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UNE PRATIQUE DE RECHERCHE EN APPUI AU DEVELOPPEMENT DURABLE »

**External Evaluation of the Mae Salaep ComMod case study in  
Chiang Rai province, Northern Thailand  
Draft report**

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## 1. Introduction

This document reports on the external evaluation of the Companion Modelling (ComMod) exercise in Mae Salaep village of Chiang Rai Province, upper northern Thailand. The evaluation was executed by Dr. Ir. Annemarie van Paassen from the Communication and Innovation Group at Wageningen University and Research Centre and Dr. Ingon Patamadit, a Thai sociologist. Dr. Guy Trébuil, researcher of the CU-Cirad ComMod project, facilitated the work of the evaluators. The evaluation consisted of preparatory meetings and skype sessions to complete the designer questionnaire and to prepare the field visits (March-May), the fieldwork (May 28-June 3<sup>rd</sup> 2007) and the writing of the report (June-July).

The Mae Salaep evaluation was part of a large-scale exercise, evaluating 34 ComMod case studies for the program on Agriculture and Sustainable Development ('Agriculture et Développement Durable, ADD). The ComMod exercise in Mae Salaep consisted of 3 learning cycles. Based on field results acquired in the area during 1994-1998 and presented in a PhD dissertation in soil sciences and an MSc monograph in agricultural systems, Guy Trébuil in collaboration with the modellers François Bousquet and Christian Baron, developed a first multi-agent model linked to a GIS in 1999 to represent the land degradation dynamics at the study site. Aim of the first ComMod cycle was (a) to create an opportunity to train researchers in the ComMod approach, and (b) to test the use of Multi-Agent Simulation (MAS) computer modelling and Role Playing Games (RPGs) for joint learning between scientists and the marginalized farmers in Mae Salaep (mountainous area, lack of education and other government services). Was it possible to represent available scientific knowledge about local agriculture (esp. commercialisation and soil erosion dynamics) in such a way that it triggered interest and discussion at the level of local farmers? The second simplified MAS model and associated RPG triggered discussion amongst farmers. They recognised the erosion dynamics they had to deal with, but rather wanted to explore the possibilities of using new perennial commercial crops, such as tea and lychee, to improve the current situation. According to the farmers, investment in these new crops was determined by access to credit [and irrigation water: water was not mentioned yet at this stage]. As a consequence, Cecile Barnaud in collaboration with François Bousquet and Guy Trébuil, designed and executed a 2<sup>nd</sup> learning cycle on credit availability (Feb 2004-April 2005) and a 3<sup>rd</sup> cycle on the water situation (May 2005-June 2006) when this new limiting factor was raised by the villagers. Aim was to better understand the existing credit and water system, and to see whether and to see how new sets of rules identified by the farmers for the allocation of credit and water could facilitate a more equitable expansion of plantation crops in their catchment. For a detailed description of the ComMod activities in Mae Salaep refer to the Mae Salaep Canvas and the elaborate Designer Questionnaire.

Aim of the ADD Project evaluation was to assess the actual execution and impact of the ComMod approach<sup>1</sup> in different contexts, and to get ideas about how to improve the ComMod approach in the future. To allow for the scheduled comparative study of ComMod projects, the report tries to adhere to the evaluation format and guidelines of Pascal Perez and Sigrid Aubert as much as possible. The evaluation focussed on:

- The influence of the context on the implementation of a ComMod approach

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<sup>1</sup> We refer to ComMod as an approach because it does not refer to a specific sequence of methods (=methodology) but rather to a post-modern stance, and flexible use of methods in accordance with the local context and project objectives.

- To get more insight in the quality of transdisciplinary research: the fit of the ComMod approach in the local context (legitimacy), the provoked sharing of knowledge, the local ownership of the ComMod approach.
- To get more insight in the immediate effects of the ComMod approach on local natural resource users/managers and management processes, and the costs involved.
- The specific effects of the different methods applied.
- Implications for the ComMod Charter.
- Recommendations for future improved monitoring and evaluation procedures.

## 2. Research methodology

The preparation of the external evaluation started with the ADD ComMod meeting in Avignon at February 26-March 1<sup>st</sup> 2007. During this meeting we discussed the focus of the evaluation. What were the concerns of “ComModians” they wanted to be considered in the evaluation? On March 2<sup>nd</sup>, the lead author of this report together with the project designers started to complete the designer’s questionnaire, but realised joint completion would be far too time-consuming. The questionnaire was very detailed and this case study was already a long story! It was esteemed impossible for an external evaluator to find all the information necessary to complete this format. Finally, it was decided the ComMod designers would complete the questionnaire (a very time consuming additional task, after completion of the Canvas). The evaluator studied the completed questionnaire (147 pages!) and marked issues that needed further clarification. These issues were discussed with the designers, before and during the field visits.

At first instance, the evaluator was charmed by the idea to make a joined storyboard, as proposed by the protocol of Canberra, but this activity proved to be superfluous. Aim of the storyboard was to follow the ComMod activities and changes in context to explore the ComMod designer’s perception of the process and the reasons behind their interventions. However, the designers’ inquiry and process monitoring activities are part and parcel of the ComMod approach and the designers already elaborated on these issues in the designer questionnaire. Hence it was decided to drop the storyboard, but ask the designers background information on issues emerging from the questionnaire (DQ) and field interviews. For the case of Mae Salaep, we were in the fortunate position that Guy Trébuil, the designer of the 1<sup>st</sup> learning cycle and PhD supervisor of the succeeding designer Cecile Barnaud, joined the evaluation team to facilitate contacts and to provide background information. Upcoming issues were discussed as soon as they emerged, and could be verified in participant interviews the very next day.

While referring to the Participants Evaluation Framework (PEF) and the evaluation guide, the evaluation team prepared a specific participant questionnaire. In the field, we did semi-structured interviews to encourage respondents to tell their story, but it proved to be worthwhile to prepare detailed questions, delineating the issues of interests. The participant interviews focussed on the following aspects:

- What do you remember best from the ComMod activities? What did you find interesting / learn?
- Learning about the issue
- Learning about other peoples’ situation and opinions

- Collective engagement
- Specific effects of the various ComMod methods applied
- Capacity building
- Anchoring of the local decision making process in context: networking to get the recognition and resources for implementation
- Actions/new practices

Interviews need to be short to keep the attention of the participants (1-1.5 hours); hence we decided not to follow the process step-by-step but to ask people's appreciation of the various methods used and to let them lead the discussion according to the topics that they considered to be the most important or interesting to them.

Apart from the designers, we decided to interview project affiliates as well as local ComMod participants. The field sessions started on Mai 30<sup>th</sup> at Chiang Mai University, a partner of the CU-Cirad ComMod Project, with Dr. Benchaphun Ekasingh, an agricultural economist and chairperson of the Multiple Cropping Center (MCC-CMU) at the local Faculty of Agriculture. She attended the first field workshop in Mae Salaep in December 2002 and encouraged a researcher from the MCC-CMU team, Mr. Panomsak Promburom to focus on the ComMod approach for his on-going PhD research (based on field work at another site in Chiang Mai Province). Furthermore we interviewed Mr. Panomsak, who assisted in the Mae Salaep workshops before starting his own ComMod research, and Mrs. Thanya Promburom who acted as Thai interpreter cum game facilitator. Aim of these interviews was to get an appreciation of the ComMod approach from a scientific point of view (comparing ComMod with other natural resource modelling approaches, other participatory research approaches) and to discuss institutional aspects (role of scientists in political decision making, potential for knowledge transfer to Thai researchers and government/development officers).

On Mai 31<sup>st</sup>, the Thai sociologist Ingon Patamadit joined the evaluation team at the field site in Chiang Rai Province. It was very valuable to have a Thai evaluator, knowledgeable in the Thai way of learning and decision-making. Together, we executed the interviews with the following ComMod participants in the Akha community: Khun Boussoum (poor Female Head of Household (FFH), farmer category A<sup>2</sup>), Khun Mibeu (Eldely FFH, category B), Khun Phini (elder male farmer, category C), Khun Assui (male farmer category C, Christian leader and important actor in village discussions), Khun Asseu (male, farmer category C, powerful TAO representative), Khun Mitila (local Akha-Thai interpreter and facilitator of the ComMod process) and Khun Pom (local development officer, co-organizer and observer in ComMod workshops). Field activities were executed from May 31<sup>st</sup> till June 2<sup>nd</sup>. Afternoons and evenings were used to discuss, analyse and report the results.

The ComMod field activities in Mae Salaep took place from mid 2001 till June 2007. To revive the memories and get a balanced evaluation, the evaluation team prepared posters displaying the chronology of the ComMod process with photos of all applied methods, and referred to these photos regularly. But despite these efforts to get an overall view, participants often referred to the last learning cycle about water because this issue provoked much debate within the village. Nevertheless, we got the opinion that the interview gave a satisfactorily

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<sup>2</sup> Farm categories A, B, and C refer to small and cash crop oriented; medium-sized and conservative; larger, market integrated and diverse kinds of farming households respectively.

rich picture of the effects and appreciation of various ComMod methods. For details, refer to annexe 1. Articles and earlier interview reports of Cécile Barnaud and al. were also very useful for the evaluation as they completed the picture (Background info VI.). For instance, just after the ComMod workshops, participants noted the games enabled them to learn more about other people's situation, while these issues were not mentioned during the evaluation sessions. Apparently, ComMod helps to create an atmosphere of mutual understanding, but people easily forget these details after while, concentrating on more vivid learning effects. This calls for regularly monitoring of ComMod processes, rather than to opt for ex-post evaluations.

Fieldwork data were used to answer the structural questions of the evaluation guide. In the coming sections, we first elaborate on the effects of the context on the ComMod process (section 3), to successively tackle the first structural question about the quality of the trans-disciplinary research<sup>3</sup> (level of involvement and ownership of societal partners) (in section 4), and the effected learning, negotiation, engagement and action (section 5), and the appreciation of the specific methods (section 6). In Section 7 we use the evaluation results to reflect upon the present and potential future role of ComMod (the ComMod charter), and we conclude with some recommendations for future monitoring and evaluation (Section 9).

### **3. Influence of the context on the Companion modelling process**

*Comment le contexte modifie-t-il la mise en oeuvre de Commod et ses résultats?*

#### **3.1. Effect of the context on the implementation**

*Influence du contexte sur la mise en œuvre de ComMod ?*

The Commod activities implemented at this site were part of a **mainly training oriented project** based at the IRRI office in Bangkok (February 2001-June 2004) then at the Faculty of Science of Chulalongkorn University also in Bangkok (July 2004-Present) and so far from this field site. The project provided series of training courses on the use of MAS for INRM and introduced the ComMod approach in this country as well as in neighbouring ones. At one stage, the project supported the development of case studies at a dozen of different sites, Mae Salaep being only one of them. One consequence of this is that the research team could not be intensively involved in field activities until Mrs. Cécile Barnaud (who has been also based in Bangkok) joined the project to carry out her DEA degree field research and part of her PhD research in Human geography at the Mae Salaep site since 2004.

General characteristics of the NRM context in Mae Salaep that influenced the preparation and implementation of the Commod approach at this particular site:

- A relatively remote and marginal area close to the Thai-Burmese border in the “golden triangle” of upper northern Thailand, populated by an highland minority group, the Akhas (former opium poppy growers), who are still in the process of being fully integrated in the Thai society (most of the adults did not receive any formal education, some of them do not have yet an official national identity card, etc.) and is affected by many social ills

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<sup>3</sup> Trans-disciplinary research refers to knowledge production that proceeds from a well-defined problem, and is pursued across disciplinary boundaries as well as across the boundary between science and non-science (Bruun et al, 2005)

(insecurity along the border, drug trade across the border, high percentage of AIDS patients, human trafficking across the Burmese border and with China, even north Korea, etc.). The average education level of the farmers is rather low; hence the ComMod team perceived it as a real challenge to test the ComMod approach in this environment. Would it be possible to use the modelling approach to trigger interest and exchange of knowledge between scientists and farmers?

- Development work in this highland minority areas is under the control of a bureaucratic and very much top-down minded government agency (formerly under the Department of Public Welfare of the Ministry of Interior) and the project had to get prior approval from this organization before initiating the ComMod activities and again each time it organized a field workshop in the village (one formal meeting with the local Director in the Mae Fah Luang District headquarters at the beginning of the ComMod activities in 2002 during which Dr. Benchaphun Ekasingh, or main Thai research collaborator at this site, introduced the work plan; then she prepared a series of letters signed by her President at Chiang Mai University and sent to the Department of Public Welfare in Chiang Rai & in Bangkok for approval of the proposed successive field workshops). In this institutional context, it would have been very hard to involve other local development-oriented organizations, like the NGOs advocating the rights of highland farmers. But to have interested outsiders coming to observe the field workshops in action was possible.
- The fact that Dr. Benchaphun Ekasingh & Guy Trébuil were the co-advisers of a Master student from this development agency (Mr. Charal Thong-Ngam) in 1993-1995 helped to secure the authorization to do more field work at this sensitive site. He did his field research on the socio-economic differentiation among the local farmers at this Mae Salaep site, where the development agency has a field office staffed with an agent (Khun Pom) and his assistant, in collaboration with another French student (Sean Healy) working on the local land degradation processes with a Belgian PhD student from KU-Leuven University (Dr. Francis Turkelboom, presently NRM specialist at ICARDA in Aleppo). The outcomes of these three dissertations were used in the conceptualization of the first MAS model linked to a GIS presented in the Designer Questionnaire. Therefore the initialization of the ComMod process was done through the presentation of research results to potential users in the village community.

### **3.2. Effect of the context on the results**

#### *Effets du contexte sur les résultats ?*

##### Local learning and decision-making about farming and natural resource management

In the case of Thailand, the process of decentralizing decision-making regarding local renewable resources has been initiated in the 90s but is making slow progress so far. Most government officers still adhere to a more or less top-down approach and find it hard to loose control. They are familiar with participatory discourse but prefer not to engage themselves in participatory processes with uncertain outcomes. This limits the present potential of the ComMod approach for collective decision-making in the Thai context. However, local farmers were positive about the ComMod approach as it enabled them to discover the dynamics of the farm system and to think through farm activities, anticipating consequences of certain farm behaviour. This proved that farmers with little education understand and learn from the game support modelling approach, which is often perceived to be too complicated for local farmer. Several respondents got ideas from the workshops, visited other farmers to get the technical details, and started a new agricultural practice. This appreciation of the ComMod approach was less pronounced in another Northern area,

with a relatively higher educated population (see the evaluation report on ComMod activities at the Nam Haen site in Nan province).

In Mae Salaep, the ComMod approach proved to be useful for individual learning, and may have triggered agenda setting, but did not lead to balanced collective decision-making. Support of collective awareness raising, sharing of ideas and decision-making requires careful selection of representative and dynamic, socially respected participants, and a strong presence to maintain momentum after the workshop. This involves a field intensive work plan and the availability of a strong relay development organisation at the site to maintain the momentum after each field workshop. But such conditions could not be created at this site (see above).

The ComMod approach as practiced at this site may affect collective decision-making at the local level, but is not likely to influence decision-making at higher administrative levels. ComMod activities lead to decision-making and action, when people have a strong sense of urgency to deal with issues in a bottom-up approach. Despite the discourse of decentralisation, very frequently Thai government officers still opt for top-down approach and local communities are not used to advocacy and negotiation. In such a context, ComMod project serves as a first appetiser: it acquaints local people and officers with the possibility of bottom-up decision making and scenario enhanced negotiation. ComMod ambitions regarding collective action should be modest.

#### Transfer of ownership and competences to local development actors

Following her excellent performance in facilitating the first field workshop, the local teacher of the primary school, Mitila, an Akha ethnic herself with an in-depth knowledge of the local community, could have played a key role in maintaining the momentum of activities between the successive ComMod field workshops (in which she accepted to participate), but unfortunately she choose to leave the village for a job in a provincial organization supporting children education. For a year, the project tried to identify an individual who could act as site facilitator but without success. This made the process quite discontinuous, not much field intensive and with only a minimum input from local development workers.

The sole government development officer still operates according to the top-down functioning of his bureaucratic organization; his role during the ComMod process was limited to assisting in the organization of the field activities and being an observer during each of the three successive field workshops. As a consequence, he never initiated activities related to ComMod ones with the village participants between these workshops.

Though NGO's are not much appreciated and respected within the Thai context, an effort was undertaken to interest and transfer competences to a NGO in Chiang Rai. However, due to time constraint this effort was not pursued.

#### Training scientists in a trans-disciplinary research and bottom-up resource management

While waiting for the decentralisation to proceed, ComMod trains Thai PhD students in the state of the art concepts (system resilience, adaptive management and collective action), methodologies and methods of trans-disciplinary research and decentralized

resource management. These PhD students are the envisaged University lecturers, educating future government officers and resource managers. Unfortunately agricultural sciences are not the prime study domain aspired by bright Thai students, and several trainees experience problems when conceiving conceptual models, learning how to use the simulation platform, etc. The education of Thai researchers and university lecturers still demands considerable efforts. Furthermore there is a need for redundancy: it is important to train a substantial number of researchers, as a certain percentage of the students will finally opt for interests and jobs outside the ComMod domain.

## **4. The quality of the trans-disciplinary research**

*Les interactions entre différents points de vue pour la construction d'une représentation partagée des interactions entre nature et sociétés*

ComMod research focuses on natural resource management, which involve complex situation issue with high uncertainty, where different values and interests are at stake (Funtowicz et al, 1999). Knowledge and policy views are contested, as they further certain positions. In case of high uncertainty and decision stakes, scientists are therefore called upon to engage in post-normal science (Funtowicz & Ravetz, 1993): they have to become intensely involved in societal interactions and collaborative forms of research in order to contribute to the development of shared values and commitments. ComMod scientists embrace the post-modern stance and state that the ComMod approach can be used to:

- Take into account viewpoints of all parties, scientists as well as societal stakeholders, to construct a rich picture on the complex natural resource system,
- To support collective decision-making.

In chapter 5 we elaborate on the effect of ComMod on local decision-making. In this section, we focus on the generation of knowledge. What is the quality of the trans-disciplinary knowledge generation? Does it encourage true participation and equal sharing of knowledge, viewpoints and values amongst partners, to get a rich picture of the natural resource management situation? Is the generated knowledge perceived as legitimate and societal relevant?

### **4.1. Empowering stakeholders**

*La modélisation d'accompagnement a-t-elle eu la capacité à « mieux » impliquer les parties prenantes dans les processus de décision collective ?*

Yes, as mentioned in the results of several interviews: after the ComMod field activities, especially the last sequence, the participants in the process discussed the issues more, and with a broader range of villagers.

Did ComMod create space for exchange of knowledge, viewpoints etc.?

*La modélisation d'accompagnement a-t-elle pu créer (investir) un espace d'échange ?*

Villagers are not used to exchange experiences and viewpoints on farming, natural resource management and other collective issues. The usual extension approach is to demonstrate and promote certain practices. The meetings, organised by the TAO representatives are more informative than to serve as exchange platforms. Several participants underlined this during the interviews and underlined that ComMod created a

place where they could interact among villagers beyond the routine of their daily lives. This was a new experience for several of them. They also highlighted that they learned a lot during the Role Playing Game: the game showed them the knowledge and behaviour of others; the playful atmosphere triggered discussion on topics people usually did not talk about. One respondent even replied that ComMod provided her with issues to talk about during working parties. Before she had always kept silent.

However, the communication platform was temporary affair as nobody took over to continue this kind of activity in the village.

### Legitimacy of the platform

*Peut-on s'assurer de la légitimité des collectifs ainsi concernés ?*

The first ComMod workshop aimed to share knowledge and experiences about soil erosion. To get a rich picture on the subject, the ComMod team invited participants, men and women, of the various farmer categories (classified on wealth and farm strategies) plus the village headman and TAO representatives. Soil erosion is merely decided at farm level. Legitimacy was not really an issue: participants were not supposed to represent others in collective decision-making. Legitimacy comes into play in the 2<sup>nd</sup> learning cycle about the credit system, as the aim of the exercise was to improve village credit procedures. As soon as collective issues are at stake, it is essential to select participants on the following criteria: representation/authenticity, dynamism, good social communicators, authority. First of all, all stakeholder interests need to be represented, while also ensuring with proper feedback and communication with non-participating community members (accountability). It is possible to start without local decision makers, to create space and allow the articulation of a viewpoint before being confronted with ideas of powerful leaders. However in the end, authorised decision-makers need to be involved to come to legitimate decisions and action.

Representation of issue-related stakeholder interests and communication/inclusion of non-participants was not really considered when launching the 2<sup>nd</sup> learning cycle, nor the 3<sup>rd</sup> cycle. There was no reshuffle of local game participants. Furthermore, the 2<sup>nd</sup> learning cycle tackled an issue, which had to be decided upon at high administrative levels; hence the decision-making led to a stalemate. A new topic was identified. During the 3<sup>rd</sup> cycle about water access, it appeared that the selected participants covered the two opposing interests as well as the authorities of the village. Participants represented the existing village divide between a group allied to the well-off TAO representative (a minority among the participants) and another group around the charismatic Christian leader of the village. The village headman remained at a distance (he was always invited to attend the successive field workshops but he never joined them).

### The nature of legitimacy

*Quelle est la nature et la légitimité du (des) collectif concerné ?*

- The participants, representing different categories of farmers, with different interests in the credit and water issue;
- The TAO representative of the village, a well-off farmer, and the group of people allied to him. He has the government recognised formal position to forward project proposals and arguments for funding on behalf of the village

- The charismatic Christian leader of the village and the group of people allied to him. He incorporates traditional beliefs of harmony and good leadership: high morality to care for community members;
- The local development officer as representative of the government development agency looking after the minority people in the highlands;
- The TAO president (in the third sequence only) as the most powerful local administrative organisation, selecting and funding development projects;
- The ComMod project team as knowledgeable scientists: several farmers underscored the scenarios gave them confidence to go forward with the ideas (certain agricultural practices) they already considered for a long time.

Does the dialogue enlighten the participants?

*Ces participants ont-ils pu s'épanouir dans cet espace de dialogue ?*

- Yes, in the case of the first three actors mentioned above (see details / concrete examples in section 5, and the results of their interviews in annexe 1);
- No, in the case of the development officer who remained a sceptic observer all along the proceedings. He belongs to a very top-down bureaucratic organization, was trained to operate accordingly with a focus on classic extension work in the field of agriculture (distribution of seedlings, etc.) and he shows almost no interest in changing his way of doing things. But at the same time, his interview is proving that he understands quite well how things are changing in such villages nowadays (people think more than before, look for information, are not waiting for the state to give things to them anymore, etc.).
- The TAO President refuses to enter into the “game” of ComMod activities, while saying before the meeting that this was the kind of process to be promoted under the new decentralization policy! But “chassez le naturel, il revient au galop!” And her speech in front of the participants was somewhat threatening (you better behave according to the central government land use policy otherwise you could be moved out of the area, etc.).

Has the collective become stronger (size or cohesion and engagement?)

*Le collectif s'est-il renforcé (taille ou cohésion)?*

The group that shared the opinion of the Christian leader gained in cohesion during the last sequence on irrigation water and the discussions expanded to other villagers as well. They shared their social concern for their co-villagers, and aim at equitable development. Participants noted they usually only discussed issues among relatives and friends, but now talked to a larger circle of people. However it was not clear to what degree other villagers were informed and really interested to learn more about the issue. The evaluation team lacked time to research this aspect.

Interviewed ComMod participants stressed the need to play the game with more co-villagers to create a more cooperative spirit. The game showed the consequences of various water scenarios for the different farm categories and could create more village support for a more equitable solution.

Thai society seems to be organised in a very hierarchical way: people put much trust and respect in authority and expertise (Hood, 1998). People follow the argumentation and decision of the leaders that they are related-to or dependent-on, except when they are convinced of another opinion and/ or feel the decision seriously threatens their livelihood. When they feel there is an issue-at-stake, people take the effort to learn about the details, develop and defend their personal opinion. Issues with high stakes need to involve all stakeholders. Issues with less important stakes involved can be decided upon by delegation of authority to the leaders (Kaner, 1996). The water issue evoked much discussion within the village, amongst participants and non-participants. The TAO representative temporarily agreed with the opinion of the majority, but when the discussion lost momentum he shifted to his old opinion/position. He prioritises economic development and support of the commercially thriving (farm) enterprises. The TAO representative is powerful, as he has the right to formulate project proposals for TAO funding, represents the most powerful and numerous clan in the village, and will probably be re-elected. Villagers discussed the issue for about three weeks, but then the discussion and feeling of engagement died down. It is not clear how villagers will react, in case the TAO representative manages his ideas to be implemented. He opts for improved water access for the (formally legitimate) larger landholding families with better economic perspectives, especially in the section of the catchment farmed by his relatives and clients, rather than creating more access to water for co-villagers. He underlined the importance of legitimate water rights; when he helped others out with water, this was just a matter of benevolence (refer to interviews July/August 2005).

A more in-depth sociological analysis of the village community could have improved the momentum and perceived legitimacy of the discussion. More support and pursuance of the village discussion might also have changed opinions, the support and legitimacy of a certain decision. Various participants noted that they needed non-participants to play the game, to create a more cooperative spirit on this theme and to enlarge the discussion. At this moment, no collective decision was reached. Various participants mentioned that the water issues was not yet urgent and could be solved via small mutual arrangement. In the future, when more farmers demanded irrigation water, the issue would return at the discussion table.

#### **4.2. Sharing process responsibility**

*Comment les participants se sont-ils impliqués dans l'organisation du processus de décision collective ?*

In what way did ComMod make participants responsible for the process?

*Le commodien a-t-il facilité l'implication (la prise en charge) des participants dans l'organisation du collectif (maîtrise du calendrier, réunions autonomes ou conception d'outils spécifiques) ?*

The main action of the ComMod team in this respect was to let the group of participants decide about the orientation of the process, especially between each successive field workshop. This was clearer in the last sequence dealing with a topic of their choice and it is not surprising to see in the interviews that this is the part of the process that the participants found most interesting. The other aspects (schedule of activities, conception of the tools, etc.) were merely decided by the research team.

Did participants gain more autonomy and control during the process?

*Les participants ont-ils acquis une autonomie et un contrôle croissants du processus?*

Not much. Only regarding the selection of the focus of the next phase of the process from the first to the third ComMod sequence. The elder farmer Phini said: 'The ComMod games changed during the process, due to us!' Given the level of education of the farmers, it is difficult to transfer competences directly to the farmer participants. More involvement of the government development officers was encouraged, but to no avail.

Was the risk for manipulation monitored?

*Le risque de manipulation a-t-il été suivi et évalué ?*

The risk of manipulation of the activities by the rich TAO representative was monitored during the third sequence of the process when he tried to push for the adoption of a village irrigation project favouring him and his clients in the community. The preparation of a specific article on the influence of power relations on the ComMod enhanced village discussions is in progress. Thoughts have been given to the remedial aspects of the applied ComMod approach. However, more preliminary sociological research, more efforts to inform and build relations with officers at higher administrative level, consideration of communication strategies involving more villagers in the discussion, and discussion support for a longer period could have improved the extent of the debate and decision making process.

What was the influence of the researchers on the outcome of the collective discussion?

*Quelle a été l'influence des chercheurs dans les produits issus du processus de décision collective?*

In general, the ComMod team had much influence as they remained in charge of the organization and scheduling of the successive activities all along the ComMod process. However in the construction and use of the models, there was much consideration of the perspective of the participants. In the 2<sup>nd</sup> and the 3<sup>rd</sup> cycle, the preliminary diagnosis was very much guided by the knowledge and opinions of the 12 participants. The ComMod designer interviewed the 12 participants on the issue and only gathered additional information when she perceived a knowledge gap. She had thought about building the conceptual model in a workshop, but in this way influential people might have imposed their perspective. The RPG really enabled farmers to understand the computer scenarios, 'and even go beyond that' (as the Christian leader replied). During the evaluation, participants were able to explain 'what the simulations were about'. The scenarios were built to explore issues forwarded by farmers during the game playing workshop and the successive individual interviews (to allow shy, less powerful people also to voice their opinion and concerns). The ComMod designers were very concerned about the voice of the marginalized, and how to integrate these strategically in the discussions. Interviewed respondents noted they appreciated the influence of the researcher as it structured the discussion. It made them think co-operatively. However, this process should have involved more villagers, to create more momentum in the village. If the water issue was perceived to be a real issue at stake (which respondents say is not yet the case), intensive facilitation is needed to attain collective agreements.

With respect to the higher administrative level: more networking, thorough preparation and detailed feedback by the researcher to TAO about the process, showing the scenario simulations might have triggered more discussion, reflection and possibly support at this decision making level. The 12 ComMod participants did not feel capable to network directly with the TAO (especially not after the down-turning reaction of the TAO

president), nor considered approaching other NGO's or donors to attain finance for their plan. This attitude might be explained by former experience (they were used to the idea that services and projects reached out to them rather than the other way round), and the fact that they were only a small group while the issue concerned all villagers. Within the present Thai context, people (villagers and officers) are not yet used to bottom-up planning and negotiation; hence researchers or linked organisations need to function as a bridge between administrative levels (refer to interview with Dr. Benchapun Ekasingh). Researchers can legitimately inform high administrative level, but should try to give all perspectives on the problem to remain neutral and credible.

#### **4.3. Final interest and capacity of stakeholders**

*Comment la démarche s'est-elle insérée dans les réseaux sociaux existants et comment ces réseaux se la sont-ils appropriés ?*

In the Mae Salaep case, researchers prioritised PhD training and scientific work rather than local development. As a consequence, researchers were not based at Mae Salaep and did not invest much in collaboration and transfer of capabilities to local actors

**Were participants interested to use the ComMod approach for other issues?**

*Les membres du collectif ont-ils ressenti l'intérêt de recourir à la démarche ComMod dans d'autres situations ?*

Participants liked the approach. They were the ones who suggested looking at new collective issues at the end of a sequence. The poor female participant Boussoum noted that other people were also interested in the game as it was fun, but if such a game would be organised in the future she would not agree to be replaced by someone else, as she liked to play herself! Others stressed the need to extend the participation to co-villagers, to attain more cooperation and momentum in the village discussions.

During this current evaluation several of the interviewees proposed suitable topics for new ComMod activities in their village (for details refer to section 5, or annexe 1). The Christian leader suggested a new sequence on the marketing of Assam tea (a key production in the village now that its farm gate price is skyrocketing due to the demand from mainland China, while the higher commercial value Oolong tea is experiencing a slight market crisis). The TAO representative proposed to look at quality of life & health issues (effects of pesticide use/misuse), the local development agent at livelihood/employment issues, etc. It seems that they still see interest, especially in using the gaming technique followed by a collective debate to examine new village preoccupations. But they also still want outsiders to organize them ... and cover all the related expenses + provide a daily per diem!

**Did ComMod researchers transfer competences to the people?**

*Le commodien s'est-il donné les moyens de transmettre la démarche ComMod aux membres du collectif ?*

Given the level of education, it is impossible to transfer the computer modelling competences to local people. However it would be possible for them to organise games, using excel sheets to monitor the results. Such a transfer was attempted during the third sequence (the laptop computer/Excel file was replaced by an abacus and a calculator, etc.) but this failed as none of the community leaders/educated villagers had time for such time consuming activity. The government development officer was not interested to really get involved. An attempt was also made to identify a local facilitator for the organization of

more ComMod activities at this site but this failed too as no suitable candidate could be identified by a research team with too much limited presence and time in the field.

When considering the transfer of competences, it is more suitable to consider long-term engagement with local government departments (there are some rare offices that really embrace the participatory approach), NGO's and Universities. Local extension officers can organise games and discussions, but have no time and expertise to build the computer scenarios. They need generative computer models and/or scientists to build the scenarios for them. Continuous training of Thai researchers is a pre-requisite. ComMod PhD candidate Panomsak Promburom at the Chiang Mai University was ready to assist future ComMod activities in Mae Salaep, but he would be too busy to lead such an exercise. Apart from him, there are 3 Thai PhD students involved in ComMod modelling. It is recommended to enlarge the number of students and guide students with different interests: the modelling part as well as the discussion facilitation part.

Do the actors 'own' the ComMod process, including the conception of the tools? Were they gradually controlling the process?

*Comment les acteurs se sont-ils appropriés la démarche, y compris la conception d'outils supports éventuels ? Ont-ils de plus en plus contrôlé le processus ?*

The ownership of the process by the participants increased gradually as they became the ones who selected the focus of the next phase of the process after the first sequence, and even more clearly for the third ComMod sequence. The results of the interviews carried out for this evaluation show that their interest in the activities increased accordingly.

Participants did not conceive support tools. This is unlikely in the present Thai context (see above). They just made comments or proposed minor changes in the features and/or rules of the tools (mainly the successive 3 role-playing games) proposed by the research team.

Do local people feel capable and autonomous to carry out the ComMod approach in the future?

*Les membres du collectif se sentent-ils autonomes pour porter la démarche ?*

No. They are still willing to use the approach to examine new village preoccupations but they will rely again on the research team to organize (and to fund!) them.

## **5. Effects & Efficiency of the Companion modelling process**

*L'engagement des parties prenantes dans la gestion des ressources concernées*

### **5.1. Direct effects of the Companion Modelling process**

*Quels sont les résultats de la modélisation d'accompagnement ?*

[The field research concentrated on these results of the ComMod process. All details are elaborated in Annexe 1.]

Learning about the issue

*Production de savoirs*

Erosion was not really an issue for Mae Salaep villagers, only in some specific spots. In the 90s most of them were conscious that authorities could use this problem to move them

down the valley. In recent years this pressure has been far less important. This is one of the reasons why they were more interested in the next sequences about credit and water access. Interesting to note that in the final evaluation (2007), especially the relatively poor note their individual learning: they learned about the effect of erosion (Boussoum, female farmer cat. A: “I have very limited land resources, so I cannot afford to lose it!); the fact that you can borrow money to invest (rather than to cope, buying food); and the fact that the availability of irrigation expands the farm production possibilities. ComMod workshops gave them ideas and confidence (some already played with an idea but now felt reassured and confident to act) about certain farm strategies. They explained that ComMod did not provide technical details (e.g. ‘declining ditches to mitigate soil erosion’ or ‘how to share water with neighbours’), but they already knew the details of certain farm practices, or visited co-farmers to get the proper explanation. ComMod showed them the underlying reason of existing farm practices.

At the individual level, most of the participants in the ComMod process have achieved a better understanding of the complex issues linked to the local rural credit system (2<sup>nd</sup> sequence) and the irrigation water management systems in plantation crops (3<sup>rd</sup> sequence) following their involvement in the field workshops organized on these topics. This is up to the point that a community leader (Mr. Assui) once said in 2005 that he cannot talk the same way with the participants or in front of a group of non-participants because of the difference in the level of understanding of the processes at stake.

In earlier interviews (July/August 2005, just after the termination of the third ComMod sequence), participants prioritised more the learning at the collective level. They learned about the positive effect of new credit rules (change in the duration of the loan reimbursement period (from one to three years to facilitate the adoption of plantation crops by resource-poor farmers) and more equitable water distribution with multiple villager water reservoirs (more people would be able to invest in high quality tea and/or lychee). In the discussions, they noted these changes would help the disadvantaged, poorer households. However, these ideas necessitate a change of rules. Credit rules could not be changed at the village level as only high-level government officers can decide on this issue. Concerning the water issue, participants are strongly divided: some (a coalition around the Christian leader) underline that it is important to see how to better share the scarce resource, while some others (relatives and clients of the rich and powerful TAO representative) prefer to delegate such questions to the TAO representatives. Furthermore, it was noted, traditional rules could not be changed, without the construction of new water infrastructures. Only when the concrete water situation changes, one can discuss a change of management rules said the Christian leader.

In sum, we can conclude that ComMod enabled farmers to gain knowledge about individual farm practices as well as collective management options. Just after the workshops, people seemed very interested in the collective issue, but when there was no progress on this issue people concentrated on individual learning effects. It is important to realise this multiple effects of ComMod workshops. Though ComMod workshops often focus on collective management issues, participants in remote areas like Mae Salaep<sup>4</sup> use

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<sup>4</sup> During the ADD Commod project evaluation work at the Nam Haen site in Nan this individual learning was not stressed like in Mae Salaep. In Nan, farmers were better educated and participated in more agricultural and

the workshop to learn about individual farming as well as collective natural resource management. When ComMod fails to influence collective management, people still appreciate the workshops when they benefit at the individual level.

#### Learning about other peoples' situation and opinions, re-framing and engagement

##### *Modification des perceptions*

Though during the final evaluation (2007) people hardly mentioned their learning about other people's activities and problems, these issues regularly emerge in the interviews of July/August 2005, just after the termination of the third ComMod sequence. During the individual interviews just after the gaming sessions, many participants claimed that the most important thing they learned from the game was related to other stakeholders' situations, strategies and /or problems. This is quite surprising as these farmers-participants live in the same village. But as a village leader in Mae Salaep declared: "in everyday life every one has his/her own problems" and live according to his/her daily routine. They also noted the need to include other villagers in the RPG, to create a 'more cooperative spirit' about the water issue. It is hard to stimulate farmers to think beyond the traditional water rights, and it took time for people to consider more equitable access to water. At first, participants hardly dared to discuss this issue publicly, but after a lapse of time, informal discussions and individual interviews/reflection participants became firm about the issue (refer to article in progress by C. Barnaud et al.). In the interviews, participants also noted they discussed the issues (though in a less structured fashion than possible with ComMod facilitation) with more people than their usual social circle. Boussoum (female farmer, Cat. A) told us, for the first time she started to talk about these issues during mutual labour exchange parties.

Unfortunately, there were no efforts to include more villagers in ComMod facilitated discussions, to really create momentum in the village. The local development officer did not take the lead in building on the momentum and the project failed in identifying a local facilitator to strengthen the presence of the "Commodians" at this site. At first, key actors (the Christian leader and the TAO representative) regularly met to elaborate a joint proposal; and water engineers visited the village to investigate feasible water options. Finally, the TAO representative submitted a project proposal, unknown by the villagers, waiting for funding. At the moment of the evaluation, the TAO representative distanced himself from 'sharing-option'. The discussion and engagement withered away, and it is unclear who actually support the Christian leader or personally favour the more equitable option vis-à-vis who support the TAO representative or personally favour the proportional distribution favouring landowning, economic prosperous households. At the time of the ADD evaluation, two of the five local interviewees were still committed to the realisation of the 'sharing-option', while others hardly referred to the water discussions at the village level after the termination of the third ComMod sequence.

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forestry extension activities. Hence, the added value of ComMod for learning about individual farm practices seems to be context dependant.

Improving relationships (networking, informing, persuading, committing, collaboration on the issue)

*L'aide à l'interaction avec l'autre (interactions sociales, réseaux sociaux)*

Almost all the participants we interviewed said that following their participation in the ComMod activities they now talk to broader social networks, but they are still limited to this village in most cases. A poor farmer like Boussoum uses mutual labour parties to disseminate her ideas, while Assui, the Christian leader decided to inform his Christian constituency on this issue. Participants took initiatives, but underscored that they informed others in a less structured way, and did not manage to create the cooperative mind and reflection that ComMod workshops were able to create. They stressed they needed more support to establish new discussion and decision-making routines at the village level. Unfortunately, ComMod did not provide any follow-up. The Christian leader noted he disseminated the information and mobilised people after church services on Sunday. Apart from this, villagers meet once a month at the formal village meetings, called by the TAO representative. ComMod activities were discussed in these meetings, but did not lead to any concrete results.

Efforts of the ComMod researcher to include the TAO leadership in the village discussion did not work out positively. Despite their decentralisation discourse, actual decision-making routines of officials are still top-down and the TAO president discouraged the village discussions on the water topic. Interactions with institutions operating at a higher level than the village were still limited and did not change much (cf. linkages with the TAO were not reinforced / intensified, they did not approach the Royal Irrigation Department regarding their water project, etc.). According to Dr. Benchaphun Ekasingh, "the present political situation is such that villagers are not powerful enough to convince policy makers, even local ones". Careful networking and building up of trust relations are essential when involving higher-level decision-makers. In practice it remains very difficult to commit authorities (government officers and elected political leaders) to local learning and decision-making processes, as they lose control (Monnikhof & Edelenbos, 2001; Hoppe, 2002; 2005). When acknowledging the primacy of authorities, scientists can play a broker role via the provision of information: to provide detailed information about the local situation; possible management options from various (political) perspectives; or by articulating win-win solutions, story lines, (fuzzy) concepts which may function as conceptual bridges between political coalitions (Hoppe, 2002).

#### Actions/new practices

*Le changement de pratique (mode de prise de décision, ...)*

According to the local development officer, ComMod is one of the participatory approaches that incite villagers to discuss and reflect on their own situation, to take ownership and seek the information needed to solve their problem in an appropriate way. Various respondents mentioned this strong point of ComMod: it enabled them to learn about farm dynamics, triggered exchange of ideas and motivated them to seek the information needed to realise their ideas. Two respondents mentioned the construction of 'declining ditches against soil erosion. Phini informed us he started to actively consult and share irrigation water with his neighbours and now frequently welcomes other farmers to inform them about the technical details. However, we need to be cautious: the causes of such changes are multiple and that the ComMod process could have only supported them (among powerful driving forces are: a general trend in the dynamics of the local

agricultural production systems towards more perennials due to market demands, better communication infrastructure is available, new environmental policies are discouraging the production of annual crops on slopes, etc.. These are general trends in the agrarian system.

As we mentioned several times, the discussions did not lead to real actions at the collective level. The TAO representative formulated a water project proposal, but this is the third one and its content is **not based on a consensus** at the community level. Earlier project proposals (first one in 1992) were refused because down-stream farmers would have experienced severe disadvantages

#### Identification of shared monitoring & evaluation indicators

##### *Identification d'indicateurs de suivi partagés*

This topic was not discussed / implemented at this site as the participants were not able to reach a collective agreement on what to do regarding the improvement of irrigation water facilities and therefore did not produce any monitoring plan yet.

## **5.2. Capacity building**

### Taking charge of collective management of renewable natural resources...

#### *Prendre en charge un processus de gestion collective de ressources naturelles renouvelables*

It seems ComMod created a new attitude: rather than continuing old farm practices, participants think through farm activities and actively seek information needed to implement new envisaged activities. Many participants mentioned 'higher confidence' in the results of their activities. However at the collective level, villagers did not feel capable to organise (village) discussions, changing management practices, when needed.

### ...To attain collective decision-making

#### *...à se mettre d'accord sur des décisions communes et ...*

In Mae Salaep, people seem quite cooperative. Some respondents did not see the need of formal collective arrangements; the problem was not yet urgent and people helped each other when needed. When discussing after the first cycle, participants proposed to further explore the credit arrangements enabling resource-poor co-villagers. When they learned it was hard to change formal credit systems, they easily changed the topic into the local water distribution, as resource-poor households did not have water for critical periods of perennial crops. However when exploring the water issue, they were unable to reach a common agreement on what kind of new irrigation infrastructure they needed within the village. The ComMod intervention did not provide the support needed to attain in a village-level discussion, nor did ComMod participants manage to organise this discussion themselves. They did not reflect upon and/or adopt collective deliberation and decision-making procedures.

...To enact, implementing concrete actions creating impact

*...à les transformer en actions concrètes créatrices d'impact ?*

This was not possible at the collective level, because of the lack of common agreement on the water issues (see above) and lack of village deliberation and decision making procedures. However, ComMod workshops made various individuals to change their farm behaviour: before they said they just copied farm practices of others, while now ComMod learned then to reflect on farm dynamics, anticipate the consequences of possible farm practices, and consciously decide what farm practices are best for their future.

What is the character and level of learning, triggered by the ComMod intervention?

*Mesure et caractérisation des phénomènes d'apprentissage suscités par la mise en œuvre de la démarche (au niveau des choix des individus et des organisations)*

As explained above, ComMod workshops enables participants to step back from their daily occupations (a) to discover overall farm and natural resource management dynamics, and (b) to better understand the situation and behaviour of others. At the individual level, participants learned to think through possible farm practices to adapt farm strategies. At the collective level, they learned 'to exchange experiences and opinions' and 'to consider each others' situation when discussing future farm options'. They did not yet learn how to organise more inclusive village discussions to attain democratic decisions. People were not used to this kind of bottom-up planning, and the ComMod process (with its limited resources at this site) could not provide the support needed to launch such a new activity.

Was the overall objective of the ComMod exercise clear (despite the iterative nature and regularly reformulation)?

*Les objectifs du projet ont-ils été suffisamment explicités, malgré leur reformulation successive ?*

Besides of the PhD training objective, the overall aim of the ComMod activities was to enrich local learning and decision-making processes with respect to natural resource management. As Mae Salaep has been a research village more or less intensively since 1994, workshop participants identified ComMod people primarily as researchers, interested in learning and the generation of knowledge. In the first sequence, as soon as the participants understood the aim of the exercise was to provide scientific support for joint reflection on farm options, they made it clear the focus of the model (soil erosion) was not really a major issue of their concern anymore. To enhance the relevance of the ComMod workshops, they proposed to focus on credit systems or market prices: They wanted to see whether the credit system and market prices would allow them to expand perennial cash crops, their preferred technical solution for land degradation .

At some stages, ComMod researchers felt villagers were expecting the research team (the foreigners) to fund the proposed solutions, especially the irrigation water project (also mentioned in the interviews of 2005). This issue was regularly discussed with the local development officer, as it became a disturbing rising expectation. It could have helped, when this point was clarified at the start of the ComMod process, but it probably remains an issue as long as western researchers show up in field activities in such least developed areas.

### 5.3. Secondary effects

*Quels effets secondaires (positifs ou négatifs) la mise en œuvre de la démarche a-t-elle eu sur les relations sociales ?*

After the last sequence of ComMod, the ComMod team left the area while two groups of villagers are still at loggerheads about the irrigation water management issue. This is not a real desirable situation. It leads us to question the actual objective of a ComMod intervention. According to the posture of the ComMod approach, the aim is to elucidate viewpoints that have led to a situation, to enrich the decision making process, but not to produce decisions. Actual methods of the ComMod approach are not geared towards full support of inclusive village /organisational decision-making. However one could question the legitimacy of starting and enriching a collective learning and discussion process, when there is no realistic perspective on attaining concluding decisions and action. Participants invest time and effort in discussions to attain results. Otherwise they will get discouraged. Agreements and the establishment of management organisations and collective action should not be treated as secondary effects, but as integral part of the ComMod process, whether executed by the research team itself or by co-operating development actors. ComMod supported reflection on a specific issue should only be initiated, when it is plausible to attain agreement and action

In Mae Salaep, respondents were not frustrated about the ComMod process because they benefited at the personal level. It is important to note that in some cases (especially in a marginalized area, where farmers have little education<sup>5</sup>) ComMod is valued because of its capacity to trigger individual learning and action about farm- and ecological dynamics. This is an aspect, somewhat ignored in the ComMod charter; hence we could mention it under ‘secondary effect’, but we recommend to value this ComMod strength and include it in the ComMod charter.

#### Contributing to sustainable development?

*Quels apports des décisions collectives atteintes à la mise en œuvre d’un développement durable ?*

In Mae Salaep, the ComMod activities did not lead to concrete collective actions, enhancing sustainable development. There were some concrete results at the individual level: participant adopted a more reflective, pro-active style of farming, gained confidence in managing changes, communicated across broader social networks, seem convinced about the need to ask credit for farm investment, and to expand plantation crops on sloping land to protect the land, etc. These are important outcomes in such a very marginal and disadvantaged farming community (the Thai authorities never established the national agricultural extension system of the low and midlands in such mountainous and remote areas). But, with only three one-week field workshops backed by short complementary surveys and rounds of interviews over a period of almost three years, the set of activities implemented at this site was modest and one should not expect a very significant concrete impact under such conditions.

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<sup>5</sup> In Nan Province, North-East Thailand, only few farmers mentioned this individual learning. In this area, farmers were relatively well-educated and already reflected upon expected farm outcomes when considering new farm practices.

To get an idea about immediate and long-term effects of the ComMod process, we prepared a long list of potential effects (Annexe 2) and asked two literate participants (the facilitator Mitila and the Christian leader Assui) to select the ComMod effects they thought most characteristic for the Mae Salaep situation.

**Perceived/aspired ComMod effects in Mae Salaep, identified by ComMod participants Mitila and Assui in Mae Salaep, May 2007.**

Domain	Immediate effects	Long-term effects
Technical	<ul style="list-style-type: none"> <li>• Knowledge about agricultural practices and their production effects</li> <li>• Group activities to build infrastructure for agriculture (irrigation system, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Farms produce more food and/or cash income (cf. the expansion of plantation cash crops)</li> <li>• More services in the village such as water, roads, shops, health care</li> <li>• Nature is conserved for our children</li> </ul>
Personal / Individual	<ul style="list-style-type: none"> <li>• More feeling one is capable of doing something, making a difference</li> <li>• Better know how to look at a problem, how to search for the cause of a problem</li> <li>• Better know how to decide together, to find good or acceptable solutions</li> </ul>	<ul style="list-style-type: none"> <li>• More feeling of togetherness and belonging</li> <li>• To say more in discussions</li> <li>• More participation in decision making</li> </ul>
Social Together	<ul style="list-style-type: none"> <li>• More talking to each other</li> <li>• Concrete formulation of what we want to achieve with activities</li> </ul>	<ul style="list-style-type: none"> <li>• Everybody has a fair share in decision making</li> <li>• Good village organisation (clear tasks and ways of doing) to encourage/ force people to farm good and also protect natural resources</li> </ul>
Relation with outsiders	<ul style="list-style-type: none"> <li>• To make contact with outsiders</li> <li>• To talk with outsiders to persuade them to help</li> </ul>	<ul style="list-style-type: none"> <li>• To know how to get things done by outsiders</li> <li>• To know how to ensure that important things come on the agenda of high level decision makers</li> <li>• To have more village constructions (roads, pumps, schools, dams etc.)</li> </ul>

At the technical level, they noted they gained knowledge about farm practices and farm related infrastructure rather knowledge about ecological dynamics and nature conservation. These were immediate effects, which in the long run could lead to enhanced farm income, more community infrastructure and nature conservation (the expansion of tree plantations, would curtail soil erosion). At the personal level, ComMod made them feel capable to make a difference; to investigate a problem and to decide how to solve it. They did really not learn how to exchange opinions. In the long run this enhanced problem-solving capacity enabled them to participate more in discussions and decision-making, enhancing the feeling of togetherness and belonging. At the social level, they had the impression people talked more with each other, to define what they want of certain activities. The ComMod process did not lead to collective action; hence the participants did not have a feeling they developed effective decision-making and collaboration routines, which would enable them to tackle future problems. For the longer term, they hoped the enhanced village discussion would lead to a fair share in decision-making, especially when articulation collective arrangements to support farming. They did not aspire or expect more equity of wealth or improved organisation of social services. With respect to outsiders, they claimed ComMod enabled them to get in contact with outsider, to talk and persuade them. They hoped, in the long run this would enable them to put issues on the agenda of higher level decision makers, get things done and improve the

number of village infrastructure projects. They did not have the feeling ComMod enabled them to get more information from and exchange with outsiders.

#### 5.4. Human and financial costs

*Pouvez-vous, dans une perspective de développement durable, apprécier la gestion des coûts (monétaires et humains) liés à la mise en œuvre de la démarche ComMod dans le cas d'étude qui vous a été soumis ? Efficacité (atteindre l'objectif) et robustesse (rémance) ?*

We tried to estimate the whole cost of a ComMod sequence in Mae Salaep (preparation, field workshop and post workshop monitoring).

Cost of a field workshop (in euros):

	Unit cost	Unit number	Cost
<b>Personnel</b>			<b>3700</b>
- Expat. Scientists	300 / day	5 days x 2	3000
- PhD student	50 / day	6 days	300
- Local scientists	40 / day (6 pers.)	5 days	200
- Village participants	40 / day (12 pers.)	5 days	200
<b>Travel</b>			<b>1500</b>
- Transport			500
- Accommodation			700
- Food and miscellaneous.			300
<b>Supplies</b>			<b>500</b>
<b>Total</b>			<b>5700</b>

Deleted: .

Cost of pre-workshop preparatory & post workshop monitoring trips:

- Sequence 1= 2000 euros
- Sequence 2= 3000 euros
- Sequence 3= 3000 euros

Total cost of the whole ComMod process in Mae Salaep:

- Three one-week field workshops =  $5700 \times 3 = 17100$  euros
- Preparation & monitoring trips = 8000 euros
- Total cost of the process = 25100 euros.

The participation of several foreign scientists in the implementation of the ComMod activities in Mae Salaep during 2002-2005 can be estimated at 50% of the total financial cost of the whole process. Therefore, when local scientists and their associated development workers would be autonomous in the implementation of such activities, their total cost could be halved.

In the current Thai context, and especially in these poverty-stricken border areas of the country, if a local development agency had collaborated effectively with the research team, their level of financial resources / annual budgets would have allowed them to

practice similar activities in the field. Point of consideration is the availability of a group of people at the time of the workshop, to be able to efficiently organise the gaming, simulating and debating sessions.

As explained in the introduction, the local context of this case study was very constrained and, for example, there was no local alternative development-oriented organization operating with principles and methods closer to ComMod ones to work with in order to increase the chance of achieving a higher impact.

## **6. Effects of specific methods**

*Pouvez-vous identifier des méthodes dans la démarche étudiée qui contribuent de manière significative au processus de décision collective (10 pages max.) ?*

In Mae Salaep, three ComMod cycles on specific topics were implemented (For details, refer to the completed Designer Questionnaire). First the ComMod team wanted to test whether it was possible to summarize key scientific knowledge (of former PhD research) and trigger a real dialogue/knowledge exchange with local farmers by using simulation and gaming tools. When this seemed possible, the aim of the ComMod activities became more ambitious: to enrich knowledge exchange and decision-making processes for local development.

For the respondents who had experienced these three ComMod cycles it was hard to remember detailed effects of each method in a specific cycle, so we discussed the effects of methods and associations of methods in general. When discussing effects, they mostly referred to the last cycle, which happened almost two years ago and triggered most interest and discussion amongst participants. When analysing the interviews, the evaluation team realised there was a significant difference between the interviews done in 2006 and our interviews in 2007. In 2006, Cécile Barnaud already monitored the learning and exchange process triggered by the ComMod activities, and at that time people stated they learned about the situation of others, which enabled them to develop a cooperative perspective of collective issues (refer to Background info VI.). As these discussions did not lead to concrete results, these effects were not mentioned in the evaluation interviews of 2007 (Annexe 1). To get a rich picture about the effects of the methods used, we use the data from earlier interviews (2006) and the evaluation interviews (2007).

### **Introduction of the ComMod team in the village**

Thai people highly value personal relationships. Trust and collaboration depend on personal contacts rather than an interest in a specific topic. Therefore, the introduction of the ComMod team to the local stakeholders is crucial, requires thoughtful preparation. Especially when you are going to deal with sensitive issues, it is important to enter a community via neutral key actors. In Mae Salaep, ComMod researchers had already developed good relationships with various key actors, and various farmer categories; hence it was not very difficult to interest farmers to join ComMod workshops. Due to former contacts and past research collaborations (with the regional university as well as the local development agency), Mae Salaep participants knew the ComMod team and their interest in knowledge exchange (though they always hope foreigners bring some resources).

### Construction of conceptual models

The first model was conceived, summarising the scientific knowledge acquired during the PhD and MSc research implemented during 1994-1998. At first scientists build a comprehensive model as well as a simplified model, to test the applicability of these models for farmer reflection. Soon it became clear that simple models and Role Playing Games were essential for lively dialogues. In the first cycle, farmers understood the simplified model, but pointed to the fact that the issue of soil erosion was an issue to live with, but not an issue they wanted to explore to improve their livelihood. ComMod scientists invited farmers to forward issues of their interest for the next models and joint discussions. As soon as local farmers identified an issue, the ComMod designer interviewed the 12 participants individually to gain in-depth knowledge of the contextual problem. Only when needed, additional information was gathered from other key actors (for better understanding of the local situation), or scientists (technical details about proposed scenarios). Main contribution of the ComMod designer was to order and structure the data forwarded, to show people the system dynamics. In the 2<sup>nd</sup> and 3<sup>rd</sup> cycle, the ComMod designer considered constructing the conceptual model in a workshop, but abandoned this idea as powerful actors might have biased the discussion and resulting model.

It seems a wise decision to limit the comprehensiveness of the model in favour of the ease-of-use (Vennix, 1996; David, 2001), to work as much as possible with local knowledge, and start the exploration with open interviews rather than village discussions (in informal chats people tend to express more than in public meetings). This facilitates the assimilation of the model by the users and is in agreement with the posture of ComModians using modelling to enable conceptual strategic reflection, preceding detailed technical decision-making. In the Mae Salaep case, respondents highly appreciated that ComMod demonstrated overall farm (system) dynamics and the consequences of various farm strategies. It is not necessary for ComMod to include technical details in the model: When interested in a certain farm strategy, they turned to co-villagers to provide the necessary technical details.

When designing a model and possible future scenarios, researchers should not only consider the solutions forwarded by the local people, but also to look around; external experts might have some interesting innovative ideas about possible scenarios to solve the issue. An important role of scientists is to link local stakeholders with interesting experiences from elsewhere, to expand their perspective and solution space. In case of Mae Salaep scientists explored possible solutions from elsewhere through (1) the years of field research in the 90s comparing what we were doing with the activities of many other projects & experts in the region – they made a list of 52 of them at one stage- addressing the same land degradation issue than in Mae Salaep and (2) the local research partner at MCC-CMU is the main regional node for such agricultural research in the region and is much aware of the diversity of initiatives being tested to solve local issues.

### Selection of participants

The selection of participants is a crucial aspect of the ComMod process, as it determines the perceived legitimacy and efficacy of the approach. In Mae Salaep, this aspect was underestimated: in the first cycle participants were selected to represent the three farmer categories and to include some obvious village leaders. ComMod continued to work with these participants, irrespective of the topics and interests discussed (the constellation of

stakeholder interests may change per topic). Little thought was given to commitment and communication aspect. In Mae Salaep, the evaluation team met some relatively shy participants, not used to discuss matters beyond their circle of close relatives/friends. To spread a discussion within the community it is important to include open-minded, dynamic, communicative and socially respected people from various social categories<sup>6</sup>! A preliminary stakeholder study is needed to identify appropriate participants. Caution is needed for the selection of relatives.

### Role Playing Games

Respondent **highly appreciated** the Role Playing Games (PRG), because of the following effects:

#### *Farmer learning about the issue*

- “The games were fun”. In games enhances people’s spontaneity and outspokenness: “In the game everybody is happy to talk. People feel free to speak and talk about their problems”. “People become talkative about issues they normally would not talk about”.
- Games created some distance from daily life, which enabled them to observe general farm dynamics. Boussoum (a young widow and Cat. A farmer) said: “Before I just farmed the way I was used to. Now I started to see links between certain farm practices and consequences. As I now understand farm dynamics I start to think about it, to anticipate”. Many participants mentioned they gained confidence to start a new farm practice (some had been thinking about before).
- While playing, participants not only observed the consequences of their own behavior (experiential learning), but also mentioned they got to know the farm practices and consequence of others (learning by observance).
- During the RPG, participants discussed farm issues related to the topic, but also consider aspects beyond the focus of the game: for instance, Assui got the idea of experimenting new fertilization and weeding techniques in irrigated lychee orchards during a workshop.

People differ in their preferential learning style. Kolb (1984) distinguished four types of learning: experiential learning, learning by observance, deduction (formulating abstract system rules/theory from real-life experiences) and induction (generation of options for action, by creatively combining system rules). In general, farmers prefer experiential learning (Wilson & Morren, 1990) and focus on operational issues and add-on innovations rather than abstract reasoning and radical strategic decisions (NRLO, 1997; Rossing *et al.*, 1997, Hamilton, 1998). The farmers in Mae Salaep are known to flexibly adapt to new situations; they iterate between observance, imitation, experimentation to add new practices to their farm practices, rather than opting for radical new investments. The RPG provided them with an opportunity for extra observations and experimentation. They discovered system dynamics and possible new farm options in a very concrete way, rather than discussing abstract concepts. Facilitator Thanya observed a change of behaviour during the games: “first people did not understand what ‘economic farm behaviour’ was

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<sup>6</sup> Marginalised farmers are usually busy surviving, have little time for discussions and meetings, and often lack specific spokesmen or -women. It is important to invite participants from these categories to the workshops and include their opinion leaders and spokes(wo)men where possible.

about, but in the subsequent workshops she observed that the participants started to act economically.

#### *Farmer learning about each others' situation*

- Just after the last ComMod workshop in 2005, several participants stated: "By playing, participants develop a more cooperative spirit with respect to collective management issues. Therefore, other villagers need to play as well".
- In Nan, farmers highlighted the power of the RPG to present the problem with all its dimensions to outsiders: "We were never able to express our problem in such a clear way". In Mae Salaep nobody referred to this communicative aspect, as the invited TAO president had not been sensitive to the issues presented.
- Relative outsiders such as the facilitators Mitila, Thanya and Panomsak noticed that people played like in reality: "They cannot cheat". Mitila and Panomsak highlighted that "they were interested to observe how people decide about what crops to grow etc." It enabled them to better understand the behaviour of various stakeholders.

#### *Scientist's learning*

The RPG triggered farmer learning, but also served two other purposes: validation of the conceptual model and farmer preparation for consecutive computer scenario simulations. The conceptual model forms the basis of the RPG and scenario simulations; hence it is important that scientists and local actors agree on the plausibility and comprehensiveness of the model: does the model behave realistically and incorporate all important aspects related to the issue (ComMod posture)? The RPG is built from a conceptual model, identified through preliminary data collection; hence the RPG is a concrete representation of the researcher perspective of the problem (constructed through own field research and interviews with local stakeholders). When playing the role playing game Mae Salaep farmers easily pinpointed differences between the RPG and their experienced reality, issues covered by the model vis-à-vis issues of the immediate concern (background info: Evaluation 1<sup>st</sup> ComMod Cycle, Dec 2002). Apart from this, PhD researcher Panomsak stressed that it was important for farmers to play the game in order to understand the time-steps of computer scenario simulations.

#### *Plenary discussions*

Beside of the RPG, farmers highly valued the plenary discussions. After playing the RPG, farmers wanted to discuss new ideas and personal experiences and opinions. Silent participants as well as eloquent ones underscored the importance of these discussions: everybody learned from the exchange of experiences, ideas and opinions. Instead of the usual gossiping, we now have the opportunity to explain certain behavior and exchange about it". Mibeu noted that ComMod provided an opportunity to discuss issues in a well-structured way, facilitated by neutral outsiders. In daily life, they touched upon these issues but the conversation easily shifted to other topics. Nevertheless, after these plenary discussions, people felt incited to continue the debate at home, with friends, but also beyond their social circles. The Christian leader made it his responsibility to structure his thoughts about the issue and inform his constituency. Many villagers talked about the issue for 3-4 weeks, but as no concrete action took place the discussion dyed down.

### Individual interviews

Farmers did not mention the individual interviews, when discussing effects of ComMod methods. Interpreters and researchers however valued the individual interviews, as it enabled them to better understand the behaviour of participants during the game and plenary debates, hear non-expressed feelings and opinions, and to support further individual reflection on the topic. Individual open interviews and chats are essential to get an idea about feelings and opinions of people, they will not express, or express differently (strategic) in public meetings. During the last ComMod cycle, C. Barnaud closely monitored the learning and changes of opinion via individual interviews. Unfortunately she did not have the time and resources, to use this info to further support the ongoing village discussion.

### Multi-Agent Simulations (MAS)

Despite the general low education level in this area, participants were able to explain the messages/trends portrayed by the computer simulations! The MAS visualizations of long-term effects were strong. Participants did not get bored but followed the simulations because it further elaborated on issues proposed by them, it confirmed their ideas and gave them the confidence to really start new practices (refer to Annexe 1). The Christian leader even exclaimed; “but our thoughts even go beyond these future scenarios!” The MAS sessions triggered less discussion than the RPG sessions. Thanya noticed: “this time people just sat down like students”. This might hint to a certain danger of the computer simulations: people highly respect and trust scientific knowledge (One respondent stressed this point several times during the interview). After the joint validation of the conceptual model, farmers put much trust and confidence in the simulation outcomes. “They perceive it as real”. They do not seem to realize that simulation outcomes easily change with new developments in market prices, political situation, rainfall etc. Several respondents noted the simulation gave them confidence to start a certain action, while they should have remained critical

### Work more with homogeneous subgroups to improve interest and learning

In the last sequence, C. Barnaud organized MAS sessions for smaller, more homogeneous groups of several farmers belonging to separate categories. This triggered more debate and participation than the ordinary plenary MAS sessions. Though it requires more time and resources, the ComMod approach will be more effective when adopting this approach in earlier stages of the ComMod cycles. Participants have different levels of knowledge and education, hence it is important to prepare them for plenary debates. Otherwise, some participants quickly anticipate and influence discussions, forwarding arguments and options before others could even think about their own preferences. When starting RPGs or participatory simulations<sup>7</sup> with more homogeneous groups, they quickly feel at ease, focus on issues of personal relevance, easily exchange experiences, concerns and doubts, and put more effort in learning about the ComMod process as well as the issue-at-stake. They feel less overwhelmed by the wealth of issues, different farm situations, power positions, game structures etc. than in a first plenary RPG session. After the sub-group RPG/participatory simulations sessions, they formulate their critique on the model, and their ideas about present and envisaged future situation. In this way participants learn

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<sup>7</sup> It may be difficult to play a RPG with only part of the stakeholders. In this case, it is recommended to have a participatory simulation: a role playing game executed by one category of farmers/stakeholders with virtual players representing other farmer categories/stakeholders.

more about issues with high personal relevance. Furthermore, they are well prepared for the plenary debate. Committed and more confident, they arrive at the plenary RPG, to confront their concerns, visions and arguments with those of others.

#### Inclusion of co-villagers to expand the debate

In Mae Salaep, the final effect of the ComMod process was modest due to the limited number of people participating in the ComMod process. Serious thought should be given on how to increase the number of participants. An option suggested by Barnaud is to develop a simple game, people can play with any local facilitator. Another possibility is to enlarge the public during the RPGs. When starting ComMod RPGs with homogeneous groups, it is possible to invite more than 4 people per sub-category, e.g. invite 4 players and 4x3 additional peers with whom they discuss their game strategy. Players and their peer group get acquainted with the game and define their specific interests. Then it is possible to invite additional villagers to come and observe the plenary RPG. During this plenary, RPG players again discuss strategies with their small peer group and explain their actions to the larger public<sup>8</sup>. In this way, more villagers get to know RPGs and actively think about the issue at stake. Recording of the discussions amongst peer groups enable the researcher to quickly gather information about the underlying concerns, learning, strategic thinking, the formation of opinion etc. Depending on the richness of these data, the researcher can decide whether and what kind of interviews will be needed for the monitoring and further design of the ComMod process. For the MAS sessions a similar approach may be taken: start in homogeneous groups, and invite more people at the plenary sessions.

#### Monitoring the village decision making process

When facilitating learning and decision-making processes, it is important to monitor ongoing learning and group-dynamics. Monitoring results enable the facilitator to design next steps in the learning and decision making process. In Mae Salaep, researchers observed and evaluate the 1<sup>st</sup> and 2<sup>nd</sup> workshop. At the 3<sup>rd</sup>, the ComMod designer cum facilitator opted for a more intensive approach and individually interviewed all participants after each workshop sessions. The interviews gave a rich picture of participants learning and opinions, engagement for collective decisions etc. Unfortunately there was little effort to design follow-up meetings to expand and finalise the debate about the irrigation system. It is even possible to use participatory monitoring discussions to jointly reflect on next process steps, creating ownership and engagement. The use of focus groups and village monitoring meetings may help to expand the discussion beyond the workshop participants (for more details refer to Chapter 8.)

#### Networking with higher level decision makers

Authorities do not easily commit themselves to policy proposals forwarded by local actors. They are supposed to make their own judgement about the values, interests, outcomes, consequences etc. of various proposals. Rather than presenting a locally preferred proposal, ComMod researchers need to build relationship with higher-level decision-makers. It is important to understand their reasoning, concerns about the issue,

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<sup>8</sup> This may seem a lengthy procedure, but in the present RPG participants wait a lot when ComMod-assistants help them to exchange post-its, pins, registering outcomes in excel files etc. This waiting time could be used effectively, asking players to discuss strategies in their peer groups.

relationships and appropriate decision-making processes and see where and how to inform and involve them. Policy makers have no time to join the local learning process, but they may attend computer simulation workshops, exploring scenarios while listening to local people's reasoning. ComMod researcher can also act as brokers; they researchers need to look for convincing story lines, indicators and concepts that bind policy makers with local actors (Hoppe, 2002).

### **Some concluding remarks**

#### **Critical moments**

*Quels ont été les moments forts de la démarche mise en œuvre dans le cas d'étude que vous avez eu à évaluer ?*

- Clearly, the last gaming session and its associated debate / exploration of an irrigation water sharing scenario in the third sequence was a highlight of the whole process [It is also in this session that truly participatory simulations, in both sub-group and plenary settings were performed to assess scenarios].
- When asked about the most interesting experiences, participants highlighted the personal learning about farm dynamics.

For a detailed chronological description of the activities and the effects, refer to the "canevas" (Annexe 4, short version) and the designer questionnaire (Annexe 3, too much extended version☺).

#### **Efficiency and robustness of the approach**

*Pouvez vous apprécier l'efficacité et la robustesse des processus de décision collective qui ont émergé de certaines Etapes ?*

The approach is very robust and efficient in its resemblance to reality, the fun, stimulating openness and exchange of experiences, while showing relationships between farm action and their consequences. ComMod enhances exchange, rich knowledge production and learning. However, no successful collective agreement was achieved in this case study. More support is needed to mobilise and guide village-broad discussions and decision-making. The sense of urgency to find a solution to the problems being examined was also low.

#### **Influence of the powerful?**

*Y a-t-il eu une prise de pouvoir d'un acteur impliqué dans une étape ayant dévié l'objectif initialement poursuivi ?*

The TAO representative tried several times to push his own agenda, but his attempts were countered by other participants (cf. Barnaud et al. article on power relations, in progress). Unfortunately this led to a stalemate and deference of the discussion to a point in the future, when the issue become really urgent. It is important to monitor the influence of power on discussions, and create awareness and space for the marginalized to balance the discussion. In the aforementioned article, Barnaud et al analyse in what way the ComMod process stimulates balanced discussions about the water issue: it created awareness of the problem and the consequences it has for the *various* stakeholders (highlighting differences); it aimed to phrase the problem collectively (alternating plenary discussions with individual interviews); it searches for integrative solutions; it provides time for the less powerful to move beyond the apparent consensus: to discuss issues and develop an clear opinion and arguments for the next plenary. Power positions do influence

discussions, for the better or the worse. It is the task of a facilitators to ensure that all voices are heard, respected and considered when searching for solutions.

### Risks and opportunities

*Quels sont, selon vous les risques et les opportunités aux différentes étapes de la démarche mise en oeuvre ?*

Social interventions always bear risks of heightened conflicts, emotions, which need to be handled carefully. When there is no sense of urgency, and/or feeling of interdependency, it may be impossible to reach collective decision-making, to the frustration of the participants. Luckily, in Mae Salaep participants did not seem frustrated as they also learned things they could apply at an individual level. However this may not be the case in other localities. Facilitation encompasses various risks and opportunities, hence it is important to do a preliminary study to identify the potential risks and opportunities before designing a facilitation process.

## 7. Implications for the ComMod Charter

*La mise à l'épreuve des hypothèses fondamentales de la charte au travers de l'analyse du cas d'étude évalué (5 pages max.)*

ComModians aim at transdisciplinary research, to produce “socially robust knowledge<sup>9</sup>” about natural resource management (including different kinds of knowledge), with a high scientific and societal relevance. Nowadays, science is called upon to improve its societal relevance, so the ComMod approach is of high interest, and unfortunately it is still quite rare and original. Procedures and rules of most scientific institutions still stimulate scientists to prioritise disciplinary excellence rather than transdisciplinary research excellence. Transdisciplinary research seems possible under the guidance of an inspiring ‘godfather’ and/or with methodological convergence (Lengwile, 2006; Smith, 2007). Quality is ensured by new procedures and measurement on a wide set of scientific and societal criteria (Guggenheim, 2006). In line with this trend, Companion modelling was initiated in the late 90s by a small team of enthusiastic scientists and is now about to mature as several tens of scientists, from various countries and with different disciplinary backgrounds, subscribed to the epistemological principles of the ComMod Charter and adhere to the so-called ComMod approach. The present evaluation project enables ComModians to formulate research quality criteria and assessment procedures to enhance the quality of research efforts. In the context of the Mae Salaep evaluation, we hereby provide our reflection on the ComMod principles and practice, and about its replicability.

### 7.1. The post-modern paradigm

The evaluation in Mae Salaep demonstrated a strong commitment of the ComMod designers to the philosophy of post-modernism. They presented the constructed models as ‘their understanding of the local reality’ and always asked farmers to criticize the model where possible. Researchers were eager to adapt the conceptual model to improve the relevance and usefulness! For example, following the first ComMod sequence, they

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<sup>9</sup> Contestation of scientific and technological knowledge co-induces and produces a transformed and enlarged definition of knowledge. Scientific knowledge needs to become localized and contextualized, fitted into the specificities of each case in which it might be and most likely will be challenged. It will succeed, if the outcome is more socially robust knowledge - robust in view of the many heterogeneous factors, expectations, challenges and contestations which are now, wrongly, labelled non-scientific (Nowotny, 1999; Jasanoff, 2003; 2004))

decided to abandon completely the use of the sophisticated multi-scale MAS-GIS model simulating the land degradation effects under different crop production practices that they built in the lab. with much efforts during the previous couple of years. This is because the villagers asked to shift the focus of the process to access to rural credit to support a more equitable expansion of perennial plantations in the catchment. A small advice for the future is to take multi-level perspective, as many issues concern stakeholders at various decision-making levels. To increase the effectiveness, it is recommended to link up with higher-level stakeholders in an early phase of the process. This enables researchers to establish relationships, regular information exchange and consideration of higher-level resources and interests in generated solutions. In this way, researchers quickly explore the room of manoeuvre of the process, to prevent frustrations.

Post-modernism highlights the relative position of actors as well as their constructed knowledge and objectives. The philosophy of post-modernism stresses cultural pluralism, moral relativity, and multiple realities. It values democratic engagement of stakeholders in obtaining and interpreting results. In accordance with this philosophy ComMod aims to enrich the local learning and decision-making process rather than to attain certain predefined normative outcomes. In the current version of the ComMod charter, it is said that: "All assumptions underlying the modelling are destined to be discarded after each interaction in the field". However there is a concern that these post-modern social advocacy approaches concentrates too heavily on serving a social mission that fail the standards of sound judgement (Stufflebeam, 2001). In a recent article (Collectif ComMod, 2006), ComMod scientists wonder what to do when the process evolves in a direction, they perceive to lead to non-ecological sustainable, non-equitable, or non-productive outcomes. It may be an option to adopt a more critical stance, inspired by the critical theory and/or critical system thinking.

Critical system thinking embraces the constructivist epistemology but opts for critical theory. Critique is an integral part of the research process. Critical researchers do not take the apparent social organisation and structure of phenomena for granted; they are committed to social awareness and human emancipation, discovery of hidden assumptions and conceptual traps, and the pluralistic application of system approaches (Jackson, 2000; Murty, 2000; Maru & Woodford, 2001). Ulrich developed 12 boundary questions in the 'is' and 'ought' mode that form the foundation of critical systems heuristics (for details refer to Annexe 5, Midgley, 2000; Ulrich 2003)). Critical system thinking resists the claim for the sole legitimacy of a particular system approach (hard system approach, interpretive system approach, emancipatory systems approach, etc.), but promotes to select a "certain approach to deal with a specific problem and context. When ComMod scientists favour empowerment of the resource-poor to attain a decent livelihood, but consider it unproductive be explicit about this issue, they might opt for oblique use of critical system thinking' (Flood & Romm, 1995; Clarke et al, 1998): Oblique use of critical system thinking allows the use of interactive approaches, while implicitly steering towards emancipation and ecological sustainability.

It seems the present evaluation project has already opted for this critical approach. Unlike post-modern advocacy evaluation approaches such as the fourth generation evaluation (Guba & Lincoln, 1989), responsive evaluation (Abma & Stake, 2001; Abma, 2005), the evaluation implemented under the ComMod ADD project is not limited to the appreciation of the beneficiaries, but simultaneously inquires about the concrete effects of the

ComMod methods, the influence of power relations on the attained results, the fit/legitimacy of the ComMod approach in a certain societal context, and the appropriateness of the ComMod charter. This is more or less in line with the four levels of critical evaluation, as developed by Fischer (1995): technical verification of the attainment of goals (process and outcome goals); situational validation (are the goals relevant to solve the problem?); societal justification (does the goal fit the local societal arrangements?); and ideological choice (in what society do we want to live).

## **7.2. Interest of the ComMod approach**

Very often, technical scientists often start modelling without proper consultation of the stakeholders, while frequently social scientists loose themselves in social research before starting any action. ComMod reconciles technical and social scientists, as it opts for 'learning while doing'. However, it remains essential to assemble knowledge about the biophysical and socio-political situation before starting any intervention. In some cases, ComMod scientists work within a cultural, political context familiar to them. But in foreign situations (like the Akha world of Mae Salaep), some preliminary research is needed to ensure oneself not to dive into an intractable conflict or irresolvable problem. Furthermore, such a study enables a careful selection of ComMod participants, considering representation, authority, open-mindedness and communication, to improve prospects of large-scale deliberation and action.

According to the charter, Multi-Agent Systems (MAS) modelling is a crucial element of the ComMod approach. In contexts such as Mae Salaep, the Role Playing Games proved more useful for knowledge exchange than computerized MAS modelling. With some help, participants were able to grasp the overall message of a presented computer scenario, but did not understand the limitation, underlying assumptions, etc. They tend to trust and follow this scientific work more or less blindly, rather than to start a critical dialogue. This calls for much caution in the use of computerized simulations in such contexts to remain in agreement with the basic principles of the ComMod charter.

ComMod aims at (a) the production of "socially robust knowledge" and (b) support of collective decision-making processes in complex situations. Intended effects of ComMod fieldwork: (1) the modification of perceptions, (2) the modification of interactions (more dialogue and negotiation), and (3) new (collective) action. The aims and intended effects seem clear from the charter, but there is also some ambiguity in the aspirations of ComMod scientists. On the one hand ComMod concentrates on enriching the knowledge generation process, while on the other hand it aims to improve the quality of collective decision-making. First of all, we would like to stress the importance of knowledge exchange/understanding of complex environments. During the evaluation, it appeared that most participants highly appreciated this aspect of the ComMod approach. There may be more participatory learning approaches that enable farmers to reflect on farmer practices (such as Farmer Field Schools and Participatory Technology Development), but the ComMod approach enabled farmers to reflect upon agricultural dynamics, overall farm strategies, collective management strategies. Participatory Rapid Appraisal methods sometimes aim at similar aspects, but are less thoroughly prepared and more prone to be influenced by powerful stakeholders. This resolute support of knowledge exchange is a strongpoint of ComMod, which seemed to be overlooked but deserves proper acknowledgment, especially because it created significant effects at the level of individual participants, as we have seen in the Mae Salaep case study! Depending on the issue-at-

stake and the context (do stakeholders have a sufficient sense of urgency, interdependency and efficacy to attain collective action?), one might consider the use of ComMod for individual learning and action, and/or collective decision-making. ComMod designers need to know (or thoroughly study) the context, estimate attainable process outcomes, and inform stakeholders about the realistic process aims at the start of the exercise, to prevent unrealistic expectations and subsequent frustrations.

Knowledge exchange with workshop participants (a representative but limited number of stakeholders), does not automatically lead to better collective decision-making as observed in this particular case study. Careful networking, time-consuming building up of relationships and trust, and active involvement of a larger number of stakeholders are crucial to attain balanced, joint decision making. Firstly, ComMod methods/artefacts do not yet focus on these aspects. Secondly, these conditions are difficult to create by a scientist with limited periods of fieldwork. Scientists may opt for long term, intensive engagement in a process, or need to link up with local government and/or development organisations that take care of the facilitation.

The ComMod approach is quite original. Most natural resource modelling approaches generate technical-economic optimum situations or extrapolate trends to give clear-cut advice rather than to support context-embedded adaptive learning and action (this was also mentioned by Panomsak Promburom). The evaluation in Mae Salaep demonstrated the effectiveness of ComMod in supporting local learning. With some extra efforts and tools ComMod could support village level learning and decision-making. ComMod is also useful for policy-makers: its power is to provide insight in the behaviour and preferences of people (as underlined by Panomsak Promburom & Benchaphun Ekasingh). This is an important added value. In this era of fast emerging civil society movements, governments increasingly value socially robust knowledge (knowledge emerging from interaction between scientists and local stakeholders (Jasanoff, 2003; 2004)), rather than to rely on sole scientific judgement. ComMod has another function than other modelling approaches. It creates mutual understanding, and policy makers are inclined to consider citizen's situation and reasoning.

When natural resource management issues are decided upon at higher policy levels, the role of ComMod becomes more complex. Policy makers have no time to join learning processes and cannot or do not want to delegate decision-making authority to local stakeholders or scientists. Policy-making is not just about problem solving; each unique issue triggers specific dynamics of politics and policymaking. Policy-makers, scientists and citizens play different roles and have different ideas about the ideal collaboration (Hoppe, 2002; 2005). Policy-makers expect policy advisers to clarify/structure the problem, to identify policy options related to various political perspectives, and their consequences for respective stakeholders. Hirschmöller et al (2001) note that participatory approaches of Integrated Environmental Assessments (IAE) help to structure wicked problems in a socially robust way. Furthermore, it enables stakeholders to express their preferences, interests and concerns with respect to various scenarios. According to Hirschmöller *et al*, participatory IEA should stop here, as its final aim is to show divergence and leave final decision making to (political) authorities. Scientists should try to remain neutral, objective knowledge providers.

According to the charter, ComModians may opt for Hirschmüller's approach (prioritise the generation of socially robust knowledge), or go one step further: to support negotiation and convergence for decision-making, identifying shared environment assessment indicators. This latter option requires great political skill and convincing story lines. Often authorities overrule solutions generated in participatory processes (Edelenbos, 2005). But there are opportunities: to avoid heterogeneity overload, scientific, local, administrative, and political communities form coalitions around certain story lines, discourses and fuzzy concepts, whose merit is precisely that they imply rhetorical commitment, and yet respect the divergent life worlds and action contexts of the members (Hoppe, 2002: 37-38). ComMod deliberations and the shared definition of environmental assessment indicators provide the necessary 'socially robust', convincing story lines and concepts.

ComMod's strength is knowledge generation and exchange, but the present ComMod cycle is too short to really mobilise villagers for collective action. Only in an ongoing process, when people already have a high sense of urgency, ComMod workshops lead to collective action (e.g. in Lingmutyechu watershed, Bhutan). "To attain a real change, to solve a problem, you need more follow-up. You need to go back." (collaborator & lecturer-researcher Dr. Benchaphun Ekasingh said in the interview). More communication and negotiation (methods) are needed to expand the debate in the village, build relationships with local decision-makers, and enforce agreement and action. This is especially true in a Thai context, where top-down decision-making still prevails. In such a context ComMod aspirations should be modest. ComMod projects serve as first appetisers for future negotiations.

### **7.3. Replicability**

When replicating the ComMod approach as executed in Mae Salaep in an Asian context, for development purposes, one should:

- Work more in smaller homogeneous groups to raise interest and dynamism in discussions;
- Find ways to include more stakeholders in collective learning and decision-making, and support discussions intensively, over a longer period of time;
- Link up with local development officers (whether from government, NGOs etc.);
- Introduce regular participatory process monitoring and planning meetings, to enhance local ownership
- Build stronger relationships with higher level policy makers, to inform them about the local situation, critical issues, locally preferred natural resource management options etc. finding ways to interest and commit them to support ecologically and socially sustainable, economical productive and equitable management options.

ComMod has a dual aim: to generate socially robust knowledge (*transdisciplinary research*), and to support (collective) learning and decision-making (*development work*). The replicability of the ComMod transdisciplinary research depends on the availability of (a) a satisfying methodology, and (b) trained researchers. The replicability of the ComMod development work depends on the availability of (a) a satisfying methodology, and (b) trained development workers. Besides of this, the chances for replicability improve when more people get to know and appreciate the ComMod approach.

## Transdisciplinary research

So far, ComMod scientists primarily work within the scientific community. There is a Cirad team with ComMod expertise, based at the department of Biology, Chulalongkorn University in Bangkok. They established relationships with various universities in Thailand and other neighbouring countries, to test the ComMod approach where possible. Aim of the Mae Salaep project was to produce training opportunities and material within the Asian context. At this moment the team collaborates with ComMod researchers in Bhutan, Vietnam and The Philippines, and trains seven PhD students in the ComMod approach (one French student, four Thai students, one Vietnamese and one Philipino students). PhD students enable the ComMod team to adapt the ComMod approach to the Asian context, to further develop the ComMod approach, and multiply the number researchers/university lecturer knowledgeable about ComMod. Unfortunately the group of PhD students is still restrained; students have a background in biological/agronomy [+ one economist, one GIS specialist, one in landscape architecture] and modelling rather than communication; and several students find it hard to conceive conceptual models. To establish a solid base of ComMod researchers in Asia, more PhD students are needed, especially students with a social background, interested to further develop the communication and negotiation part of the approach. To ensure replicability of ComMod research, one should strive for redundancy as most university researcher become highly involved in education, and may opt for research interests outside the ComMod domain.

## Development work

The present ComMod approach is able to trigger learning, the exchange of knowledge and debate on management issues at the local level. In Mae Salaep, the RPGs and discussions were seen as the most effective methods of ComMod. Some additional methods may help to expand the village discussion and negotiations. The support of MAS scenarios is appreciated, but even without this tool the ComMod approach remains useful for local development work; hence it is possible and recommended to transfer essential parts of the ComMod approach to local development workers. So far, the contact with local development officers remains very limited. Contact and collaboration with these officers not only ensures local ownership and replicability, but may also help researchers to improve the actual communication and facilitation work.

There are already some activities that help to attain interested development collaborators:

- In 2004, the Cirad team in Bangkok started the Ecole ComMod project, with the objective to build a website to inform scientists and development workers about ComMod activities, and to provide opportunities for on-line learning and gaming about ComMod. In 2006, the website was launched and will be 100% functional at the end of 2007. This website is a major effort to inform people about ComMod activities. More and more people browse on the Internet, and may find the ComMod website.

By training PhDs, ComMod trains envisaged university lecturers, who will educate future government and NGO officers and natural resource managers. The decentralisation process will proceed, and they may be able to implement participatory bottom-up processes. In northern Thailand, the strategy adopted by the project is to train local lecturers-researchers (like Mr. Panomsak Promburom) for them to disseminate the approach from a key Center (the MCC) at the local regional university, which is strongly linked to development organisations. Khun Panomsak implements his own field research

in collaboration with an NGO (the Royal Project Foundation) and another one has already mentioned its interest (CARE).

These activities surely help, but more direct contact between (preferable local) ComMod scientists with local officers is needed to reinforce the embeddedness and replicability of the ComMod approach in Asia.

## **8. Recommendations for future Monitoring & Evaluation**

*De l'intérêt du protocole et de l'amélioration de la méthode d'évaluation (5 pages max)*

First some small but important remarks about the set-up of the present evaluation process:

- When executing the evaluation we realised we were evaluating the local impact of the ComMod approach, while the Cirad activities in Thailand's prime objective was to develop ComMod training opportunities and field-based materials for Asian scientists. This is a laudable aspect, as ComMod is one of the rare scientific approaches that provide practical guidance for scientists who want to get engaged in trans-disciplinary research. However, at times, the training of young scientists demands different activities and priorities of the highly demanded Cirad team in Thailand, and this was detrimental to the support of local learning and decision-making processes. This is important to realise, when evaluating and comparing the local impact of different ComMod case studies.
- The evaluation format focuses very much on one of the two objectives of the ComMod charter. ComModians have a scientific objective (generating socially robust knowledge, and publishing this knowledge within the scientific world (seminar posters, presentations, articles etc.) as well as development objectives. It is good to mention that the Mae Salaep case study led to a substantial number of posters, articles etc. (refer to Annexe 6). Again, like above, this scientific work is appreciated, but was at times detrimental to the investment in local learning and decision-making processes. ComMod researchers were based at the University in Bangkok rather than in the field.
- A preliminary classification of the case studies to be evaluated showing which ones could be compared to which ones would have allowed to better tailor the evaluation methodology to be used for each category and possibly helped in the comparison of their respective results.
- A less time-consuming (and therefore less expensive) evaluation methodology should have been designed: filling the designer questionnaire was far too time consuming. Furthermore, the redundancy between what was asked in the "canevas" (under task 2) and again in the designer questionnaire should have been avoided.
- The Protocol of Canberra did not function as a guide for the evaluation work. It provided some inside in the fieldwork, but not in the kind of data to look for. The Evaluation guide of Pascal Perez and Sigrid Aubert was more clarifying, but focussed much on one side of the ComMod ambitions: the support of collective decision making. The scientific challenge to generate robust knowledge and understanding of complex issues was somewhat ignored. Scientific understanding of the issue is important, but the designer questionnaire did not include questions specifically related to scientific learning. Scientific learning objectives needed to

be included in the parts about envisaged stakeholder learning, which was confusing.

- The designer questionnaire followed the phases of the Integrated Environmental Assessments (IEA) as identified by Hirschmüller *et al* (2001). But Hirschmüller *et al.* advocates participatory IEA exploring divergence to objectively inform high-level policy makers, rather than multilevel mediation and convergence for collective decision-making, as aspired by (some?) ComModians.

While implementing this case study evaluation, we reflected upon the ideal monitoring and evaluation method for ComMod projects that aim to support (collective) learning and decision-making. As mentioned in paragraph 4.2, people tend to follow the argumentation and decisions of the leaders they are related to or depend on, except when they are convinced of another opinion and / or feel the decision seriously threatens their livelihood. When they feel there is an issue-at-stake, people take the effort to learn about the details, develop and defend their personal opinion. Therefore, when facilitating collective learning and decision-making processes, it is essential to start with a preliminary stakeholder study, and closely monitor changes in opinion, underlying reasons and levels of engagements. This enables researchers/facilitators to adequately support the process and learn about the effectiveness of methods applied. Some practical tips are offered below:

- A preliminary stakeholder analysis is needed to explore the issue-at-stake, experienced consequences, concerns, hopes and ordinary problem-solving processes. ComMod scientists should verify the sense of urgency, sense of interdependence and conflict of interest<sup>10</sup>, to check whether the implementation of a ComMod approach would be fruitful. These data will serve as a base-line study.
- When ComMod researchers work with player groups rather than individuals (each player consult his/her small group of peers before playing), it is possible to record the small group discussions to get more insight into the reasoning of the actors. This recording needs to be supplemented by short individual interviews or small focus group discussions to monitor the learning and collective engagement.
- Villagers actively discuss issues related to the workshop for about 3-4 weeks; hence the optimum time to start the interviews is about 3-4 weeks after the concrete workshop event. Participants as well as some non-participants need to be interviewed to get an idea about the different levels of information, interest and commitment. This may be done via individual interviews, but focus group discussions enable the researcher to include more people in the process.
- The focus groups discussions should not be limited to (a) the monitoring of learning, engagement and preferred solutions, but also (b) stimulate reflection on the ongoing learning and communication process and (c) mobilisation of stakeholders for next process activities. It is important for them to consider issues such as: how to inform co-villagers; how to persuade and mobilise own peers/constituency; how to approach opposing parties; how to commit and persuade key-decision makers? When various farmer categories, actively think about and act upon these issues, there is more ownership and real chance a village level discussion will emerge.

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<sup>10</sup> A conflictuous situation makes it very hard to start a joint search process. A feeling of urgency and interdependency are necessary, to motivate people to put effort in a (joint) learning process (Dangbégnon , 1998; van Paassen, 2004; Leeuwis, 2004).

- Focus groups discussions need to alternate with plenary/village discussions (in time steps of about 3 weeks), to monitor progress (use PRA tools) and to stimulate further information sharing, mutual understanding and negotiation till final agreements are made. Depending on the process, the facilitator organises complementary activities to further stimulate the learning and decision-making. In case ComMod researchers do not have the resources to support such local development processes, they should have ensured linkages with local development officers to ensure a proper finalisation of the joint learning and decision making process.
- Facilitation and monitoring need to focus on process **and outcome** (Monnikhof & Edelenbos, 2001). Consensus building and compromising do not always lead to satisfying outcomes. Sometimes constructive conflict is needed.

Apart from the monitoring, ComMod researchers need to regularly reflect upon his/her activities and stance. Monitoring helps to evaluate the achievement of process and outcome goals, but one should also ask one self whether these were the goals to attain; whether the goal and process fit the local societal arrangement; what he/she as ComModian stands for (Fischer, 1995). Critical heuristic questions may help to evaluate one's actions (Annexe 5).

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