Final Evaluation Report

Disaster Preparedness Action Planning in Prey Veng

AusAID
Australian Agency for International Development

Ian Ramage
Pann Sakda
Eng Sothy

care

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Inside front cover

The cover photograph shows a typical family safety hill in Kansom Ork Commune. CARE supported the family to dig and compact the first 20 cubic metres of soil. Families then added another 30 to 40 cubic metres on their own, to make the hills higher. Many families, like the one in this photograph, also built animal shelters on top of the hill providing their own labour and materials. This family has built a second and a third shelter on top of the hill for the family to evacuate during the annual flooding and to keep feed for the animals above the floodwaters. Families had repaired all the hills the evaluation team observed in this Commune after the 2002 floods and many had been improved. These family safety hills were good examples of local ownership, innovation and sustainable disaster management under the DPAP project.

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Ian Ramage	Team Leader
Reach Maviden	Researcher
Pann Sakda	Researcher
Eng Sothy	Researcher

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Executive Summary

The watershed of the Mekong and the Tonle Sap (Great Lake) Rivers occupy around 38 percent of Cambodia's land area and are home to 87 percent of the population. Every year the Mekong floods as a result of heavy rainfall in the upstream countries of China, Laos, Myanmar and Thailand. This flooding is vital to the production of floating and recession rice and fish spawning in the rivers and the Tonle Sap. These two products form the staple diet in Cambodia. Prey Veng Province, located in south eastern Cambodia, has been affected by a cycle of flooding and drought in the last three years beginning with the 2000 floods, which affected 30 percent of the population, killed 347 people, destroyed more than 7,000 homes and almost 350,000 hectares of rice.

In response, CARE Cambodia, in conjunction with the Provincial Department for Rural Development, undertook a two-year AusAID funded project in the province of Prey Veng. The project operated in four districts; Baphnom, Preah Sdach, Kampong Trabek and Peam Chor, encompassing 20 communes, comprising approximately 170,000 people. The two-year project was based around three basic components:

- Disaster Mitigation through Savings
- Mitigation Action Planning and Implementation
- Disaster Preparedness Action Planning and Implementation

The project allowed local authorities to identify local solutions to local problems. From 2001 a number of groups visited the DPAP project to evaluate the process of the project. The evaluation team and CARE wanted to avoid performing another review that would mirror the findings of previous visits. Therefore the terms of reference for the final evaluation were changed to focus on evaluating project impact rather than the process of implementation.

Over the course of three weeks in February 2003, the research team interviewed 311 households in 20 villages, representing 10 percent of the total savings bank membership (83 members) and 8 percent of MAP and PAP beneficiaries (228 households).

Disaster mitigation through savings - The aim of the banks was to encourage low-income families to save by making regular deposits in village banks, giving them a financial cushion that could be used in times of crisis or disaster. The results show a 98 percent increase in the number of people who saved before the floods from 2000 to 2002, and a 70 percent increase in the average amount saved by SMP members. Total borrowings increased by 132 percent and the number of households who borrowed money increased by 65 percent. More than 66 percent of all loans were found to have come from the village banks supported by CARE, and the average rate for any loan decreased from 9 percent in 2000 to only 3.5 percent by 2002. The percentage of loans for food had decreased and loans for buying fertiliser had increased dramatically. Overall, it appears that member's financial situations had improved considerably since the introduction of the SMP banks and much of these improvements are attributable to the banks supported by CARE.

Mitigation action planning/Preparedness action planning - The survey showed that, in general, the construction of MAP/PAP had gone smoothly, with few households reporting problems. The activities surveyed were:

Boats: In total, 71 boats of various sizes were constructed across 20 communes in four districts. The major benefit seen from these was lower expense; the average trip price on the CARE boats was 66 percent lower than private boats. Fifty-four percent of the households surveyed reported that they had travelled in the CARE boat during the flooding in 2002.

Radios: In total 123 radios were provided across 20 communes in four districts to facilitate communication and improve disaster response. Overall only 8 percent of households in villages with a radio reported benefits from the radios, and those households were very likely to be closely connected to the village chief.

Irrigation systems: Twelve of the 20 DPAP communes chose to rehabilitate dams or canals during planning. This helped in irrigation, but also provided many secondary benefits, including easier travel, fishing, and improved water supplies for livestock. On average households reported a 59 percent increase in paddy rice yield since CARE supported the rehabilitation of irrigation systems, and 72 percent of the households in eight villages used water from the CARE dam.

Safety hills: Safety hills have been used during flooding in Cambodia for many years. When the waters rise, families evacuate their animals to high ground, which is often a community safe area in the village. Twelve large community safety areas were rehabilitated and 350 smaller family safety hills were built. Overall, 74 percent of the households surveyed had used the safety hills during the 2002 floods. The hills were primarily used to keep people and animals above the floodwaters.

Roads: Eight of the twenty DPAP communes prioritised transport infrastructure and elected to repair a road within the commune. In four of the six communes, the road repair included rehabilitation of a canal that ran alongside the road. All of the families surveyed were pleased with the travel benefits from the rehabilitated roads, and several families reported that they were able to produce a dry season rice crop for the first time in many years.

Wells: Communities generally did not chose wells as major projects but where they were provided, 65 percent of the households used water from the wells provided by CARE, with the major benefit being water for cooking, drinking and washing every day.

Bridges: One commune in Kampong Trabek District chose to construct bridges. All the households there reported that they used the bridge, which makes it easier for children to walk to school and for everyone to visit the pagoda. One problem seen with the bridge is that it seems to have been poorly constructed, with significant damage after less than a year.

Schools: Five schools were repaired or built in three of the DPAP target communes, allowing children to be educated closer to their homes.

DPAP beneficiaries overall evaluated the project very positively. Rice yield increased, access to goods and services improved, lives and livestock were saved and affordable credit and savings were available to provide a financial cushion in times of disaster. These benefits far outweighed the process problems seen in earlier evaluations. As noted above 92 percent of the 228 families interviewed evaluated the project very positively indeed. All levels of the national disaster management structure also evaluated the project very positively. Without exception, they appreciated the close collaboration with CARE, opportunities for training and capacity building and local focus of the project.

It is difficult to quantify the impact of the DPAP program in wider disaster management terms. However, one method of estimating impact in reducing the impact of disasters is to compare flood data from before and after DPAP activities were implemented. Overall, the damage from flooding was 67 percent less in 2002 than in 2001. This percentage change is 2.3 times greater than the decrease in flood effects. Significantly, no deaths from flooding were recorded in the 2002 floods in the villages compared. This comparison suggests that the DPAP project has significantly decreased the impact of flooding in target areas of Prey Veng. Therefore, the potential for reducing the impact of future disasters in other communities using the lessons learned from the DPAP pilot is even higher.

Contents

Tables and Figures

Acronyms

AusAID	Australian Agency for International Development
CCDM	Commune Committee for Disaster Management
CDC	Commune Development Council
CPP	Cambodian People's Party
DCDM	District Committee for Disaster Management
DiPECHO	Disaster Prevention, Mitigation & Preparedness program of ECHO
DPAP	Disaster Preparedness Action Planning
ECHO	European Commission Humanitarian Office
FFW	Food for Work
FUNCINPEC	United National Front for an Independent, Neutral, Peaceful and Cooperative Cambodia
H.E.	His/Her Excellency
MAP	Mitigation Action Planning
MPWT	Ministry of Public Works and Transport
MRD	Ministry of Rural Development
NCDM	National Committee for Disaster Management
NGO	Non Government Organisation
PAP	Preparedness Action Planning
PCDM	Provincial Committee for Disaster Management
PDRD	Provincial Department of Rural Development
PRASAC	Programme d'appui au Secteur Agricole du Cambodge
R	Riel (Cambodian currency)
SBC	Savings bank committee
SMP	Saving Mobilisation Project
VDC	Village Development Council
VC	Village Chief
WFP	World Food Program

Introduction

Geography and Disasters in Cambodia

The watershed of the Mekong and the Tonle Sap (Great Lake) Rivers occupy around 38 percent of Cambodia's land area and are home to 87 percent of the population[1]. Every year the Mekong floods as a result of heavy rainfall in the upstream countries of China, Lao P.D.R, Myanmar and Thailand. This flooding is vital to the production of floating and recession rice and fish spawning in the rivers and the Tonle Sap. These two products form the staple diet in Cambodia.

The Tonle Sap is linked to the Mekong River by a 100km long channel known as the Tonle Sap River. During the rainy season from May to October the water level in the Mekong rises backing up the Tonle Sap river and causing it to flow into the lake. During these months the lake floods from 3000 sq. km to over 7500 sq. km and the maximum depth increases from 2.2 meters to over 10 meters. As the water level in the Mekong drops in the dry season, the Tonle Sap River reverses its flow and drains the waters back into the Mekong. During the wet season and when the Tonle Sap drains the Mekong regularly floods the land on either side of the river in up to four metres of water.

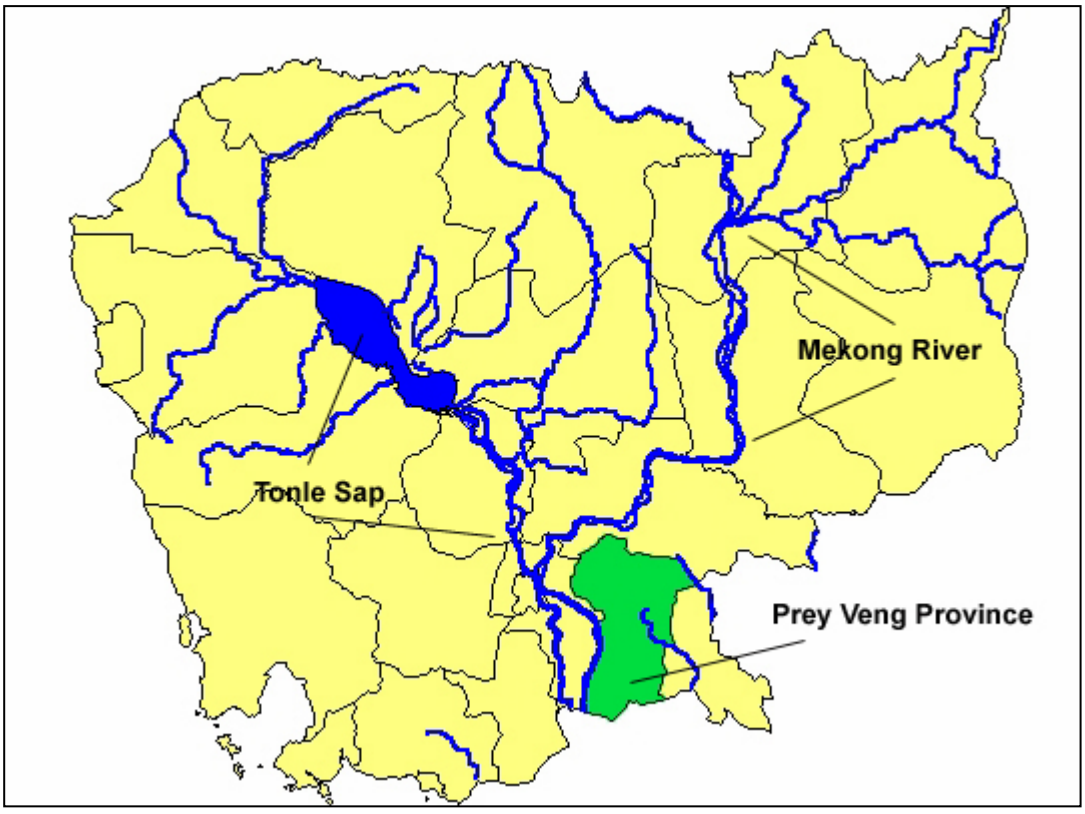

Figure One: Major Rivers in Cambodia

[1] CARE/DIPECHO 2001

Prey Veng Province

Prey Veng Province is located in south eastern Cambodia. It borders on Kandal in the west, Kampong Cham in the north, Svay Rieng in the east and Vietnam to the south. Prey Veng is about 100km from Phnom Penh and covers 2.5 percent of Cambodia's land area. It is located in the Mekong River flood plain and the Mekong forms the western border for much of the province. The map above shows the location of Prey Veng province and the major rivers in Cambodia.

Prey Veng has been affected by a cycle of flooding and drought in the last three years beginning with the 2000 floods. The 2000 floods affected 30 percent of the population, killed 347 people, destroyed more than 7,000 homes and almost 350,000 hectares of rice. In the last three years, more than 80 percent of the land area in Prey Veng was inundated by flooding.

Disaster Preparedness Action Planning (DPAP) Project

A study by CARE entitled *'Risk Mitigation and Disaster Management among Rural Communities in Cambodia*[2]*'* concluded that during the 2000 floods, most families were able to cope to some extent. However, the long duration of the flood and the extreme poverty of the majority of the villagers mean that a significant number of families are being pushed further into the cycle of debt and poverty. It warned that this high vulnerability in Prey Veng would be disastrous for tens of thousands of villagers should the floods strike again in 2001.

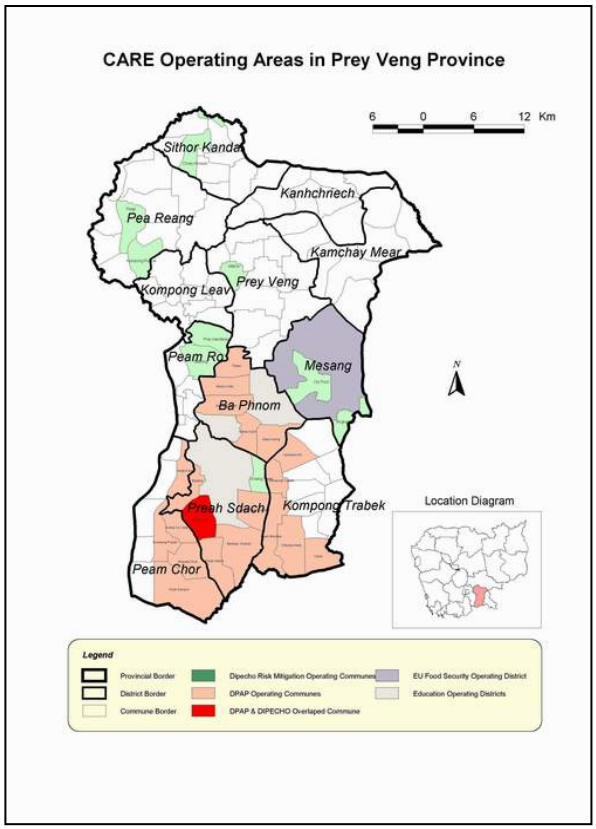

Figure 2: CARE Operating Areas in Prey Veng

In response, CARE Cambodia, in conjunction with the Provincial Department for Rural Development, undertook a two-year AusAID funded project in the province of Prey Veng. The project began in February 2001 and was due to be completed by the end of January 2003. The project operated in four districts; Baphnom, Preah Sdach, Kampong Trabek and Peam Chor, encompassing 20 communes, with approximately 170,000 people.

The major objective of the project was to implement a model for bottom-up disaster preparedness that was tested at commune, district and provincial levels. The project built the capacity of local authorities and villagers to identify, implement and monitor appropriate forms of disaster mitigation and preparedness measures. By undertaking this project at a community level, disaster planning will be much better informed by, and appropriate to villager priorities.

DPAP worked closely with the Provincial Rural Development Committee (PRDC) and Provincial Committee for Disaster Management (PCDM) to effectively reach the most

[2] Ibid.

vulnerable communities. The PRDC and CARE worked together to undertake the monitoring of the project. The two-year project was based around three basic components:

1. Mitigation Action Planning (MAP) and Implementation

Local communities developed their own mitigation plans to recover from previous floods/droughts and implemented those plans through small grants, in kind contributions and cash for work.

2. Disaster Preparedness Action Planning (PAP) and Implementation

Communes and Districts developed and implemented Disaster Preparedness Plans using small grants. A framework for developing the Disaster Preparedness plans was first piloted and adapted. This included an analysis of vulnerabilities based on the mitigation action plans, an analysis of capacities and suggestions for strengthening their capacity either through improved organisation within the commune or specific training or preparedness actions.

3. Disaster Mitigation through Savings

To reduce vulnerability at the household level, community-based savings mobilisation was piloted replicating a programme already implemented by CARE in Cambodia. Savings helped to develop the capacity of households to withstand disasters by promoting and encouraging low-income families to increase their liquid asset base through the deposit of regular savings at a village bank. These savings helped to minimise the worst effects of disaster.

The project allowed local communities and authorities to assess and prioritise competing needs, draw up plans to meet those needs and then implement and monitor the plans. This process helped to build capacity at commune, district and provincial level and helped local authorities identify local solutions to local problems. In addition, lessons learned from the project were disseminated to the National Committee for Disaster Management (NCDM) for inclusion in policy planning and practice. Each step in the MAP and PAP processes is listed in Appendix one.

Over the past two years, DPAP faced a number of constraints that affected project implementation. The project was to start in February 2001, however some project staff were not recruited until May and there was no full time project manager. An interim manager started full time in June, however it proved difficult to recruit any staff with previous disaster management experience. After several attempts at recruiting an experienced manager within Cambodia, CARE recruited an expatriate manager with disaster management experience from the Philippines in October 2001. No other project staff had previous disaster management experience and this entailed a steep learning curve for project staff particularly in the first year of the project.

At the same time, the main AusAID funding for the project was to have been supplemented by significant support from the World Food Program (WFP) in the form of rice for Food-For-Work activities. Due to refocusing of the WFP program at the time, this support was withdrawn and DPAP were forced to rely entirely on cash payments for construction of MAP infrastructure. This in turn meant that the resources available for commune MAP projects was limited to a strict $4000 per commune and some compromises were made to planned MAP projects. At this stage of the project, planned road and dam lengths were shortened and the overall number of projects was reduced. WFP withdrawal also meant more time was needed for planning and monitoring to determine Cash-For-Work estimates and payments.

The geographical target area for the project was also very broad and led to staffing problems. Originally, the project planned for one field officer per district. When MAP projects were being implemented, these four staffs were faced with the task of monitoring over 400 individual projects taking place over a wide area. The staff to village ratio was one staff for every 30 villages. Due to the late project start, the 2001 floods had arrived by the time MAP workshops were completed and communes had to wait for flood waters to recede before beginning construction. MAP construction was still underway when the PAP component was beginning and this exacerbated the staffing shortages.

Background to the Evaluation

From January until December 2002, a number of groups visited the DPAP project to evaluate the process of the project. Some were external consultants who conducted a gender study (July), baseline study (August), savings programme review (July) and beneficiary accountability study (December). Others were internal visits from CARE or AusAID to monitor progress like the Annual Monitoring Visit (March) and Country Director's visit (May). Some of these studies aimed to monitor progress and most aimed to evaluate the process of DPAP implementation in some specific area like savings or gender. The evaluation team and CARE wanted to avoid performing another review that would mirror the findings of previous visits. Therefore, the terms of reference for the final evaluation were changed to focus on evaluating project impact rather than the process of implementation.

A baseline study was conducted for the DPAP project. Unfortunately due to various delays, the baseline was not conducted until late in 2002. This made it doubtful whether comparing the baseline data against the final evaluation would accurately assess the impact of the project. The team who carried out the baseline recognised this limitation and changed the focus of their assessment slightly. The following quote from the baseline survey report explains this change of focus.

> *"Thus the study could not really be considered a "baseline" as the term implies. Rather the main purpose of the study was to establish data against indicators and assumptions in the model allowing process and impact to be evaluated by DPAP project managers."*

The lack of a comparable baseline made it difficult to find a realistic method of assessing the impact of the project. Therefore, after discussions with CARE, the research team decided to adopt a retrospective baseline for the evaluation. The baseline that the evaluation used was the annual flooding over the last three years. For example, the first question in the interviews with members of the village banks was *Did you save money before the floods in 2000?* The second question was *Did you save money before the floods in 2001?* and so on. This allowed beneficiaries to recall information around a well-remembered event – the annual flooding. For interviews with members of the village banks supported by CARE, interviewees were asked questions around the flooding in 2000, 2001 and 2002 where we were interested in seeing changes over time. This was useful for examining changes over time for example in saving patterns or fluctuations in loan interest rates. Interviewees had no difficulty answering questions phrased this way recalling how much money they had borrowed or saved each year. For the MAP and PAP interviews, respondents were simply asked about the situation before DPAP had begun work in the area.

Although this method of assessing impact was not ideal, retrospective baselines are widely used and recognised where pre-project data is incomplete. No recent migrants were interviewed and interviewees had no difficulty answering questions about the situation before DPAP. Overall, given these factors, the size of the sample and the internal consistency of the results, the results from the evaluation are likely to be valid.

Method

The primary source of information for the evaluation was household interviews with beneficiaries in DPAP target areas. Secondary information was collected from interviews with local officials, DPAP field and seconded staff and from the national disaster management structure at district, provincial and national levels. Documentation on the DPAP project was also collected from the CARE offices in Neak Leoung and in Phnom Penh. CARE were very helpful in this regard providing copies of internal review and monitoring documents as well as a number of reports from external consultants who had visited the project. Finally, some comparisons of official village level flood data are examined in the discussion at the end of the report.

Household Interviews

Two questionnaires were designed for the research, one for savings bank members and one for MAP and PAP beneficiaries. The questionnaires were designed and written in Khmer and then translated into English by the research team. Given the low level of general education in the DPAP project area, questions were kept concrete rather than abstract and short rather than long. Some time was spent working to make the questions as simple and easy to understand as possible. Copies of the questionnaires are included as appendix two and three.

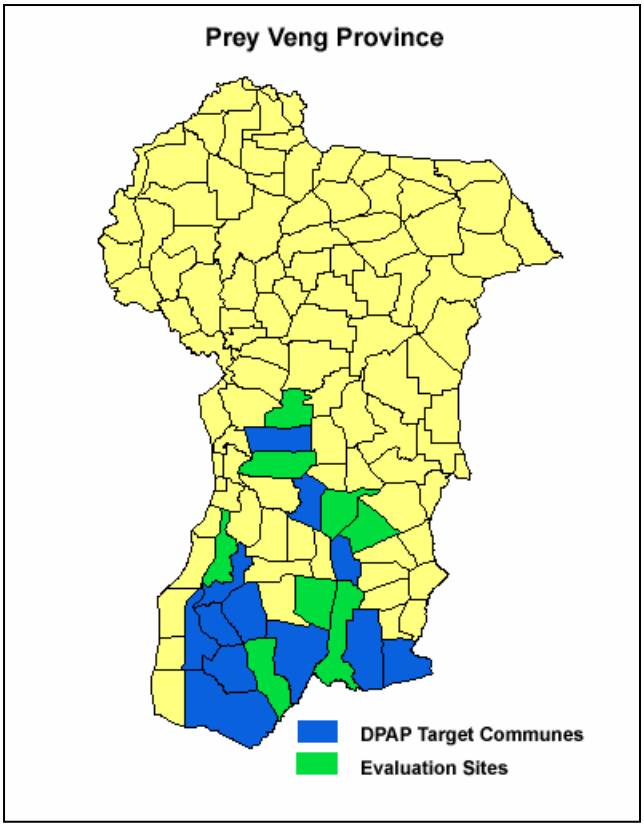

Figure 3: DPAP Communes and Evaluation Sites

The research team interviewed a random representative sample of households in each village. On arriving at each village, the team would meet with village authorities and ask about the shape and size of the village. Then each of the three interviewers would travel to different corners of the village and work back towards the centre, while the research team leader interviewed village authorities and viewed the MAP and PAP infrastructure. To avoid possible bias in the results no households were pre-selected for interviews by DPAP staff or local authorities and no group interviews were held.

Villagers were interviewed in their homes with only family or occasionally a neighbour present. Interviewers generally asked to talk inside the house to reduce interruptions during the interviews. No village authorities or DPAP staffs were present for household interviews. Interviewees were told that their names would not be recorded and the only identifying information recorded on the questionnaire would be the village name.

All interviews were collected during three weeks in February 2003. Interviews took from 10 minutes to half an hour and no families refused to be interviewed. With only a few exceptions, households were enthusiastic and interested in talking with researchers. Many families had stories to tell about the work DPAP had done in their village. Even those who were critical were pleased that CARE wanted to know their opinions.

Sampling

The evaluation team planned the following geographic sample for MAP and PAP beneficiaries:

- Two communes from each of the four DPAP target districts
- Two villages from each of the eight communes
- Four villages from each of the four DPAP operating districts

However, due to problems with road access, one commune and two villages could not be sampled. During the three weeks of data collection in Prey Veng, the research team was able to interview 311 households in 20 villages. Additional interviews were conducted with officials from village to national level, seconded staff and DPAP staff. The following table shows the DPAP target areas and the evaluation sample.

DPAP Intervention Areas	Evaluation Sample	Sampling Percentage
4 districts	4 districts	100%
20 communes	7 communes	35%
115 villages	14 villages	12%
4 Savings Banks	4 Savings Banks	100%
170,000 Beneficiaries	1717 in 311 households	1%

Table 1: Evaluation Sample

Savings Bank Members

The following table shows the breakdown of the savings bank sample.

Savings Bank Member Interviews					
No	Village Name	Date of interviews	Female headed households	Bank members interviewed	Bank membership
1	Chey Arkhol	4/2/03	2	15	210
2	Krosang Char	4+18/2/03	4	27	152
3	Kamrieng	5+18/2/03	6	16	304
4	Chork	5/2/03	3	4	
5	Angkal	5/2/03	2	6	
6	Taso	5/2/03	5	15	150
Totals			**22**	**83**	**816**
Sample of All Savings Bank Members			**10%**		

Table 2: Savings Bank Interviews

The evaluation of the Savings component covered the following areas for all four banks.

Savings Bank Evaluation Coverage		
District	**Bank**	**Village**
Baphnom	Kamrieng/Chork	1. Kamrieng
		2. Chork
		3. Angkal
	Taso	4. Taso
Preah Sdach	Chey Arkhol	5. Chey Arkhol
	Krosang Char	6. Krosang Char

Table 3: Savings Evaluation Coverage

MAP and PAP Beneficiaries

The following table shows the MAP and PAP sample.

MAP and PAP Beneficiary Interviews						
No	Village Name	Date of interview	Female headed households	Poor households	Households interviewed	Population (households)
1	Kroich	7+10/2/03	8	8	19	322
2	Baliang	10/2/03	2	6	12	226
3	Prek Trieng	11/2/03	7	2	14	154
4	Angkor Ang	11/2/03	3	7	16	345
5	Khla Kham	12/2/03	6	8	17	135
6	Thnoung	13/2/03	3	3	16	141
7	Trobeik	13/2/03	4	5	16	100
8	Cheung Tuk	14/2/03	6	6	16	136
9	Porng Pos	14/2/03	5	8	16	125
10	Krachab Krowm	19/2/03	0	7	16	178
11	Peamonteer	19/2/03	0	7	17	122
12	Ampil	20/2/03	0	6	16	319
13	Anlong Char	20/2/03	1	8	15	246
14	Samnoy	21/2/03	5	11	22	171
Totals			**50**	**90**	**228**	**2720**
Sample of households in 14 villages					**8%**	
Total beneficiary interviews			**311 Households**			

Table 4: MAP and PAP Interviews

The evaluation of the MAP and PAP components covered the following target areas.

MAP/PAP Evaluation Coverage		
District	**Commune**	**Village**
Baphnom	Sdao Kong	1. Thnoung
		2. Trobeik
	Rong Domrey	3. Porng Pos
		4. Cheung Tuk
Preah Sdach	Senareach Odom	5. Khla Kham
		6. Samnoy
	Preah Sdach	7. Ampil
		8. Anlong Char
Kampong Trabek	Kansom Ork	9. Kroich
		10. Baliang
	Peamonteer	11. Krachab Krowm
		12. Peamonteer
Peam Chor	Angkor Ang	13. Prek Trieng
		14. Angkor Ang

Table 5: MAP/PAP Evaluation Coverage

Demographic Characteristics

Some demographic characteristics of the households surveyed were analysed after the data had been collected to discover any possible bias in the sampling. Among the 228 MAP/PAP beneficiary households the sample found 90 (40%) were very poor families. Assessing poverty was not one of the objectives of the study and therefore poverty ratings were only a crude estimate by each interviewer at the conclusion of the interview. A family was marked as very poor if the house was made of palm thatch, there were no visible assets or livestock, there were few productive family members and little agricultural land.

Overall 72 of the 311 households interviewed were female-headed or 23 percent. By comparison, the national average for female headed households from the 1998 census is 26 percent. The average household size for the sample was 5.5 persons and the national average from the 2001 Demographic Health Survey is 5.5 persons. The average household size in Prey Veng Province is 4.9 persons (1998 Census).

The evaluation team found that 21 percent of the households surveyed had members who were engaged in migrant labour. The majority (85%) was working in Phnom Penh. Husbands and daughters were the most common migrants and most work was reported to be in construction or the garment industry. Overall, the demographic characteristics of the evaluation sample was consistent with national and provincial data and therefore is likely to be representative.

Type of MAP and PAP Surveyed

The evaluation team conducted interviews in villages with a range of different MAP and PAP infrastructure. More common infrastructure like dams (12 out of 20 communes) and safety hills (12 community and 350 individual hills) were emphasised in the sampling. The following table shows the villages surveyed by MAP and PAP type.

MAP Projects				
Dam	**Safety Hill**	**Road**	**Bridge**	**School**
1. Prek Trieng	1. Kroich	1. Khla Kham	1. Krachab Kr	1. Peamonteer
2. Angkor Ang	2. Baliang	2. Samnoy		
3. Cheung Tuk	3. Prek Trieng			
4. Porng Pos	4. Thnoung			
5. Ampil				
6. Anlong Char				
7. Thnoung				
8. Trobeik				
PAP Projects				
Boat	**Radio**	**Well**	**Water Pump**	**Latrine**
1. Kroich	1. Kroich	1. Kroich	1. Porng Pos	1. Khla Kham
2. Baliang	2. Baliang	2. Khla Kham		
3. Prek Trieng	3. Prek Trieng	3. Baliang		
4. Angkor Ang	4. Angkor Ang			
5. Khla Kham	5. Thnoung			
6. Thnoung	6. Trobeik			
7. Trobeik	7. Cheung Tuk			
8. Cheung Tuk	8. Krachab Kr			
9. Porng Pos	9. Peamonteer			
10. Krachab Kr	10. Ampil			
11. Peamonteer				
12. Ampil				
13. Anlong Char				
14. Samnoy				

Table 6: Evaluation Sites by MAP/PAP Type

Results - Disaster Mitigation through Savings

CARE has been operating small economic activity projects in Cambodia since the early 1990's. In 1998, CARE introduced a series of village banks in Battambang Province. The aim of the banks was to promote low-income families to mobilise voluntary savings through regular deposits in village banks. This would in turn encourage families to create a financial cushion that could be used in times of crisis or disaster. Based upon the success of the village banks in Battambang, CARE Cambodia included *Disaster Mitigation through Savings Mobilisation* as a complimentary activity to Mitigation and Preparedness Action Planning in the DPAP project.

The aim was to set up 10 village banks with a total membership of 550 by the end of the project. By the time the evaluation team conducted interviews in February 2003, there were over 800 bank members from eight villages in Prey Veng. Only four banks had been set up however, they had been so popular that some banks had expanded to draw members from surrounding villages. Membership has been increasing rapidly since the banks were set up, as more villagers become aware of the advantages of the banks and trust in the banks has grown.

Each bank is made up of a number of groups and an elected Savings Bank Committee (SBC). This committee undertakes the regular monthly activities and basic record keeping of deposits, loan processing and repayments. Loan capital is derived from voluntary and compulsory contributions from each member. At the time of the evaluation, the minimum compulsory savings were 1,000 Riel (US$ 0.25) per member per month. Voluntary savings may be any amount. Interest on savings is paid at 12 percent per annum on compulsory savings and eight percent on voluntary savings. Loans interest rates are three percent per month and should be repaid within three months. At the time of the evaluation, DPAP staffs and SBCs were engaged in simplifying procedures and capacity building to allow the banks to continue after the DPAP project ends.

The evaluation team interviewed a random selection of ten percent of savings bank members in six villages. As mentioned previously, members were asked about their financial situation around the 2000, 2001 and 2002 floods. All the banks were set up in late 2001 and by 2002 were running well with a growing membership. Therefore, respondent's answers from 2000 represents the pre intervention condition, 2001 is early in the intervention and 2002 is post intervention. Within the DPAP program, the banks are often referred to as the *Savings Mobilisation Project* or SMP banks.

All Savings

The first set of questions in the savings bank interviews asked about savings and savings habits. These questions did not only ask about savings at the CARE supported village banks but any household savings. The first objective of the SMP banks outlined in the original proposal was as follows:

"The prime objective of the Savings Banks is to encourage low income families to create and enhance their savings habits leading to self reliance and providing a cushion in times of crisis and disaster.[3]"

Therefore, the first question in the savings interviews aimed to discover the number of members who had saved money before the introduction of the SMP banks. This would in

[3] DPAP Project proposal to AusAID, CARE 2000.

turn allow us to quantify the change in the number of members who had saved since the introduction of the banks.

Question: Did you save before the floods?

All respondents answered the question. N = 83

- 51 percent saved before the floods in 2000.
- 61 percent saved before the floods in 2001.
- 100 percent saved before the floods in 2002.

The results show a 98 percent increase in the number of people who saved before the floods from 2000 to 2002. This indicates that savings habits among the sample of savings bank members interviewed have changed considerably since the introduction of the village banks. This also shows that the SMP banks were successful in their primary objective to create savings habits among members.

Question: How much did you save before the floods?

All respondents answered the question. N = 83

- Total savings were 8,224,000 Riel (US$ 2,056) in 2000
- Total savings were 13,919,000 Riel (US$ 3,480) in 2002.

- Average savings per member before the 2000 floods were 99,000 Riel (US$ 25).
- Average savings per member before the 2002 floods were 168,000 Riel (US$ 42).

From 2000 to 2002, there was a 70 percent increase in the average amount saved by SMP members. Therefore the number of people who saved has increased significantly and the amount saved also increased.

Question: How did you keep your savings?

All respondents answered the question. N = 83

Some respondents kept savings in more than one form i.e. some in gold and some in Riel so that percentages total more than 100 for each year. The following table shows how savings were kept for each year.

	Riel % of respondents	**Dollars** % of respondents	**Gold** % of respondents	**Rice** % of respondents
Before 2000 floods	86%	2%	17%	5%
Before 2001 floods	84%	4%	10%	4%
Before 2002 floods	100%	0%	4%	1%

Table 7: Type of Savings by Year

How people keep their savings has changed as a result of the savings bank. All interviewees now keep their savings in Riel and earn interest on money saved. Before the savings banks began, savings were kept in the home in a variety of forms although cash savings in Riel were predominant. Before the banks a small percentage of savings were kept in different forms mostly in gold.

Overall, the results from the savings questions indicate that savings habits have changed since the introduction of the banks. More people save than in previous years, the amount saved has increased and savings are more likely to be kept in Riel and earn interest than before the banks were introduced.

All Loans

Similar to the questions about savings habits, all members were asked about loans from any source in 2000, 2001 and 2002. Overall, respondents were not reluctant to discuss loans they had taken in the past. They told interviewers how much they had borrowed, the source of the loan and the interest rate. However, given the nature of the topic it is possible that some members had borrowed money but did not report this to interviewers.

Did you borrow money before or after the floods?

All respondents answered the question. N = 83

The following table shows the percentage of respondents who borrowed money in each year and whether the loan was before or after the floods.

	2000	2001	2002
Borrowed before the floods	23%	24%	35%
Borrowed after the floods	37%	25%	52%
Borrowed before and after	7%	0%	14%
Members reporting any loan	53%	49%	84%

Table 8: All Loans by Year

Generally, more people borrowed after the floods than before. This is consistent with the results of group discussions carried out with bank members during the baseline survey in 2002. This previous report noted that the need for credit was greatest after the flooding when floods may have destroyed livestock, food, possessions and seed stocks.

More people borrowed money after the floods in 2000 than in 2001, perhaps reflecting the severity of the flood disaster in 2000. Overall about half the respondents borrowed money in 2000 and 2001. However, since the introduction of the savings banks, loans have increased in all categories. In 2002, 84 percent of the savings bank members had borrowed money. About half of the members had borrowed money after the floods in 2002 and a third had borrowed before the flooding.

How much did you borrow?

In 2000, total borrowings were 5,895,000 or nearly six million Riel (US$ 1,500). By 2002, this had increased to 13,710,000 (US$ 3,428). Therefore, total borrowings increased by 132 percent. In the same period the number of households who borrowed money increased by 65 percent. This shows a substantial increase in the number of people able to access credit and the amount available to borrow since the introduction of the village banks.

In 2000, the average loan size was 137,000 Riel (US$ 34.25). By 2002, this had increased to 193,000 Riel (US$ 48.25). This means that the average loan size has increased by 41 percent since the introduction of the SMP banks.

What was the loan used for?

Most loans were for multiple purposes so percentages total more than 100 for each year. The percentage given is the percentage of loans for that year. The following table shows the purpose of all loans by each year.

2000		2001		2002	
Loan purpose	**%**	**Loan purpose**	**%**	**Loan purpose**	**%**
Food	69%	Food	48%	Fertiliser	56%
Medical	40%	Fertiliser	35%	Food	35%
Fertiliser	40%	Medical	23%	Medical	24%
Animals	19%	Animal	18%	Rice Seed	14%
Rice Seed	14%	Rice Seed	18%	Machine costs	13%
Goods to sell	7%	Goods to sell	13%	Animal	13%
School costs	7%	Build house/well	13%	Goods to sell	11%
Build house/well	7%	Hire labour	5%	Repay loan	7%
Fishing net	7%	Ceremony	5%	Hire labour	7%
Hire labour	5%	Machine costs	5%	Ceremony	6%
Machine costs	5%	Fishing net	3%	School costs	6%
Travel	2%			Build house/well	6%
Repay loan	2%			Fishing net	4%
				Bicycle	1%
				Travel	1%

Table 9: Loan Purpose by Year

Loans were taken for a variety of purposes in each year. In 2000, 69 percent of loans were for food and 40 percent were for medical expenses, many loans in 2000 were taken to buy food and pay for medical expenses. This probably reflects the severity of the flooding in 2000. Respondents reported that food was expensive and there was a lot of illness following the flooding in that year.

After the village banks were established there were some changes in the purpose of loans. By 2002, the percentage of loans for food had decreased and the loans for buying fertiliser had increased dramatically. Fertiliser loans are discussed in more detail under loans from the SMP banks. In 2002, loans were taken for a larger variety of purposes than in previous years. This probably reflects the increased access to credit brought about by the SMP banks. Loans for food to eat and medical expenses have decreased over time. As more credit and cheaper interest rates become available, people are able to take loans for less urgent reasons.

Case Study - Benefits from the Village Bank

I live in Krosang Char village, Senareach Odom Commune, Preah Sdach District, Prey Veng Province. My husband passed away seven years ago. He got sick from malaria when he was working in Pailin. Now, I live with my two daughters running a small business in the village selling deserts, fried bananas and Khmer noodles. After the floods in 2001, I borrowed 50,000 Riel from PRASAC to run my business. I got 2,000 to 3,000 Riel profit per day and I saved money to repay my debt. At the end of 2001, CARE founded a savings bank in my village and I started to save money in the bank. In 2002, I borrowed 500,000 Riel from the bank. I bought a bicycle and some goods to run my business.

The bicycle is very helpful, because I can use it to go to the market to buy goods to sell. Before, it was very difficult for my family to go anywhere and we had to walk to go to the market. I used my profits to repay my debt to the bank. Now I am not worried about my livelihood, because my daughters and I have energy to do our business. In the future, I know I can borrow money again from the bank at a low interest rate.

Who did you borrow from?

Members were asked who they borrowed money from in each year. The following figure shows the source of all loans reported each year expressed as a percentage.

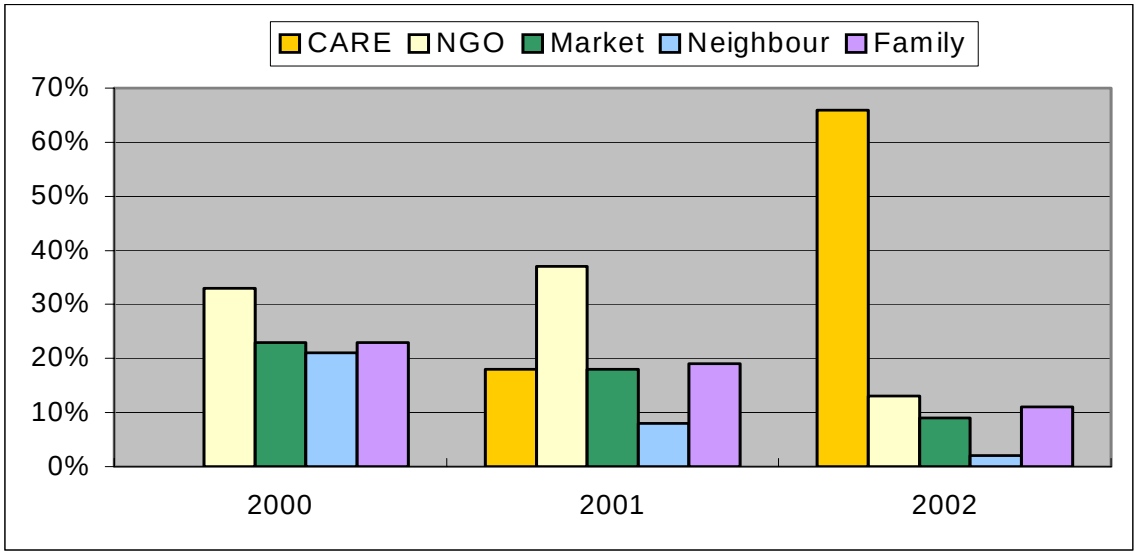

Figure 4: Source of Loans by Year in Six SMP Villages

In 2000, the sources of loans were quite balanced with loans from Non Government Organisations (NGO) like PRASAC in the majority. In 2001, loans from other NGOs increased, perhaps reflecting efforts to promote NGO banks that year. Other sources of loans decreased slightly in 2001 when the CARE banks began but still were a considerable percentage of all loans.

By 2002, the picture has changed dramatically. More than 66 percent of all loans come from the village banks supported by CARE. Loans from all other sources have decreased markedly.

What was the monthly interest rate?

In Cambodia, most interest rates are calculated monthly. Therefore, interest rates reported here are monthly interest rates. Loan interest rates varied considerably according to the source of the loan. Loans from family were the cheapest, as interest was usually not charged. Loans from other NGOs were given at quite low interest rates ranging from three to five percent. Private loans, particularly from lenders within the village were charged at much higher rates of interest. For example, A family reported a loan from the village chief charged at 50 percent per month after the 2000 floods. The following table shows the average interest rate for each year calculated from all loans in that year and the range of interest rates charged.

	2000	2001	2002
Average monthly interest rate	9%	7%	3.5%
Range of interest rates	0% to 50%	0% to 30%	0% to 10%

Table 10: Loan Interest Rates by Year

The average interest rate for loans in each year changed considerably. The average rate for any loan decreased from 9 percent in 2000 to only 3.5 percent by 2002. This is only half a percent higher than the interest rate charged by the village banks. Overall, the interest rate for any loan in these villages has decreased by over 250 percent since 2000. It is significant that the range of rates charged also decreased each year. This may show that competition from the CARE supported banks is having an effect on interest rates charged by other lenders.

The average interest rates reported above were correlated with the length of the loan to discover the effect of the SMP banks on the lending situation in these villages. For example, if loan periods have increased sharply the main benefit from the SMP banks may be longer repayment periods rather than cheaper loans.

When did you repay the loan?

The following table shows the average loan period calculated from all loans in that year and the range of loan periods for the year.

	2000	2001	2002
Average loan period	8.13 months	6.26 months	3.41 months
Range of loan periods	0.2 to 36 months	1 to 12 months	0.3 to 12 months

Table 11: Loan Length by Year

The average loan period has also decreased significantly from 2000 to 2002. This has decreased from just over eight months in 2000 to about three and half months in 2002. The average loan period for any loan has decreased by more than 250 percent since the introduction of the SMP banks. Even without the change in interest rates noted above this represents a significant improvement for borrowers. The average loan period is now close to the loan period for the CARE supported banks (3 months), as is the case for interest rates. This reflects the dominance of loans from the village banks graphed in figure one.

By combining the results of the loan questions, we can demonstrate changes in borrowing before and after the SMP banks were introduced for an average loan in SMP villages.

	Average loan size	Average interest rate	Average loan period	Average total interest paid
Before SMP banks	137,000 Riel	9%	8.13 months	100,243 Riel
After SMP banks	193,000 Riel	3.5%	3.41 months	23,035 Riel
Therefore, the money saved on an average loan = 77,208 Riel (US$ 19.30)				

Table 12: Comparison of Average Loans

These combined results show a dramatic change in the credit situation from 2000 before the SMP banks were introduced and 2002 when they were well established. The average interest rate has decreased markedly as has the average loan period. Loan size has increased probably reflecting the cheaper interest rates.

How did you repay the loan?

Savings bank members were also asked how they had repaid their loans for each loan reported. Respondents often used more than one method to raise the money to repay their loans so percentages total more than 100. The following table shows the method used to raise money to repay loans for each year and the percentage of the total loans for that year.

2000		2001		2002	
Repayment method	**%**	**Repayment method**	**%**	**Repayment method**	**%**
Sell rice	51%	Sell rice	46%	Sell rice	47%
Sell animals	41%	Sell animals	43%	Sell animals	37%
Sell labour	26%	Sell labour	38%	Small business	29%
Small business	23%	Small business	22%	Sell labour	20%
Fishing	13%	Borrow money	8%	Borrow money	14%
Sell land	5%	Government salary	3%	Fishing	8%
Borrow money	5%	Fishing	3%	Government salary	5%
Government salary	5%			Family helped	2%
Family helped	5%			Sell assets	2%
				Gambling	2%
				Sell land	2%

Table 13: Loan Repayment Method by Year

A variety of methods were used to repay loans. The most common method for each year was selling part or all of the rice harvest. This is the major annual source of income for most rural families. Selling animals was also used to repay around 40 percent of the loans in each year. Overall, there were only small changes in the method used to repay loans from year to year although a wider range of methods were reported in 2002 than in previous years. The percentage of loans taken to repay other loans has increased from five percent in 2000 to 14 percent in 2002. This probably reflects the lower interest rates offered by the SMP banks. Some members reported taking loans from the SMP banks to repay other loans at higher

interest rates to save money on interest payments. It should be noted that the respondents who sold land to repay loans in 2002 were repaying loans from other sources and not from the SMP banks.

Loans from CARE Supported Banks

Savings bank members were also asked some specific questions about loans from the village banks supported by CARE.

Have you borrowed money from the village bank?

All respondents answered the question. N = 83

Overall, 84 percent of the members surveyed had borrowed from the SMP banks in 2001 or 2002. The total borrowings members reported from the SMP banks were over 8 million Riel (US$ 2,000). The average loan size was 115,000 Riel (US$ 28.75).

What was the loan for?

The following table shows the purpose of loans from the savings banks in 2001/2002. Loans were commonly for more than one purpose so percentages add up to more than 100.

Purpose of loan	Percentage of loans
Buy fertiliser	51%
Buy food	30%
Medical expenses	21%
Buy rice seed	20%
Buy goods to sell	13%
Pay for ceremony	10%
Repay other loan	10%

Table 14: SMP Loan Purpose

Over half of the loans were used to buy fertiliser. This is significant as most farmers cannot afford to buy fertiliser and must take fertiliser from the supplier on credit and pay at harvest time. The following shows the economics of fertiliser loans in Cambodia.

Price of fertiliser (per bag)	Repayment price (per bag)	Loan period	~ Interest rate
36,000 Riel	50,000 Riel	3/4 months	39%

The SMP banks have allowed people access to credit to buy fertiliser at the market value instead of paying exorbitant rates through suppliers or middlemen. This in turn has a direct impact on rice production by allowing families to fertilise their land more appropriately than in previous years. The monthly interest rate of three percent for loans from the SMP banks is significantly cheaper than the equivalent rate of 10 to 13 percent charged by fertiliser suppliers.

How did the loan help your family?

Members who had taken loans from the SMP banks were asked how the loan had benefited their families. The following table shows the benefits reported by respondents.

Benefits from SMP loans	Percentage of Respondents
Improve agricultural production	44%
Improve living standard	41%
Access medical treatment	24%
Improve business profits	15%
Low interest rate	11%
Get rice to eat	6%

Table 15: Impact of SMP Loans

The benefits reported related closely to the loan purposes discussed above. Improved agricultural production and living standards relate to cheaper fertiliser loans, which allowed families to fertilise their land more appropriately and at a lower cost than in previous years. Many respondents also reported that loans from the SMP banks had allowed them fast access to medical treatment as the loans could be granted quickly when someone in the family was ill.

Why is the bank good for the community?

All respondents answered the question. N = 83

Bank members were asked about the benefits for the community from the SMP banks. All of the bank members surveyed reported that the banks were good for the community. Households reported the following range of benefits and advantages of the SMP banks.

Benefits of SMP banks	Percentage of respondents
Banks provide loans at low interest rate	68%
Loans can be given quickly	62%
The banks encourage saving habits	35%
People can help each other	23%
Can earn interest on savings	11%

Table 16: Benefits from SMP Banks

Low interest loans and fast loans were the most common benefits reported by respondents. About a third of respondents reported that the banks were good because they encouraged regular saving habits. Around a quarter of members said that the banks allowed families to help each other. This meant that richer families who deposited more and did not borrow were providing capital for poorer families to borrow and thus improve their livelihoods. Interestingly only 11 percent of members reported that earning interest on savings was an important advantage.

These findings have program implications for promoting the savings banks. The list above shows the most important advantages of the savings banks from the perspective of the members. Interest on savings was a relatively unimportant advantage compared to the ability to borrow money quickly at a low interest rate. The evaluation team recommends that future bank promotion activities highlight these advantages to motivate villagers to join the banks.

Case Study - Benefits from the Village Bank

I am a widow and I have six children. My husband died during the Pol Pot regime. Recently, I came to live here in Kamrieng village, Theay commune, Baphnom district, Prey Veng province. In 2000 and 2001, my family couldn't grow rice because of the floods and my bamboo floor was under water. It was difficult to feed animals or find food and rice became very expensive. I sold one of my cows to buy rice and food in 2000. At that time, other villagers often borrowed money at the market to buy rice, but I did not, because I had no money to repay. The interest rate at the market was 20-25 percent per month. My children and I have been trying to live in a difficult condition.

Luckily, my family has become happier in recent years as farming has been better. In the rice-growing season, my children and I help each other to work. Some children go to school and others feed the animals. In 2002 and 2003, I have been saving money in the CARE bank (14,000R - $3.50). When I needed money to grow rice, I could borrow 50,000R ($12.50) from the bank immediately. The interest rate is only three percent per month, which is much cheaper than the market. In addition, the CARE bank makes me believe I won't lose my money. I used the money to buy fertiliser and pay for my children's English class. By the way, the fertiliser I used was very good quality and I got a good rice yield (80-100 tao per year). I sold some rice and used the rest to support the family. I spent the money on buying a piglet. When that piglet grows enough, I'll sell it and then buy some more piglets. In addition, I have some money to supporting all my children to study. I want the village bank to get more and more members to give this benefit to other poor families. The bank helps villagers decrease their debt from borrowing money in the market.

General Financial Situation

The final section of the SMP interviews asked members about their overall financial situation and household assets. These questions aimed to discover the potential overall impact of the SMP banks on members.

Is your financial situation better than in 2000?

All respondents answered the question. N=83

Better than 2000	63 percent of respondents
The same as 2000	27 percent of respondents
Worse than 2000	10 percent of respondents

Most respondents reported that their financial situation had improved since 2000. Overall, 90 percent said it had improved or was the same. Only 10 percent reported that their financial situation had deteriorated since 2000. Respondents listed the following reasons for their improved financial situation since 2000. Some respondents reported more than one reason, so percentages total more than 100.

Reasons for Improvement	Percentage of Respondents
Good rice yield	69%
Successful small business	33%
Worked selling labour	29%
Sold animals	12%
Family helped	2%

Table 17: Reasons for Improved Financial Situation

Overall, most respondents reported that their financial situation had improved due to improved rice yield. The few respondents who reported that their financial situation had deteriorated since 2000 mostly reported that this was due to illness or crop failure.

Have your assets increased since 2000?

One respondent did not answer the question. N=82

- 79 percent of respondents reported that their assets had increased.
- 15 percent of respondents reported that they neither lost nor gained assets.
- 5 percent of respondents reported that they had fewer assets than in 2000.

Respondents reported the following assets gained since 2000.

Assets Gained	Percentage of Respondents
Animals	72%
Bicycle/motorcycle	25%
Radio/cassette/TV	18%
Rice	15%
House improvement	14%
Battery/light	12%
Agricultural machinery	8%
Well	6%
Farmland	3%
Fertiliser	3%
Fishing net	3%
Gold	3%

Table 18: Assets Gained Since 2000

Respondents reported a wide range of assets gained since 2000 although animals were predominant. The five percent of respondents who had lost assets since 2000 had mostly sold animals due to illness or crop failure as noted above.

Overall, it appears that member's financial situations had improved considerably since the introduction of the SMP banks. Apart from the PRASAC micro credit scheme and smaller credit programs run by two local organisations, there had been little activity by other organisations or the government in the six villages surveyed. Given this and the significant benefits reported by members like lower interest rates, more access to credit and greater motivation to save, it seems realistic to attribute much of these improvements in living standards to the banks supported by CARE. According to SMP members, the banks have had a substantial impact on poverty and reduced the burden of debt in these six villages.

Results - MAP/PAP Construction

All Mitigation Action Planning (MAP) projects were constructed using skilled and unskilled labour from within the target communities. As infrastructure was constructed using labour rather than machinery, labour costs were a significant part of the total construction costs. This construction salary was an important secondary benefit from the DPAP project. All households interviewed were asked if they had participated in constructing MAP or PAP infrastructure. If they had, they were then asked about wages and benefits arising from this payment.

Participation and Compensation

Overall, 57 percent of the households surveyed had participated in construction. Considering the small scale and limited scope of the projects in each commune this demonstrates excellent community participation in MAP/PAP construction. Forty-five percent of the households were paid for constructing MAP/PAP infrastructure. The remaining 12 percent of the sample participated in construction but were not paid for their work. Most of this unpaid labour was voluntary although there were some problems with wage payment, which are discussed below.

Households reported construction compensation ranging from 7,000 to 550,000 Riel.[4] The average was just over 55,000 Riel for work on construction. Overall, households reported a variety of specific benefits from the money earned building MAP projects. Construction compensation was often spent on more than one purchase, so percentages total more than 100. The following table shows the benefits reported from this money.

Benefits	Percentage
Buy rice for consumption	80%
Buy other food items	37%
Buy household items	22%
Agricultural improvement	15%
Buy animals to raise	6%
Conduct religious ceremony	5%
Repay loan	3%
Buy bicycle	2%

Table 19: Benefits from Construction Compensation

Most construction compensation was used to buy rice or other food items for immediate consumption. However, a significant number of families spent their compensation on purchasing assets or agricultural improvements as in the following quote.

> *"My children helped to build the safety hill and were paid 60,000 Riel. From this money, I made a shelter for my cows to protect them from the weather."*

[4] All amounts in this section are quoted in Riel. The exchange rate is roughly 4000 R = 1 US$.

Problems with Construction

Over 86 percent of households reported no problems with construction or salary from construction. In four villages surveyed there were no reported problems with construction. From these results, it appears that the construction process went smoothly overall.

However, 31 households reported 34 problems with the construction of MAP/PAP. Overall, many of these problems were from villagers who had not been invited to take part in construction and felt this was unfair. Given the large number of households in the sample and the limited need for construction labour these complaints were probably inevitable. Households in two villages reported problems that are more serious. In one village over 30 percent of the households reported that they had been asked to pay local authorities a tax for construction of MAP in a neighbouring village. In another village over 30 percent of households reported that their salary had been cut or they had not received their full salary.

Most of the work done by villagers was earth works and labourers were paid a fixed price per cubic metre of soil. Each commune negotiated the work rate with CARE during the MAP planning phase and rates commonly varied between communes. According to DPAP records, the work rates for MAP projects per cubic metre of soil ranged from 2,000 to 3,000 Riel. Overall, those who had participated in construction reported an average work rate of 2,250 Riel per cubic metre and reported that they constructed an average of 29 cubic metres. This is within the price range reported in project documentation. However, households reported a range of work rates ranging from 500 to 10,000 Riel per cubic metre. Generally, the rates villagers reported that they were paid were 10 to 40 percent lower than the work rates in the MAP records.

For example, in one commune almost 80 percent of the households surveyed reported that they had taken part in constructing a road and 60 percent had been paid a salary. According to MAP records the work rate for this road project was 2,350 Riel per cubic metre. However households reported work rates ranging from 1,200 to 2,300 Riel and no household reported receiving the rate listed in DPAP records. To use an individual example one household in the commune reported that they dug 61 cubic metres of soil during the road project. According to the work rate for this project (2,350 Riel per cubic metre), they should have received 143,350 Riel in salary. However, the family reported that the work rate was only 1,300 per metre and that they were paid only 79,300 Riel. If this report is accurate the household lost 64,000 Riel or 45 percent of their salary. However, the household was not aware that the price should have been higher and therefore they reported no problems with the construction.

It is significant that very few households reported problems with salary and no households reported that they had been paid at a lower work rate. Households believed that the prices for work they reported to the evaluation team were the official work rates. It seems likely that most households were not aware of the work rate set for construction within their commune. This problem could be reduced or eliminated if the work rates were widely publicised in the community before construction.

These findings highlight the difficulties in supervision and monitoring for the DPAP project. Due to the large number of projects and the small number of staff, DPAP staffs were not present for every disbursement of funds to village workers. Local authorities performed these functions and payments were thumb printed and sent to CARE. These concerns lead to a number of recommendations for construction.

- The evaluation team recommends that work rates for construction be fixed across all projects to simplify payment rather than being negotiated separately for each commune.

- The evaluation team recommends that DPAP work rates be in line with rates paid for similar labour-based infrastructure projects in rural Cambodia.

- The evaluation team recommends that the labour selection process and work rates are disseminated in public meetings in each village before construction and then displayed publicly in each village on notice boards.

- The evaluation team recommends that the poorest and most vulnerable families be selected to participate in construction first with a special emphasis on female-headed households and female workers.

- The evaluation team recommends that the remaining labour required in each village be selected by lottery made up of all interested and capable persons in the village.

- The evaluation team recommends that the recruitment, selection, design, work supervision and disbursement process be supervised by project staff.

- The evaluation team recommends that future DPAP project budgets provide for additional staffing during construction and design of infrastructure, perhaps through secondment or short-term contract.

- The evaluation team recommends that budgets for infrastructure have some flexibility to allow for projects that are slightly cheaper or more expensive in each commune.

- The evaluation team recommends that engineers trained in rural infrastructure monitor infrastructure design and construction. Recent graduates from the Cambodian Institute of Technology engineering school would be ideal for this purpose.

Results - MAP/PAP Benefits and Use

Sample sizes for the different Mitigation and Preparedness Action Planning (MAP and PAP) structures and equipment vary according to the villages where MAP/PAP were located or where villagers were able to benefit from them. For example, an irrigation system may be physically located in one village but may provide water to families in three villages. For each of the MAP and PAP structures, the number of villages visited and the specific sample size are reported before the results.

PAP Boats – Fourteen villages, 228 households

During the commune planning workshops for the Preparedness Action Planning component of the project, all communes listed transport problems as one of the priority problems during the annual flooding. The common solution to these problems was the construction of boats for each commune to be used for disaster response.

In total 71 boats were constructed across 20 communes in four districts. The boats ranged in size from large 3 to 4 ton vessels with a car engine to smaller one ton boats. Some communes elected to have one or two boats kept at the commune office, which could respond to needs from different villages within the commune. Other communes elected to have one boat to be shared between two or three villages. In a few communes, boats were provided to each of the target villages within the commune.

Some boats were constructed within the commune in areas where there was skilled labour available to build them. Other communes contracted boat builders from neighbouring areas to build the boats and some boats were built in Neak Leoung and delivered to the communes. Most boats were delivered to the communes before the flooding in 2002. A few communes reported difficulties because they received their boats one or two weeks after the flooding began.

Figure 5: DPAP Boat in Peam Chor

Communities agreed upon guidelines for the use of the boats to ensure sustainability and equitable use. Generally, these stated that persons using the boat would only pay for petrol and a small amount to cover maintenance and a small salary for the driver. In addition, the most vulnerable families were to be given priority in using the boats.

During the household interviews for the final evaluation, families reported a variety of problems they experienced during flooding before CARE provided the boats. Households

often gave more than one answer so percentages total more than 100. The following table shows the problems alleviated by the DPAP boats.

Transport problems before the DPAP boats	Percentage of households
Transport is expensive during the flooding	44%
Only small palm boats are available	35%
Family has no boat	21%
Travel is dangerous/Afraid to travel	21%
Cannot travel far	17%
Other transport is slow	5%

Table 20: Transport Problems before the DPAP Boats

Expense was the most common problem reported before the boats were provided under PAP. Most of the other problems reported relate to the difficulties of using small boats made from the trunk of the sugar palm tree. Before the boats provided by CARE these small boats were often the only means of transport during the flooding. As the table above indicates these small boats are slow, cannot travel long distances and are easily capsized. The only other option for transport during the flooding is private boats, which may be located within the village or may visit several times per week during the flooding. Private boats were widely reported to be expensive and 44 percent of the families interviewed reported this was the major problem with transport before the CARE boats. To quantify this expense and compare the prices of the CARE boats families who had used the boat were asked how much they had paid and what the cost was for the same trip by private boat. This comparison yielded the following average trip prices:

- Average price per trip on private boat 2,930 Riel (US$ 0.70)
- Average price per trip on CARE boat 990 Riel (US$ 0.25)

Average trip price on the CARE boats was 66 percent lower than private boats. An average trip on the village boat provided by CARE was almost 2,000 Riel (US$ 0.50) cheaper than by private boat, which represents a considerable saving for poor families.

Overall, 54 percent of the households surveyed reported that they had travelled in the CARE boat during the flooding in 2002. Considering the large number of families in the DPAP target communes and the relatively small number of boats provided, this shows good coverage and spread of benefits to the communities in the target areas. Families who had travelled in the boats reported 143 trips to different destinations. The following table shows the purpose or destination of the trip and the percentage of the total trips.

Trip purpose/destination	Percentage of Trips
Wat/ceremony	40%
Receive aid	19%
Medical	10%
Market	9%
Transport rice/rice seed/fertiliser	7%
Safety hill	6%
Government	3%
Sand/bamboo/hay	3%
Visit family	3%
School	1%

Table 21: Trip Purpose for DPAP Boats

Trips to the pagoda made up 40 percent of all trips. This high percentage reflects the Pchhum Bun festival, which is celebrated in September/October during the flooding. This is the second most important festival in the Khmer calendar after New Year. The festival lasts for 15 days and each village near the pagoda is assigned a specific day to go to the pagoda and make their offerings. If there are five villages near the pagoda, families may go to the pagoda three times during the 15 days of the festival. Most rural households visit the pagoda during the festival on each of the days allotted for their village. Both households and boat captains reported that the boats were filled to capacity and made several trips to the pagoda during the festival. By contrast, medical trips generally had few passengers. The frequency of these trips and the number of people carried in each trip probably explain why trips to the pagoda were reported twice as frequently as any other trips.

Trips to collect aid were the second most common and these included aid provided by CARE during the 2002 flooding. Ten percent of trips were for medical care and this included taking the patient to a health provider or bringing the provider to the village.

In theory, all households in the DPAP target area had access to one of the boats during the 2002 floods. In practice, there were wide variations in boat usage. Households in villages where the boat was regularly docked tended to report more boat trips than villages that shared a boat with the commune office or other villages. The following table shows the surveyed villages and the percentage of households who reported using the PAP boats.

Village Name	Households who used PAP boats (%)
Non Model Villages	
Kroich*	50%
Baliang	14%
Prek Trieng*	93%
Angkor Ang	8%
Cheung Tuk	44%
Porng Pos*	69%
Krachab Krowm	6%
Peamonteer*	53%
Ampil*	81%
Anlong Char*	87%
Non Model Average	**51%**
Model Villages	
Khla Kham*	93%
Samnoy*	45%
Thnoung	69%
Trobeik	23%
Model Average	**58%**
Sample Average	**54%**

* indicates villages where the boat was docked

Table 22: Households that used the PAP Boats

These results should be interpreted with caution, as the sample sizes for individual villages were small. However, they do give an indication of boat usage across villages. Generally, those villages with a boat used only for that village reported more trips. Sharing boats between villages appears to have been less successful. For example in Peamonteer commune, local authorities decided that one boat would be shared between three villages. In Peamonteer village where one of the boats was docked, over half the families surveyed reported using the boat during the 2002 floods. Krachab Krowm village in the same commune was reported to be sharing this boat with Peamonteer. However, during household interviews only one family reported using the boat. The head of this family was a member of the commune council and a commune police official.

All households were asked about problems or inequalities arising from the use of the boat and 44 households (19%) reported a problem. Thirty-nine households reported problems accessing the boat when they wanted to use it. In many cases respondents reported that the boat was only available to friends or family of the boat captain or those living near the boat. Some complaints of this nature are probably inevitable given the small number of boats available especially in areas where one boat was shared between several villages. However, a few families had requested the boat in an emergency during the 2002 floods and were angry that it did not respond. In addition, four households reported that they were not aware that CARE had provided boats to the commune and one household reported that the boat was of no benefit. This household reported that they had paid the boat to travel to the nearby market and was stranded by the captain who returned to the village without them.

The results of household interviews showed that despite some problems the PAP boats were appropriate and valuable resources for disaster mitigation and preparedness. All the boats viewed during the evaluation were well maintained and valued. Overall the boats were evaluated very positively and many households told researchers stories about the benefits

from the boats during the 2002 floods. Based on the results of the evaluation the evaluation team makes the following findings and recommendations regarding PAP boats.

- PAP boats were evaluated as a valuable and sustainable disaster management intervention and should be continued and expanded in future DPAP projects.

- The boats were widely reported to be used for emergency evacuation during the first stage of the flooding and were very valuable for this purpose.

- The main benefits from the boats were outside of the emergency evacuation period. The PAP boats reduced many problems of access to medical care, education, markets, religious activities that occur throughout the annual floods.

- PAP boats have broad community acceptance and impact.

- One boat should be provided per village, as the process of sharing boats between villages appears inequitable.

PAP Radios – Ten villages, 158 households

During the commune planning workshops for the Preparedness Action Planning (PAP) component of the project, all communes listed communication problems as one of the priority problems during the annual flooding. The common solution to these problems was the purchase of VHF radios in each commune to improve communication and disaster response.

In total 123 radios were provided across 20 communes in four districts. Some of these radios were larger base units but most of the radios were smaller handheld units like the one pictured opposite. Some communes elected to have one or two radios kept at the commune office, which could be used to communicate with higher levels of the government disaster management structure. Some communes elected to provide one smaller radio to each target village within the commune. Larger base radios were generally intended for use at the commune offices to receive communications from the villages and communicate with the district office. The smaller handheld radios were generally intended for village chiefs to communicate with each other and the commune office.

Figure 6: DPAP Radio in Kroich Village

During the evaluation, the team noted that the radios tended to migrate towards the commune offices. In communes where seven radios had been provided for disaster response, this would often be one large base unit for the commune office and six small radios for each of the six target villages. In one commune a village chief reported that the large base unit was at the commune chiefs house, one handheld unit was at the commune office, one was with the commune chief and one was with his deputy. The remaining three radios were shared among the six target villages.

Only a small number of households reported benefits from the radios provided under PAP. Many families reported that they were unaware that radios were given. Overall only 8 percent or 13 households in villages with a radio reported benefits from the radios. The following table shows the benefits reported by these households. As the numbers are small, no percentages are calculated.

Benefits	Number of households
Easy to catch criminals	7
Contact doctor in emergency	7
Arrange meetings	3
Contact family	2
Makes CARE's work easy	2
Easy to arrange aid and relief	1

Table 23: Benefits from Radios

The characteristics of these 13 families who reported benefits from the radios are also interesting. Eight of the 13 were the village chiefs' households. Two of the 13 were close

relatives of village chiefs and only three were ordinary beneficiaries. Most ordinary households made no comment about the radios during interviews. A few households were angry about the purchase of the radios and believed that the money could have been spent more appropriately.

It appeared that the benefits from the radios provided under PAP were mainly to the local authorities. Government representatives from the village to the national level consistently rated the radios as the most beneficial part of the work carried out under DPAP. The radios provided under PAP had little visible impact at the household level. However, they were not designed to benefit individual households but were designed to improve disaster management and emergency response at the village and commune level. During the evaluation, the team found one striking example of how the radios had improved communication.

In Kansom Ork commune, handheld radios were provided to village leaders in the six target villages within the commune and a base unit at the commune office. The target villages in this commune are relatively far from the district centre and there are no government health services within the commune. There is one private doctor who lives in Baliang village and several midwives in other villages.

Before the DPAP project, when somebody fell ill they were either transported to the hospital at the district centre or to the village where the private doctor lives. If the patient was too ill to be moved the family would send someone to Baliang to fetch the doctor. During the annual flooding, when many of the villages were cut off, the private doctor was often called to treat patients in each of the DPAP target villages in the commune. Before DPAP began work in the commune it took two or three days for someone to travel to the doctor's house and then for the doctor to return to see the patient.

Figure 7: Local Doctor in Baliang Village

After the boats and the radios were provided under DPAP this was simplified. The family could simply contact the village chief in their village who would then radio to the village chief in Baliang who would send someone to the doctor's house. Several months after the radios were provided under DPAP, the doctor himself bought a radio to improve communications even further.

With communications improved in the commune, health care has become more proactive. The doctor now makes a daily radio call to each of the target villages in the commune to enquire if there are people who need medical treatment. All year round, the doctor can now be contacted quickly and treatment can be accessed without waiting for messages to be carried by hand. During the flooding, the doctor regularly travels to see patients in one of the boats provided to the commune.

This example shows the potential benefits that follow from improved communication and transport in rural villages. The following recommendations are for PAP radios.

- Handheld radios should be provided to each village for emergency response and for communication with the commune during disasters.

- The purpose of the radios should be widely publicised in the villages where they are provided and policies for their use should be drawn up to ensure that vulnerable families can access this improved communication.

MAP Irrigation Systems – Eight villages, 125 households

During the planning workshops for Mitigation Action Planning (MAP), communes listed flood damaged infrastructure or infrastructure that could help mitigate the impact of flooding and other disasters. Irrigation systems were one of the most common structures communes chose to rehabilitate with their MAP funding. Irrigation systems with water control points can help to mitigate the impact of flooding by controlling water flow and mitigate the economic impact of flooding by allowing water to be retained for agriculture after floods have receded.

Twelve of the 20 DPAP communes chose to rehabilitate dams or canals during planning. The evaluation team was able to interview households in villages around four of these dams to evaluate the impact on beneficiaries. The dams were visited in February 2003 at the height of the dry season. The floodwaters had receded in October, four months before the evaluation team visited but all the dams still had from two to four month's water supply.

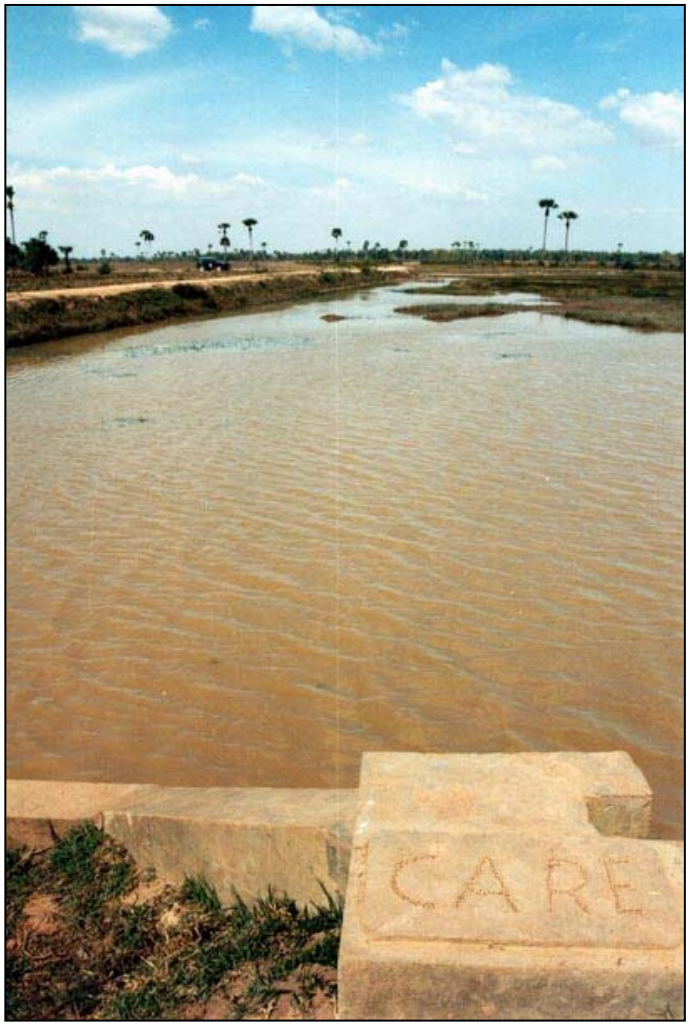

Figure 8: MAP Dam in Trobeik Village

During the household interviews, families discussed the irrigation problems before CARE came to rehabilitate the dams. The major problem was retaining water to cultivate rice after the floods had receded. Before the dams were repaired, most families could only cultivate a wet season rice crop. When flooding was severe, even this crop could be destroyed if the seedlings were flooded for long periods because floodwaters could not be controlled. All of the dam repairs funded by CARE included building water control points like water gates and culverts to allow flood waters to be controlled. Households reported a variety of benefits from the restoration of the irrigation systems. The table below shows the major benefits reported:

Benefits from Irrigation System	Percentage of Households
Use water to irrigate rice	74%
Save water for longer period in the season	62%
Good rice yield due to irrigation water	31%
Travel on dam to access market	28%
Water livestock	18%
Catch fish	14%
Visit other villages	4%
Sell labour in other villages	3%
Sell rice in nearby villages	3%
Take cows to pasture	2%

Table 24: Benefits from Irrigation Systems

Having water to irrigate the rice crop and retaining water for a longer period in the season were the major benefits reported by most families. However, there were also a number of important secondary benefits from the irrigation systems. Many families reported that the dams could be used to travel to markets or to nearby villages. A few households reported other economic benefits from the dams. They reported that they could now access other villages opening opportunities for wage labour or to sell rice. Fishing in the dam and watering livestock were also significant secondary benefits from the dams.

Many households in all eight villages were engaged in harvesting a dry season rice crop. This in itself is significant, as dry season rice cultivation requires a water source other than rainfall. Before the dams were rehabilitated, most families had not been able to produce a dry season crop. To quantify this benefit and compare the situation before the dams were rehabilitated, families in villages where CARE had repaired or built irrigation systems were asked about their rice yield for this year and in the previous year.

- Last year families reported a total paddy rice yield of 88,480 kilograms
- The average yield per family was 1,106 kilograms
- This year, families reported a total yield of 140,448 kilograms
- The average yield per family for the 2002/2003 harvest was 1,755 kilograms

On average households reported a 59 percent increase in paddy rice yield since CARE supported the rehabilitation of irrigation systems. This is a significant tangible benefit for family livelihoods and has allowed families to cope with effects of disasters more easily than in previous years.

Overall, 72 percent of the households in eight villages used water from the CARE dam. This shows a good spread of benefits to the community. Considering there are probably some landless families in each of the villages, the percentage of families with land who benefited from water from the irrigation systems is probably higher than the number reported here. The following table shows the villages with access to a dam and the percentage of households in each village who reported benefiting from the water.

Village Name	Households who used water from the dam (%)
Prek Trieng	79%
Angkor Ang*	69%
Cheung Tuk*	69%
Porng Pos	25%
Ampil	75%
Anlong Char*	93%
Thnoung	69%
Trobeik*	100%
Sample Average	**72%**

* indicates the physical location of the irrigation system

Table 25: Households that used Water from the Irrigation Systems

Overall, more families benefited from the irrigation system in the villages where the dam was located. However, the difference was generally small. In Prek Trieng this pattern is reversed, this may be because the dam in the commune is located in Angkor Ang village but close to the village border with Prek Trieng village. The dam reservoir is on the Prek Trieng side and thus is more convenient for households to access the water.

In Porng Pos, only 25 percent of the families surveyed had used water from the dam. Some of the land in Porng Pos was higher than the land in surrounding villages and therefore these families could not easily access water from the irrigation system. Another CARE project provided a portable water pump to Porng Pos for villagers to irrigate their rice fields after the irrigation system was completed. Policies were agreed and drawn up for use of the pump. Unfortunately, the water pump proved problematic. Almost half the households interviewed reported problems with the water pump. Most reported that they were not allowed to use the pump when they requested it. They reported that only the pump caretaker (the village chief) and his friends benefited from the pump. Despite these problems, it is significant that no families in Porng Pos reported problems with the irrigation system constructed under MAP.

All households were asked about problems or inequalities arising from the irrigation systems repaired with CARE's support. Twenty-eight families (22%) reported problems with the irrigation systems. Twenty of these families reported that the irrigation systems had been poorly planned or designed. These comments were often about the length or height of the dams, which families believed were insufficient or about the need for additional water control structures. These comments appear to be valid and relate to the limited budget available for MAP activities. As noted earlier each commune was provided with a maximum US$ 4,000 for MAP activities within the commune. During the planning stage for MAP projects, several dams were shortened in order to stay within this budget. This tight financial constraint seems to have reduced the quality of some irrigation systems.

Five families reported that they could not use water from the dams. All of these households were from Anlong Char village on the Vietnamese border. These households reported that the village authorities had forbidden some families to use water from the canal leading away from the dam. They also reported that they were forbidden to fish in the dam reservoir as the village chief had sold the fishing rights to someone else. Five households reported that the dam was badly broken or destroyed and again some of these comment related to the Anlong Char dam. One family reported that they had lost land when the dam was built and had not received compensation.

The following recommendations are made for irrigation systems.

- The evaluation team recommends that budgets for irrigation system construction be flexible enough to construct the system to a reasonable standard.

- The evaluation team recommends that engineers trained in rural infrastructure be involved in design and construction of irrigation systems.

MAP Safety Hills – Four villages, 61 households

Providing safety hills was one of the main projects implemented under Mitigation Action Planning. The hills have been used during flooding in Cambodia for many years. When the waters rise, families evacuate their animals to high ground, which is often a community safe area in the village. In times of unusually severe flooding or for families who cannot afford elevated houses, the whole family may evacuate to a safety hill.

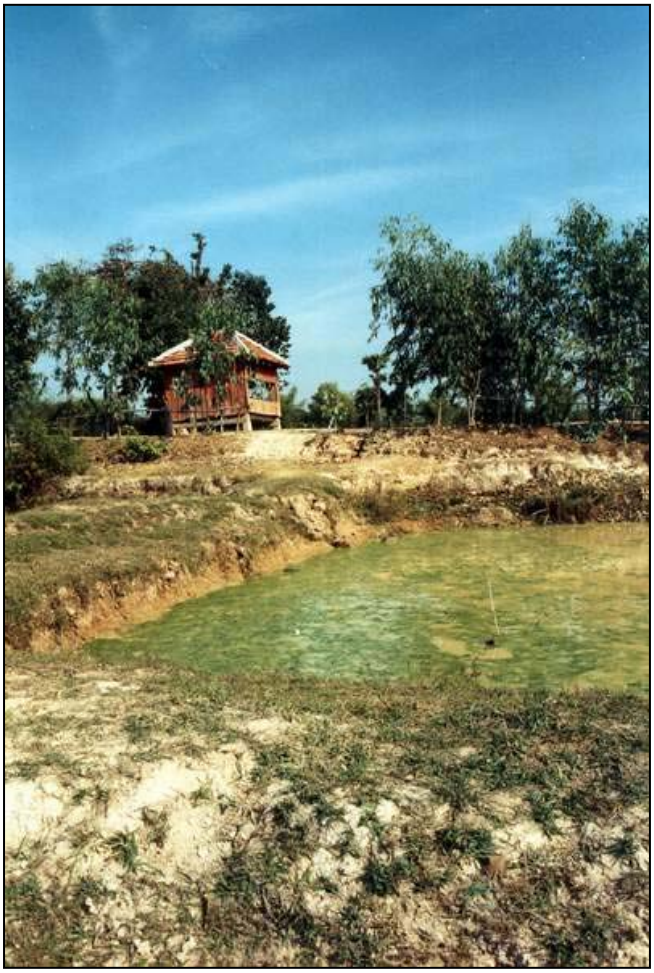

Figure 9: Community Safety Hill in Thnoung

Under Mitigation Action Planning, 12 large community safety areas were rehabilitated and 350 smaller family safety hills were built. The evaluation team interviewed beneficiaries in two villages with community safe areas and two villages with family safety hills.

Family safety hills represent a significant innovation for disaster management projects, which usually concentrate on large hills for community evacuation. Family safety areas have long been used by Khmer families to provide a safe place for livestock during flooding particularly in villages along rivers. In Kansom Ork Commune, communities elected to build smaller individual hills instead of repairing community safe areas. DPAP staff supported this decision.

Unfortunately, the limited commune budget for MAP activities (US$ 4,000) did not permit building safety hills for every family in the commune. There are 1517 households in Kansom Ork commune and only 350 safety hills could be built. Local authorities were forced to prioritise and selected only those families who had spare labour and cows or water buffalo to build family safety hills. Both of these criteria tended to exclude the most vulnerable families as they were usually too poor to own livestock and in the case of female headed households or the disabled had difficulty contributing labour to build the hills. The reasoning behind this decision was that families with cows or water buffalo would gain greater benefits from individual safety hills as they had more difficulty transporting animals and feed during the flooding than families with no livestock.

Families reported a variety of problems during the flooding before the safety hills were built or rehabilitated with support from CARE. The problems reported were markedly different in different villages. Households in the two villages with community safety hills reported the difficulties experienced staying with other families who had elevated houses or raising a platform in their houses before the community safe area was available. Some families reported that they asked to live with neighbours or relatives during the flooding. Respondents reported that this was difficult, as they were scared to ask for help and scared of problems with their host families. They reported problems finding a safe place for livestock and said that many animals died before the community safe area was repaired.

Households in Kansom Ork commune on the other hand reported the difficulties and disadvantages of community safe areas. Most of these difficulties related to animals. Families reported that previously many animals were kept together on the community safety hill. With so many animals together, families reported diseases and deaths among livestock were common on the safety hill. It was difficult to transport animals and feed to the safety hill, which was often far from the house, as they often had no transport. Some families reported that increased illness and insufficient feed while on the community safety hill made their animals weak and unable to work in the planting season after the floods receded. These families reported that this in turn affected their rice crop, as the animals could not work hard.

Overall, 74 percent of the households surveyed in four villages had used the safety hills during the 2002 floods. This shows a very good coverage of beneficiaries for this MAP structure. Households reported a variety of benefits from the safety hills. Some benefits were specific to family safety hills while others were for either community or family safe areas. The following table shows the benefits reported by beneficiaries in all four villages.

Benefits from safety hill	Percentage of households
Keep animals	76%
People can stay on it	47%
Keep animal feed and firewood	27%
Ceremony	13%
Plant vegetables	13%
Reduce animal diseases	6%

Table 26: Benefits from Safety Hills

Keeping animals above the floodwaters was the most common benefit reported from the safe areas. Nearly half of the households surveyed reported that families could stay on the safety hill. These two most common benefits related to either community or family safety hills. However, a number of families reported that they could keep animal feed and firewood on their safety hills or they could plant vegetables on it for household consumption and these benefits were only reported by households with family safety hills. Six percent of families reported that individual safety hills reduced animal disease. Finally, 13 percent of households reported that ceremonies could be held on the community safety hill. All these families were from Thnoung village where the community safe area is also used for conducting funerals. This is discussed further below.

All households were asked about problems arising from the safety hills repaired or built with CARE's support. Nine families (15%) reported problems with the safety hills. Five of these families were in Thnoung village and reported problems with using the safety hill when there was no flooding. The community safe area in Thnoung is on commune land and had traditionally been used during village funerals as the area to cremate the corpse of the deceased. After the safe area was rehabilitated with support from CARE, the village authorities had forbidden families to conduct funerals on the hill. Village authorities reported that they were afraid that CARE would not think this would be appropriate and therefore would not permit families to use the hill for this purpose. DPAP field staff resolved this problem and funerals are again being held on the hill, however those families who had not been allowed to conduct funerals on the hill last year were still angry.

Three poor families in Kansom Ork commune reported that the decision about which families could build safety hills was unfair. They stated that although they did not have livestock they could benefit from a family safety hill as they could evacuate their families and live on the hill

during the flooding. One family reported that the community safety hill in Prek Trieng was too small and that livestock contracted disease more readily from being confined close together.

Case Study - Benefits from Safety Hill, Dam and Boat

I live in Prek Trieng village, Angkor Ang commune, Peam Chor district, Prey Veng province. In my family, there are eleven members. I have eight children. My family grows rice and catches fish to sell. Now, I have no cow to grow rice because I sold it to treat my illness.

In the 2001 floods, my house collapsed. I received aid from CARE like 25kg of rice and a tent. I use the dam, the boat and the safety hill. I use water from the dam to grow rice. In 2002, my husband took the boat to receive aid from CARE. During the floods, all my family went to stay on the safety hill. Before having CARE's help, I did not have water to grow rice. I needed to pay money for pumping water from river to my farmland. When I went to receive aid I took a private boat and it was expensive. During the floods, I used to ask to stay with someone with a high house.

MAP/PAP Beneficiary in Prek Trieng

The following recommendations relate to providing safety hills under DPAP.

Figure 10: Wooden Safe Area

- The evaluation team recommends that criteria for selecting families to construct individual safety hills give preference to the most vulnerable families.
- The evaluation team recommends that the district veterinarian visit community safe areas during flooding to treat illness and advise on measures to prevent disease when animals are confined together on safety hills.
- Individual safety hills appear to have significant advantages over community safe areas. They show increased ownership, wider impact, greater community contribution and appear to be more sustainable. Therefore, the evaluation team recommends that the smaller family safety hill model be duplicated elsewhere.
- In villages near major rivers where flood waters are much higher, individual safety hills constructed from earth are not feasible. In these areas, the evaluation team recommends the use of wooden family safe areas like those already used by families living near the Mekong River in Peam Chor and Preah Sdach districts.

MAP Roads – Two villages, 39 households

Together with irrigation systems and safe areas, roads were the third category of major MAP works. Eight of the twenty DPAP communes prioritised transport infrastructure and elected to repair a road within the commune. Often this was the main road through the commune and thus the road rehabilitation benefited most if not all the villages in the commune. In four of the six communes, the road repair included rehabilitation of a canal that ran alongside the road. This type of road/canal system is common in Cambodia and is a good example of complimentary benefits. Soil removed from the canal can be used to repair and improve the road and the canal provides drainage for the road during the wet season.

The evaluation team interviewed families in two villages along the road in Senareach Odom Commune. This section of road branches off from the main commune access road and runs for about six kilometres before joining another larger road. This road is the only access for five villages, three within the DPAP target area and two outside the target areas. Again, the strict budget limit of US$ 4,000 for commune MAP activities meant that some compromises were made. Around five and half kilometres of the road was rehabilitated leaving less than a kilometre of the road unrepaired at one end. Many inhabitants of Samnoy village at the end of the road pointed out this problem during household interviews. In addition, because of the limited budget, the commune could only afford to build nine culverts along the rehabilitated section of the road. Much of the road crosses rice fields where long canals have been dug to bring water from nearby lakes to irrigate rice fields. When the road was built, there was not enough money to build culverts for all of these canals, so the road effectively dammed some canals. During the planting season when water was needed to irrigate the rice seedlings, some farmers cut the road to allow water to flow through these canals again. After the harvest, some of these cuts were repaired again and the road is now passable to bicycles, motorcycles and remorques but not larger vehicles.

Figure 11: Road and Canal in Samnoy

Households were asked to describe the travel difficulties before the road was rehabilitated with CARE's support. The following table shows the major difficulties reported by households. Because the sample size is small, numbers of households are given and percentages should be interpreted with caution as they are unlikely to be representative.

Travel difficulties before road repair	Households	% of road beneficiaries
Travel is difficult due to mud and potholes	24	61%
Travel takes a long time	12	31%
Hard to access market	12	31%
Hard to access rice field	9	23%
Traders don't come to the village	4	10%

Table 27: Travel Problems before Road Repair

Overall, households reported that travel was difficult and time consuming before the road was rehabilitated. Travel to the market was particularly difficult and many families in Samnoy at the end of the road reported that it took around three hours to travel to the district market by bicycle before the road was repaired. After the road repair the same households report that the trip by bicycle now takes from 20 to 30 minutes. This is a significant time saving for families who now have more time for other activities. A few families reported that traders began to visit the village once the road was repaired. During the evaluation, researchers interviewed two mobile traders who were using the road. One was a practitioner of Khmer traditional medicine from the neighbouring province of Svay Rieng who was selling packets of medicinal herbs and the other was from Neak Leoung and selling cooking utensils. Both traders had begun visiting villages along the road after it was repaired and sold goods in each of the villages along the road.

All households surveyed used the road, as this is the only access to the villages. All of the families surveyed were pleased with the travel benefits from the rehabilitated road. They reported that travel was much faster and easier than before. In addition, 14 families (36%) also reported benefits from the water in the canal alongside the road. Several families reported that they were able to produce a dry season rice crop for the first time in many years. One widow from a poor female-headed household we interviewed had just finished harvesting a dry season crop and reported they had gained 600 kilos of dry season rice, which could be sold for $40 to $50. The following quote from a farmer in Samnoy illustrates this additional benefit.

> *"This year my rice yield was 2 times more than last year. Last year I harvested 8 tons and this year I harvested 15 tons."*

All households were asked about problems arising from the road repaired with CARE's support. Ten families (26%) reported 11 problems with the road. Eight of these families reported that the road was badly designed or planned and three families reported that the road was damaged or broken. All of these problems related to the same two design issues – the short section at the end of the road that was not rehabilitated and the lack of culverts to flow water to rice fields.

The following recommendations relate to roads constructed under DPAP.

- The evaluation team recommends that sub-tertiary roads constructed or rehabilitated under DPAP conform to the standards set by the Ministry of Rural Development (MRD) and the Ministry of Public Works and Transport (MPWT).

- The evaluation team recommends that all rural road construction be conducted in partnership with the government body responsible for sub tertiary roads – the Provincial Department of Rural Development (PDRD).

- The evaluation team recommends that sufficient technical support be accessed in the design and construction phase of road rehabilitation either from the responsible ministries or from other qualified engineers.

MAP/PAP Wells – Three villages, 48 households

Wells were provided to villages both under the Mitigation and Preparedness Action Planning components of DPAP although the majority were provided under PAP activities. Communities generally did not chose wells as major projects but in some areas they were provided where access to drinking water was a problem and there was some commune budget remaining. In some areas wells were drilled on community safety hills thus ensuring a safe water supply for families evacuated during the flooding. In one commune, seven wells were drilled for the villages in the commune.

Figure 12: PAP Well in Kansom Ork Commune

Families reported a variety of problems with access to potable water before CARE supported the drilling of wells. The following table shows the major problems reported by beneficiaries. Again, the sample sizes are small so percentages should be interpreted with caution.

Drinking water problems before the wells	households	% of well beneficiaries
Walk far to get water	13	65%
Use unsanitary water	5	25%
Difficult to use private wells	4	20%

Table 28: Problems with Drinking Water Supply

Sixty-five percent of the households surveyed in villages with a well used water from the wells provided by CARE. All households that used the well reported that the major benefit was water for cooking, drinking and washing every day. The well was also appreciated for being close to many houses reducing the time needed to fetch water. In addition, 33 percent of respondents reported that they used water from the wells to grow vegetables.

All households were asked about problems arising from the wells provided by CARE. Eleven households (23%) reported 12 problems with the well provided by CARE. Six families

reported that the wells were provided in the wrong part of the village. Four of these complaints were one cluster of houses with no potable water supply nearby. These houses were located along the main road into the village. Further discussion with the families who had complained revealed that the community had prioritised two areas in the village for drilling a well during MAP workshops. However, the budget would only allow for one well. As the area where the well was drilled also had no road access, this area was chosen instead. Three families in three different villages reported that they could not access the wells. Two families were not aware that CARE had provided a well in their village.

Although wells were not one of the major projects implemented under DPAP, they were evaluated very positively overall. Many families living near the wells reported that diseases like diarrhoea from drinking unsafe water had decreased since the wells were provided.

Case Study - Benefits from Well

Blind Woman in Kroich Village

I live in Kroich village, Kansom Ork Commune, Kampong Trabek District, Prey Veng Province. When I was young, my eyes became red and had pus. At that time, I became blind. I have three sisters and a brother. My parents passed away when I was twenty years old.

Now, I am forty-seven years old. I live with others and I have no permanent house. I can't live with my siblings, because my brothers-in-law aren't kind to me and they don't like me. In Kroich village, when I pass the villager's house while they are having meals they let me have meals. Sometimes, I go to the next village and ask for rice, money, etc. From these things, I can cook by myself.

CARE's well helps me a lot. I can use the water for preparing meals, drinking and taking a bath. Nobody says anything when I use the water. Before we had CARE's well, I used to take a bath at other people's houses. They blamed me for using a lot of water everyday.

MAP Bridges – One village, 16 households

One commune in Kampong Trobeik District chose to construct bridges under MAP activities. Peamonteer commune is located on the banks of the Mekong and villages in the commune are laid out on both sides of the river along the narrow strip of high land that forms the banks of the river. Behind the houses, the land drops to rice fields and lakes. In places where streams flow to meet the river in the wet season, there are deep valleys in the middle of the village. Short gaps can be bridged with sugar palm trunks. However, when the river level rises, larger gaps must be crossed by small boat to travel from one part of the village to another. In the dry season people, animals, vehicles and goods must climb or be carried across the gap. The evaluation team interviewed families in Krachab Krowm village where one of the two new bridges in the commune is located.

Figure 13: School Children crossing the MAP Bridge in Krachab Krowm

All the households in Krachab Krowm reported that they used the bridge, which is near the end of the village. Most houses in the village are on one side of the gap and the pagoda and the school are on the other side. Nearly all (94%) families reported that it made it easy for children to walk to school and 88 percent reported that it was easier to visit the pagoda. Some families (38%) who were interviewed used the bridge to access their rice fields, which are on the other side of the gap and 31 percent used the bridge to visit relatives.

All households were asked about problems arising from the bridge provided by CARE. Eight families (50%) reported nine problems arising from the CARE supported bridge. Although the sample size is small, the interviews were collected from a random sample of households in different parts of the village and it is likely that this points to some genuine problem. Four families complained that the bridge was badly damaged after less than a year. Four families reported that the bridge was constructed from cheap materials (young palm tree trunks) and was poorly constructed, one of these households also told researchers:

> *"This bridge is not so good, it's poor quality. People believe there must be corruption in building this bridge."*

Many families in the village also told researchers they had contributed a sugar palm tree for the construction of the bridge. DPAP records for construction of the bridge give the total cost for materials and labour as US$ 790. These records also note a community contribution of 511,800 Riel (US$ 128) in cash for building the bridge. Therefore, not including the contribution of wood, the total cost was US$ 918. By comparison, the cost of the school building in Peamonteer village (see photo below) was US$ 594.

Overall, the bridge in Krachab Krowm was widely appreciated and appropriate. The bridge benefited all families in the village particularly children and older people going to the pagoda. However, as with other infrastructure projects constructed under DPAP there is a need for more technical support during the design phase and increased supervision during construction and disbursement.

MAP Schools – One village, 17 households

School construction and repair was the final category of MAP projects supported by DPAP. Five schools were repaired or built in three of the DPAP target communes. The evaluation team visited one village on the Vietnamese border where CARE had funded the repair of the village school.

Figure 14: MAP School in Peam Monteer Village

All but one family interviewed had children who were attending the school rehabilitated with CARE's support. Most families reported that the major benefit was to allow children to study and gain knowledge. Before the school was rehabilitated, students had to travel long distances and cross the river to attend school. Because of these difficulties, many families chose not to send their children to school. Now the school has over 130 students and the Ministry of Education has assigned two teachers to the village.

All households were asked about problems arising from the school repaired with CARE's support. However, no households reported any problems or inequalities.

Results - MAP/PAP Ranking

Apart from the specific questions about different MAP and PAP infrastructure, households were also asked to rank DPAP activities in their village overall. This was to discover how beneficiaries weighed up the benefits and problems from MAP and PAP in their villages. The following table shows the results of the ranking.

Ranking	***Very Good***	***Good***	***OK***	***Not Good***
Households	129 households	80 households	17 households	1 household
Percentage	56.8%	35.2%	7.5%	0.5%
Combined percentage	92% satisfied or higher		8% not satisfied	

Table 29: MAP/PAP Ranking

The results were generally consistent across villages. The majority of households were very pleased with the benefits from MAP and PAP. Overall, only a small percentage of families in each village were not satisfied with the MAP/PAP. However, there were two exceptions. In Khla Kham and Cheung Tuk, more than 30 percent of beneficiaries were not satisfied.

Village Name	**Percent Satisfied**	**Percent Not Satisfied**
Kroich	95%	5%
Baliang	100%	0%
Prek Trieng	100%	0%
Angkor Ang	94%	6%
Cheung Tuk	69%	31%*
Porng Pos	94%	6%
Krachab Krowm	100%	0%
Peamonteer	100%	0%
Ampil	88%	12%
Anlong Char	93%	7%
Khla Kham	65%	35%*
Samnoy	95%	5%
Thnoung	100%	0%
Trobeik	100%	0%
Sample Average	**92%**	**8%**

Table 30: MAP/PAP Ranking by Village

In six of the fourteen villages, 100 percent of the households interviewed were satisfied with the MAP and PAP. Most families were very enthusiastic about the MAP and PAP activities supported by CARE as in this quote from a family in Krachab Krowm:

> *"CARE is the first NGO to help us, they gave us a boat and a bridge. The bridge is very useful because when my children go to school I don't have to worry that they will be in danger when they cross the gap."*

It is apparent that DPAP beneficiaries overall evaluated the project very positively.

Discussion

To summarise the findings of the evaluation, the CARE DPAP project can be evaluated in two ways – in terms of the process of project implementation and in terms of beneficiary impact. This evaluation focussed almost exclusively on assessing beneficiary impact. From the point of view of families, the benefits from DPAP were concrete and quantifiable. Rice yield increased, access to goods and services improved, lives and livestock were saved and affordable credit and savings were available to provide a financial cushion in times of disaster.

Previous reviews and reports have tended to focus on process. The two pictures provided are quite different. From a process viewpoint, the project had many constraints. A late start, the loss of WFP support, a short project life, an over ambitious target area, staffing problems, a steep learning curve for the staff, insufficient human resources and poor monitoring and evaluation were just some of the problems encountered by DPAP.

However, for the beneficiaries in DPAP target areas the benefits far outweighed the disadvantages. As noted above 92 percent of the 228 families interviewed evaluated the project very positively indeed. Even households who were angry about some aspect of the implementation reported numerous benefits from the project and rated the project highly. In 228 household interviews only one family rated MAP and PAP projects as “not good.” Most problems that were reported were about accessing infrastructure (25%) or poor design or planning of MAP/PAP (19%). The majority of households (56%) reported no problems or inequalities of any kind with MAP or PAP projects.

The DPAP project also had an impact at the organisational level. All components of the project were planned, designed and implemented in close partnerships with government authorities often at the commune and village level but also at district, provincial and national levels. During interviews with government disaster management officials from the head of NCDM to commune committees, all levels of the national disaster management structure evaluated the project very positively. Without exception, they appreciated the close collaboration with CARE, opportunities for training and capacity building and local focus of the project. It appears that the strong project focus on partnerships with local authorities and the government disaster management structure has had a positive impact on these structures as well.

In some previous reports, the CARE DPAP project has been criticised because aspects of the work in Prey Veng have been seen as supporting the ruling Cambodian People’s Party (CPP). The fact is that since the 1980’s, the channels for aid and relief in Cambodia have been highly political and they remain so today. The delivering of aid and disaster relief is a powerful tool for winning popular support among rural communities. As an example, the CARE risk mitigation study after the 2000 floods noted that villagers reported local authorities were displeased when NGOs preferred to distribute disaster relief through their own mechanisms rather than through government relief channels[5]. There are also broader problems of cronyism and nepotism within the Cambodian civil service, which are widely recognised by the government and donors.

The DPAP project was commendably working with and through these government structures to implement disaster management in Prey Veng. This avoided the costly and unsustainable trap of setting up parallel systems. It also allowed DPAP to work towards genuine community sustainability. Understandably, there was a danger that mitigation and preparedness activities could be used for political purposes. However, this danger was acknowledged and

[5] Risk Mitigation and Disaster Management Among Rural Communities in Cambodia, 2001.

noted by field staff from the early stages of the project. Despite this well recognised tendency for interventions to go off track the DPAP project went to considerable efforts to identify and target the most vulnerable communities, ensure that short term benefits like construction work salaries were helping a broad range of families and to educate, advise and encourage local officials to consider the needs of the whole community and to target the most vulnerable. These difficulties and the efforts made to overcome them have not been concealed or minimised but have been consistently recorded in project reports since 2001.

Overall, the DPAP project should be congratulated for their work to minimise the effects of these pre-existing problems. During the evaluation, the research team met with villagers who had benefited from DPAP activities and they came from a wide range of political and socio-economic groups. While it was not possible to interview beneficiaries in every DPAP village, the sample interviewed indicates that DPAP has benefited vulnerable communities and not just the family, friends or political supporters of local officials. The apolitical nature of DPAP became even more obvious to the evaluation team when the project was praised equally by both the Governor of Prey Veng (FUNCINPEC) and the senior minister who heads the National Committee for Disaster Management (CPP).

Overall Disaster Management Impact

It is difficult to quantify the impact of the DPAP program in wider disaster management terms. The activities and infrastructure funded by the project was varied, generally small scale and widely scattered across the four target districts. However, one possible method of estimating impact in reducing the impact of disasters is to compare flood data from before and after MAP and PAP activities were implemented.

Since the inception of the National Committee for Disaster Management, local authorities have collected detailed data on flood effects and flood damage each year. This information is recorded at the village level by the village leader or Village Development Committee (VDC) and then sent to the commune. The commune collates and combines this information and sends it to the district who collect all commune data and send it to the provincial office. They in turn send it to NCDM in Phnom Penh. In this way, the severity of flooding is assessed from year to year and flood damage is assessed to help prioritise relief efforts.

Comparing this data at district or commune level to estimate impact is problematic because the DPAP project only targeted those areas that were most severely effected by flooding within each district and commune. For example in Kampong Trabek District, DPAP targeted five of thirteen communes and only six of the ten or more villages within each commune. Therefore, the most useful comparison is at the village level. However, accessing village level flood data for each year is difficult. Copies of flood data are generally not kept at each level of the administration and record keeping systems are basic at best. Despite these difficulties, it was possible to locate some village level data for comparison with the help of seconded government staff in Kampong Trabek District.

Kroich and Baliang villages in Kansom Ork Commune were selected for comparison. This was because of the nature of the MAP and PAP activities conducted in this commune. Both boats and radios were provided under the PAP component and family safety hills and wells were constructed under MAP. In addition, neither the Royal Government nor other organisations had provided any other infrastructure or training on disaster response in these villages. In 2001, the planning for MAP projects was underway at the time of the flooding but no infrastructure had been built. Conversely, by the time of the 2002 floods, both MAP and PAP activities had been completed in the commune. Therefore, in methodological terms, the flood data for 2001 is the pre intervention condition and the data for 2002 is post intervention.

The following table shows the number of people, livestock and agricultural land effected by flooding in 2001 and 2002 in two of the DPAP villages visited by the evaluation team.

Effects of Flooding in Two DPAP Villages 2001/2002							
	People	***Cows***	***Buffalo***	***Pigs***	***Rice (ha)***	***Seed***	***Plants (ha)***
2001 Kroich/Baliang	2,705	487	556	774	50	230	5
2002 Kroich/Baliang	2,214	401	354	207	43	134	5
Percentage change	-18%	-18%	-36%	-73%	-14%	-42%	0%
Average % change	***29% lower flood effects in 2002***						

Table 31: Comparison of Flood Effects in 2001 and 2002

The table shows the effects of flooding in various categories and the percentage change between 2001 and 2002. For most categories, the effects of the flooding in 2002 were less severe than in 2001. Overall, the effects of the flooding were 29 percent lower in 2002 than in 2001. This is consistent with villager's assessment that the flood waters were slightly lower in 2002 than in the previous year. The next table shows the damage in lives, livestock and agricultural produce lost from the flooding in each year.

Destroyed by Flooding in Two DPAP Villages 2001/2002							
	Deaths	***Cows***	***Buffalo***	***Pigs***	***Rice ha***	***Seed***	***Plants ha***
2001 Kroich/Baliang	3	17	5	44	27	86	4
2002 Kroich/Baliang	0	4	2	6	5	32	4
% change	-100%	-76%	-60%	-86%	-81%	-63%	0%
Average % change	***67% less destroyed in 2002***						

Table 32: Comparison of Flood Damage in 2001 and 2002

Overall, the damage from flooding was 67 percent less in 2002 than in 2001. This percentage change is 2.3 times greater than the decrease in flood effects. This is also consistent with villager's reports. Many interviewees in both villagers praised the evacuation boats and the family safety hills reporting that they had saved lives and property that otherwise would have been lost during the 2002 floods. Significantly, no deaths from the flooding were recorded in the 2002 floods in these two villages. In two DPAP villages in Peamonteer Commune where flood data was compared, the difference between flood effects and lives and property lost was more marked. For these two villages, the flood effects were three percent greater on average in 2001 than in 2002. However, loss of life and property had decreased on average by 81 percent.

These comparisons should be interpreted with caution as the decrease in lives and property lost may be due to other factors. For example, it may be that slight increases in flood severity cause exponentially greater damage. In addition, Kansom Ork Commune is something of an

ideal project commune. Beneficiaries in Kansom Ork consistently evaluated both MAP and PAP projects positively and there was considerable community involvement and ownership of the activities.

Nevertheless, this comparison suggests that the DPAP project has significantly decreased the impact of flooding in the target areas of Prey Veng. Therefore, the potential for reducing the impact of future disasters in other communities using the lessons learned from the DPAP pilot is even higher.

Summary of Findings and Recommendations

MAP/PAP Construction

- The evaluation team recommends that work rates for construction be fixed across all projects to simplify payment rather than being negotiated separately for each commune.

- The evaluation team recommends that DPAP work rates be in line with rates paid for similar labour-based infrastructure projects in rural Cambodia.

- The evaluation team recommends that the labour selection process and work rates are disseminated in public meetings in each village before construction and then displayed publicly in each village on notice boards.

- The evaluation team recommends that the poorest and most vulnerable families be selected to participate in construction first with a special emphasis on female-headed households and female workers.

- The evaluation team recommends that the remaining labour required in each village be selected by lottery made up of all interested and capable persons in the village.

- The evaluation team recommends that the recruitment, selection, design, work supervision and disbursement process be supervised by project staff.

- The evaluation team recommends that future DPAP project budgets provide for additional staffing during construction and design of infrastructure, perhaps through secondment or short-term contract.

- The evaluation team recommends that budgets for infrastructure have some flexibility to allow for projects that are slightly cheaper or more expensive in each commune.

- The evaluation team recommends that engineers trained in rural infrastructure monitor infrastructure design and construction. Recent graduates from the Cambodian Institute of Technology engineering school would be ideal for this purpose.

PAP Boats

- PAP boats were evaluated as a valuable and sustainable disaster management intervention and should be continued and expanded in future DPAP projects.

- The boats were widely reported to be used for emergency evacuation during the first stage of the flooding and were very valuable for this purpose.

- The main benefits from the boats were outside of the emergency evacuation period. The PAP boats reduced many problems of access to medical care, education, markets, religious activities that occur throughout the annual floods.

- PAP boats have broad community acceptance and impact.

- One boat should be provided per village, as the process of sharing boats between villages appears inequitable.

PAP Radios

- Handheld radios should be provided to each village for emergency response and for communication with the commune during disasters.

- The purpose of the radios should be widely publicised in the villages where they are provided and policies for their use should be drawn up to ensure that vulnerable families can access this improved communication.

MAP Irrigation Systems

- The evaluation team recommends that budgets for irrigation system construction be flexible enough to construct the system to a reasonable standard.

- The evaluation team recommends that engineers trained in rural infrastructure be involved in design and construction of irrigation systems.

MAP Safety Hills

- The evaluation team recommends that criteria for selecting families to construct individual safety hills give preference to the most vulnerable families.

- The evaluation team recommends that the district veterinarian visit community safe areas during flooding to treat illness and advise on measure to prevent disease when animals are confined together on safety hills.

- Individual safety hills appear to have significant advantages over community safe areas. They show increased ownership, wider impact, more community contribution and appear to be more sustainable. Therefore, the evaluation team recommends that the smaller family safety hill model be duplicated elsewhere.

- In villages near major rivers where flood waters are much higher, individual safety hills constructed from earth are not feasible. In these areas, the evaluation team recommends the use of wooden family safe areas like those already used by families living near the Mekong River in Peam Chor and Preah Sdach districts.

MAP Roads

- The evaluation team recommends that sub-tertiary roads constructed or rehabilitated under DPAP conform to the road design standards set by the Ministry of Rural Development (MRD) and the Ministry of Public Works and Transport (MPWT).

- The evaluation team recommends that all rural road construction be conducted in partnership with the local government body responsible for sub tertiary roads – the Provincial Department of Rural Development (PDRD).

- The evaluation team recommends that sufficient technical support be accessed in the design and construction phase of road rehabilitation either from the responsible ministries above or from other qualified engineers.

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Appendices

Appendix One: MAP/PAP Process

Mitigation Action Planning

1. Selection of target districts, communes and villages – provincial and district level

2. Preparation for MAP workshops – DPAP staff training and identifying participants for the MAP workshops.

3. MAP Workshops – 3 days in each commune. Participants, Commune Development council (CDC), Village chief (VC) and Village Development Councils (VDC) – 3 from each village
   - List infrastructure needs/what was broken - for the commune
   - Rank problems within the commune
   - List solutions to the problems e.g. rehabilitate dam
   - Rank solutions according to pair-wise ranking
   - Discuss format for proposal to CARE to build/rehabilitate the first ranked problem

4. Communes develop draft proposals including – total cost of the work, target villages and beneficiaries, work rates per cubic metre and schedule for construction

5. Negotiation and proposal revision – meetings between DPAP and communes
   - finalise total cost of the work
   - finalise work rates per cubic metre
   - finalise construction schedule

6. Approval from CARE for construction and release of first part of construction budget at Neak Leoung

7. Communes select construction labour and construction begins

8. Construction supervision and monitoring – some visits from DPAP staff, some visits from seconded staff. Commune authorities did most regular monitoring.

9. Construction completed

10. DPAP visit to measure rehabilitated infrastructure before release of final payment.

11. Additional construction work to meet standards if not satisfactory in 10.

12. Release of final payment

13. Some policies for use of MAP infrastructure developed – in some communes this happened at earlier stages

14. Some flood damage assessments carried out after the 2001 floods – Baphnom was complete before the 2001 floods.

15. Repair of damaged MAP after flooding 2001/2002

Preparedness Action Planning

During project implementation, there was some overlap with the end of the MAP process. PAP was very similar but with an increased focus on preparing for disasters. NCDM was involved at this stage to help maintain the disaster focus.

1. PAP Workshops – commune level, CDC, VC and VDCs – 3 from each village
   - List preparedness needs for each commune
   - Rank problems within the commune
   - List solutions to the problems e.g. boats
   - Rank solutions according to cross ranking
   - Discuss the format for a proposal to CARE to address the priority problems

2. Set up Feedback Committee – only in model communes
   - CDC identified the most vulnerable from the commune lists – about 60 persons per village.
   - That group met to adjust vulnerability criteria, which reduced the group to about 30 persons per village.
   - The reduced group met to elect 2/3 representatives from each village. These representatives attended commune level planning meetings to ensure representation of the most vulnerable and to feedback information from the meetings to vulnerable families in their communities.

3. Communes develop draft proposals including – total cost of the work, target villages and beneficiaries and schedule for construction

4. Negotiation/proposal revision – meetings with DPAP and Feedback committee in model communes
   - finalise total cost of the work
   - finalise construction schedule

5. Approval from CARE for construction or purchase

6. Release of first part of budget at Neak Leoung – radios distributed

7. Skilled persons identified to construct boats/well/latrines

8. Construction completed and boats delivered

9. Release of final payment

10. Some policies for use of PAP developed – detailed plans developed in the two model communes.

Appendix Two: MAP/PAP Questionnaire

ដំបូងណែនាំខ្លួនឯង និងពន្យល់ថា អ្នកមកទីនេះដើម្បីធ្វើការវាយតំលៃគំរោងកម្មវិធីអង្គការ CARE ក្នុងខេត្តព្រៃវែង។ ពន្យល់គាត់ថា យើងចង់សួរសំនួរខ្លះពីផលប្រយោជន៏នៃ MAP/PAP បន្ទាប់ពីទឹកជំនន់។ ប្រាប់គាត់ថា អ្នកមិនចង់ដឹងពីឈ្មោះគាត់ទេ គ្រាន់តែសរសេរឈ្មោះភូមិដើម្បីអោយពតិមានមានភាពលាក់ការជាសំងាត់។ សួរគាត់ថា តើគាត់អាចមានពេល ៣០នាទី ឆ្លើយសំនួរខ្លះបានទេ។

Interviewer:	**Date:**
Village Name:	**Type of MAP:**
Type of Beneficiary: **នរណា**	**Type of PAP:**
Family Background ***ព្រានភាពគ្រួសារ***	
Benefits from MAP or PAP ផលប្រយោជន៏ពីផែនការឬសកម្មភាពកាត់បន្ថយ/សកម្មភាពត្រៀមបង្ការគ្រោះមហន្តរាយ	
Benefits from construction salary ផលប្រយោជន៏ពីកំរៃពលកម្ម	
Benefits from using the MAP PAP ផលប្រយោជន៏បានពីការប្រើប្រាស់ផែនការឬសកម្មភាពកាត់បន្ថយ/សកម្មភាពត្រៀមបង្ការគ្រោះមហន្តរាយ	

How would you rank MAP or PAP
សូមជួយចាត់ជាចំណាត់ថ្នាក់ពីផែនការឬសកម្មភាពកាត់បន្ថយ/សកម្មភាពត្រៀមបង្ការគ្រោះមហន្តរាយ

1. Very good ល្អណាស់
2. Good ល្អ
3. ok ល្អតិចតួច
4. not good មិនល្អ

Problems – before MAP/ PAP what problems did you have
ំនពេលមានផែនការឬសកម្មភាពកាត់បន្ថយ/សកម្មភាពត្រៀមបង្ការគ្រោះមហន្តរាយ តើអ្នកបានជួបបញ្ហាអ្វីខ្លះ?

Problems or inequalities from MAP PAP construction or use
បញ្ហា ឬភាពមិនស្មើគ្នា បានមកពីការធ្វើ ឬការប្រើប្រាស់ផែនការឬសកម្មភាពកាត់បន្ថយ/សកម្មភាពត្រៀមបង្ការគ្រោះមហន្តរាយ

Did the MAP cause any environmental problems?
តើផែនការឬសកម្មភាពកាត់បន្ថយគ្រោះមហន្តរាយ មានប៉ះពាល់ដល់បរិដ្ឋានឬទេ?

Poor Family? ☐

Female-headed household? ☐

Appendix Three: Savings Questionnaire

First introduce yourself and explain that you are here to do the final evaluation of the CARE project in Prey Veng.
Explain that you would like to ask some questions about the family finances after the floods in 2000, 2001 and 2002.
Tell the person that you do not want to know any names and will only write the name of the village so that the information will be confidential.
Ask the person if they have 30 minutes to answer some questions.

Interviewers Name: Village Name: Date of Interview:

Savings Questions	2000 floods	2001 floods	2002 floods
1. Did you save money before the floods? តើអ្នកបានសន្សំប្រាក់ទេមុនពេលទឹកជំនន់មកដល់? Circle one answer for each year	Yes No	Yes No	Yes No
2. How much did you save? តើអ្នកសន្សំប្រាក់បានប៉ុន្មាន? Write the value in Riel			
3. How did you keep your savings? E.g. gold, Riel, dollars, jewellery តើអ្នកបានសន្សំអ្វី? Write the type of savings			
4. Did you borrow before or after the floods? E.g. rice, money, gee តើអ្នកខ្ចីប្រាក់មុនពេលឬក្រោយពេលទឹកជំនន់? Circle the answer for each year	Yes No Before After	Yes No Before After	Yes No Before After

5. What was the loan for? តើខ្ចីប្រាក់ដើម្បីអ្វី? Explain the reason for borrowing money ពន្យល់ពីមូលហេតុនៃការខ្ចីប្រាក់			
6. How much did you borrow? តើអ្នកបានខ្ចីប្រាក់ប៉ុន្មាន? Write the amount borrowed			
7. Who did you borrow from? តើអ្នកបានខ្ចីប្រាក់ពីអ្នកណា? e.g. family, moneylender, bank			
8. What was the interest rate? គេយកការប្រាក់ប៉ុន្មាន? Write the % per month or year			
9. When did you repay the loan? រយៈពេលប៉ុន្មានដែលអ្នកអាចសងប្រាកត ទៅគេវិញ? ប៉ុន្មានខែ ឆ្នាំ? Write how many months it took to repay			
10. How did you repay the loan? តើអ្នកធ្វើដូចម្តេចដើម្បីអាចសងគេបាន? (ជាលុយខ្ចីគេ ឬលក់របស់របរ) e.g. sold assets, borrowed money, good business, work in Phnom Penh			

Savings Questions	Answers
11. Is your financial situation better than in 2000? តើស្ថានភាពថវិការបស់អ្នកប្រសើរជាងឆ្នាំ២000ដែរឬទេ? Circle the answer	Better Same Worse
12. Please explain how and why it has changed? សូមជួយពន្យល់ តើវាមានការផ្លាស់ប្តូរយ៉ាងម៉េច? ហេតុអ្វី? **How and why it has been the same?** ហេតុអ្វីក៏វាមិនផ្លាស់ប្តូរ?	
13. Have your assets increased since 2000? តាំងពីឆ្នាំ២000មក តើទ្រព្យសម្បត្តិរបស់អ្នកមានការកើនឡើងឬទេ? Circle the answer	Yes No
14. What do you have now that you did not have in 2000? តើអ្នកមានអ្វីខ្លះ ដែលកាលពីឆ្នាំ២000 អ្នកមិនមាន? e.g. bicycle, moto, cow, ox, chickens, television please list new assets since 2000 e.g. 10 chickens, 1 bicycle **What did you lose?** តើអ្នកបានបាត់បង់អ្វីខ្លះ?	
15. How did you buy these assets? តើអ្នកធ្វើយ៉ាងដូចម្តេច ដើម្បីទិញទ្រព្យសម្បត្តិទាំងនោះ? e.g. good business, found paid labour **Why did you lose it?** ហេតុអ្វីបានជាអ្នកបាត់បង់ទ្រព្យសម្បត្តិទាំងនោះ?	
16. Have you borrowed money from the savings bank? តើអ្នកមានបានខ្ចីលុយពីធនាគារឬទេ? Circle the answer	Yes No

17. How much did you borrow? តើអ្នកបានខ្ចីប្រាក់ប៉ុន្មាន? Write the amount in Riel	
18. How did you spend the money? តើអ្នកយកលុយនោះទៅធ្វើអ្វី? e.g. paid for hospital, bought seeds	
19. How did this help your family? តើប្រាក់ដែលខ្ចីនោះ ជួយគ្រួសាររបស់អ្នកដូចម្តេចខ្លះ?	
20. Do you think the savings bank is good for your community? តើអ្នកគិតថា ធនាគារសន្សំប្រាក់ វាល្អសំរាប់ការរស់នៅរបស់អ្នកឬទេ? Circle the answer	Yes No
21. Why is it good or bad? ហេតុអ្វីបានជាគិតថាល្អ? អាក្រក់?	
22. Do you have any suggestions for improving the savings bank? តើអ្នកមានយោបល់យ៉ាងណា ដើម្បីធ្វើអោយធនាគារសន្សំប្រាក់នេះ កាន់តែប្រសើរឡើង?	

Thank the person for their time. Ask if they have any questions.