SOCIAL ASSESSMENT

Presentation of application of methodology and preliminary results

BDP - TWG Workshop
1 February 2010 Vang Vieng

Presentation outline

- Methodology – key points
- Progress in the work
- Tentative overall results
  - Cambodia
  - Lao PDR
- Explanation of results
- Issues for discussion

Recap: objectives for social baseline assessment (according to ToR)

- Assess the extent of people's dependence on river resources in different locations
- Assess resource users resilience to changes in three categories:
  1. baseline vulnerability
  2. extent of social services
  3. available livelihood opportunities (coping strategies)

Key social indicators

Dimensions	Key indicators
Exposure	• Location in areas directly affected • Displacement • Impacts on fish and OAA/P • Increase in irrigation area • Flooding risks
Dependency	• % Part-time fishers • % Full-time fishers • % HHs engaged in collection OAA/P • Consumption of fish/fish products • Location within floodplains • Proximity to main rivers and tributaries
Sensitivity	• Dependency value/rank • Food security • Poverty rate
Resilience	• Access to social services • Access to markets • Literacy rate • Dependency ratio • Aquaculture

Progress in the work

- Updated official social statistics from Cambodia and Lao PDR received late - December 2009 and January 2010
- Thailand social statistics pending
- Vietnam social statistics pending
- Database work and analysis on Cambodia and Lao PDR has started and is ongoing
- Data and qualitative information from SIM & VA has just started and is on going

Preliminary overall results

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

Cambodia

Main data sources

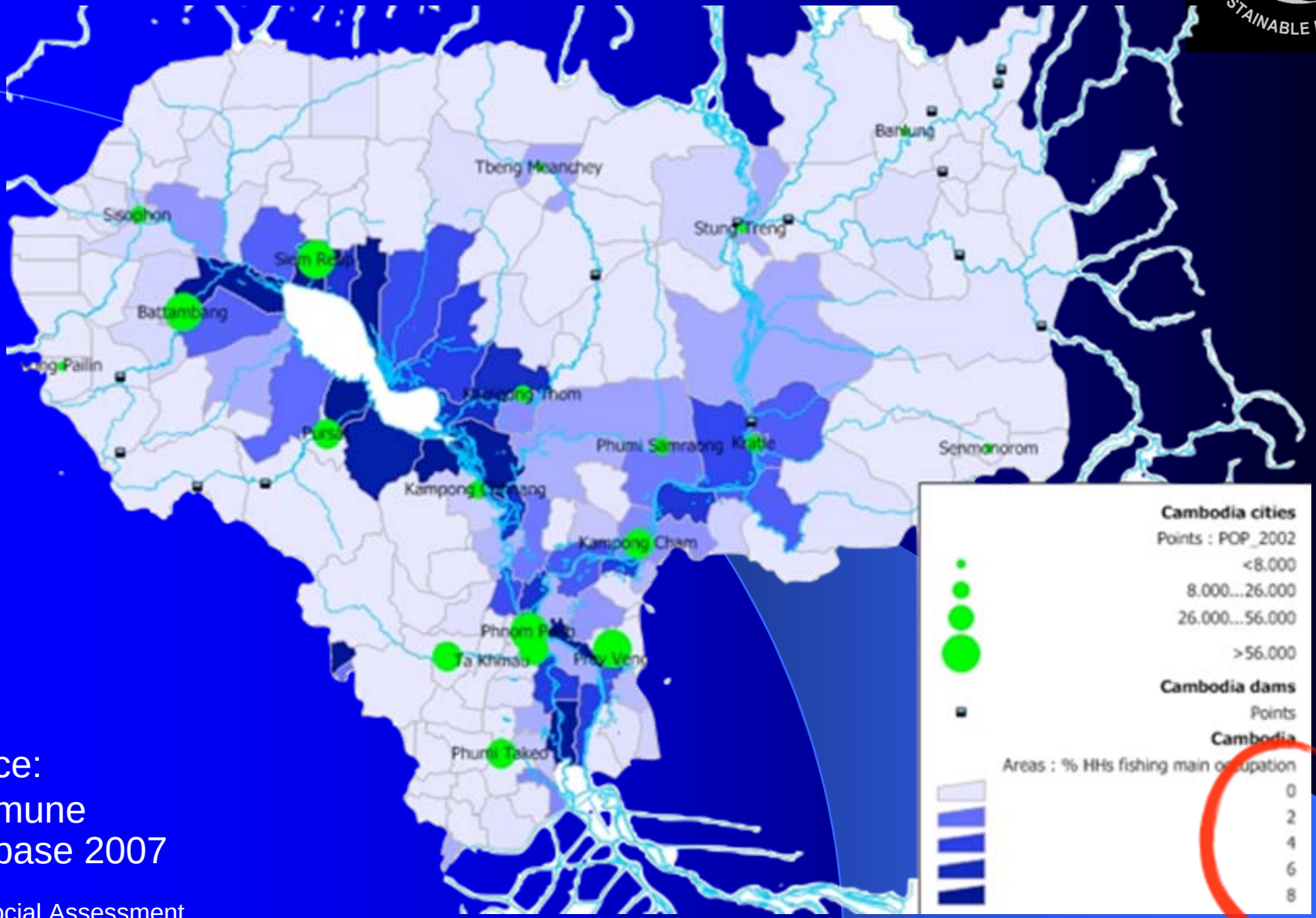
- Cambodia Census 2008 (obtained from NIS in December 2009)
- Commune Database 2007 from NCDD Program (obtained in September 2009)
- Commune Poverty Rate 2007 (obtained from WFP in September 2009)
- Statistical Yearbook of Cambodia 2008 (obtained from Economic Planning Department in 2009)

Reference data sources

- Social Atlas of Lower Mekong Basin 2003
- Fisheries Surveys by MRC and others
- Consumption Study by MRC
- Social-Economic Assessment of Freshwater Capture Fisheries of Cambodia 1998
- FMMP Project Reports (Phase 1&2)
- Initial Assessments from Environment and Economic Teams
- MRCS database and previous publications
- Various Cambodia's relevant papers

Dependency: involvement in fisheries

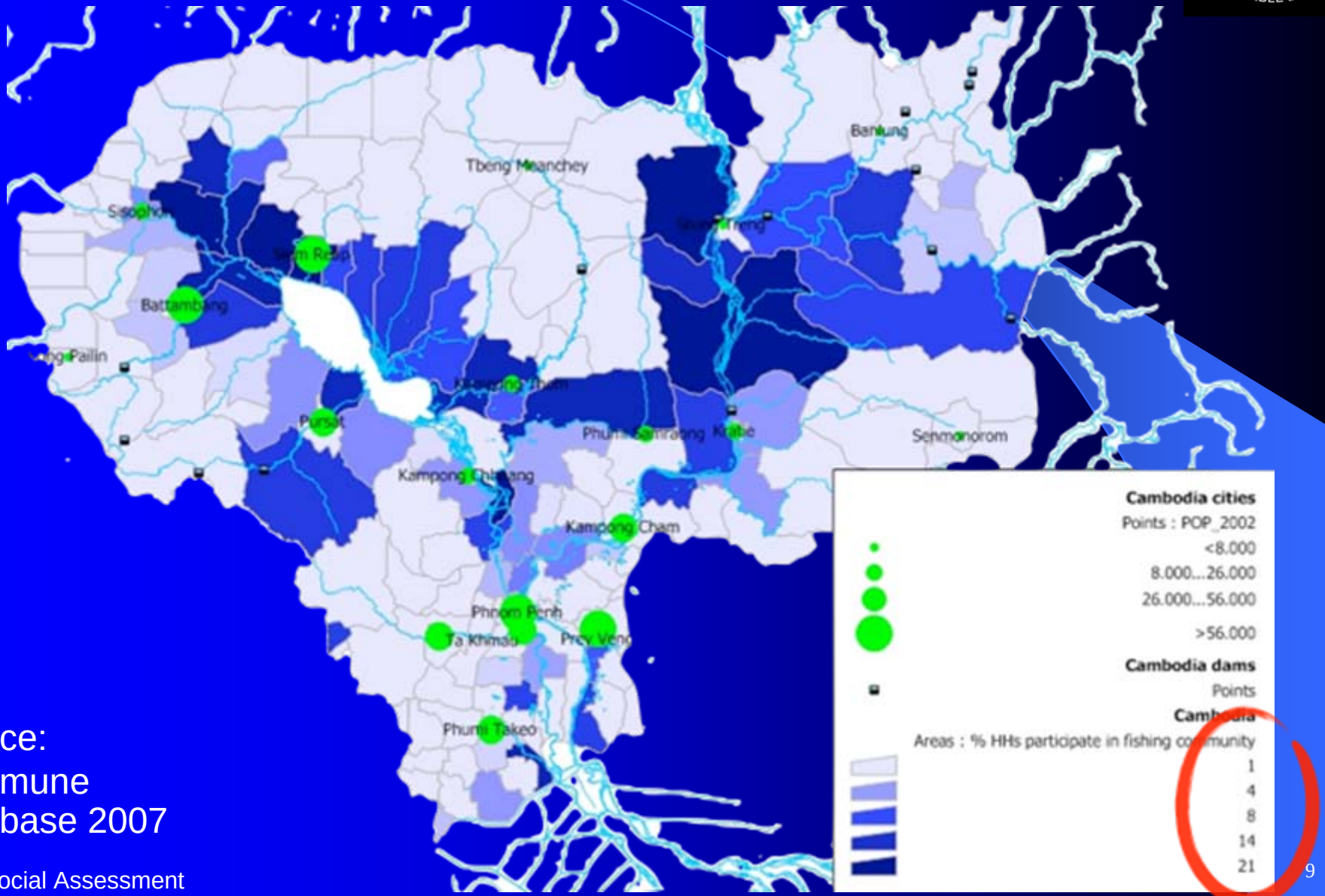
% HHs with fishing as main occupation



Source:
Commune
Database 2007

Dependency: involvement in fisheries

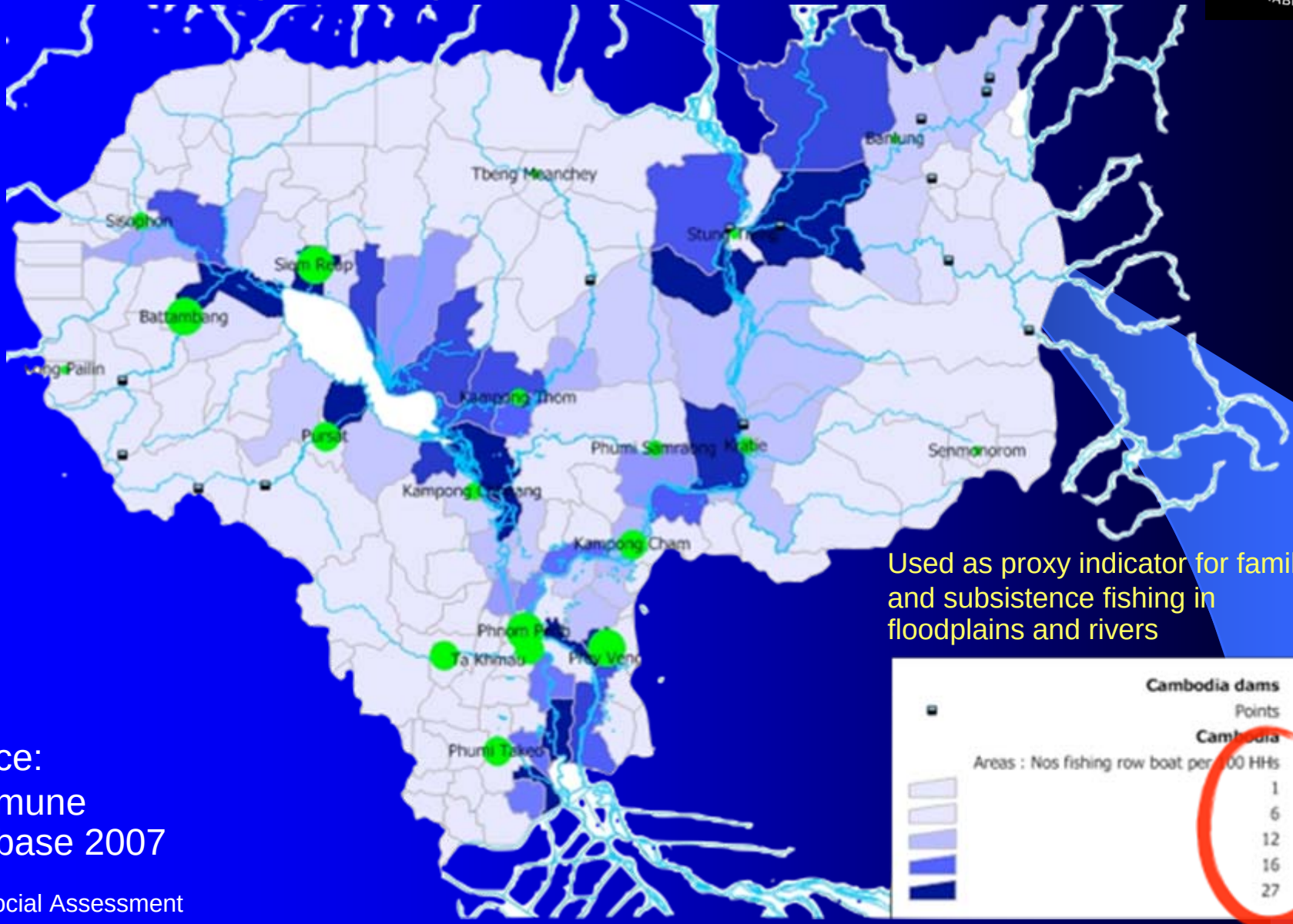
% HHs participating in fishing community



Source: Commune Database 2007

Dependency: involvement in fisheries

Nos fishing rowing boats per 100 HHs



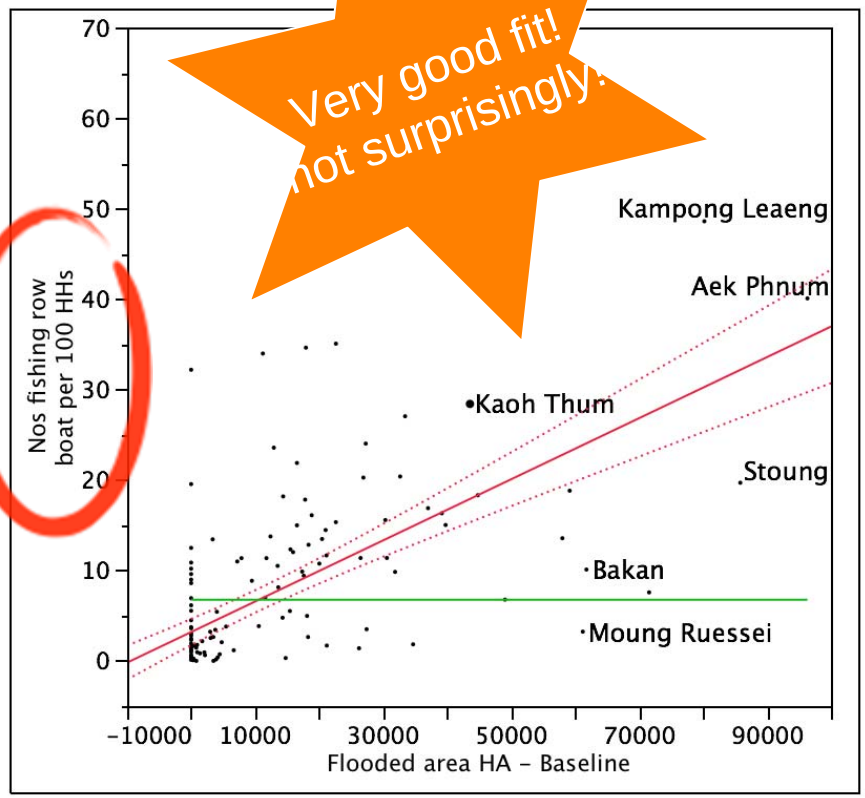
Used as proxy indicator for family and subsistence fishing in floodplains and rivers

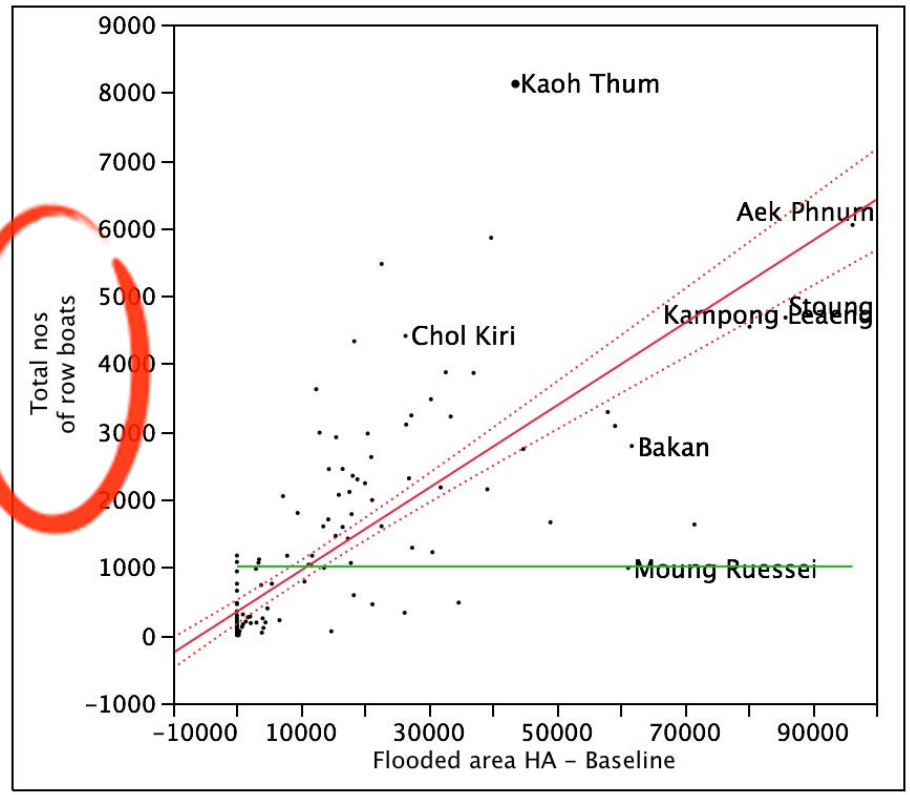
Source: Commune Database 2007

Correlation - flooded area and fishing rowing boats

You don't need a boat for rice field fishing!

Very good fit! Not surprisingly!

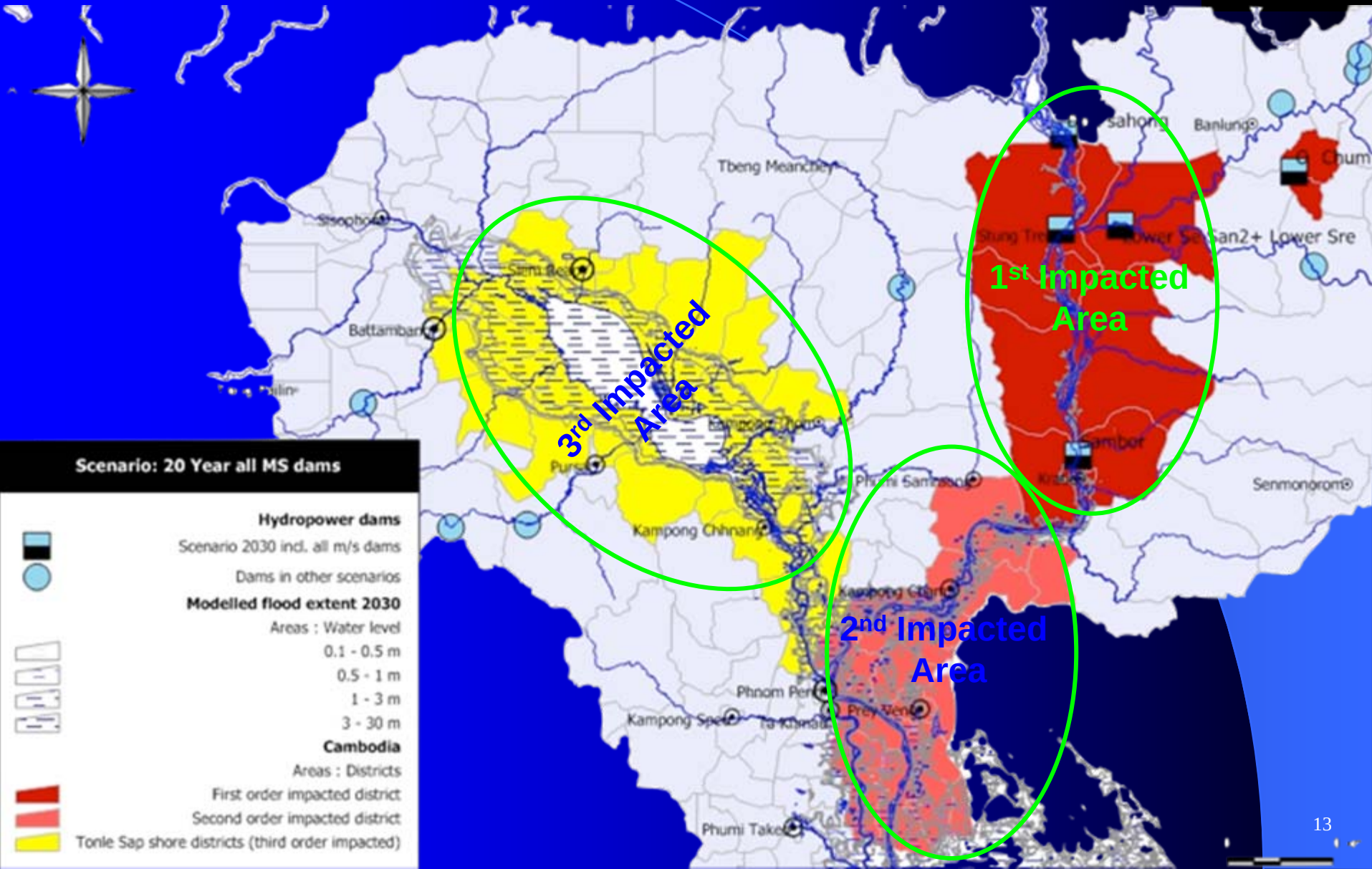




Definite Future Scenario

Loss of river fisheries from mainstream dams upstream	Tons		Comments
River fish production without dams	312,571		Preliminary fisheries calculation
River fish losses due to upstream MS dams	25,006		
% loss of river fisheries	8%		
Vulnerable population		Nos. People	
Assessed river and floodplain fishing dependent population		1,000,000	Based on location of districts viz. main river/connected wetlands
Assessed population affected through upstream mainstream dams	8%	**80,000**	Loss in fisheries proxy value for nos. of impacted HHs
Social impacts through fish losses	- - -		Not so severe due to wide distribution of fish losses
In addition: direct impact – location of dam			
District : Krong Ban Lung	Rural population	9,665	
Assessed vulnerable population due to dependence on river fishing		2,000	Will social safe guards program likely to mitigate impacts?>

Cambodia 20 Year w/ mainstream dams



Cambodia 20 Year w/ mainstream dams
Exposed population and dependency indicators

Key statistics	First order impacted districts	Second order impacted districts	Tonle Sap shore Third order impacted districts	Total
Nos. Districts	10	27	20	57
Total Population (2007)	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	76,309	568,042	348,699	993,050
Nos. HHs fishing main occupation	1,298	13,087	15,443	29,828
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
Female Fisheries Employment	*307*	*6,418*	*14,447*	*21,172*
Male Fisheries Employment	*659*	*11,903*	*20,603*	*33,165*

Assessment 20 Year w/ mainstream dams

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:					- - - - -	

Severe impacts for many vulnerable resource users

* OBS: some degree of overlap with HHs fishing main occupation accounted for in low assessment

20 Year Scenario w/o mainstream dams

20 Year Scenario w/o mainstream dams

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 displaced		4,700	
Sub-total		*12,163*	
Rounded nos. of vulnerable affected people		**12,000**	

Cambodia preliminary summing up table

With much uncertainty on how the fisheries will be impacted

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

Not severe

Very severe for many

Severe for relatively few

Vientiane fish market 2000

a 10 second break

Udon Thani 2000

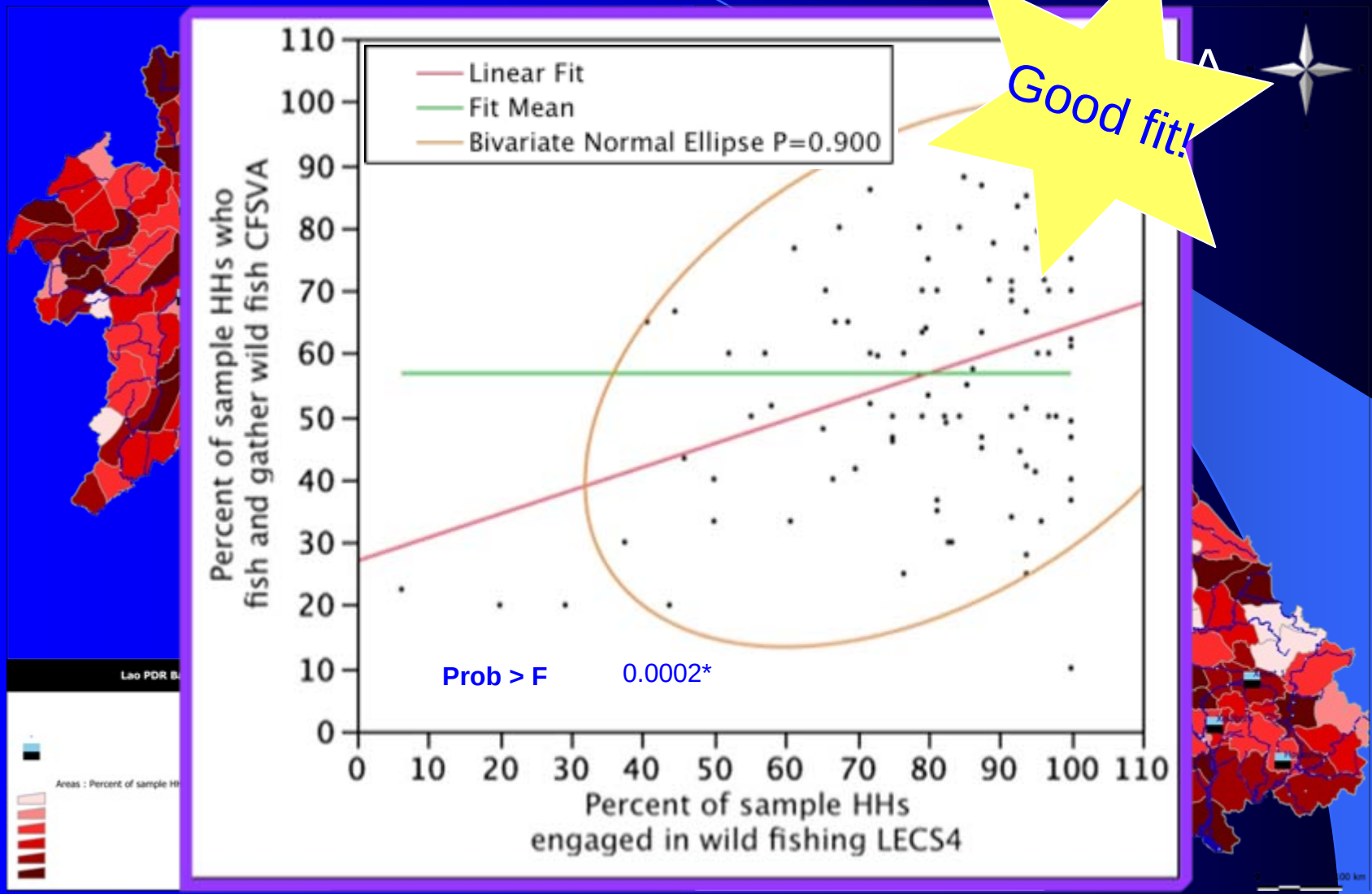
BDP Social Assessment

Lao PDR

Probably the most comprehensive data in the basin on participation in subsistence fisheries

- Main data sources
  - ving Expenditure and Consumption Survey (LECS4) 2008
    - A sample of 8248 households in all Districts
    - Includes detailed information on involvement in fisheries and habitats fished
  - Poverty Atlas population and other data from Population and Housing Census 2005
  - Comprehensive Food Security and Vulnerability Assessment (CFSVA) 2005 - World Food Program
- Reference data sources
  - Social Atlas of Lower Mekong Basin 2003
  - Fisheries Surveys by MRC and others
  - Consumption Study by MRC
  - Initial Assessments from Environment and Economic Teams
  - MRCS database and previous publications

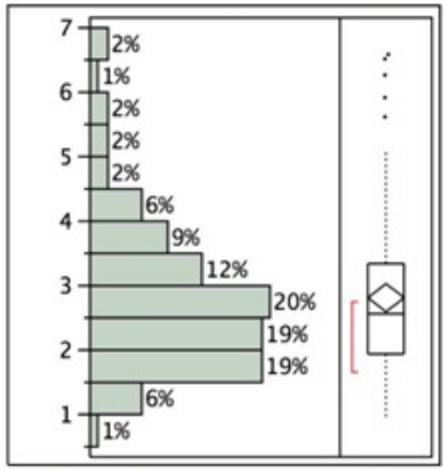
Comparison LECS4 and CFSVA
Percent HHs engaged in capture fishing



LECS4: Time use–fishing last 24 hours

Distributions

Mean hours spent fishing last 24 hours



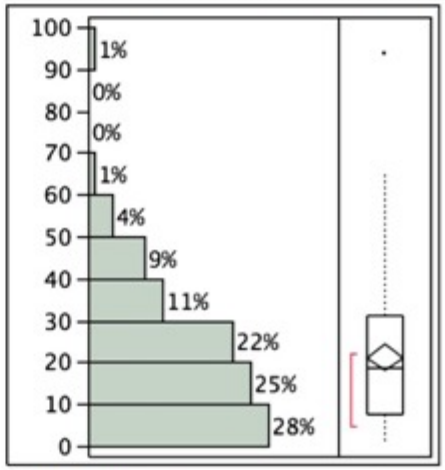
Quantiles

100.0%	maximum	6.57143
99.5%		6.57143
97.5%		6.3375
90.0%		4.22
75.0%	quartile	3.34286
50.0%	median	2.55556
25.0%	quartile	1.9375
10.0%		1.6119
2.5%		1
0.5%		0.91667
0.0%	minimum	0.91667

Moments

Mean	2.8111072
Std Dev	1.1838264
Std Err Mean	0.1155296
Upper 95% Mean	3.0402068
Lower 95% Mean	2.5820076
N	105

% HHs of sample fished last 24 hours



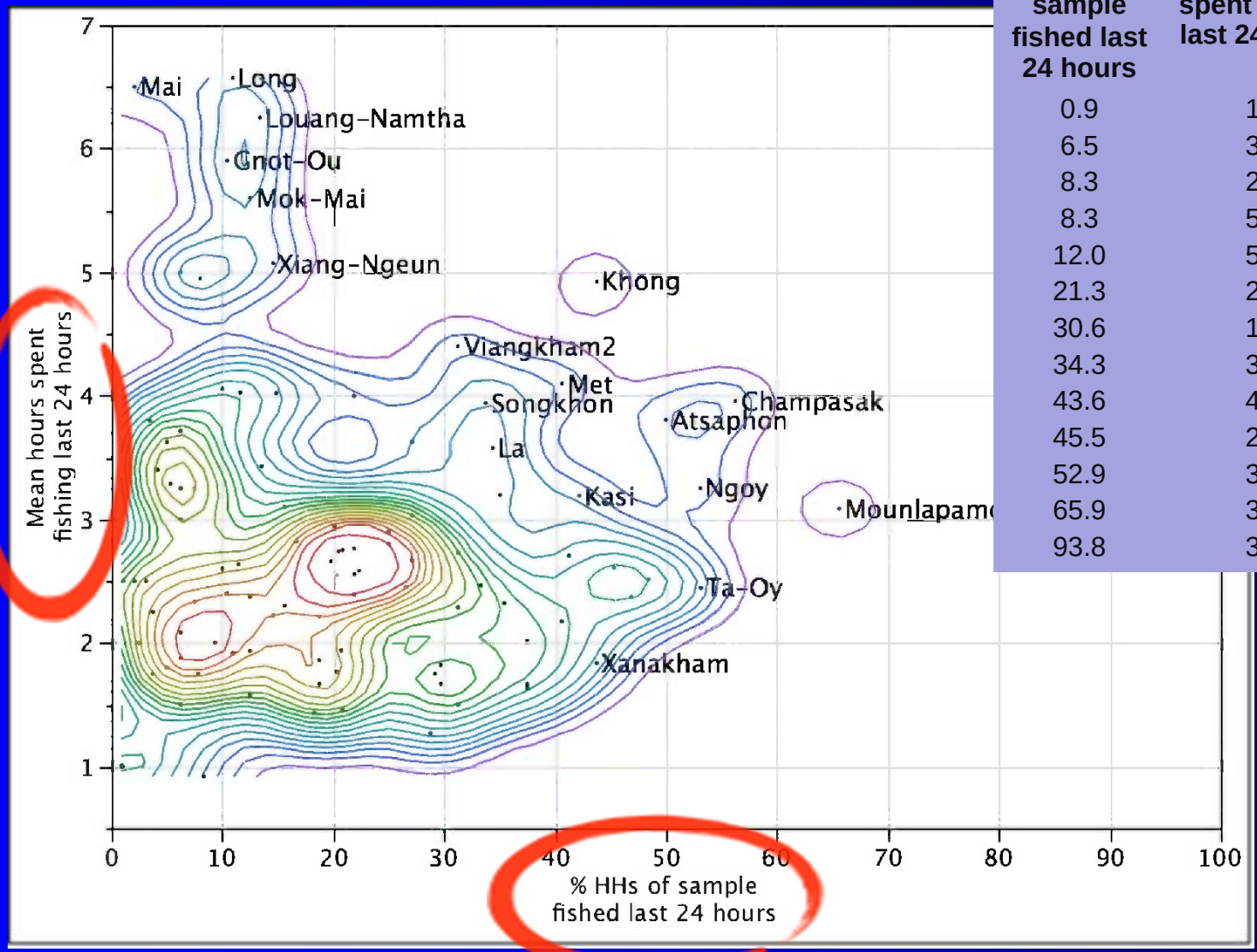
Quantiles

100.0%	maximum	93.75
99.5%		93.75
97.5%		59.5312
90.0%		43.75
75.0%	quartile	31.25
50.0%	median	18.75
25.0%	quartile	7.92411
10.0%		3.75
2.5%		0.98958
0.5%		0.89286
0.0%	minimum	0.89286

Moments

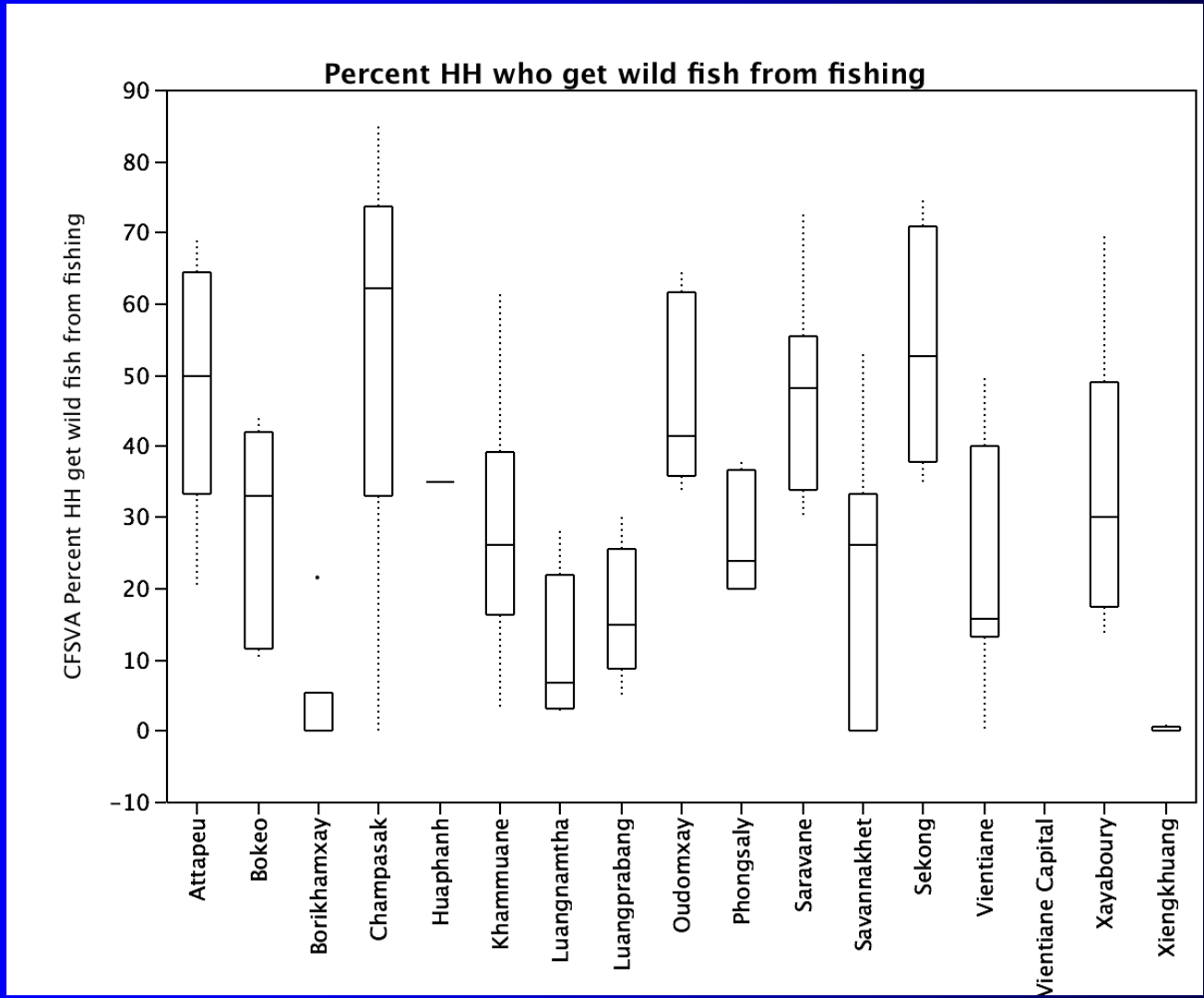
Mean	21.329712
Std Dev	16.368854
Std Err Mean	1.5974366
Upper 95% Mean	24.497489
Lower 95% Mean	18.161935
N	105

LECS4: Time use–fishing last 24 hours

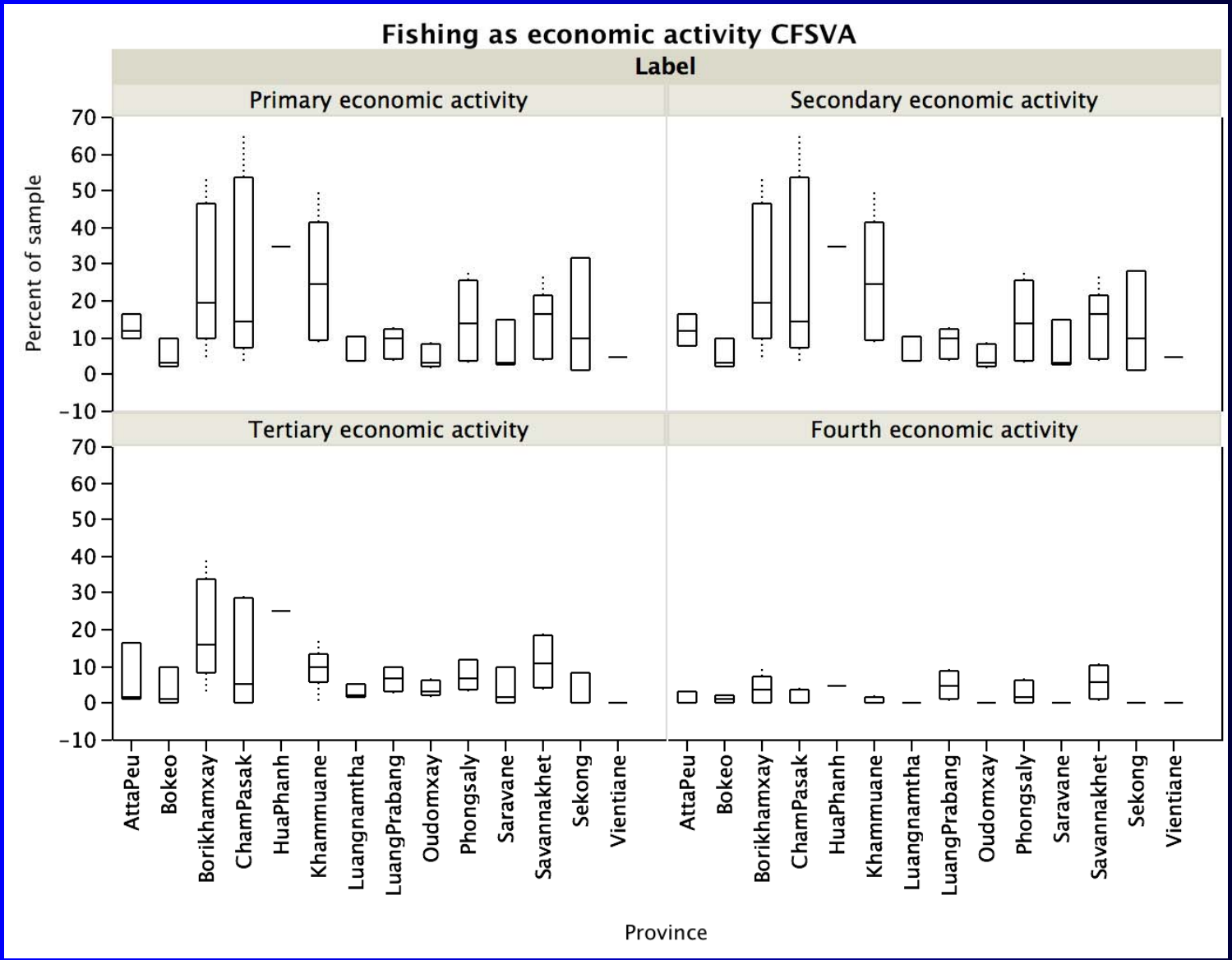


% HHs of sample fished last 24 hours	Mean hours spent fishing last 24 hours	Count Districts
0.9	1.0	4
6.5	3.3	14
8.3	2.0	21
8.3	5.0	3
12.0	5.9	5
21.3	2.6	33
30.6	1.7	8
34.3	3.6	5
43.6	4.9	1
45.5	2.5	6
52.9	3.9	3
65.9	3.1	1
93.8	3.7	1

CFSVA – HHs' source of wild fish



CFSVA – fishing as economic activity



Vulnerability indicators

- LECS4 includes data on nos. HHs that are
- HH fishing - yes/no
  - Cultivated rice field fish culture
  - Pond fish culture
  - Cage fish culture
  - Integrated pond fish culture
  - Community fish culture
  - Fish seed culture
- Capture fishing last 12 months?
  - **River capture fishing**
  - Lake reservoir fishing
  - **Swamps, floodplains fishing**
  - Rice field fishing

Used as vulnerability indicators

Importance of fishing in Lao PDR

Vulnerable

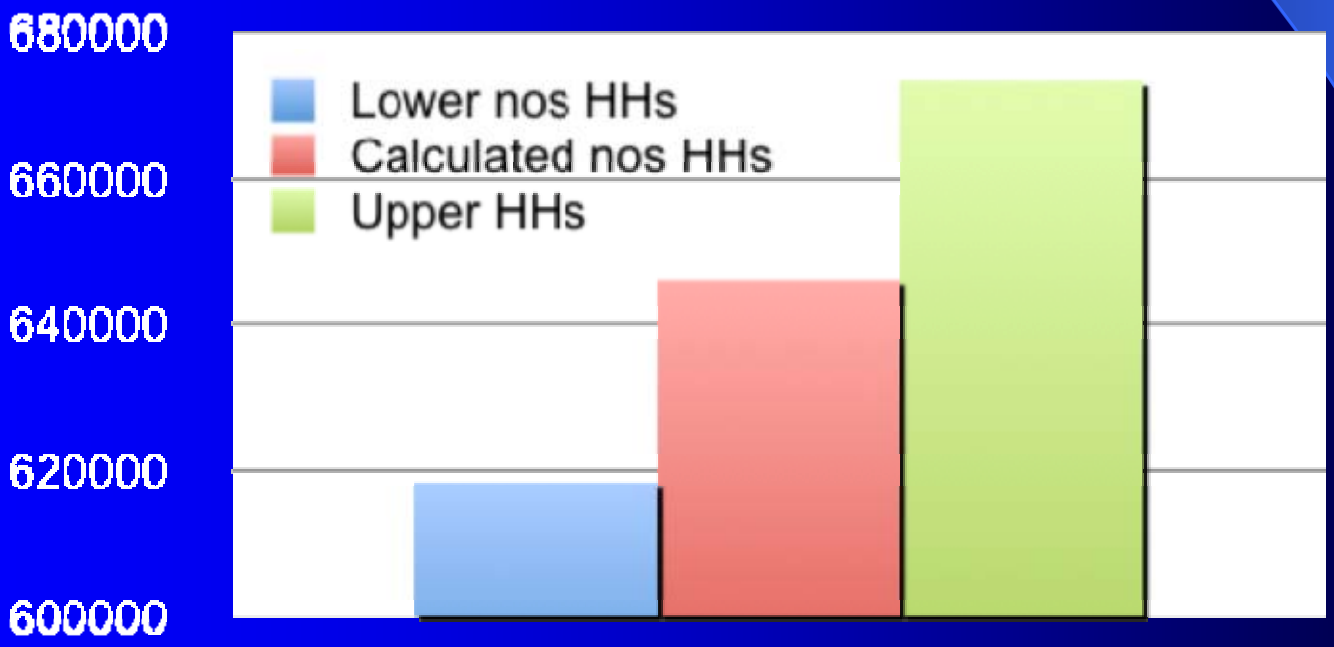
Living Expenditure & Consumption Study 4 2007/8	Percent of total	Percent of fishing HH
Nos of HHs engaged in fishing	77%	
Capture fishing last 12 months	74%	96%
River capture fishing	60%	78%
Lake reservoir fishing	33%	43%
Swamps, floodplains fishing	19%	25%
Rice field fishing	19%	24%
Aquaculture fisheries		
Pond fish culture	15%	19%
Cultivated rice field fish culture	5%	6%
Cage fish culture	2%	3%
Integrated pond fish culture	2%	2%
Community fish culture	1%	1%
Fish seed culture	0%	0%

Develop-ment potential - resilience

Uncertainties in calculations

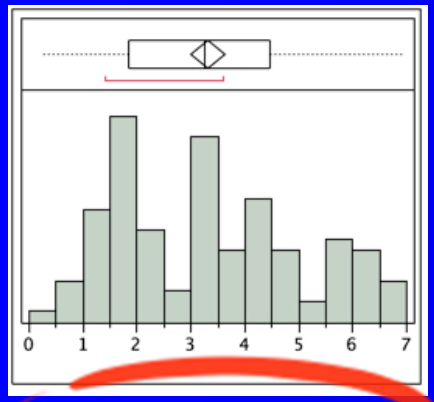
- LECS4 sample per District is relatively small: average 0,96% of District population. This creates a range of values within a 90% confidence level.
- These have not yet been calculated per District

Range: total number of HHs river fishing in Lao PDR



Food security and wild fish/OAA

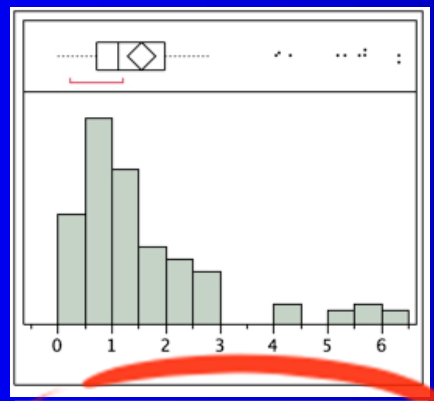
Nos meals with wild fish consumed in last 7 days



Mean	3.30
Std Dev	1.71
Std Err Mean	0.16
Upper 95% Mean	3.62
Lower 95% Mean	2.99
Nos Districts	113

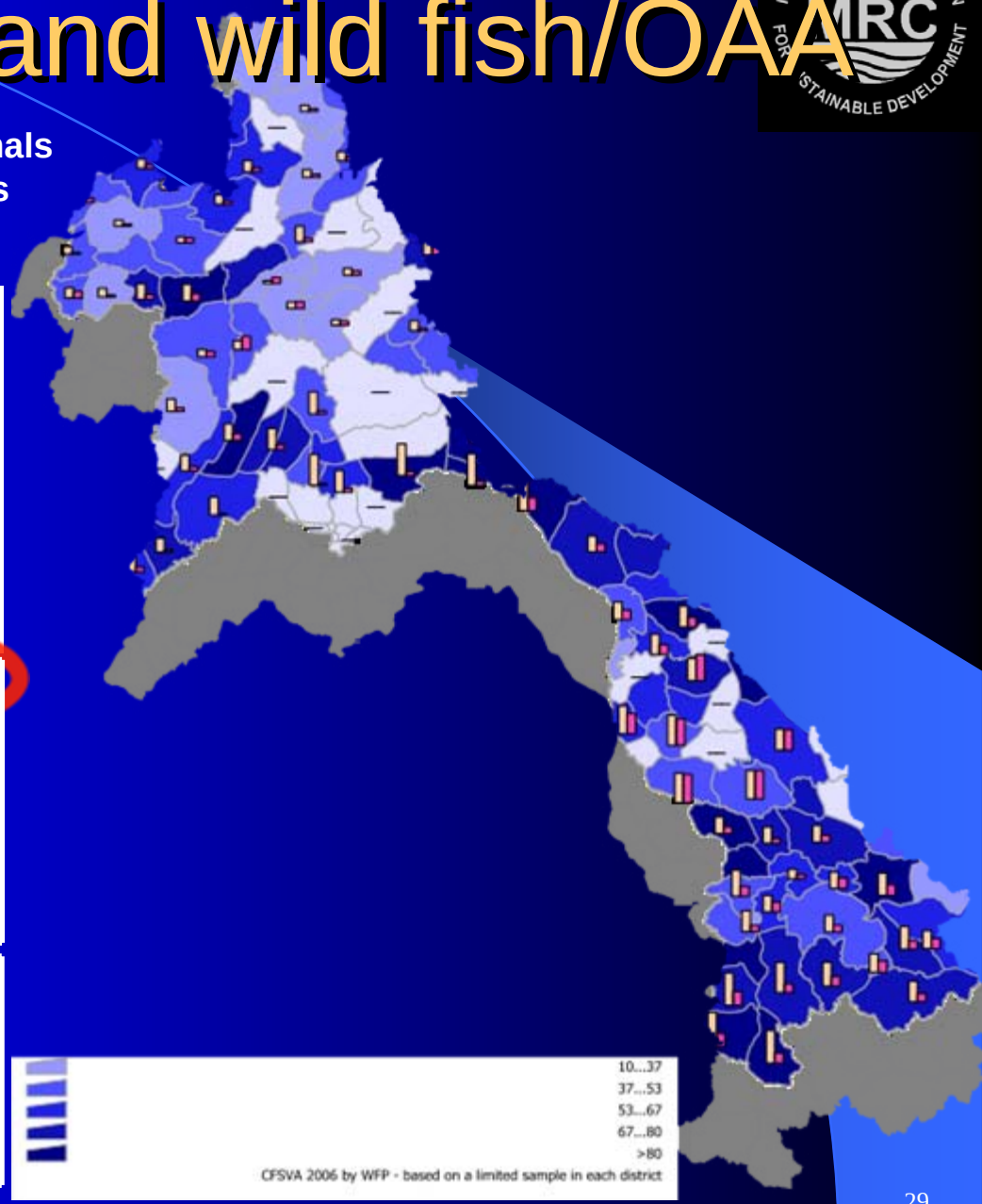
100.0%	maximum	6.90
75.0%	quartile	4.48
50.0%	median	3.25
25.0%	quartile	1.85
0.0%	minimum	0.20

Nos meals aquatic animals consumed in last 7 days



Mean	1.55
Std Dev	1.37
Std Err Mean	0.13
Upper 95% Mean	1.80
Lower 95% Mean	1.29
Nos Districts	113

100.0%	maximum	6.33
75.0%	quartile	1.98
50.0%	median	1.10
25.0%	quartile	0.70
0.0%	minimum	0.00



Source: CFSVA 2005

National food security policy

High level meeting on nutrition 23rd – 24th November 2009 Brussels, Belgium
Presentation by H.E. Dr. Bounthavy Sisouphanthong on the example of Lao PDR

- Indigenous sources of food – aquatic animals, insects, wild fruit and vegetables – have the potential to supply for better nutrition in rural areas that are hardest hit by malnutrition
- It is also important to acknowledge the new "junk-food-based malnutrition" in urban areas.

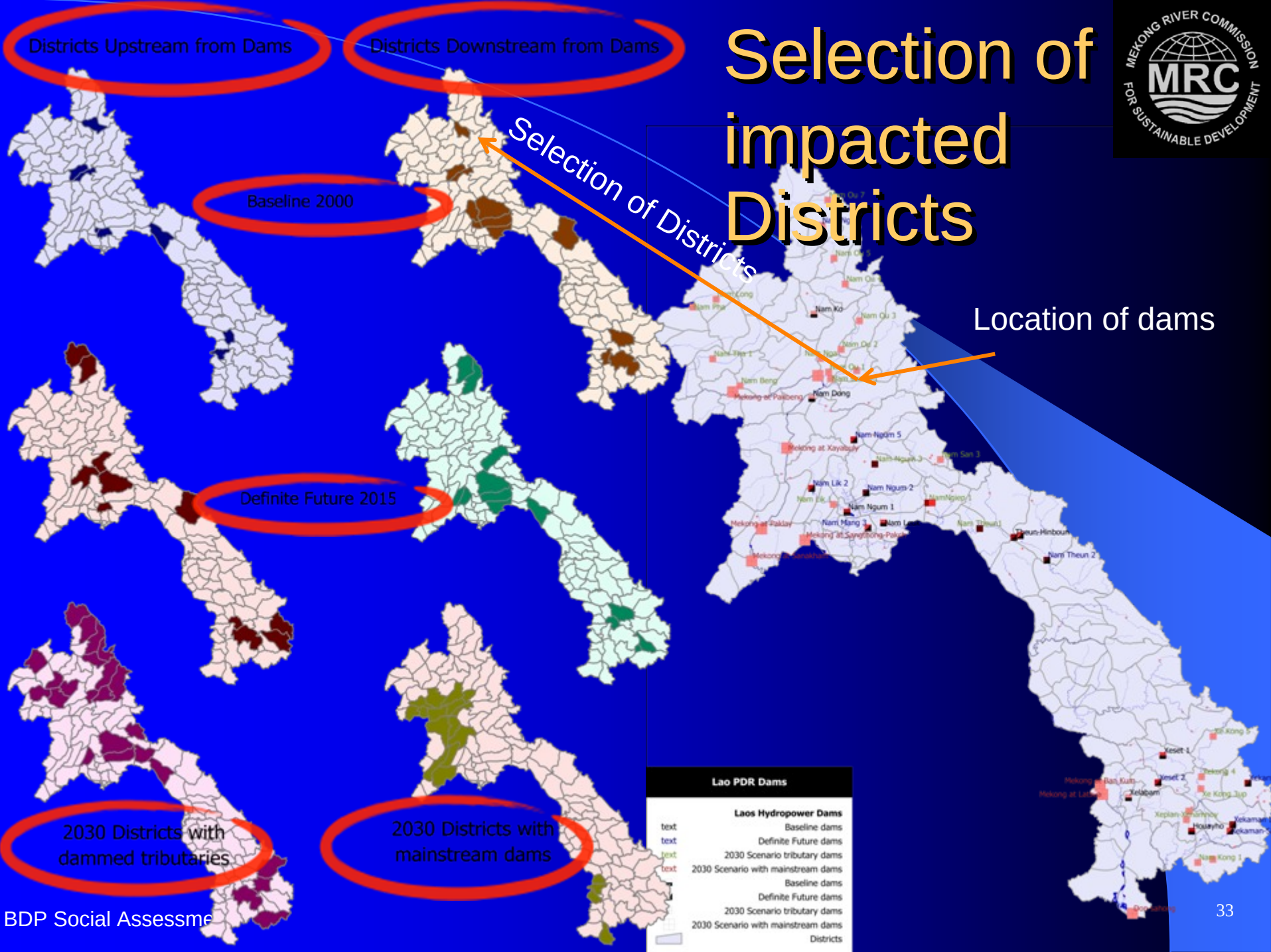
LECS4 compare to Consumption Study

Lao PDR			LECS4		Consumption Study	
PNAMEGIS	Region	Nos districts	Mean Fish Kg/capita/year	*Std Dev of Mean Fish Kg/capita/year*	Consumption Study FWAE Fresh Fish	*Difference to LECS4 (Consumption Study - LECS4) FWAE fresh fish*
Attapeu	south	5	28.13	*14.85*	19.37	*-8.76*
Bokeo	north	5	17.91	*8.49*	13.25	*-4.66*
Borikhamxay	centre	6	38.04	*15.14*	19.33	*-18.71*
Champasak	south	10	32.19	*6.48*	19.37	*-12.83*
Huaphanh	north	2	16.55	*2.95*	13.25	*-3.30*
Khammuane	centre	8	32.23	*5.66*	19.33	*-12.90*
Luangnamtha	north	5	15.45	*2.62*	13.25	*-2.20*
Luangprabang	north	11	17.85	*6.30*	13.25	*-4.60*
Oudomxay	north	7	15.53	*8.56*	13.25	*-2.28*
Phongsaly	north	7	19.27	*4.20*	13.25	*-6.02*
Saravane	south	7	17.19	*7.62*	19.37	*2.18*
Savannakhet	centre	14	25.68	*5.75*	19.33	*-6.35*
Sekong	south	4	15.77	*9.33*	19.37	*3.60*
Vientiane	centre	11	26.28	*3.74*	19.33	*-6.95*
Vientiane Capital	centre	9	28.53	*4.03*	19.33	*-9.20*
Xayaboury	north	8	19.59	*1.72*	13.25	*-6.34*
Xiengkhuang	centre	6	19.13	*7.94*	19.33	*0.20*
	Mean of means		**22.67**		**16.84**	
LECS4 question is probably often responded to including various fish products as included in Consumption Study						
This would bring the figures more in line with each other						

LECS4 compare to Consumption Study

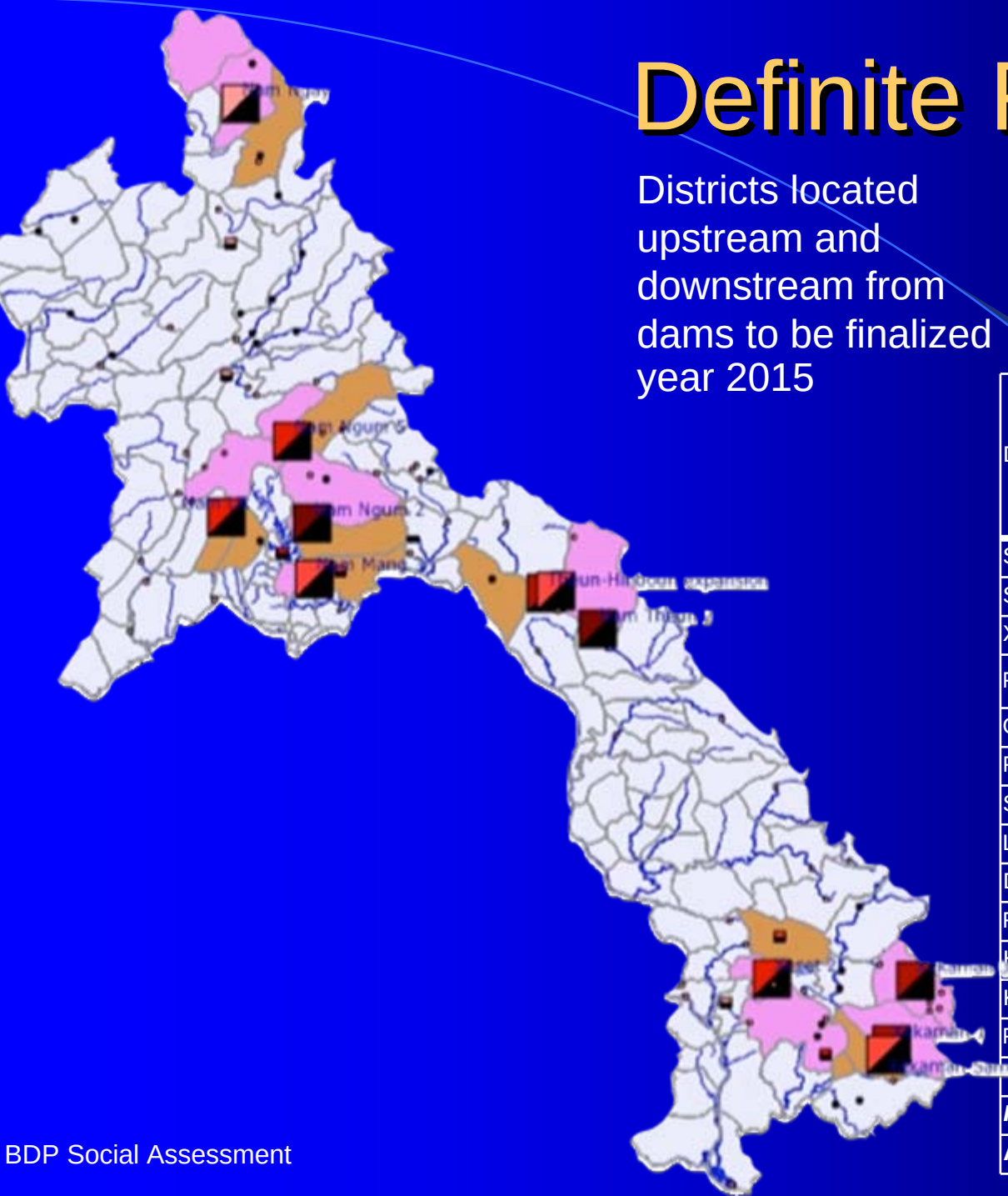
	Total LECS4 and Census 2005 based	Total Consumption Study			Consumption Study population	Census 2005 population	
	Total LECS4 and Census 2005 based total fresh fish consumed (Tons)	FRESH FISH FWAE total (T)	TOTAL INLAND FISH total actual (T)	TOTAL INLAND FISH FWAE total (T)	Est. Lao PDR Population in LMB 2000	Total Lao PDR population 2005	Difference: Consumption Study - LECS4
Attapeu	3,400	1,925	2,693	3,800	99,400	109,931	-10,531
Bokeo	2,483	1,717	2,402	3,389	129,600	141,084	-11,484
Borikhamxay	8,264	3,598	5,032	7,101	186,111	225,301	-39,190
Champasak	19,598	11,076	15,492	21,862	571,900	607,370	-35,470
Huaphanh	885	336	469	662	25,329	53,793	-28,464
Khammuane	10,563	5,972	8,353	11,788	308,951	337,390	-28,439
Luangnamtha	2,307	1,734	2,426	3,423	130,900	145,310	-14,410
Luangprabang	7,021	5,513	7,711	10,882	416,100	407,127	8,973
Oudomxay	3,854	3,177	4,444	6,271	239,800	265,179	-25,379
Phongsaly	3,128	2,135	2,987	4,215	161,178	165,947	-4,769
Saravane	4,966	5,661	7,918	11,174	292,300	324,327	-32,027
Savannakhet	21,320	14,811	20,716	29,234	766,200	825,902	-59,702
Sekong	1,508	1,418	1,983	2,798	73,200	84,995	-11,795
Vientiane	9,910	6,319	8,839	12,473	326,900	398,830	-71,930
Vientiane Capital	19,621	11,556	16,163	22,809	597,800	690,712	-92,912
Xayaboury	6,174	4,409	6,167	8,703	332,800	338,669	-5,869
Xiengkhuang	3,775	2,525	3,531	4,983	130,595	203,959	-73,364
	128,776	**83,883**	**117,325**	**165,568**	**4,789,065**	**5,325,826**	**-536,761**

Selection of impacted Districts



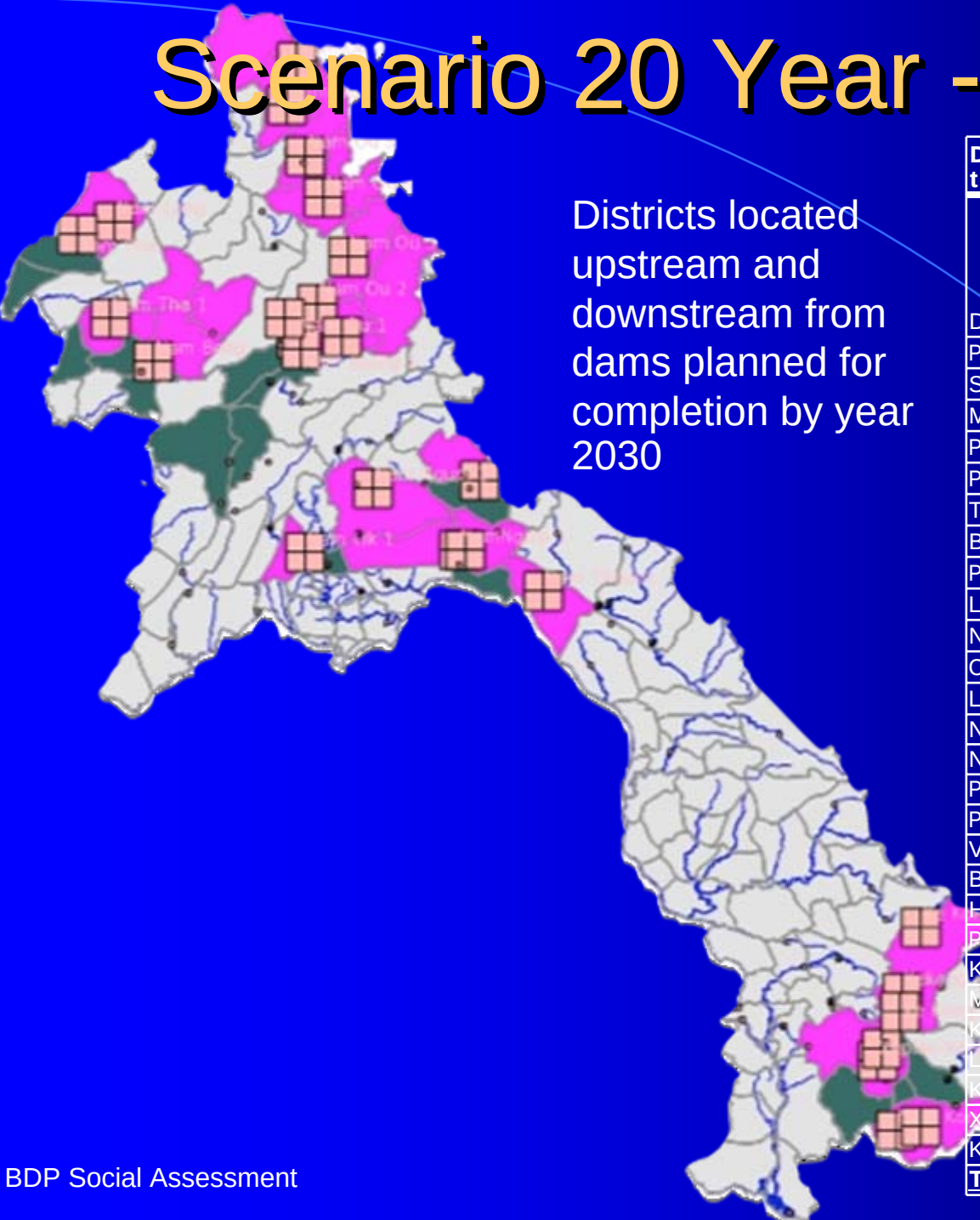
Definite Future

Districts located upstream and downstream from dams to be finalized year 2015



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***	

Scenario 20 Year - tributaries

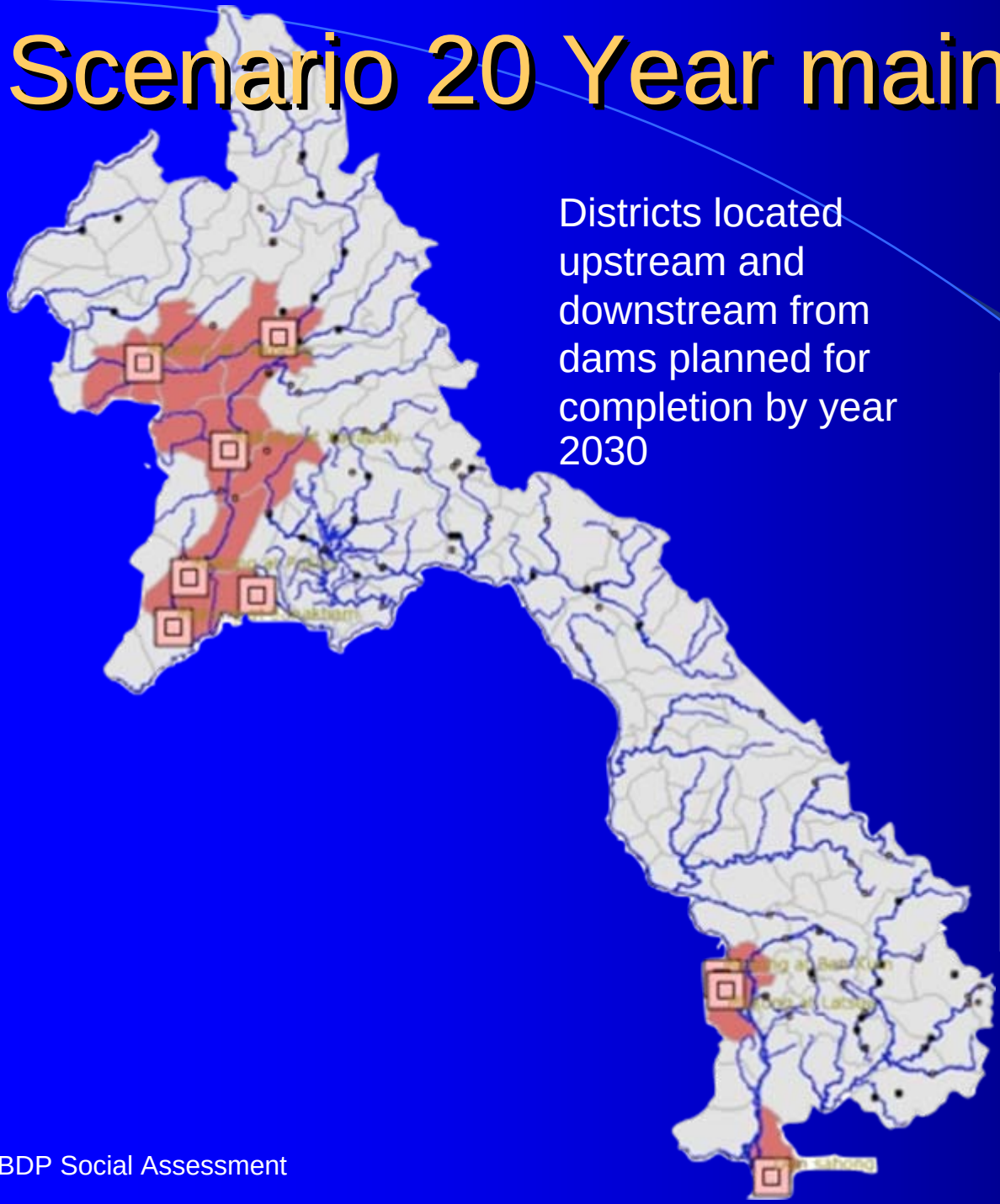


Districts located upstream and downstream from dams planned for completion by year 2030

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	39,407	39,407
Pak-Ou	20,040	20,040
Pakxeng	20,130	20,130
Viangkham1	27,292	26,463
Beng	22,953	22,953
Houn	42,581	41,933
Pakbeng	26,613	26,613
Khoa	23,371	22,095
Mai	20,153	20,153
Karum	12,062	12,062
Laman	16,287	13,652
Keo-Oudom	8,731	7,568
Xaignabouri	53,568	45,029
Khoun	33,390	25,536
Total	**643,526**	**544,616**

Scenario 20 Year mainstream dams



Districts located upstream and downstream from dams planned for completion by year 2030

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	24,747
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

Calculation of 4 Scenarios

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 down to nearest 100,000	***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 to nearest 100,000	***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 to nearest 100,000	***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 to nearest 100,000	***750,000***	***800,000***	***700,000***

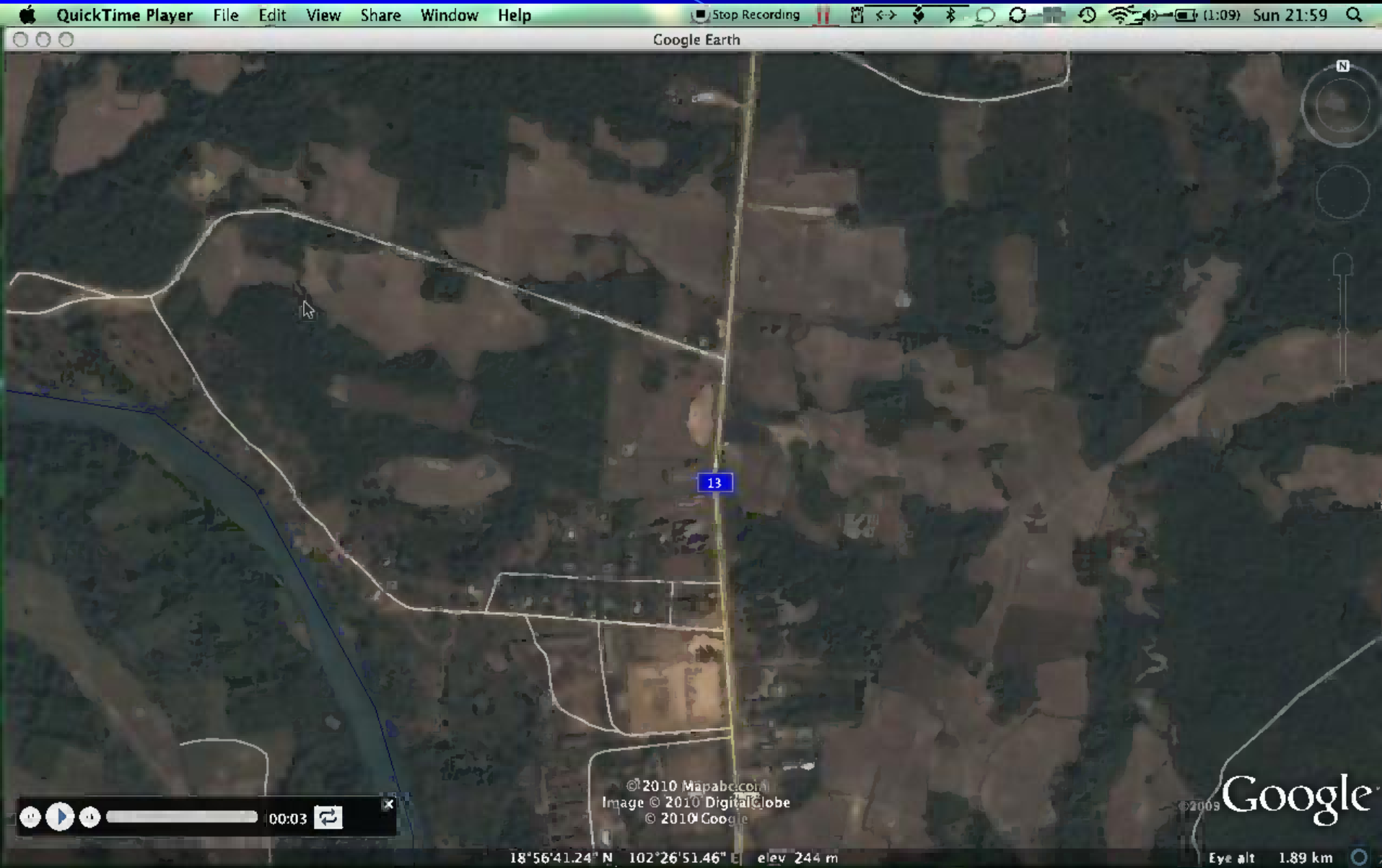
Lao PDR preliminary summing up table

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

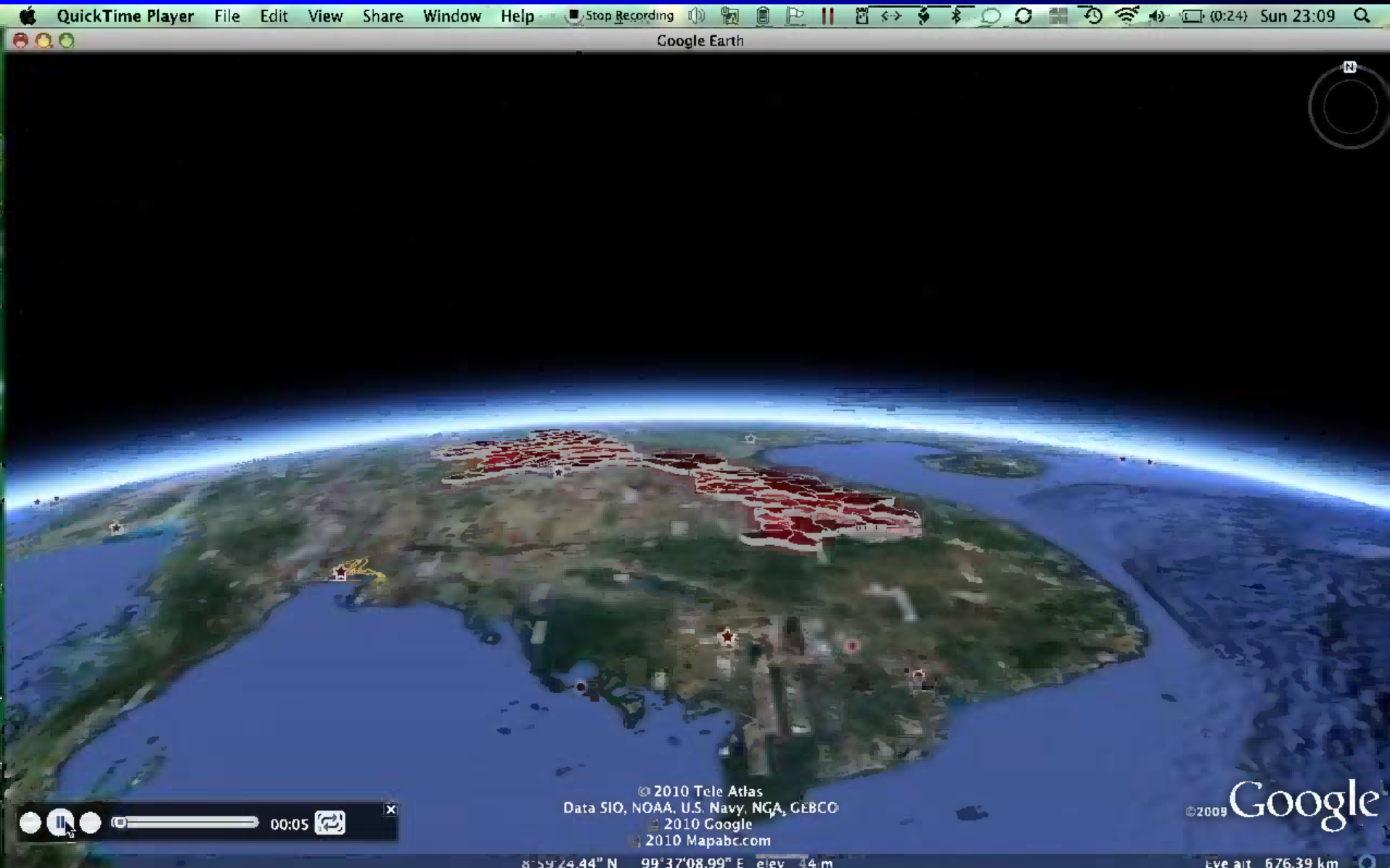
Issues for discussion

- Is the overall method acceptable?
- How to link impacts on fisheries to social impacts in a more precise manner?
- Job creation not yet addressed – ways of doing this, and what about disappearing jobs?
- Resilience not yet addressed – how to do this eventually when we only compare scenarios with baseline social situation (not considering other development outside of the water sector)
- Any other comments

Stakeholder participation and communicating results



Stakeholder participation and communicating results




Thank you