

**PUTTING THE BOOT ON THE OTHER FOOT: WHEN LOCAL KNOWLEDGE IS OWNED  
BY LOCAL PEOPLE**

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**ABSTRACT**

There has been a long-standing interest in local knowledge in fisheries research and management. Much of this interest has been in terms of how local knowledge can be interpreted scientifically and used by fisheries experts and managers. Local knowledge becomes the property of scientists, wrapped up in a format and language that is inaccessible to local people. There has been less interest in how local people can use and develop their own knowledge as part of their fisheries management practice, or of the implications of such a degree of ownership for the role of fisheries experts and managers. This paper draws on the experience of local people conducting their own fisheries research according to their own agenda in Northeast Cambodia. The paper begins by describing the process and motivations of this villager-led research and how this was perceived by fisheries experts and managers. The discussion then moves to an analysis of how this research process has generated demands on fisheries experts and managers. Rather than experts defining what is learnt and extracting scientifically valid information from local knowledge, this case study illustrates how local people can identify what needs to be learnt and what role science and experts have in answering these questions. The paper concludes with a discussion of the implications of local people taking ownership of their knowledge, its interpretation and application.

**Keywords: local ecological knowledge, ownership, research processes, empowerment**

**Introduction**

In fisheries science and management there has been, and is, an increasing interest in local knowledge and the role that it can play in increasing the body of knowledge and in informing management decision-making. Part of this interest has arisen from the recognition that while local knowledge alone does not provide all the answers, the analysis of external actors can also result in flawed conclusions and unanticipated (and possibly undesired) outcomes (e.g. Lorenzen and Garaway 1998). This raises questions as to how local (and 'scientific') knowledges are considered, interpreted and applied in fisheries management. This paper is an attempt to place some of our own experiences of, and lessons from, supporting locally-driven development efforts in a wider context. As such, this has also provided a rare, and to us welcome, opportunity for critiquing, through practice, the roles of research and knowledge in scientific/developmental discourses.

As an example of the potential limitations of an emphasis on external analysis, Johannes et al. (2000) describe the situation where local villagers in Solomon Islands believed that tuna bait fishing was creating pressure on the baitfish that were important food items in the diet of predatory fish that were important in islanders' subsistence catch. Failure to investigate adequately fisher's knowledge and incorporate this in the research design led to undervaluing of the seasonal nature of fishing for baitfish, the nocturnal nature of most barracuda fishing and lunar periodicity of fishing for baitfish predators. Where local knowledge has been incorporated in studies its value has often been recognized. For example, it was claimed to be

essential in a comprehensive fish migration and spawning survey by MRC in 1999, particularly in relation to migration and spawning of important fish species in the basin (Bao et al., 2001). As Hirsch (2002) highlights, such knowledge exists among local people who have long been dependent on the resource who daily observe the spawning, migratory and feeding habits of different fish species and that this represents an enormous repository of knowledge about the Mekong fishery.

While there has been a long tradition of advocating the soundness of local science in anthropology (e.g. Sillitoe, 2007), and an increasing recognition in fisheries science that local knowledge “counts” in the past few decades, this knowledge is viewed from a particular perspective with implications for how local knowledge is ultimately used. While the extensive time and place knowledge of local people in the Mekong region, often linked to the utilization of natural resources, has been recognized, such knowledge is often poorly represented and sometimes referred to as anecdotal and thus continues to be devalued in a research context (Hirsch 2002). This is probably because experts design and conduct research to meet the predetermined objectives, without involving local people perspectives in the early stage of the research design, the finding is screened, processed and interpreted by experts who thus see not much to refer the result to the original source of information. When designing research method, a set of interviewees is predetermined, and data collection instrument is thus developed. For example, when interview with randomly selected fishermen, the problem occurred is that great majority of the fishermen who are young with scant knowledge may be predominantly engaged. The problem with questionnaires might also appropriate with predetermined subjects, but may not be so for uncovering information on subjects the compilers are unaware (Johannes et al. 2000). Referring to research on fisheries in the Mekong, Hirsch (2002) has noted that direct sampling can be hampered by difficult access and limited research infrastructure. Thus research on taxonomy and migration can be based on the aspects of information provided by local knowledge, the parameters of acquiring this information being externally determined. These limitations are sometimes recognised by the local participants as the following statement by The Assembly of the Poor (2002) illustrates:

‘If we have researchers here, we fear that they cannot get the information straight, or they cannot do it entirely correctly. Since they only live in the town, how can they know where the fish live, or where they get together in a large number or what they eat? They will end up having to ask the villagers’.

In addition to how local knowledge is considered in the design of research initiatives it is also often the case that the information generated needs to be properly validated by external actors before it becomes recognised and transcends the anecdotal. This can lead to issues about the interpretation, ownership and representation of such knowledge. The tension between science and other means of knowledge production is further complicated by questions of ownership (Hirsch, 2002). Examples of how ownership is acquired by external agents such as researchers are the way the world is described. Words can be chosen to impress and mystify. For example, a forester using Latin names for indigenous plants will effectively exclude local people from the discussions, a scientist uses words he knows local people will not understand (Chambers, 1997). Where this creates a dominance and subordination relationship – for example the ‘external expert’, the powerful can impose their realities and deny those of others (Chambers, 1997). In addition the constant innovation by local people and the resulting dynamic nature of both local knowledge and processes by which local knowledge is created can be overlooked.

As a counter to this there has been interest in villagers undertaking their own efforts to collate and present knowledge. This sort of villagers’ research can demystify knowledge generation and representation processes that were previously only done for and by external researchers. This also to affirm that people can do something until proved otherwise, create opportunities for learning and provide local people with leverage for more informed decisions. As the Assembly of the Poor (2002) state:

‘We think we ought to collate the information ourselves, as outsiders will not understand our way of life. We are the ones affected by the project and our resources have been destroyed’

### **Background:**

In this paper we will look at one such effort to collate and present local knowledge undertaken in Northeast Cambodia and known as ‘Salaphoum’. Salaphoum is an action research process, in which local villagers undertake all stages of the research activities, from identifying research topics, carrying out field works and collecting data, documenting and sharing local knowledge and agreeing amongst themselves the validity and relative importance of findings during the research process. The approach has its roots in Thai Baan, a community-based research process with origins in Thailand that emerged as a means by which local people could engage, struggle and succeed in temporarily decommissioning of the Pak Mun Dam in Northeastern Thailand and later conduct research about their relationship with natural resources<sup>1</sup>. With assistance from Thai Baan village researchers and the Cambodian NGO Cultural and Environmental Preservation Association (CEPA), this village research initiative was introduced into four villages in Stung Treng province in Cambodia in May 2005. Initially participated by four and now increasing to seven villages in the Stung Treng Ramsar site and five villages in Kratie province along the Mekong, interested participants, some of them are already part of the local organization such as community fisheries, were identified and organized into groups for their continued research.

As such, the research provides documented records of local knowledge and a mechanism whereby local people (the Salaphoum researchers) can share their knowledge and experiences. The research processes reviews and documents existing local knowledge of the resources that form basis for local livelihood, economy and wellbeing including the culture and traditional practices of resource use and caring. It is a process that allows for active participation of interested and committed villagers and for sharing of knowledge and lessons learned among villagers and with relevant stakeholders. It is also a learning-by-doing process in which the initial facilitation, logistical and practical support was provided by Research Assistants (RAs) from a local NGO called CEPA who also assists in maintaining records, data, photographs and publications.

### **Motivations**

The villages were selected to participate in the Salaphoum network owing to their proximity to a range of highly significant breeding habitats that support important fisheries locally and downstream in the Tonle Sap lake, Cambodia. Increasing pressures on fisheries has made it harder for local fishers to maintain benefits derived from these resources, which in itself is a motivating factor. In addition, a number of earlier initiatives such as support to community fisheries and network exchanges, have familiarised local people with elements of community based approaches, including the value of a shared understanding of local knowledge and its basis in community based management decision making.

Perhaps as a result of this understanding, initial motivations for the research included a willingness to compile, construct and communicate local knowledge on resources upon which their livelihoods depend, particularly given the widespread perception that many of these resources are in decline. “In the past, we caught *Trey Riel* for 7-10 kg overnight using gill net of 2.5 cm mesh size, but now we get only 1-3 kg. NTFPs were also plentiful and the privilege to access those rich resources has now become a history,” said Mr. Heng Thon. As Heng Thon, researcher from Koh Khorndin village puts it “resources were abundant in the past. Waters and forests provided habitats for various wildlife species such as turtles, tortoise, lizard, fish and birds respectively. *Pase-ee* fish (*Mekongina erythrospila*) were abundant. But now most of them are dwindling to survive”.

This initial motivation and focus was supported through emergent enquiries on issues identified during the research and on seeing these written up and published with their names and pictures referenced similar to those shown to them by ‘non local’ scientific researchers.

Ongoing motivations include others seeing the research as useful and critically, used in local planning and management. An example of its practical use is explained by the Oh Svay commune head by saying “we always request participation from the Salaphoum researchers in our commune development planning process and their comments are taken in to account in the community prioritization of development activities”

### **Research Process**

The Salaphoum research process draws much from the approach of cooperative enquiry that is people researching a topic through their own experience of it through a series of cycles where they move between the experience and reflecting upon it, (Reason and Heron 1995). Led by local villagers, research topics were identified to address livelihood, biodiversity and economic concerns within their own and neighboring communities. Initial agreement on the rules and methods for research, including for analysis was conducted through consensus building. Research topics centred on fish ecology and diversity, ecosystems, local livelihoods, wildlife and medicinal plants.

Major steps in the Salaphoum research involves 1) generating ownership when local people facilitated by RAs try to understand the overall goal of the Salaphoum work; 2) training workshops when local people learned from basic tools for the research; 3) formulation of research goals and objective of their activities, formulation of their teams and agree on research schedules; 4) the research itself when with minimum facilitation by research assistants local people conduct the research involving recollection of their knowledge, field collection of sample and measurements; 5) analysis and reflection of the information collected; and 6) documentation and dissemination and getting feedback for improvement of their research.

Through communal work, villagers strengthen linkage within and across villages. People see themselves learn from many practical aspects of the research process including on conducting some measurements of environmental and biological parameters, facilitation and leading certain research activities and document research process<sup>ii</sup> and their findings.

Interested candidates joined in appropriate research group based on their existing knowledge and experiences that are relevant to the respective subject.

As groups are formed and the group leaders selected, each group develops a check-list or data gathering instrument to use as simple guiding questionnaire. Each group then try to recollect what they know to give answers as basis to start with. These preliminary answers were then discussed within the village and validated through fieldwork when individual group of researchers make direct observation, discussion and reaching preliminary consensus on each issue within their respective group. Pictures of the subjects of research are also taken to support their findings and to provide basis for further discussion and consultation within their larger groups that form a network of inter-village Salaphoum researchers and later with other stakeholders to further refine the findings.

Discussion within individual group is based primarily on a common schedule to accommodate participation by most researchers and thus fall on free time of the daybreak and sometime in the evening. Sharing and discussion of the finding with different groups provide forum for not only consolidating their findings but also for the participants to learn from each other knowledge and perspectives, to learn how to

present and provide evidence to defend their argument and to identify potential players to share their knowledge and insight of the findings. This allows local people from different villages to negotiate resource management and engage more effectively in wider natural resource management debates.

### **How local villagers identify what needs to be learnt and what role science and experts have**

With prior perception of the decline in and threat to the resources and through active participation and discussion in the research, local villagers are more aware of what to learn that would be useful to resource management for their sustainability. People understand what should be their priority and what issues need to learn from and to address. For example, people identify fish species that are becoming less likely seen in their catch as endangered or on the verge to extinction and call for actions to their protection.

While researchers from Veun Sean view further study on deep pools, the causes of algae, and riverbank erosion as priority, those from Koh Lngor see further study on bird and wildlife, awareness raising among people and young children about the work of Salaphoum as their priority. Both villages identify further study on fish habitats and designation of areas for protection and their allocation to take responsibility by each group of villages as further activity.

They identify activities as their priority when they deem that those activities would contribute to reducing pressure on resources and thereby improving their livelihoods. For example, Lieng Chann, a researcher from Koh Sneng argued that by trying to understand fishing we know what are less harmful and then we can take action to control those illegal and harmful fishing practices, for example fishing using drifting gill net in the spawning season must be prohibited". Similarly, Krim Phal and Mao Sarath, both Salaphoum researchers from Koh Langor contended that *Chilip* net as a destructive fishing gear is commonly used in Lao as it can catch all the fish migrated upstream thus they cannot come back down stream," therefore working with the community from Lao side to address the issue is essential. In addition, Mao Sarath, another researcher said that application of chemicals in agriculture results in the runoff that may cause water pollution and prevalence of algae, should be an issue for exploring further.

Villagers do recognize and appreciate the role of science and experts and turn to them when they face with challenges of limited capacity on research methodology, effective networking and access to information from outside of their community, and formal recognition of the research output and resources. Without knowing much of the nature and role of science as a solution, they are open to constructive comments and guidance from all relevant stakeholders who are regarded as source of knowledge.

Putting themselves as a grass-root entity they see others, particularly scientific researchers as the source of science and capacity. All the non-government and international organizations are seen as source of knowledge and that can assist in strengthening their capacity. A mix role is seen for the government officials, particularly the Fisheries Administration, as an entity they can depend on for both legal and administrative support and technical backstopping.

They also identify the role for government and research institutions in addressing problems originated outside of their areas such as in coordination for addressing harmful fishing practices upstream in the neighboring country, learning from other relevant initiatives across the basin, exploring whether there is a link between local problems such as the prevalence of algae with development upstream, outside of their community.

### **How research process generated demand on fisheries experts and managers**

As identified in the previous section, local research has found issues some of them have not been identified or known to outsiders and/or cannot be dealt with by local community themselves alone, it creates a role for fisheries experts and managers to get involved. For example, the Salaphoum research identified fish species known to become declining locally, the prevalence of algae in the last few years, local forest resources encroached, and severe riverbank erosion. Since fisheries experts may not agree at the first place with the findings, they would see a need for exploring further if what presented is true and if there are links with similar reported issues elsewhere, for example, decline in catch of certain species. Similarly, managers would see their role in exploring ways to address local issues such as illegal encroachment upon resources.

This can be simply through sharing of findings by villagers with or through their calls for involvement of appropriate agencies to help address issues that they themselves cannot deal with and as they feel strong impact on their livelihood. Most often, people share their findings with relevant stakeholders and agencies in order for them to provide constructive comments as well as to present their current situation that can provide reflection for actions by relevant stakeholders. However, when they see that the issues need immediate action as they closely link with their livelihood they call for participation by experts and others partners to determine the root causes and subsequent interventions.

The shared findings can also serve as precursor that generate interest among experts in proving the finding scientifically as well as in establishing links with development elsewhere in a broader environmental and geographical context.

As the initial outcome is found fruitful in terms of reduced illegal fishing activities and in the provision of more choices for decision on livelihood options, Salaphoum approach provides incentives for local authority to take part and provide justification for local researchers to participate in local development planning. This also prompted managers to link the research with other community-based resource management initiative, for example to have Salaphoum focus its extension on new villages where Community Fisheries are already in place (Kaing Khim, pers. comm. 2008).

### **Implication of local people taking ownership of knowledge, interpretation and application**

As argued by Hirsch (2002) that if knowledge is power, then knowledge is political and knowledge about fisheries is no exception. Local knowledge evolves and is intimately connected to local livelihoods, it is developed through observations and action, often over considerable periods of time and therefore can be considered as 'deep' knowledge (often covering a limited geographic area but with considerable detail). The rich traditions and local knowledge and practices of Cambodia, as in many other countries, are exemplified in healthcare, ecology and natural resources management many of which are still active even today in assisting rural society.

Despite this richness, the administrative, planning and management decisions, particularly in developing world as had mostly experienced western influence, have not sufficiently value the local knowledge.

Although local knowledge has been gaining appreciation in the recent time, it mostly remains hidden under ownership by others. Thus indigenous knowledge has continued to be ignored or treated by many resource managers and developers as unscientific, hence of little interest or value (Hirsch, 2002).

Through the Salaphoum research process, local people feel they can do the job by themselves, though there is recognition of room for improvement. As Chambers (1997) said, 'in seeking to do better,

criticism is easy; to be constructive is harder; taking responsibility and accepting risk by actually doing something is hardest of all; and much of the best learning is through self-critical commitment to action, to engagement with the word, to learning by doing'. By supporting local people to do their own research, it is a provision of opportunity that they can do something before they can be proven otherwise, or as Chambers puts it, 'they can do it!'.

With people doing the work that used to be done by others or most recently consulted by others, they are more independence in structuring and organizing their knowledge that can influence decision without having to rely on scientists as intermediary. As a result, this may provide leverage against opinions addressed by outsiders, otherwise. This will also improve openness and transparency as people use language they are familiar with as oppose to those of scientists. As Chambers (1997) put it, words are chosen to impress and mystify, forester uses Latin names for indigenous plants, a scientist uses words he knows local people will not understand.

While the users do not react negatively to the findings made through Salaphoum research and rather appreciate its part in contributing to local application, things are different with agencies, particularly for those mandated to generate information and knowledge and mostly paid for their job. First is fear for loosing power and authority as a well organize and paid agency or institution as oppose to the grassroots and loosely organized groups who have only a will can have things done. Imagine an agency with authority to provide advise and influence decision making, when facing with a new body in the playing field, particularly when they are not paid for and can do as good the job or can even do better.

In a modern society where democracy is recognized not only in the political arena but also in research and management, the autocratic mode of delivering data and information may be less popular and accepted. Externally produced knowledge as Hirsch (2002) said, if paid insufficient attention to the circumstances, agencies and actors involved in its production, will carry much less weight than data generated by a more inclusive, participatory and almost certainly slower and more patient means. This becomes more relevant as we pursue decentralization.

Where professional and local people also differ more generally in their values and preferences, what local people, especially the poor, want and need is often not what they are thought by professionals to want and need or what professionals themselves want (Chambers, 1997), therefore the knowledge generated and owned by local people may have a niche for its application.

## **Conclusion**

Local people can do their part to collate, document and interpret their own knowledge but there is little chance and incentives for them to do so. Although the role of local knowledge is increasingly acknowledged, overall, there remains a struggle for local knowledge particularly if owned and interpreted by local people, to be appreciated and recognised. With a general trend to *use* local knowledge, opportunities should instead be given to local people to prove they can do things on their own.

Where scientific research may have a broad geographic relevance, local knowledge in a particular setting is commonly applicable to a limited area, and often with a high level of detail. Seeking integration between these two scales and types of knowledge may serve to tie both breadth and depth in understanding, thereby mutually reinforcing one another.

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**ENDNOTES**


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<sup>i</sup> See [www.internationalrivers.org/node/2476](http://www.internationalrivers.org/node/2476)

<sup>ii</sup> This include method for measuring, weighing and taking picture of fish, identification and measuring of habitats such as pools, taking notes, organize and facilitate group discussion and reaching consensus, and other relevant skills.