When any of the three rainfall stations upstream of West Rapti Kusum River records cumulative rainfall more than 200mm in the last 48h and further heavy rainfall is predicted in the Dang and Pyuthan district, provided that the West Rapti river have already crossed its existing warning level at Kusum, the second stage activation trigger is reached with a maximum lead time of 12 hours that will trigger the evacuation related early actions.

Or

When the West Rapti river surpasses exiting danger level (as per DHM Real time monitoring system- River watch) and is rising trend, the second stage activation trigger is reached with a maximum lead time of 5 hours that will trigger evacuation of vulnerable population, their livestock and properties.

River Name	Station Name	Existing Warning Level (m)	Existing Danger Level (m)	Threshold River Level (m)
West Rapti	Kusum	6.0	7.8	7.8

List of automatic rainfall stations upstream of West Rapti Kusum station:

Station ID	Station Name	District
375	Kusum	Banke
0536	Gangadi	Dang
0537	Lamahi	Dang
0515	Gorahi	Dang
0538	Lalmatiya	Dang
542	Bagasoti	Dang
533	Ratamata	Dang
534	Hanspur	Pyuthan
050501	Bijuwatar	Pyuthan
330	Mari Nayagaon	Pyuthan
0530	Swargadwari	Pyuthan
0504	Libang	Rolpa
0527	Suilichour	Rolpa



Flood forecast monitoring sources for West Rapti river flooding

- (a) Department of Hydrology & Meteorology (DHM) – National/Local Forecast
 - Flood Forecast Bulletin issued daily at 7am – Predicting water level status in major rivers including West Rapti for next 3 days and indicating flood risk level of different districts.
 - <http://www.hydrology.gov.np/>
 - NWP 72h precipitation forecast - <http://mfd.gov.np/nwp/#/nwp/Precipitation>
 - River Watch (Realtime Status of Rivers)- <https://www.dhm.gov.np/hydrology/river-watch>
 - Rainfall Watch (Observed Rainfall) - <https://www.dhm.gov.np/hydrology/rainfall-watch-map>
 - Any special flood or weather advisories issued on ad-hoc basis.
- (b) NCMWRF – IMD (Regional/Global Forecast)
 - Extreme Weather Outlook (5 days) – Predicted Severe Weather Events (Precipitation <https://www.ncmrwf.gov.in/> > Special Products > Extreme Weather Outlook
 - BIMSTEC Forecast Charts for Nepal (Rainfall – 10 days) <https://www.ncmrwf.gov.in/nepal-charts.php> or Deterministic/Probabilistic Prediction System (10 day Rainfall) for South Asia <https://www.ncmrwf.gov.in/>
- (c) ECMWF/GLOFAS
 - Ensemble Flood Forecast of West Rapti in Kusum Station for next 30 days – indicating the probability to reach certain return period flow <https://www.globalfloods.eu/glofas-forecasting/>

6. Selection of flood early actions

6.1 Process of early action selection

6.1.1 Workshop

A two-day workshop to identify flood early actions was organized in the presence of the chairpersons, vice-chairpersons, ward chairpersons, local disaster management committee members and staffs, Nepal Red Cross Society respective sub-chapters and the technical experts from Save the Children and Social Development Forum.

The workshop discussed the historical timeline and impacts of floods in both rural municipalities for the last 30 years. The impact of the floods, promising approaches to response actions, early actions based on weather forecast and lead time, and priority group identification related matters were also discussed. The workshop also formed a task force to draft and finalize the flood early action protocols in Raptisonari and Narainapur rural municipalities.

As discussed in the workshop, the response options practiced by Raptisonari and Narainapur rural municipality in the past years in flood as are mentioned below.

- Dissemination of rainfall and flood information
- Evacuation of people to the safe place
- Distribution of water and food items
- Distribution of other essential non-food items including tarpaulin

6.1.2 Drafting of early action protocol

The task force with technical support from Save the Children drafted the flood early action protocol and submitted it to the local disaster management committees for their further review and process.

6.1.3 Simulation exercise

Simulation exercise was carried out in Raptisonari rural municipality to test the draft early action protocol where relevant representatives from Narainapur rural municipality also took part. In the simulation, the set of early actions and the implementation processes which are included in the protocol were tested and reviewed. The simulation identified the positive aspects, areas of improvement and the gaps. The local disaster management committees of both the rural municipalities finalized the early action protocol with the necessary amendments.

6.1.4 Approval of early action protocol

Upon the recommendation of the Local Disaster Management Committees, the meeting of the council of rural municipalities approved the early action protocol to be implemented during 2023 monsoon.

6.2 Agreed set of early actions

6.2.1 Information dissemination

If the flood forecast meets the readiness trigger, information dissemination will be started focusing on the high-risk communities to be safe from floods, to save properties and important documents. While doing so, weather forecast messages and the notice issued by the relevant ministries and subordinate agencies of government will be considered. The information will be communicated through multi-hazard sirens, radios, miking, mechanisms of local people, pamphlets, mobile messages (SMS or voice) etc.

6.2.2 Evacuation of people and properties which are at high risk of floods

If the flood forecast meets the activation trigger second level, the people of the high-risk households and their properties along with their important documents will be evacuated. The place and process of evacuation will be according to the standard operating procedure prepared by the respective community. The final decision for evacuation will be taken by the respective chairpersons of rural municipalities or a designated focal person after discussions with the relevant stakeholders.

6.2.3 Cash/value voucher transfer

If the flood forecast meets the activation trigger first level, cash assistance/value voucher will be transferred to the at-risk families. The cash assistance/value voucher amount is half of the minimum expenditure basket's transfer value i.e. NPR 7500 or as decided by the municipality. The targeting of families for cash assistance/value voucher will be based on community based targeting method. The procedures detailed out in cash guideline will be followed to implement the cash/value voucher assistance.

6.3 No regret provision

Regarding the flood, in the case where there is a higher probability of impacting people and properties, early actions such as information dissemination, evacuations and cash/value voucher assistance will not have any negative impact on people and their property, so there will be no regrets after implementing the early actions in the situation of false alarm.

7. Selection and registration of beneficiaries

7.1 Beneficiary selection

The basis for the selection of beneficiaries for flood early action will be as mentioned below which is based on the early action protocol workshops.

- a. **Information dissemination:** Information dissemination will generally be implemented at the community level, and the communities that are at high risk of flooding will be given priority. Along with this, existing social security beneficiary list and other relevant data will be used to ensure information to high-risk and most vulnerable people within the community.
- b. **Evacuation:** Evacuation will generally be implemented at the community level and priority will be given to communities that are at high risk of frequent flooding. At the same time, existing social security beneficiary lists and other relevant data will be used from the very beginning of the preparedness stage to ensure the evacuation of high-risk and most vulnerable individuals within the community and to address their specific needs.
- c. **Cash/Value voucher assistance:** The selection method of households for cash/value voucher assistance will be based on the data of detailed household survey conducted in Raptisonari and Narainapurrural municipalities. All households that are at risk of flooding will be entered into the primary registration system and the beneficiary selection method i.e. community-based targeting will be applied based on the data of that specific flood at-risk location only. Specific targeting of the geographic location/flood at-risk location to identify the the beneficiary list will be based on the flood return intensity/period shown by the flood forecasts.

7.2 Beneficiary registration

A detailed process of beneficiary registration will be followed only for the cash/value voucher assistance program. The beneficiary registration process follows the standard operating procedure related to the primary registration of beneficiaries for flood early action implementation in Raptisonari and Narainapur rural municipalities.

7.2.1 Before the readiness phase

According to the seasonal calendar of the beginning of floods in Nepal, potential beneficiaries will be registered by the month of June based on the household data provided/approved by the local disaster management committee and the data related to social security allowance.

7.2.2 After the readiness phase

Targeting the possible geographic areas to be affected by the floods according to the flood return intensity/period shown by the flood forecast, the beneficiary will be shortlisted from a long list prepared based on the targeting methods. Regarding the data related to social security allowance, the previous data will be replaced by the updated ones.

8. Early action plan implementation

8.1 Preparedness

The local disaster management committee initiates the following tasks as part of the preparedness phase:

- Review of flood early action protocol
- Simulation exercise on flood early action protocol
- Decision from the executive committees
- Data analysis and pre-registration of beneficiaries
- All preparedness work on early action for information dissemination
- All preparedness work on early action for evacuations
- All preparedness work on early action for cash/value voucher transfer
- Preparedness work on using social security allowance bank accounts (if applicable)
- Coordination and collaboration with relevant agencies, including Nepal Police, Forest Office, National Park, local organizations, Red Cross etc.

8.2 Implementation

8.2.1 Readiness phase

After entering the readiness stage, the Local Disaster Management Committees, in cooperation with Save the Children, Social Development Forum and Nepal Red Cross Society sub-chapters will conduct the following activities:

- Verify all the tasks mentioned in the preparedness stage and complete them, if pending
- Message dissemination
- Update the data of beneficiaries
- Carry out all preparedness work required for implementing the activities related to the activation phase

8.2.2 Activation phase

After entering the activation phase, the Local Disaster Management Committees, in cooperation with Save the Children, Social Development Forum and Nepal Red Cross Society sub-chapters will conduct the following activities:

- Continue messaging
- Evacuation of people and properties
- Cash/value voucher transfer

Note: The rural municipalities will implement the distribution of cash and material from the available or allocated budget from their disaster management funds and will coordinate and cooperate with Save the Children, Social Development Forum, Banke, Red Cross and local organizations for insufficient material and cash assistance.

8.3 Monitoring and Evaluation

Monitoring and evaluation of flood early action will be conducted in the following phases:

- Monitoring of the design and implementation of early actions which will take place throughout the EAP design as well as implementation period.
- Post distribution monitoring will take place after 3-4 weeks of implementation of cash/value voucher

- Evaluation of early actions will take place after 3-4 weeks of implementation or immediately after the monsoon period whichever is suitable

9. Complaint/feedback mechanism

Local level grievance handling mechanisms under the municipal and ward level authorities will be activated to manage/handle complaints/feedbacks regarding the implementation of this flood early action protocol. In addition to the government mechanism, Save the Children and SDF Banke's complaint/feedback mechanism will also be used.

10. Budget and pre-arranged financing

SN	Headings	Estimated cost (USD)	Responsibility	
			Raptisonari Narainapur Municipality	Save the Children/ SDF
1	Workshop on drafting flood early action protocol	3000.00		3000.00
2	Simulation exercise	3000.00		3000.00
3	Implementation of flood early actions	43000.00	6500.00	36500.00
4	Monitoring and Evaluation	3500.00		3500.00
Total		52500.00	6500.00	46000.00

Annexes

Annex 1: Flood thresholds and triggers analysis

Annex 2: Simulation exercise report

Annex 3: Letter of approval from municipality

Annex 4: Flood forecast communication standard operating procedure

Annex 5: Beneficiary targeting and registration standard operating procedure

Annex 6: People and property evacuation standard operating procedure

Annex 7: Brief of Cash Assistance guideline of Raptisonari and Narainapur rural municipalities

Annex 8: Cash/value voucher implementation standard operating procedure

Annex 9: Monitoring and evaluation standard operating procedure

Annex 10: Grievance handling standard operating procedure

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