An initial exploratory research trip to Simacai, Lao Cai Province, Vietnam

Developing approaches based on the farmer in research of principles and patterns in farm design and practice.

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Introduction

SPERI is actively engaged in seeking, teaching and demonstrating sustainable solutions based on ecological agricultural1 principals in Vietnam and the Mekong region. To facilitate this process SPERI is working to refine a set of eco – agricultural principles and language to reflect this regional Context. Real on farm examples and the stories and experiences of the farmers together with those at demonstration sites are important in developing, teaching and exemplifying these principals. Of interest are the local solutions, core practices and lessons learned from farmers in the SPERI network that are working with principles that are related to the context of ecological agriculture. Principles can be seen as the general background concepts and ideas that may develop into each particular local solution. The reverse may also true in that already existing practices may exemplify certain principles that are not referred to specifically by the farmer but can be observed by the researcher.

Local solutions have a relevance to a particular climate or locality, they are important in filling in the details of how to have successes with particular elements within farms of a certain climate. Local solutions may help to exemplify general principles that lie behind a successful local solution. When we bear this in mind each new local solution may also be a teaching mechanism that outlines a principle by example. Design principles may form the underlying concepts or ideas related to action in a range of climates and conditions. By finding sets of common principles that underlie the practice of eco- agriculture it is possible to have a common understanding across a network that transverses climates and cultural variations. Working with principles is an aspect of teaching our students that live in a range of different climates and conditions. We must further develop the approach to working with principles in a research situation, to study on farm activity both at our demonstration sites and when studying the farms in our network and beyond. We must also learn from the farmers themselves and ask; what are their stories, ideas and principles that lay behind the activities at their farms? Can we further elaborate on and refine a set of eco-agricultural principles by understanding the examples of the farmers?

Can we understand how to approach the gap between outside knowledge and farmers knowledge, so that we can keep the essence of minority culture while dealing with the challenges of the modern world? What are the principles we share across our network? How do we teach different techniques and applied methodology. What are

[1] Ecological agriculture is related in principle to concepts developed in the Human Ecology framework as developed by SPERI.

the lessons learned from the farmer? How do we present principles in a way that farmers and students understand, relate to and can readily apply? How do we keep the lessons learned as valuable resources for future students, farmers and visitors? Can we develop a set of indicators based on our understanding of eco-farming? How do we best pass on this living body of knowledge that we are participating in at our demonstration sites such as HEPA? The brain of HEPA must grow as her body become fertile in ecologically rich habitats for human beings. These are some of the questions that ask as I begin this research project.

The basis of our research approach is an action learning process itself applying the philosophy of SPERI of learning by doing. The initial exploratory field work will deal in developing research approaches while making use of relevant observations in the application of research methodology in the context of eco-agriculture. A principle of Permaculture is to design from patterns to details by understanding the larger picture in Simacai, then we can at a later date start to fill in the details as the research process develops further.

There is great diversity in eco-agricultural systems and recognition of their holistic nature. These systems with embedded human participants have a great deal of variability and interconnection between elements in a way that models after nature. In this context there are intrinsic difficulties that arise in trying to separate out different variables for study and analysis. Within the context of learning by doing, research approaches may be developed that are in harmony with holistic perspectives while also appreciating what methods of reduction can offer. How can we develop research approaches that are holistic and are also relevant in providing a basis to develop quantitative and qualitative indicators to be used by SPERI when working with networks of farmers?

During the period from the 15 of September to the 25 of September, I and Anh Huan were involved in an initial exploratory research trip to Simacai district. We visited the farmer field school, farms of two students and a key farmer. We carried out several interviews, made field observations and taught principles of eco-agriculture at the FFS. This summery paper primarily focuses on discussion related to a number of issues involving the principles that crystallized conceptually during the trip and in reflection upon our return. The objectives frame this discussion as points of reference that guided the research process during the trip.

Objectives

This first trip serves as exploratory[2] research to frame and to develop concepts related to our research approach within the guidance of five specific objectives. These objectives summarize our research intent based on the practical needs of developing eco-agriculture in the Mekong and are developed from some of the questions mentioned above.

[2] Exploratory research here relates to an idea of a living literature review while actively engaged in the process of action learning connected to the research approach itself.

A background principle of our research methodology is a focus on process; in which together we are refining our methodology and adapting to new insights as they appear in an action research style. As such it relates to the learning by doing philosophy of SPERI. In this context our objectives have somewhat a fluid character, open to feed back. The objectives in regard to this exploratory trip served as reference points[3] to shape developments in our approach of research process involving the principles. To put it simply we would talk to farmers, take photographs, gather stories based on identified key themes, observe farms and the FFS while allowing our approach directed by our objectives, and application of those objectives, to somewhat be shaped by the life around us. Our objectives or reference points for the trip to Simacai were;

a) To study the farms[4] of the key farmers, students and pilots in regard to understanding what principles of the farmer and ecological agricultural[5] design principles are at play. What key Indicators demonstrate these principles?

b) To develop an effective way of understanding the on ground situation at the farms and to record and observe the appropriate lessons learned.

c) To translate these lessons learned and farmer principles into a useful form for teaching students and develop a body of knowledge relevant to the system and topic at hand.

d) To endeavour to add to the burgeoning bubble of pattern understanding by conducting particular observations on farm in view of pattern research.

e) To apply the principal of feedback and refine each of these processes by ongoing cycles of action research[6].

We were also aiming to teach a number of lessons at the FFS in relationship to eco-farming principles.

Methods

[3] Based on an action learning approach.

[4] Observation of farms includes the interviewing process with the farmer themselves; they are seen to be an interdependent entity with the farm system itself.

[5] We use the term ecological agriculture (nong nghiep sinh thai) or eco-farming principles when working with these principles in Vietnam as the Vietnamese people can relate better to this term (Chau). Eco- agriculture in SPERI is related conceptually to the Human ecology framework of SPERI. Concepts and practical examples from Permaculture design sciences are drawn upon by SPERI in relationship to the practice of the Human ecology framework, and in creating cutting edge locally based eco-friendly solutions in the current context of global environmental crises. I acknowledge the use of Permaculture design principles in contribution to the concepts here and when I talk about eco-agricultural principles, I give credit to Permacuture resources (such as David Holmgrins twelve design principles) that have helped to shaped these ideas.

[6] The principle of feedback is what gives this research process the character of applied action research methodology.

We conducted open interviews; questions involved a key theme or topic that often flowed on from interviewee responses or observation of the site. We spent time making field observations with the farmer. Photography is seen to be a major resource to the research process and was applied liberally during the trip. We taught a number of lessons involving the principles at the FFS. Our activities in Simacai included;

Farm Visits, observation and open interview.

1) Observation of FFS and interview with Mr. Dung / Mr. Khoi.
2) Observation of the FFS and interview with the current students.
3) Visit to the Farm of former student Suong, interview and observation of farm.
4) Visit to the Farm of current student Ang, interview and observation of farm.
5) Visit to the Farm of Key Farmer Mr. Ly, interview and observation of farm.
6) Visit to the farm of former K1a student Coi, short interview and observation of farm.

Teaching sessions

1) Spontaneous lessons on the field, design questions raised by the students, particularity in regard to edges.
2) Presentation - Principles in Mr. Prakits Garden.
3) Presentation - short exercise - Observation.
4) Presentation and exercise - Principles in Permaculture (using the 12 design principles outlined by David Holmgrin).
5) Random English lessons in the field.

There was work on the principles and Indicators at the FFS with contemplation and reflection on indicators, principles and pattern in the kitchen garden and on the terraces. For this process I worked with a writing practice that I have been developing over a number of years that helps to generate insights[7] in relation to specific observations out on the field.

We observed student practice on the field, and spent a little time working with them. On return I organized an interview with the Simacai students of HEPA to discuss some of the issues raised during the trip to Simacai. Thus far we have discussed the issue of water as a source of conflict. We have also sown vegetable seed at HEPA brought back from Simacai, purchased from Hmong who had been seed saving. I have

[7] Insights of this kind may be holistic in nature in that the observer by being involved in a refined process of observation may enter into engagement with the phenomenon itself.

given a lesson and exercise on the principles, translated by Thu, to the new students following a lesson structure which had evolved at Simacai. A presentation has also been given based on the materials and photographs collected on this trip.

Results

Our objectives helped to serve as points of reference to shape an unfolding research process. Our findings relate to the stories and discussions of key themes and observations that center about the world of the farm and ecological agriculture in the local context of Simacai. The teaching sessions related to the content of the research and somewhere along the way mingled with the research process itself in an interesting lesson with the students involving an exercise with Permaculture principles. Key themes and stories are chosen for representation here and given a heading.

a) A number of stories/thematic discussions from the farmers and students that relate to key themes and principles were heard in the interviews. Farms were observed with respect to the farmer's point of view and story as we walked the land. Development of the indicator system occurred during a process of analysis of eco-farming principles on the vegetable gardens and terrace fields at the FFS; thought was given to integration of the farmer's principles and possible indicators expressed in story. The exercise with the students served the multiple function of a lesson and also as a collective research activity when finding examples of the principles at the FFS.

   Key themes and stories expressed on the farm visits:

   1) FFS with Mr. Dung; Research trails of students at the FFS. Pine trees in the nursery - local resources and the government reforestation program. Chickens and their perceived impact on the growth of pine trees. Soil improvement, processes, indicators and influence on the villages and community. Water scarcity – piping a source of conflict. The issue of crop Protection – buffalos and the villagers.

   2) FFS with Students; Daily work with the animals and design of animal systems. Soil improvement and the use of compost – the question of compost use in the village. Chemical use in the village and the story of soil.

   3) Suongs farm; Interactions with the villagers, do they listen? Use of chemicals, differences between Suong and others. His fathers feeling about his work. His success - the fish pond, rice and ducks.

   4) Angs Farm; Difficulties that arise when returning home to practice. Successes - the banana circle and new garden beds - turning waste into a resource. How does his mother feel about his work?

5) Key farmer Lys farm; The value of tree crops. Dealing with free traders and the market. Difficulties in getting others to try new things. Advice to students.

6) Coi's Farm; working in a group. Difficulties in returning home to practice, the example of paths off contour. Perceptions of her uncle's chemical cabbages down by the road. Plums and cabbages, an interesting pattern.

b) Strategies for understanding the situation on the farms in this case are related to the open interviews and the observational walk around the farms with the farmer and the contemplative activities carried out in the gardens themselves. There was an effort to understand the lessons learned that are relevant for students who are returning to practice in the village[8]. Talking to the students I also found was a good way to understand the lessons learned as they themselves are actively engaged in the learning process itself.

c) We taught a number of lessons at the FFS; this was based on work with the principles and observation. The form of teaching occurred as mostly a dynamic and living process connected to a series of presentations. Successes include the development of a valuable exercise related to teaching Principles of ecological agriculture to minority students, the outputs of which we can use for future teaching resources.

In terms of the composition of the farmers principles and lessons learned into a body of knowledge suitable to be used as curriculum. This is yet to be compiled in a structured way but the lessons learned have defiantly had an effect on the learning environment through a process of embodiment[9] and relation of the stories gathered. Presentations have been given on return to HEPA based on this trip and are an important teaching medium at the FFS themselves. In this presentation I was able to show some of the photos from the trip and relate some of the stories and lesson learned from the students and farmers at Simacai.

d) Observation of pattern naturally occurred on the terrace fields on exposure to the rich edge conditions sculptured by the terraces. The landscape of the mountains is visible in the background and it quite expediently led me to reflect on the value of observation, of the inherent characteristics of landscape and to follow these observations with harmonious patterning when applying practical solutions as can be seen by the example of the terrace. The need to work with the larger patterns of forest watershed management was also appreciated when looking at the surrounding 'bald monks' (treeless hills), and listening to related stories of conflict over water resources.

In class we discussed the nature of abstract understanding as opposed to embodied understanding, these two different approaches form two different

[8] Based on K1a student Thanh's suggestion, when I asked him what is the most important thing to learn when I conduct research at Simacai?

[9] I want to explore further this process of embodiment as this relates to a primary teaching methodology within the context of minority people in the Mekong.

mediums and between them there is an edge. The edge of course is an important concept related to pattern and there was the insight that the students are on an edge of sort's right at that very moment. They have the embodied understanding of traditional people and they are studying design principles that are of an abstract color, they exist between two mediums. They thus seem capable to facilitate positive change in the context of the current world challenges[10] that are affecting life in the village.

e) The preparation time for this project is equivalent to sowing the seeds for reflection when conducting the research that was carried out in a relatively short time frame. On return, time taken to reflect on the whole process can reveal valuable insights that previously lay hidden at the time of research[11].

Discussion

With this discussion I hope to create an opportunity for feedback from senior SPERI staff and to refine the objectives and research process for our next field trip. I will focus on each objective individually and relate the lessons learned.

a) To study the farms of the key farmers, students and pilots in regard to understanding what principles of the farmer and ecological agricultural design principles are at play. What key Indicators demonstrate these principles?

I would like to draw attention to a number of issues that arose during our trip. The first is the use of story/ thematic discussion as a mode of expression for the farmer and how this might relate to principle. The second question relates to the farmers natural way of thinking and we ask what role do principles have as an organizing concept here. How can we relate this to a conceptual framework from which to organize our information on different types of principles? Reflection on this question gave rise to a framework that I term zoning the principles. Lastly I would like to discuss relevant insights that relate to the development of our indicators.

Story/thematic discussion as a natural expression of the farmer.

Story and thematic discussion have been the natural forthcoming mediums to express the farmer's principles. The importance of the farmers' principles implies that we should really look into the value of the story as a medium and what we mean by principle in relation to it. In general a principle refers to an abstracted concept that has been seen to underlie a certain quality relevant to a number of distinct phenomenon or events. Story on the other hand characterizes the details of ones personal experience in reality and contains allot of specific information and displays qualities that are unique in time and space to a specific context. There is a contrast here. As a researcher we have a number of options in which to relate the farmer's story to our purpose of looking at principles. I think story as a whole has teaching power in itself, can contain lessons learned and it is possible to relate story to a number of principles. We can also connect stories together to form a common thread in which to extract an

[10] The challenges of globalization, dwindling energy resources, unstable economic influences etc.
[11] Such as the development the framework involving the principles.

underlying quality, these then can be used to exemplify principles within the details of particular life situations.

> To illustrate our point about discovering principle[12] within story and using that story as an example;
>
> when former student Suong first started raising ducks his brother in law came and gave his advice, "you should feed the ducks with industrial food that has hormones so the ducks can grow faster"!
>
> "I will not use industrial feed, I will raise the ducks on our corn", replied Suong.
>
> After five months his brother in law came back and explained, "You have to buy the industrial food, otherwise the ducks will no grow". Suong continued to feed the ducks with his corn and to me they were looking quite healthy and happy.

This story may give you a sense of the level to which local indigenous people are starting to believe in modern industrial solutions. It gives an indication of the *context* of general attitudes that ecological agriculture students face when practicing back in the village. In this way it is a glimpse by a simple story into the changing world of minority people. Soungs brother in-law believed strongly that industrial foods would make the duck situation better, traditionally industrial feed was never available, where has this idea come from? Secondly we can see that it is possible to extract principles from the story such as, 1) Use and value renewable resources and services – the corn represents a renewable resource, providing that we do not erode the top soil away in its production. Industrial feed relies on many non renewable resources in its production, as well as encouraging large scale commercial agricultural operations that inherently damage the landscape so that ultimately production is non-renewable. 2) Use small and slow solutions – the use of corn represents the gentle attitude of allowing things to improve slowly by way of nature. Using industrial feeds goes against nature in artificially trying to speed up the process of growth. 3) Integrate rather then segregate – using local corn provides the opportunity to connect to local systems, rather then rely on externalities represented by the industrial feed.

In writing this I see that the story about the ducks interweaves through many other narratives of the region. By becoming familiar with such stories we may be able to weave for ourselves a rich tapestry that exemplifies different principles and it may be drawn upon for the purposes of communication, teaching curriculum and to support the practical application of design. *In future field work there needs to be further effort invested in determining the link between story and principle and how this may be related to teaching curriculum. These stories are a great teaching resource in themselves; I came across a number of stories that may be looked at in further detail in the future.*

In addition to story I observed what we may call farmers principles or practical principles, these are connected to the practical realities of work at the farms. The how and the why when talking about an aspect of practical work, which may still be connected to a story. *There is potential in the future to really explore this further by*

[12] Principle here refers to a lens through which we can view the farmer's story and may be represented for example by Permaculture general design principles.

spending more time with the farmer on their farm and asking more questions in relationship to observation and interaction with farmer practice.

Principles and the development of a framework.

I find that after listening to farmers I observe that often they speak in grounded practical terms and discuss their situation in reality describing well the details of their microcosm. This can sometimes be at the polar end of thought to that of the abstracted principle. We must understand the way of the farmer and their grounded, embodied understanding. We should ask how the farmer in his natural capacity can best contribute material for our work on developing principles. I think story is important here and what we can call farmer principles. How can we make sense of the diversity of information that can be collected? How can we create a base into which to add our observations and build up the resources of ecological agriculture? This is something we can develop in a framework (figure, 1) to help organize and relate our information collection in the future. *The framework described here relates to our objectives of developing our research process based on the ideas that have developed from this trip*. To facilitate research involving the principles, an organizing factor such a framework may be needed to integrate information on the principles gathered into a whole that can be translated into structured teaching material and curriculum.

We may develop categories of principles in relationship to practical know how and this would closely relate to the development of specific teaching material. I think the structure of this framework would naturally develop from the most abstract and general[13] closest to the centre to those relating to grounded specific farming techniques at the outer edge. The framework can be envisioned as a series of concentric circles similar to a zonal pattern in eco-agricultural design. Thus I think of it as zoning the principles.

In the centre there is observation sitting at the core. Observation is a conduit and process that connects reality to the centre of design[14]. In the next circle are core design ecological agriculture principles, most abstract or general and understood well by a number of examples from different types of phenomena or situations. In the next circle are the farmers principles or practical principles such as feed the soil or find a nitch in the garden and fill it with a plant that has a similar nitch in nature[15] – these principles are closer to grounded knowledge and less general, and both may be related easily to practical examples, story can be used here as an aid in understanding. Then on the third level there are general practical considerations[16] for each system of

[13] Eco-agricultural principles give tools to meet the design challenges in the context of the modern world, and provide the adaptability and strength required to keep the best of what tradition has to offer. As concepts drawing from modern science they are a response to uncontested modernity and give minority students a tool to question the benefits of modern culture.

[14] In later discussion with Chau we talked about observation as running through the entire model as a consistent methodology to work with each level of the model, I agree with this point. We can also relate ethics to the centre as in the case of the Permaculture system or values /spiritual belief as in the case of the traditional systems as exemplified by the concept of Human Ecology.

[15] Principle of Mr. Nhat of Na sai Village,

[16] Examples include; methods of garden bed preparation, appropriate animal feeds, composting methods and methods of making a pond.

interest or well known key elements of design[17]. At the outer most edge is the vast quantity of specific local knowledge that is often endemic to particular areas.

Thus we also move from the most condensed forms of information to the vast sums of local knowledge that could take several lifetimes to document in its entirety. This framework would make it easier to organize information into a usable form. It also creates a structure into which to add indefinitely at its outer edges while keeping a relative stability[18] at the core, there is no limit to new farmer's principles, or specific local knowledge that can be added. We can also see that the central principles may be reflected in the outer edges; they give a reference and act as indicators to determine whether or not a specific form of local knowledge[19] is appropriate to add as a resource in our information and living database. The framework may also provide a guide in the development of a curriculum and teaching manual for the Mekong region[20]. At the same time it may connect to a system of indicators and strategies for the development of ecological agriculture. *In future field work now that a general picture of Simacai has been built up we can focus more on filling up the outer edges of the framework, looking at more specific examples of systems and the practical principles and methodologies related to them. In addition to this it would be helpful to interview and observe the farms of conventional farmers in the area to understand the contrasts in principle and practice more deeply.*

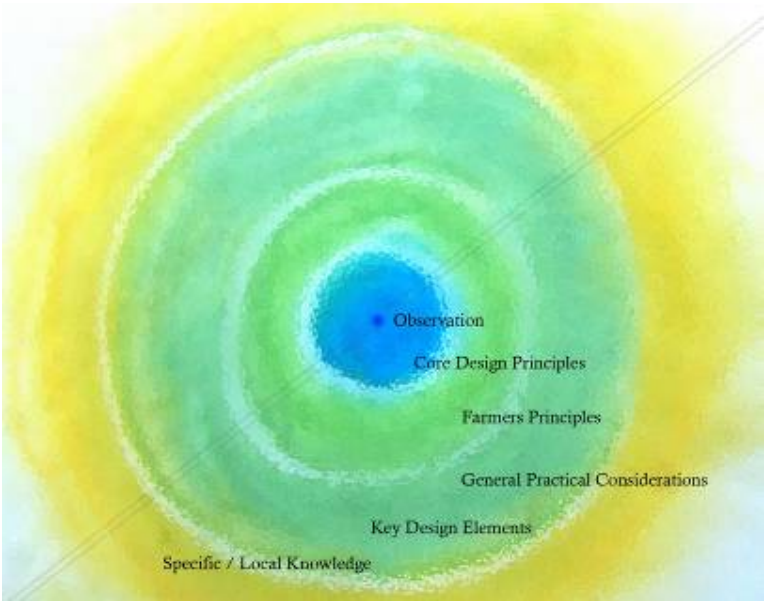

Figure 1, Eco-logical agriculture, framework of principles and practice of the farmer, a representation to understand relationships between elements and create an organising process when working with these principles and practices in research situations.

[17] Examples include; the banana circle, the chicken tractor, the terrace field and the vine trellis used for shade. Note; this list will expand as research progresses and more key elements of design are found. Key elements also form the basis of easily developed teaching modules.
[18] We can refine a set of core design principles that can be kept relatively stable at the centre of our framework.
[19] For instance some forms of local knowledge damage top soil and cause erosion and do not reflect ecological agricultural principles.
[20] It may provide a formwork to develop the resources of ecological farming within the three themes of MECOECOTRA.

Reflection on the nature of grounded understanding and the use of general abstract principles.

I gave an example to the students in my presentation on the principles; there are different ways of understanding the world, that which corresponds to the abstract (sky) and that of an embodied (earth) understanding. I elaborated that western people often think in very abstract terms and are quite fond of finding general principles to reality. On the other hand minority people seem to have a very embodied understanding of the world, almost as if the understanding is in the doing itself. For example the activity of harvesting rice seems sometimes to me to be its own theory though still remaining connected to the cosmology of the village as a whole through a living process of creating meaning[21]. Story also seems to have a lean towards a more grounded from of knowledge as the details are relevant to particular and unique life situations. At the time I said that it is meaningful for students to be able to do both as they are key actors in this changing world[22] in which the village finds itself.

We have the principle of the edge in Permaculture. An edge exists where two different mediums meet in this case we have the abstract and the embodied or by analogy heaven and earth respectively. From the Permaculture point of view this is an important element within our research trip; our principle is to use the edge. It represents an approach into facilitating movement from the edge, great things can be accomplished by the marginal and it is this edge that may hold solutions for our current global environmental crisis[23]. Indeed change in society often proceeds from the marginal before it enters the mainstream, and we can keep in mind that mainstream consciousness was once marginal consciousness.

Indicators – finding examples of core design principles within practical solutions.

By working with a framework such as the one mentioned previously we may create an inclusive system of indicators that recognizes a relationship between parts of that system, for instance between general principles and practical examples and the measurable physical manifestations of these. As a type of indicator in the framework the design principles can be seen to flow into other grounded examples further from the centre? The exercise with the students, can this be used as this type of indicator for instance in the exercise they naturally found negative examples of a principle not being followed. Can we have indicators at all levels of the framework? How would those indicators connect? I see that the development of a system of indicators will take some time.

[21] I need to do more work in order to find out more detail, I am not certain here.
[22] Change represented by more exposure to the western ideas and concepts of modernity, in the west ecological principles may act as a counterbalance for runaway concepts of modernity (or economic development).
[23] Minority people are the keepers of traditional wisdom and practical skills that relate to solutions based on living in a world that is in desperate need of eco-friendly grassroots base environmental solutions.

b) To develop an effective way of understanding the on ground situation at the farms and to record and observe the appropriate lessons learned.

Interviewing process

When preparing for the trip we discussed the manner in which we would conduct the interviews, we would attempt to keep them open and have a dynamic process with the farmer and his land and pick up on subtleties that come with following the farmer, listening and asking relevant questions while keeping our objectives in mind. Further; we discussed how to bring out the principles of the farmer of themselves, in their own manner. We thought that the idea of a design principle might be something foreign to the farmer's way of thinking, and may take good deal of explanation before we begin, as interviewers we wanted to keep our influence to a minimum. A lengthy explanation might skew the farmer's natural way of thinking in which case we would then have to ask ourselves if our findings signify our own projections. So we would keep the questions open and use our sensitivity to hone in on key issues. It creates a responsibility on the part of the researcher to hone their own organism as an instrument of listening and this is something that must be developed with practice over time. The lessons learned relate to the stories and experiences of the farmer that we collected during the trip during these interviews and tours of the farm. *Now that we have collected our initial information during this exploratory research trip development of more refined questions can take place in relationship to selected key themes or topics.*

Other research methods-development of the research process.

As part of the process, I had originally planned to do some further analysis of the farms using some specific methods involving the principles; this would naturally lead into more questions for the farmer in a later interview and we could further understand the farmer's principles that reflect the nature of the farm itself. It would also allow us to take the time and view the farm through a lens that had previously not been available to the farmer. However we did not have the time to complete this process. *It is possible to do some follow up work on a return journey to Simacai at a later date as part of the research process and re-question the farmers and analyze the farms in more detail after a period of reflection on the material gathered in this first visit.* It might be possible to develop some specific exercises to draw principles out of the farmer, though again this might go against the farmer's natural inclination. In any case story and discussion on a number of key themes was the main material gathered from the farmers we visited on this field trip. *The development of a framework involving the principles may help to organize information collected and focus the research process along specific reference points when collecting material and relating it to the bigger picture. We can continue to look at story as a natural forthcoming medium of the farmer and spend more time in the study of practical examples that relate to specific topics on the farm.*

Presently I am reading the literature and attempting a few small experiments in the application of Goethien Scientific Methodology, which is holistic by nature. I see its considerable potential as an important research tool concerning eco-agricultural systems. I think at the heart of this science there is a commonality with the values and

spirit at the centre of indigenous culture. In the future I want to continue my investigations into this method and determine a consistent relationship to our objectives of research in eco-agricultural systems. *I see a potential to start to develop teaching material based on principles of the Goethian approach and to apply the methodology to novel situations involving the eco-agricultural systems of indigenous peoples.* In Simacai my presentation on observation was partly shaped by ideas and practice I had been developing based on the Goethian approach.

In participatory research processes I see the transformation of the observer as something connected to the insightfulness of research endeavors. I have seen the benefits of my writing practice together with mind-body work and practice on the farm on the accuracy and insightfulness of the observation process. Thus I cannot separate the work I do on transforming my capacity in observation from the research process itself. *So I keep this in mind and try to make time to keep up these observational capacity building practices. Ideally the research process itself should builds this capacity as research is being carried out.*

c) To translate these lessons learned and farmer principles into a useful form for teaching students and develop a body of knowledge relevant to the system and topic at hand.

Embodied Knowledge in relationship to key design elements.

From my observations of the banana circles at the FFS and at Angs farm in his application of the banana circle at home, and from banana circles I have seen at a number of other former student houses. I can see that the banana circle is a key design element in eco-farming systems. I observed the students working with the banana circle in Simacai, something that I am also familiar with from HEPA. I believe that by working with the banana circle at the demonstration sites, students become familiar with this particular design element and take in a form of embodied knowledge in relationship to it. This seems to me to be an effective development of a living body of knowledge that can be recognised as an aspect of curriculum. Embodiment of knowledge is something that I have seen as a key theme in developing effective teaching curriculum at the FFS in general and as such is relevant for future investigations.

The development of posters for use in dissemination.

When Ang went home his first difficulty was to get his family to understand what he wanted to do. He said that this was a long process and he had to explain his ideas many times so they could understand. *I asked him if some kind of presentation material would be helpful for this process. He said that it would. After this event we should consider the development of quality educational posters seriously and this could be a future output of a group research process involving students.* I had already been thinking about this when I saw Su's poster of nutrient cycling that he had created to explain the principle of feeding the soil to feed the tree. *If we further develop outputs such as this it may really help the dissemination of eco-farming content for SPERI.* Other things that we thought might help the students in the future was a kind of youth network for alumni who can come together one a month and discuss their

progress and trouble shoot with each other. Also the creation of more pilots to demonstrate eco-farming practice and principles.

Principles, Presentations and Articles.

I found that the presentation of photos was a good medium to relate the research outcomes to the students. Stories are also appropriate material for presentation; people like to listen to a good story. There were even occasions where the students self taught themselves as a group. Students from Simacai became active presenters and helped to relate what I had experienced and observed to the rest of the class from their own reference point. I delivered another lesson on the principles to the new students when I got back to HEPA *based on the same process that I had gone through in Simacai.* This is a valuable lesson structure and the new students could relate to the material presented when backed up by the exercise. Basically I gave a presentation on the background theory of the principles and why we use them. Then we went out into the field with signs and identified examples of different principles and took a picture of the students holding the sign in front of the example. So at the same time when teaching we are also carrying out a type of research process based on observation and creating new material at the same time that can be integrated into future teaching curriculum. These photos may be used to relate concepts involving the principles in future presentations with students. *There is the potential to write articles based on this research work* that will help with dissemination of what SPERI is doing. I think my writing practice may be of use in creating interesting pieces of writing based on an underlying appreciation of pattern research.

d) To endeavour to add to the burgeoning bubble of pattern understanding by conducting particular observations on farm in view of pattern research.

How do we study systems from a holistic point of view? Something seen as fundamental in Permaculture is pattern. Pattern relates that nature follows and operates in patterns that develop from natural laws. We as human beings have an ability to understand things in their pattern detail. This relates to basic characteristics in how we see the world and how we evolved within it. We look at nature and pull out patterns that have a synergistic effect on our human mind. Nature has no shortage of patterns to majestically display to us. From the pattern of a shell to the branches of a tree there is a great order at work and this relates to a deep understanding and experience of reality. Pattern is the language of traditional societies.

In Permaculture systems there is really a fundamental shift in perspective. We say that the phenomena observed really relates to or can be made light of by the observers pattern understanding as a human being and to the individuals natural or learned ability to see patterns. Pattern understanding builds on a very natural function of the mind. In research we must employ methods that really seek to work with nature and foster our pattern understanding as a community. Pattern relates to and underlies established Permaculture design principles; we use these principles to inform our design and practice. Given the right approach the principals themselves could be used as a tool for research into Permaculture systems.

In teaching lessons based on exercises with the principles I was looking to accomplish a number of tasks. The first was to introduce a set of common design principles to the students that may be of practical use for them as thinking tools in design situations. The second was to carry out a group research activity with the students in looking for examples of principles at the FFS. I found this activity to be quite useful, the outcomes of which are a series of photos that relate the principle to the particular observation of an example of that principle at the farmer field school[24]. *In developing an indicator system we can ask if these design principles can be used as indicators in themselves? I have not fully answered this question to date but I think that principles could employed as part of a framework of indicators based on the principles framework discussed above.*

There is a principle in Permaculture of designing from patterns to details. I see that allot of my knowledge in the Mekong is at the pattern level (I can see how patterns functionally fit into the larger picture in relationship to design situations). I also see the need to develop my specific knowledge of particular local knowledge (the details). For instance I would like to broaden my knowledge about particular plants, also with the possibility of developing indicators from those plants. *I see that practice in eco-agricultural systems is important in the generation of new ideas and to the research process itself.*

A developing question in relation of my long term research interests is how does pattern at the core of modern eco-logical design relate to spirit the heart of traditional culture? I have developed this idea from working on pattern as a concept and in observation, while also writing up an English version of the Human Ecology framework of SPERI for Mrs Lanh, together with contemplating on how to structure a framework in relationship to principles as an outcome of the research trip to Simacai.

Pattern Understanding.

The whole is always greater then our knowledge of its parts, a system will always be more than our observation of the principles acting within it. It is difficult for linear thought to see beyond a conglomeration of different principles acting within the whole. There are two forms of thinking, linear - logical and free associative, or holographic - a whole is seen within the part, a connection beyond normal linear reasoning is made and we see something reflected in a part that relates its whole character or nature to us, a pattern of that character appears inside us and we see something of the outer world reflected within… Or do we see the system as a conglomeration of different parts or principles that make up a system?

It is cold
the naked branches of the tree against the grey
light recedes, dusk and smoky breath..
an outline of the hill behind, hangs in mist…
the low hum of the river rushing below..

[24] I have sent the students these photos and they were quite happy to receive them.

it all seems still... and breaths……..
the breath seems to move in the cold air
a drop in the ocean waiting to go home.

e) To apply the principal of feedback and refine each of these processes by ongoing cycles of action research.

Working with the framework I see how it helps to visualise information and has lead into a number discussions that have lead to its refinement, more current versions of the framework are now represented (annex). These discussions are a process of developing a common understanding and open up a window for further advancement of the ideas and concepts in question through feedback, particularly from Chau.

The development of indicators needs more work. I have not expressed my full ideas in relationship to indicators here as they are still a work in progress. More attention needs to be given to measurable quantitative indicators as well as the qualitative kind. To develop some useable indicators in the context a framework on principle represents the first tentative steps into the creation of a system of indicators to be put to practical use by SPERI.

At Simacai I uncovered some leads to stories that would be interesting to write articles about in the future.

With reflection on the structure of MEKOECOTRA while editing the new proposal I can see that some new considerations can be made in the context of my research work in relating the three themes of MEKOECOTRA to the background context of this work. After creating the human ecology document in english for SPERI based on Mrs Lanhs guidance I understand a greater scope of SPERIs philosophy and can consider it in greater detail in developing research situations.

With a broad focus of objectives I have seen that within the space of one exploratory field trip it is difficult to cover all the ground needed to fully uncover all that relates to each of these objectives that passed through the stage of my mind. I might need to do some more focussed studies in the future, concentrating on a smaller aspect of the work at a time which would allow for an incrase in rigour. Initially I did not want to lose sight of the larger picture in this first case of exploratory research by narrowing the field of vision too much. It relates to the background philosophy of trying to develop more holistic research processes and relates to the principle of stacking function. However once this big picture has been created, once you understand the pattern then you can move into the appreciation of the details.

In the written outputs I see the need to further back up my approach with literature to give this work a higher academic standard in the future. This is not a academic paper but I see the benefits of writing papers in the long term in relation to some of the questions that have been raised here. I also see the limitations of proceeding in a more linear conventional approach when dealing with the diverse and complex nature of eco-agricultural systems. I think some of the insights that I gained from this work are directly related to a focus on a holistic approach. We can begin here the process of looking deeper into the five objectives as they relate to the organisation of SPERI in

connection to the practical realities on the ground. I hope to maintain a kind of grassroots flavour to the research that relates to the apprecition of action methods.

There is an interconnection of issues relating to each of the objectives. These interconnections are sometimes responsible in causing issues to be related to multiple objectives. In this regard there was some repetition however I felt that this was partly necessary to emphasis different perspectives in relationship to particular issues. There are possibilities to work more in the future with the stories themselves and to further integrate the material collected into the paper output itself.

My knowledge of Simacai feeds into the system at HEPA, I am a participant here. I saw how beginning the research process can generate new knowledge and resources; the research process now seems to be like an ongoing continuous stream in life. Much has changed during the course of time that has passed since our first field trip to Simacai, I can see how some of my concepts have shifted in relationship to the research work, it is a process.

Conclusion

Our five objectives in regard to this exploratory trip served as reference points to shape developments in our approach of research process involving the principles. This was based on an action research methodology and through this process I hope that further refinement can be made in research approach and process for future work concerning our objectives. We have listened and gathered a number of stories from farmers, students and teachers and made a number of broad observations in the context of our objectives. We can began to understand the relevence of these stories in relasionship to understanding principles and the lessons to be learned from the farmer. We developed a framwork in relationship to working with principles and practices in eco-agriculture. We have also developed a teaching / observational research exercise involving the principles that included the participation of the students. We have made progress regarding the principle of designing research outcomes from patterns to details. In future trips we can fill out the broader patterns uncovered at Simacai with more specific details of interest involving our objectives.

Acknowledgements

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Annex

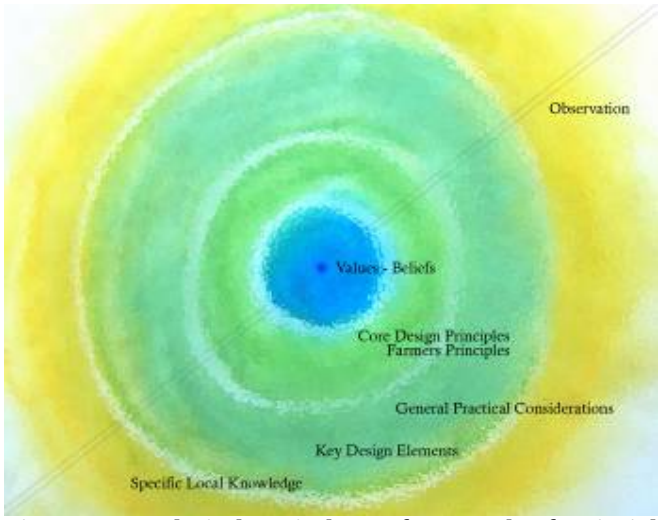

Figure 2, Eco-logical agriculture, framework of principles and practice of the farmer, a representation to understand relationships between elements and create an organising process when working with these principles and practices in research situations. Adapted with suggestions from Chau.

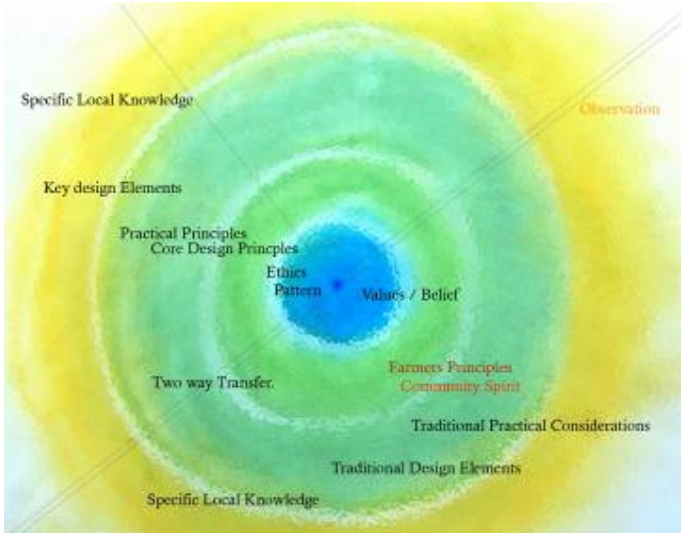

Figure 3, Most current framework, Eco-logical agriculture, framework of principles and practice of the farmer, a representation to understand relationships between elements and create an organising process when working with these principles and practices in research situations. Traditional system, in context of human ecology is also related to aspects of modern ecofarming. Community spirit is an important addition recognised by Mr Chau.