

MRAG & RDC Adaptive Learning Project Workshop – preliminary report.

This report shows some of outputs of a workshop held by MRAG and RDC for the adaptive learning project. This report shows examples of the graphs produced in this workshop only.

Objectives of the workshop

There were three main objectives of this workshop.

1. To produce and present results from research carried out in the period September – December 1999 (and data from the previous project). This research investigated management of communal waterbodies, with and without stocking in Savannakhet and Khammouane Provinces.
2. To discuss what can be learnt from this information
3. To use this new learning/knowledge to plan the research programme for the following year.

This report shows the outputs from the first objective only.

Workshop participants

- 2 staff members from MRAG
- 4 Provincial staff members (3 from Savannakhet Province & 1 from Khammouane)
- 12 district staff members from 8 districts in Savannakhet and 4 in Khammouane.

The process of producing this information

The district staff mainly produced the graphs and charts in this document. This was achieved in the following way.

1. The district staff members split into 4 groups and each group was taught how to use excel on the computer.
2. Each group was given some worksheets to answer specific questions relating to the data collected. Each worksheet answered one question. Each worksheet contained some raw data that had to be summarized and after that some instructions on how the chart should be made.
3. After the chart had been made, the group discussed what it meant.
4. The graphs were then put on transparencies and each small group presented its results to the rest of the workshop.
5. These results formed the basis of discussion and planning over the following day.

Summary of contents

- Graph 1 - Villages sampled by Province
- Graph 2 - Villages sampled by District
- Graph 3 - Management of sampled waterbodies from June 1999 – June 2000
- Graph 4 - Stocking of sampled waterbodies
- Graph 5 - First stocking of stocked waterbodies
- Graph 6 - Income with stocking from different types of management in the year June 1999 – May 2000
- Graph 7 - Income without stocking from different types of management in the year June 1999 – May 2000
- Graph 8 - Stocking and income generation
- Graph 9 - Promotion of stocking - costs of fingerlings
- Graph 10 - Costs in the initial years and subsequent stocking
- Graph 11 - Promotion of stocking – Information about the benefits of stocking communal waterbodies
- Graph 12 - Information about the benefits of stocking and stocking in subsequent years
- Graph 13 - Access restrictions the year before stocking
- Graph 14 - Access restrictions after stocking
- Graph 15 - Management strategy in the year prior to the first stocking
- Graph 16 - Occurrence of subsistence-orientated fishery in years after stocking
- Graph 17 - Occurrence of management for guests and community work in years after stocking
- Graph 18 - Occurrence of management making income through community fishing in years after stocking
- Graph 19 - Occurrence of management making income through renting in years after stocking
- Graphs 20 -23 Productivity indicators and their usefulness
- Graph 24 - Difference in mean total phosphorous in waterbodies where carp or tilapia were the stocked species caught.
- Graph 25 - Difference in mean test fish catch by stocking and management category.
- Graph 26 - Difference in the number of wild fish species by stocking and management category.

Brief notes to accompany each graph.

- *Graph 1 – Villages sampled by Province*

This graph shows that during the research last year 39 villages were visited, 32 in Savannakhet Province and 7 in Khammouane Province.

- *Graph 2 – Villages sampled by district*

Twelve districts were visited. More villages were visited in Champon and Sonbuli than the other districts. This was not surprising as these two districts are in a wetland area and more is known here about communal management of small waterbodies than other places in the region.

- *Graph 3 – Management of sampled waterbodies from June 1999 – June 2000*

In this graph, management types were put into distinct categories. These are as follows;

Fishing days – This name was used to describe a management system where the village held a fishing day in the waterbody for their own and for neighboring villages. Only certain gears (such as cast nets and lift nets) were allowed on this day. Sometimes the village made income from the fishing days, by charging for the gears, and sometimes they did not. Commonly, before this day the waterbody was totally restricted. After the fishing day, in some cases the waterbody became open for household fishing and in some cases it remained restricted.

Renting – In these cases waterbodies were ‘owned’ by the villages and the village transferred ownership rights (temporarily) to a small group in exchange for a fee. The length of the rental period was commonly for a part of 1 year, sometimes for the whole year, and occasionally for more than one year.

Community fishery – This name was used to describe a management system where villages communally fished their waterbodies (in teams) and sold the fish to make community income. The fishing period was commonly between 2 – 6 months in the period December - June.

Not managed – these were waterbodies that were open for household fishing. In many of the cases, households from *other* villages were not allowed to fish there, suggesting that the waterbodies were not completely open access.

Other – There were many other variations encountered in the fieldwork which have been grouped here as ‘other’. One of the largest categories in this group were waterbodies that were totally restricted unless guests visited the village or the village had community work. In these cases, the village administration would catch fish from the waterbody. Other categories here include, waterbodies used primarily for water, waterbodies that are being stocked & restricted for a number of years to make income in the future & waterbodies restricted because of their spiritual significance.

Unknown – in a couple of cases the village had not yet decided what they would do for the rest of the year when we did the fieldwork. This information will be collected at a later date.

- *Graph 4 – Stocking of sampled waterbodies*

This graph shows the number of waterbodies that were sampled (test fishing, water quality and other physical measurements) and the number of these that had *ever* been stocked. Total number of waterbodies sampled was 67.

- *Graph 5 - First stocking of stocked waterbodies*

This graphs shows when the waterbodies were first stocked. It shows that the majority of stocking (for the first time) happened between the years 1994 – 1997. Stocking started as early as 1981 in our sample. In Khammouane Province only 4 of the waterbodies sampled had ever been stocked, three of them since 1997.

- *Graph 6 - Income with stocking from different types of management in the year June 1999 – May 2000*

This graph shows three of the main management types. Fishing days (only those that tried to make an income), community fisheries and renting. This graph suggests that community fisheries make the most community income. However the sample is very small and this result is not statistically significant. More data is required to test this. The income from rental is the income that the *community* gets and not the income that the people who rent the pond make.

- *Graph 7 - Income without stocking from different types of management in the year June 1999 – May 2000*

This graph shows that even when there is no stocking, community fisheries in our sample make more income than the other types. The average is less than for stocked community fisheries. However, the data set is also small and more data is required to test this. Stocking does not appear to make a difference for the other two types of management. Again, this must be tested further.

- *Graph 8 – Stocking and income generation*

This graph looks at whether stocking encourages community income generation. It compares waterbodies that have been stocked in the same year (June – June) with those that have not. It shows that in waterbodies where stocking has occurred, 70% will try to generate income, compared with only 30% in waterbodies that have not been stocked. This result is statistically significant.

- *Graph 9 - Promotion of stocking - costs of fingerlings*

This graph shows the different ways the village received fingerlings the first time they stocked. Three ways were identified. Villages paid all of the costs themselves (a minority), village paid some costs along with, usually, the government (31%) &

villagers paid no costs (the majority). This distribution is significantly different to subsequent years.

- *Graph 10 - Costs in the initial years and subsequent stocking*

This graph flows from Graph 9. It shows, the average number of times a village stocked again in the three years following the initial stocking. This is split into groups depending on who initially paid for fingerlings. The graph suggests that villages who pay for all costs themselves, stock more times in the next three years than the other groups. After this came villages who paid some of the costs and those who paid no costs stocked again the least. However, the sample size is small (39 cases) and this requires further research.

- *Graph 11 – Promotion of stocking – Information about the benefits of stocking communal waterbodies*

This graph shows the different ways the villages received information about the benefits of stocking. Three were identified. Firstly, villages saw for themselves from other villages, villages received government recommendations or finally, they had no direct information. Recommendations from government were the most common method.

- *Graph 12 - Information about the benefits of stocking and stocking in subsequent years*

This graph flows from Graph 11. It shows, the average number of times a village stocked again in the three years following the initial stocking. This is split into groups depending on how they obtained information about the benefits of stocking. The graph suggests that villages who directly see for themselves, stock more times in the next three years than the other groups. After this came villages who learnt through government recommendations and those who received no information stocked again the least. However, the sample size is small (39 cases) and this requires further research.

- *Graph 13 – Access restrictions the year before stocking*

This graph shows whether waterbodies were open for subsistence fishing, open sometimes for subsistence fishing, or completely restricted in the year before ever stocking. The majority were open for subsistence fishing.

- *Graph 14 – Access restrictions after stocking*

This graph can be compared with graph 13. It shows the changes in access restrictions when a waterbody is stocked. It shows that subsistence fishing becomes a minority management strategy and complete restriction of subsistence fishing is the majority strategy. This change is statistically significant.

- *Graph 15 – Management strategy in the year prior to the first stocking*

This chart shows the main strategies employed by villagers prior to ever having stocked. Categories identified were;

1. Subsistence orientated fishery
2. managed for guests & community work only
3. income with minimal community time investment from fishing day
4. income with no community time investment from renting
5. income with substantial community time investment from community fishing
6. managed for purpose other than fish
7. managed for future income (total restriction)

Number 1 was the most common prior to stocking.

- *Graph 16 – Occurrence of subsistence-orientated fishery in years after stocking*

This graph shows that in the year of stocking, the occurrence of subsistence orientated fisheries declines substantially. After this, in further years its incidence starts to increase again as villages stop managing in other ways.

- *Graph 17 – Occurrence of management for guests and community work in years after stocking*

This graph shows that this type of management also declines in the initial year, but after that, those who are still doing it, keep doing it.

- *Graph 18 - Occurrence of management making income through community fishing in years after stocking*

This graph shows that this management is uncommon prior to stocking, increases dramatically the year after stocking and then starts to decline again as people try other types of management

- *Graph 19 - Occurrence of management making income through renting in years after stocking*

This graph shows that renting is not a common strategy prior to stocking or in the first year of stocking. However it becomes more common in subsequent years.

- *Graphs 20 –23 – Productivity indicators and their usefulness*

These graphs are all related, showing how area (ha) is related to fish abundance (Graph 20), conductivity (Graph 21), secchi depth (Graph 22) and total phosphorous (Graph 23). The graphs show that total phosphorous was the best indicator of productivity producing a significant correlation between total phosphorous and fish abundance. Secchi depth was also significantly correlated. The other two measures were not good indicators of fish biomass.

- *Graph 24 – Difference in mean total phosphorous in waterbodies where carp or tilapia were the stocked species caught.*

This graph shows that for waterbodies where both types of species were stocked, tilapia tended to be caught in more productive waterbodies.

- *Graph 25 – Difference in mean test fish catch by stocking and management category.*

Four categories were used to describe waterbodies in the survey based on whether they had ever been stocked or whether management restricting access was in place, these were:

1. Not stocked, not managed
2. Managed but not stocked
3. Stocked but not managed
4. Stocked and managed

The graph indicates that a combination of stocking and access led to higher test fish catches, composed of both wild and stocked fish and therefore waterbodies in this management category have more fish in them. Stocking or management on their own did not seem to affect amount of fish in the waterbody as measured using the mean test catch.

- *Graph 26 – Difference in the number of wild fish species by stocking and management category.*

Using the same stocking and management categories as graph 25, this graph shows that the number of wild fish species in the waterbody was similar for the four categories. The number of waterbodies that were stocked but not managed was less than five so the apparent difference is not at all significant.

Summary of experiences of district staff in the management of communal waterbodies.

In general, the district staff's experience was not contrary to the results that we presented. Instead, they gave some possible suggestions as to why the results were as they were. They particularly concentrated on why management changes through time, with less people practicing community fisheries and more going into rental as a management strategy. Below is a summary of the presentations of three groups of district staff.

Reasons given for the decline in community fisheries

- Although they often get a good income in the first year, district staff suggested that by the 3rd/4th year this income gets lower. They attributed this to:
 - Problems within the village administration
 - Conflict about use within the village
 - Less village meetings and less planning

- Other reasons why community fisheries 'fail'
 - Income used to pay fishermen, but not everyone can always participate
 - Little transparency about community income expenditure
 - Money for buying fingerlings not always used for this
 - Administration in the village isn't strong
 - Conflict with subsistence fishers
 - Influential leaders die (e.g. Nong Hong)
 - Administration in villages changes every year so little continuity
 - Difficult to establish responsibility for monitoring
 - Difficult to control
 - Money comes in dribs & drabs

Reasons for the popularity of renting

- Although villagers knew they would get less income from renting, suggested reasons for doing this were;
 - Nobody wants the responsibility for management
 - It is difficult to control
 - Can set a limited time for renting
 - Village administration don't have to make as many decisions
 - Get money all in one go

Reasons for popularity of fishing day

- Although fishing days bring in a lower income, suggested reasons why villages have fishing days were;
 - It's a satisfying activity for the villagers
 - It only happens one time per year so not so much organization
 - Its traditional

Appendix 1. Timetable for District Data Analysis Workshop 11th-12th May 2000

Day 1

0800 – 0830	Registration
0830 – 0900	Opening ceremony
0900 – 0910	Break
0910 – 0950	Presentation of objectives of workshop & subjects for data analysis
0950 – 1000	Break
1000 – 1200	Computer Training & Data Analysis
1200 – 1300	Lunch
1300 – 1430	Data analysis and generation of graphs
1430 – 1600	Group presentations of results, discussion, question & answer session

Day 2

0830 – 0905	Discussion of results & experiences of district staff
0905 – 0915	Break
0915 – 0955	Group presentation of summary of previous discussions
0955 – 1005	Break
1005 – 1045	Generation of interesting questions for further study
1045 – 1200	Consolidation of questions, presentation & discussion
1200 – 1330	Lunch
1330 – 1415	Presentation of proposal for future plan
1415 – 1500	Discussion of proposal/ Questions & answers
1500 – 1510	Break
1510 – 1600	Planning timetable for village workshops
1600 – 1630	Closing ceremony

Appendix 2. Villages to be invited to workshops

Sonbuli

Kong Knak
Dong Boun
Naho Louang
Xieng Hom
Nong Khu
Bung Xiang

Champon

Huay Sai
Dong Deng
Pang Haeng
Buk Tong
Dong Mi

Songkhon

Khon Kaen
Lo Ha Ko
Singtha

Xayaputong

Phon Than
Phon That

Outhomphone

Sanamsai
Kang Phosy
Na Khu
Dong Noi
Samphatvillai

Khantabouli

Nong Deun

Atsaphantong

Liamxai

Xayabouli

Nong Sa
Bung Xe
Nong Saphang

Hinboun

Nong Chang

Thakek

Nong Miang

Yomolad

Keng Lek
Nong Ping

Xe Bahn Fai

Don Mak Ba