



# Trip Report: Property Rights, Environmental Services and Poverty in Indonesia

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**Indonesia: November 5-12, 2004**

**By John Kerr**

## **Participants**

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## **Itinerary**

Nov 3-5: travel to Indonesia (Kerr, Pender, Swallow)

5-6 Nov: Padang and Singkarak Lake, West Sumatra province

7 Nov: in transit to Sumberjaya

8 Nov: Sumberjaya, Lampung province

9 Nov: in transit to Bogor

10-12: Bogor (at ICRAF Southeast Asia Regional Office)

Nov 12-13: travel from Indonesia (Kerr, Pender, Swallow)

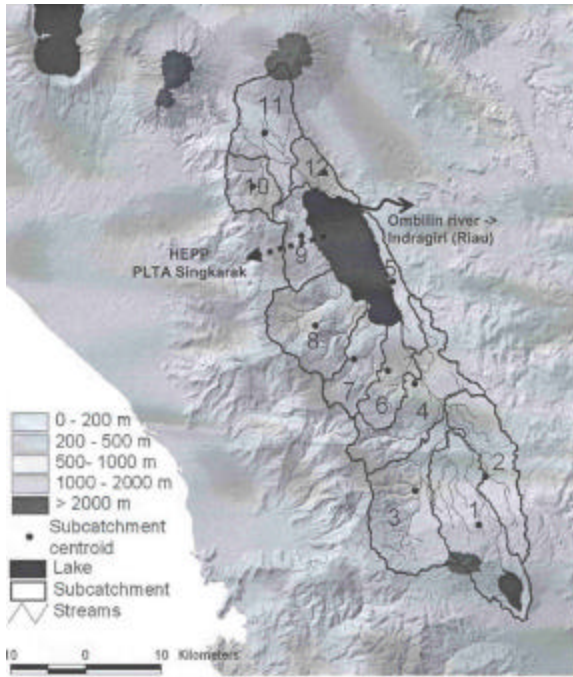
## **Overview**

The purpose of the trip was to initiate the BASIS-funded study of property rights, poverty alleviation and payments for environmental services. It included a few days at field sites in Sumatra followed by three days of brainstorming about how to proceed with the research. This report describes the two research sites we visited and our plans for the coming months. The first is Singkarak Lake in West Sumatra; this is a well-established area with secure land rights and reasonably well organized rural governance. People generally have a good relationship with the government. The second is Sumberjaya watershed in Lampung province; this is a site of much deforestation since the 1950s, populated mainly by people who migrated from Java during that period. It is less well-established and has seen a great deal of conflict with the government, including a spate of evictions in the 1990s. The two sites provide interesting contrasts that may have implications for the scope for payment for environmental service (PES) mechanisms. The purpose of this research is to analyze that scope, looking at the prospects for developing workable arrangements, the role of tenure security in making that happen, the use of tenure security as a reward for environmental services in places where it is not already in place, and the implications of PES systems for income distribution.

### **November 5-6: Padang and Singkarak Lake**

Singkarak Lake covers about 100 km<sup>2</sup> in the mountains above Padang in West Sumatra. It is long, deep (about 160 m), and narrow, running from southeast to northwest, and surrounded by hills and mountains; The catchment area is maybe twice the area of the lake and contains something like 200,000 occupants. Numerous small streams flow into it along with two larger ones, one at each end. Another large stream (the

Omblin River) flows out of the lake to the northeast from near the northwestern end. The map on the next page shows the lake with the two outlets; the numbered areas in the maps are *nagari* (local government) jurisdictions.

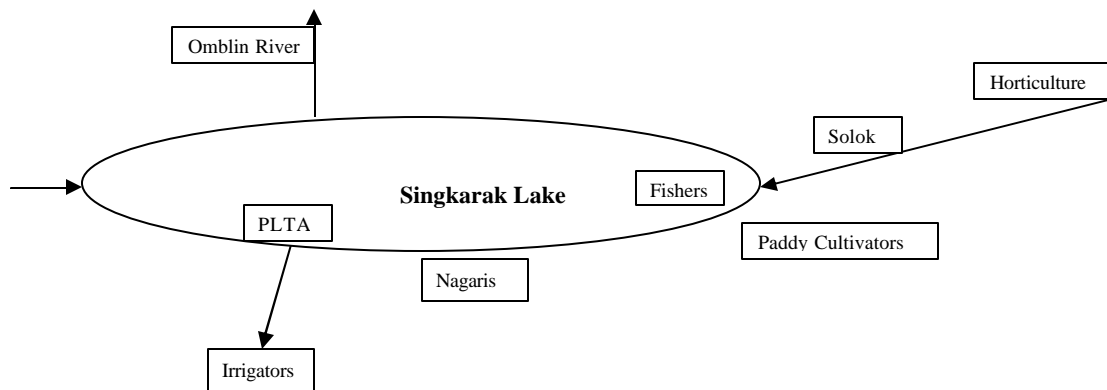


The lake is used for fishing, and water from the outgoing Omblin River is used for streambank irrigation through waterwheels. Also, as the lake is very beautiful it has potential for tourism development, but as of now there is very little apart from a hotel at the northwestern end. Pollution enters the lake from several sources; the main stream from the southeast passes through the town of Solok where it gathers a lot of sewage and garbage. An intensive horticulture area to the southwest is the source of chemical pollutants that eventually flow into the lake, although over some distance. Closer to the lake there is intensive rice cultivation (2-3 crops/year), which also is a source of chemical pollution. As of now, the lake is still quite clean though there are concerns that it is becoming dirtier. There are concerns that the catch of an indigenous fish species living in the lake is declining; it is not known whether this is due to overfishing, pollution, or something else. There is a very small amount of water hyacinth in the lake and there are concerns that it could spread.

Ten years ago the ADB funded a hydroelectric generating plant near the northwestern end of the lake, opposite the stream that naturally flows out of the river. It includes a large, subsurface water intake pipe that tunnels into the mountains behind the lake and emerges 10 or 20 km on the other side, where it supplies irrigation for an area of 40,000 ha. The electric plant draws water away from the lake's natural outlet and this creates some natural resource management problems that are discussed below.

The hydroelectric plant obviously requires a steady flow of water to generate electricity, so it aims to keep the lake as deep as possible. When the plant was built, the spillway into the natural outlet was raised by one meter in order to raise the lake level to create more storage space, increasing the chances that the power plant could generate electricity during times of decreased inflow into the lake. In order to avoid creating problems for people living on the lake, its depth is maintained within a two meter band, above which there would be flooding problems and below which lake access would be difficult and no water would escape into the natural outlet, harming irrigators downstream. Nowadays the power plant draws about 90% of the water that flows out of the lake, so the base natural outflow is only 10% of what it used to be, increasing during times of high rainfall and flood.

The diagram below shows all the various interest groups around the lake, who have key concerns that they would like to be addressed. (The unlabeled arrows pointed in the direction of the lake are rivers that flow into it from either end.)



--The power company (PLTA) wants to maintain a high water level in the lake so that it can generate as much electricity as possible. It is concerned that land use around the lake may affect inflow and has sought to encourage tree planting in the hope that it will raise water levels. However, a hydrological assessment performed by ICRAF in the last few months has determined that land use around the lake can have only a very small impact on inflow; water will either flow overland into the lake and arrive the same day, or it will become subsurface flow and arrive the next day. RUPES estimates that land use can affect inflows by a factor of plus or minus 5 percent, and that planting trees will actually reduce inflow by taking more water for evapotranspiration.

--Downstream irrigation interests also suffer from reduced water levels in the river that naturally flows out of the lake.

--There is concern that increased pollution in the lake is the result of the transformed hydrological system in which very little water flows out of the natural outlet. The actual hydrological situation isn't known so this is a matter of speculation for the moment. It may be that previously, much of the pollution entering the lake flowed right out, and that the new hydrological regime has reduced the circulation, thus concentrating pollution in the lake.

In any event, there is more concern about the three main sources of pollution – urban sewage and chemicals from intensive horticulture and intensive paddy – than there used to be. Unfortunately there is no data to determine whether pollution is actually increasing or not. RUPES hopes to track down some old water quality data to use as a baseline –some has been cited in the literature and it needs to be tracked down.

The people living in the nagari villages near the lake would be most affected by the pollution as it affects fishing and the quality of life in general. Option values would also suffer given that there may be tourism potential in the area.

RUPES initiated its work in Singkarak Lake for two reasons: One is that there appeared to be an interesting case in which the power plant stood to gain from better land use in the catchment, and the power plant seemed to be a good candidate for being able to pay to obtain that land use. The second reason is that the nagari (local government unit) of Paningahan, a town on the lake is very capable and can get things done. People living in this nagari would stand to gain from a cleaner lake. Mr. Abu Bakar is the head of the nagari, and one of his deputies Ms. Gadis is currently being paid under the RUPES project to facilitate the development of a payments scheme. The only problem with this set-up is that the nagari covers only a very small portion of the lake's catchment and is not a major source of pollution. It contains some rice cultivation but not a great deal compared to the southern shore of the lake.

Assuming for the moment that there is a growing water quality problem, and that one of its sources is reduced circulation of lake water due to introduction of the power plant, the question would be what to do about it. It seems like there are four possibilities:

--shut down the power plant and remove the barrier to the natural outlet and return things to how they used to be. (This won't happen.)

--let the lake get more and more polluted. (This doesn't seem like a good idea.)

--find some technical mechanism to increase the circulation (seems unlikely.)

--reduce the inflow of pollution into the lake. This seems like it will have to be dealt with at some point in any case, because as population and economic activity grow around the lake there would be growing pollution even without the water circulation problem.

The next question would be how reduce inflow of pollution into the lake. This would involve identifying the key polluters (intensive horticulture, municipal pollution, and intensive rice cultivation) and finding ways to change their behavior. Consistent with the theme of our research we can consider possible payment mechanisms that might be used.

To the extent that development of the new power plant and new irrigation area contributed to the problem, one perspective is that they should be responsible for helping to pay. In this sense they could be seen as paying for damages to the lake, and/or they could be seen as paying for environmental services through better land use.

Consider the groups labeled in the diagram above:

P: the PLTA electric plant

I: downstream irrigators benefiting from new hydroelectric plant

N: Nagari (local government units) villages along the lake

G: fishermen who use the lake

O: people along the Omblin River who lost access to some water after the hydroelectric plant

S: people in the town of Solok who use the river to dump pollution; it flows into the lake from the southwest.

W: people who use the river that flows into the northwestern end of the lake who also pollute it.

H: intensive horticulture producers who use a lot of chemicals that pollute the river, flowing into the lake

R: intensive rice cultivators who also pollute the lake with chemicals

The following directions of payment could be imagined:

P & I could pay N & O for damages caused to them

P & I could consider paying W & S & H & R to protect the water quality in the lake by reducing pollution into it.

S could pay H to maintain water quality flowing into the town

N & O & F could pay S & H & R to protect the lake water quality

Any of these would be tricky to implement and enforce. Consider the three main sources of pollution (intensive horticulture, municipal pollution, and intensive rice cultivation):

*Intensive horticulture:* This is pretty far removed from the lake and it is very profitable. It seems unlikely that a PES approach could induce significant change in environmental management in the intensive

horticulture area. It seems like some kind of filtering system would be a better bet, especially since this cultivation is far away and most likely the flow of pollutants becomes somewhat concentrated on its path to the lake.

*Intensive rice cultivation:* This is a very dispersed pollution source which makes it really difficult to manage. A PES approach might not be feasible due to the impossibility of enforcement – you can pay people to use less fertilizer and pesticide but that doesn't necessarily mean they'll do so. Also, filtering may not be so easy – first we'd need to figure out how much pollution there is from the paddy cultivation, second we'd need to know how much comes from leaching and how much through runoff. If it's through leaching, how does it get to the lake and what can be done to stop it? If it's through runoff it might be possible to encourage filter strips along the stream bank. (We saw a very nice agroforestry garden along the stream next to the road so it's possible.)

*The town of Solok:* This seems to be a typical third world town with people happily dumping their sewage and trash into the river that flows into the lake. It seems like here the first thing to do is find out what has been done elsewhere around the world to clean up such places. How much of the solution is likely to be technical and how much behavioral? To what extent could funds from the power plant help this along? To what extent should the district government(s) promote this as part of protecting option values associated with the lake? Can the two little hotels at the northwest end of the lake contribute anything? The nagarish along the lake also have an interest; to what extent can they work together to stimulate some kind of change?

In sum, this is a messy situation and it's not clear how much of the solution lies in PES as opposed to other kinds of approaches like best management practices, regulations, etc. – or in fact if any kind of a solution is likely.

The first thing that's needed is data on the nature and extent of the problem. How much pollution is there? Where does it come from? Who does it affect and how much? Once these things are figured out there will be a better sense of what is needed. Assuming for the moment that there is a problem, the next question would be how to organize people to get going. As the lake is situated in two separate districts, there needs to be coordination between the districts in addressing the problem. Third, if it turns out that the various *nagarishes* are the most affected, they need to collaborate to make sure something happens.

### **Some Key Questions About PES**

It's worth taking a step back to consider the rationale for PES and the conditions under which it might work. It's important to remember that there is initially a situation of market failure – externalities exist in the first place because buyers and sellers can't get together to deal with them. Some characteristics of environmental services are that they are dispersed, mobile, difficult to capture and difficult to measure. Markets don't work for such resources – you can't buy something from someone if they can't deliver it, or if you can't be sure whether or not they've delivered it. Markets also often fail for common pool resources, such that you would have to make a contract with a group of people rather than an individual and you would only receive what you paid for if everyone actually delivered. They would have to control free-riding within the group.

PES only becomes possible when some of these problems can be overcome. The environmental service has to be identifiable and it has to be deliverable, and its delivery has to be monitorable. If these conditions aren't in place no one in their right mind would pay for them. That means that PES is likely to work under somewhat limited circumstances, requiring certain technical breakthroughs that create the desirable conditions that previously didn't exist. (If such desirable conditions had existed in the first place there would never have been a market failure.)

The point here is that, while PES represents a good institutional innovation that can solve some environmental problems, we probably shouldn't get overly excited about it and try to apply it everywhere, and we shouldn't be surprised when it doesn't work very well. Along the same lines, research that clarifies the limited conditions under which it makes sense may be very helpful to help ward off inappropriate

applications given the bandwagon syndrome that seems to be developing. The electric company in Lake Singkarak is a case of point; it appears to have been willing to pay for land use changes on the mistaken assumption that they would provide benefits. In Sumberjaya we saw a similar situation that is based on misperceptions of the effects of upstream land use on downstream outcomes. ICRAF's work is helping to clear up a lot of misunderstandings in this regard.

### **November 8-9: Sumberjaya**

The main issue in Sumberjaya is the HKm system of land rights, whereby groups of people have been given individual rights on state "protection forest" land as long as they promise to plant multistrata coffee, conserve soil and water, and protect nearby natural forest areas. This approach is consistent with what ICRAF terms "kebun lindung," or achieving watershed protection through agroforestry as opposed to natural forest. The HKm contracts last an initial 5 years probationary period before being extended for another 20 years. The first contracts in this area were about 4 years ago; somewhere around 10 are now in force (5 in Sumberjaya) with another 11 or so under negotiation.

The HKm program is symptomatic of the *Reformasi* approach to governance and forest management, whereby the government has begun to decentralize its powers and treat people as friends rather than enemies. In particular, forest encroachers are being given the right to manage the land in an environmentally friendly way rather than being forcibly evicted as they were a decade ago.

The history of this area involves a lot of migration from Java, both through organized transmigration and spontaneously. People started clearing more and more forest, some for agriculture and others for illegal logging. In Sumberjaya, sometime around the late 1980s, agriculture began in the high forest above previously settled areas. These included protection forests, called as such because they are supposed to be under land use that leads to watershed protection, and national park land which is supposed to remain under natural cover.

In the mid-1990s the Suharto government forcibly evicted people, apparently in anticipation of the construction of a small hydroelectric plant in the river at the outlet of the watershed. This was based on the perception that agriculture in the upper watershed would cause problems for the hydroelectric plant. Concerns that ICRAF hears of in this light are that agriculture will reduce the flow of water available for the plant and cause siltation that could damage the turbines.

Upon eviction, local people retaliated by burning everything. In the late 1990s several things happened to reverse the situation, and settlers returned to the area. In no particular order: 1) the Asian financial crisis left a lot of people without other economic opportunities, 2) the price of coffee shot sky high due to production problems in Brazil, and 3) the Suharto government fell and a new, reform-oriented government rose. People we interviewed in Sumberjaya listed a fourth that is probably closely related to 1) and 2) above, which is that there wasn't enough land to cultivate. In the context of all these things, people returned to the forest land from which they had been evicted earlier.

In Trimulyo, Sumberjaya, the story we heard is that people in town got together and realized that they needed to return to the forest land. They had already divided up the land on the basis of customary tenure defined by where they had cultivated before they were evicted, and they organized in groups to return to those same areas. It appears that the reason for acting in groups was strength in numbers – to take over the forest land and to ensure that families could reclaim the land they had cultivated previously.

The story here becomes a bit fuzzy and needs to be clarified, but our understanding in Trimulyo is that once they had already reclaimed the land, they approached the government and offered to take good care of it. The HKm program started to emerge in about 1998, after the rise of the new government and before ICRAF started working in Sumberjaya. ICRAF and some local NGOs have helped more the process along, supporting negotiation between local groups and the government. The first contracts were awarded in the area in 2000.

In addition, HKm contracts cover groups of people. The group approach makes sense to reduce transaction costs, and all group members seem to be people who previously had customary tenure. The only people excluded are those who migrated away from the area and didn't return; people told us that if such people were to return they could negotiate their way back into the group.

*Rules for HKm agreements:*

We learned a few things about the rules for initiating HKm agreements.

- people have to form a group.
- the group submits the proposal
- The proposal should include the map of the proposed area (assembled by the community with the Forest Dept.) that includes the area where they can plant coffee and the natural forest area that they will continue to protect.
- They agree to a contract that specifies the composition of the agroforestry plots they will maintain (multistrata coffee).
- They agree to implement soil and water conservation practices.
- First they inventory the existing trees and then make plans on what additional trees to plant. They get seedlings under a government program. The contract gives flexibility on which trees to plant within each stratum.
- They agree to protect the remaining natural forest against logging and forest fires.
- They also have to pay an annual fee to the district; the fee varies by area. Where we visited the annual fee was Rp. 36,000.<sup>1</sup> This is considered to be high as it exceeds the tax that landowners would pay. It is based on the price of coffee at the time the agreement was negotiated; at the time coffee prices were high but now they are very low.
- On the basis of all this they get a probationary agreement for five years, at which time they are evaluated and become eligible for an extension up to 25 years.

People told us that they expect two main sets of benefits from establishing an HKm agreement. These are 1) formally recognized rights to stay on the land, and 2) access to government services that will come with formal recognition. The latter seemed to be particularly important to people with whom we spoke. They also anticipate no longer having to pay bribes to avoid eviction and to be better positioned to prevent illegal logging in the area by outsiders.

*Types of government programs to promote reforestation:*

We subsequently learned about a variety of government programs to support reforestation, including social forestry or agroforestry. These are:

- 1) Hutan rakyat (people's forestry)

This is a new program operating on private land; the government gives initial funding to some districts around the country for reforestation.

- 2) Hutan kemasyarakatan (HKm)

Described above

- 3) Social Forestry

This program operates on "clan land" (community land)

- 4) GNRHL

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<sup>1</sup> I'm not sure what unit of land area this covers but it suggests a standard plot size.

This is a new program initiated under the Megawati government. It is funded through fees charged to logging operations and is intended to encourage compensatory afforestation, either on- or off-site, on state, community or private land. It works through different agencies; within forest zones it operates through the Forest Department, and elsewhere the Ministry of Home Affairs.

#### 5) Dana reboisasi (Reforestation fund)

This is the big source of funding for other programs, particularly GNRHL. Before 2003 it operated only in timber producing districts; now it is for other districts as well.

The first three of these are government policies; the fourth is a big government project, and the fifth is its major funding source.

### **Research issues related to HKm in Sumberjaya**

HKm does not appear to offer a clear-cut case whereby people suddenly feel they have secure tenure after the agreements are put in place. It is part of a bigger story of improved government-people relations that are leading to people feeling more secure cultivating in the forest land. In addition, in Sumberjaya it appears that the initial spread of HKm has made everyone in the area feel more secure on Protection Forest land, so it may not be possible to identify the effects of HKm on the basis of a sample from Sumberjaya alone.

Two approaches offer us some hope to overcome this problem in our research. One is to also sample farmers who are working on Conservation Forest (national park) land. Prior to Reformasi the government would have treated encroachers on these lands and on Protection Forest land in the same way and both would have been characterized by insecure tenure. Today, Protection Forest is being allotted to private farmers under HKm, but Conservation Forest is still officially off-limits, with no plans for change. Tenure on Conservation Forest is still likely to be insecure so this gives us an interesting comparison with HKm.

The second approach is to sample additional groups in Tanggamus district, which is on the other side of the ridge from some of the Sumberjaya HKm sites. Two completely separate local bureaucracies are responsible for implementing HKm in the two districts, so non-HKm areas in Tanggamus are less likely to have been heavily influenced by the spread of HKm in Sumberjaya. Admittedly there is some uncertainty about what we will find there, but there's a reasonable chance that non-HKm groups in Tanggamus will give us the opportunity to compare land use and perceived tenure security on Protection Forest with and without HKm.

We still need to work out a sampling strategy to study the effects of HKm. Apart from sampling conservation forest areas and areas in Tanggamus district, we also need to figure out who we will sample in the HKm areas. We propose to begin with some qualitative discussions in the villages that will include learning their histories, mapping them, and taking a census to learn about people living in different settlements and resource endowments. Ideally there will be some villages containing multiple land rights situations and lands of different quality. We will figure this out in January and organize our sampling from there.

It should be added that it's much too soon to study the effects of HKm on people's well-being. The local tree-based land use system takes awhile to mature so the best we can do for the moment is to look at HKm's effect on land use decisions. The advantage of tree-based systems is that what you find on the ground today tells you a lot about people's expectations for future tenure security, so we should be able to learn something interesting.

### **Electric Company in Sumberjaya**

The PLTA hydroelectric station in Sumberjaya diverts water through a very small dam along a river. There is no need for a reservoir because the area has high, reliable rainfall so most of the time there is enough flow to run the turbines. The turbines are located several km downstream and a few hundred meters lower



in altitude; water goes through large pipes and gathers pressure to turn the turbines. In between the intake area and the turbines, the actual streambed is nearly dry. Siltation is not a big problem because the gates can be opened entirely, flushing out the silt. However, siltation is a bit of a problem because small amounts of silt get into the turbines, wearing them out faster than if the water were clear. The plant is also affected by a growing infestation of water hyacinth; the solution is to use booms and nets to keep it away from the intake pipes and then force it through the gates during silt flushing. It does not cause problems downstream because it is left to rot in the area of the stream in between the intake pipes and the turbines.

The RUPES project is a good vehicle for examining the best way to deal with the siltation problem. Apart from the status quo, the most logical approach would be to encourage riparian land users to adopt conservation practices that reduce siltation and nutrient loading into the stream. Buffer strips of grass or agroforestry species could achieve this. Key issues under this approach would be the challenges of getting people to adopt the system and the transaction costs of contracting with multiple small farmers. Encouraging adoption could be a matter of payment for services and this presents a good research opportunity for the current study.

Numerous questions would have to be answered before proposing such an arrangement. Most fundamentally, data are needed on likely siltation and nutrient loading factors for given land uses, soil types, slopes, etc. Incremental changes in these factors as improved land uses are adopted over a gradually increasing area are also needed. Detailed info would be needed on the economics of different agroforestry systems and their impacts on silt and nutrients. Additional questions are how property rights affect likely adoption; sometimes riparian strips technically belong to the government, thus discouraging long term investment by their occupants. Also, if they are long and narrow and far from the farmer's home they may be difficult to protect against theft, discouraging the production of high value tree crops that would otherwise be the natural choice. Of interest to BASIS, poverty alleviation implications of a riparian reward system would depend on the concentration of poor people managing land in the area. If this land is favorable for production it is likely to be controlled by wealthier farmers.

Contracting would be a challenge. The catchment is relatively small so the number of land users is not as great as it would be in many contexts, but there could still be high transaction costs in dealing with all the smallholders along the riverbed. Monitoring would also be difficult and if it were necessary to monitor long-term the system would almost surely not work. It seems that the only viable approach would be one of helping small farmers transition from current land uses to a high value, conservation oriented approach.

#### **Willingness to pay/willingness to accept payment for water quality protection.**

The town of Simpang Sari in Sumberjaya offers an interesting PES scenario. Although we weren't able to visit this site, we learned about some of the issues and hope to do some research there. The town draws its water from a pipe that runs a few km in the direction of a forested hillside. However, the water is polluted due to land use in the area of the intake pipe; it is populated by paddy farmers and others.

The town has three options for cleaning its water: a) doing nothing and just living with dirty water; b) extending its pipe by another 5 km or so, where it would reach a cleaner source in the forest; and c) paying land users in the current catchment area to protect the water source. It seems likely that extending the pipe will be less expensive than paying for a change in land use, but this case still offers an easy opportunity to explore some issues regarding PES. A proposal is currently being reviewed by the Environmental Economics Program for Southeast Asia (EEPSEA) to examine villagers' willingness to pay for cleaner water; the results of this study would serve as a useful input into a study under the BASIS project to examine upstream landusers' willingness to accept payment to protect the water source. This could be combined with a conjoint analysis of preferences regarding features of the contract.

We thought a bit about what it might take to come up with doable, enforceable changes in land use to protect the water source. One good approach might be to pay the upstream land users to move their small fish ponds to a point above rather than below the water intake; this would make them internalize the demand for clean water since the fish won't survive in dirty, chemical-laden water.

## **Additional possible research issues in Sumberjaya**

### ***General vs. Specific Coverage in PES Systems***

One of the criticisms of PES is that efforts to specifically target payments to areas of high environmental sensitivity may well be skewed to the wealthy. Experience in Costa Rica suggests that this is so, with most of the payments going to the largest landowners. The literature on PES also discusses the fear that small tenants will be evicted so that landlords can register the land for PES, or that powerful people will lay claim to contested land for the same purpose. (When we discussed this issue with David Kaimowitz, he suggested that the key poverty-related concern with PES may not be how to make it work for poverty alleviation but how to avoid poverty-creating effects.)

Alternative approaches with less targeting and more general coverage may be less effective environmentally but have more equitable effects. The HKm approach seems to fall in the latter category by covering large groups of people without distinguishing exactly where their land lies in relation to the most environmentally sensitive areas. Of course, if private interests are paying for environmental services they will want to do so as cost-effectively as possible, so presumably they will want a targeted approach and poverty alleviation will not be part of their agenda. The more general approach may be more relevant where government agencies are paying for environmental services and want to avoid possible tradeoffs with poverty alleviation objectives.

It might be possible in our research to investigate these tradeoffs. ICRAF has already done some relevant work in this regard. For example, modeling work done by Meine van Noordwijk and colleagues has shown that soil conservation efforts will be far more effective if they target certain areas in the landscape rather than pursuing blanket coverage. Applying this to Sumberjaya, it means targeting lowland riparian areas inhabited by relatively wealthy people will be 50% -100% more cost effective than targeting ridge line areas where HKm operates and where poorer people live and use the land.

We plan to think about how we could investigate this further in the context of our BASIS research.

### ***GNRHL comparison between Sumberjaya and Singkarak***

Another possibly interesting analysis will be a comparison of performance of the GNRHL afforestation program in Sumberjaya and Singkarak. As mentioned above, this program is funded through fees charged to logging operations and is intended to encourage compensatory afforestation, either on- or off-site. Although it encourages PES, it is not a PES program per se because there is no link between performance and payment. However, it offers an interesting possibility to study the differences in effectiveness on HKm land in Sumberjaya compared to a context of much greater tenure security on "clan land" in Singkarak. It is also one of the few really good research opportunities we encountered in Singkarak, and it is the only feature that is truly common to both Sumberjaya and Singkarak, and thus the only good opportunity for direct comparison between the two.

Since we will learn about GNRHL as an integral part of our study of HKm impact in Sumberjaya, our plan is to start there and hold off on the plan for Singkarak until later, perhaps the second year. We can assess the availability of time and funds at that time. Adding Singkarak would be fairly simple at that time, and there's no point in forcing the issue right now.

## **November 10-12: Bogor**

We spent our last three days at ICRAF meeting various people with expertise in the areas we visited and brainstorming about specific approaches we would take in the research. Many of the ideas described in the previous sections emerged during these sessions in Bogor. Based on what we learned on this trip we fine-tuned the approach somewhat and adjusted the time line from what was in the original proposal. While in Bogor we tried to arrange a visit to the USAID mission in Jakarta but it wasn't possible to find a time that worked.

Our new work plan still covers the three main activities described in our original proposal. These include:

- Analysis of the impacts of HKm
- Preference for certain design features of payment for environmental services
- Willingness to accept payment for environmental services

The main changes in the work plan concern where we will pursue these activities. The first one, analysis of the impacts of HKm, has not changed from our original idea. The second and third, design features of HKm contracts and willingness to accept them, were originally going to be pursued in both Sumberjaya and Singkarak, but it turns out that the idea of PES in Singkarak may have been unrealistic for reasons described above. Instead, they will be addressed in two separate contexts in Sumberjaya: 1) HKm, and 2) and payment for water quality protection in Simbang Sari as described above. The latter is a new context that was not originally discussed in the proposal because we weren't aware of it.

The new work plan is outlined in the table below.

Steps	Activity	Info/inputs needed	When	By whom
1	Select study region(s) for HKm study			
	<ul style="list-style-type: none"> <li>- Sumberjaya</li> <li>- Tanggamus (which subregion?)</li> </ul>	<ul style="list-style-type: none"> <li>- Compile existing info</li> <li>- Map similar agroecology &amp; farming systems (similar to Sumberjaya)</li> <li>- Administrative boundaries</li> <li>- Land rights, land cover, HKm areas (actual, applied, not applied)</li> <li>(History of HKm and Reformasi in Tangamus and then decide next step: whether we're going to study HKm groups in Tangamus)</li> <li>Need to find out how many villages don't have HKm and haven't applied (and have state land). This is in both Sumberjaya and Tangamus.</li> </ul>	January 2005	Suyanto or Bustanul.
2	Qualitative community survey of HKm areas	(checklist of questions, not formal survey)		
	Design questions			John Pender
	Qualitative historical study in all villages of Sumberjaya and a subregion of Tangamus	Migration, evictions, policy changes, reformasi, HKm, etc. – major events that affected them. (maybe relate to mapping)	Jan-April	Suyanto, JP, JK, (JP & JK travel to Indonesia)
	Community mapping	Land rights (protection forest, conservation forest, private), land uses, HKm areas, production potential	Jan-April	
3	Select "communities" (based on info collected in step 1)	Review info from Step 2.		

4	Community level work			
	Study how well HKm groups function	Build on qualitative survey that Suyanto's student (Rizki) from Wageningen already did. He covered 4 groups: 2 with HKm approved and 2 still under application. We can cover the remaining groups up to about 10. Everything is already designed so it could be pretty easy. But it would need to be someone with training in soc/anthro.		MS student from Bogor
5	Household survey of HKm/GNRHL			
	Build questionnaire, design census)		March-April	
	Pretest questionnaire (pretest)		May	JP, JK, Suyanto (JK & JP travel to Indonesia)
	Census	HHs, land by rights type from key informants (You can't do this for whole villages but just do certain subsets – a community is not a whole village. One village in the area has 2000 people!)	May	JP, JK, Suyanto
	Select households	Use HH list from census for survey	May	JP, JK, Suyanto
	Meet stakeholders: Seminar and visits with district HQ, etc.			JP, JK, Suyanto
	Conduct survey		June-Dec	Suyanto
	Enter, check, clean data		By end March '06	IFPRI, MSU, ICRAF
	Pretest Conjoint analysis	Try it out in a few places; work with BA and Lampung students; hold a seminar and meet PhD student who would come to the field.	One week late Feb to mid-April	BS & BA & Lampung colleagues
6	Household survey: PES for village water quality in Simpang Sari	It's too soon to tell whether we will have time for this activity. We plan to revisit next year to see if it's something we can add.		
	Select sample			ICRAF
	Build questionnaire (design and pretest)			ICRAF/ Nancy
	Conduct survey			ICRAF
	Conjoint analysis			ICRAF
	WTA analysis			Help fro

7	Singkarak – analysis of effects of GNRHL afforestation program for comparison to Sumberjaya.	If time and funds are available we could follow the same approach as in Sumberjaya and compare the findings. It's important to note that GNRHL is implemented differently in different places, and that its guidelines change every year. So the comparison would be somewhat rough. In Singkarak this study could examine outcomes on clan land and state forest land. However, most likely time and funds will NOT be available so this study is only likely to happen if we succeed in attracting more of both.	Maybe raise some money for this.
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**Additional meetings:**

Abu Bakar  
 Bustanul Arifin, University of Lampung  
 Fahmuddin Agus  
 David Kaimowitz  
 Chip Fay, ICRAF  
 Carol Colfer  
 Gamal Pasya

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