

# Incentives to conserve or convert? Can conservation compete with coal in Kutai National Park?

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## **Abstract:**

The discussions on climate change and potential mechanisms to support conservation efforts have fixed the attention on incentives to conserve and protect forests. However incentives alone will not do the job for forest conservation, what might?

We will use the case of Kutai National Park to examine the potential for incentives to boost conservation and the urgent need for simultaneously applying disincentives against conversion of the national park. Kutai NP is an extreme case: conservation values have to compete with the value of vast deposits of high grade coal (possibly in 50 % of the 200,000 ha of the NP). The Park management unit has tried to calculate the conservation benefits derived from the park ecosystem, but these values are miniscule compared to the alternative of mining.

Incentives for encroachment or even conversion of the Park are the easy accessible timber and known enormous coal deposits. These resources provide an immediate tangible benefit for the settlers in the park and the local government to exploit the park. We will show how these incentives for conversion affect local possibilities for conserving the important ecosystem of Kutai National Park.

We will then examine what mix of incentives and disincentives might provide the appropriate push to change to tide for the national park. If we are to be serious about conserving important ecosystems, incentives alone will not do the job. Some force might be needed to ensure that all stakeholders support the commitment to preserve representative example of biodiversity / ecosystems. Each stakeholder will have to make some sacrifice, e.g. settlers will have limited development options, local government have to agree to set aside some area that can not be “developed” and the national government will have to provide subsidies as incentives to local stakeholders and ensure law enforcement

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## **Introduction**

The discussion on climate change and potential mechanisms to support conservation efforts have fixed the attention on incentives to conserve and protect forests. One of the

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well known initiatives trying to change the approach to protecting important biodiversity hotspots, not only as global public good but also benefitting those living closest to it, was through the Integrated Conservation and Development programmes (ICDP). In the late 1990s ICDPs emerged as the standard component in the new approach to buffer zone and protected area management (Wells et al. 1999). However this approach often only achieved one goal, either community development or nature conservation at relative high expenditure.

A range of mechanisms has been developed and field tested to combine conservation of forests or biodiversity with the short term needs / demands of local stakeholders.

Possible mechanism of incentives for nature conservation:

- Reduced Emission from Deforestation and Degradation (REDD)
- direct payment for environmental services (PES);
- conservation concessions;
- funds disbursed for the Clean Development Mechanism (CDM);
- debt for Nature Swaps (DNS);
- grants from international donors;
- partnership with international and national institutions.
- compensation payments for environmental services within the province, based on upstream-downstream agreements;
- a higher proportion of shared revenues from the national and provincial governments;
- special allocation funds for conservation districts as an incentive to conserve natural resources;

(See Ferraro and Kiss, 2002; Wunder et al., 2005; Wunder, S., 2006, Wollenberg et al., 2008)

Many of these approaches try to develop incentive mechanisms to achieve compatibility between development and conservation, ecosystem sustainability and empowerment of the local communities (World Bank, 1998).

The more conventional approach to conserving biodiversity for the public good, on the other hand is more based on disincentives through the use of strict protection, fences and armed park guards. This approach has been strengthened by the development of laws and regulations declaring protected areas, certain endangered species protected and often excluding local population from the protected areas. Other strategies linked to these approaches are land use planning related to designation of protected areas without proper stakeholder consultation and the issuance of permits for big operators with exclusive rights for tourism development in protected areas.

There seems to be a strong divide between these two approaches: On the one hand the advocates for the traditional park model argue that protection of biodiversity depends on state established protected areas that prohibit human residents. While on the other side people contend that successful conservation can only be achieved by allowing for greater community participation and control over park creation and management decisions (Hayes, 2006). Is it possible to combine the strong points of the two

approaches to produce a set of incentives and disincentives that are appropriate to the local conditions and assist in achieving both development and conservation agendas?

In this paper, we will use the case of Kutai National Park, East Kalimantan, Indonesia to examine the potential for incentives to boost conservation and the urgent need for simultaneously applying disincentives against conversion of the national park. Kutai NP is an extreme case of the insufficiency to rely solely on incentives to ensure that various stakeholders support conservation of a protected area. In this case conservation values of the protected area have to compete with the value of vast deposits of high grade coal underneath it; an estimated total of 2.5 billion ton of coal with an estimated market value of \$92 billion (Departemen Kehutanan, 2008).

Kutai National Park located on the east coast of East Kalimantan. This area of 198,629 ha is protected to conserve the unique tropical lowland rainforest species that it contains (esp. ironwood and the commercially significant dipterocarps). Furthermore the park areas since the early days has been renown for some of its large and unique mammal species (the now extinct rhinoceros, orang-utan, banteng, proboscis monkeys, clouded leopard ) and its large number (330) of bird species (BTNK, 2005).

Initially an area of 2 million hectare was proposed as protected area, during the Dutch colonial time (BTNK, 2005), but was quickly reduced to 306,000 ha.. Since 1970s the protected area has been affected by decisions in the development versus conservation debate. The protected area contains oil deposits and in 1977 the Indonesian Government decided that in the interest of national development the state oil company Pertamina was allowed to exploit the oil reserves inside the park. Subsequently a natural gas liquefier plant and a fertilizer plant were build on the southern border of the park (actually some area was relinquished from the protected area for the construction). (see Paper by Moeliono and Purwanto, 2008 for more comprehensive description of the history of Kutai National Park)

These developments resulted in additional pressure on the protected area, due to immigration of people from other parts of Indonesia to this area. They regarded the area as offering economic opportunities and the protected area as offering free land. These events (and also the devastating forest fires in 1982/3 and 1997/98) have caused substantial damage to the ecosystem of the protected are. This in turn has increasingly given rise to the debate whether the protected area has still conservation value, or that alternative use to the area would provide greater benefit to the society as a whole.

In reaction to these questions the Park management unit has tried to calculate the conservation benefits derived from the park ecosystem. But these values are miniscule compared to the alternative of mining. The potential environmental services, or non destructive use of resources within the protected area that are most obvious at present are:

- Protection of watershed and water supply
- Biodiversity (220 species of medicinal plants)

- Direct non destructive use of natural resources (leaves for thatch, sugar palm, mangrove seedlings, swiftlet birds' nests)
- Permits for research in the protected areas
- Development of tourism
- Carbon store

The only service for which a monetary value could be estimated was for water supply used by Sangatta and surroundings. The amount is approx. 1.13 billion rupiah (approx. \$ 125,000) per year at the present market value. In addition they estimated that the total carbon stock of Kutai NP is 24.9 million ton (BTNK, 2006). First of all the estimate seems at the high side, e.g. the carbon stock for primary forest is put at 263 ton/ha, intact mangrove at 230 ton/ha and for secondary forest at 95 ton/ha. Other sources put carbon stock contained in those vegetation types at 56 ton C/ha for primary tropical rainforest (de Bruijn, 2005), or 250 ton C/ha (Rahayu et al., 2005). Uryu et al. make estimates for biomass (not carbon stock) based on several sources for secondary forest between 89 – 264 ton/ha and quote Garzuglia et al. (2003) for 183 ton of biomass for mangrove. Given the present estimated market value for carbon between \$ 3 - 15 per ton, this would be equal to 24.9 million ton C \* \$. 3 – 15/ton C which equals \$ 74.7 – 373.5 million. It would be impossible to obtain this full amount given that all present mechanisms look at additionality. In the case of Kutai National Park that means that an estimate of the yearly deforestation caused by encroachment has to be made and payments would be made contingent on the park management achieving lower rates of deforestation. For example, in 2007 when a new wave of encroachment hit the Kutai National Park approx. 1,000 ha with a variety of vegetation were cleared (including some relative old secondary forest and also young secondary vegetation). It is clear that developing a mechanism and guarantees to attract payments for carbon stock for the national park will at least be time consuming if realistic at all. A first obstacle is that organizations may ask why they should provide incentives to reduce deforestation and degradation of forests in an area that is officially already a conservation area. Secondly baseline data will be needed, what area is under threat of further degradation and degradation, who has to be involved to ensure that the scheme will succeed. On a positive note the status as a national park provides “tenure” security.

On the opposite, the main incentives for encroachment or even conversion of the National Park are the easy accessible timber and known enormous coal deposits, which both are (fairly) easily marketable. These resources provide an immediate tangible benefit for the settlers in the park and the local government to exploit the park. If we look at the value of illegal timber the present market price for timber is approx. Rp. 2,000,000 per m<sup>3</sup>. We do not know exactly how much timber is illegally cut, but for example in 2007 a total of 45 m<sup>3</sup> was confiscated. This alone represents a value of Rp. 90 million (approx. \$ 10,000). Another recent development is processing of illegal timber into construction parts such as doorposts and window frames. A total of 17 units are presently operating inside the national park, each processing approx. 0.5 m<sup>3</sup> per day. If they only operate 50 % of the time in a year's time they will process over 1,000 m<sup>3</sup> with a market value of 2 billion rupiah (\$222,222). These amounts are higher than the value of water consumed in Sangatta and surrounding. In addition the illegal logging involves

and benefits many people, whereas payment for water supply goes to state water facility.

Land speculation is another source of substantial amounts of money. Despite the fact that the plots of land have no official papers and sale of land in a national park is illegal, the present market value of plots of land, esp. along the artery is between 8 - 12 million rupiah per hectare. Thus the value of sale of 100 hectares is approx. 1 billion rupiahs (similar to the value of the water services). Land speculation is fuelled by stories from other parts in East Kalimantan where coal mine companies paid compensation for land acquisition at rates of 35 – 100 million rupiah per hectare.

If we combine the figures calculated for potential financial gains from coal mining and other activities and the estimated value of carbon (for which still a payment mechanism was to be developed and a payers has to be found) and water supplied from Kutai National Park the comparison is as shown in table 1.

Table 1: comparison of alternative income generating activities in Kutai National Park

<b>Activity</b>	<b>Range of value</b>	<b>Possibility to execute</b>
Coal mining	\$ 92 billion <sup>1)</sup>	Fair
Land speculation	\$ 1,000/ha for plots along main roads, potentially > 20,000 ha	Already occurring
Illegal timber extraction	\$ 200,000 per year if present situation persists <sup>2)</sup>	Already occurring
Payment for carbon stock	\$ 373 million <sup>3)</sup>	Limited
Water supply	\$ 125,000 per year and increasing with increasing population	Already occurring

<sup>1)</sup> Estimated value for coal deposits in the area that is proposed to be excised from the national park area, i.e. 23,300 ha

<sup>2)</sup> On the one hand recently in Indonesia there are increased efforts to crack down on illegal logging. On the other hand park rangers have noticed that recently the number of timber processing workshops has increased rapidly

<sup>3)</sup> This is using the most optimistic estimate given present figures

The above information illustrates the problem of comparing monetary value of environmental services from the NP to values of alternative use of the resource found within the park. These big differences in values results in many stakeholder favouring the conversion of Kutai NP to other uses from which they can quickly obtain personal financial gains.

We want to further elaborate on comparing incentives for the main stakeholders by not only looking at the financial incentives. Other important incentives that can be important to push stakeholders in favour for conservation or towards converting are career possibilities and/or image/public pressure. In table 2 these aspects (financial gain,

career possibilities and public image) are considered in relation to conservation. Table 3 examines the same aspects in relation to conversion of the protected area.

Table 2: Incentives for conservation Kutai National Park area

Main stakeholders	Incentives		
	Financial gain	Career	Image
Head of National Park management unit	No incentive structure exists	No career plans	
Staff of National Park management unit	No incentive structure exists	Low/no appreciation for efforts	
District head	Conservation does not bring in money		Environmental issues not important in campaigns
District officials	No incentive structure exists	Conservation against political agenda of district head	Not important
Squatters			
People living adjacent to NP	-No or little awareness of env. services provided by NP -Little env. Awareness		
Ministry of Forestry			No link between conservation and efforts related to mitigation of climate change. Image not seen as important
Big companies			Potential risk if linked to unsuccessful efforts to protect Kutai National Park
Small companies			Not exposed in media
NGOs	Limited changes of obtaining external funding due to difficult situation		Risky situation to deal with

A senior official in the ministry of forestry mentioned the importance of career planning especially for NP staff as they are the institutional memory of the NP management unit. (Wiratno, 2005) He also acknowledges that at present the Ministry of Forestry does not

pay enough attention to this issue. He also remarked that “The existing salary system is not rational as it provides no incentive at all to the NP head to try to improve his performance, while at the same time he is responsible for projects worth billions of rupiah” (informal discussion between Wiratno and the secretary general of the ministry of forestry as quoted in Wiratno, 2005, pg. 6)

Table 3: Incentives for converting Kutai National Park area

Main stakeholders	Incentives		
	Financial gain	Career	Image
Head of NP management unit	none	Damaging to future career	Not considered
Staff of NP management unit	none	Transfers to other jobs?	
District head	Substantial kickbacks		Popular with voters
District officials	Potentially involved in conversion	In line with official political agenda of district head	
Squatters	Range of opportunities (agric, illegal logging, hunting, land speculation)		
People living adjacent to NP	Potentially involved in conversion		
Ministry of Forestry	Potential kickbacks		Not considered but would be damaging as counter to efforts of conservation and mitigation of climate change
Big companies	Possibly secretive involvement as conversion enables further business expansion		
Small companies	Access to huge coal deposit		
NGOs			Potential damage within NGO network

We will now examine what mix of incentives and disincentives might provide the appropriate impetus to change to tide for the national park. If we are serious about conserving important ecosystems, incentives alone will not do the job. Some force might

be needed to ensure that all stakeholders support the commitment to preserve representative example of biodiversity / ecosystems. Each stakeholder will have to make some sacrifice, e.g. settlers inside the national park will have limited development options, local government have to agree to set aside some area that can not be “developed” and the national government will have to provide subsidies as incentives to local stakeholders and ensure law enforcement.

Research in nature reserve in West Sumatra, Indonesia revealed that:

“Therefore the households and the villages are not only the proximal participants in tree harvesting, but also the direct agents through which illegal logging can be reduced. Households respond to the available market through buyers. Therefore, understanding the household characteristics that may lead to participation in illegal timber harvesting will greatly improve the ability to focus interventions strategies to reduce the incentive to participate in that activity, thereby contributing to long-term forest conservation on Sumatra.”  
(Yonariza, 2007; pg 74)

## **Discussion**

As further elaborated by Wollenberg et al. (in press) since decentralisation was implemented in Indonesia many local governments have regarded conservation and protected areas as a burden for their area, hindering development and not as a valuable asset important for long term development. Their vision of development is based on narrow economic considerations and even if the managers of those areas can present clear figures on direct economic values derived from the area it is difficult to convince them of the importance of the conservation area.

From the example of Kutai National Park we agree with Norton and Noonan that “Even if one grants—and we believe the jury is still out on this question—that placing dollar values on ecosystem services can be rhetorically effective, we still worry that the discipline of ecological economics is being swept by a tide of dollar-valuations toward a monistic methodology of estimating and aggregating benefits in dollar terms only (Norton and Noonan, 2007; pg. 2). As the case of Kutai NP shows the valuation of the ecosystems services are far outweighed by direct other economic use of the area.

The valuation does not capture important “ecological values”, the whole range of values that humans derive from ecological systems, including services, provision of material resources, aesthetic values attributed to pristine and/or healthy systems, recreation, spiritual, and bequest values.

The debate on what the best use of the public good, Kutai National Park, can not only rely on economic analysis in the decision making process (IUCN, 2004). Schaeffer concludes that market prices do not result in optimal allocation if the resource has the characteristic of a public good or a common pool good (Schaeffer, 2007). Actors



interested in converting the national park are likely to use arguments of market prices and benefit in terms of economic development to society as these data are readily available. If those that argue for the conservation of Kutai National Park try to counter these arguments using the same approach they will surely lose the arguments as our calculations above demonstrate.

Therefore the National government will have to use its authority to ensure that representative examples of the important ecosystems and its biodiversity, such as Kutai National Park, are protected for the common good. Anticipating that some local actors would concentrate on convince the public that for their economic development some sacrifices have to be made, including conversion of forest and protected areas, authority over conservation areas and conversion of forests land were retained by the national government.

Progress to safeguard national park for future generations has been made. For example the promulgation of the new land-use planning law (Law 26, 2007) provides valuable instrument for those concerned about protection of forests and conservation areas. The previous land-use law (Law 24, 1992) did not include any sanctions against violations (of government officials) of the land-use plan except revoking of the permits that violated the land-use plan. Thus government officials issuing permits for mining in protected areas were left unpunished. This new law includes an article stating that government officials that issue permits not in accordance with the existing land-use plan can be prosecuted with a maximum of 5 years prison sentence (Law 26, 2007). This provides an opportunity to take action against the tactics that has been employed by influential (political and business) actors so far:

- Make verbal agreement that is mutual beneficial e.g. converting forest area into plantation area or mining in protected forest. Sometimes officials even issue initial permits for those concessions despite the questionable legal basis for doing so.
- Stimulate local people or migrants to encroach and clear the targeted area.
- Adjust the land-use plan using the excuse that the existing land-use or vegetation cover is not in accordance with the land-use plan and the adjustment will benefit the people, but actually accommodating bigger interests
- Exploiting the area for non forest / non conservation purposes

Good policy is one aspect of providing disincentives for conversion or destruction of protected areas by a range of actors. However what so far has often been lacking is the implementation of these policies. In the Gunung Leuser National Park the park management unit carefully identified who were the actors behind the screens supporting encroachment and illegal logging. Once these actors were known firm action was taken against them. The big influence these actors have was proven when there was a threat to stage a popular demonstration because the park management unit had started to palm oil gardens inside the park. When these actors were caught and taken to the police station just before the demonstration was planned, the demonstration was cancelled (Wiratno, pers. comm. 6 March 2008).

The case of Kutai National park and for example also in the Bukit Barisan Selatan National Park, Sumatra, Indonesia (see Yonazira, 2007) shows that lack of law enforcement rapidly leads to escalation of the problems and increased opportunities for powerful actors to try to achieve their goal of converting the national park for their personal benefit. They create the public opinion that conservation areas illustrate the arrogance of the national government in still interfering with local interest and that conservation areas are decreasing economic opportunities. Often also the popular argument of providing opportunities to poor farmers by allowing to them to encroach into national parks is used.

It is only when pressure is put onto influential actors to at least honour if not actively support the conservation of Kutai National Park for the public good, that discussions can start on appropriate incentives. In Kutai NP the work by a local NGO, Yayasan Bina Kelola Lingkungan (BIKAL) with some farmers groups inside the Kutai NP has shown encouraging results (Ali, 2007). Facilitated by the NGO, a range of stakeholders such as the park management unit and some private companies, cooperated to reverse the trend of mangrove destruction to rehabilitation of mangrove. This process resulted in providing an alternative source of income for the farmer group involved by selling mangrove seedlings for rehabilitation programs elsewhere. Through these activities the farmers involved started to appreciate the direct value to them of an their environment and became supporters of better conservation of Kutai NP.

## **Conclusion**

The tendency by local (district and/or provincial) governments and people is to translate the need for forest and nature protection in terms of tangible values of goods or services that are presently 'produced' by that area.

Under the present circumstances of economic hardship and lack of law enforcement and given the threats to Kutai National Park and many other national parks, we have to go back to "undang-undang pokok<sup>2</sup>", i.e. because these areas provide a public good they have been designated as a conservation area and still has ecological significance it should be conserved. To justify and maintain its existence economic analysis can not be the only input into conservation or land-use planning decisions (IUCN, 2004).

We agree with the conclusion reached by Sodhi that if conservation areas are to survive better protection is needed (Sodhi, 2008). The question remains how can better protection be achieved? What set of incentives and disincentives can be employed by key stakeholders to increase the chances that Kutai National Park has a future and has significance for the future of the people living closest to it?

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<sup>2</sup> Literally basic law, but since decentralization there have been many instances where groups made unreasonable or illegal demands with the main justification that it has to be approved / provided basically because "the people" are making the demand

First of all, minimizing threats to protected areas and increasing its chance that it will continue to provide public goods in the future does not only mean sufficient park guards in the field. Other measures are needed to deter influential actors for opportunistic behaviour that forms a major threat to the integrity of the area. This can be in the form of better and joint patrol in the field. Equally important is law enforcement, investigation into and prosecution of illegal acts focusing on the people behind the scene. As in the case of Kutai National Park this includes: (1) Political backing/ instigators of encroachment or other illegal activities, (2) "legalization" of illegal activities e.g. by the establishment of new official villages inside the park area, (3) permits to mining companies inside the park area and (4) people providing the money or the market for the illegal produce (timber, meat or land). These actions will result in increased risks for actors to link their name, influence and capital to enterprises that destroy the park, esp. since outside of Kutai National Park there are still plenty other and legal opportunities to invest money and get good profits.

The example of Gn. Leuser National Park illustrates how crucial the role of these actors is. By taking legal action against the people who provided capital and political support for encroachment into the park and establishment of palm oil gardens the park management was able to negotiate and come to a settlement with the squatters in the park (Wiratno, pers. comm., 2008). The experience of Bukit Barisan Selatan and Kutai show that when these disincentives are absent the threats and damage to the protected area increase rapidly.

Secondly it is important that rules are recognized and based on negotiation between key stakeholders. Rather than depending only on the official designation of protection, it is the rules in use by residents that influence forest protection. To promote long term conservation of the protected area the people should be included in the rule-making processes (Hayes, 2006). Although they may have little individual influence / impact, but because of their numbers the total damage to the protected area can still be significant. If incentives provided by the big players are taken away, smaller incentives can be more interesting to these actors: (1) more secured rights to use certain plots of land that provide a decent livelihood, (2) technical advice on better opportunities and cultivation methods, (3) alternative sources of livelihood that are less or not damaging to the protected area. These privileges and support can be linked to an active role in protecting the area (by reporting, joint patrols etc.) and potential sanctions for individuals not sticking to the rules.

So what is needed to ensure that Kutai National Park will continue to act as an area providing public goods? Recent global surge in commodity prices adds pressure on the survival of Kutai National Park with neglecting long term development needs. Political will at national and district level is needed to balance between development needs and address the social context affecting the conservation of the national park. On the one hand awareness and information on the changes in law that enabling to put pressure on or actually prosecute the big players behind the screen. Better enforcement of the spatial plan will enhance the balancing and integrating development and conservation. The key actors that should/could play this vital role can consist of a mix of some

government agencies, local and national NGOs, media, universities. They should design a strategy to identify main actors behind the scene driving the destruction of the protected area, and forge strategic alliances to put pressure on these actors or take legal action against them.

At the same time there is a need for commitment by some key actors esp. in the ministry of forestry and local government to put bigger effort in protecting the areas that have been set aside for conservation, such as budget allocation, staffing and career planning, appreciation of efforts by its staff in the field, punishment for staff involved or backing illegal activities. This is needed to prevent any further damage to the protected area.

After these two steps it will be possible to work towards collaborative management of the national park. The collaboration should be developed between the park management unit, local government, people residing in the park, supported by companies operating adjacent to the park and local NGOs / universities. In developing the collaboration two broad scenarios can be presented to people in the protected area: changing behaviour and cooperation to sustainably use and rehabilitate part of the park area (including incentives related to these actions) or the risk of expulsion or legal action against them.

Although most people agree that repressive management of protected areas is not appropriate anymore, if we want to ensure that Kutai NP (and other parks in Indonesia) will survive some firm action is needed before an appropriate set of incentives and disincentives can be developed to support cooperation between key stakeholders and ensure the long term survival of Kutai National Park.

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