Joint Assessment of Impact and Needs arising from the September 2009 Ketsana Typhoon

Photo: Anthony Aisenberg/2009

Government of the Lao People's Democratic Republic

IASC in-country Team for Natural Disaster Response Preparedness

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Preface

Typhoon Ketsana hit southern areas of Lao PDR on 29th September 2009, causing extensive damage to the most vulnerable and poorest districts of Attapeu, Sekong, Saravane, Savannakhet and Champasack provinces.

Beyond the need to provide immediate relief assistance to the affected people, extensive damage was caused to agriculture, livelihoods and infrastructure, which will negatively affect the health, nutrition and food security of many communities. In areas with already high levels of food insecurity and where up to 50% of the children are malnourished the potential impact is severe and the needs are pressing.

The Joint Assessment of Impact and Needs was jointly conducted by the Government of Lao PDR, the United Nations and INGOs. Its purpose was to update the preliminary data gathered to ensure that the response of donors and other stakeholders is relevant, effective and timely.

The World Bank together with AusAID and ADB has also undertaken a Post Disaster Needs Assessment (PDNA), indentifying the medium and long term needs in a number of sectors in flood affected areas. The PDNA report will provide a full costing of the damage and losses resulting from Ketsana and complements the findings of the Joint Assessment.

We express our gratitude to the National Disaster Management Office and the Inter-Agency Standing Committee in-country team on Natural Disaster Response Preparedness for producing this report and thank those who conducted the assessment and analyzed the data. The report provides a comprehensive overview of the humanitarian situation left by the worst floods to hit Lao PDR in a century.

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Acronyms

CFSVA	Comprehensive Food Security and Vulnerability Analysis
CPI-NSC	Consumer Price Index - National Statistics Center (now DOS)
DDMC	District Disaster Management Committee
DH	District Hospital
DOS	Department of Statistics
FAO	Food and Agriculture Organisation
Ha	Hectares
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IASC	Inter Agency Standing Committee
ICM	Integrated Crop Management
INGO	International Non Governmental Organization
JICA	Japan International Cooperation Agency
Lao PDR	Lao People’s Democratic Republic
LWU	Lao Women’s Union
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
NCLE	National Centre for Laboratory and Epidemiology
NDMO	National Disaster Management Office
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salts
PDMC	Provincial Disaster Management Committee
PH	Public Hospital
SCA	Save the Children Australia
SD	Standard Deviation
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USD	United States Dollar
VFI	Village Focus International
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme


Map 1
Ketsana Typhoon Flood Affected Districts and Villages, visited by Flood Assessment Teams - Oct. 2009
CHINA
VIET NAM
THAILAND
CAMBODIA
Savannakhet
Saravane
Sekong
Champasack
Attapeu
Xepon
Phin
Nong
Xonbouli
Vapi
Ta-Oy
Kalum
Lamam
Sanxai
Xaisettha
Samakkhixai
Sanamxai
Phouvong
Khongxedon
Mekong River
MEKONG RIVER
WFP
United Nations
World Food Programme
0 20 40 80
Kilometers
Rivers
Surveyed Villages
Surveyed Provinces
Boundaries
Attapeu
USE
Champasack
International Boundary
Saravane
Province Boundary
Savannakhet
Other Countries
Sekong
Other Countries Area
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Spatial Reference: Geographic Coordinate System WGS 1984.
Sources:
Swiss National Centre of Competence in Research (NCCR) North-South, Department of Statistics, National Geographic Department, Department of Forestry, Vientiane.
Ketsana Typhoon Assessment Teams, 2009
Map produced by VAM Unit, WFP Lao PDR, October 2009.

Executive Summary

Typhoon Ketsana hit southern areas of the Lao PDR on 29th September 2009, causing extensive damage to property and infrastructure. The typhoon resulted in flash flooding in the upland mountainous areas and severe river overflow onto land surrounding the Sekong River and many of its tributaries. This was the first high-magnitude flood in the southern provinces since 1968. Very few mitigation measures were in place. The affected regions of the south are already food insecure, especially Saravane and Sekong provinces.

Five provinces in the southern part of the country were severely affected according to the Laos National Disaster Management Office (NDMO). Flash floods reported in the North and Central Provinces caused eight deaths. The floodwaters swept away household belongings, destroyed schools, hospitals, roads, bridges, houses and crops. Floodwaters saturated inhabited areas for 1-2 days and forced many among the local populations to abandon their homes. The worst affected areas were not accessible until 15-20 days later, but communities are still facing difficulties due to damaged roads and paths.

The Joint Assessment was organized by the Inter-Agency Standing Committee (IASC) in-country Team for Natural Disaster Response to provide an overview of the flood's immediate impact. The purpose of this assessment was not to identify all affected villages or to produce exact numbers of people in need of assistance, but to provide indicative data on how affected villages and populations were impacted and to serve, in combination with other sources of information, as a basis for an updated review of programme requirements set down in the UN Flash Appeal issued on 22nd October.

This assessment was jointly undertaken by the National Disaster Management Office (NDMO) and IASC's Joint Assessment Taskforce in close collaboration with the Department of Statistics (DOS).

Coverage and methodology

The assessment was conducted from 19-24 October 2009 with 17 assessment teams covering 16 of the total 26 administrative districts in the five most affected provinces. Meetings were held with the local authorities to collect secondary data prior to conducting field work. Each team was assigned visits to four severely and two moderately affected villages per district, a total of 96 villages. By the end of the assessment, 95 villages had been assessed. Assessment fieldwork methodology included primary data collection in each village through interviews with members of the most affected households, discussions with key informants and transect walks.

The conclusions drawn in this report are based on both qualitative and quantitative information drawn from field visits as cross-referenced with a substantial amount of secondary information. While the data presented should be considered as estimates rather than absolute figures, the joint assessment teams felt that their analyses will contribute significantly to ongoing efforts to assess, re-evaluate and fine-tune the emergency assistance effort.

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. According to the Joint Assessment, provinces in the southern part of the country -- Savannakhet, Saravane, Sekong, Attapeu and Champasack -- were the worst hit.

Number of affected people

NDMO, PDMC and DDMC estimates indicate that approximately 180,674 people were affected across 26 districts of five provinces. The affected population is 23 percent of the total population of these five provinces.

Impact on agriculture, livestock and aquaculture

Agriculture

Preliminary government estimates suggest that approximately 28,500 hectares of rice and other crop planted areas were inundated because of the floods. The Government further estimates that in the 26 affected districts, 46% of the crop area was totally destroyed and 20% partly destroyed.

Joint Assessment data indicate that totally 44 percent and partially 16 percent of total lowland rice production areas in the villages that teams visited were damaged. Of total upland rice, 37 percent totally and 24 percent partially were damaged. Around 85 percent of cash crop and vegetable planted areas were damaged and production lost. In some locations, crops and paddies were swept away and the land rendered uncultivable for the remaining agriculture season.

Livestock and aquaculture

A large number of household livestock (cattle, buffalo, pigs, goats, poultry and fish ponds) have been affected by floodwaters. An estimated 1-14 percent of the total number of livestock was killed. An estimated 40-45 percent of the villages visited reported severe damage to their fish ponds through silt deposits and inundation.

Impact on food security

The floods have had a double impact on households in term of food security, destroying what little stocks were available, and damaging the main rice crop just prior to harvest. Major losses of food stocks were reported in Attapeu and Sekong (61 and 36 percent respectively), with 35 percent losses over the whole flood affected area.

Access to food

With small and large scale production of rice compromised by the floods, households will become increasingly reliant on market purchases. In some areas, markets have responded to increased demand by increasing prices; some 41 percent of locations visited indicated that prices had increased since the floods. Physical access to markets was reduced following damage or destruction to transport infrastructure such as paths and bridges, although this is gradually being repaired. Damages to key household food production assets such as fishing boats and fish ponds will compromise access to food in the short to medium

term. Food insecurity and vulnerability may also increase as a result of increasing levels of debt, as households resort to borrowing in order to meet their food needs.

Food consumption

The assessment results reveal that around 77 percent of households will have food stocks for less than three months, 48 percent for less than a month, while 18 percent of households have either less than a week or no food stocks. These people represent the most vulnerable and will need food on an immediate basis. Farmers in visited areas have very low expectations for this year's harvest, with overall production projected at 20-30 percent of the normal yearly level.

Households' vulnerability and coping strategies

Major coping strategies adopted include increased borrowing of food for consumption (61 percent), reduction in the number of meals consumed per day (44 percent), reductions in the total amount of food in each meal (65 percent) and eating less preferred food (42 percent). All these major coping strategies may diminish the quality and quantity of food intake in terms of both diversity and nutritional value and do nothing to alleviate affected populations' basic food insecurity and protection from future shocks.

Impact of health and nutrition

Health

There is increased vulnerability for communities, especially children and women, due to the interruption of access to health care services and damage to infrastructure (homes, roads, bridges, water supply and health facilities) in affected areas. The damages include losses of medical drugs and supplies, medical equipment, flooding of health facilities and individual houses, as well as the availability of water supplies, electricity and sanitation.

Potential threats include increased risks of disease outbreaks and morbidity from vector-borne diseases including lymphatic filiarisis, malaria and dengue fever, diarrhoea, conjunctivitis, acute respiratory infection; communities without access to routine health care services and referral; increased mortality and morbidity for pregnant women and newborns in affected communities as a result of delivering in unsanitary conditions; disruption of the provision of essential reproductive and maternal health services; disruption of vaccination and other disease control programmes and possible outbreaks of such vaccine preventable diseases as measles, polio and tetanus; poor water and sanitation that exposes communities to an increased risk of water-borne diseases.

Two district hospitals in Sekong Province and one hospital in Savannakhet Province were completely destroyed. Moderate damage to hospitals occurred in Attapeu (2 hospitals), Sekong (3), Savannakhet (one). Most existing health facilities were flooded and normal health services have been disrupted. Most villages receiving funds for the purchase of drugs saw their stocks destroyed.

The number of reported deaths and injuries has been relatively low. There have been some reports of cases of acute respiratory infection, diarrhoea, malaria, dengue fever and conjunctivitis. This information is thought to be incomplete as surveillance of communicable diseases from all affected areas is still not established.

Nutrition

The Joint Assessment did not come up with a clear picture on child malnutrition, as anthropometric measurements were not included in the survey. A significant amount of children were known to be chronically malnourished prior to the flooding according to the 2006 UNICEF MICS (Multiple Indicator Cluster Survey) and WFP CFSVA surveys. The southern provinces have the highest rate of under-five malnutrition and the lowest rate of exclusive breastfeeding practice with 46% stunting and 17% initiation of breastfeeding within one hour compared with 40% and 30% at the national level.

Amongst the five affected provinces, damage to crops, future harvests, water and sanitation systems and health facilities could lead to a serious aggravation of the health and nutritional status of women (especially pregnant and lactating women and mothers) and children. Malnutrition increase is not yet evident, but the situation needs to be assessed in the next few months because of crop damage, poor hygienic conditions and limited access to health services in all the affected villages of these provinces.

Impact on protection

Child vulnerability in disasters is usually underestimated as signs are not immediately apparent. There is increased vulnerability due to limited knowledge, awareness and reporting at the local level.

The assessment results indicate incidents of theft in 18 of the 26 districts across the five provinces. There were also 12 reported incidents of domestic violence, with half of them occurring in Attapeu. Also in Attapeu, concerns regarding sexual abuse were reported. In Saravane, the risk of trafficking was indicated to be high as many people expressed concern over the loss of income. Among the five provinces, 18% of the districts reported having identified persons in need of special care (e.g., physical disabilities, mentally ill).

Severe UXO contamination still impacts the five disaster-affected provinces. A large portion of agricultural land is affected. The Joint Assessment teams noted that a good number of UXO had been exposed or displaced by the flooding. Local informants, villagers, in the provinces of Attapeu, Sekong and Savannakhet, reported seeing UXO: some previously identified, others newly exposed and detected.

Impact on education

A total of 22,895 primary school students (of which 10,302 girls) and 639 teachers have been adversely affected by the storms and floods. Students and teachers are not able to participate in their right to education in an environment that is conducive to learning.

Data from the Ministry of Education identified 136 primary schools in 16 districts across the five affected provinces that have been either totally destroyed (23) or severely damaged (113) and hence are structurally unsound. The 3,335 children from destroyed schools are continuing their education in temporary makeshift locations in conditions that are often unsafe and unsanitary. The 19,560 children from severely damaged schools are also at risk from disease and injury if the school buildings are not urgently repaired.

There was significant damage to 60 school water supply systems and latrines as detailed under the Water and Sanitation section of the report.

Impact on water, sanitation and hygiene

Water

Water quality is a major concern in these worst affected areas, where water is either contaminated or not available. Most water sources that tap into shallow ground water could not prevent infiltration by the turbid and contaminated floodwaters. This is particularly the case for wells. According to the MICS 2006, 28.3% of communities in the southern region, out of the total of 53% using improved drinking water sources, utilize boreholes as their main source of drinking water. Many others still depend on surface water, chiefly from rivers. This pattern with respect to improved drinking water sources usage is now disrupted. The assessment also confirmed that a number of facilities, especially borehole hand pumps, were not functioning before the flooding and were in need of repair.

Assessment data indicate that 74 improved water systems are unusable due to the flooding. These systems include boreholes with hand pumps, and in the more mountainous areas, gravity-fed systems. While all five provinces are affected, Attapeu and Saravene alone account for over 63% of the damage. In sixty schools water supply systems and latrines have been damaged.

Sanitation

Combined with pre-flood sanitation figures, assessment data denote a deteriorating sanitation condition that is putting the health of these communities at great risk. Many latrine units are no longer useable. The southern region already had the lowest level of sanitation coverage in the country -- only 27.7% of households using a sanitary means of excreta disposal in 2006. Assessment data yielded a comparable figure: only 28.4% of persons interviewed indicated that they were still using latrines. Before the typhoon diarrhea was the second biggest killer of children in Lao PDR and it remains an ever-present serious threat to children. Assessment data re-confirmed this prognosis by indicating that diarrhea ranked second behind respiratory infections among the major health concerns.

Impact on shelter

The ‘hut-thatch-bamboo houses’ were damaged in all provinces surveyed during the Joint Assessment. In Attapeu, total and partially damaged housing figures are respectively 3.1% (77 housing units) and 6.7% (168 units). In Sekong Province, the figures are 40.8% (104 units) houses totally and 21.6% (55 units) partially damaged. In Saravane Province, 2.4% (12 units) houses were totally destroyed and 1.2% (6 units) partially damaged. Housing in Champasack and Savannakhet provinces was also affected, though the extent of damage was minor in comparison.

Wooden houses were damaged in all five provinces, although on average the extent of damage is less than in the previous category. In Attapeu a total of 2.1% (31 units) and in Sekong 16.8% (115 units) were partially damaged. In Saravane Province, 0.1 % (2 units) were totally destroyed while all other units received minor damage. Champasack and Savannakhet provinces again reported only minor damage.

For concrete houses, damages were registered only in Sekong and Champasack provinces – Sekong with 31% houses totally destroyed and 26% partially damaged; Champasack, 47% houses partially damaged.

Recent (24 – 27 October 2009) data from the Department of Housing and Urban Planning suggests that some 2,500 Households (equivalent to perhaps 12,500 persons) require temporary shelter.

Impact on access

These provinces have a high proportion of unpaved roads. The floods in the South have caused widespread damage to bridges and roads. About 70% of roads assessed were damaged to some extent. Over 50% of bridges assessed were damaged, with 15% of those bridges destroyed. Paths and tracks were seriously damaged and have made access to markets, services, commerce and homes more difficult.

Impact on livelihoods (early recovery)

Priority areas for early recovery include: basic infrastructure, housing and shelter; rural livelihoods in the agricultural and fisheries sectors, small businesses and informal sector, public service delivery, and capacity development for disaster management and preparedness.

The physical damages to various assets and infrastructure have translated into severe human hardship, including loss of sources of income and adverse impacts on the livelihoods of many thousands, loss of life and injuries, losses of social fabric, and psychological shock from trauma. A priority is to ensure that typhoon's adverse impacts do not push the poor deeper into poverty and the "near-poor" back into poverty.

RECOMMENDATIONS

MOST IMMEDIATE NEEDS (OCTOBER 2009- MARCH 2010)

- Food supplies
- Temporary shelter (materials and tools)
- Emergency replacement seeds
- Essential medicines and primary health care
- Immunization and surveillance for disease outbreaks and nutrition status
- Health and nutrition education
- Nutritional rehabilitation (micronutrient supplementation; surveys and surveillance)

- UXO risk education and UXO clearance

- Community support and awareness raising measures to strengthen the protective environment for the most vulnerable populations, in particular women and children, and prevent any UXO-related risks

- Rehabilitation of severely damaged schools

- Improved drinking water, sanitation and hygiene for communities and essential service infrastructure (schools)

MEDIUM/LONG TERM NEEDS (MARCH 2010 ONWARDS)

- Credit, cash or food for work

- Food security and livelihoods

- Early recovery for agriculture and livestock food availability

- Micronutrient supplementation

- Rehabilitation of water supply and sanitation infrastructure in communities and schools

- Vulnerability and stress of affected people

- Continuous strengthening of the health systems, including routine immunization

- Infrastructure: roads, schools and health facilities, permanent shelter

- Health and nutrition education

- Rehabilitation of water supply and sanitation infrastructure in communities and schools

1. Background

1.1 Overview of the flood situation

Typhoon Ketsana formed early on 23 September 2009 about 860 km (535 mi) to the northwest of Palau. It then progressed on a westerly heading, passing through Vietnam before hitting the Southern provinces of Lao PDR. Ketsana entered Lao PDR on 29 September with heavy rains in the Annamite Mountains that led to both flash flooding in upland mountainous areas and river overflow in lowland districts. The five southern provinces of Savannakhet, Saravane, Sekong, Attapeu and Champasack were affected, especially villages along the Sekong River and other major water courses in the region. Sekong River water levels rose to 19.4 meters, crossed the danger point of 15 meters and overflowed with water levels of 10-15 feet above the ground that washed away villagers' belongings and smashed standing crops and physical structures.

Typhoon Ketsana struck during the lean season in food insecure provinces of the country with high rates of stunting, at a time when household food stocks were at their lowest levels as farmers prepared for the upcoming harvest.This exacerbated an already delicate food security situation. It destroyed limited food stocks, damaged crops and significantly impacted projected yields from the upcoming harvest. Approximately 28,500 hectares of rice and crop fields were damaged. Significant numbers of livestock were destroyed. Reported infrastructure damage includes 1,023 and 825 houses, respectively, destroyed or damaged. A total of 33 schools were destroyed and 113 damaged; three hospitals were totally destroyed (six other partially damaged), 14 irrigation systems and many access roads were also damaged. An official warning was issued prior to the typhoon's onset, but in some provinces the message did not reach all people, particularly those in remote villages who, as a consequence, were unable to move out of harm's way and to take measures to protect their property.

Health risks have increased significantly. Typhoon Ketsana damaged water supply systems, contaminated water supplies and disrupted access to health care services. The threat of unexploded ordnance (UXO) dislodged and exposed by the flood waters is real and dangerous. Lao PDR is the most heavily UXO-affected country in the world (per capita), and the provinces Ketsana struck contain areas with the highest level of UXO-affected districts in the country. Protection concerns are expected to increase as livelihoods and coping mechanisms are stretched to breaking point. The convergence of factors such as difficult access, displacement and homelessness, reduced harvests, contaminated water supplies, increased health risks and increased possibility of UXO accidents augur a difficult period ahead.

Following the Government official request for international assistance, teams, including Inter-Agency Standing Committee (IASC) UN cluster leads and NGOs, as well as representatives from government agencies, conducted initial assessments of

the five affected provinces. Food, drinking water, health, sanitation, shelter and road clearance for access were identified as the top priorities.

On 22 October, the United Nations issued a Flash Appeal to the international donor community in support of the Government's relief actions. Funding of $10,153,872 was requested in order to address the immediate needs of approximately 178,000 people over a six-month period. The Appeal was developed in partnership with the Government of Lao PDR through the National Disaster Management Office (NDMO) based on the best information available at the time.

These actions paved the way for a joint Government, UN and NGO Joint Assessment conducted from 19-24 October within the framework of the IASC to identify the most affected segments of the population and to prioritize needs. Results of the UN Joint Assessment are given in this report in order to support the Government and partners' relief actions and as a basis for further review of proposals initially made in the UN Flash Appeal.

1.2 Mitigation efforts

In response to the rising water levels, the Government was instrumental in attempts to secure the timely evacuation of people living in areas at risk of flooding. 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 substantial loss of life and reduced the loss of household assets.

Access to enable distribution of relief goods to flood-affected populations was limited due to high waters in the immediate aftermath of the storm and the remote and difficult terrain. Nevertheless, Government agencies responded swiftly, supported by humanitarian agencies – UN, INGOs, Red Cross -- on the ground, launching extensive search and rescue operations and releasing emergency relief stocks. The Government also disbursed funds amounting to some US$10,000,000. These efforts notwithstanding, the extensive damage caused by the floods required a response of greater magnitude and duration under overall Government leadership. On 9 October 2009, the Government, through the Ministry of Foreign Affairs (MoFA), requested international emergency assistance to respond to relief, reconstruction and rehabilitation requirements occasioned by the typhoon's severe impact.

2. Assessment objectives and methodology

2.1 Objectives

The main objective of the Joint Assessment was to identify and quantify persons and households affected by Typhoon Ketsana and their emergency needs.

Specific objectives were:

- To collect and verify available data on the extent and the severity of the

typhoon's impact.

- To assess the impact of the typhoon on affected areas and populations, with particular emphasis on: water and sanitation; health and nutrition; agriculture; livelihoods; food security; shelter; education; and protection.

- To collect information on the immediate response and identify capacity gaps and recommend types of intervention at 0-6 months (short term) and beyond.

- To identify the key information gaps to be addressed in follow up surveys and/or detailed assessments.

The results of this Joint Assessment are complementary to those initial assessments, in particular on agriculture, infrastructure and schools, that line ministries conducted prior to it or concurrently with the work of the Joint Assessment teams.

2.2 Partnerships

This assessment was organized under the overall authority of the Government of Lao PDR. Implementation took place between the Government in collaboration with the NDMO, Department of Labour & Social Welfare, (DLSW), Department of Statistics (DOS), Department of Statistics, MPI, the Ministry of Education and the district-level departments of Social Welfare and Health, and also UN agencies (WFP, UNICEF, FAO, UNDP, WHO, UNFPA, UN-Habitat in particular) and international non-governmental organizations (INGOs), notably Save the Children, World Vision International, VFI and Handicap International and Heath Unlimited[1]. The assessment was undertaken within the framework of the Inter-Agency Standing Committee in-country Team for Natural Disaster Response Preparedness (IASC).

2.3 Assessment teams area

Based on information provided by the NDMO and by partners in the field, the provinces assessed were identified. A total of 17 teams were constituted, one for each district, to cover all districts identified as having been affected by the typhoon. Subsequently, one of the districts (Samuay District in Saravane Province) was not accessible and was not visited by the teams.

2.4 Scope

The assessment was conducted from 19-24 October 2009 with 17 assessment teams covering 16 of the total 26 administrative districts in the five affected provinces. Meetings were held with local authorities to collect current information on the extent and impact of the floods.

2.5 Sample design

[1] HU provided five staff and two vehicles in Attapeu

In order to cover the whole affected area and have a representative sample for analysis, all the affected districts were selected at first stage. At second stage, six villages per district -- four severely and two moderately affected with a total of 96 villages -- were randomly chosen by the team leaders. The assessment teams visited 95 of the selected villages on a random basis; one village was not visited due to inaccessibility.

2.6 Team composition and Training

Each assessment team was composed of a team leader and two or three enumerators in total from among UN agencies (WFP, UNICEF, FAO, UNDP, WHO), INGOs (Save the Children, World Vision, VFI, MLSW, WVL) and Government departments (DOS, MLSW, MOE, respective district offices and provincial departments of Social Welfare as well as Health).

A two-day training session was organized in Vientiane for all the Vientiane-based teams on the use of the assessment questionnaire and on conducting interviews. Team members were also trained on the use of GPS for recording village coordinates. The teams have subsequently undertaken training/orientation sessions for team members based in the field.

2.7 Tools, data collection and interview methods

A provincial information sheet, a district information sheet and a village checklist were drawn up by the assessment task force. Specific elements were approved by government departments and UN agencies, each working according to its area of expertise.

Each team had four days to complete their work. On the first day, consultation meetings wre held with stakeholders at the provincial and district levels to collect secondary information and to identify areas to be assessed. Over the following three days in the field, teams collected data from two villages per day on average.

In each of the selected villages, teams conducted interviews with key informants and village leaders and conducted focus group discussions. The teams also held discussions 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 95 villages visited within the 16 of the 26 districts of the five provinces.

2.8 Data analysis and reporting

The template questionnaire used was essentially the same for the entry of 2008 flood data. The Department of Statistics did make some slight modifications, however, to take in account the specificities of the Ketsana Typhoon emergency.

Following the teams' return from the field, a one-day debriefing workshop was organized in Vientiane to consolidate qualitative feedback from all teams by province and by district. The team leaders and government staff who conducted the assessment in each province were asked to describe and, where possible, quantify

the damages and to identify the most pressing needs in the areas they had visited.

The sector leads as designated by the IASC were responsible for reporting on the analysis of both quantitative and qualitative data provided through the assessment and to examine response options. Accordingly, the report is structured following cluster lead designations and related responsibilities. WFP, with a subsequent contribution in personnel from UNICEF, took the lead to integrate all sectoral analyses into a single consolidated report that also includes background information, annexes and an executive summary.

Among UN Agencies in Lao PDR, cluster responsibilities are designated as follows:

CLUSTER	IASC LEAD
Food Security	**WFP / FAO**
Health, Nutrition and WASH	**UNICEF / WHO**
Education	**UNICEF**
Protection	**UNICEF (Child Protection) / UNDP (UXO)**
Logistics	**WFP**
Shelter	**UN-HABITAT**
Early Recovery	**UNDP**

2.9 Limitations

The assessment process was developed and implemented under considerable time constraints in an effort to get viable information out to those who needed it quickly. However, as floodwaters receded, remote areas became more accessible and communications networks were reestablished. As a result reliable information was based on the best available information at the time, and it is possible that new information on specific damages may have emerged in the time between data collection in the field and this report's dissemination. It is anticipated that any major discrepancies in data will be rectified in the course of implementing the recommendations contained in this report.

Specific constraints also included:

- Limited experience of field staff in conducting similar assessments in the country.
- Questionnaire from the last flood assessment was used with some changes. However, some of the modules needed field testing and adjustments.

- Limited information available on the extent of the flooding when preparing the assessment.

- Time constraints limited the data that could be provided by the Joint Assessment. Due to these constraints, only frequency tables were produced. No correlation analysis was possible, with the result that only very basic data analysis was done. However, such an analysis can be done in the coming weeks in order to strengthen the knowledge base and review of the Joint Assessment outcomes.

3. Key findings

From 19-24 October, seventeen Joint Assessment teams visited a total of 95 villages across sixteen of the total of seventeen districts initially indentified for assessment within the five affected southern provinces.

As for previous exercises of this nature, the information collected through direct observation, village-level interviews, meetings with government and NGO staff, and, for the one district not visited by the team, from secondary sources is expected to provide an indicative exhaustive analysis of the severity of Typhoon Ketsana's impact and the needed assistance interventions.

The results of the assessment are limited to an approximation of damage and immediate needs and do not provide comprehensive or in-depth quantitative data. The Joint Assessment is but an initial step in a continuous process and consequently identifies the need for more thoroughgoing follow-up assessments. Despite these limitations, the assessment, in conjunction with other data available, does provide a basis at this time for reconfirming or adjusting specific programmatic elements in the UN Flash Appeal issued to the international donor community on 22 October.

		Population		
Province	**No. of districts affected**	**Total**	**Affected**	**%age affected**
Attapeu	5	120,886	72,356	59.9
Champasack	5	299,624	12,273	4.1
Saravane	7	310,370	76,390	24.6
Sekong	4	86,993	11,989	13.8
Savannakhet	5	145,283	7,666	5.3
Total	**26**	**963,156**	**180,674**	**18.8**

3.1 Extent of the flood impact

Area Affected

According to the Joint Assessment, five provinces in the southern part of the country -- Savannakhet, Saravane, Sekong, Attapeu and Champasack -- were the worst hit. Approximately 28,500 hectares of cultivated area in the five provinces were affected.

Data on flood impact was collected by the Provincial Disaster Management Committees (PDMC) and District Disaster Management Committees (DDMC). Preliminary estimates of the number of affected people were consolidated and reported on by the NDMO on 2 October 2009.

Map 1 (see beginning of report) shows the areas affected as reported by the NDMO on 2 October. Districts visited by the Joint Assessment teams are color-coded by province; villages surveyed are also specifically marked.

Number of affected people

A summary of affected populations according to the NDMO is given in Table 1. Disaggregated data for specific population groups is not available.

3.2 Impact on agriculture, livestock and aquaculture

3.2.1 Agriculture

Preliminary government estimates suggest that approximately 28,500 hectares of rice and other crop planted areas were inundated at the peak of the floods. The Government further estimates that in 26 districts, 46% of the crop area was totally destroyed, with 20% partly destroyed.

The Joint Assessment found that totally 44 percent and partially 16 percent of total lowland rice production areas in the villages that teams visited were damaged. Of total upland rice 37 percent totally and 24 percent were partially damaged. Around 85 percent of cash crop and vegetable planted areas was damaged and production lost. In some locations, crops and paddies were swept away, and the land rendered uncultivable for the remaining agricultural season. Ketsana destroyed already scarce food and seed stocks and severely damaged fields. Farmers lost their means of livelihood, immediate access to food and their capacity to generate income.

The Joint Assessment estimates that irrigation infrastructure in 25-30 percent of the villages visited was damaged. If this is not urgently addressed, not only have farmers lost their forthcoming harvest, but many will be unable to grow rice in the coming season. Some of the flood-affected areas are the most productive and normally supply surplus rice for the rest of the country. The compound impact of rising food prices and a drastic decline in production may have severe repercussions for national and household food security, with far reaching consequences if not addressed. The negative impact on the long-term livelihoods of many communities and expected drop in household income are likely to affect families' investments in healthcare and education. Many households have already exhausted their coping mechanisms following rising food and agricultural input prices, and there may not be much room to absorb this new shock.

3.2.2 Livestock and aquaculture loss

A large number of household livestock (cattle, buffalo, pigs, goats, poultry and fish ponds) have been affected by the flooding. An estimated 1-14 percent of total livestock were killed. Causes included injuries and well as disease.

Livestock is a significant source of household nutrition, livelihood and an important store of value. If not supported through relief measures, household food security will be severely compromised and restocking will require major investment. An estimated 40-45 percent of the villages visited reported severe damage to their fish ponds through silt deposits and inundation. In addition to pond structure damage, stocks have also been depleted.

3.3 Impact on food security

3.3.1 Background

In a normal year Lao PDR produces enough rice to meet the requirements for its population, but due to major infrastructural problems and resulting poorly integrated markets, this national sufficiency in rice production does not translate into local rice availability and food security to all the population. Some 10 out of 18 provinces and about half of all districts experience food deficits. North and South regions account for almost 90 percent of the food insecure rural households in the country, with 70 percent of them located in only seven provinces: Saravane and Sekong in the South, and Oudomxay, Bokeo, Luangprabang, Huaphanh and Xiengkhuang in the North.

According to the WFP CFSVA conducted in 2006, two thirds of the rural population in Lao PDR are either food insecure (13 percent) or could become food insecure should a shock occur during the year. Food deprivation and food insecurity increase significantly during the lean season between May and October, with its peak usually from August onwards. Over 300,000 households are at risk of becoming food insecure if they lose access to natural resources, experience floods or drought, or face a sudden increase in rice prices.

Household and community food insecurity can be found throughout the country.

However, two of the provinces in the southern region, Saravane and Sekong, are among the highly food insecure provinces, with 30 and 24 percent of households respectively identified as food insecure.

3.3.2 Impact on food availability

Rice is the staple and the main crop grown in Lao PDR, cultivated on around 825,000 hectares. The five affected provinces have a substantial share (48 percent) in the total country's rice production, although there are important intra-province variations. The eastern districts of Sekong and Attapeu tend to be rice deficit producing areas, whereas the districts along the Mekong and Sekong rivers are important rice producing centres. Rice is grown both under irrigated as well as dry conditions. However, irrigated rice production contributes only 14 percent in the southern provinces. In the south, farmers cultivate rice at three intervals due to limited availability of arable land and manpower. Areas planted with rice are divided into three equal plots for cultivation. One third of the area is cultivated early in the season, the second 10-15 days later and the last (third) 10-15 days after that. Maturation and harvest of the three plantings maintain the same schedule, with three staggered harvests occurring between September and November.

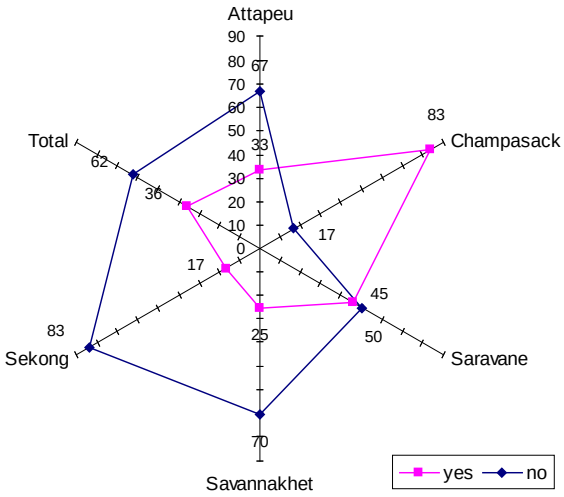


Figure-1 Food security in normal condition

Typhoon Ketsana resulted in the flooding of farms mostly along rivers that overflowed their banks. Rice fields were flooded with water levels rising by several meters and in many cases far above crop heights for several days. As a result of this inundation, one-third of the crops, (the first planting that already matured) were almost totally destroyed through soaking of the grains in the cases where the field remained submerged for two or more days. The flooding occurred at a stage where the middle crop (i.e. second planting) had completed grain formation. The extent of the damage was less severe but was nevertheless affected by the water – and this depended on the duration of inundation. The late planting was damaged, but farmers expressed some optimism that crops in the flowering stage may yet partly recover.

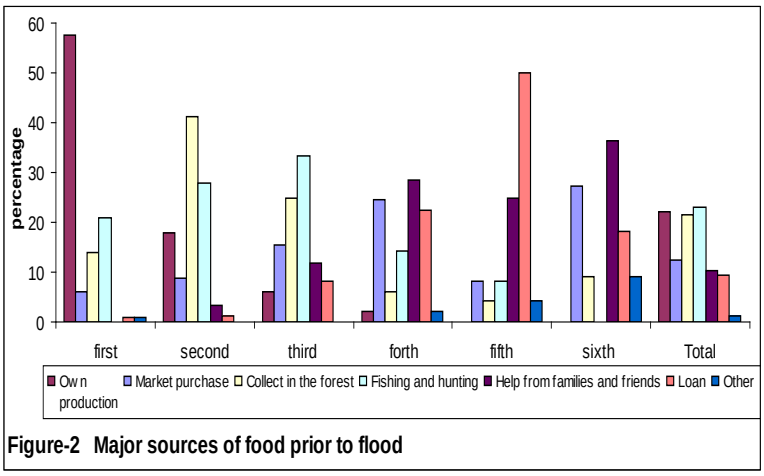


Figure-2 Major sources of food prior to flood

In normal years the typhoon-

affected provinces are surplus rice producing provinces. The surplus production is usually exported to neighboring countries or finds its way to other districts or provinces. Because of the limited transport infrastructure any larger scale sale of surplus rice to other parts of the country tends not to be cost-effective. The districts hit by the typhoon are not surplus producing and usually face seasonal deficits.

The majority of the farmers in these areas are smallholders who produce less than their total net requirement each year.

The assessment found that 62 percent of villages visited were unable to meet their annual requirements in the course of the year. This data was consistent across four of five provinces visited. It should be noted that only one district in Champasack was visited, and that only briefly, due to poor road conditions, which may explain the difference in the response compared to the other four provinces.

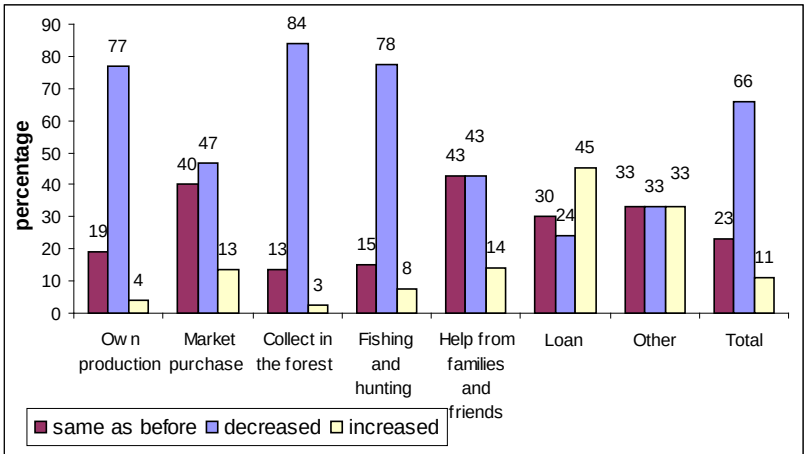


Figure-3: Change in the source of food since flood

The major sources of food in the rural areas of these provinces are crop production, fishing/hunting, and collecting wild foods from forest. Own production is the primary source for 57 percent of households, followed by fishing and hunting (21 percent) and collecting wild foods (14 percent). Some 6 percent of households identified markets as their primary source of food, underscoring the importance of own production. Overall, market purchases constitute 12.5 percent of total food requirements.

The flood has severely damaged the food sources in the affected villages. All the three major sources (own production, collection from forest and fishing/hunting) are badly affected. According to the villagers' response, own production has declined by 77 percent, forest gathering by 84 percent and fishing/hunting by 78 percent. As a stopgap coping mechanism, households reported an increased reliance on formal and informal loans to make ends meet.

3.3.3 Impact on food access

This storm struck during the lean season when household food stocks are at their lowest levels, in anticipation of the harvest. During this period, farmers traditionally consume less and rely more heavily on fishing/hunting, gathering forest foods and borrowing. The impact of the floods has thus been magnified, simultaneously destroying what little stocks were available and compromising the upcoming harvest.

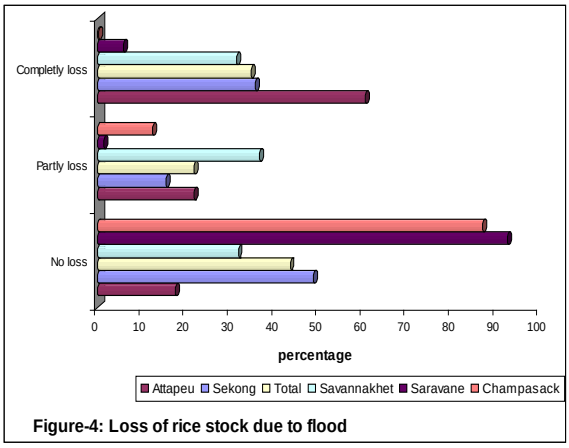


Figure-4: Loss of rice stock due to flood

The floods washed away most of the food stocks available in the houses. The inhabitants escaped the flood by moving out of homes to the nearby upland. Major losses of food stocks were reported in Attapeu (61%) and Sekong (36%). On average, 35% of food stocks have been lost in the whole affected area.

Losses of livelihood assets will also compromise household accessibility to food in the medium term. Communities have lost boats, fishing nets and other equipment needed for fishing. Congestion and debris in the water have also resulted in depleted stocks of fish, as well as damage and destruction of aquaculture facilities. Newly exposed UXO have made gathering wild foods in the forest a more hazardous exercise. Harvest losses suggest that villagers who are already in debt have started getting more loans, contributing to increase debt burdens among vulnerable populations.

3.3.4 Impact on Markets

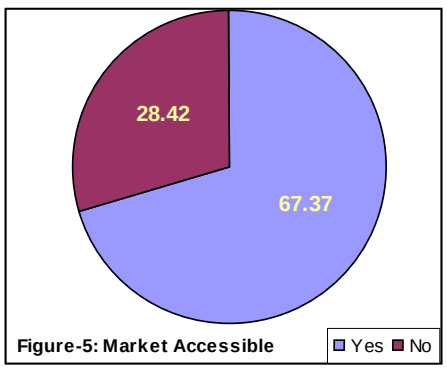


Figure-5: Market Accessible

With primary food sources depleted, reliance on markets has increased. During the first two weeks following the flood, the majority of people in the affected area had no access to markets. Thereafter access was gradually restored through clearance of paths and roads, restoring limited access to markets. Some 67 percent of villages surveyed have physical access to markets now.

Market prices responded to increases in local demand shortly after the flood. Market prices were noted to have increased in 41 percent of villages, although 34 percent reported no change. Market price increases will further reduce food accessibility for affected populations, as sources of income have been depleted.

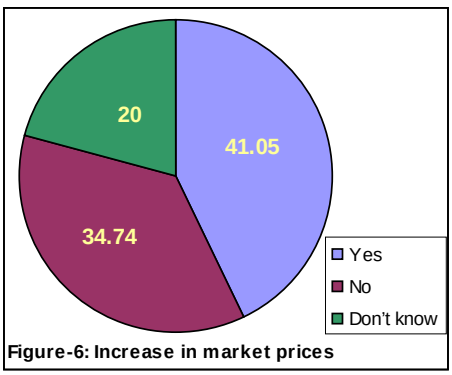


Figure-6: Increase in market prices

3.3.5 Impact on food consumption

The assessment results reveal that around 48 percent of households have food stocks for less than a month, while 18 percent of households have either less than a week or no food stocks. These people represent the most vulnerable and will need food on an immediate basis.

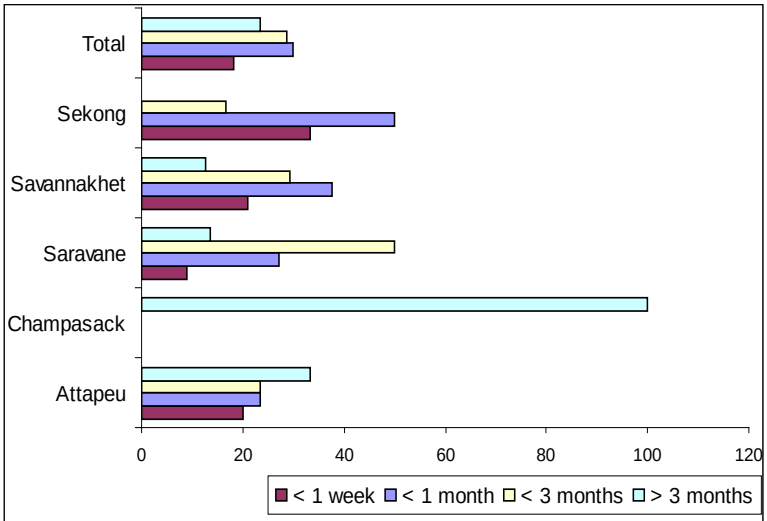


Figure-7: How long the current rice will last?

Food consumption has been affected by lack of availability and poor accessibility. With diminished resources at the household level, gross consumption levels can be expected to decline in the immediate term, although this will be contingent on the actual harvest yields. Farmers in visited areas have very low expectations for this year's harvest, with overall production projected at 20-30 percent. When compounded with increased loans and borrowings, the overall stresses on food consumption are substantial. Given that the areas in question already have recorded levels of stunting, in excess of 50 percent, this is significant cause for concern.

3.3.6 Household vulnerability and coping strategies

The recent typhoon caught people off guard as they prepared for the harvest of the rice crop. This harvest is conventionally used both for own consumption and to settle debts. Rice being a labour intensive crop, farmers are unable to engage extensively in other income generating activities, as rice requires most of their time and effort. Based on the assessment findings, an estimate of 40-50 percent yields from the third planting is expected (which is approximately 30 percent of the total planted). From the second harvest, some farmers may

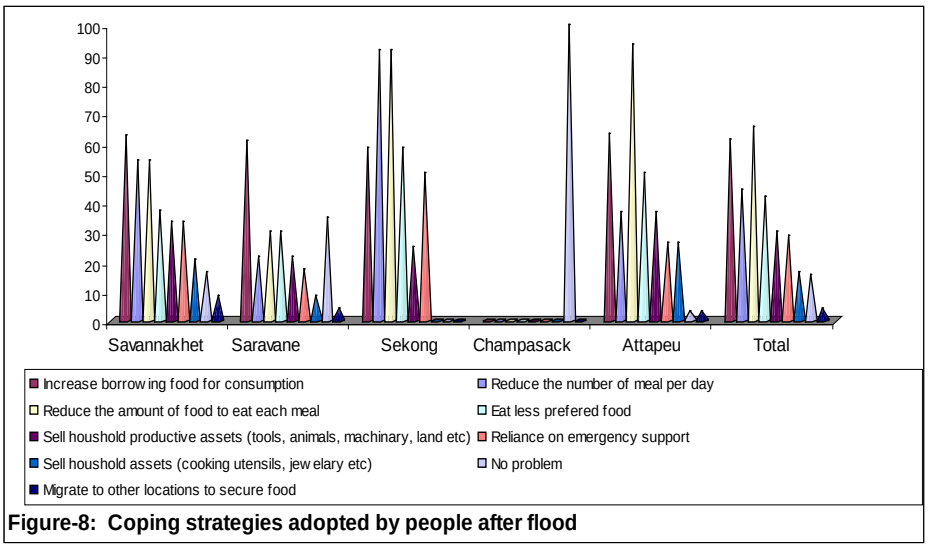


Figure-8: Coping strategies adopted by people after flood

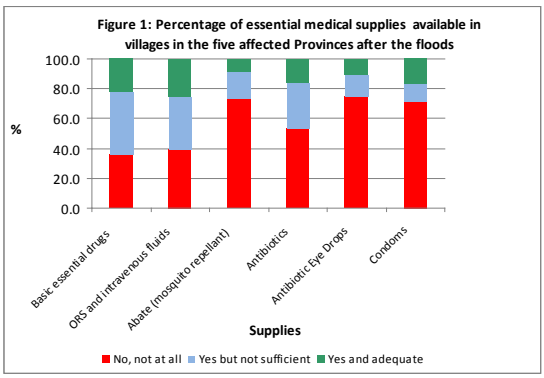
receive 20-30 percent. Overall production is expected to come in at about 30 percent of the projected harvest under normal conditions.

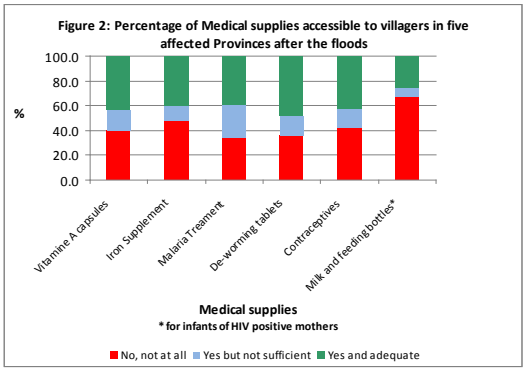
Declining livelihood sources accompanied by price increases have narrowed the available coping strategies for the affected population. Major coping strategies adopted include increased borrowing of food for consumption (61 percent), reduction in the number of meals consumed per day (44 percent), reductions in the total amount of food in each meal (65 percent) and eating less preferred food (42 percent). All these major coping strategies may diminish the quality and quantity of food intake, in terms of both diversity and nutritional value.

3.4 Impact on health and nutrition

3.4.1 Health

There is increased vulnerability for communities, especially children and women, due to the interruption in access to health care services and damage to infrastructure (homes, roads, bridges, water supply and health facilities). Damages include losses of medical drugs and supplies (Figure 1 and 2), medical equipment, flooding of health facilities and individual houses, as well as the availability of water supplies, electricity and sanitation.





There are potential health risks created by the disruption of clean water and food supplies, the destruction of shelter and the consequent overcrowding in temporary shelters; these could accelerate the spread of water and food-borne respiratory and vaccine preventable diseases.

There is a potential threat of outbreaks and risks that includes:

- Increased risk of disease outbreaks and morbidity from vector-borne diseases including lymphatic filiariasis, malaria and dengue fever, diarrhoea, conjunctivitis, acute respiratory infection.

- Communities without access to routine health care services and referral.

- Increased mortality and morbidity for pregnant women and newborns in affected communities as a result of delivering in unsanitary conditions.

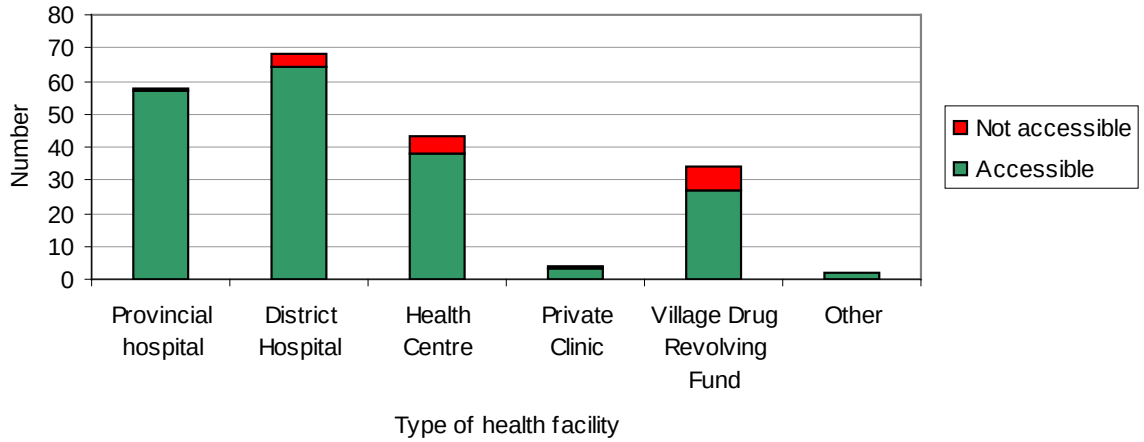
- Disruption of the provision of essential reproductive and maternal health services.

- Disruption of vaccination and other disease control programmes. Consequent outbreaks of such vaccine preventable diseases as measles, polio and tetanus due to unsanitary conditions given that routine immunization coverage was already low prior to the storm and floods.

- Poor water and sanitation exposes communities to an increased risk of water-borne diseases.

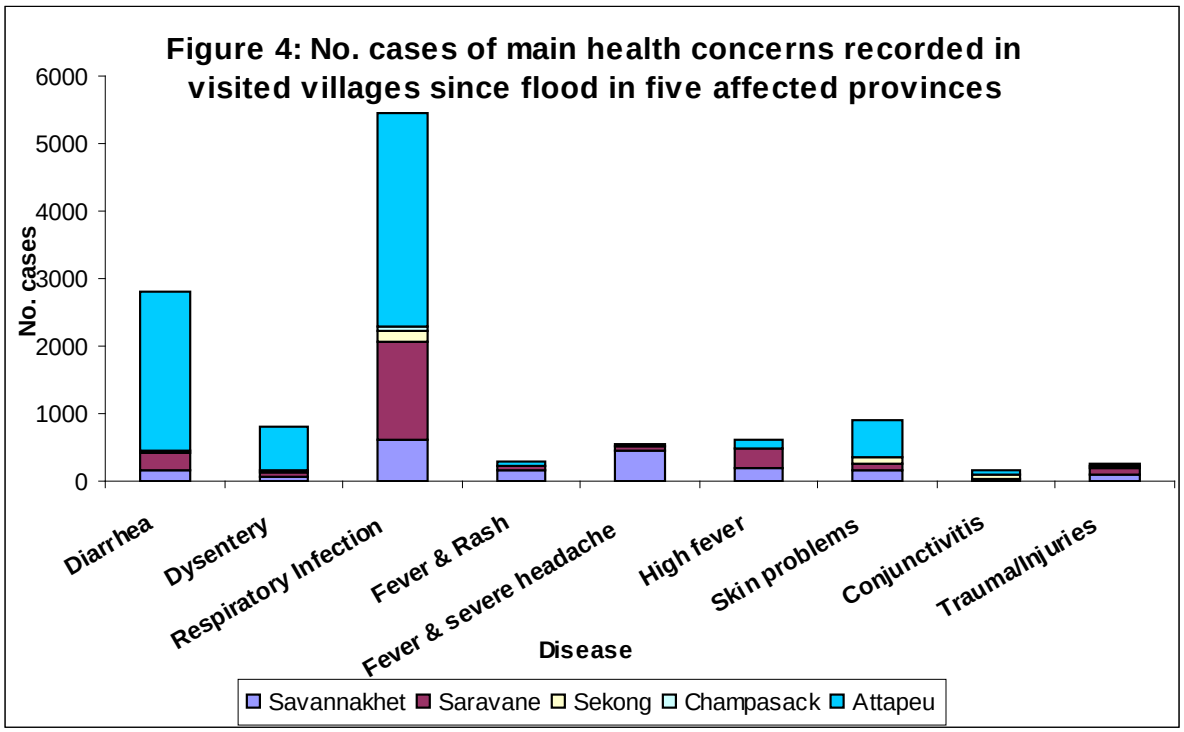
It was discovered during the Joint Assessment that one district hospital in Sekong Province and one health centre in Saravane Province were completely destroyed. Most existing health facilities were flooded and normal health services have been disrupted (Figure 3). Most drugs were destroyed in villages receiving revolving drug funds, in all five affected provinces. The loss of these funds coupled with the inadequacy of health service provision in this area of Lao PDR makes access to drugs in these communities severely limited. Although the assessment teams confirmed that no major disease outbreaks had occurred since the onset of the typhoon, there is a significant potential threat of outbreaks from both water and vector borne diseases.

Figure 3: No. of health facilites accessible after the flood in visited vilages in five affected provinces



The number of reported deaths and injuries directly attributable to the typhoon has been relatively low. There have been some reports of cases and clusters of acute

respiratory infection, diarrhoea, skin infection, conjunctivitis (Figure 4), malaria and dengue fever. This information, however, is thought to be incomplete as surveillance of communicable diseases from all affected areas is still not established. Without adequate and effective surveillance, it will be difficult to detect and respond to outbreaks in affected communities.



Additional findings were that health facilities were flooded and that equipment maintaining the cold chain necessary for vaccine storage and conservation was damaged. Given that routine immunization activities are interrupted to the point where vaccination coverage is decreasing, the detection, prevention and control of vaccine-preventable diseases is urgently required. Entire vaccines supplies were lost in the two most affected provinces and need to be replaced quickly. In addition, post-exposure vaccine stocks for rabies are required, particularly as rabies is a well-known consequence of overcrowding and the intermingling of human and animal populations in immediate post-flood emergency conditions.

In the aftermath of the typhoon, breeding grounds for mosquitoes augment dramatically. As the five flood-affected provinces were already known to be endemic for malaria and dengue fever, and as Attapeu Province is endemic for lymphatic filiariasis, environmental control efforts are necessary to prevent morbidity from these infections. These include the application of abate, fogging, use of impregnated bed nets, education on symptoms so that medical care can be sought if they develop, and training of local clinicians to ensure the early detection and treatment of these illnesses.

Fertility rates in the typhoon affected provinces, especially in the hardest hit areas of Attapeu and Sekong, are higher than the national average: 80 to 90 percent of pregnant women in these areas deliver at home, where hygiene conditions, already a problem, significantly worsened as a result of the floods. Interventions needed to prevent poor perinatal outcomes in these areas include education, access to better delivery conditions and the early identification of infections resulting from these behaviours.

Supplies and equipment for reproductive health and lifesaving maternal health interventions in hospitals in the affected areas were also damaged (Figure 1 and 2) and need to be replaced in order to resume maternal health services.

In the current situation, where households and health dispensaries have lost family planning consumables, the risk of unwanted/unplanned pregnancies is also likely to increase. In addition, violence against women and girls likely to increase in the aftermath of a humanitarian emergency calls for special attention.

3.4.2 Nutrition

The Joint Assessment did not come up with a clear picture on children's malnutrition as anthropometric measurements were not included in the survey. However, a significant amount of children were chronically malnourished prior to the flooding according to the 2006 UNICEF MICS (Multiple Indicator Cluster Survey) and WFP CFSVA (Comprehensive Food Security and Vulnerability Analysis) surveys. The southern provinces have the highest rate of under-five malnutrition and the lowest rate of exclusively breastfeeding practice with respectively 46% stunting and 17% initiation of breastfeeding within one hour compared with 40% and 30% at the national level. The damage to crops and livestock, disruption of water/sanitation systems leading to possible increased diarrhoeal disease, the destruction of drugs and equipment in health centres resulting in a lack of access to basic health services and loss of income are likely to combine to increase the risk of malnutrition in affected areas. Loss of vegetable and fruit crops will decrease the amount of available micronutrients in addition any depletion of micronutrients due to infections.

There is a need to immediately provide micro-nutrient supplements to mothers and children as the last Vitamin-A and de-worming campaign was in May-June 2009, and protection conferred then is no longer strong. There was no evidence from the assessment that mothers' breastfeeding practices were affected by the flooding. Nonetheless, it can be expected that due to poor diet, stress and displacement, the frequency and quality of breast milk of mothers will be affected over the short and medium terms.

In sum, malnutrition increase is not yet evident, but the situation needs to be assessed in the next few months because of crop damage, poor hygienic conditions and limited access to health services in all the affected villages of these provinces. Malnutrition could increase among those already undernourished.

Amongst the five affected provinces, damage to crops, future harvests, water and sanitation systems and health facilities could lead to a serious aggravation of the health and nutritional status of women (especially pregnant and lactating women and mothers) and children

Attapeu Province appears as the most seriously impacted. It presents a profile indicative of the range of issues, albeit present in varying degrees, which are endemic in all typhoon-affected areas. In the five districts of the province at least 80 villages were flooded. The degree of crop damage and the impact on future rice harvest production is very significant. Water and sanitation supplies and infrastructure were also severely impacted. The five district hospital and health centres were flooded and have provoked a significant negative impact on the health and nutritional status of mothers and children. Also of concern is that Attapeu Province has the one of the lowest rates of iodized salt consumption in Lao PDR.

3.5 Impact on Protection

In the wake of Typhoon Ketsana, as is often the case in disaster situations, child vulnerability may well be underestimated as the usual visible signs of children at risk are not immediately apparent. There is also increased vulnerability, especially amongst children, due to limited knowledge, awareness and reporting at the local level. If left unrecognized and untreated, symptoms of traumatic psychological impact – nightmares, inability to communicate or concentrate, generalized feelings of anxiety and fear -- may engender longer-term consequences. Unfortunately, families and communities in general are often unaware of how disasters may affect children psychologically and fail to understand the longer term implications of this.

Results from the joint assessment indicate incidents of theft in 18 of the 26 districts across the five provinces. There were also 12 reported incidents of domestic violence, with half of them occurring in Attapeu. Also in Attapeu, concerns regarding sexual abuse were reported. In Saravane, the risk of trafficking was indicated to be high as many people expressed concern over the loss of income and have indicated that migration may be their best option available. Across the five provinces, 18% of the districts reported having identified persons in need of special care (e.g., physical disabilities, mentally ill).

The threat of exploitation, and trafficking most particularly, is likely to increase in the next six to twelve months as the impact of the loss of livelihoods and income depletion begins to affect families. Increased population movements -- rural to urban or outright migration -- may accelerate as young people and families resort to increasingly desperate survival mechanisms.

The stress on families is and may remain considerable for the foreseeable future. Psychosocial support to children will help them cope with the situation and contribute to efforts to restore a sense of security and normalcy. Such support will also reduce their

vulnerability to various socio-economic consequences often arising from disasters such as human trafficking and other forms of exploitation, children coming in conflict with the law, and HIV/AIDS.

Severe UXO contamination still affects the five disaster-affected provinces. A large portion of agricultural land is affected. The presence of UXO is a longstanding, serious obstacle preventing the use of large areas of potentially productive land, killing and maiming adults and children and interfering with fuel and water collection, communications, transport, and, in general, any serious attempt to lift the level of social and economic activity. Farmers and children are particularly at risk. The Joint Assessment teams noted that a number of UXO had been exposed or displaced by the flooding. Local informants in the provinces of Attapeu, Sekong and Savannakhet, reported seeing UXO: some previously identified, others newly exposed and detected.

Due to the loss of livelihoods, there is extreme danger of UXO being sold as scrap metal for much-needed income. There may well be deliberate searching for more UXO by families, including children, in spite of the known risks. In addition, the need to gather food supplements in the forests and on river banks will bring both adults and children into contact with UXO exposed by flood waters on river banks and in forests.

There is urgent action for clearance of identified UXO, with simultaneous focused and targeted information dissemination on the dangers of UXO. Families should immediately be informed not to touch UXO and to report the UXO locations to the appropriate authorities.

3.6 Impact on education

According to government data and the IASC joint assessment results, a total of 22,895 primary school students (of which 10,302 girls) and 639 teachers have been adversely affected by the storms and floods. Whether experiencing an interruption of the school year, attending school in a temporary location or in schools with damaged floors or walls or without proper classroom furniture, teaching supplies or textbooks, these students and teachers are not able to participate in their right to education in an environment that is conducive to learning.

Data from the Ministry of Education identified 136 primary schools in 16 districts across the five affected provinces that have been either totally destroyed or severely damaged (and hence are structurally unsound) by the storms and flooding. Totally destroyed primary schools are those originally built from largely wooden or straw construction materials. Although the 3,335 children affected by the destroyed schools are continuing their education in temporary makeshift locations, conditions there are often unsafe and unsanitary and the children are at risk from disease, injury and other negative health impacts. 113 of the primary schools constructed with brick and cement suffered damage variously to roof sheeting, cement flooring and walls due to heavy winds and flash flooding. The 19,560 children attending these schools are at risk from disease and injury if the school buildings are not urgently repaired. In addition to the structural damage to schools, there is a need to repair or replace damaged classroom furniture such as student and teachers' desks, benches and cupboards.

Basic school supplies such as A4 notebooks and paper for teachers, chalk, markers and pens and learning materials such as textbooks were also damaged during the storms. There was significant damage to school water supply systems and latrines. This is described in more detail under the Water and Sanitation section of this report.

Table 1: *Affected schools in Southern Laos (source: Ministry of Education)*

Province	**District**	**Number of schools**			**Number of students**
		Partially damaged	**Totally damaged**	**Total**	
Attapeu					
	Saysetha	22	3	25	3,950
	Samakixay	15	2	17	2,938
	Sanamxay	27	3	30	4,595
	Sanxay	2	0	2	595
	Phouvong	2	0	2	398
Champasack					
	Champasack	2	0	2	389
Saravane					
	Saravane	2	0	2	360
	Ta Oy	2	3	5	745
	Samuay	12	10	22	3,575
	Vapi	0	1	1	197
Savannakhet					
	Nong	1	0	1	165
	Sepon	7	0	7	1,503
Sekong					
	Dak Cheung	5	0	5	795
	Kaluem	8	1	9	1,636
	Lamam	5	0	5	856
	Tateng	1	0	1	198
Total: 5 provinces	**16 districts**	**113**	**23**	**136**	**22,895**

3.7 Impact on water, sanitation and hygiene

3.7.1 Water supply

The flash flooding that arrived within hours of the typhoon having reached the Lao-Vietnam border caused notable damage, especially to villages along the Sekong River and other major water courses in the region. Water quality is a major concern in these worst affected areas, where water is either contaminated or not available. There is a great dependence on ground water sources (for all uses) in the low-lying flood affected areas. Most water sources that tap into shallow ground water could not prevent infiltration by the turbid and contaminated floodwaters. This is particularly the case for wells. According to the MICS 2006, 28.3% of communities in the southern region out of the total of 53% using improved drinking water sources utilise boreholes as their main source of drinking water. Many others, however, still depend on surface water, chiefly from rivers. This pattern with respect to improved drinking water sources usage is now disrupted. The assessment also confirmed that a number of facilities, especially borehole hand pumps, were not functioning before the flooding and were in need of repair.

Table: *Summary of damaged drinking water supply systems and latrine facilities*

Provinces	**No. of damaged water supply systems (boreholes with hand pumps and gravity-fed system)**	**No. of schools with damaged water supply and latrines**
Attapeu	27	16
Champasack	6	5
Saravane	20	1
Savannakhet	15	4
Sekong	6	34
Total	**74**	**60**

Assessment data indicate that 74 improved water systems have become unusable due to flooding (see table above). These systems include boreholes with hand pumps and in the more mountainous areas gravity-fed systems. While all five provinces are affected, Attapeu and Saravene alone account for over 63% of the damage.

In schools 60 water supply systems and latrines were inundated by floodwater and are damaged (see table above). These urgently need repair/rehabilitation in order to

enable primary school children and teachers to learn and instruct in schools that provide a safe, hygienic and protective school environment without risk of disease, injury and other negative health impacts.

According to the initial estimates of the Nam Papas (State-Owned Water Supply Enterprises), the overall economic damage to the water infrastructure is high. The urgent and immediate repair and restoration of water and sanitation infrastructure in affected urban and peri-urban areas is necessary. In particular, the emergency repair of water treatment plants is required in several district towns, namely, Samakhixay (Attapeu), Kongsedone (Saravane), Lamam, Thateng, Dakcheung and Kaleum (Sekong). The repair of water networks and other related systems is also of major importance.

3.7.2 Sanitation

Table: *Availability of Latrine Types*

Province	Indirect pit pour flush with pan and pipe					Direct pit pour flush with pan and pipe				Common community latrines		
	Total	Working	Damaged	Destroyed	Total	Working	Damaged	Destroyed	Total	Working	Damaged	Destroyed
Attapeu	579	529	50	0	1527	1148	306	73	2	2	0	0
Champasack	0	0	0	0	404	404	0	0	0	0	0	0
Saravane	619	619	0	0	842	822	20	0	94	6	n/a	n/a
Savannakhet	31	31	0	0	172	138	33	1	5	5	0	0
Sekong	0	0	0	0	135	10	54	71	7	3	4	0
Total	1229	1179	50	0	3080	2522	413	145	108	16	n/a	n/a
Total (%)		95.9%	4.1%	0%		81.9%	13.4%	4.7%		14.8%	n/a	n/a

.

Note: In the table above, totals per category of latrine are those in the 95 villages visited by the assessment teams for which information was in most, though not all, instances available, not the total of units per province. The non-availability of certain data (notably for Saravane Province) also conditions the results tabulated.

The table presents assessment data on the availability of latrines, though not necessarily their use, in the comparatively small percentage of district villages (95 out of over 2,000) where assessment teams were able to collect data. These need rehabilitation along with most building frames constructed around latrines as they were also badly damaged by flood currents. Many latrine units have become blocked with mud in the latrine pan and will not flush; some households are punching holes to create dry pit latrines. Assessment data indicated that people (71.6 of those interviewed by the assessment teams) were forced to resort to open defecation whereas only 28.4% were still using latrines. This is in line with pre-flood sanitation data (2006 MICS 3 data indicate that in Lao PDR the southern region had the lowest level of sanitation coverage, with only 27.7% of households using a sanitary means of excreta disposal in 2006).

In sum, combined with the pre-flood sanitation figures, assessment data denote a deteriorating sanitation condition that is putting the health of these communities at great risk. Under pressure from personal losses and the need to rebuild dwellings,

sanitation and the purchasing of soap is not a priority among the affected households. Household interviews suggest a decline in the practice of hand washing with soap at a time when it is most important. In this connection, it is pertinent that even before the typhoon diarrhea was the second biggest killer of children in Lao PDR and remains a continual, serious threat to children. Assessment data re-confirmed this prognosis by indicating that diarrhea ranked second behind respiratory infections among the major health concerns with 2,814 new cases reported in the affected areas since the flooding. New cases of severe diarrhea/dysentery reported numbered 812.

In addition to this, particular attention should be devoted such as the issues of solid waste management, sewerage drainage cleaning and hygiene education.

3.8 Impact on shelter

Affected Shelter

According to the latest available estimates, the situation of Shelter affected by Typhoon Ketsana remains extremely severe. Data collected during the last Joint Assessment indicate that all types of houses have been heavily damaged.

Firstly, for the category of 'Hut-thatch-bamboo houses' there are damages in five provinces. In Sekong the situation is particularly worrying: of 255 houses, 104 (40.8%) are totally destroyed, 55 (21.6%) partially damaged and 96 (37.6%) have minor damages In Attapeu Province, of 2,499 houses surveyed, 77 (3.1%) are totally destroyed, 168 (6.7%) partially damaged and 2,254 (90.2%) have minor damages.. In Saravane Province, of 492 houses, 12 (2.4 %) are totally destroyed, 6 (1.2%) partially damaged and 479 (96.3%) have minor damages. The provinces of Champasack and Savannakhet were also affected, although the damages were less extensive.

Secondly, the category of 'Wooden houses' reports damages in all five provinces, although on average the extent of damage is less than the 'Hut-thatch-bamboo houses' category. In Sekong Province, of 684 houses, 115 (16.8%) are totally destroyed, 97 (14.2%) partially damaged and 472 (69%) have minor damages. In Attapeu of 1,448 houses, 31 (2.1%) are partially damaged and 1,414 (97.9%) have minor damages. In Saravane Province, of 2,288 houses, 2 (0.1 %) are totally destroyed and all the remaining report minor damages. Champasack and Savannakhet provinces were also affected, though

again with comparatively less damage.

Thirdly, the category of 'Concrete houses' reports damages only in some of the provinces surveyed -- Sekong and Champasack -- and the extent of damage is less than those under the two categories previously analyzed. In Champasack of total number 118 houses, 55 (46.6%) are partially damaged and 63 (53.7%) have minor damages. In Sekong Province, of 39 houses, 12 (30.8%) are totally destroyed, 10 (25.6%) partially damaged and 17 (44%) have minor damages.

More recent data has more accurately targeted locations (by District). It is clear that Sekong Province is the worst affected based on this information. However, both Attapeu and Saravan still have significant numbers of households requiring assistance.

Temporary Shelter Need Households (HH)

Province	District	Shelter Need (HH)
Attapeu	Samakhixay	175
Attapeu	Phouvong	39
Attapeu	Saysettha	128
Attapeu	Sanxay	145
Attapeu	Sanamxay	49
	Sub-Total	**536**
Saravane	Ta Oi	123
Saravane	Samoi	250
	Sub-Total	**373**
Sekong	Lamam	774
Sekong	Kaleum	952
Sekong	Thateng	15
Sekong	Dakcheung	36
	Sub-Total	**1,777**
	TOTAL	**2,686**

Source: Department of Housing and Urban Planning based on survey 24 – 27 October 2009.

Damages have also been reported for schools. Data appearing in this section are from the Joint Assessment (see footnote below)[2]: on average, approximately 35% of the schools in the affected provinces have reported intermediate damage, while about 4% were heavily affected.
Analyzing the situation by province, in Attapeu 15 schools have been moderately damaged (53.6%) and 1 severely damaged (3.6%). In Sekong Province, 4 schools have been moderately damaged (44.4%), while in Saravane Province 2 schools have been moderately damaged (10.5%). In Champasack Province 4 schools have been moderately damaged (66.7%) and 1 severely damaged (16.7%). In

[2] Data are from Joint Assessment Survey whereas figures on school damage reported on in the Education sector analysis are those from the Ministry of Education.

Savannakhet Province, 3 schools have been moderately damaged (15.8%) and 1 severely damaged (5.3%).

With respect to health centers, only some of the affected provinces have reported damages. Looking at the situation more in depth, in Attapeu 2 hospitals have been moderately damaged (33.3%). In Sekong Province, 3 hospitals have been moderately damaged (11.1%), and 2 have been seriously damaged (7.4%), while in Savannakhet Province, 1 hospital has been moderately damaged (9.1%) and 1 seriously damaged (9.1%). In Champasack and Saravane provinces, no hospitals have reported damages.

Local Response

In order to evaluate the adequacy of the local response to the emergency, the capacities and local resources available have been analyzed. The results indicate how, on average, households in the affected provinces do not have the capacities to rebuild their houses without external support.

Available estimates indicate that in Attapeu Province only about 50% of the households affected are in a condition to rebuild at least 3/4 of their own houses. A very similar situation is documented in Savannakhet and Sekong, where approximately only 46% of the households affected can rebuild at least 3/4 of their houses. The situation is less severe in Saravane, where about 20% of the households affected can rebuild at least 3/4 of their houses. Finally, it seems that all the households in Champasack Province are able to rebuild their own houses without external support.

Temporary settlements

The issue of temporary settlement seems to be a challenging aspect in the effort to address shelter recovery requirements in the affected provinces. In general, according to the latest estimates, the vast majority of the people affected by the typhoon still live in the same village as before the catastrophic event.

In Attapeu, 96% of the households are still located in the same village they were living in before the typhoon. In Champasack (Phouvong, Samakkhixay, Sanaxay and Xaysetha Districts) this figure is 75%; in Saravane (Khongxedone, Saravane, Taoi and Vapy Districts) 63%, in Savannakhet (Nong and Sepone Districts) 89% and in Sekong (Kaleum and Lamarm Districts) 83%.

In Attapeu Province, 188 people are reported as displaced and living in other people's houses, 328 are indicated as displaced in schools, 57 are displaced in tents and 84 in other emergency temporary shelter. In Sekong Province, 371 people are reported as displaced in other people's houses, 338 are indicated as displaced in schools, 184 are displaced in tents and 125 in other emergency temporary shelter. In Saravane Province, 2 people are reported as displaced in other people's houses,

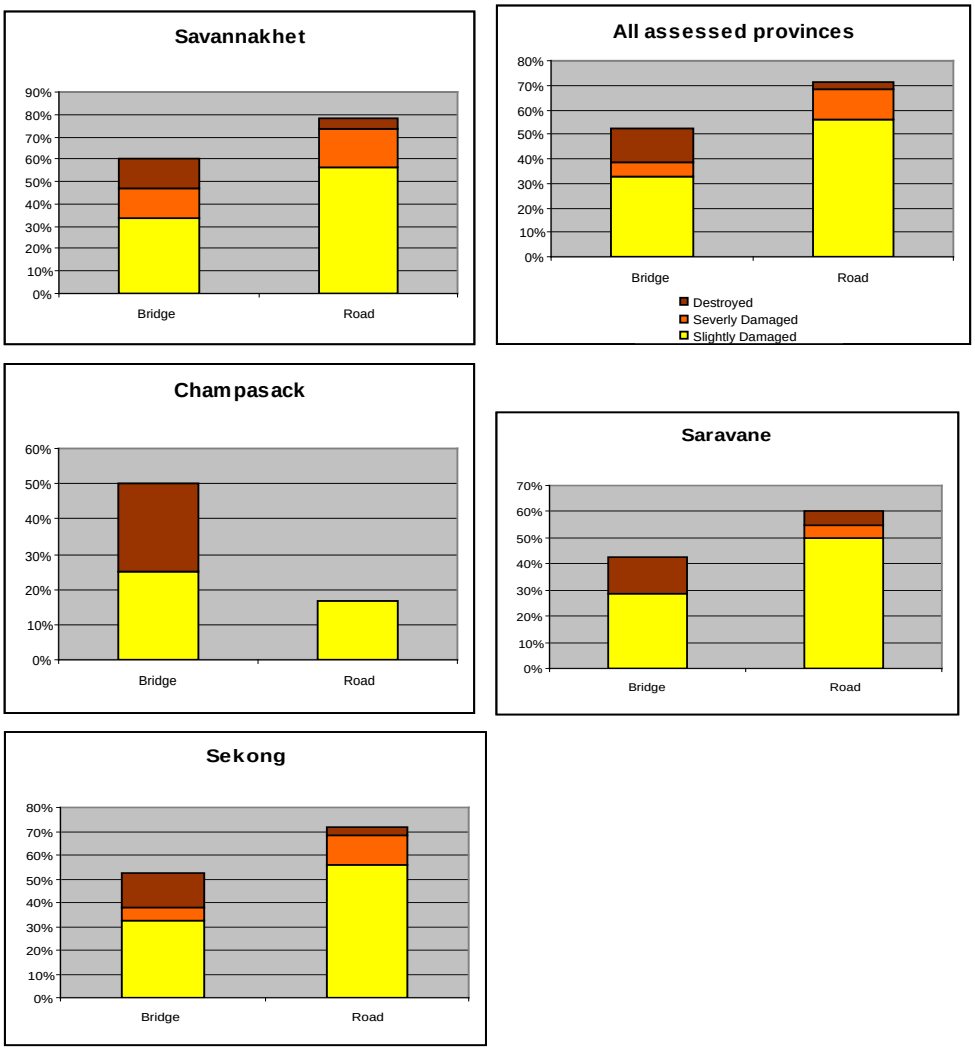
and 3 are indicated as displaced in schools. In Champasack and Savannakhet provinces, on the contrary, no displaced persons have been identified.

These temporary settlements are actually being managed in the majority of cases by the displaced people themselves (34% on average in all the provinces). This is particularly the case for Attapeu and Saravane provinces, while in Sekong Province the Government is playing a stronger role.

In addition, the estimates available indicate that in the provinces affected, on average, 20% of the children in displaced households are no longer going to school. Some displaced people also reported that they are no longer working on their farm and having discontinued their normal employment.

3.9 Impact on access

Figure-1



Some of the most remote and inaccessible provinces are included as part of the assessment. These provinces have a high proportion of unpaved roads. As a result, the floods in the South have caused widespread damage to bridges and roads. As seen above, in figure-1, close to 70% of roads assessed were damaged to some extent. Over 50% of bridges assessed were damaged, with 15% destroyed.

As illustrated in the graphs above, among the five affected districts, Attapeu was the most severely affected province with over 75% of assessed roads destroyed.

Qualitative data obtained through the Joint Assessment indicates that affected communities are in need of technical, material and financial support to undertake repairs and reconstruction works. In the longer term, an accurate damage assessment will provide the detailed information on why infrastructure was damaged

or destroyed, and contribute to efforts to include risk reduction considerations in rehabilitation and reconstruction.

3.10 Impact on Livelihoods (Early Recovery)

The findings of the Government-UN-INGO Joint Assessment confirm the preliminary assessment by the National Disaster Management Office (NDMO) that concluded that Typhoon Ketsana had caused very severe damage. The central and local governments and the affected populations themselves, with assistance from the international community, have done their utmost to meet the most immediate needs. However, it is becoming increasingly important to take measures additional to the immediate priority for life-saving humanitarian interventions. Early recovery efforts are required to enable a return to normalcy, create a better and safer environment ("build back better") and ensure long-term sustainable development.

Early recovery cuts across all the other sectors and is therefore addressed in several sections of this report. This section addresses the disaster's impacts on livelihoods, national and local capacities to coordinate and facilitate humanitarian and early recovery work, and preparedness. Based on the assessment, priority areas for early recovery include: basic infrastructure, housing and shelter; rural livelihoods in the agricultural and fisheries sectors, small businesses and informal sector, public service delivery, and capacity development for disaster management and preparedness.

Typhoon Ketsana damaged and destroyed transportation infrastructure critical to the local people's lives. A report on the damage on rural roads (connecting district centres and villages) by the Ministry of Public Works and Transport of 28 October 2009 indicates that in the three most affected provinces of Attapeu, Saravane and Sekong alone, a total of 656 km of 59 rural roads were affected. It would cost USD 3.9 million to repair all. When also taking into account the damage to district, national and other roads, the overall road reconstruction costs will be much higher. Approximately 50% of the affected villages are located more than 20 km away from the closest district centres. Because of the damages caused to the roads as well as fallen trees, mud, waste and debris, ensuring access to home, farm land, fish ponds, markets and vital social services has become a major challenge. In many areas, humanitarian and development workers cannot access the affected populations.

The assessment estimates that some 45% of those affected by the typhoon are of productive age. The majority (close to 90%) are farmers of rice and other cash crop plantations. Some of them also live on fisheries. Even prior to the disaster, these populations were amongst the poorest in the country.[3] Because Typhoon Ketsana hit before the harvest season and damaged irrigation systems and fish ponds, killed livestock, and damaged houses, the impact on the local economy is enormous. The physical damages to various assets and infrastructure have translated into severe

[3] 54 percent Poverty Headcount Ratio in Saravan, 42 percent in Sekong, and 44 percent in Attapeu (*MDG Progress Report 2008*).

human hardship, including loss of sources of income and adverse impacts on the livelihoods of many thousands, loss of life and injuries, losses of social fabric, and psychological shock from trauma. During the assessment, 41% of the affected farmers responded that they were not able to maintain their livestock activities any more. 59% said they cannot maintain the fisheries and hunting. In addition to those who depend on the aforementioned productive sectors, the assessment indicates that about 10% of the affected populations were engaged in wage-earning business, trade, small business and other informal sector activities. However, more than 60% responded to the assessment teams that due to the typhoon they can no longer maintain their trading business. Moreover, poorer yields and lower income were expected by the affected populations, further threatening livelihoods and food security.

Addressing the impact of the typhoon on the livelihoods of the survivors should constitute the integral part of the early recovery and reconstruction efforts. In order to minimize the expected loss, it is critical to restore the livelihoods as quickly as possible, and its foundation should be laid already from the current emergency assistance phase. The repair and restoration of damaged infrastructure represents an opportunity to provide short term employment and income to the affected populations who lost livelihoods.

The impacts of the typhoon on the poor will likely be greater than for others as they do not have the same social and economic safety nets as the better-off. To ensure that the typhoon's adverse impacts do not push the poor deeper into poverty and the "near-poor" back into poverty should be a priority in the national and international response to this disaster. Also, it is crucial to bear in mind that the large majority of the poor and vulnerable groups in the typhoon-affected areas are in need of support from both *before* and *after* the disaster. Therefore, it is important to make sure that emergency assistance with additional donations and the re-directing of resources from existing projects does not undermine the financing and implementation of a medium-term social protection strategy designed to combat chronic poverty and vulnerability of both the affected and those as yet unaffected.

The magnitude of the typhoon was "unprecedented," as one survivor told the assessment team. The water level rose hour by hour, much faster and higher than many had initially thought. It washed away many assets and livelihoods. This experience highlights the importance of upgrading essential national and local coordination capacities in Lao PDR, a country prone to frequent natural disasters and experiencing the adverse effects of climate change. National and local officials have responded well in the emergency relief phase, coordinating well on the ground; however, often facing a lack of resources (for instance, while mobile phone communication was highly effective, officials incurred the costs directly as there is little funding for such expenses made available to them). Also, there were few staff available at the district level, and those who are there are overstretched. There is a need to consider how to increase the surge capacity in the immediate aftermath of a crisis; this is crucial for ensuring that risks from future disasters are mitigated and

minimized. Some lessons stand out from the Typhoon Ketsana experience. First, current early warning systems need to be revisited. There was indeed an alert made to the local populations in advance; however, the technology-based warning may not have translated well in actual preparedness and pre-emptive actions by and for those at risk. More awareness-raising is needed at the community level. Second, the time required for information-sharing and decision-making between identification of the hazard and implementation of appropriate response measures by the communities at risk needs to be shortened.

The Government and the people seem to face a challenge in making a smooth shift to early recovery and longer-term reconstruction. Key factors delaying this shift to a longer term response include financial constraints, delays in clearing the debris, trees, waste, mud and UXO away from access roads, and the lack of more precise quantitative data on the extent and locations of the damage and losses.

4. Conclusion and proposed actions

4.1 Conclusion

The Typhoon Ketsana of September 2009 poses a serious short-term as well as mid- to long-term threat to the health, welfare, food security, protection and livelihoods especially of the poorest communities affected by them. Families who were at the borderline of poverty are being pushed into poverty 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 Typhoon Ketsana floods have dealt a severe blow to the development prospects of a large part of the southern parts of the country.

4.2 Proposed Actions

4.2.1 Agriculture, livestock and aquaculture

Short Term Response (next 6 months)

Provision of rice, vegetable and corn seeds, farming tools and fertilizers and training in improved farming practices, in particular Integrated Crop Management (ICM) in coming dry season to address the immediate needs of the affected populations and to build towards a sustainable agriculture.

- To increase food availability and help reduce rising food prices food aid assistance (rice) is needed. The Joint Assessment also shows that over 1500

cattle and buffalo and over 25,000 other animals are at risk of disease. Livestock inputs such as medicines, vaccines, vitamins, and syringes are urgently needed.

- Support for animal traction cultivation.

Medium/Long Term Response (6 months and above)
Provision of rice, vegetable and corn seeds, farming tools and fertilizers and training in improved farming practices, in particular Integrated Crop Management (ICM) and seed multiplication. In addition, the issue of improved protection of farm lands from flood waters needs to be examined as part of a long-term disaster risk management system efforts.

- Provision of elevated kitchen garden supplies and seedlings to supplement the dietary needs of affected families. The advantage of elevated kitchen gardens is that they are mobile and can be moved to safety should flood events reoccur.

- Restoration of irrigation stations and canals in the most cost-effective and flood-resistant manner will be a priority in the long-term. Maintenance training should be provided.

- Restoration of fishponds and provision of purchased inputs (fingerlings, etc.) to restore and improve fishponds as a significant source of nutrition and income. A review of the aquaculture sector is necessary to support more sustainable fisheries with a reliable supply of fish seeds, fingerlings and fish to the market.

4.2.2 Food Security

The majority of households in the affected villages have lost most of their food stocks and harvests and have seen their livelihoods severely impacted. In order to meet the immediate needs emerging from this situation, food assistance will be required. The affected population is predominantly farmers and as such will have to wait for next year for the next harvest. Some of the farmers may raise a second crop of rice in November/December on irrigated land. However, irrigated land produces only 14 percent of the total rice production. Different strategies should be applied for food assistance to meet short-term as well as medium term requirements.

Short Term Response (next 6 months)
Targeted food distribution is recommended for 77 percent of the affected population for at least 3 months period in the affected districts. It will help prevent serious food shortages at the household level and will enable them to focus on their livelihoods.

Considering the coping strategies and other livelihood options likely to be pursued by the communities, it is recommended to reduce the caseload to approximately 40 percent of the affected populations after the first three to four months.

Medium/Long Term Response (6 months and above)
Direct food assistance to vulnerable populations, including female headed households, disabled and elderly people with no income sources.

Provide work or cash for work for the targeted populations. A number of essential facilities and services need rehabilitation, where food/cash for work can play an important role by making them food secure on one hand while rebuilding community assets. These activities include, path/road, shelter, irrigation channels, potable water, land development, protection from floods. Such assistance should continue to cover approximately 40 percent of the affected populations.

4.2.3 Health and nutrition

4.2.3.1 Health
The most severely affected provinces are Attapeu and Sekong as well as some mountainous areas in Saravane and Savannakhet provinces. Although the number of deaths and injuries are relatively few, thousands of villagers are at risk of increased morbidity and mortality due to poor nutrition, lack of access to health care services, and the significant risk of increases in vaccine preventable, food and waterborne diseases.

As a result of these findings, the following short and medium/long-term response recommendations are given:

Short Term Response (next 6 months)

- The provision of preventive and curative health care services to affected populations, including basic maternal and child health services, is urgently required. Mobile teams should be deployed to routinely visit affected villages in order to provide: a minimal level of preventive and curative care; health education on hygiene; the use of abate to control mosquitoes; vaccination of children and women; distribution of clean delivery kits and contraceptives; Vitamin-A and de-worming medicines for children and postpartum women; iron/folate acid supplementation for pregnant and lactating women; insecticide impregnated bed nets to families in the most affected areas for the prevention of vector borne diseases; treatment of diarrhoeal diseases with oral re-hydration salts (ORS); monitoring of the nutritional status of children under five; active disease surveillance and response for all cases presenting symptoms ranging from Influenza-Like-Illness (ILI) to acute respiratory infection/pneumonia, diarrhoea, dengue fever, measles (fever and rash). It is essential to establish active surveillance and response teams for the detection, treatment and prevention of diseases, including vaccine-preventable ones that may develop as a result of the flooding and the consequent disruption to water supply and sanitation systems. Surveillance data must be analyzed frequently to detect outbreaks and to plan appropriate responses.

- Ensuring that families have access to ORS, which could be distributed through health mobile teams and, conditions permitting, possibly stocked at the village level.
- Medicines, antibiotics against acute respiratory infection, diarrhoeal diseases as well as insecticide treated bed nets are the most urgent needs. 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 for possible outbreaks.
- Existing stocks of vaccines, contraceptives, supplies and cold chain equipment will be used to cover the immediate needs.
- Provision of risk communication materials emphasizing basic hygiene and disease prevention is also critical. Organizing communication activities will be also required to ensure diffusion of health messages on life-saving measures (diarrhoea prevention and proper home treatment, prevention of vector born diseases, disease prevention, etc).
- Environmental vector control measures (i.e., abate and adulticide treatments to reduce vector burden of dengue and malaria-carrying mosquitoes) for displaced persons living in overcrowded conditions.
- According to WHO guidelines, mass drug administration for lymphatic filiariasis should be started as soon as possible. For malaria and dengue fever, rapid diagnostic tests and anti-malarial drugs are needed for all five provinces. These interventions are essential for preventing the recurrence of numerous vector-borne diseases in flood-affected areas.

Medium/Long Term Response (6 months and above)

- Renovation of health facilities in locations judged safe from future flooding events and replacement of damaged medical equipment and supplies to enable the provision of health services.
- Strengthen communicable disease surveillance system for the prevention and control of disease outbreaks.
- The existing village drug revolving funds need to be re-established.
- Continued support for maternal and child health via health promotion and access to nutrition in order to improve communities' health status.
- Introduction of zinc and other essential vitamin supplementation in conjunction with diarrhea treatment.

4.2.3.2 Nutrition

Short Term Response (next 6 months)

The nutrition response strategies and proposed activities will focus on quick impact interventions and will be in line with the National Plan of Action on Nutrition. These interventions include:

- Distribution of Vitamin-A, de-worming and iron-folic acid tablets through an integrated package of health and nutrition outreach services to children 0-59 months and post-partum women as relevant;
- Promotion of exclusive breastfeeding through counselling and support from trained health staff and village volunteers to support breastfeeding mothers;
- Expansion of multiple micronutrient powder (MNP/sprinkles) supplementation for children under five accompanied by capacity development for health staff and village volunteers;
- Provision of Ready-To-Use therapeutic food for treatment of severe acute malnutrition of an estimated 500 children along with technical capacity-building for health providers and community members;
- Zinc supplementation in conjunction with diarrhoea treatment;
- Promotion through communication and advocacy of exclusive breastfeeding practices under emergency conditions;
- Organization of Information-Education and Communication (IEC) activities to ensure the dissemination of nutrition messages (diarrhoea prevention, appropriate complementary feeding, the use of micronutrient powder, identification of severe acute malnutrition, etc.);
- Assessment of nutrition situation of children and women through implementation of nutrition surveys with technical assistance in anthropometry measurement from WHO.

Medium/Long Term Response (6 months and above)

- Continuation of nutritional surveillance at health facilities and possibly with outreach teams on a routine basis;
- Ensuring that Vitamin-A supplementation and de-worming continue through the Child Health Days and if necessary continue providing multiple micronutrient sprinkles;
- Provision of Vitamin-A to health centres for the case management of diarrhoea, acute respiratory infections (ARI), etc.;
- Supporting the MoH in the provision of integrated health outreach services to children and women, including immunization, antenatal and postnatal care, family planning, Vitamin-A and iron supplementations, de-worming and curative services;
- Monitoring of the availability and consumption of iodized salt;
- Provision of appropriate nutrition education for exclusive breastfeeding, complimentary feeding with continuation of breastfeeding to 2 years and beyond and pregnant/lactating women's nutrition.

4.2.4 Protection

Short Term Response (next 6 months)

- Immediate clearance of UXO prioritizing schools, health centres and those found close to residential areas;
- Focused and targeted information dissemination on the dangers of UXO (Mine/UXO Risk Education);
- Clearance of exposed UXO at the earliest opportunity to reduce the risk of scrap metal gatherers' moving or disarming bombs exposed by the flooding;
- Further field work to determine the extent of the psychosocial impact on children; structured activities such as group play and non-formal learning activities and monitoring of vulnerable families within the community;
- Provision of counselling and other forms of support through recreational child friendly activities and the use of psychosocial rehabilitation support materials;
- Immediate and continued efforts to prepare communities for the effects of potential disasters on children and other vulnerable groups so that they may be more prepared to deal with the likely emotional and other psychological consequences.

Medium/Long Term Response (6 months and above)

- While supporting activities to nurture coping mechanisms amongst children, support awareness-raising activities on the risks of abuse, violence and exploitation during and after disasters, particularly in the event of the loss of livelihoods and income.

- Support gatherings of women and girls in affected areas to discuss specific needs and concerns arising from the floods. Where feasible, child protection networks will be the operable mechanism. Where these do not yet exist, groups of women and children will be brought together with support from the LWU.

- Develop capacity-building among service providers, including LWU, Ministry of Labour and Social Welfare (MLSW) and I/NGOs on the risks of trafficking, violence and abuse.

- Continued monitoring and early mine action/UXO actions to avert loss of life and injury in particular support to re-establishing infrastructure such as bridges and fording sites as these were often the targets of intense aerial bombardment during the war on or in proximity to the Ho Chi Minh trail.

4.2.5 Education

The proposed strategy of the education sector is to support the provision of emergency school repair materials and furniture. Basic school supplies such as A4 notebooks and paper for teachers, chalk, markers and pens and learning materials such as textbooks will be replaced through Ministry of Education resources. The Provincial Education Service in each of the five provinces will submit a detailed list of the school repair materials, furniture, and basic school supplies required. Once the

materials are procured and transported to the district level, the Village Education Committee will organize community members to volunteer their time and skills to implement school repairs and distribute furniture and basic supplies. Provincial Education Service engineers will monitor the work of the community to ensure the repairs are completed in a timely fashion and are of good quality.

The Water and Sanitation cluster, in close collaboration with the Education cluster, will be responsible for rehabilitating the water supply systems and school latrines in the totally destroyed and severely damaged schools.

Short Term Response (next 6 months)
To procure and transport essential supplies for school repairs (roofing sheets, cement, gravel, sand and bricks) and classroom furniture (student and teachers' desks and cupboards) for 23 totally destroyed wooden and straw primary schools across 7 districts in Attapeu, Saravane and Sekong provinces.

As funding allows, begin reparation work among the 113 severely damaged brick and cement primary schools in 15 districts across the five provinces.

These actions will be done in conjunction with emergency response activities undertaken by UNICEF and its programme partners in the water and sanitation sector to repair/rehabilitate damaged water supply and latrine systems in order to enable primary school children and teachers to learn and instruct in schools that provide a safe, hygienic and protective school environment without risk of disease, injury and other negative health impacts.

Medium/Long Term Response (6 months and above)
As funding becomes available, the remaining schools will receive school repair materials and furniture, with each province prioritizing the most severely damaged schools according to the assessment.

4.2.6 Water, sanitation and hygiene

Short Term Response (next 6 months)

- At least 20 litres of safe drinking water needs to be secured for each affected family per day. This drinking water can be ensured through the distribution of storage containers and provision of chlorine tablets and simple leaflets to guide usage.
- Soap, coagulants and hygiene flyers promoting hand washing are high priority supplies for affected households and villages.
- Communication activities to promote hand washing with soap, clean drinking water use and rehabilitation of sanitation facilities.
- Rehabilitation of damaged community and school water supply and sanitation systems, especially the restoration of borehole hand pumps in the worst affected areas.

- Rehabilitation of gravity fed systems and distribution of spare parts for hand pumps, cleaning and disinfection of bore holes, and provision of coagulants to treat turbid water..
- Support to local Ministry of Health water and sanitation staff (Namsat) in rebuilding their office capacity to enable effective monitoring and reporting on conditions in affected villages and also progress in conducting response work.

Medium/Long Term Response (6 months and above)

- Support capacity building for provincial Namsat in their role of facilitating service delivery and planning for flood affected areas.
- Capacity building on cluster approach for WASH emergency preparedness and response.
- Community-based disaster reduction management.

4.2.7 Impact on shelter

General

- Enhance coordination mechanism of the shelter cluster and mapping of actors in the cluster.
- The current experience of disaster management and emergency response should be documented, and lessons learned after Typhoon Ketsana should be incorporated in the design of a more effective response system in case of future emergencies.
- Assessment of potential need to provide safer settlements for the populations affected by the typhoon has to be undertaken. Many destroyed or heavily damaged houses previously located near the river banks and in lowland areas could be for the time being relocated on higher grounds and at greater distance from the river. This action implies a serious effort of coordination between the communities and District/Provincial authorities.
- Capacity building initiatives on disaster prevention should be undertaken for district and provincial authorities to enable them to adequately respond to such crises.
- District and Provincial Authorities should be encouraged to store stocks of non-food items and other temporary emergency relief items.
- Strengthen the Shelter Cluster and better coordinate all the relevant stakeholders involved in this specific sector of intervention.

Short Term Response (next 6 months)

- *Verification of beneficiaries:* prior to distribution of support packages, beneficiary families will be assessed and confirmed to match accurately their crucial shelter needs;

- *Distribution of emergency and shelter materials:* packages of shelter materials (*in-kind only)* will be distributed to families identified and verified. The Department of Public Works and Transport (DPWT), the Lao Women's Union and other NGO partners will provide information about this programme to the

selected beneficiaries in liaison and with the mediation of local officials and relevant authorities;

- *Experience documentation:* emphasis will be given to documenting the process of implementation including photographic documentation for the purposes of record-keeping, reporting and dissemination of information and project achievements.

Medium/Long Term Response (6 months and above)

- *Funding for house repair or reinforcement*: to enable households to restore housing structure damaged by the flood and provide a safe environment to live;
- *Resettlement*: examine options for small-scale resettlement within existing villages to less natural disaster prone locations;
- *Funding to repair small community infrastructure*: most small community infrastructure such as schools, multi-purpose centers, alleys, or drainage covers were damaged by the flooding and require repair. The mud covering roads and the debris brought by the floods need to be cleared using trucks and other light to heavy equipment. Funding will give the affected communities leveraged support to secure assistance from the local government and other agencies.

4.2.8 Access

Short Term Response (next 6 months)

- Emergency repair of damaged infrastructure and facilities is needed to ensure that relief assistance in delivered in a timely manner.

Medium/Long Term Response (6 months and above)

- Detailed damage assessment to provide the necessary information in why infrastructure was damaged or destroyed.

4.2.9 Livelihoods (Early Recovery)

Short Term Response (next 6 months)

- Restoration of livelihoods and income generation through Cash-for-Work infrastructure rehabilitation;
- Support to debris clearance and environmental clean-up;
- Improving access to means of economic activities and reintegration (including repairs of roads and bridges);
- Basic rehabilitation of public service facilities (such as government offices, community centres, communication facilities, etc.) and provision of material and equipment (i.e., office equipment), using local technologies, construction materials, local know-how for a direct positive impact on the local economy;
- Provision of support to the active participation of women and women's organizations in all aspects of early recovery planning and implementation;

- Awareness-raising and capacity development of communities and authorities to identify and promptly address sexual and gender-based violence in the aftermath of the crisis;
- Promotion of HIV/AIDS prevention activities;
- Rapid mapping activities: hazard mapping; structural/environmental damage assessment;
- Support to national/local institutional capacity development for disaster risk management and humanitarian/recovery coordination;
- Support for planning for early economic recovery and provision of policy advice to national/ local governments on livelihoods restoration plans and social services;
- Support to national/local governments for developing a strategy and action plans to deal with the anticipated mid-term/longer term impacts on livelihoods caused by the damage.

Medium/Long Term Response (6 months and above)

- Introduction of social and community-based safety nets for vulnerable people;
- Promotion of improved land and natural resources management techniques to prevent soil erosion and exhaustion;
- Policy advice on alternative and affordable building technologies for repair and reconstruction that will improve building and planning standards;
- Identification of options for affordable and environmentally sustainable building materials;
- Support to development of national/local institutional capacity and legal system for disaster risk prevention and mitigation for enhanced preparedness for future crises (e.g., early warning).

Annex 1 – List of Provinces, District, and Villages visited

Attapeu	**30**
Phouvong	**6**
Chalong	1
Chienghieng	1
Khamvongsa	1
Viengxay	1
Vonglakhone	1
Vongxay	1
Samakkhixay	**6**
Kasom	1
Kxemzang	1
Meungmay	1
Sekong	1
Sok	1
Xaysaath	1
Sanamxay	**6**
Chomphoy	1
Donephay	1
Hatphila	1
Hatxaikham	1
Kxang	1
Oudomxay	1
Sanxay	**6**
Dakhiet	1
Doneken	1
Hiendam	1
Mai	1
Tatkuem	1
Tatseng	1
Xaysetha	**6**
Hatsan	1
Kengsay	1
Saakxe	1
Somkot	1
Tuay	1
Xaisy	1
Savannakhet	**24**
Nong	**6**
Danvilay	1
Oy	1
Pariengkouang	1

Saravane	**23**
Khongxedone	**6**
Hatxaikham	1
Houazou	1
Naphoulao	1
Nonghoy	1
Thoungxe	1
Vanghang	1
Saravane	**6**
Beaungkxam	1
Beaungxay Neua	1
Danxai	1
Dongnong	1
Nongxai	1
Thongnakham	1
Ta oi	**5**
Chotay	1
Hookayo	1
Paten	1
Phobeuy	1
Talunglalao	1
Vapy	**6**
Bangkha Nam	1
Houakhone	1
Nalaong	1
Namouang	1
Saphat	1
Vapy Neua	1
Sekong	**12**
Kaleum	**6**
Bak	1
Hatvi	1
Kengkien	1

Paror	1
Poontong	1
Yang	1
Phine	**6**
Kengxay	1
Pasit	1
Phay	1
Phonexe	1
Vongsykeo	1
Yang	1
Sepone	**5**
Dongsavanh	1
Houasane	1
Kadap	1
Katoop	1
Skiphine	1
Vapy	**1**
Dongxai	1
Xonbuly	**6**
Mueunghome	1
Noneyang	1
Nongboualuang	1
Nongpham	1
Phonetan	1
Tangwai Nam	1

Kengkoiu	1
Kung	1
Trak	1
Lamarm	**6**
Heung	1
Kengluang	1
Mo	1
Pakboun	1
Pakthon	1
Songkone	1

Champasack	**6**
Champasack	**6**
Banhai	1
Huasahoua	1
Kangyeng	1
Meungseng	1
Phaphine	1
Phoxay	1

Annexure-3

Government of Lao PDR

Joint Assessment – Village Checklist

1. Assessment Information (to be filled in by the team leader)

1.1 Dates of Assessment: From _____ to _____

1.2 Assessment Team

	Name and Surname	Organization	Contact Details
Team Leader			
Team Members (enumerators)	- - - -		

1.3 Place of the assessment

	Name	Code (Source: DOS)
Province		
District		
Village		
Village GPS Coordinates	North:	East:

1.4 What are the main ethnic groups in the village? (ask the village chief)

1.5 Is this the most affected village in the area? ☐ Yes ☐ No If no name the most affected place _____

1.6 Distance/time of travelling of village from the district center	Currently __ KM _____ hours Normal __ KM _____ hours
1.7 At this time the village can be accessed by (multiple answers)	☐ truck ☐ car/four wheel drive ☐ Tak Tak ☐ Motorbike ☐ boat ☐ on foot only

1.8 Describe how the information was collected in this village Group interview of key informants (with several key informants at the same time). Always include women in the group and the discussion (fill in afterwards)

Tick if done				
☐ Village Walk				
☐ Key informants interview	Number of Key informants interviewed	|__| people	Function of Key informants interviewed (circle)	1= Village chief, 2= head of the elders 3= LWU representative 4=LFNC representative 5=head of the young 6=teacher 7=other: _____
☐ Typical Households	Number of typical households interviewed	|__| HH		
☐ Special Households	Number of special households interviewed	|__|HH	Describe main characteristics of the special households	_____ (eg: female headed household, HH with disabled family member, HH with no labor force, elderly)

1.9 Note any difficulties in collecting information in this village (fill in afterwards)

2. General Impacts on the Village and Basic Services (ask the village chief)

2.1 Brief history and extent of the disaster (When was the village flooded, for how long, what happened, when?) (Filled in by team leader)

2.2 Main damages in the village (observation and discussion with key informants)

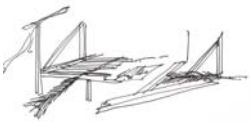
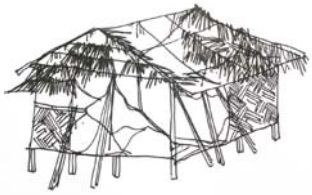
	Existed in the village before the flood (Tick box if yes)	Damage after the flood (Tick box if yes)			
		No damage	Slightly damaged	Severely damaged	Destroyed
Infrastructure/Facilities					
Bridge	☐	☐	☐	☐	☐
Road	☐	☐	☐	☐	☐
Foot path	☐	☐	☐	☐	☐
School	☐	☐	☐	☐	☐
Health Centre	☐	☐	☐	☐	☐
Temples	☐	☐	☐	☐	☐
Public Latrines	☐	☐	☐	☐	☐
Sewages	☐	☐	☐	☐	☐
Basic Public Services					
Electricity/telephone lines	☐	☐	☐	☐	☐
Drinking water supply	☐	☐	☐	☐	☐
Private Properties/Assets					
Shops/small businesses	☐	☐	☐	☐	☐
Agricultural land	☐	☐	☐	☐	☐
Irrigation systems	☐	☐	☐	☐	☐
Fish ponds	☐	☐	☐	☐	☐
Other (esp.)	☐	☐	☐	☐	☐

3. Affected People (Ask key informants and check with some households)

Numbers of people affected/not affected	Displaced	Missing	Dead	Injured	Total (village)
Male					
Female					
Total					
Children<5 years					
Children>5 and <18 years					
Pregnant or lactating women					
Persons with disability					
Elderly above 60 years					
3.4 Is the affected population in the village expected to grow?				**Yes ☐**	**No ☐**

4 Shelter and Displaced People

4.1 Affected shelter (ask key informant and check during village walk)

Type of houses in the village	Estimated number of houses in the village before flood	 Number of houses that are totally destroyed	 Number of houses that are partially damaged	 Number of houses that have little or no damage
Mostly hut Thatch, bamboo	__|__|	__|__|	__|__|	__|__|
Mostly Wood	__|__|	__|__|	__|__|	__|__|
Mostly concrete	__|__|	__|__|	__|__|	__|__|
Total	__|__|	__|__|	__|__|	__|__|

4.2 Do the villagers have the capacity and resources to rebuild the houses?	☐ Yes	☐ No

If yes, asking how many people rebuild/repaired their houses_____?

Answer the following only when there are displaced people , other wise go to section 5

4.3 Are these displaced villagers still living in the village now?		☐ Yes	☐ No
4.4 Where are these displaced villagers living now?			
Type of Buildings used for temporary settlement **in the village**	Number of people in the temporary settlements today		
Other's house	__|__|		
Temple	__|__|		
School	__|__|		
Other public building	__|__|		
Open air	__|__|		
Other:_____	__|__|		
4.5 Is there enough space for the displaced people in the temporary settlements?		☐ Yes	☐ No

4.6 Who is managing the settlements for the displaced people?

□ Government
□ Local community member
□ by displaced people themselves
□ other (Specify……..)

4.7 Do the displaced people in the village currently have adequate access to the following?

	No, Not at all	Yes but not sufficient	Yes and adequate
Health care including medicines	☐	☐	☐
Food	☐	☐	☐
Improved drinking water sources	☐	☐	☐
Latrines	☐	☐	☐

Describe any specific needs below:

4.8 Are the displaced children still going to school?	☐ Yes	☐ No
4.9 Are the displaced people still working on their farms?	☐ Yes	☐ No
4.10 Are the displaced people resuming normal employment?	☐ Yes	☐ No

5. Non-food items (ask key informants and Households especially women)

5.1 Are the below items available in the village?

	Tick if Available before the flood	After the flood are the items available?		
		No, Not at all	Yes but not sufficient	Yes and adequate
Pots/Pans/Cooking Utensils	☐	☐	☐	☐
Cooking Stove	☐	☐	☐	☐
Dishes/Cutlets ,	☐	☐	☐	☐
Plastic sheet/ shelter materials	☐	☐	☐	☐
Blankets	☐	☐	☐	☐
Jerry Cans/ buckets	☐	☐	☐	☐
Soaps	☐	☐	☐	☐
Other essential items like towels, slippers, sanitary materials e.a	☐	☐	☐	☐
Impregnated Mosquito nets	☐	☐	☐	☐

6. Water and Sanitation (ask key informants and Households, especially women)

6.1 What is the main water source for washing in the village?

Main water source for washing (Tick all that apply)	Distance from village centre (km)	Distance from village (minutes on foot)	Is there sufficient water to wash?	How has it been affected by the flood? (1=not affected, 2= damaged, 3= destroyed, 4=contaminated)
☐ Piped water ☐ River ☐ Lake ☐ Pond ☐ Well ☐ Hand pump ☐ Rain Water Tank ☐ None ☐ Other_____			☐ Yes☐ No	

6.2 What is the main source of drinking water in the village?

Main source of drinking (select all that apply)	Distance from village (km)	Distance from the village (minutes on foot)	Is there sufficient water in the village to drink?	How has it been affected by the flood? (1=not affected, 2= damaged, 3= destroyed, 4=contaminated)
☐ Piped water			☐ Yes☐ No	|_|
☐ Bottled water			☐ Yes☐ No	|_|
☐ River			☐ Yes☐ No	|_|
☐ Lake			☐ Yes☐ No	|_|
☐ Pond			☐ Yes☐ No	|_|
☐ Well			☐ Yes☐ No	|_|
☐ Hand pump			☐ Yes☐ No	|_|
☐ Rain Water Tank			☐ Yes☐ No	|_|
☐ None			☐ Yes☐ No	|_|
☐ Other_____			☐ Yes☐ No	|_|

6.3 Is the water suitable to drink?	☐ Yes	☐ No, because	☐ Germ ☐ Muddy ☐ Bad taste ☐ Bad smell ☐ Other_____
6.4 Do villagers boil the water before drinking?	☐ Yes	☐ No	☐ Only sometimes
6.5 Are water tanks available?	☐ Yes, how many_____ Size (m3) _____	☐ No	
6.6 Where do most people defecate?	☐ Open air	☐ Go to latrine	

6.7 What are the available latrine types?

Available latrine type	Number in the village	Condition after the flood:
☐ Indirect pit pour flush with pan and pipe ☐ Direct pit ☐ Common community latrine	|_||_
_		_
_||_|	☐ Working_____☐ Damaged_____☐ Destroyed_____☐ Contaminated_____ ☐ Working_____☐ Damaged_____☐ Destroyed_____☐ Contaminated_____ ☐ Working_____☐ Damaged_____☐ Destroyed_____☐ Contaminated_____

6.8 question applies to settlement situation only) if not go to Q7 Are latrines for men and women separated?	☐ Yes	☐ No
6.9 Do latrines for women provide adequate privacy and safety?	☐ Yes	☐ No

7. Health and communicable diseases (ask village health worker, and or head of village)

7.1 Have the health facilities in the area been affected by the floods? ☐ Yes ☐ No

Main health facilities	Distance from village Average time to get there (hours)	Accessible and functioning for the villagers before the floods		Accessible and functioning for the villagers after the flood					
		Yes	No	Yes	No				
Central/provincial hospital		☐	☐	☐	☐				
District hospital		☐	☐	☐	☐				
Health Center		☐	☐	☐	☐				
Private clinic		☐	☐	☐	☐				
Village Drug Revolving Fund		☐	☐	☐	☐				
Others		☐	☐	☐	☐				

7.2 How many functioning village health workers are there in the village? |__||__| village health workers

7.3 Main health concerns and number of people currently affected

	Currently		Total new cases since the flood	
	Children under 5	Children above 5 and adults	Children under 5	Children above 5 and adults
☐ Diarrhoea:				
☐ Severe Diarrhoea/Dysentery (bloody stool):				
☐ Respiratory infection (Fever and cough):				
☐ Fever & Rash (i.e. Measles):				
☐ High Fever (i.e.Flu:				
☐ Skin problems (i.e. rashes, exzema)				
☐ Eye infections/ Conjunctivitis (Red Eye)				
☐ Trauma / Injuries				
☐ Other Infections, specify:				

7.4 Are the following medicines and medical supplies available in the village?

	No, Not at all	Yes but not sufficient	Yes and adequate

Basic essential drugs/supplies: Dressings (antiseptic, syringes, bandages, cotton wool, paracetamol)	☐	☐	☐
ORS and intravenous fluids	☐	☐	☐
Abag (mosquito repellant	☐	☐	☐
Antibiotics	☐	☐	☐
Antibiotic Eye Drops	☐	☐	☐
Condoms	☐	☐	☐
7.5. Are the following medical supplies accessible to the villagers (HC, district hospital and/ or mobile team)			
	No, Not at all	Yes but not sufficient	Yes and adequate
Viitamine A capsules,	☐	☐	☐
iron supplement,	☐	☐	☐
Malaria treatment	☐	☐	☐
de-worming tablets	☐	☐	☐
contraceptives (OC and condoms)	☐	☐	☐
Available milk and feeding bottles for infants of HIV positive mothers	☐	☐	☐
7.6 What the village targeted during the measles, If data is readily available please record % of children between 9 months and 15 years who had measles immunization (got the vaccine)			☐ Yes ☐ No ------- **(%)**
7.7 How does the village currently deal with bodies of dead people?	Buried ☐	Burned ☐	Unable to bury or burn due to difficult conditions ☐

8. Household food security (ask key informants and check with household interview)			
8.1 What are the main sources of food for the villagers before the flood?			
Main sources of food (rank as 1, 2, 3 …)			Has the amount of food that the villagers can access from each source changed since the floods?
Own production	|_|		☐ Same as before ☐ decreased ☐ increased
Market purchase	|_|		☐ Same as before ☐ decreased ☐ increased
Collect in the forest	|_|		☐ Same as before ☐ decreased ☐ increased
Fishing and hunting	|_|		☐ Same as before ☐ decreased ☐ increased
Help from family and friends	|_|		☐ Same as before ☐ decreased ☐ increased
Loan			☐ Same as before ☐ decreased ☐ increased
Other: _____			☐ Same as before ☐ decreased ☐ increased
8.2 Are food markets functioning and accessible?	☐ Yes	☐ No	
8.3 Have food prices in the local market increased since the flood?	☐ Yes	☐ No	☐ Don't know

8.4 Has the village lost any rice stocks as a result of the flood?	☐ Yes		☐ No Skip to 8.6	
8.5 What percentage of households lost their rice stocks due to the flood?	Completely |__|__|% HH		Partially |__|__|% HH	Did Not |__|__|% HH
8.6 Is the village food secure in normal year? (i.e. produce enough food and/or collect enough food from forest and/or able to purchase sufficient food for household consumption in the village)	☐ Yes	☐ No	☐ Don't know	
8.7 Do Villagers have rice to eat now?	☐ Yes	☐ No	☐ Don't know	
8.8 How long will the current rice stock in the village last?	|__| < 1 week	|__| < 1 month	|__| < 3 months	|__| > 3 months
8.9 Do Villagers have other foods to eat now?	☐ Yes	☐ No	☐ Don't know	

8.10 As a result of the flood, are any of the villagers adopting any of the following coping strategies? (ask key informants and villagers)

- ☐ Reduce the number of meals per day for some (or all) people in the households
- ☐ Reduce the amount of food to eat for each meal
- ☐ Eat less preferred foods/quality
- ☐ Increase in borrowing for consumption purposes
- ☐ Sell off household assets (cooking utensils, jewellery etc.)
- ☐ Sell off productive assets (tools, animals, machinery, land)
- ☐ Migrate to other locations to secure food
- ☐ Reliance on emergency support
- ☐ No problem

9. Agriculture (ask village chief and check with farmer key informant, some farmer HH)

9.1 Have agricultural crops been affected by the flood in the village?	☐ Yes		☐ No
Crop grown in the village before the flood (Rank in order or importance for the village)	% of fields with production lost totally and land not usable anymore this year	% of fields with production lost partially	% of fields with production not lost
|__| Rice lowland |__|__|ha	|__|__|%	|__|__|%	|__|__|%
|__| Rice upland |__|__|ha	|__|__|%	|__|__|%	|__|__|%
|__| Cassava |__|__|ha	|__|__|%	|__|__|%	|__|__|%
|__| Corn |__|__|ha	|__|__|%	|__|__|%	|__|__|%
|__| Vegetable gardens |__|__|ha	|__|__|%	|__|__|%	|__|__|%
|__ |Cash crop: _____ |__|__|ha	|__|__|%	|__|__|%	|__|__|%
|__| Other:_____ |__|__|ha	|__|__|%	|__|__|%	|__|__|%
9.2 Have any of the fields been permanently damaged? (cannot be used anymore)		☐ Yes |__|__|%	☐ No
9.3 Has the village lost any seed stocks as a result of the flood?		☐ Yes	☐ No
9.4 Have livestock animals been injured or killed because of the flood? (buffalo, cows, goats, poultry):		☐ Yes	☐ No

	Approximate number of animals before the flood	Number killed in the flood	Number injured in the flood	Number of animals sick since the flood
Buffalo	|__|__|	|__|__|	|__|__|	|__|__|
Cow	|__|__|	|__|__|	|__|__|	|__|__|
Goat	|__|__|	|__|__|	|__|__|	|__|__|
Poultry	|__|__|	|__|__|	|__|__|	|__|__|
Other:_____	|__|__|	|__|__|	|__|__|	|__|__|

9.4 What is the main impact of the loss of livestock for the villagers?

☐ Reduced meat for immediate consumption
☐ Reduced animal traction
☐ Reduced transportation
☐ Loss of savings
☐ Other:_____

9.5 How does the village currently deal with carcasses of dead animals ?	Buried ☐	Burned ☐	☐ Other_____

10. Livelihoods (ask key informant and check with some HH)

10.1 What are the main livelihood activities of the households in this village?

Main livelihoods in the village	Estimate % of households with this main livelihood activity in the village	After the floods, are the households able to maintain their activity?		
		Yes	Partially	No
☐ Crop farming	__|__|%	☐	☐	☐
☐ Livestock	__|__|%	☐	☐	☐
☐ Wage labour	__|__|%	☐	☐	☐
☐ Fishing and hunting	__|__|%	☐	☐	☐
☐ Trade	__|__|%	☐	☐	☐
☐ Collect forest products	__|__|%	☐	☐	☐
☐ Others	__|__|%	☐	☐	☐

11. Protection (ask village police focal point and other key informants, Lao Women's union…)

11.1 What are the major risks for the villagers (select all that apply):

☐ Theft
☐ Domestic violence
☐ Risk of Trafficking
☐ Severe distress children / adults (e.g. fear, nightmares, bedwetting, crying, seclusion, depression)
☐ Rape or sexual abuse
☐ People needing special care, disabled, mentally ill etc.
☐ Other: _____

11.2 What are the major risks for children in the village (select all that apply):

☐ Separated/ Orphan/ Unaccompanied Children
☐ Missing children
☐ Rape or sexual abuse
☐ Children needing emergency or special care
☐ Children in danger of dying
☐ Children affected by disability
☐ Any additional child protection concerns: _____

12. Education (if available ask the teacher)

12.1 What schools were there in the village before the floods?

Type of schools in the village	Name of school	Number of grades in the village before the flood	Number of children enrolled in the school before the flood		
			Boys	Girls	Total
Primary school	_____	__|__grades	__|__	__|__	__|__
Secondary school	_____	__|__ grades	__|__	__|__	__|__

12.2 How many schools are currently occupied by affected families (displaced villagers)?
|__||__| schools

12.3 How have the schools been affected by the floods?

	Not available before the flood	Available before the flood			
		Totally destroyed	Damaged and cannot be used in present condition	Damaged and can be used with some light maintenance	Not affected
Access to the school		☐	☐	☐	☐
School buildings		☐	☐	☐	☐
School furniture and teaching materials (Black boards, books…)		☐	☐	☐	☐
Materials for the children (Text books, pencils, book bags, note books etc.)		☐	☐	☐	☐
School water supply		☐	☐	☐	☐
School latrines		☐	☐	☐	☐

12.4 If the school is damaged, is there an adequate alternative learning place?	☐ Yes	☐ No
12.5 If the school is damaged, are the teachers as well as villagers willing to volunteer to reconstruct the school?	☐ Yes	☐ No

13. UXO			
14.1 Have you noticed any displaced UXO?			
Rice field	☐ Yes	☐ No	If yes, how many_____
Other agricultural land	☐ Yes	☐ No	If yes, how many_____
Forest	☐ Yes	☐ No	If yes, how many_____
Road/path	☐ Yes	☐ No	If yes, how many_____
Village	☐ Yes	☐ No	If yes, how many_____
River	☐ Yes	☐ No	If yes, how many_____
River bank	☐ Yes	☐ No	If yes, how many_____
Other, specify_____	☐ Yes	☐ No	If yes, how many_____

14. Partnerships and Participation (ask key informants)

14.1 Is the village currently receiving any assistance?	☐ Yes	☐ No

14.2 If yes, who is providing what?

Government i.e. Min of Defense, NMDO, and/ or including mass organizations (LWU…)	Name (for example: Ministry of Defense, disaster management team, provincial / district authorities, LWU, LYU, etc)	Type of assistance provided/activity
Civil society organizations: Lao Red Cross		
International organization (UN, INGO…)		
Other, private sector		

14.3 Is the village involved in emergency response activities?	☐ Yes Indicate the type of participation:	☐ No

14.4 From the village point of view: What are the immediate required priority supplies?

#	Item (please be as precise as possible in description)	Quantity and Units
1		
2		
3		
4		
5		
6		
7		
8		

14.5 From the team point of view: What are the immediate required priority supplies?

#	Item (please be as precise as possible in description)	Quantity and Units	
1			
2			
3			
4			
5			
6			
7			
8			

14.6 Main area of concern not reflected by the questionnaire (if any)

14.7 Final general remarks

Annex 4 – List of Personnel Involved in the Joint Assessment

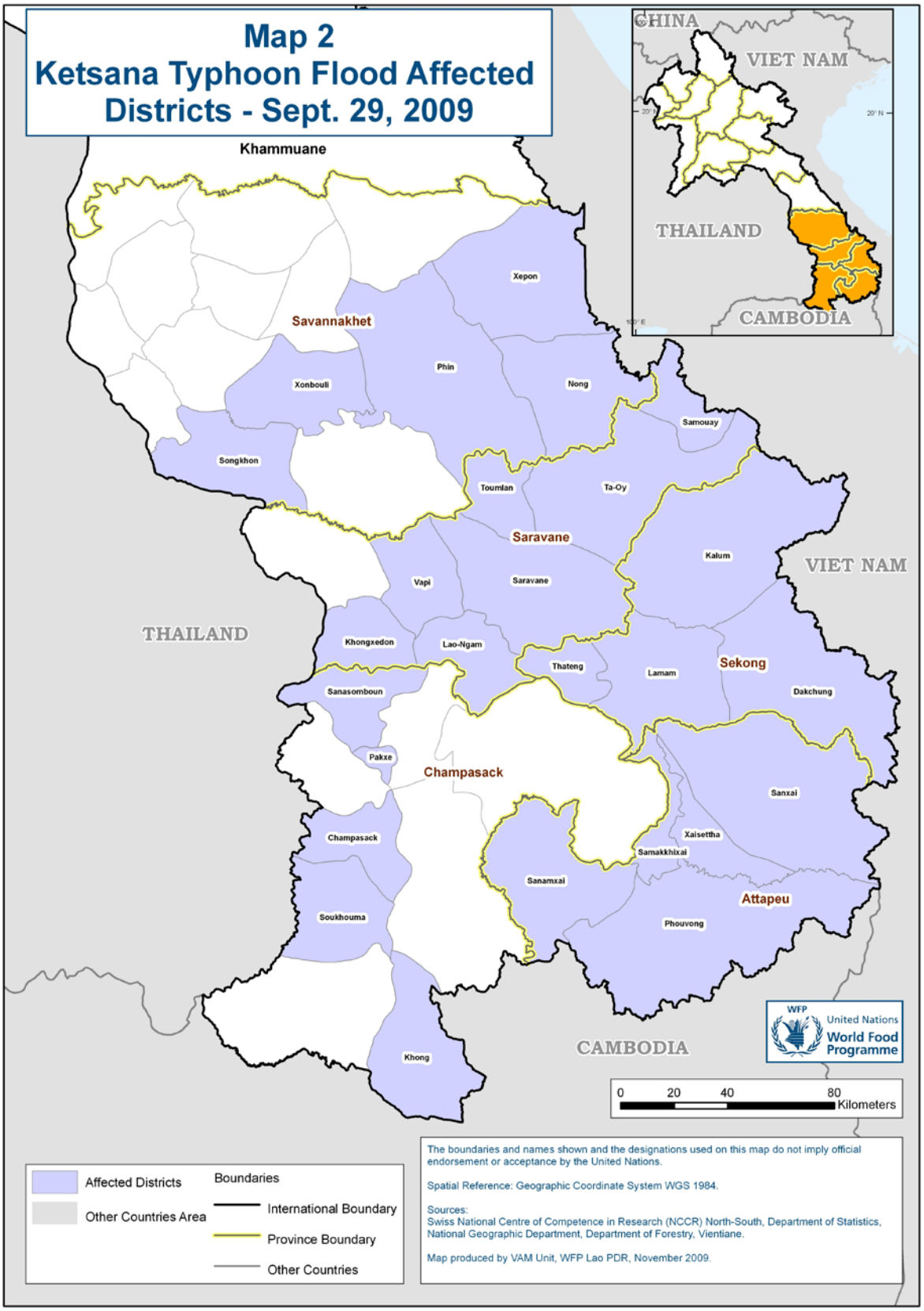
Province	District	Team No.	Name	Agency
			Mr. Syvongsay Pitikoun	Save the children (SC)
			Mr. Chansamone Bouakhamvongsa	Save the children (SC)
			Mr. Bounmay Phaikalang	HI
			Ms. Bounkong Sengphachan	WVL
	Nong	1	Mr. Bounmay Xayyanoun	District Social Welfare Department
			Dr. Intong Keomungkoune*	UNICEF
			Mr. Thay Phommasoulinh	MoE
			Ms. Keomungda Phommachan	HI
	Xepon	2	Mr. Da Luangsomphong	District Social Welfare Department
			Ms. Sengmany Boungkham	Ministry of Labor and Social Welfare (MLSW)
			Mr. Soda	WVL
			Mr. Boamdet	District Social Welfare Department
	Xoubuly	3	Mr. Khamphen	District department of education
			Ms. Vanhlee Lattana	World Vision (WV)
			Mr. Vanvilay	World Vision (WV)
			Ms. Naiyana	World Vision (WV)
Savannakhet	Phin	4	Mr. Bounlong	District Social Welfare Department
			Mr. Khamsouk Somphouvong	Ministry of Labor and Social Welfare (MLSW)
			Mr. Intong Bounmany	Department of Statistics, MPI
	To-oy	5	Mr. Saysavath	FAO
			Ms. Manilay Phengsy*	WHO
	Saravanh	6	Ms. Phatsamai Vongphasith	VFI
			Mr. Sengarun	UNICEF
			Ms. Thanomchit	WFP
	Vapi	7	Ms. Khamkan	MoE
			Mr. Singha	UNDP
			Mr. Kesone	VFI
			Mr. Sakki	District Social Welfare Department
			Mr. Simai	District Social Welfare Department
Saravane	Khongxedon	8	Mr. Sisongka	District Social Welfare Department
			Mr. Bandith*	UNICEF
			Mr. Touliya	WFP
			Mr. Khamphai	Provincial Health Department
	Kaleum	9	Mr. Somchai	District agriculture department
			Mr. Vanpheng	Department of Statistics (DOS)
			Mr. Khamphone	FAO
			Ms. Amphone	WFP
			Mr. Somphong	Provincial Health Department
Sekong	Lamam	10	Mr. Somchai	District agriculture department
			Mr. Boon Ome Soulideth	FAO
Attapeu	Saysetha	11	Mr. Dao Keosoukan	Department of Statistics (DOS)

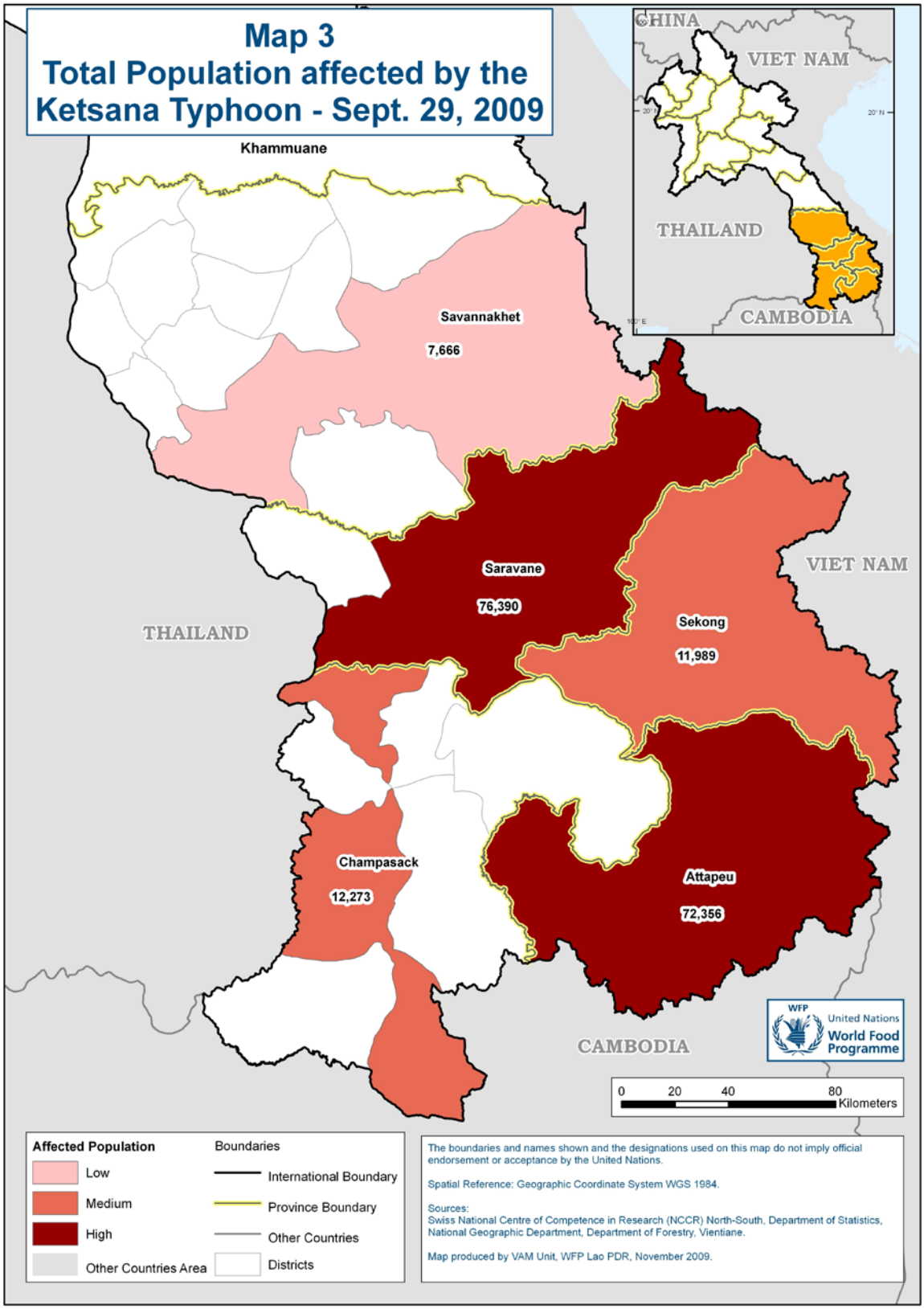
			Mr. Chun Philavong	Provincial Disaster Management Office
			Mr. Daovanh	District Disaster Management Office
			Mr. Bounthavy	WFP
			Mr. Xaysana	DOS
	Sanamxay	12	Mr. Soulsameu	Provincial Labour Social Walfare Department
			Mr. Khamphay	WFP
			Mr. Sithonh	PLSW
			Mr. Khamkheng	DLSW
	Sanxay	13	Keomany	IFAD
			Dr. Vilay*	UNICEF
			Mr. Pankham	MoLSW
			Mr. Soulisack	Provincial Labour Social Walfare Department
			Mr. Airkham	District Labour Social Walfare Department
	Phouvong	14	Ms. Vilaiphone	HU
			Mr. Khamphou	Health Unlimited (HU)
			Ms. Sounita	Provincial Staff
			Mr. Soutta	District Staff
	Samakhixay	15	Ms. Vanxay	HU
			Ms. Khamsay*	UNICEF
			Mr. Sengsouvanh	DoS
			Mr. Lamphone	PLSW
Champasack	Champasack	16	Mr. Khonesavanh	DLSW

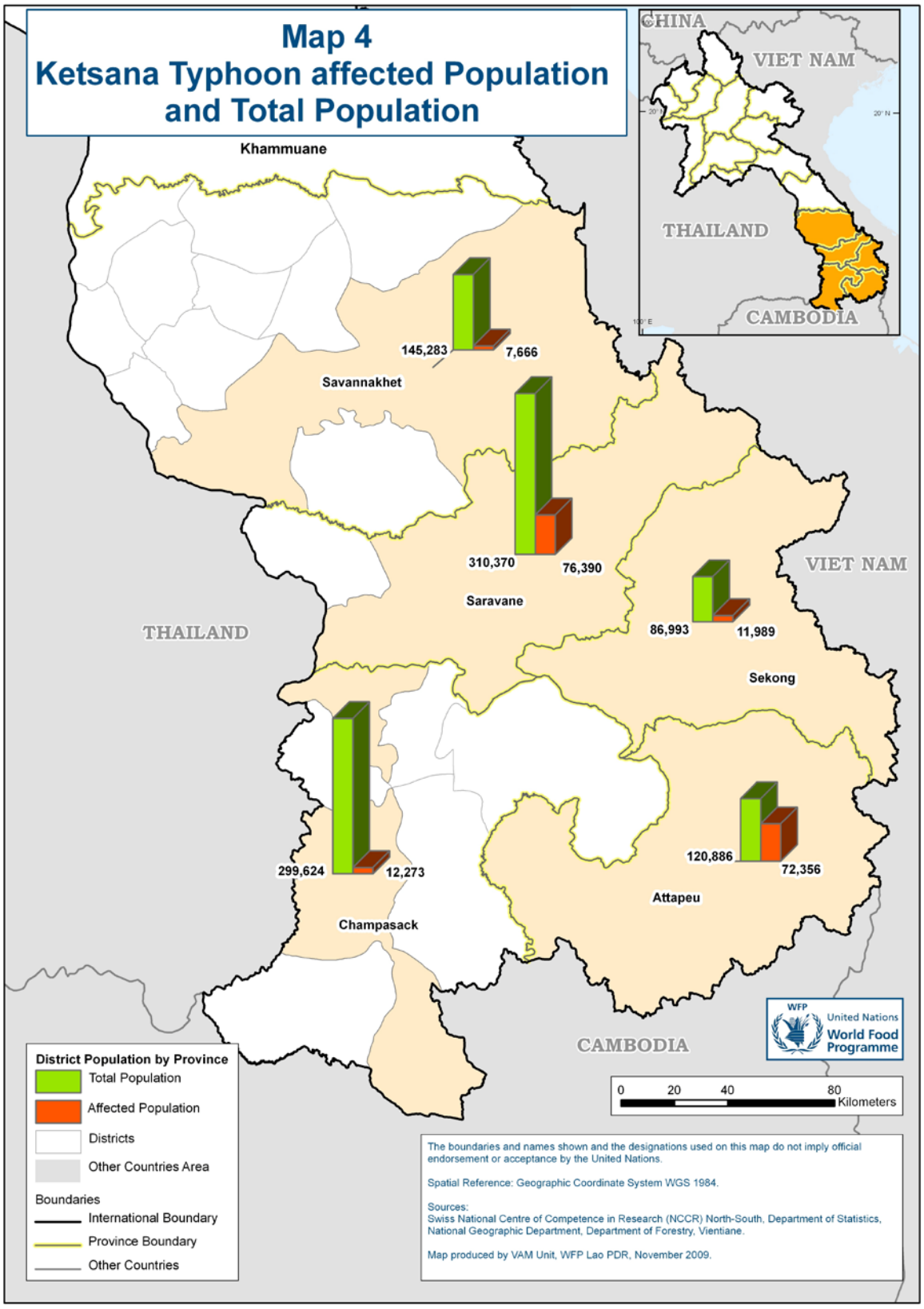
**Provincial team coordinator*

Central Team Coordinator/trainer/supervisor

No	Name	Agency
1	Mr. Khamhoung	UNICEF
2	Ms. Somphavanh	WFP
3	Mr. Sahib Haq	WFP
4	Mr. Simon Dradri	WFP
5	Mr. Jesper	WFP
6	Ms. Judy	UNORC


Map 2
Ketsana Typhoon Flood Affected Districts - Sept. 29, 2009
CHINA
VIET NAM
THAILAND
CAMBODIA
Khammuane
Savannakhet
Xepon
Xonbouli
Phin
Nong
Samouay
Songkhon
Toumlan
Ta-Oy
Saravane
Kalum
Vapi
Saravane
Khongxedon
Lao-Ngam
Thateng
Lamam
Sekong
Sanasomboun
Dakchung
Pakxe
Champasack
Sanxai
Champasack
Xaisettha
Samakkhixai
Sanamxai
Attapeu
Soukhouma
Phouvong
Khong
WFP
United Nations
World Food Programme
0 20 40 80
Kilometers
Affected Districts
Other Countries Area
Boundaries
International Boundary
Province Boundary
Other Countries
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Spatial Reference: Geographic Coordinate System WGS 1984.
Sources:
Swiss National Centre of Competence in Research (NCCR) North-South, Department of Statistics, National Geographic Department, Department of Forestry, Vientiane.
Map produced by VAM Unit, WFP Lao PDR, November 2009.


Map 3
Total Population affected by the Ketsana Typhoon - Sept. 29, 2009
CHINA
VIET NAM
THAILAND
CAMBODIA
Khammuane
Savannakhet
7,666
Saravane
76,390
Sekong
11,989
Champasack
12,273
Attapeu
72,356
0 20 40 80
Kilometers
United Nations
World Food Programme
Affected Population
Low
Medium
High
Other Countries Area
Boundaries
International Boundary
Province Boundary
Other Countries
Districts
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Spatial Reference: Geographic Coordinate System WGS 1984.
Sources:
Swiss National Centre of Competence in Research (NCCR) North-South, Department of Statistics, National Geographic Department, Department of Forestry, Vientiane.
Map produced by VAM Unit, WFP Lao PDR, November 2009.


Map 4
Ketsana Typhoon affected Population and Total Population
CHINA
VIET NAM
THAILAND
CAMBODIA
Khammuane
145,283
7,666
Savannakhet
310,370
76,390
Saravane
86,993
11,989
Sekong
299,624
12,273
Champasack
120,886
72,356
Attapeu
VIET NAM
THAILAND
CAMBODIA
District Population by Province
Total Population
Affected Population
Districts
Other Countries Area
Boundaries
International Boundary
Province Boundary
Other Countries
WFP United Nations World Food Programme
0 20 40 80 Kilometers
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Spatial Reference: Geographic Coordinate System WGS 1984.
Sources:
Swiss National Centre of Competence in Research (NCCR) North-South, Department of Statistics, National Geographic Department, Department of Forestry, Vientiane.
Map produced by VAM Unit, WFP Lao PDR, November 2009.