IASC in-country Team for Natural Disaster Response Preparedness

Rapid Assessment Report

Lao People's Democratic Republic

September 2008

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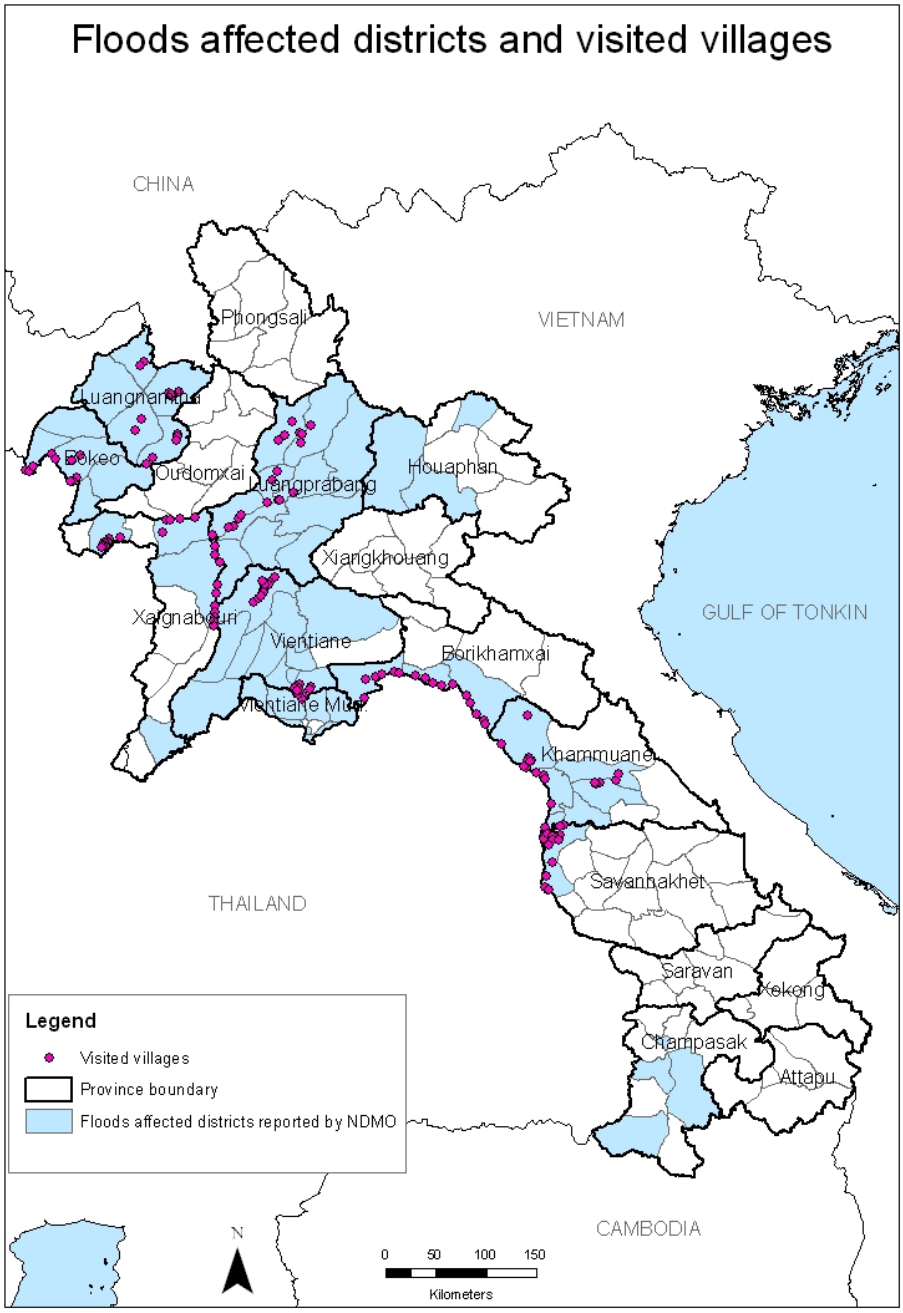
ACRONYMS

IASC	Inter Agency Standing Committee
Lao PDR	Lao People Democratic Republic
NDMO	National Disaster Management Office
DOS	Department of Statistics
UN	United Nations
INGO	International Non Governmental Organisation
JICA	Japan International Cooperation Agency
PDMC	Provincial Disaster Management Committee
DDMC	District Disaster Management Committee
CFSVA	Comprehensive Food Security and Vulnerability assessment
WFP	World Food Programme
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
MICS	Multiple Indicator Cluster Survey
RA	Rapid Assessment
UNFPA	United Nations Population Fund
Ha	Hectares
CPI-NSC	Consumer Price Index – National Statistics Center (now DOS)
UNDP	United Nations Development Programme
DH	District Hospital
PH	Public Hospital
NCLE	National Center for Laboratory and Epidemiology
USD	United States Dollar
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ORS	Oral Rehydration Salts
MUAC	Mid-Upper Arm Circumference
OPV	Oral Polio Vaccine
SD	Standard Deviation
SCA	Save the Children Australia
WV	World Vision

MAP 1: AFFECTED DISTRICTS AND VILLAGES VISITED BY THE RAPID ASSESSMENT TEAMS



EXECUTIVE SUMMARY

Lao PDR experienced heavy rainfall in Northern provinces in early August 2008, causing the Mekong River and many of its tributaries to flood their banks. Flooding is not unusual at this time of the year in Lao PDR, although this year the river levels were among the highest recorded and there is limited infrastructure in place to help control flood waters.

The northern and central regions of Laos, as well as the capital, Vientiane, were particularly severely affected, according to the Lao National Disaster Management Office (NDMO). Flash floods were also reported in the North and Central Provinces causing eight deaths. The flood waters peaked between 13-16 August at levels higher than in both 1966 and 2000 when major floods occurred. By the end of August, most affected areas were gradually becoming accessible but there is a strong possibility of further flooding before the end of the rainy season.

A Rapid Assessment was set up by the "IASC in-country Team for Natural Disaster Response Preparedness"[1] to provide an overview of the floods' immediate impact. The purpose of this assessment was not to identify all the affected villages, or to produce exact numbers of people in need of assistance, but to describe how the affected villages and populations were impacted by the floods and to define the priorities for potential humanitarian response.

This assessment was led by the National Disaster Management Office (NDMO) in close collaboration with the Department of Statistics (DOS) and with extensive support from the IASC's Rapid Assessment Taskforce.

Coverage and methodology

The Rapid Assessment was conducted during 21-29 August 2008 with nineteen assessment teams covering twenty nine districts in eight of the most affected provinces. The assessment teams visited 152 villages which were selected in consultation with the provincial authorities. Each team visited six very affected and two moderately affected villages, based on the information available in the province.

The methodology included primary data collection through household interviews with most affected households; discussions with key informants in each of the selected villages; and transect walks in affected villages.

The conclusions drawn in this report are based on both qualitative and quantitative information drawn for the field visits triangulated with a substantial amount of secondary information. While the data presented should be considered as estimates rather than absolute figures, the IASC feels confident that the analysis provides a good understanding of the impact of the August 2008 floods in Lao PDR.

Extent of the flood impact

The National Disaster Management Office (NDMO) collated the data provided by the Provincial Disaster Management Committees (PDMC) and District Disaster Management Committees (DDMC) on the extent and impact of the floods. Vientiane Municipality provided information on the extent of flooding in the city.

According to the Rapid Assessment, provinces in the North and Centre of the country; Luangprabang, Luangnamtha, Bokeo, Khammuane, Vientiane Province and Borikamxay are the worst hit. This confirmed data provided by the NDMO. Other areas affected by floods are Houaphan, Sayaboury, Vientiane Capital, Savannakhet and Champasak

Number of affected people

Across the entire country, the NDMO estimates that a total of 204,199 people were affected in 886 villages in 53 districts. For response planning purposes these figures were used.

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[1] Ministry of Labour and Social Welfare, Ministry of Agriculture and Forestry, Ministry of Foreign Affairs, Ministry of Industry and Commerce, Ministry of Public Works and Transportation, MPS, Ministry of Planning and Investment, Ministry of Public Health, National Avian Human Influenza Coordinating Office, National Disaster Management Office, Mekong River Commission, UN Office of the Resident Coordinator, UN World Food Programme, UN Food and Agriculture Organisation, UN Development Programme, UNICEF, UN Department for Safety and Security, International Strategy for Disaster Reduction, UN Office on Drugs and Crime, UN World Health Organisation, International Organization for Migration, UN Population Fund, Disaster Preparedness European Commission's Humanitarian Aid department, Australian Government's overseas aid program, Japan International Cooperation Agency, Lao Red Cross, French Red Cross, International Federation of Red Cross and Red Crescent Societies, OXFAM, Christian Action Research and Education, Concern Worlwide, Save the Children Australia (SCA), World Vision, Netherlands Development Organisation (SNV),Action against Hunger (ACF), Doctors without Borders (MSF), Empowerment for All (EFA)-Japan

Impact on access

Throughout the visited areas, damage to bridges, roads and footpaths was widespread. Landslides experienced in some locations in Luangnamtha and LuangPrabang compounded the access problem. Overall, it appears that some communities were unable to undertake the necessary repairs/reconstructions, and may require some technical and financial support.

Several bridges, critical for accessibility of the affected villages, were damaged. It was reported in 15-20 percent of the villages assessed that bridges were in need of repair. Additionally, 50 percent of the villages visited reported that roads were damaged, with 20 percent of the villages reporting severe damage

Impact on agriculture, livestock and aquaculture

Agriculture

According to figures released by the government, approximately 152, 400 hectares of agricultural land was submerged by flood water at the peak of the floods. The government further estimates that in 57 districts, 40 percent of planted area was under water for several days. In some locations, crops and paddies were swept away and irrigation systems were badly damaged, rendering the land uncultivable for the remaining agriculture season. Overall, the floods affected irrigation channels in 30-40 percent of the assessed villages.

According to the Rapid Assessment, over 70 per cent of productive agricultural areas were damaged or completely lost. These areas normally produce rice for all the country, implying negative impact on the long-term food security and livelihood of many communities, with far reaching impacts on level of income used for healthcare and education

Livestock and aquaculture

Several hundred thousand cattle, buffalo, pigs and poultry have been affected by muddy and wet conditions raising fears of the communicable animal diseases, which can cause clinical loss to livestock and some of them can be transmitted to humans.

Overall, about 30-40 percent of the assessed villages reported that their fish ponds were affected through silt deposits and by the fast flowing flood water.

Livelihoods

Damage and loss of paddy land, cash crops, fish ponds, some losses of livestock as well as damage to irrigation system were widespread in all locations visited. As a result, low or poor yields are expected this year, affecting livelihood of the population in the affected communities in the mid to long-term. Some small businesses were reported to have been affected.

Impact on food security

Except for the Northern provinces, the areas and populations affected by the floods are not the most food insecure in the country. However it is estimated that 20% of the affected population are in severe need of food relief in the short-term. Some of these people and additional households - usually characterised as food insecure - will need support for livelihood recovery activities until the next cropping season in October November 2009.

Food access

The floods occurred during the lean season. For many poorer households, this meant that food stocks were low or already depleted prior to the floods. In most areas, the onset of the flood was gradual, so households were able to save their remaining food stocks. However, some households reported having lost all or some of their available food stocks.

The main district markets were not significantly affected by the floods. Most of them have been re-established and were functioning as usual at the time of the assessment. During the assessment, price increases were observed, which is likely to have a negative impact on household access to food and therefore on households' food consumption.

Food consumption

In a number of villages, the floods reduced the sources of food available for the households especially from domestic production, and wild foods. This may further reduce their already low dietary intake and render them more food insecure.

Household vulnerability and coping strategies

During the Rapid Assessment, current coping mechanisms were reported to include reduction or change

of food consumption, borrowing and borrowing from relatives and friends, consumption of wild foods, and use of credit. There were widespread reports that household and productive assets were sold as a result of the floods, in a manner that would deplete households' asset base. Support to these communities is required to reduce the probability of their engaging in more harmful coping strategies.

Impact on shelter

The flood had some impact on housing along the Mekong River, houses of ethnic groups that are vulnerable to floods, and in low-lying areas. During the height of the flood, most people whose houses were affected took shelter in other people's houses. Thirty three villages reported that people were given shelter in schools, in sixteen villages people stayed in the open air and one hundred and twenty seven villages reported movement to other places. At the time of the assessment most of those who had been temporarily displaced had returned to their homes.

Water Supply

In Lao PDR, an estimated 24 percent of households nationwide depend on unprotected water wells for drinking water (a higher proportion in the lowlands). This meant that many families in flood-affected areas lost their sources of drinking water, that is also normally gathered from gravity-fed and boreholes in addition to the water wells. From the assessment data, it is estimated that up to 30 percent of the villages in the affected districts are in need of clean water supply.

No data is available on the quality or infection load of the water from wells as this information was not collected through the Rapid Assessment tools used . Nevertheless, it is feared that the water quality may have further deteriorated as a result of the floods. Contaminated wells need to be rehabilitated by pumping out flood waters and/or by treatment with chlorine solution. The Rapid Assessment observed that affected people are relying on bottled and boiled water for drinking purposes. The use of untreated water for other purposes such as washing may have adverse health effects, though water treatment supplies were distributed immediately after the flooding for household use in some areas were access was possible.

Sanitation

According to the Lao Population Census 2005, 49 percent of the population in the country do not use toilets for defecation. The estimates from the Rapid Assessment indicate that people in 19 percent of villages in the affected districts usually defecate in the open-air. Flood waters reduced the space available for defecation and also affected existing latrines and sewage systems. Rapid Assessment teams observed flood waters containing human faeces in addition to livestock manures. According to the assessment, it is estimated that about 34 percent of latrines in the affected districts need rehabilitation and 16 percent of villages in the affected districts need rehabilitation of sewerage systems.

Health

While assessment teams confirmed no major disease outbreaks since the onset of the floods, there is a potential threat from both water and vector borne diseases such as cholera, severe diarrhoea, leptospirosis, typhoid, dengue fever and malaria. Other conditions of concern include vaccine preventable diseases such as measles, polio, tetanus and rabies due to crowded unsanitary conditions and due to the fact that routine immunization coverage was very low prior to the floods. In addition, respiratory infections, as well as cases of dermatitis and conjunctivitis from exposure to flood water and close contact with others can be expected to rise. Access to clean water to maintain normal hydration status and prevent water borne diseases is therefore of paramount importance.

Although the number of reported deaths - currently given as eight - directly attributable to the flood has been relatively low, isolated cases of dengue fever have been reported. However, surveillance of all areas remains incomplete, without which it will be difficult to detect outbreaks and treat cases arising from the situation. Immunization is required to prevent vulnerable groups from various infections.

The Rapid Assessment found that one health centre was completely destroyed by the floods, and two others suffered damage. Assuming that most existing health facilities do in fact remain functional, it is important to note that even in normal times, health services are generally considered inadequate, especially for rural communities whose needs, in a post-flooding scenario, are greater than ever..

Nutrition

A significant amount of children were considered malnourished prior to the flooding of the affected areas according to the UNICEF MICS (2006) and WFP CFSVA (2006) surveys. Anthropometric measurement was not included in the Rapid Assessment, so it is difficult to know if there have been any changes in nutritional status of children immediately after the flood. However, the damage to crops and livestock,

disruption of water/sanitation system leading to possible increased diarrheal disease and loss of income may well result in increased rates of malnutrition. Loss of vegetable and fruit crops will lessen the amount of available micronutrients and increase susceptibility to infection in the affected population.

There was no indication from the assessment that breastfeeding practices were affected by the flooding. However, it can be expected that due to poor diet, sickness and stress, the frequency and quality of breast milk of mothers will be affected on the short and medium term. Malnutrition may occur or increase among those already undernourished (approximately 37% of the country's under five year olds are under-weight and 40% suffer from stunting).

Main conclusion

The floods of August 2008 pose a serious mid- to long-term threat to the health, food security, welfare and livelihoods especially of the poorest communities affected by them. Families who were already close to the poverty borderline risk being pushed under due to the loss of rice paddy, food stocks and other assets. Care-givers who already struggled to ensure their children received a sufficiently nutritious diet will find the task even harder. Health services that barely ensured minimal care to a community's needs before the emergency now face having to deal with a range of disease outbreaks triggered by the floods, especially if food and clean water supplies are not made available as a matter of urgency. The damage to roads and other infrastructure has made poor communities even poorer. Even taking into account that flooding is a regular phenomenon in Lao PDR, and the resilience of the population, the consequences of this year's floods have dealt a severe blow to the development prospects of a large part of the country.

Recommendations

Most immediate needs (September- November 2008)
- Clean drinking water and sanitation
- Food supplies
- Essential medicines and primary health care
- Emergency replacement seeds
- Immunization and surveillance for disease outbreaks and nutrition status

Medium term needs (December on wards)
- Food security and livelihoods
- Early recovery for agriculture and livestock
- Food availability
- Micronutrient supplementation
- Immunization
- Infrastructure roads, schools and health facilities, shelter
- Vulnerability and stress of affected people
- Credit and cash transfers for work

1 Background

1.1 Overview of the flood situation

Lao PDR experienced heavy rainfall in Northern provinces in early August 2008, causing the Mekong River and many of its tributaries to flood their banks. Flooding is not unusual at this time of the year in Lao PDR, although this year the river levels were among the highest recorded and there is limited infrastructure in place to help control flood waters.

The northern and central regions of Laos, as well as the capital, Vientiane, were particularly severely affected, according to the Lao National Disaster Management Office (NDMO). Flash floods were also reported in the North and Central Provinces causing eight deaths. The flood waters peaked between 13-16 August at levels higher than in both 1966 and 2000 when major floods occurred. By the end of August, most affected areas were gradually becoming accessible but there is a strong possibility of further flooding before the end of the rainy season.

1.2 Mitigation efforts

In response to the rising water levels, the government assisted in the timely evacuation of people living in areas at risk of flooding. The evacuees who were not sheltered by relatives were temporarily moved by the government to schools and other public institutions as water levels were monitored. This prevented loss of life and reduced the loss of household assets.

Surveillance teams comprising government officials, police and the military were established to monitor the floods and to identify risk areas. Government figures indicate that up to 4,171 government officials from different ministries/organizations and 54,162 volunteers joined such teams in Vientiane Capital. As a temporary measure to control the spread of flooding, some 15 km of sand bag walls were constructed along the Mekong River and roads in low-lying parts of Vientiane capital. This helped to contain the flood waters and slowed the encroachment of water into villages. The Lao Meteorological station provided regular updates on the severity of the floods.

2 Assessment objectives and methodology

2.1 Objectives

Following the floods, a Rapid Assessment was undertaken with the following specific objectives:

- To collect and verify available data on the extent and the severity of the flood impact.
- To assess the impact of the floods on affected areas and population, with particular emphasis on: water and sanitation; health and nutrition; agriculture; livelihood and food security; shelter; education; and protection.
- To collect information on the immediate response and to identify the capacity gaps, and recommended types of intervention at 0-3 months (short term), 3-6 months (medium term) and over 6 months (long term).
- To identify the key information gaps which should be addressed in follow up surveys and/or qualitative assessments.

The results of this assessment are complementary to those of other assessments that line ministries conducted simultaneously - and independently - on the damage of the floods on agriculture, infrastructure and schools (Ministry of Agriculture and Forestry, Ministry of Public Works and Transportation, Ministry of Education).

2.2 Partnerships

Under the framework of the "IASC in-country Team for Natural Disaster Response Preparedness", this assessment was led by the NDMO in close collaboration with the Department of Statistics (DoS), the National focal points for disaster management representing the line ministries (including Ministry of Health, Agriculture and Forestry, Education, Labour and Social Welfare, Public Works and Transport) as well as the Lao Red Cross.

2.3 Scope

The assessment was conducted during 21-29 August 2008 with nineteen assessment teams covering twenty nine districts in eight of the most affected provinces. In the three remaining provinces (including

Vientiane Capital, the most affected but also most surveyed province), meetings were held with the local authorities to collect existing information on the extent and impact of the floods.

Based on information provided by the NDMO and by partners in the field, the provinces assessed were identified. The estimated damage in the provinces determined the number of teams sent to assess them.

The assessment teams visited about 152 villages, which were selected by the team leaders in consultation with provincial authorities. The villages were purposively selected based on the secondary information provided to them by local stakeholders.

Each team visited six highly affected and two moderately affected villages, based on the information available in the province.

2.4 Team composition and orientation

Each assessment team was composed of one team coordinator from UN agencies, INGOs (Save the Children Australia, World Vision) and JICA and two or three District Officers from the visited district who undertook data collection in the villages.

A representative of one of the involved line ministries, selected by the NDMO, accompanied the teams to each province. The line ministries coordinated the meetings at provincial level with the PDMC (Provincial Disaster Management Committee), Lao Red Cross and INGOs working in the area.

The team coordinators had been provided with a half day orientation on the use of the forms.

2.5 Tools, data collection and interview methods

A provincial information sheet and a village checklist were drawn up by the assessment task force and approved by the NDMO.

Each team had five days to complete the field work. On the first day, consultation meetings were held with the relevant stake holders at provincial level to collect all the available secondary information and to identify the areas to be assessed. In the following four days in the field, the teams collected data from two villages per day on average.

In each of the selected villages, the teams conducted interviews with the relevant key informants as well as household interviews with the most affected households. Teams carried out transect walks to observe the extent of the damage in each village.

These findings are derived from data analysis from 152 villages visited, in 29 districts, 8 provinces, representing in total 109,308 people.

2.6 Data analysis and reporting

The Department of Statistics with the support of UNICEF and UNFPA created the data entry format and captured the data that was collected with the village check list.

Following the return of the teams from the field, a one-day team debriefing workshop was organized in Vientiane to consolidate the qualitative feedback from all the teams by province. The team coordinators and the government staff that conducted the assessment in each province were asked to describe and - when possible - quantify the damage, and to identify the most pressing needs in the areas they visited.

The sector leads nominated by the "IASC in-country Team for Natural Disaster Response Preparedness" were responsible for reporting on the analysis of both the quantitative and qualitative data provided by the assessment, and to look into response options. The report is structured by sector and where relevant the analysis is broken down by regions: North, Vientiane (Province and Capital), Central and South.

2.7 Limitations

Limitations to this assessment include:

- Limited experience in conducting similar assessments in the country
- Questionnaire and methodology developed quickly and no time for prior field testing
- Little time to prepare/train the teams (one afternoon)
- Limited information available on the extent of the flooding when preparing the assessment

- Data provided by the Rapid Assessment is preliminary and its quality is limited by time constraints and opportunities for structured sampling and data collection.
- The results of the assessment are not aimed at being statistically representative of the affected areas, but describe the situation in the villages that are considered by the provincial authorities and communities to be among the most affected in Laos.
- Due to time constraints only frequency tables were produced and no correlation analysis was possible, with the result that only very basic data analysis was possible

3 Key findings

The information collected through observation, village level interviews, meetings with government and NGO staff, and from secondary sources for areas not visited by the teams is expected to provide an accurate if not precise image of the severity of the flood impact and the needed interventions.

The result of the assessment is limited to an approximation of damage and immediate needs, and does not provide comprehensive statistically sound or in-depth quantitative data. The Rapid Assessment is the first step in a continuous process and identifies the need for more comprehensive follow-up assessments.

3.1 Extent of the flood impact

3.1.1 Area Affected

Data on flood impact was collected by the Provincial Disaster Management Committees (PDMC) and District Disaster Management Committees (DDMC) and the preliminary estimates of the number of affected people were consolidated and reported by the NDMO on 18 August 2008.

Map 1 at the beginning of this report shows the areas affected as reported by the NDMO on 18 August. The districts that were visited by the Rapid Assessment teams are marked by dots in Map 1. Vientiane Capital was not covered by the rapid assessment. The number of affected people in the Vientiane Capital was reported by Vientiane Municipality.

According to the rapid assessment, Provinces in the North and Centre of the country; Luangprabang, Luangnamtha, Bokeo, Khammuane, Vientiane Province and Borikamxay are the worst hit.

According to the Vientiane Municipality 160 villages of 8 districts in Vientiane Capital were affected. The affected areas include 20,243 ha of agricultural land of which 15,362 ha were damaged.

3.1.2 Number of affected people

Table 1 summarizes the estimate total number of affected population according to NDMO. Segregated data for specific population groups was not available.

Table 1: Population Affected (Source: NDMO 03/09/08)

Affected provinces	Number of affected		
	Districts	Villages	People
Luangnamtha, Luangprabang, Bokeo, Xayabouly, Vientiane Province, Vientiane Capital, Huapanh, Borikhamsay, Khammuane, Savannakhet, Champassak	53 districts	886 villages	204,199 people

3.2 Impact on Access

Most of the remote areas throughout the country become inaccessible during the rainy season. As illustrated in the figures below, the recent floods are reported to have caused damages to bridges, roads and footpaths in the affected provinces.

Figure 1: Percentage of assessed villages reporting damage to bridges, roads and foot paths

Qualitative data obtained through the Rapid Assessment indicates that affected communities can manage part of the necessary repairs and reconstructions themselves, while still requiring some technical and financial supports.

Emergency repair of damaged infrastructure and facilities is needed to ascertain that relief assistance is delivered in a timely manner. It should also provide an opportunity in the long run to pave the way towards reducing the development deficit, to fulfil unmet needs and development objectives as well as to reduce disaster risk. In a second stage, effective and comprehensive reconstruction requires accurate

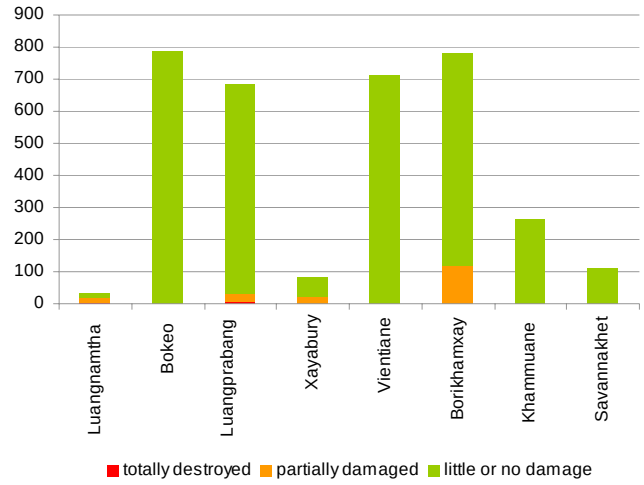
damage assessment which will provide the necessary information on why this infrastructure was damaged or destroyed and will determine the modality to include risk reduction in their rehabilitation and reconstruction.

3.3 Impact on Shelter

The flood had some impact on housing, particularly on wooden-stilt houses of poor households along Mekong River, houses of ethnic groups and in low-lying areas.

Figure 2 shows the number of houses completely or partially destroyed as reported during the rapid assessment. It indicates that not many houses were totally destroyed. According to information obtained in the villages, many of the affected people repaired their houses with little external support.

Figure 2: Number of damaged Houses by Province



In general, damage was scattered across the most affected areas with a somewhat higher concentration in low-lying waterlogged areas notably in Luangnamtha, Luangprabang, Bokeo, Xayabury, Vientiane province, Borikhamxay and Khammuane.

During the height of the flood, some people took shelter with relatives or in public buildings. Thirty three villages reported that people took shelter in schools, in sixteen villages people stayed in the open air and one hundred and twenty seven villages reported movement to other places. At the time of the assessment most of those who had been temporarily displaced had returned to their homes.

3.4 Impact on Water and Sanitation

Table: Estimated Damage to Drinking Water Supply and Sanitation Faciilties

Affected Areas	% of villages with damaged drinking water supply in the affected districts	% of villages without sufficient suitable water supply for drinking in the affected districts	% of latrines damaged in the affected districts	% of villages with damaged sewer systems in the affected districts
Northern Provinces				
Luang Namtha	13%	6%	32%	0%
Bokeo	0%	20%	8%	0%
Luang Prabang	14%	14%	14%	23%
Xayabouly	0%	13%	57%	0%
Total	**6%**	**13%**	**23%**	**7%**
Central Provinces				
Vientiane Province	58%	33%	31%	29%
Borikhamxay	31%	69%	84%	6%
Khammuan	29%	71%	42%	28%
Savannakhet	0%	0%	0%	0%
Total	**35%**	**47%**	**42%**	**24%**
Vientiane Capital				
Total	NA	NA	NA	NA
Total	20%	30%	34%	16%

3.4.1 Water Supply

As 24 percent of households nationwide depend on unprotected water wells for drinking water (and probably a higher proportion in the lowlands), many families in flood-affected areas lost their sources of drinking water. The Ministry of Health estimated that 5,300 water wells were covered by floodwaters while community water supply systems were also damaged (50 gravity –fed systems and 196 water boreholes). From the assessment data it is estimated that up to 30 percent of the villages in the affected districts are in need of clean water supply.

Contaminated wells need to be rehabilitated by pumping out flood waters and/or by treating with chlorine solution. The Rapid Assessment observed that affected people are relying on bottled water and boiled water for drinking purposes. The use of untreated water for other purposes such as washing is likely to have adverse health effects.

3.4.1.1 Northern Provinces

According to data from the Lao Population Census 2005, 9 percent of households (approximately 10,600 households, 57,600 residents) in the 17 affected districts in the Northern provinces are dependent on unprotected wells. The estimates from the Rapid Assessment data indicate that approximately 6 percent of villages in the affected districts suffered damage or contamination of their drinking water supply as a result of the floods. Approximately 13 percent of villages did not have sufficient suitable supply of drinking water when visited by the assessment teams, of these, among damaged sources of clean water are gravity-fed.

3.4.1.2 Central Provinces

According to data from the Lao Population Census 2005, 44 percent of households (approximately 45,800 households, 250,800 residents) in the 14 affected districts in the Central provinces are dependent on unprotected wells. The estimates from the Rapid Assessment data indicate that approximately 35 percent of villages in the affected districts incurred damage or contamination of their drinking water supply by the floods. Forty-seven (47%) percent of villages did not have sufficient suitable supply of drinking water when visited by the Rapid Assessment teams.

3.4.1.3 Response

UNICEF has provided 450kg of chlorine powder for disinfection of wells, 11,000 water containers and plastic buckets, and 450kg of aluminum sulfate. UNICEF and WHO have provided 430,000 chlorine tablets.

3.4.2 Sanitation

According to the Lao Population Census 2005, 49 percent of the population in the country do not use toilets for defecation. The estimates from the Rapid Assessment indicate that people in 19 percent of villages in the affected districts usually defecate in open-air. Flood waters reduced the space available for defecation while latrines and sewage systems were water clogged. Rapid Assessment teams observed flood waters containing human faeces in addition to livestock manures. According to the assessment, it is estimated that about 34 percent of latrines in the affected districts need rehabilitation and 16 percent of villages in the affected districts need rehabilitation of sewerage system.

3.4.2.1 Northern Region

According to data from the Lao Population Census 2005, 51 percent of the households (approximately 61,500 households, 354,500 residents) in the 17 affected districts of the Northern region do not use toilets for defecation. The data from the Rapid Assessment indicates that 23 percent of latrines in the affected districts of the Northern provinces need rehabilitation. Similarly, sewer systems in 7 percent of villages in the affected districts need rehabilitation.

3.4.2.2 Central Region

According to data from the Lao Population Census 2005, 46 percent of the households (approximately 47,900 households, 258,300 residents) in the 14 affected districts of the Central region do not use toilets for defecation. The data from the Rapid Assessment indicates that 42 percent of latrines in the affected

districts of the Central provinces need rehabilitation. Similarly, sewer systems in 24 percent of villages in the affected districts need rehabilitation.

3.4.3 Response

UNICEF has provided 33,000 units of soap and 1,600 posters to promote hand washing to prevent disease. The posters were distributed by the Centre of Information and Education on Health (Ministry of Health) to the most affected villages. Meanwhile 5,000 copies of an - easy to read and child friendly publication on the prevention of diseases caused by flooding were distributed by mobile health teams in the worst affected districts. This publication was developed by UNICEF/MOH and WHO as an immediate response to the floods.

3.5 Impact on Health and Nutrition

3.5.1 Health

In the aftermath of flooding, there is a potential threat of outbreaks from both water and vector borne diseases such as cholera, severe diarrhoea, leptospirosis, typhoid, dengue fever and malaria. Other conditions of concern include vaccine preventable diseases such as measles, polio, tetanus and rabies due to crowded unsanitary conditions and that routine immunization coverage which was very low prior to the floods. Importantly, dermatitis and conjunctivitis from exposure to flood water and close contact with others, as well as respiratory infection may rise. Paramount is access to clean water to maintain normal hydration status and prevent water borne diseases.

There have been no major outbreaks reported at the time of report writing. The number of reported deaths- currently given as eight- directly attributable to the flood has been relatively low. There have been some reports of cases of dengue fever. However, the information and surveillance of all areas is incomplete. Without adequate surveillance it will be difficult to detect outbreaks and treat cases arising from the situation.

It was established during the Rapid Assessment that one health centre was completely destroyed, two were slightly damaged. Most existing health facilities were neither damaged nor destroyed and normal health services have not been disrupted. It should however be noted that in Lao PDR, health services are generally inadequate Although the assessment teams confirmed that no major disease outbreaks had occurred since the onset of the floods, there is a potential threat of outbreaks from both water and vector borne diseases such as cholera, severe diarrhoea, leptospirosis, typhoid, dengue fever and malaria.

The risk of measles outbreaks is somewhat mitigated by the successful national campaign in November 2007 that targeted those aged between 9 months- 15 years. However, for many children, this was their first dose and they require two to ensure complete immunization. There is now a higher risk for a polio outbreak than before the flood because wild poliovirus is still considered to be circulating in neighbouring Myanmar, disruption to sanitation systems and low routine immunization coverage.

At national level, only about 18 percent of the women deliver their baby at a health facility in normal times. Due to the increased unsanitary conditions caused by the flood, there is need to encourage pregnant women from recently flooded areas to deliver their baby at a hospital, (District Hospital-A or B or Provincial Hospital). However, due to the damages of bridges, roads and footpaths and adverse impact of flooding to the household financial capacity, percentage of home delivery is likely to remain high. Promotion of facility delivery by exempting fees for delivery, for example, should be considered. But in a short-term, distribution of clean delivery kits which can be used either at home or under-equipped maternity unit would help secure clean conditions for

3.5.1.1 Northern Zone

In the northern part of Lao PDR those provinces suffering flash flooding and have gravity fed water systems were less affected by health concerns than riverside areas of Bokeo Province. The river areas rely on wells and there was more contamination of the water and sanitation system in those villages

3.5.1.2 Central and Southern Zones

Like in the Northern provinces, those villages that were on the river were most affected and at risk for outbreaks because the water and sanitation systems have been disrupted. These are the areas that require the most vigilance for surveillance of possible outbreaks of water borne illnesses and dengue fever due to increased mosquito breeding.

3.5.1.3 Immediate Relief Provided

The National Center for Laboratory and Epidemiology (NCLE) and the Lao WHO Country Office have started daily surveillance data assessment and communication with provinces in order to verify case counts to enable the detection and targeting of flood related disease clusters and outbreaks. In addition to this, there has been some sporadic distribution of medicines and chlorine tablets by the Ministry of Health in some villages of the flood affected areas of Vientiane Municipality and other provinces. WHO donated $ 5,000 for emergency medicines.

To ensure avaibility of urgently needed supplies and equipment and respond to immediate needs, UNICEF support has been provided in the areas of water and sanitation, health education and life saving communication materials. Some 500,000 chlorine tablets, 33,000 bars of soaps, 11,000 water containers (20 litres), and 11,000 buckets for water collection have been provided to the Ministry of Health for distribution to affected population in provinces. Additionally, 155,000 leaflets with key emergency messages were printed and are being distributed by the government. UNICEF has also provided support to the health mobile team to carry out health and hygiene promotion activities in the four most flood affected provinces. To cover these urgent needs, UNICEF has provided technical and financial support, equivalent to approximately USD 95,0000.

Private sector has donated approximately US$50,000 to the Lao Government and immediate assistance of drinking water and food (rice) has been provided to the affected population.

Agencies have provided urgent assistance using existing progamme funding while raising funding through the various emergency window.

3.5.2 Nutrition

A significant amount of children were chronically malnourished prior to the flooding according to the UNICEF MICS (2006) and WFP CFSVA (2006) surveys. The damage to crops and livestock, disruption of water/sanitation system leading to possible increased diarrheal disease and loss of income is likely to result in increased rates of malnutrition. Loss of vegetable and fruit crops will lessen the amount of available micronutrients in addition to depletion of micronutrients through infection.

In the immediate term, some protection from vitamin A deficiency and iron deficiency anemia was given by the distribution of vitamin A and mebendazole in the June Child Health Days (90%). The effects of this distribution will only be sufficient for 3-6 months, making it necessary to supplement these children again as soon as possible. There was no indication from the assessment that mothers breastfeeding practices were affected by the flooding. However, it can be expected that due to poor diet, sickness and stress, that the frequency and quality of breast milk of mothers will be affected over the short and medium term. Malnutrition may increase among those already undernourished (approximately 37% of the country's under five year olds are under-weight and 40% suffer from stunting).

3.5.2.1 Northern Zone

All assessed areas report crop damage that may affect food security. Also the most affected villages in all the Northern provinces assessed indicated they need some immediate food relief.

3.5.2.2 Central and South Zones

Malnutrition increase is not yet evident but situation needs to be assessed in the next few months because crop damage indicated in all the affected villages of these zones. Further nutritional problem may develop in the riverside areas if outbreaks of diarrhea and dengue develop.

3.5.2.3 Immediate Relief Provided

There has been some limited food distribution to affected families by private organizations but not in sufficient quantities to fulfil the needs of the affected population. WFP is now starting food distribution based on their assessments. The limited food distribution has not been directed to address the particular nutritional needs of children and pregnant and lactating women. Micronutrients have not been distributed since June. UNICEF has provided support to print 155,000 leaflets with key emergency messages on disease prevention, hygiene and exclusive breastfeeding promotion, which have been distributed to the affected population in the provinces by the government.

3.6 Impact on agriculture and livestock

3.6.1 Agricultural land

According to figures released by the government, approximately 152, 400 hectares of agricultural land was submerged by flood water at the peak of the floods. The government further estimates that in 57 districts, 40 percent of planted area was under water for several days.

According to the Rapid Assessments, over 50 per cent of productive agricultural areas were damaged or completely lost. These areas normally produce rice for all the country, implying negative impact on long-term food security of many communities.

Morover, irrigation channels were severely damaged or totally destroyed in 25 percent of the assessed villages. Overall, the floods affected irrigation channels in 40-45 percent of the assessed villages. Not only have these farmers lost their forthcoming harvest but many will be unable to grow rice in the coming season.

3.6.2 Livestock and aquaculture loss

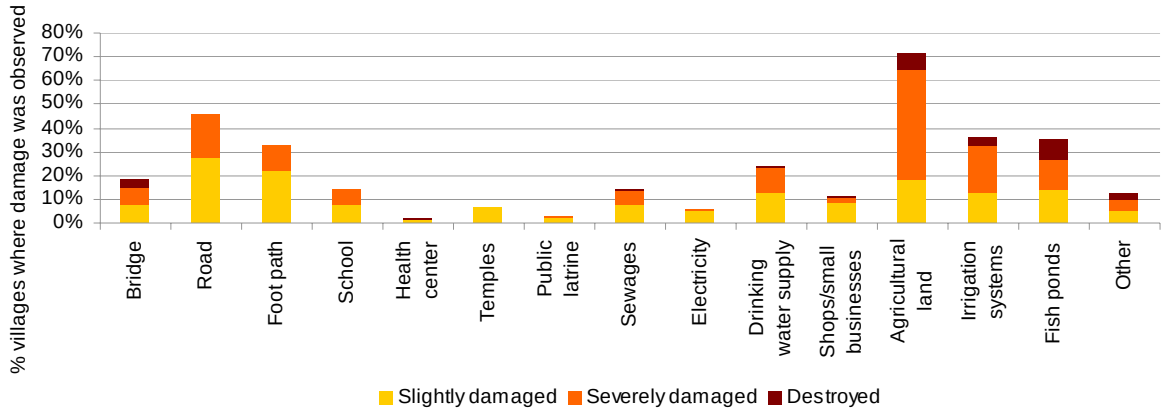
Several hundred thousand cattle, buffalo, pigs and poultry have been affected by muddy and wet conditions raising fears of the communicable animal diseases, which can cause clinical loss to livestock and some of them can be transmitted into humans.

Approximately 30 percent of the assessed villages reported that their fish ponds had been severely damaged or totally destroyed. Overall, about 40-45 percent of the assessed villages reported that their fish ponds were affected.

3.7 Impact on Livelihoods

A majority of the Lao population makes their living out of a combination of farming and non-farming activities, including hunting and gathering of non-timber forest products. The assessment reports extensive damage and loss of paddy land, cash crops, fish ponds, and some livestock as well as damages to irrigation systems, these are likely to have serious implications on the livelihoods of the people who were affected by the recent flood. Damages to some critical rural infrastructure are potentially limiting access and mobility of people in the affected communities to forests and markets. Also 16 small businesses were reported to be affected. At the time of the assessment, all the markets were accessible again, but prices were reported to have escalated beyond the pre-flood period.

Table 2: Percentage of assessed villages reporting damage to infrastructure



3.8 Impact on Food security

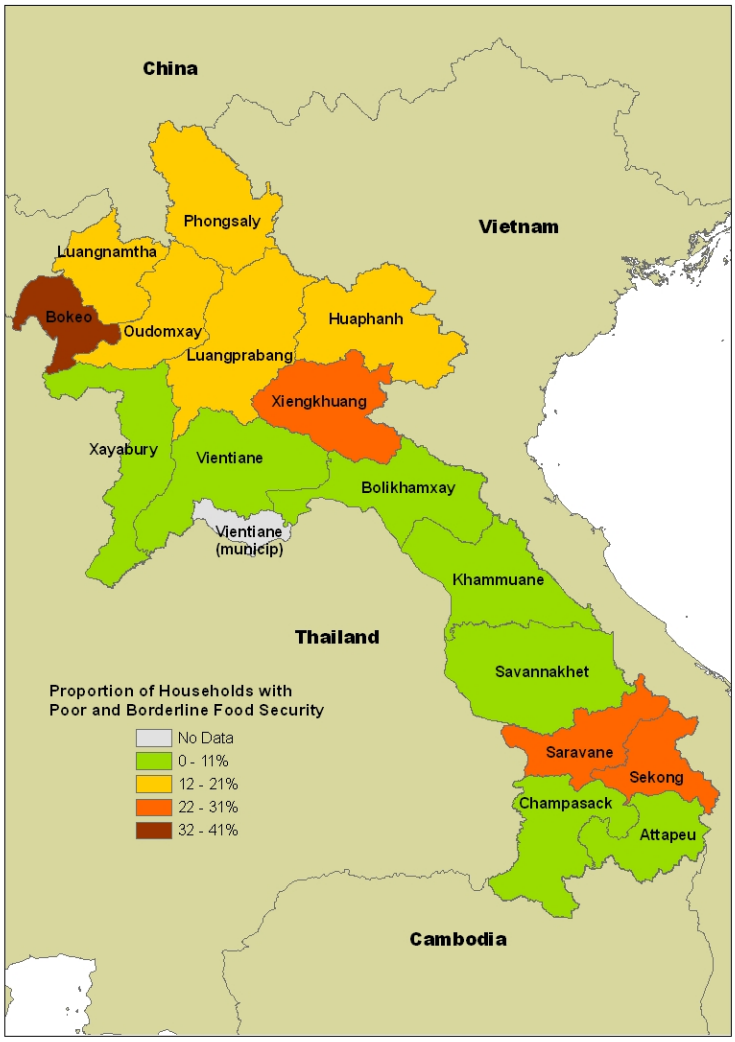
3.8.1 Food security situation before the floods and households vulnerability

Floods are a frequent occurrence for Laos and indeed the wealth of the agricultural systems along the Mekong flood plain are, in part, dependant upon the regular deposits of silt that such floods leave. The bulk of flooding in Laos occurs along the Mekong and the lower reaches of its major tributaries. Flooding in Laos is thus largely slow-onset, communities likely to be affected are aware of rising water levels and are able to take appropriate action i.e. moving of livestock to higher ground, storage of firewood within the house etc. Therefore not all flood-affected households will be vulnerable to worsened food insecurity: food secure households that have the resources to adjust to the flood impacts will be able to maintain their food security.

According to the WFP Comprehensive Food Security and vulnerability assessment conducted in 2006 two thirds of the rural population in Laos are either food insecure (13%) or could become food insecure should a shock occur during the year.

The map below shows the most Food insecure provinces according to the CFSVA in October – November 2006.

Map 2: Food security status of rural villagers in Lao PDR, by Province (Source: CFSVA, 2006)



The highest proportions of food insecure households can be found in Bokeo (41%), Saravane (30%), Xiengkhuang (25%) and Sekong (24%).Seventy percent of the food insecure households are mainly in 7 provinces: Saravane, Sekong, Oudomxay, Bokeo, Luangprabang, Huaphanh and Xiengkhuang. They mostly reside in the Highlands.

Table 3: Characteristics of flood affected areas and food insecure areas

Flood affected according to rapid assessment	Highly Food Insecure according to CFSVA
Luangnamtha, Bokeo, Luangprabang, Sayabouli, Vientiane province and capital, Borikhamxay, Khammuane, Savannakhet	Luangnamtha, Bokeo, Luangprabang
Most flood affected farmers are living in lowland areas, and own their paddy fields; have quite high reliance on fishing and hunting,	Food insecure people live mostly in highland areas, are unskilled labourers or upland farmers, with little involvement in fishing and hunting.
Located close to Mekong, roads and markets	Located further from Mekong, roads and markets
Normally productive agricultural systems	Low agricultural productivity, often swidden.
Often irrigated production possible	Little or no irrigation
Often rice surplus production areas	Usually rice deficit area
Wider range of coping mechanisms	Narrower range of coping mechanisms
Higher levels of asset ownership	Lower levels of asset ownership
Mostly Lao-Tai.	Sino-Tibetan ethnic groups, followed by the Hmong-Mien and the Austro-Asiatic groups

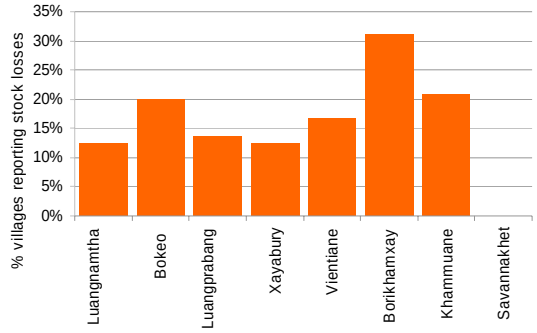
3.8.2 Impact of the floods on food availability

Overall since 1999, the net production of rice in Laos is reported to be just enough to meet per capita consumption requirements, with major deficit in the Northern provinces. Food imports play a key role in providing complementary supply to food deficit areas when there are production shortfalls. The floods can be expected to have an impact on the mentioned self sufficiency of Laos, however the scope of the Rapid Assessment was not to look into the impact of the flood of the food availability in Laos, but focused on the villages' access to food and to some extent on the link to household food consumption. A more in depth agricultural survey is needed to look into the overall effect of the floods on the rice and overall food production in the country.

3.8.3 Impact of the floods on food access

3.8.3.1 Food stocks

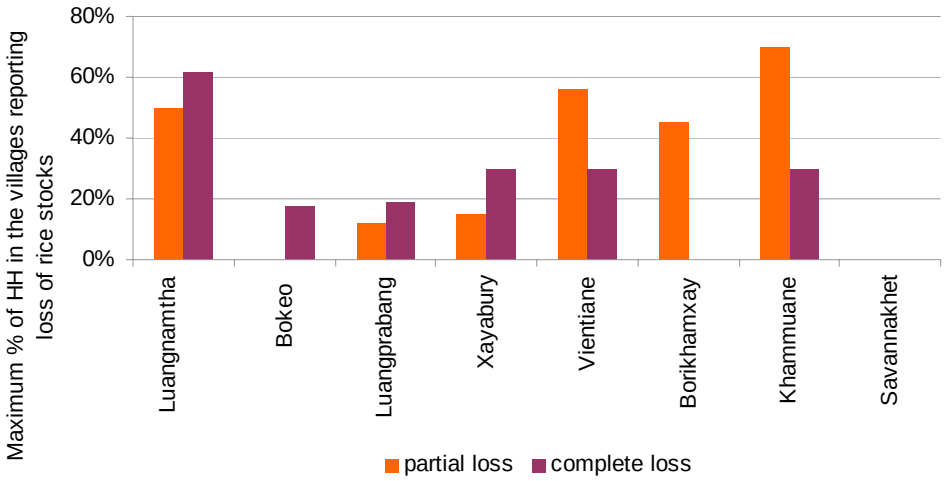
Table 4: Percent of assessed villages reporting food stock losses



According to the CFSVA, households in Laos mainly rely on their own production. Rice production is the main livelihood activity of the majority of rural households.

The floods occurred during the lean season. For many of the poor households, this meant that food stocks were low or already depleted prior to the floods. At national level, claims were made that food stocks had been completely lost. However, at the village level, there was little evidence of such impact. In most areas, the onset of the flood was gradual, so households were able to save their remaining food stocks. However, as shown in the graph below, a few households reported having lost their available food stocks.

Table 5: Percent of households that lost rice stocks in the villages that report rice stock losses



3.8.3.2 Markets

Markets constitute the second source of food for households after their own production. The Rapid Assessment results indicate that the already very poor transport infrastructure was a major obstacle to accessing markets during the peak of the floods. However, the main district markets were not significantly affected by the floods. Most were functioning as normal at the time of the assessment.

Table 6: Villages reporting accessible and functioning markets

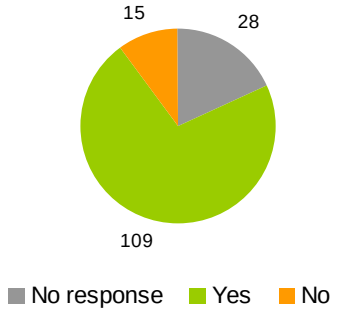
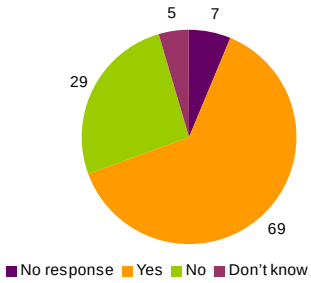


Table 7: Villages reporting food price increases in the market



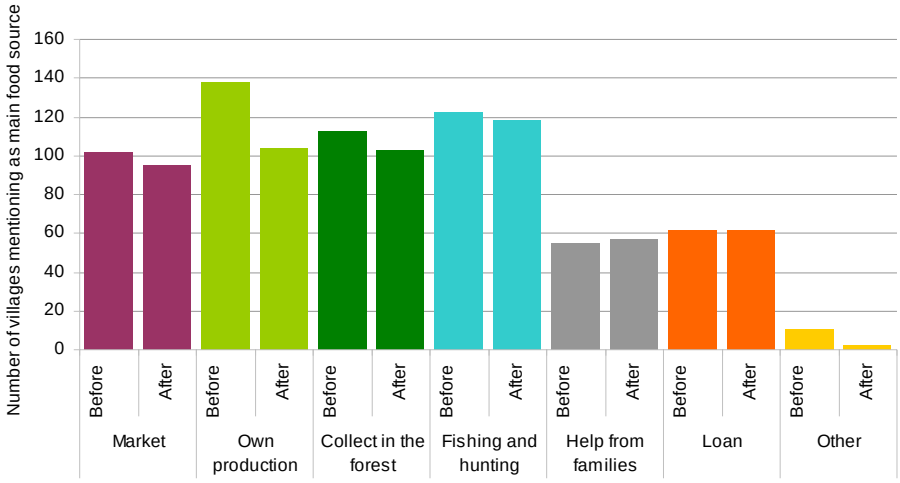
At the time of the assessment, price increases were observed. Coupled with global food price crisis as well from the usual increased prices during lean seasons, this increase in food commodity prices is likely to have a negative impact on household access to food and therefore on households' food consumption.

3.8.4 Impact of the floods on food consumption

Lao households rely on a wide variety of food items, but access to many of these items is seasonal and the quantities may be limited. According to the CFSVA, what differentiates households with acceptable food consumption from households with poor or borderline food consumption is mostly wild animal/fish protein intake. Access to such food sources is therefore critical.

The assessment results confirm the important reliance of the communities on own production, collection in the forest and fishing and hunting as the main sources of food. As shown by the below graph, the floods reduced the amount of food accessed through these sources, especially on own production.

Table 8: Main food sources mentioned by the villages before and after the floods

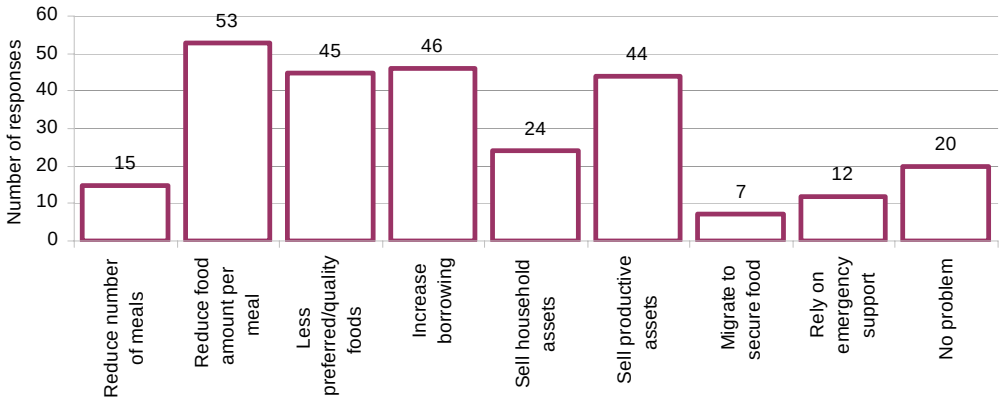


3.8.5 Household vulnerability to floods and coping strategies

Most of the currently flood affected areas cannot be considered to be the most food insecure in Laos (see Table 3 and Map 2). Nevertheless, flood-affected households who were already food insecure may face serious food shortages. The loss of the wet season rice crop, the damage to fish ponds and irrigation channels can be expected to have a dramatic impact on food security of the less resilient households with a narrower range of coping mechanisms or that have already been hit by other shocks (including the increasing food prices). The flood impact has further reduced their livelihood options. The few households that lost their rice stocks are particularly exposed to the prevailing high food prices.

During the Rapid Assessment, current coping mechanisms were explored and the most common coping strategies included the sale of household and productive assets, the reduction or change of food consumption, borrowing and help from relatives and friends. Even though sales were not recorded as excessive, such processes would deplete households' asset base. Support to these communities is required to reduce the probability of engaging in more harmful coping strategies.

Table 9: Main coping strategies used in the villages after the floods



3.8.6 Immediate relief provided

As an immediate response the floods, the government provided about 6 metric tons of rice to the affected population in Vientiane Capital. The World Food Programme distributed about 80 metric tons of rice to 2,500 beneficiaries in Luangprabang and Khammuane provinces, and World vision provided 28 metric tons of rice to 7,200 beneficiairies in Borikhamxay.

3.9 Impact on Education

Schools were closed for regular holidays during the height of the flood, but were scheduled to reopen again from 1 September onwards. Available data from the Ministry of Education identified approximately 136 primary schools in 21 districts in six provinces that have been seriously damaged by the storms and flooding. (See MOE data by region below). In approximately 45 villages with the most severely damaged primary schools in Vientiane Capitol, Vientiane, Borikhamsay, and Khammouane provinces, the opening of the school year has been delayed until the schools can provide a safe and healthy environment protected from wind, rain and muddy floors. Schools constructed from less durable material such as straw and bamboo have suffered the brunt of the damage and need to be completely rebuilt. In schools constructed from brick and cement, the heavy winds and excessive water damaged the roofing sheet roofs and cement floors and walls. Approximately 91 schools, although operational, are also moderately to severely damaged and will need to be repaired to ensure a safe and healthy teaching and learning environment for the children and teachers.

In addition to the structural damage to schools, the Rapid Assessment identified the need for furniture, textbooks and blackboards. in 25 bamboo or wooden three classroom schools, often without walls, all of the classroom furniture (student and teachers desks, benches and cupboard) was swept away by the flood water and needs to be replaced. In the majority of the cement and brick schools with walls and locked doors, much of the furniture has been damaged by the flood water but can be repaired by the community and does not need to be replaced. In approximately 60 cement and brick schools with locked cupboards in each classroom, the textbooks stored on the lower shelves need to be replaced, affecting approximately 8,750 students. The majority of the 655 blackboards in the 136 severe to moderately damaged flood affected schools need to be replaced.

Student notebooks, school supplies and teaching aids such as posters were not damaged during the floods, as they had already been removed from the schools as classes were not in session. There was significant damage to the water supply and latrines, which is described in more detail under the Water and Sanitation section of the report.

Table 10: Affected schools in Northern Laos (source: Ministry of Education)

Province	District	# of schools	# of students
Oudomxay	MeungXay	1	196
	MeungHoon	1	130
XiengKhuang	MeungKham	1	128
Total:		**3**	**454**

Table 11: Affected schools in Central Laos (source: Ministry of Education)

Province	District	# of schools	# of students
Vientiane Province	Toulakhom	8	1,073
	Kasi	2	223
	Sanakham	2	769
Vientiane Capital	SikhotTabong	3	425
	Nasaithong	1	146
	Saithani	7	1,346
	HadSaifong	16	3,062
	SangThong	1	55
	PakNgeum	8	876
Bolikhamsay	PakSan	14	1,309
	ThaPhabath	4	368
	Pakkading	5	603
	Bolikhan	1	590
Khammouane	Thakhek	2	327
	Mahaxay	10	1,276
	Hinboon	37	3,033
	Bualapha	9	860
	Xaybuathong	3	82
Total:		**133**	**16,423**

3.10 Impact on Protection

Conditions of uncertainty and risk bring several consequences to families and communities, particularly women and children. The physical consequences of natural disasters such as floods are evident such as deaths, disease, hygiene, sanitation and displacement. Global studies of people facing emergency situations show that during and in the aftermath of natural disasters there is often an increase in the

occurrence of violence, theft and displacement affecting women, men and children differently. The psychological consequences of these occurrences if left unrecognized may leave women and children more vulnerable and are likely to have a long impact on their social-well being.

In the aftermath of a disaster, women and children are at heightened risk of being exploited or trafficked, as they may need to financially contribute to their own or their family's basic survival. This is particularly true where long-term livelihood options are not available. The threat of exploitation or human trafficking is likely to increase 6 to 12 months after a disaster rather than it is immediately after the event. This may be partly because the level of economic desperation of families who have not recovered from the effects of the disaster. It is common knowledge that traffickers prey upon these unmet needs. Moreover, increased movement of families to urban areas may also be observed, thereby increasing the number of street families with children living or working in the streets for survival.

For this, reason the Methodology Rapid Assessment for Humanitarian Assistance (REDLAC) and Initial Rapid Assessment tool (IRA) recommends including in a crisis Rapid Assessment questions related to vulnerability and protection issues that affect especially women, children and vulnerable populations people with disability, and elderly. In the Lao PDR data related to violence, abuse and protection of children is limited and the data gathered during this Rapid Assessment demonstrates possible areas that could be of concern.

The Rapid Assessment shows that there is limited awareness on the importance of vulnerability and the effects on women and children during disasters. Because of the sensitive nature of the questions, in some cases, assessment teams were asked by the authorities to forego the violence and protection-related questions because people felt that these questions were not relevant to their present situation and need not be discussed.

The Rapid Assessment result show that in the aftermath of the flood there were 17 reported cases of theft and five cases of domestic violence were reported. The Rapid Assessment reported 12 cases of separated/ or unaccompanied, orphaned children, one missing child (possible drowned?) and six children in need of emergency and special care. Eight children affected by HIV/AIDS were reported to be affected by the flood in Sanannaketh and Khammuane province. Fourteen children with a disability were additionally reported as needing assistance and in total 20 child protection concerns were expressed by villages during the rapid assessment.

Since reports from several provinces did not include the information of protection and no comparative data is available, the extent in the occurrences of these incidents remains unknown. There were no reported cases of abuse or rape; however due to the sensitive nature of the question and the fact that there is no abuse and / or rape monitoring system available, it can not be assumed that no such occurrences took place. Eight villages in Khammouane and Savanaketh provinces, reported on the risk of human trafficking, and taking into account the loss of livelihoods and increased vulnerabilities of the most affected populations, it is recommended to increase the efforts to raise awareness on the risks of forced migration, exploitation and human trafficking for women and children. A total of 22 villages reported on the special needs related to people with a disability and or the mentally ill. Individual assessments will further investigate the special protection needs within the existing structures with special assistance from organizations like the Lao Red Cross, Lao Disability Association and or international non-government organizations.

4 Conclusion and proposed actions

4.1 Conclusion

The floods of August 2008 pose a serious mid- to long-term threat to the health, welfare, food security and livelihoods especially of the poorest communities affected by them. Families who were already close to the poverty line risk being pushed under due to the loss of rice paddy, food stocks and other assets. Care-givers who already struggled to ensure their children received a sufficiently nutritious diet will find the task even harder. Health services that barely ensured minimal care to a community's needs before the emergency now face having to deal with a range of disease outbreaks triggered by the floods, especially if food and clean water supplies are not made available as a matter of urgency. The damage to roads and other infrastructure has made poor communities even poorer. Even taking into account that flooding is a regular phenomenon in Lao PDR, and the resilience of the population, the consequences of this year's floods have dealt a severe blow to the development prospects of a large part of the country.

Proposed actions

4.1.1 Water and sanitation

4.1.1.1 Short Term Response (next 3 months)

At least 20 litres of safe drinking water needs to be secured for each affected family per day. Distribution of drinking water can be supplemented by provision of chlorine tablets. Hygiene supply such as soap and IEC materials (flyers) are a critical requirement for affected households and villages.

4.1.1.2 Medium Term Response (up to 6 months)

Provision of de-watering pumps and chlorine powder is required for restoration of water wells, in addition to the rehabilitation of damaged community water supply and sanitation facilities.

4.1.2 Health

4.1.2.1 Short Term Response (next 3 months)

It is essential to establish active surveillance and response teams for detection, treatment and prevention of diseases that may develop with the receding flood waters and disruption of water/sanitation systems and possible spread of vaccine preventable. Disease data must be analyzed frequently to detect possible outbreak and plan response.

Mobile teams should be employed to visit the affected villages to provide preventive and curative care, health education on hygiene, use of chlorine tablets and abate to control mosquitoes, provide vaccination of children and women, distribute clean delivery kits and contraceptives, provide vitamin A and multiple micronutrient supplementation for children, pregnant and lactating women, distribution of insecticide treated bed nets to families in the most affected areas for prevention of malaria and dengue fever, provide treatment of diarrhea diseases with oral re-hydration salt (ORS), monitoring of the nutrition status of children under five, and gather disease information including taking necessary samples for laboratory analysis.

Ensure that families have access to ORS, which could be distributed through health mobile teams, existing village drug revolving fund, and if it is possible stock of few number at the village level.

Additional medical (including clean delivery kits and contraceptives) and vector control supplies will be necessary to equip the mobile teams visiting affected villages and in preparation of possible outbreaks. Provision of health information materials emphasizing basic hygiene and explaining use of chlorine tablets, abate and other public health items is also critical.

Organization of life saving communication activities will be also required to ensure diffusion of health and nutrition messages (diarrhea prevention and proper home treatment, promotion of breastfeeding and appropriate complementary feeding, etc).

Besides provision of clean delivery kits, in order to promote facility delivery, consideration should be given to exempting fee for delivery to pregnant women from flood affected areas.

Immunization needed as prevention measures.

4.1.3 Water, sanitation and hygiene

4.1.3.1 Medium/Long Term Response (3 months and above)

Establish surveillance and response policy and plan of action for disasters

Due to the low coverage of polio and threat of importation from other countries it is important to include the flood affected districts in the planned OPV campaign for high risk areas during the Child Health Days in December 2008 and January 2009

Given its reported prevalence, control of diarrhea disorders should be strengthened.

Families should be continuously provided with information, knowledge and support on “three cleans, hygiene promotion, disease prevention, simple and proper home treatment of diarrhea, and breastfeeding promotion.

4.1.4 Nutrition

4.1.4.1 Short Term Response (next 3 months)

Start nutritional surveillance using anthropometric measurement (weight for age, weight for height, MUAC –middle upper arm circumference) through village visits and/or at sentinel sites. This data needs to be compared to the data from previous surveys. This can be conducted by the mobile health teams with cooperation of village volunteers.

The mobile teams visiting villages should provide vitamin A supplements to all children 6-59 months old, de-worming tablet to children aged 1-5 years. Multiple micro-nutrient sprinkles can also be provided if available to children 6-59 months, pregnant and lactating women.

Consider provision of supplementary food for children that are found to be malnourished according to anthropometric measurement (< 2 SD weight for height)

Provide supplementary nutrients for pregnant/ lactating women here especially iron, for both pregnant and lactating women and vit,. A to post partum lactating women

Ensure that breast milk substitutes (infant formula) are not included as part of any supplementary food provided

Make standard protocols and appropriate therapeutic food available to health facilities for possible treatment of severe malnutrition

Ensure that families are continuously provided with information, knowledge and support on exclusive breastfeeding and appropriate child feeding practices.

4.1.4.2 Medium/Long Term Response (3 months and above)

Continue nutritional surveillance at health facilities and possibly with outreach teams on a routine basis

Ensure the vitamin A supplementation and de-worming continues through the Child Health Days and if necessary continue providing multiple micronutrient sprinkles

There should be appropriate food and supplies available for therapeutic feeding at health facilities or rehabilitation center.

Provide appropriate nutrition education for exclusive breastfeeding, complimentary feeding with continuation breastfeeding to 2 years and beyond and pregnant/lactating women's nutrition.

4.1.5 Agriculture, Livestock and aquaculture

4.1.5.1 Short Term Response (next 3 months)

To increase the food availability of the vulnerable population in the affected areas, and to help reduce the need of protracted and much higher food prices, food aid assistance (rice), vegetable seeds and essential farming tools are needed.

Preliminary assessment has also shown that over 100,000 cattle and buffalo and over 800,000 other animals are at risk of contracting diseases. It is thus extremely urgent to supply the livestock inputs such as medicines, vaccines, vitamins, syringes, needles and animal feed to protect the livestock.

4.1.5.2 Medium/Long Term Response (3 months and above)

- Provision of rice, vegetable and corn seeds and seedlings as well as farming tools and fertilizers will be needed for long term restoration of agricultural livelihoods. Also the issue of improved protection of farm lands from flood waters needs to be looked at as a long-term damage prevention mechanism.
- Provision of elevated kitchen garden supplies and seedlings to supplement the dietary needs of the affected families. The advance of elevated kitchen gardens is that they are mobile and can thus be moved to safety should the water start rising again.
- Restoration of irrigation stations and canals in a most cost-effective and flood resistant manner will be a priority in long-term intervention. That should include provision of training in its maintenance.

- Restoration of fishery industry along the river in form of provision of fingerlings, fishery supplies and fish feed will also be needed. However, farming fish for harvest age takes time and thus can only be restored back with long-term intervention.

4.1.6 Livelihoods

Concerted efforts are necessary to prevent or restore the losses in agriculture and livestock assets and production through the emergency provision of seeds, tools, and micro-credits.

4.1.6.1 Short Term Response (next 3 months)

Emergency repair of critical facilities is required to restore productive social and/or primary infrastructure such as roads, bridges, water supply, irrigation, sanitation systems, markets, etc. As much as possible, reconstruction of basic infrastructure should use local technologies, construction materials, local know-how to ensure that construction activities will have a direct positive impact upon the local economy.

Wherever immediate re-plantation is possible, prompt technical/financial support should be provided to fix irrigation systems, obtain seeds and fertilizers, etc, as appropriate.

4.1.6.2 Medium/Long Term Response (3 months and above)

Close monitoring of the commodity prices in the market is recommended, while a strategy and action plans need to be developed to deal with the anticipated mid-term/longer term impacts on livelihoods caused by the damage to livelihoods.

4.1.7 Household food security

Considering the many issues affecting households, interventions for household food security need to pursue the following objectives:

4.1.7.1 Short Term Response (next 3 months)

- Help prevent serious food shortages for households who have lost the capacity to provide sufficient food for their own consumption due to the floods, and prevent them from engaging in harmful coping strategies

The Rapid Assessment estimates that around 20% of the overall number of flood affected people reported by the Government need emergency food assistance in the coming 1-3 months (40,000 people). In the provision of food assistance, priority should be given to the most food insecure provinces in the North and Central parts of the country (Bokeo, Luangmantha and Luangprabang) as these were already food insecure.

4.1.7.2 Medium/Long Term Response (3 months and above)

- The damaged agricultural fields, irrigation channels and other infrastructure will need to be rehabilitated to help in the recovery process of the affected people

The assessment estimates that 40% of the affected population (about 66,000 people) should be engaged in medium/long term recovery activities (e.g. through food-for-work activities) until the next harvest in October/November 2009.

- Prevent any further set back of the health and nutritional status of the affected population with special attention to women, children and other groups.

Provide short cycle staple and vegetable seedlings to supplement the dietary needs of the affected families.

4.1.8 Education

In addition to the structural damage to schools, the Rapid Assessment identified the need for furniture, textbooks and blackboards.

4.1.9 Protection

It is essential that humanitarian assistance support the economic recovery of communities and families. Structured activities be put in place to provide psychological benefits to children to help them cope with their emotions restore their well-being and allow their recovery from the disaster. These also allow parents the time to focus on re-establishing the family. There is need to increase efforts to identify and support the

children at risk. Such support will reduce their vulnerability to socio-economic consequences of disasters such as human trafficking, children coming in conflict with the law and HIV/AIDS.

ANNEXES

Village checklist - in English

Village checklist - in Lao

Province checklist - in English only

List of teams and name of team leaders per Province

List of Province, Districts and villages visited