Draft

Mekong River Commission

Basin Development Plan Programme, Phase 2

Assessment of basin-wide development scenarios

Technical Note 5

Social assessments

(Work in Progress)

February 2010

Note to the reader

This series of technical notes is prepared to serve facilitation and discussion on the assessment of basin-wide development scenarios of the Mekong Basin by stakeholders in the basin countries. The assessment process is continuing and feedback on the initial findings is requested.

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List of Technical Notes

Technical Note 1: ***Synthesis of initial findings from assessments***

Technical Note 2: ***Hydrological assessment***

Technical Note 3: ***Geomorphological assessment***

Technical Note 4: ***Environmental assessment***

Technical Note 5: ***Social assessment***

Technical Note 6: ***Economic assessment***

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Technical Note 8: ***Agriculture impacts assessment***

Note: Technical note on Fisheries Assessment is being prepared. Only power point presentation is available

1 Social impacts

An initial assessment of social impacts in terms of the number of people exposed to changes in the river water resources and connected wetlands, and the number of people who are dependent on these resources for their livelihoods has been done for Cambodia and Lao PDR. The other aspects of the social assessment: exposed people's sensitivity to changes and their resilience, or available coping strategies, have not yet been addressed. Updated social statistics for Vietnam and Thailand have not been received yet. The work is ongoing following the methodology outlined in the social assessment methodology paper.

The initial overall findings for Cambodia and Lao PDR are presented in below table.

Specific development objective	Indicator	Unit	Country	Definite Future	20 Year with MD	20 Year w/o MD	20 Year w/o LMD
3.1 Maintain livelihoods of vulnerable resource-users	No. of people affected	000 people	Cambodia	80	1000	12	
Issue:	Severity of impact on health, food and income security	Trend		-	-----	---	
Health, food and income security							
3.1 Maintain livelihoods of vulnerable resource-users	No. of people affected	000 people	Lao PDR	250	900	550	750
Issue:	Severity of impact on health, food, income security	Trend		---	---	---	---
Health, food and income security							

Cambodia

The main data sources that have been used for the social assessment are:

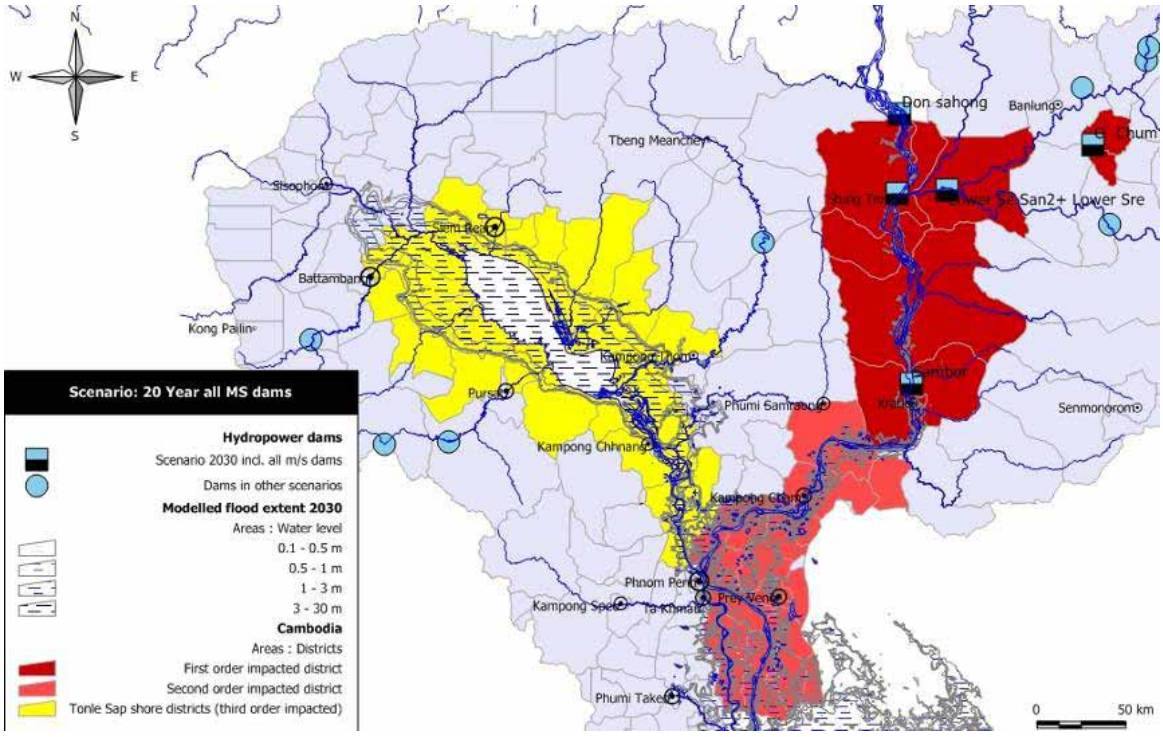
- Cambodia Census 2008 (obtained from NIS in December 2009)
- Commune Database 2007 from NCDD Program (obtained in September 2009)
- Commune Poverty Rate 2007 (obtained from WFP in September 2009)
- Statistical Yearbook of Cambodia 2008 (obtained from Economic Planning Department in 2009)

Definite Future

The number of vulnerable water resource users who are dependent on water resources for their livelihoods - mainly fishing - and who are exposed to changes in the Definite Future are assessed to be 80,000 people. The Definite Future scenario only impacts Cambodia through loss of fisheries from upstream dams, and a small number of people in a Krong Ban Leung district where a dam will be constructed. The loss of fisheries is initially assessed by the Fisheries Program to be 8 percent of current river fish production. Based on analysis of the Census data, described below, it is assessed that 1 million people are dependent on river fisheries in Cambodia. At this stage of the analysis the 8 percent loss in fisheries production is simply assumed to affect 8 percent of the fisheries dependent population, i.e., 80,000 people.

Scenario 20 Year with all mainstream dams

This scenario includes the Sambour Dam, Stung Treng Dam, Lower Se San 2 and Lower Srepok 2 Dam, and the Ou Chum Dam. The Don Sahong dam in Lao PDR almost on the border to Cambodia will also have an effect downstream in Cambodia. The Districts exposed to changes in the river system due to these dams have been selected as the Districts on both sides of the mainstream and around the Tonle Sap. They have grouped into first, second and third order impacted Districts, for a later refinement of the analysis. The Districts and the grouping is shown in the map.



The Districts between Don Sahong and Sambor dams are considered impacted of the first order since they will be between two dams blocking all fish migration into and out of that stretch of

river. The Districts adjacent to the river below Sambor and to the border to Vietnam are considered second order impacted since most of the water comes through the Sambor dam, but there are large floodplains which can provide habitats for fish and the area is still linked to the Tonle Sap system. Tonle Sap itself is considered third order impacted. However, it is not known exactly how the dams in the 20 Year scenario will affect the fish and aquatic animals. The preliminary fisheries assessment estimates that 265,349 tons of fish production will be lost in Cambodia's connected wetlands in Scenario 20 Year with mainstream dams, which is considered a severe negative impact.

Cambodia

Key statistics	First order impacted districts	Second order impacted districts	Tonle Sap shore 3rd order impacted districts	Total
Nos Districts in LMB	10	27	20	57
Total Population Census 08	285,876	2,504,509	1,675,117	4,465,502
Rural Population	220,504	2,342,970	1,635,234	4,198,708
Nos HHs - total	76,309	568,042	348,699	993,050
Nos HHs fishing main occupation	1,298	13,087	15,443	29,828
Male Fisheries Employment	659	11,903	20,603	33,165
Female Fisheries Employment	307	6,418	14,447	21,172
Nos HHs participating in fishing community	14,858	11,024	31,657	57,539
Nos rowing boats used for fishing	10,783	60,853	53,662	125,298
Nos motorboats used for fishing	4,297	18,508	19,554	42,359

Vulnerable population	**HHs**	**High (total) Nos. people**	**Low value**	**Low Nos. people**	**Middle value**	**Comments**
Fishing Main Occupation	29,828	147,623	100%	147,623		Proxy for Large scale fishing
Participating in Fishing Community*	57,539	284,769	50%	142,385		Proxy for Medium scale fisheries
Subsistence fisheries in river/connected wetlands	125,298	620,118	50%	310,059		Proxy is nos. rowing boats used for fishing: 1 per HH
Totals	212,665	1,052,510		600,067	800,000	
Add secondary occupations dependent on fisheries (yet to be calculated in detail)					200,000	

Overall preliminary assessment	**1,000,000**	
Assessment: severity of impacts: severe:	- - - - -	

The vulnerable population is defined as households (HHs) with fishing as a main occupation, with a workforce of males and females employed in fisheries, with HHs who participate in the fishing community and HHs who own a rowing boat for fishing (used as a proxy for subsistence fisheries in water bodies that are linked to river system). Adding all people in households with fishing as main occupation, households participating in the fishing community and households owning a rowing boat used for fishing, an total high estimate of 1,000,000 people engaged in fishing activities is arrived at. Assuming some overlap between households with fishing as main occupation and households participating in the fishing community and thus reducing the latter to 50%, and further assuming only 50% of the people in households owning a rowing boat used for fishing are dependent on fishing, a conservative estimate of 600,000 people engaged in fishing activities is arrived at. The middle value between the high and low estimates of 800,000 people is then used. To this is added an estimated 200,000 people (around 45-50,000 households) that are in other occupations and livelihoods that are dependent on fisheries. The total is thus vulnerable 1,000,000 people.

Further analysis will be made on the number of people involved in occupations that are dependent on the inland fisheries in Cambodia.

The severity of the social impacts through the impacts on the fisheries is dependent on what those impacts will be. For example, there is a big difference between a 20% reduction and a 50% reduction in the fish catches in Tonle Sap. The range in possible impacts on fisheries gives a range in impacts on livelihoods. It is however likely that the large-scale and medium scale fisheries would be hardest hit, whereas subsistence fisheries could increase effort and/or fish in alternative habitats to the main river system.

<u>Scenario 20 Year without mainstream dams</u>

In this scenario only two dams, both located in Sesan District, are in included, and the social impacts are assessed to be relatively limited. The resettlement of 4,700 people is an issue, however, it is – optimistically – assumed that adequate social safe guards would be implemented.

Sesan District	**HHs**	**Nos people**	**Comments**
Nos HHs participating in fishing community	277	1,523	Average HH size 5.5
Nos of rowing boats used for fishing	1080	5,940	Assuming 1 boat per HH
To be resettled		4,700	
Sub-total		12,163	

Rounded nos. of vulnerable affected people		**12,000**	

Lao PDR

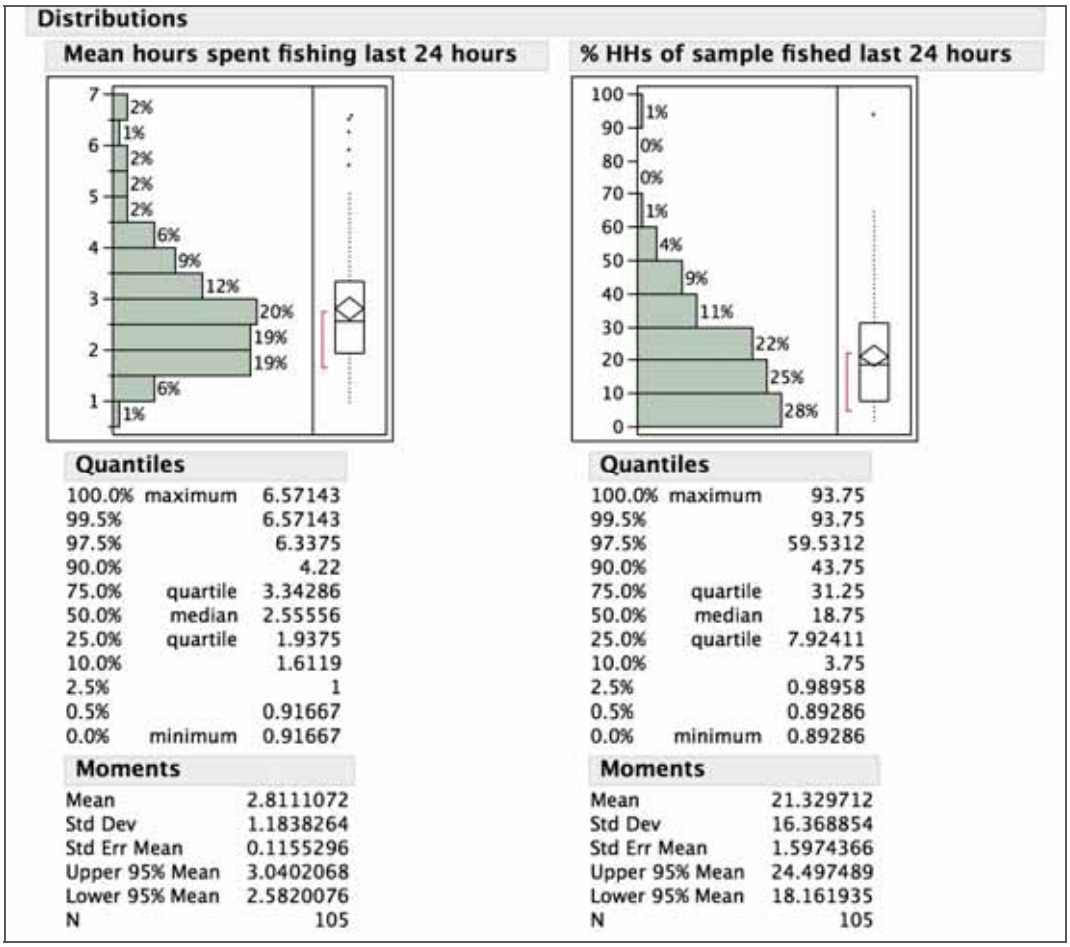
A preliminary social assessment of impacts in Lao PDR has been made using the Census 2005 and the LECS4 of 2007/08. The latter survey covers the whole of Lao PDR with a sample of more than 8,000 households. It includes information on the involvement in fisheries.

The LECS4 data shows that the population in Lao PDR overwhelmingly is engaged in capture fisheries with 74% of all households in the country having fished in the previous last 12 months. Of these 78% catch fish in rivers. This compares to 19% of all households that catch fish in rice fields.

LECS4 2007/8 Data on fisheries

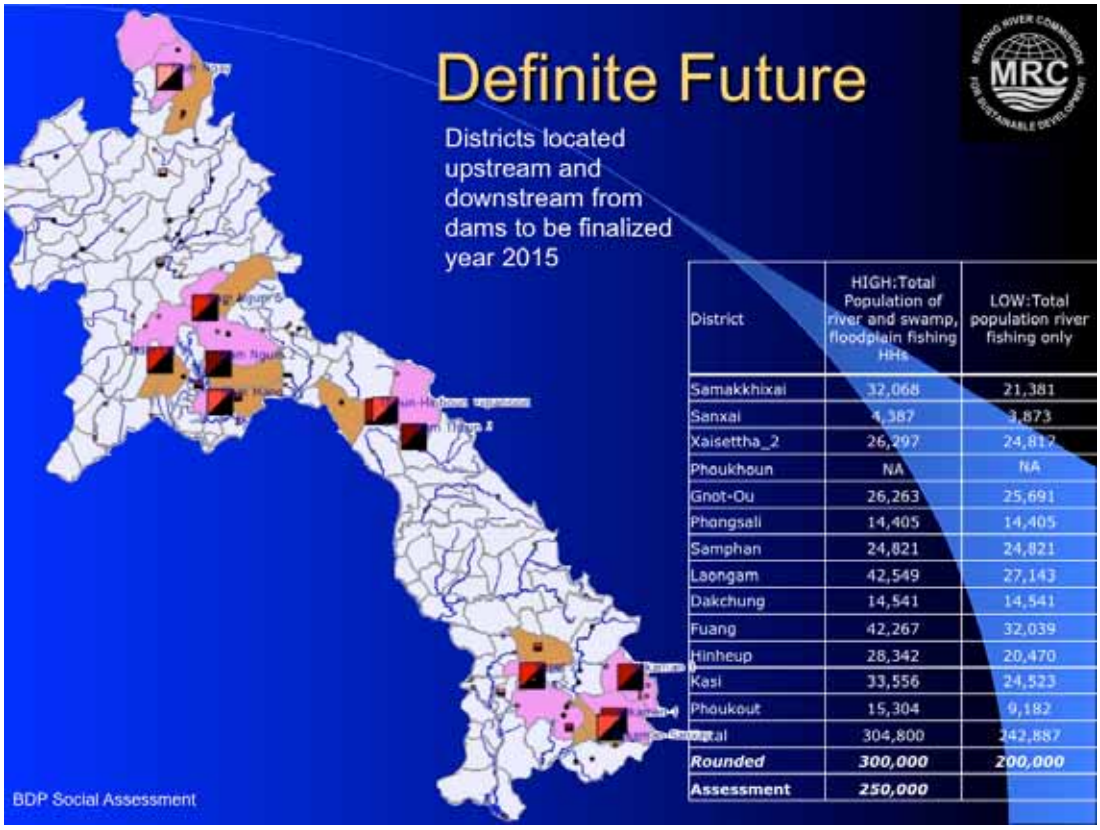
Variables	Nos HHs	Percent of total	Percent of fishing HHs
Nos of HHs engaged in fishing	6,338	77%	
Pond fish culture	1,210	15%	19%
Cultivated rice field fish culture	398	5%	6%
Cage fish culture	177	2%	3%
Integrated pond fish culture	131	2%	2%
Community fish culture	88	1%	1%
Fish seed culture	26	0%	0%
Capture fishing last 12 months	6,096	74%	96%
River capture fishing	4,914	60%	78%
Lake reservoir fishing	2,733	33%	43%
Swamps, floodplains fishing	1,566	19%	25%
Rice field fishing	1,529	19%	24%
Sample nos of households - nationwide		*8248*	

It should be noted that the importance of capture fisheries varies between households. However, the LECS4 also reports on households' capture fisheries in the last 24 hours (before the time of interview), and this shows that 21% of households had been fishing during that limited period of time, spending on average 2.8 hours on this activity (refer to graph and statistical report below). This indicates a general high importance of capture fisheries for subsistence and food security.

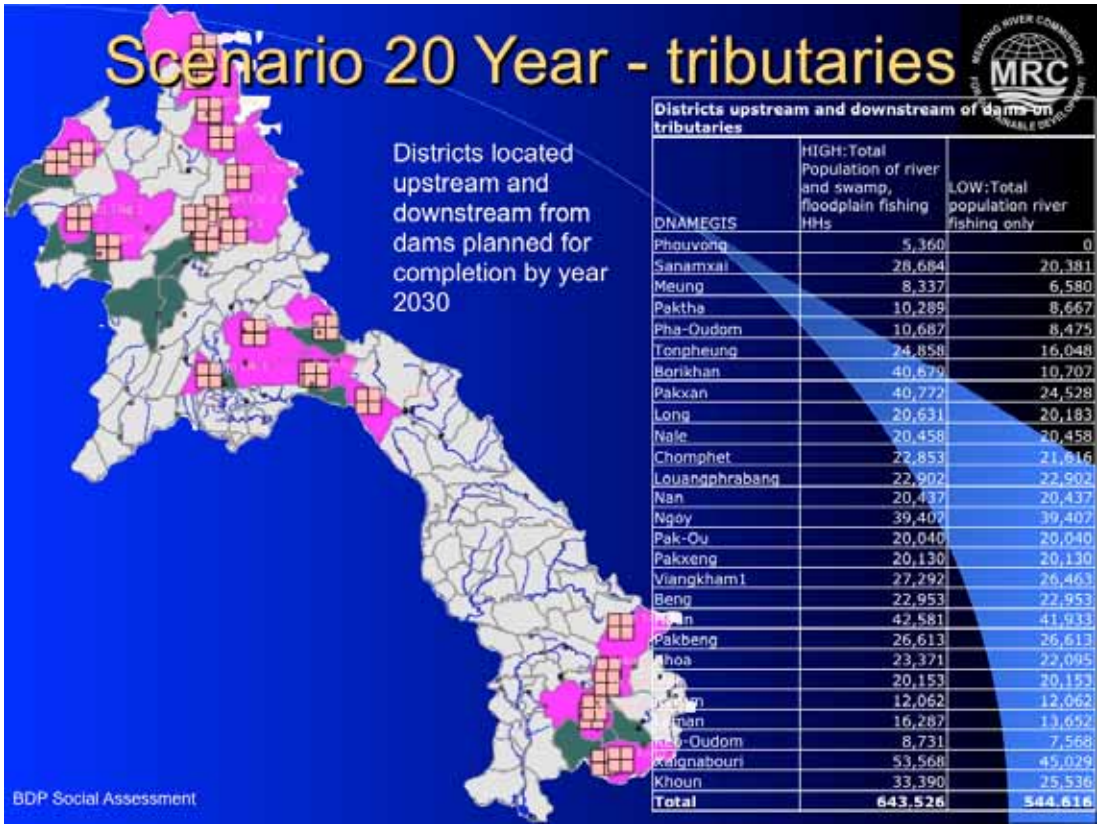


With the planned number of dams in Lao PDR, the natural fish yield in the dammed rivers is expected to decline dramatically, which will affect a large part of the population using these rivers.

The social assessment uses the same approach as for Cambodia by identifying the Districts, which will be exposed to the changes in the river flows in each of the scenarios, and thereby assess how many people will be affected. Simple selection criteria based on upstream and/or down-stream location from dams have been applied. The following maps show the GIS based analysis.

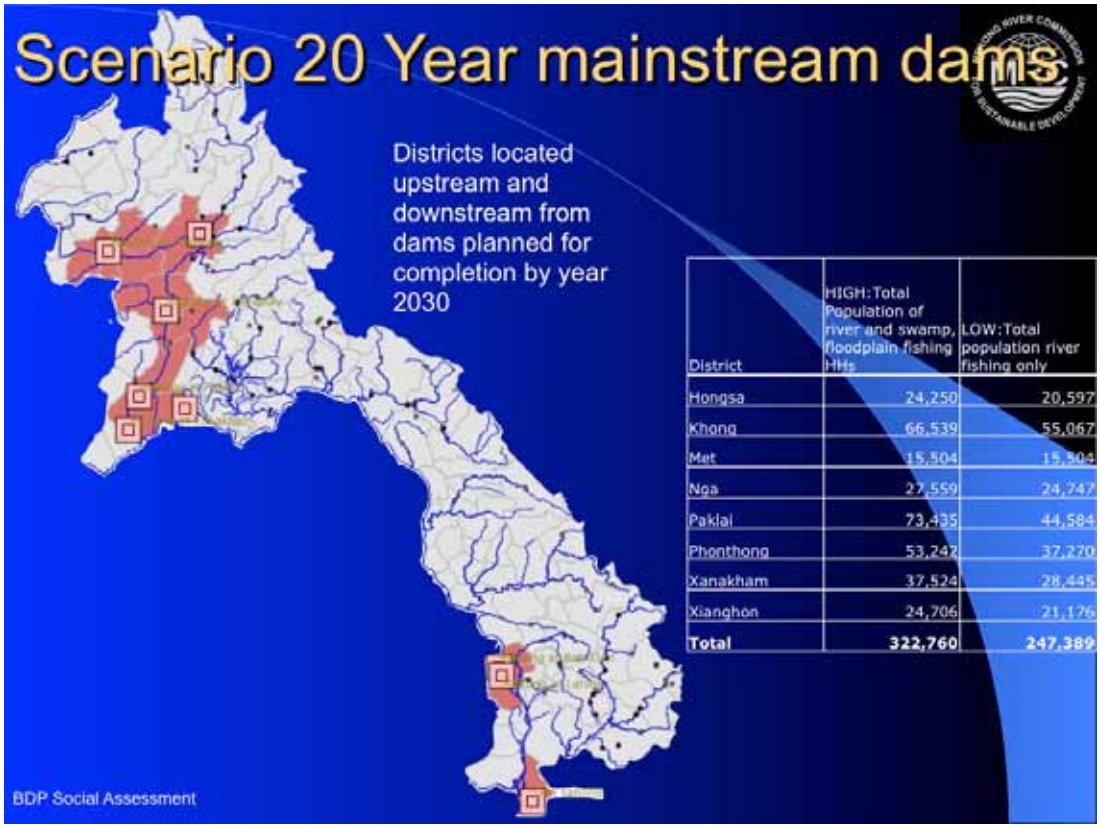


District	HIGH:Total Population of river and swamp, floodplain fishing HHs	LOW:Total population river fishing only
Samakkhixai	32,068	21,381
Sanxai	4,387	3,873
Xaisettha_2	26,297	24,817
Phoukhoun	NA	NA
Gnot-Ou	26,263	25,691
Phongsali	14,405	14,405
Samphan	24,821	24,821
Laongam	42,549	27,143
Dakchung	14,541	14,541
Fuang	42,267	32,039
Hinheup	28,342	20,470
Kasi	33,556	24,523
Phoukout	15,304	9,182
Total	304,800	242,887
Rounded	***300,000***	***200,000***
Assessment	***250,000***	



Districts upstream and downstream of dams on tributaries

DNAMEGIS	HIGH:Total Population of river and swamp, floodplain fishing HHs	LOW:Total population river fishing only
Phouvong	5,360	0
Sanamxai	28,684	20,381
Meung	8,337	6,580
Paktha	10,289	8,667
Pha-Oudom	10,687	8,475
Tonpheung	24,858	16,048
Borikhan	40,679	10,707
Pakxan	40,772	24,528
Long	20,631	20,183
Nale	20,458	20,458
Chomphet	22,853	21,616
Louangphrabang	22,902	22,902
Nan	20,437	20,437
Ngoy	39,402	39,402
Pak-Ou	20,040	20,040
Pakxeng	20,130	20,130
Viangkham1	27,292	26,463
Beng	22,953	22,953
[illegible]n	42,581	41,933
Pakbeng	26,613	26,613
[illegible]hoa	23,371	22,095
[illegible]	20,153	20,153
[illegible]n	12,062	12,062
[illegible]han	16,287	13,652
[illegible]-Oudom	8,731	7,568
Xaignabouri	53,568	45,029
Khoun	33,390	25,536
Total	**643,526**	**544,616**



District	HIGH: Total Population of river and swamp, floodplain fishing HHs	LOW: Total population river fishing only
Hongsa	24,250	20,597
Khong	66,539	55,067
Met	15,504	15,504
Nga	27,559	24,247
Paklai	73,435	44,584
Phonthong	53,242	37,270
Xanakham	37,524	28,445
Xianghon	24,706	21,176
Total	**322,760**	**247,389**

The number of vulnerable resource users in the various scenarios has then been calculated as shown in below table. A 'high' figure has been obtained by including both households that have fished in rivers and floodplains/swamps, and a 'low' figure by including only river fishing households; the middle value of these two figures has then been used.

Scenario	**Middle value reported to main table**	**HIGH: Total Population of river and swamp, floodplain fishing HHs**	**LOW: Total population river fishing only**
Definite Future			
Rounded	***250,000***	***300,000***	***200,000***

20 Year Scenario all MS dams			
20 Y tributary districts up-downstream of dams		643,526	544,616
Mainstream districts affected by dams		322,760	247,389
Sub-total 20Y scenario		*966,286*	*792,005*
Rounded	***900,000***	***1,000,000***	***800,000***
20 Year Scenario without M/S dams			
20 Y tributary districts up-downstream of dams		643,526	544,616
Rounded	***550,000***	***600,000***	***500,000***
20 Year Scenario without LMB mainstream dams			
20 Y tributary districts up-downstream of dams		643,526	544,616
Mainstream districts affected by dams		322,760	247,389
Subtract districts affected by mainstream dams in the lower part		-119,782	-92,337
Total scenario		846,504	699,668
Rounded	***750,000***	***800,000***	***700,000***