



**STREAM**



Report on

Sustainable livelihoods  
study of Farmer and Fisher

in

Kaoh Chbar village, Kaoh Khnhaer Commune,  
Sambour district, Kratie Province

Supported by

STREAM Initiative in Cooperation  
with CFDO and SCALE Project

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## **Acknowledgements**

The Sustainable Livelihood team has been studying the livelihoods of the farmers and fishers in Kaoh Chbar village, Kaoh Khnge commune, Sombo district and Kratie province. The Sustainable Livelihood team comprised of the following staff:

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- The villagers of Kaoh Chbar village for their active participation to provide clear information and problems related to their livelihood. In addition villagers bravely expressed the real problems in the village, which enabled the study to understand well their livelihoods.

## **SUMMARY AND PRELIMINARY CONCLUSION**

This study of the livelihood of farmers and fishermen is based on the information provided by the villagers. The study team facilitated and encouraged the villagers to share their knowledge and raise the real problems related to their livelihood. The study team subsequently recorded the information and their findings to compile a report.

This study was undertaken between 13th to 18th August 2002. The team worked with 15 to 30 villagers who volunteered to participate in the discussion. This number of participants is to represent 142 households in the village. Due to the differences in material ownership, means of production and standard of living the villagers divided themselves into 4 wealth ranking groups: rich, medium, poor and very poor. The main assets in the village were divided into 5 groups: human, natural, financial, infrastructure and social.

There were three groups of people and institutions that had relationships with villagers. They were government staff, businesses and civil society group. These groups shared different roles and impacts on villagers.

There had been some changes that impacted on the livelihood of villagers, especially in natural resources. The population is constantly growing which leads to an increase in natural resource utilization and ultimately their degradation. The villagers usually suffer from diseases such as malaria, fever and dengue fever. The poor people lack suitable tools especially draft animals. In general the price of produce is 50% lower than the market price in the town.

Their problems include poor transportation, inadequate marketing to sell produce, flooding, lack of draft animals and deficiency in agronomy knowledge. Furthermore both human and animals face diseases. The team facilitated discussions with villagers to rank the problems and analyse the root cause and effects. This resulted in an action plan designed to prevent and treat animal and human diseases and form an animal bank.

### **Conclusions**

The issues and problems discovered during the period of study in Kaoh Chbar village enabled the team to reach some conclusions on the current situation and recommendations for the future. It was felt that the villagers worked well together, and their leaders were easy for the outside to contact and co-operate with. The growth in population meant that natural resources were being degraded. The infrastructure of the village is poor so their produce price is low. The poor households suffered from diseases and shortfall of food.

It was suggested that they should receive advice related to health issues, investigate agricultural possibilities, manage the community fishery in a sustainable manner and provide credit in the form of cows or buffalos to help the poor households.

# 1. INTRODUCTION

## *1.1 Location*

Kratie province is in an upland area to the northeast of the country. This province can be reached by boat and road. It is about 217 km from Phnom Penh city if travelling by boat along the Mekong River. Alternatively, the province may be reached by national road number 6A crossing the Kigona bridge and continuing to road number 7, but this, at 341km, is longer than by river. As the road is not developed most people prefer travelling to Kratie by speedboat, which takes about 6 hours from Phnom Penh. The province has a total area of about 11,094 km<sup>2</sup> and the total population is 279,140, equivalent to 52,340 households (national census 1988). There were 8 minority groups living in this province, namely Cham, Phnong, Kouy, Samre, Steang, Mil, Kraol and Kaonh.

This upland province has plenty of forest and wildlife with water supplied by the Mekong River. Along the river there are many channels and lakes, with plenty of different kinds of aquatic resources. The deepest part of the river is a dolphin refuge. Dolphins, the symbol of the province, are rare animals and attract tourists to visit Kratie. The province has a small area for agriculture, which stretches along the Mekong River. Near the river are the channels and lakes that used to be fishing lots. The previous system of managing fishing lots has now been abolished, with management and development handed over to communities.

Kratie province comprises of five districts, Sambour, Preaek Prasab, Chhlong, Kratie and Snoul. The province is bordered by Steung Treng and Ratanakiry provinces to the north, Kampong Thom province to the west, Kampong Cham province to the south and Vietnam to the east. The team selected to study in Kaoh Chbar village, which is the village of Kaoh Khgne commune, Sambo district. Kaoh Chbar village is located in the upland area, which has plenty of forest, and borders to Prey Teal village on the east, Mekong River on the west, Otaneung (Channel) on the south and Osvan (Channel) on the north. The village is an ex-fishing lot that was abolished and hand over to the villagers to manage. The village stretches along the river about 4km and has the total area about 4800ha.

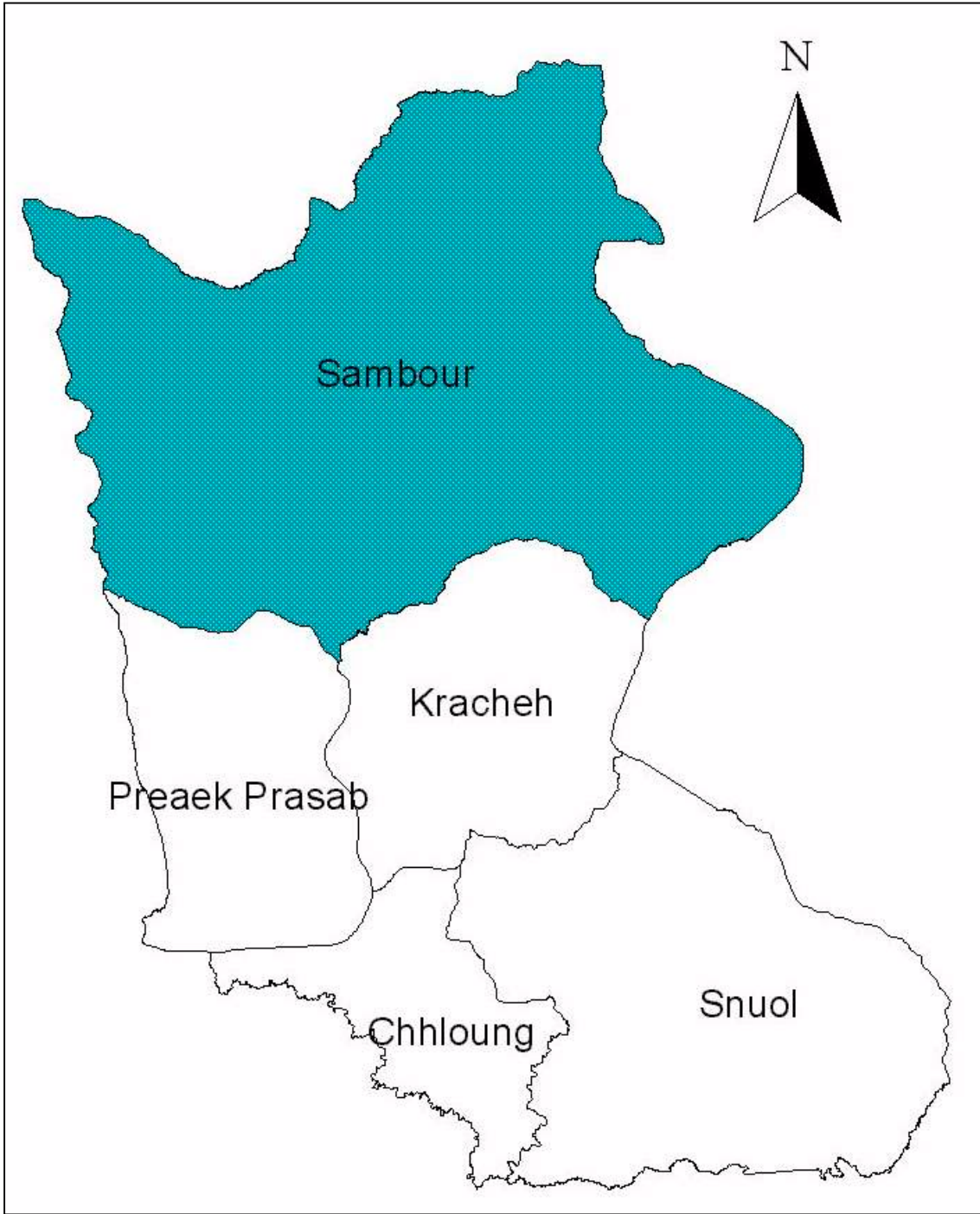
The population of the village is 672, equivalent to 142 households. The population is made up of three ethnic groups, they are about 4.2% Phnong, 1.4% Kouy and the rest are Khmer. Most of the villagers rely on planting monsoon rice and developing natural resources such as timber, bamboo, vines and hunting.

## *1.2 History of Kaoh Chbar village*

Long time ago Kaoh Chbar village was located on a small island. On this island where there were only five households living, they planted secondary crops, which in Khmer language is called CHBAR DAMNAM so the villagers usually refer to this island as Kaoh Chbar, which means "island with plants". During the French colonization there was movement against the French. The prisoners in Steung Treng province joined with Phnong ethnics and fought against the French soldiers. The villagers were in turmoil, villagers moved from one place to another to escape from the fighting. 5 households migrated from Kampong Kuy and Okreang villages to settled in Kaoh Chbar village. With the combination of the population growth and the island being so small, the villagers decided to move from the island to settle on the other side of the river, where they remain, but still use the name of the old village.

Table 1: Historical record

Generation	Event
Before ISARAK	There were only 5 households living in the village. They lived on the island planting various kind of crop, which in Khmer is called CHBAR DAMNAM. They named this village on their activity and the location.
ISARAK 1946-53	The prisoners from Steung Treng province escape from the prison and join with Phnong ethnics to fight against French. 5 households from neighbouring village migrated to settle with people in Kaoh Chbar village.
1953-60	The people in Kaoh Chbar village face serious problems due to shortfall of food and have no clothes. They made clothes from old sacks; at home they wear old clothes with many mends. They have no light and make fire from bamboo tube with kapok fibre. They suffered from cholera.
1962	Population of village grows up to 38 households, this time they moved from the island to settle in the current village. Now the villagers suffered from chickenpox. There were big fish, <i>Pangasus gagas</i> , that bit people when they bathe in the river. Villages like wearing beads, women like to tie hair in a chignon and the men like a short haircut.
1970-75	Villagers could not do farming, fishing and other activities because they have to escape from the bombs exploding when dropped from planes. They face starvation. In 1975 the population in Kaoh Chbar villager increased as the people evacuated by Pol Pot from the towns and cities came to settle in the village.
1975-79 Pol Pot regime	The villagers were forced to work hard and they serve food in one kitchen for all villagers. They have to work together; any production belongs to the community, with no individual ownership. Men, women, adults and children live and work separately. Pol Pot evacuated villagers from one place to other place. In 1979 Vietnamese soldier get rid of Pol Pot, by which time the village has only 30 households.
1979-84	There were 80 households living in the village. In this period the river was in flood, there was plenty of fish and wildlife.
1985-90	There were 90 households in the village. The government started to reform the land ownership policy.
1995	OCAA start working in the village, they help the village to establish committees, like rice bank committee, VDC, pump engine committee, and train the villagers to be the village veterinary and village nurses.
2001 - 2002	The government abolished the system managing fishing lots. The villagers have established rice bank committee, community fishery committee and village development committee.



## 2. RESULTS

The results are structured following the Livelihood Framework covering assets, vulnerability, processes and strategies.

### 2.1 Wealth Ranking

The people in Kaoh Chbar village have different standard of living in each household. The resources, skill and ability to acquire their individual livelihood are the indicators for villagers to rank households in the village in different economic groups. The study team invited the old men, village leaders to do wealth ranking, then discussed and decided on the criteria to rank the villagers in wealth rank groups.

Some 142 households made up the village. The villagers decided to wealth rank the households into 4 groups as below: -

- Group 1: rich made up 29 households, 20% of the total households.
- Group 2: medium made up 52 households, 37% of the total households.
- Group 3: medium made up 24 households, 17% of the total households.
- Group 4: very poor made up 37 households, 26% of the total households.

#### Group 1: Rich

This group is made up of 29 households, comprising 20% of the total households. This group owns about 1.5-2.8 ha of the agricultural land; they are able to expand the area. By using this land they can produce about 3600- 7200kg of rice, thus securing their family consumption for the whole year.

Most of the households in this group had adequate agricultural equipment and draft animals. Some households have from 2-5 water buffaloes and some have from 3-10 cows. They have cart, boat, motorboat to use for transportation purposes and they own the material goods like a video, TV, tape recorder and radio. In this group there were ten households having a motorboat.

Besides the farming this group have enough material and means of transport to develop the natural resources. They use the cart to transport small logs, bamboo and other production from the forest to home. A few households in this group own a rice mill and make wine. This group has several income sources and has enough rice to eat so that some households have surplus money for lending to the poor and very poor households.

However although this group was classified as rich, they have no motorbikes or bicycles because of the poor quality road in the village and the forms of transportation, motorboat and animals cart are very useful and popular with the villagers.

#### Group 2: Medium

This group is made up 52 households, which comprises 37% of the total households in the village. They own about 0.6-1 ha agricultural land, which enable them to produce from 1200-2400 kg rice /year. This rice is enough for the family's consumption for the whole year.

For their farming activities they have equipment such as a plough, harrow, pump machine and cow-cart. About 70% of the households in this group own cows or water buffaloes that

can be used for draft purposes. 17 households have motorboats and in the house they have TV, tape recorder and radio.

Besides the income from crops in the dry season most households earn money through developing natural resources especially cutting small logs, bamboo, vine and resin. To do this they need to use animal carts to transport the small logs or bamboo from the forest to their home.

### **Group 3: Poor**

This group made up 24 households, which comprises 17% of the total households in the village. They have about 0.5-0.75 ha agricultural land. With this land they can produce 720-1200 kg rice /year, enough to eat for about 6 months. For about half of the year they work as labourers to cut bamboo, chisel wood to make house posts or clear the paddy for the rich and medium households in the village. Sometime they borrow rice or money from the rich and medium households and pay in labour.

More than half of households in this group have no draft animals or cart to transport bamboo or logs from the forest, which is why they have to work for the rich and medium households as labourers. Not many households in this group have TV, most of them have only radio and only one household has a motorboat.

### **Group 4: Very Poor**

This group is made up of 37 households, which comprise 26% of the total households in the village. The largest size of agricultural land that they own is about 0.5 ha, which can produce about 480 kg rice /year. This rice is enough to eat for about 3-4 months, so they face the problem of lack of food for longer than the poor group. To makeup for the long period that they lack food this group rely on working as labourers. They work cutting bamboo and chiselling wood to make house posts for the rich and medium groups, go hunting and exploit other products from the forest.

This group lacks agricultural equipment and draft animals, more than half of this group have no cows or water buffalo, a few households own pigs, ducks or chicken.

*Kaoh Chbar village is in a remote area, in general the people in this village do not have access to medical services and usually they use traditional medicine to treat an illness. However the village has a few drug stores but no doctor to prescribe or control the drug quality. The children in the village have the chance to study up to level 3 but there is no way to continue to study for any higher level because they have no school. To continue studying they promote children to be the monks to study in the pagoda far from the village. Currently there are 16 monks from this village studying in the pagoda. People in the village undertake small-scale fishing by using traditional fishing gear. The fish price is low compared to the market in town.*



*Table 2 Wealth ranking*

<b>1 Criteria</b>	<b>Rich, 29 households, 20%</b>	<b>Medium, 52 households, 37%</b>	<b>Poor, 24 households, 17%</b>	<b>Very poor, 37 households, 26%</b>
<b>Agricultural land</b>	1.5-2.8 ha	0.6-1 ha	0.4-0.7 ha	0.5 ha
<b>Rice production</b>	3600-7200 kg	1200-2400 kg	720-1200 kg	480 kg
<b>Food security</b>	Enough to eat and surplus to sell	Enough to eat in whole year	Enough to eat for half year	Enough to eat for 3-4 months
<b>Mean of transport</b>	Motorboat (10), boat, cow cart, horses (13)	Cow cart, boat, motorboat (14)	Boat, cow cart, motorboat (1)	Boat, motorboat (1)
<b>Material possessions</b>	TV, tape recorder, radio	TV, tape recorder, radio	Radio	No
<b>Agricultural equipment</b>	Plough, harrow, pump machine	Plough, harrow	Plough, harrow	Plough, harrow
<b>Credit</b>	Money lender		Borrow from neighbour	Borrow from neighbour
<b>Animals ownership</b>	- Pigs 3-4 - Cows 3-10 - Water buffaloes 2-5	- Pigs 1-2 - Cows 2-5 - Water buffaloes 2-5	- Pigs 1 - Cows 1 - Water buffaloes 1	- Pigs 1
<b>Additional activities</b>	Fishing, cut bamboo, timber, find vine and resin	Fishing, find vine and resin, make wine	Sell labour, fishing, find vine and resin	Sell labour, find vine and resin
<b>Children go to school</b>				
<b>Treat an illness</b>	Village nurse, medicine	Village nurse, medicine	Village healer, use traditional medicine	Village healer, use traditional medicine

## **2.2 Resources**

### **2.2.1 Human Assets**

In general villagers are experienced in farming monsoon rice, dry rice and a secondary crop. They are also skilled in fishing, hunting and making use of other resources from the forest. Some people are carpenters who can make tables, chair, windows, doors etc.

The village is led and organized by village leaders, Buddhist elders, a village development committee (VDC) and village nurses. These people are actively involved in developing the village. So far they have managed to establish a rice bank, treat animal diseases and stop illegal fishing in the village.

Besides the management group the village have several keys persons such as teachers, carpenters, a village healer, traditional mid wife, community fishery committee, veterinary committee, rice bank committee and pump machine committee. Currently these people share an important role in developing their village by providing services to help villagers.

A few people in the village can read and write, specifically the old men who had studied to be monks in the pagoda. In general people in the village are illiterate although they can study in the village up to level 3. There are no signs of improvements in human resources with regards to general education because villagers do not have sufficient access to school.

### **2.2.2 Physical Assets**

Kaoh Chbar is located far from the town with no connecting main road. This makes communication difficult between the villagers and outsiders so the villagers' products are cheaper than the town market by about 50%. There are no bicycle or motorbikes used in the village because of the state of the road, the villagers usually travel on foot or cow cart. The village road is unmade and very muddy in monsoon season so that the only way for villagers to travel to the town is by boat.

To improve the farming system the villagers had three dams built to store water for rice irrigation in case of drought and also to improve production. The dams are Sre Veng, Khpop and Sre Krasang. They have 3 pump engines, one donated by OCAA, the other two belong to the villagers. In addition the village has a mobile radio to contact to the town, 5 rice mills, 2 grocery shops and a small school. Unfortunately the school has only 3 classrooms and there they can only study up to level 3. To continue their education they need to travel to the town or join the Buddhist monks.

### **2.2.3 Natural Assets**

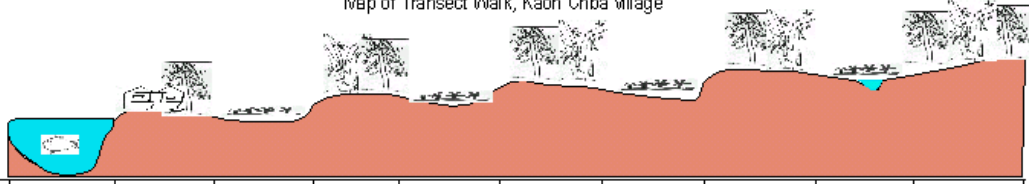
Natural assets play an important role in supporting the livelihood of the villagers. There are a wide range of natural resources available in the village such as a river, channel, lakes, agricultural land, forest and inundated forest. The river, channel and lake have plenty of fish. In addition the river brings silt down from the uplands providing a good source of nutrients to spread on agricultural land. The inundated forest is situated along the channel, which they believe is used by the fish as a refuge and spawning area. In the

forest they have a wide range of resources such as timbers, bamboo, vine, resin and various kind of wild life.

The villagers report that the total area of agricultural land of the village is about 229 ha, on which they can plant monsoon rice, descending rice and other crops. The villagers can expand agricultural land as much as they need by clearing the forest, but it is about 7-10km away from the village. To farm in this area they need to settle there during the plantation period.

The natural resources of the village are being degraded and depreciated by their excessive exploitation, especially the forest and wild life. Recently the government has taken strong measures to prevent illegal tree felling. The government has to support the established community fishery in the village and collaborate with both the OCAA and provincial fishery office in order to sustain and manage aquatic resources in the area.

Map of Transect Walk, Kaoh Chba village



Land type	River	Village	Rice paddy, secondary crop	Forest	Rice paddy	Forest	Rice paddy Kok Troung	Jungle forest	Rice paddy Thaot	Jungle forest
Soil type	Sand, stone clay	Sand, silty	Silty and clay	Silty, stone, clay, gravel	Silty, clay	Silty, stone, clay, gravel	Silty, stone, clay	Silty, stone, clay, gravel	Black clay	Silty, stone, clay, gravel
Crop type		Fruit tree	Monsoon rice, secondary crop	Forest	Monsoon rice	Forest	Monsoon rice	Forest	Monsoon rice	Forest
Animals	Fish, snake, eel, turtle	Cows, buffaloes, chicken	Wide range of wildlife and fish Cows, buffaloes	Wide range of wildlife Cows, buffaloes	Wide range of wildlife and fish Cows, buffaloes	Wide range of wildlife	Wide range of wildlife and fish Cows, buffaloes	Wide range of wildlife	Wide range of wildlife and fish Cows, buffaloes	Wide range of wildlife
Yield and production			1-1.5t/ha	House post, Wildlife thatch vine	1-1.5t/ha	House post, Wildlife thatch vine	3t/ha	House post, Wildlife thatch vine	3t/ha	House post, Wildlife thatch vine
Problems encountered	Flood	Human and animal diseases	Pest, wild pig flood	Forest decline	Pests, wild pig	Forest decline	Pests, wild pig	Forest decline	Pests, wild pig	Forest decline
Solution	Community fishery committee		Plant dry rice	Community forestry		Community forestry		Community forestry		Community forestry

Figure 1

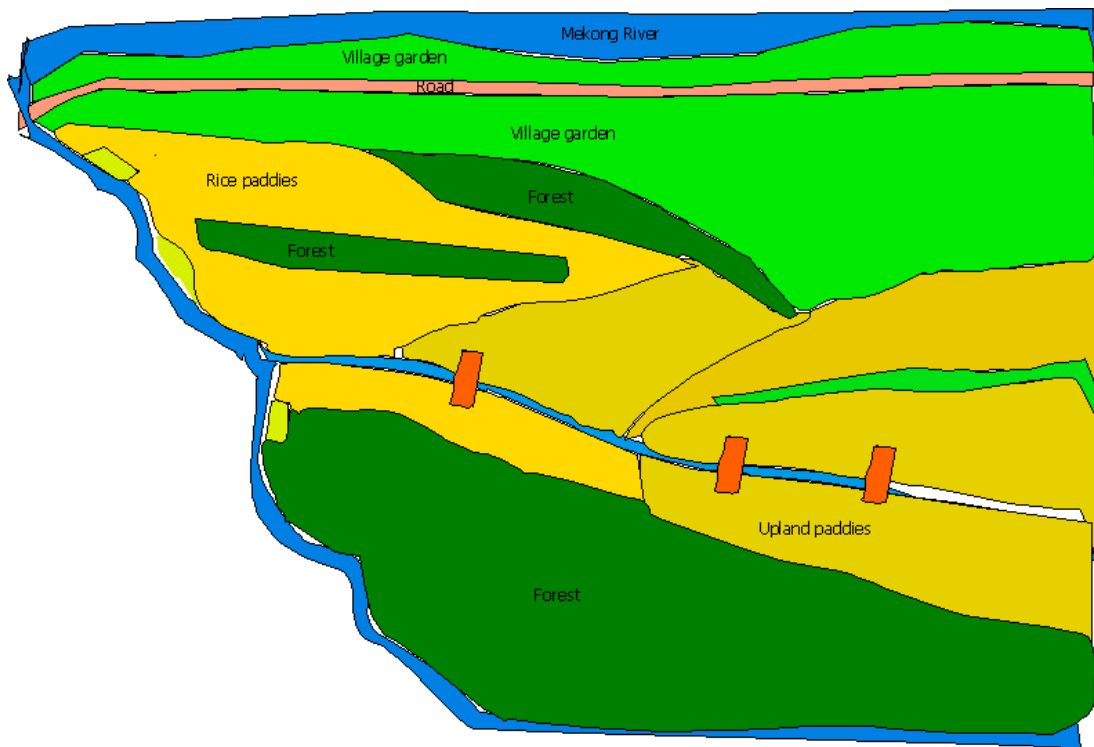


Figure 2 ; Land Use Map

#### **2.2.4 Social assets**

As the village is in a remote area far from the town, generally villagers rely on traditional medicine to treat an illness. There are a few drug stores in the village but no doctor to prescribe and control the quality of medicine. Villagers build their houses on the roadside, which runs along the riverside. The village is about 4km in length and the distance from one house to another makes it difficult to manage and contact the whole village.

Villagers have good relationships with each other and are willing to help each other on occasions of celebration, building houses, new house entry ceremony, wedding or when they have sickness and birth delivery etc.

The village leaders, Buddhist elder and VDC are respected and reliable. They play an important role in managing and organizing the village. In particular, they facilitate the villagers to work with OCAA.

In order to learn more about relationship of the village with the other people and institutions the team managed to do a Venn diagram, grouping the men and women separately (see Venn diagram). The study team helped villagers do the Venn diagram by using paper in circle shapes to represent people and institutions related to the villagers. The size of paper represented their role, while the distance from the centre represented the relationship. The biggest size represented people that they considered to be the most important to their livelihood and the smallest the least important. The closer in proximity to the centre, the more familiar the villagers are with the people.

#### **The Most Important People And Institutions**

Both groups considered the village leaders, commune leaders, village nurses, traditional mid wife, VDC, teachers and school as important and have close relationships with them. These are the people who are used to manage and lead the villagers in any activities related to their current livelihood. Village leader and commune leader are local authority figures who usually live with villagers and help them to contact the district or provincial authority or to resolve conflict in the village. The Buddhist elder and VDC facilitate the villagers to do any of the communal work. When the villagers are sick or give birth they need the village nurses and traditional mid wife. The teacher uses the school to teach the children to read and write.

The men's group thought some other people and institutions were important too but they did not have a close relationship with villagers, such as policemen, the health agency or businessmen. Villagers thought they needed help from these people but they rarely came to the village.

#### **Medium Important People And Institutions**

Both men and women thought that village leader, village nurse, traditional midwife, VDC and teachers were the people having a close relationship with villagers. These people were involved in managing, organizing and facilitating the development of the village.

Some important contacts live far away from villagers so are not often seen. These include commune leader, police, health agency and village shop, which are deemed necessary, but their service is not adequate.

**Less Important People And Institutions**

Villagers place most people and institutes at district and provincial level in the small size because these people rarely visit the village and have not intervened to help the village.

**House2.shp**

House2.shp

- Iron
- ▲ Thatch
- Tile

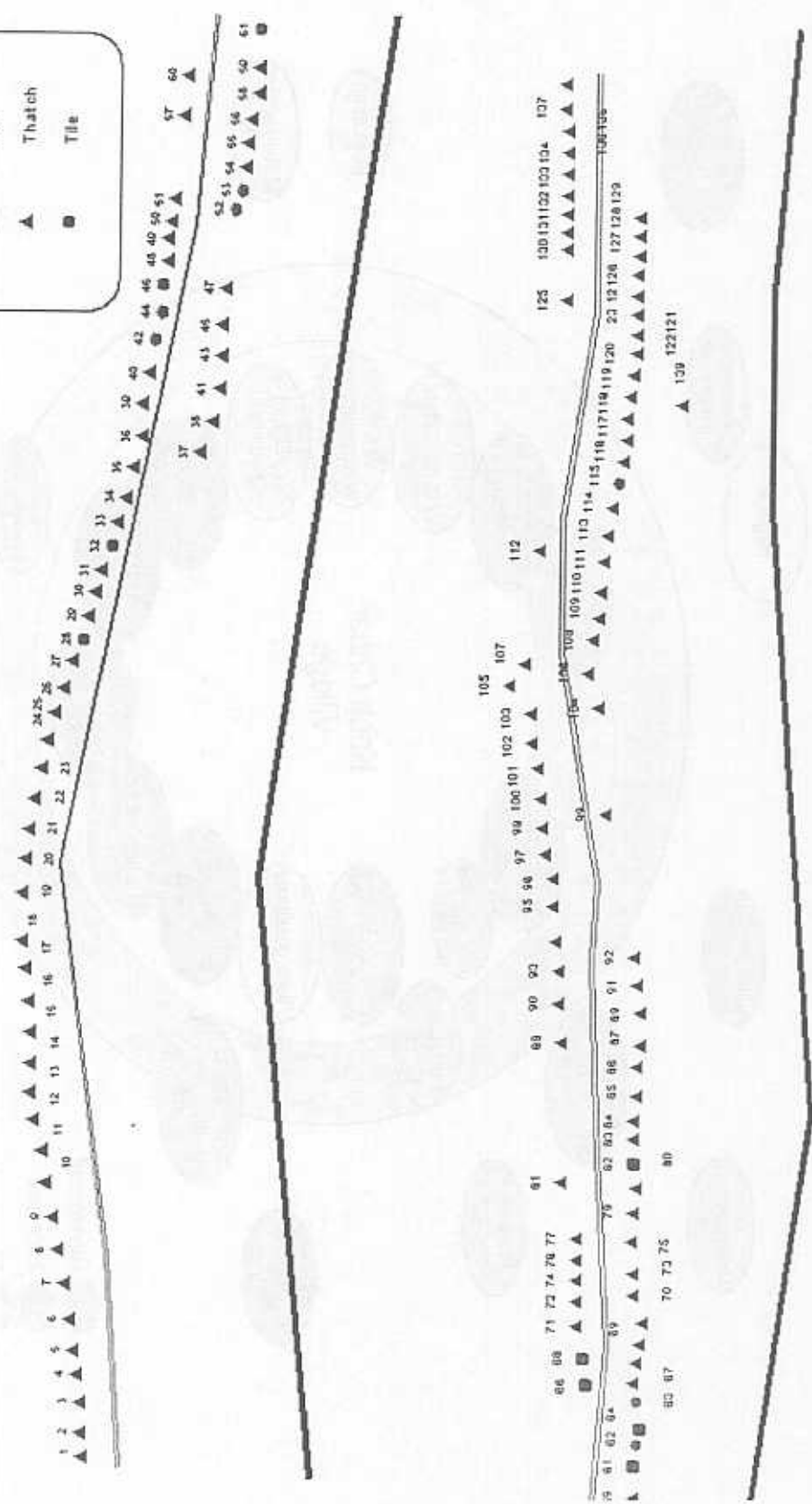


Figure 3



Venn diagram - men's group

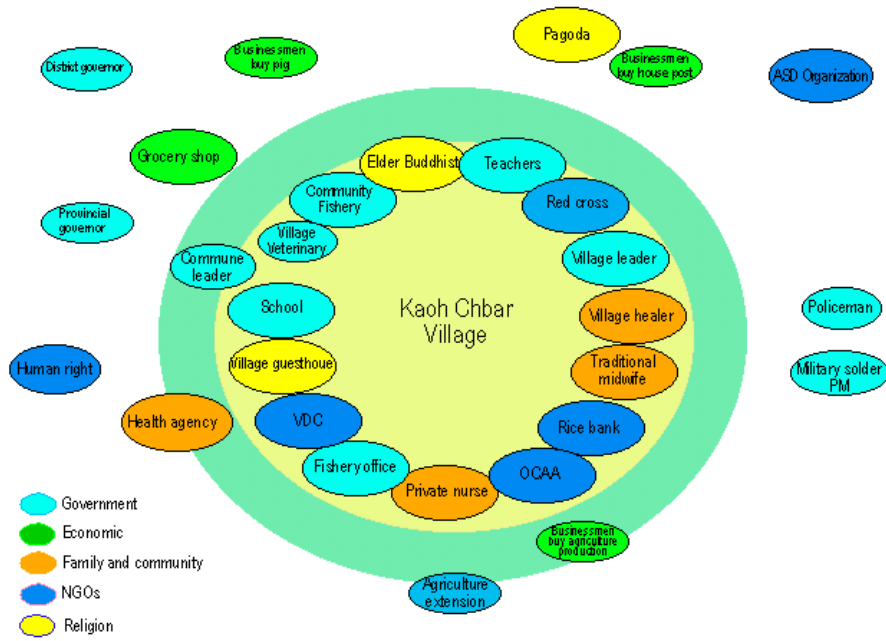


Figure 4

Venn diagram - women's group

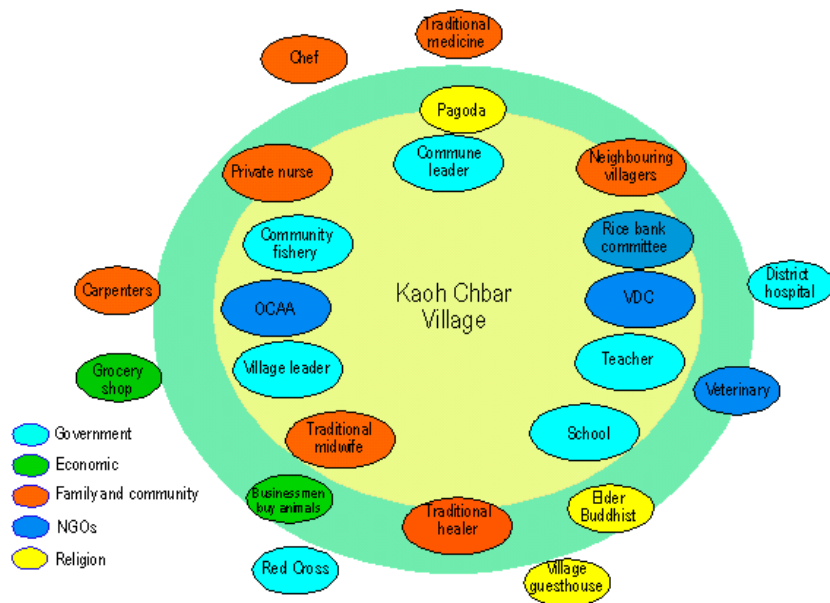


Figure 5

### **2.2.5 Financial Asset**

In general the villagers generate income through selling agricultural produce and utilizing natural resources. The rich and medium households are most likely to absorb the natural resources as they have the materials and draft animal to expand the agricultural land. They are able to transport timber, bamboo and find other resources from the forest.

The poor and very poor households rely on selling labour; they have no materials or draft animals to develop the natural resource so they cooperate with the rich and medium households by selling their labour. Through this work they get paid from 2500-3000 riel/day. Apart from this they can go to the forest for hunting and find resin or vine. The poor and very poor households face the problem of a shortfall of food as they have low income because they are not able to benefit from the natural resources independently.

Although there are plenty of fish in the river and channel, as the price is low most of them catch fish for family consumption only. The income generated varies depending on the natural environment. When the natural asset degrades the income also decreases.

**Table 3** Main Resources In Village

<b>Human</b>	<b>Physical</b>	<b>Natural</b>	<b>Social</b>	<b>Financial</b>
<ul style="list-style-type: none"> <li>- Village leader</li> <li>- Commune leader</li> <li>- VDC (5 men, 2 women)</li> <li>- Rice bank committee (5 men, 2 women)</li> <li>- Pump engine committee (5 men, 2 women)</li> <li>- Community fishery committee (9 men, 4 women)</li> <li>- 2 Teachers</li> <li>- 2 Village healers</li> <li>- 1 Village nurse</li> <li>- 6 Traditional midwives</li> <li>- 2 Carpenters</li> <li>- Making palm juice</li> <li>- 7 Wine makers</li> <li>- 1 Chef</li> <li>- 1 Red Cross volunteer</li> </ul>	<ul style="list-style-type: none"> <li>- 1 Mobile radio</li> <li>- 1 Loose surface road</li> <li>- Primary school (3 classroom)</li> <li>- Guest house</li> <li>- 5 Groceries shops</li> <li>- 5 Rice mills</li> <li>- 3 Dams</li> <li>- 3 Pump engines</li> </ul>	<ul style="list-style-type: none"> <li>- Mekong river</li> <li>- 3 Channels</li> <li>- Forest</li> <li>- Wildlife</li> <li>- Inundated forest</li> <li>- Agricultural land</li> <li>- Aquatic resources</li> </ul>	<ul style="list-style-type: none"> <li>- Buddhist religion</li> <li>- Respect old men</li> <li>- Traditional to help each other</li> <li>- Willing to work in group</li> <li>- Build trust in the old men, elder Buddhist and monks</li> </ul>	<ul style="list-style-type: none"> <li>- Sell agriculture produce</li> <li>- Livestock</li> <li>- Access to credit from UNICEF</li> <li>- Sell labour</li> <li>- Wood production eg furniture</li> <li>- Sell fish</li> </ul>

## 2 The summary of 5 assets in village

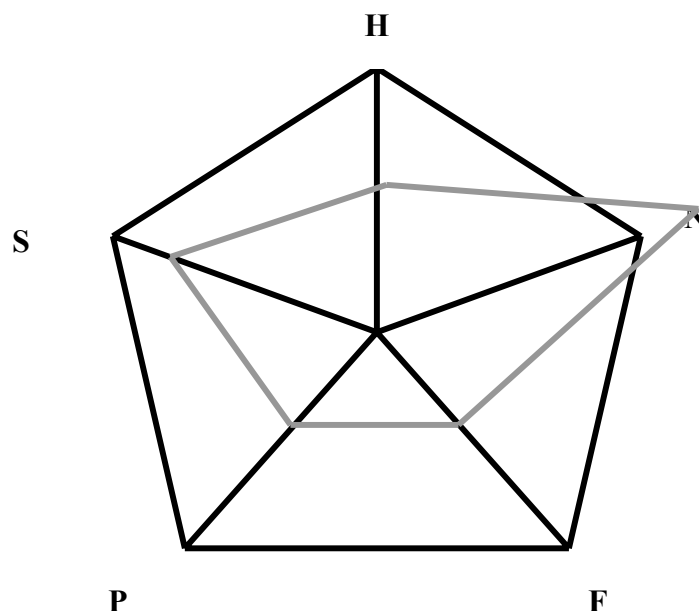


Figure 6

**Human Assets (H):** currently there is no mechanism to develop human resources in the village. Without access to better schooling, the villagers cannot get over their illiteracy.

**Natural Assets (N):** at the moment the natural resources in the village are plentiful, the village has forest, wild life and fish but these resources are being degraded. Villagers need to increase their production to meet the demands of population growth and of the market, so the forest and wildlife are most likely to suffer.

**Financial Assets (F)** the villagers rely mainly on agricultural production and use of the natural resources, especially the forest. So when the natural resources are exploited and depleted, the income of the villagers declines as a result.

**Physical Assets (P):** the road, school and other services are not meeting the needs of villagers. Villagers face difficulties in transportation as the only way to access the village is by boat, so there are high costs for transportation with low produce price. Any produce at the village is about 50% cheaper than the market price.

**Social Assets (S):** the villagers have a good relationship, they are willing to work together and help each other when somebody is sick or for birth delivery. The villagers respect the village and commune leaders, which influences outsiders to work in the village. However there is no obvious relationship with the district governor and provincial offices.

## **2.3 Vulnerability Context**

### **2.3.1 Farming And Seasonal Round**

The farming, social activities and other fluctuations during the year were represented by a seasonal calendar, which was developed by men and women separately. The team facilitated the villagers to score the activities by using corn grains, the busiest scoring 5, and the less busy 4-3 respectively with no activities left free. Both groups used the lunar calendar, which is the common calendar in rural areas.

Overall the farming activities existed all year round, but sometime they were very busy and sometime not so busy, some activities involved both men and women some did not.

The women started clearing the farm before April, the men started to plough the area after the women finished in May, then they carry on to look after the crop until harvesting. They also continued to clear the forest to expand the cultivation areas and enter the deep forest to find vine, resin and hunt.

Men are responsible for fishing. They can catch fish all year round but they catch more fish in April, because this time is free from farming activities. Women are not involved in catching fish but undertake fish processing. They start to process the fish in May, as at this time the river starts to rise up and fish start to migrate from the deep holes into the lowland area where they can spawn and find more food. This provides more fish to catch and process. Women also have extra work such as thatch cutting and housework.

Both men and women have shown the time they and their animals suffer from diseases. Usually human and animals face the most serious diseases in the monsoon season.

### Seasonal calendar - men's group (Kaok Chbar)

Activities	April/May	May/June	June/July	July/Aug	Aug/Sep	Sep/Oct	Oct/Nov	Nov/Dec	Dec/Jan	Jan/Feb	Feb/Mar	Mar/Apr
Weather	Hot		Rain				Cool				Hot	
Monsoon rice		●●	●●●	●●●●	●●●●	●●	●●	●●●●	●●●●	●●		
Dry rice					●●	●●●	●●●●	●●●	●●●	●●●	●●●	
Secondary crop	●●●	●●	●●	●●●	●●●							
Com	●●●	●●	●●	●●●								
Cassava	●●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●●	●●●
Mung bean						●●●	●●	●●	●●●			
Make sugar palm									●●	●●●	●●●	●●●
Cut house post timber									●●	●●		
Cut bamboo						●●	●●					
Fishing	●●●	●	●	●	●	●	●	●	●	●	●	●●●

Figure 7

Men group continued

Activities	April/May	May/June	June/July	July/Aug	Aug/Sep	Sep/Oct	Oct/Nov	Nov/Dec	Dec/Jan	Jan/Feb	Feb/Mar	Mar/Apr
Weather	Hot and dry		Rain				Cool				Hot and dry	
Sell labour												
Human disease												
Animal disease												
Need water to irrigate rice												
Short fall of food												
Need credit												
Income generation												
Wedding ceremony festival												

Seasonal calendar - women's group (Koah Chbar village)

Activities	April/May	May/June	June/July	July/Aug	Aug/Sep	Sep/Oct	Oct/Nov	Nov/Dec	Dec/Jan	Jan/Feb	Feb/Mar	Mar/Apr
Weather	Hot		Rain			Cool					Hot	
Monsoon rice												
Corn												
Mung bean												
Harvest thatch												
Make Prohok												
Festival												
Wedding												
Human disease												
Animal disease												
Short fall of food												

Figure 8



### **2.3.2 Trend Line**

There were 10 events which villagers represented in the diagram.

Farmers entered their own dates and drew the diagrams. The earliest and latest dates were later set to cover a standard period to allow for a visual comparison. After formatting the diagrams were presented to the farmers for corrections and the final trends were adapted.

#### **The Monsoon Rice Areas**

Kaoh Chbar village is located far from the town in the jungle forest. This is an important natural resource for the village, enabling villagers to expand their cropping area as much as they need by clearing forest. In the diagram it is shown that the monsoon rice area of the villagers increased gradually in conjunction with the population growth.

It is important to note that in the recent year the villagers changed the strategy to expand the paddy area in an upland area far from the river to avoid flooding. Although safe from flooding they face other problems that destroy the crops like pests, drought and wild pigs.

#### **Number Of Households In The Village**

The old men who have been born in this village remember that in 1930-50 there were about 18 households in the village. They settle far from each other, farming, hunting, fishing and exploiting the natural resources for their livelihood. The number of households in the village increased gradually; in 1970 there were 72 households.

During the civil war and Khmer rouge regime from 1970-80 the number of households in the village dropped, villagers moved from place to place and no one knew the exact number of households in the village. In 1979 when the Khmer rouge fell from power and the country was ruled by a new government, the village had 30 households.

The number of households in the village started to increase again from 1980 and there are currently 142 households in the village. Villagers recognized that the more people, the more demand there is on the natural resources. The natural resource of the village is being degraded, so intervention is needed to preserve the natural resource as well as to slow down the population growth.

#### **Natural Fish Production**

Natural fish production is being degraded like the other resources too. Villagers said in the decade 1960-70 there were plenty of fish in the river and lakes and at that time they used traditional fishing gear to catch fish e.g. net, trap, cast net etc. Electric shock and explosion techniques were not used. Fish production was sustained until the 1980's when fish numbers started to decline. Villagers noted that in the years 1980-85 fish declined by about 50% compared to the 1960's. The fish declination was exacerbated by illegal fishing activities such as use of electric shocks, explosives and bamboo fences to block the channel.

In 1995 OCAA started to help the village, establishing a committee to prevent any illegal fish activities. The committee developed the current policy that allows the use of any equipment that does not harm the fish. From that time fish production became sustainable again. Recently the government changed the system of managing fish lots, abolishing them and handing them over to the community. This contribution from the government has influenced the existing committee to work more effectively and benefited the villagers.

### **Dolphin**

Dolphins are the most important animals for Kratie province as they attract national and international tourists to visit this province. Scientists have said that dolphins live only in the deep hole of the river. There are a few deep holes in the river near Kaoh Chbar village, which the villagers said were dolphin refuges, but now there are none. The dolphins disappeared in between 1970 and 1980, when the illegal fishing methods such as electric shock and explosions were used. They saw some dolphins die and think some may have escaped to other places.

### **Forest**

This village was recognized as a jungle forest area, but the forest has been declining gradually. It declined drastically between the years 1980 and 2000. The villagers claim that although they have cut trees in the forest, the major damage has been done by export companies using modern equipment, which can cut bigger trees than the villagers.

### **Wildlife**

During the 1970-73 civil war a lot of wildlife died when bombs dropped from planes exploded and modern guns were used for illegal hunting. In the Khmer rouge regime the wildlife were safe from hunting, so numbers increased a little.

Unfortunately the wildlife started declining again when logging companies moved in. The wildlife depends on the forest to live and shelter, so when the trees are felled hunting becomes easier and will increase also.

In the year 2000 there was a successful campaign to ban guns and stop wildlife hunting. The numbers of wildlife have been sustained, especially the wild pig which has increased in population. Villagers said at the moment there are about 11 wild cows, 3 wild buffaloes and a lot of wild pig in the village. Wild cows had previously been absent.

### **School**

The village has a school that comprises of three classrooms. From 1979 to 1995 the school roof was made from thatch, which had to be replaced every two or three years. The villagers initiated a collection for enough money to buy tiles to replace the thatch roof. Now the school has tile roof but still has the same number of classrooms.

### **Village Guesthouse And Monks**

The village had no pagoda in or near it. As all villagers were Buddhist they collaborated to build a guesthouse in the village for the monks to stay and for old men to celebrate during holy days or other celebrations. From 1960 to 1970 there were monks staying in the village but now they need to invite monks from the pagoda to come when they hold any celebration.

### **Flood**

Villagers said that previously their village rarely flooded, maybe once every ten or twenty years. They remember that there was flooding in 1978, 1984 and then 1996, however, since 1998 there has been a flood every year. The flood impact on the livelihood of villagers is devastating; it destroys crops, houses and livestock. Some villagers decided to abandon their rice paddies near the river and move to the areas further away to escape from the flooding.

**Malaria**

Usually the people in upland areas as well as people in Kaoh Chbar village suffer from malaria. In between the years 1970 and 1975 only a few people got malaria because during this period there were not many new people to the village, most of them were born in this village so they had resistance to the malaria. Also they found the traditional medicine that could treat the malaria effectively. In between 1975 and 1979, Pol Pot evacuated people from the other places to settle in this village and most of the new settlers suffered from malaria. The malaria decreased gradually because the village had more access to medical services and some organizations came to the village to educate on and provide facilities for the prevention of malaria. At the moment there are about 5-8% of villagers with malaria, most of them being the poor households who had a shortage of food and live in poor housing conditions.

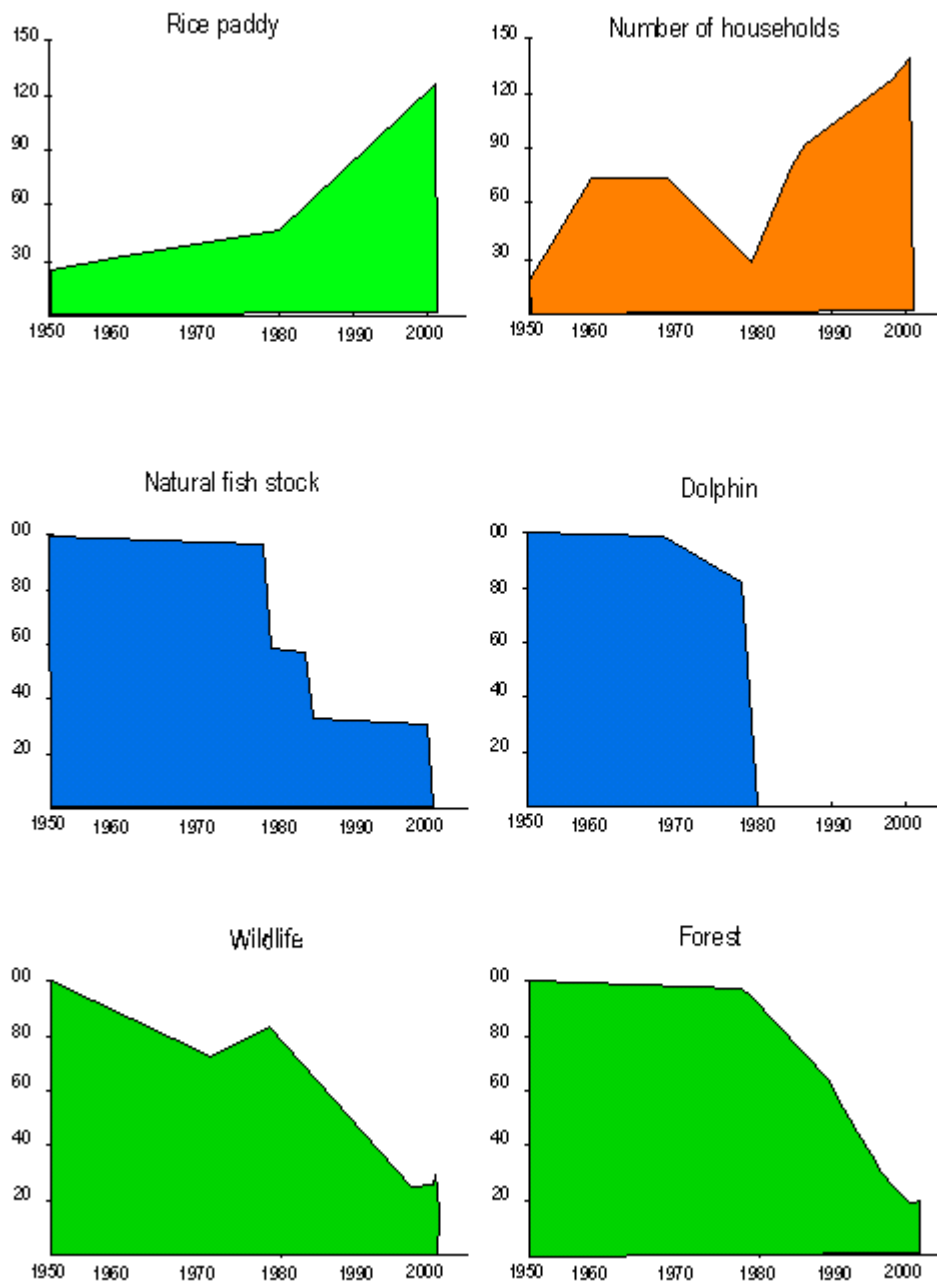


Figure 9; Trend Lines

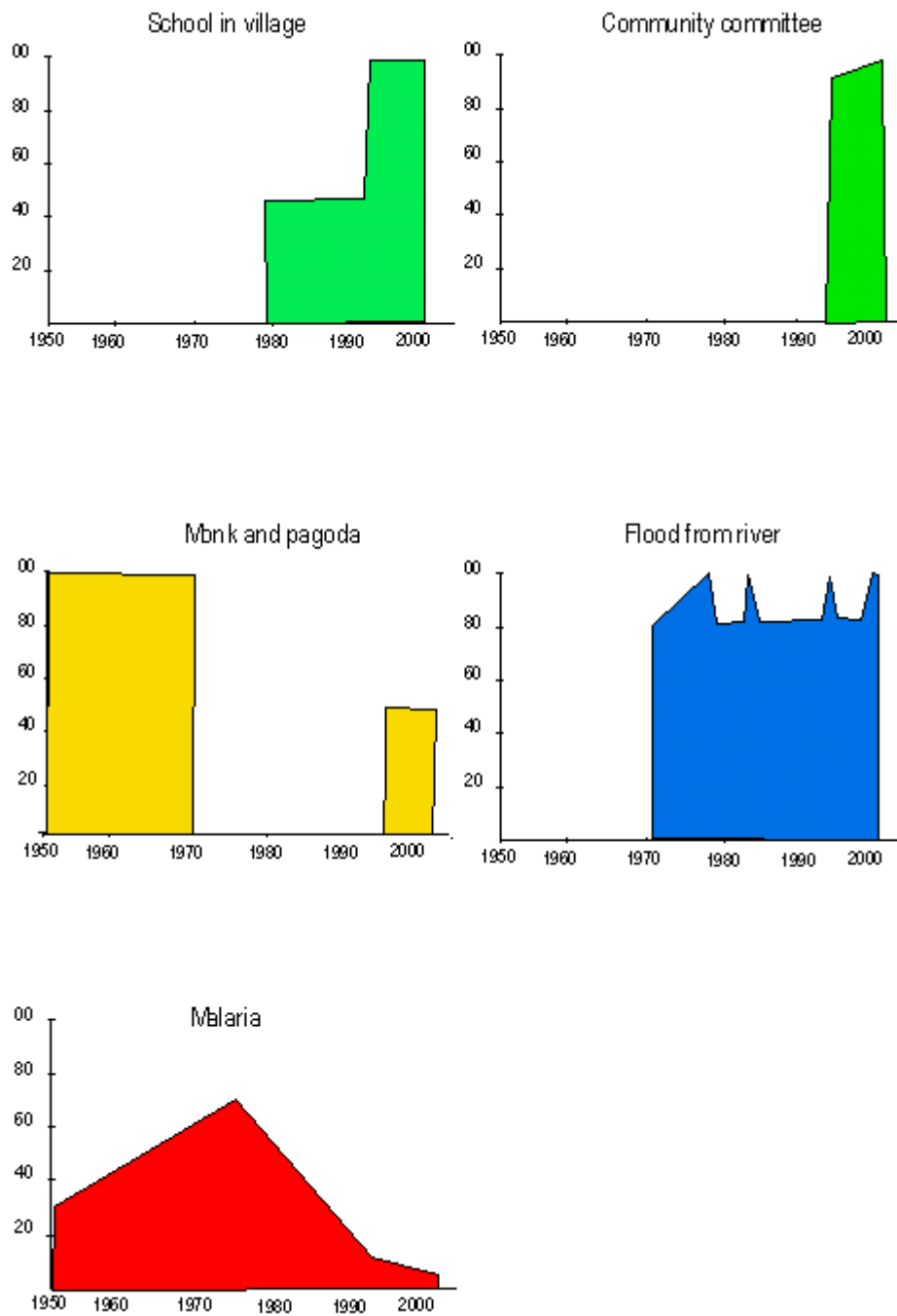


Figure 9; cont.

## 2.4 Institutions and processes

### 2.4.1 Institutions

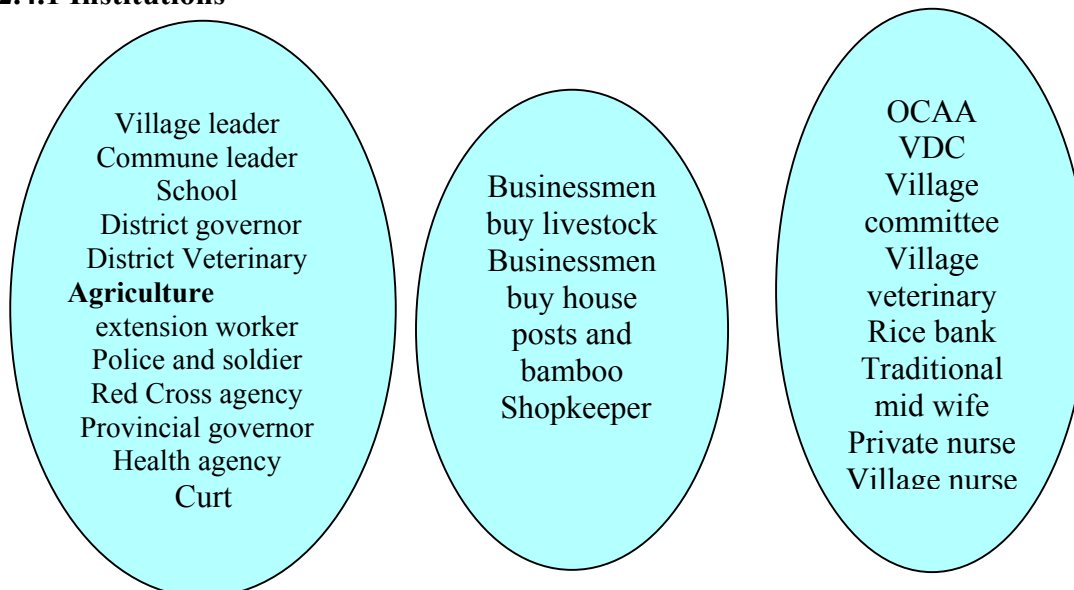


Table 4:

Institutions		Positive	Neutral	Negative
Government	Village leader	✓		
	Commune leader	✓		
	School	✓		
	District governor		✓	
	<b>District veterinary</b>	✓		
	Agriculture extension worker		✓	
	Soldier		✓	
	Police		✓	
	Red Cross agency		✓	
	Provincial governor		✓	
	Health agency		✓	
Curt		✓		
Marketing	Businessmen buy livestock	✓		
	Businessmen buy house posts	✓		
	Businessmen buy bamboo	✓		
	<b>3 Shopkeeper</b>	✓		
Civil society	CAA	✓		
	VDC	✓		
	Village committee	✓		
	Rice bank	✓		
	Village veterinary	✓		
	Traditional mid wife	✓		
	Private nurse	✓		
	Village nurse		✓	

Referring to the result of the Venn diagram there were three groups of institutions involved and relevant to the villagers, these institutions being the government, marketing and civil society. The three groups have different impacts on the livelihood of villagers.

- Government: Villagers recognized that people from the government have the most relevant role with the villagers; villagers need the support from them. However they are not satisfied with the service and support that had been provided from these institutes except from the village leader, commune leader, school and district veterinary.
- Marketing: a few businessmen come to village to buy livestock and any forestry produce especially house posts and bamboo. Villagers thought these people very important for their livelihood as it difficult for villagers to transport their produce directly to the market and they are not as skilled in business as the people in the town. In the village there are 5 grocery shops. As the villagers rarely go to the market they usually buy food ingredients, clothes and other goods in the village.
- Civil society: Right now the civil society play an important role in managing and organizing the village. The OCAA has been working in this village since 1995 and villagers recognized that any involvement from OCAA really helps to reduce the poverty in the village. So far the OCAA has established a fishery committee, VDC, rice bank, and trained villagers to be veterinary and nurse. At the moment the fishery committee plays an important role protecting fish from illegal fishing.

#### **2.4.2 Process**

Recently the government changed some policies and the change is impacting on the livelihood of the poor people.

Overall the villagers were aware that the local authority had issued a directive to ban tree felling to make charcoal and timber. They are satisfied with their intervention because it helps to preserve the remaining natural resources, but on the other hand they face unemployment problems. When they cannot cut trees to make charcoal and timber they have to turn to planting rice and other farming activities but they have no land and other equipment.

The abolition of the fishing lot and assignment of it to the communities for managing and developing is a positive sign for the villagers, however they have not been benefiting. The rich households in the village have been able to dominate the resources as they are able to use big fishing tackle, which the poor cannot afford.

## **2.5 Livelihood Strategy**

The livelihood strategy of the villagers varies depending on their resources and individual skill. The medium and under medium households rely mainly on monsoon rice and secondary crops, these groups have enough capital to buy agricultural equipment, have enough draft animals and have money to hire labor. These materials and draft animals enable these groups more access to natural resources, they can use the animals and cart for transport trees and bamboo from the forest. The poor groups and very poor who have no draft animals and carts cannot go into the forest to cut trees and bamboos by themselves.

As with the medium and under medium groups, monsoon rice and secondary crops are important for the poor group too but this group have smaller areas to plant. Alternatively this group has to hire or work to exchange the draft animals from the medium and under medium groups. To cut trees and bamboo they need to cooperate with those that have draft animals and carts.

Nearly all the families in very poor groups have no draft animals or equipment to plant rice and secondary crops, moreover they have less access to the natural resources, especially the forest. This group relies on employment from the medium and under medium groups. They go to the forest to cut trees and bamboo and other resources with the households who have draft animals and carts as labourers.

In general villagers fish using small traditional fishing gear, they catch fish for family consumption or selling in the village. No businessmen buy fish from the village to sell at the market in town although the fish price in the village is about 50% cheaper than the market price in town.

### **Problem Ranking And Problem Tree Analyses**

Currently the villagers face some problems relating to their livelihood. The study team enabled the villagers to raise these problems which were then ranked to find the most important one and analysed to understand the root cause in order to develop an action plan towards solving them. There were 8 identified problems which were ranked through the pair ranking method.



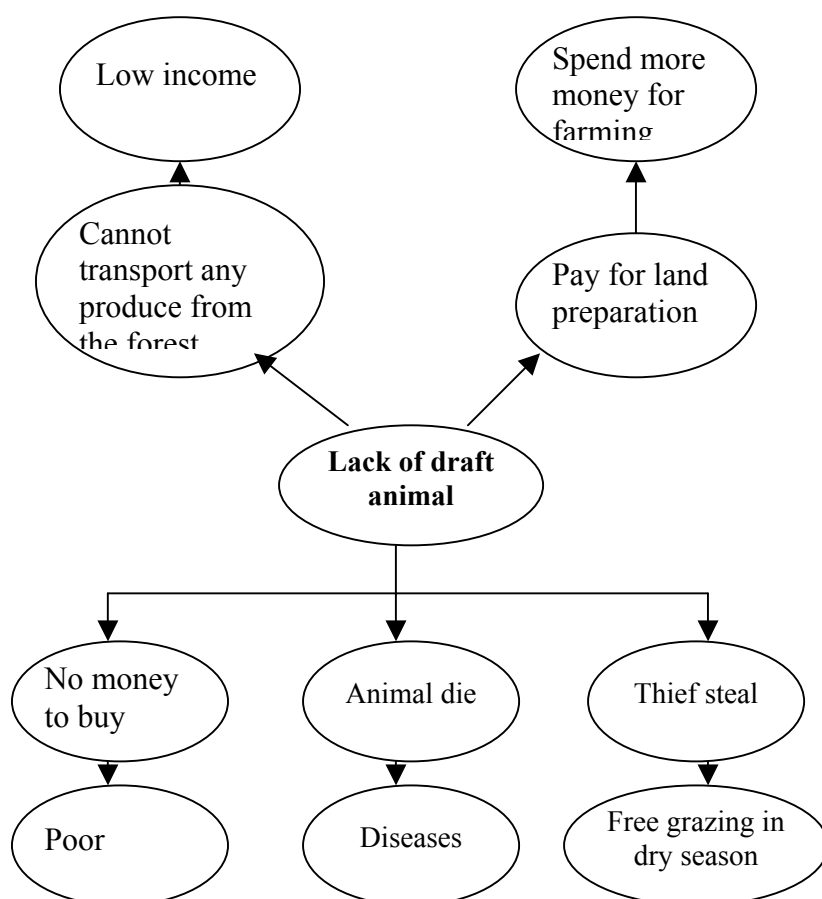
Table 5: *Pair Ranking Of Problems*

<b>Animal disease</b>	<b>Human disease</b>	<b>Shortfall of food</b>	<b>No pagoda</b>	<b>Lack of draft animals</b>	<b>Poor quality road</b>	<b>Lack of teacher</b>	<b>Fish decline</b>
	Human disease	Animal disease	Animal disease	Animal disease	Animal disease	Animal disease	Animal disease
		Human disease	Human disease	Human disease	Human disease	Human disease	Human disease
			Short fall of food	Lack of draft animals	Short fall of food	Short fall of food	Short fall of food
				Lack of draft animals	No pagoda	Lack of teacher	No pagoda
					Lack of draft animals	Lack of draft animals	Lack of draft animals
						Lack of teacher	Poor quality road
							Lack of teacher
6	7	4	2	5	1	3	0

The results of pair ranking problem showed that the first problem is human disease, second, animal diseases and third, lack of draft animals. The first and second problems were being investigated by OCAA, an organization that has been working in this village since 1995, so the team and villagers decided to analyze the third problem in order to develop an appropriate solution action plan.

Most of the poor and very poor families lacked draft animals. Without draft animals this group cannot transport bamboo, trees and other produce from the forest. They have to work with other villagers who have draft animals, so their benefit from utilising natural resources is less. The draft animals are also the main source of income generation; they can be hired out for draft purpose for a good price.

### Problem Tree Analysis



through disease and thieves stole the animals when they were allowed to roam free to find food during the dry season. The OCAA has helped to train and provide some vaccine to protect animals from diseases. Villagers felt that the theft problem could be solved by the community, however the lack of money would require outside investment to form an animal bank in the village.

### **Action Plan To Form Animals Bank**

Villagers who participated in the discussion have contributed the ideas to develop the action plan. This plan needs help from outside, however villagers should be ready to form the committee and policy to interpret this plan. First they need to think of how to form the committee, and then the committee could identify suitable members and then develop the policy to start the programme.

*table 6; Action Plan*

<b>Step</b>	<b>Initiative</b>	<b>Participants</b>	<b>Materials</b>	<b>Time</b>
Inform all villagers about the animal bank	VDC and village veterinary	Villagers		December 2002
Form the committee	VDC	Villagers		February 2003
Find and identify participant	Committee, village veterinary	Village and commune leader and villagers		February 2003
Find donor	Committee and VDC	The committee and carpenter		February- March 2003
Develop the policy	Committee and participants	Villagers and neighboring villagers		March 2003
Start the programme	Committee and participants	Villagers		April 2003

## Livelihood Frame Work Analysis

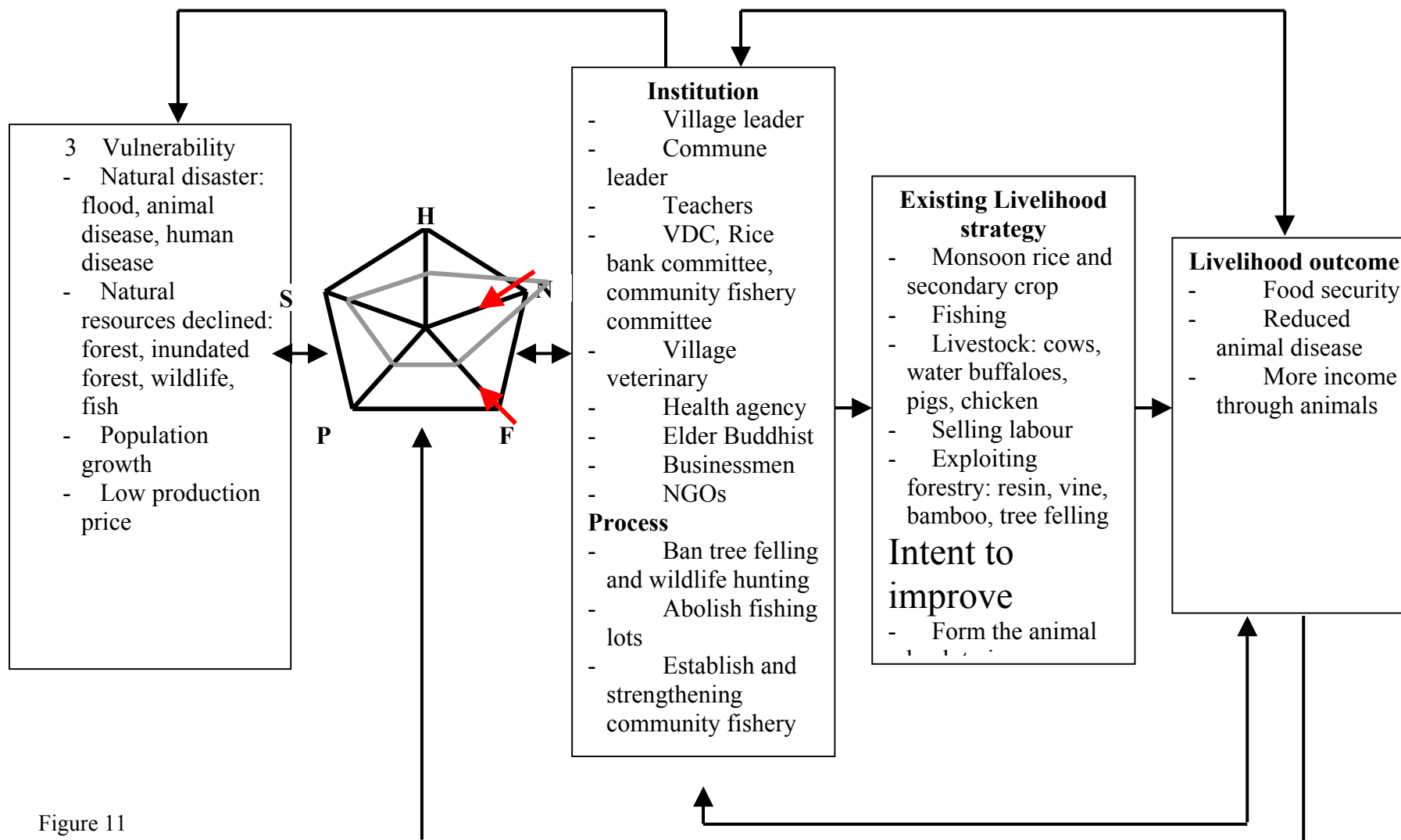


Figure 11

### 3. CONCLUSIONS

As a result of the issues and problems discovered during the period of study in Kaoh Chbar village the team were able to reach some conclusions on the current situation and recommendations for the future.

- In general the villagers have good relationships with each other. They have key people with whom it is easy for the outside to contact and cooperate.
- The population growth leads to an increase in natural resource utilization and ultimately the natural resources decline
- The main source of income generation for the villagers is reliant on natural resources, especially forestry, which leads to their degradation.
- Farming production relies on a natural ecological balance, which is why the villagers face a short fall of food when the natural environment is changed.
- The businessmen who manage the sources of credit charge high interest rates.
- The infrastructure of the village is poor. This impacts on the produce price, this being 50% lower in the village than the market price.
- The poor households suffered from diseases and shortfall of food.

Suggested improvements: -

- Should receive advice related to health issues
- Should investigate possibilities in the field of agriculture especially agronomy and animal husbandry.
- The capacity of the established community fishery needs to be strengthened in order to manage the natural resource in a sustainable manner.
- The community fishery and other community projects need encouragement and materials.
- Should provide credit in the form of cows or buffalos to help the poor households.