

# Financing mechanism for sustainable forest management in Indonesia: the role of public financing instrument

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## ABSTRACT

*The paper presents the identification of public financing instruments in Indonesia, especially under the Re-greening Fund, which is one of the most potential forest financing sources. In conclusion, a gap in financing institution exists. A new financing institution that should be autonomous and independent to solve current problems in forest financing schemes is proposed. The authors also stressed that any new initiatives in forest conservation, including the introduction of any forest financing instruments, should be started by solving the underlying causes of failure in forest conservation. Therefore, a discussion of the analysis of problems currently occurred and necessary pre-conditions in managing and rehabilitating Indonesian's forests based on its environmental issues is also provided. Finally, 'payments for environmental services' schemes that attract many attentions nowadays are briefly covered. The definition of 'payments for environmental services', different levels of environmental services as well as the role of governments at each level are clarified. The authors also give some conclusions and offer some recommendations for solving forest financing problems in Indonesia.*

## INTRODUCTION

Indonesian forest-land covers about 63% of the area of Indonesian islands, or equals to about 120 million ha<sup>1</sup>. Its forest resources contributes significantly to national income, labour absorption, and drives the national economic development and growth in the last three decades. Nevertheless, the development of the forestry policy still only focuses on economic development with less consideration to the sustainability of the forest itself. This condition causes serious impacts on the functions of forest, not only to its production function but also to its ecosystem and social ones. About 59.2 million ha of the forestry land need urgently rehabilitating, and this number tends to increase year by year. The Millennium Development Goal Asia Pacific Report in 2006 categorized Indonesia as one of the countries that had negative score for its progress to increase proportion of land covered by forest. Obviously, forest conservation still becomes a major problem in Indonesia<sup>2</sup>.

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<sup>1</sup> Data from Forest Planning Board (BAPLAN) in 2003

<sup>2</sup> Kompas Daily, October 2006

Illegal logging, forest fires, forest conversion, over cutting on managed production forest, and failures of forest rehabilitation are actually only the symptoms of the environmental degradation issues, such as frequent flood and drought, decreasing water quality, and degraded land productivity. The forest and land rehabilitation related studies (Kartodihardjo, et al. 2004; Haryanto, et al. 2003) found out seven interrelated broad categories as the underlying causes of the failure in forest conservation in Indonesia, as follow:

- Uncertainty of forestry land tenure,
- Limited right and access on forestry land and programs,
- Weaknesses on forest governance and management institutions,
- Constraints on unsynchronized Forestry Law and its rules,
- Lack of economic infrastructures for forest management,
- Ineffective financing mechanism,
- Lack of incentive system.

The first part of this paper discusses the analysis of problems currently occurred and necessary pre-conditions in managing and rehabilitating Indonesian's forests based on its environmental issues. The authors argue that any new initiatives in forest conservation, including the introduction of any forest financing instruments, should be started by solving the underlying causes of failure in forest conservation. The second part of it will identify current financing mechanisms – which one of the forest conservation problems above – especially under the public budget. The last part of the paper will discuss the 'payment for environmental services' schemes that attract many attentions nowadays. The definition of 'payment for environmental services' and roles of governments in these schemes will be clarified. The authors also will give the paper summary in general and offer some recommendations for solving forest financing problems in Indonesia.

## **THE ROOT PROBLEMS OF FOREST RESOURCES CONSERVATION IN INDONESIA**

The fact that most of the state claimed forestry lands are based on indicative boundaries on the official maps mainly causes uncertainty of forestry land tenure. These boundaries of forestry land are perceived as definitive boundaries by the Ministry of Forestry with only little communities' participation during the field-mapping. The involvement of stakeholder is indeed insufficient, while on the ground, the forest land boundaries mapping initiated by the third parties (people and NGO's) is rarely responded by the authority institution, in this case, the Forestry Planning Board of the Ministry of Forestry.

The law and forestry rules tend to limit the right and access to forestry land utilization and forestry programs. This situation creates the limitation of business space and activities, especially of the local people. The traditions and culture of society living within and close to forests strongly depend on the forest ecosystem and its products, while their living behaviour is adapted to forest sustainability capacity. The limitation right and access by forestry laws and rules as well as uncertainty the definitive boundaries of forestry land often cause social conflict horizontally (among people) and vertically (with governmental bodies), and furthermore become the roots of ignorance on forest conservations and increasing degraded lands.

Most of forest land is not managed properly. The number of National Park and Forest Conservation Agencies are very limited compared to the number of National Park and Nature Reserve locations. The existing agencies mostly have less capacity relative to their

responsibilities. The appropriate management institutions mostly are not responsible or inconsistently applied in protecting the forests. For example in Java, protection forest is managed by the stated-owned company, while in outside Java, it is managed by the private forest concession company, and the rest is under district/city government authority without facilitated by any management institutions. Most production forest areas are in the same situations. One of the reasons is that the governmental administration system is also still under transition condition to decentralized system creating some differences in perception among stakeholder on government policy. Unsynchronized interpretation into implementation policy on public interest could drive the forest degradation.

Forestry laws and rules are still view forestry land in the same conditions (i.e. natural forest covered). In fact, the forestry land is mostly under degradation situation. Forested land and degraded land must be treated differently, in term of policy as well technical approaches. Forestry law and rules tend to limit or become constrain for public involvement in (especially) forest rehabilitation and funding mobilisation. The forestry law and rules also creates uncertainty in degraded forest management (such as degraded Nature Reserve).

The last two underlying causes of problems in forest rehabilitation and conservation in Indonesia are ineffective financing mechanism and lack of incentive system. These two factors, which are the main topics of this paper, will be discussed in detail on the next section.

## **CURRENT STATUS AND PROBLEMS OF FINANCING MECHANISMS IN INDONESIA**

### **What are the principal policy and financial issues limiting sustainable forest management in Indonesia?**

Some government's initiatives on forest-land rehabilitation have been implemented since early 70's. It started with the Re-greening Guaranteed Fund (*Dana Jaminan Reboisasi* – DJR) in 1980. This fund continues until currently and has changed its name to the Re-greening Fund - *Dana Reboisasi* (Box 1). The Re-greening fund is managed by the national government and shared to the provincial and district government as Fund for Special Purposes – *Dana Alokasi Khusus*. From 2003-2009, this fund is being actualized as a national movement on land rehabilitation called GERHAN targeted 5 million hectares degraded land in total (Directorate General of Bina RHL, 2006)<sup>1</sup>.

The movement has gained many criticisms due to its ineffectiveness in solving the land and forest degradation problems in Indonesia. The governmental fund for reforestation, afforestation and GERHAN programs are allocated to farmers as direct incentives (such as financial cash or seedlings) to plant trees on their farms. Up to now, it is difficult to note the success of those programs. In other words, the forest and land rehabilitation programs have failed to achieve the objective and goals of the forest and land rehabilitation. The failure of these rehabilitation programs is severed by the failure on governing and management of the remaining natural forest. The pressures on natural forests are increasing due to some factors such as illegal logging, fire, conversion, and over cutting. The rehabilitation activities just could be maintained as long as the fund supporting is available, no incentive to create the sense of belonging on rehabilitation programs results.

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<sup>1</sup> GERHAN program classifies degraded land into 3 categories: 1<sup>st</sup> priority land (extremely degraded land) such as shrubs and bare land; 2<sup>nd</sup> priority land (degraded land) such as secondary forest and 3<sup>rd</sup> priority land: other land uses.

From the policy and regulation aspects, the National Forest Law Number 41/1999 Article 35 mentions about the existences of funding sources from forests for its investment in re-greening and rehabilitation. The objective is to ensure sustainable management of forest under Investment Fund. The Re-greening Fund previously mentioned has been regulated on the Presidential Decree no. 31/1989. However, the main problems are to guarantee the availability of these funds and to assure that the funds are professionally managed and spent for their original purposes.

The current funding allocation for forest rehabilitation is allocated directly as a governmental budget to the Ministry of Forestry. In this case, there is no clear institution and mechanism on how to distribute this grant to lower layers of implementers, such as the provincial, district, local government or direct field implementer. This usually causes delays in implementing the activities. At national level, the Re-greening Fund is categorized as non-tax revenue, meaning its financial management is mixed with other general state revenues under the National Budget for Revenues and Expenses. This will make the provision of this fund for forestry sector more difficult due to administrative and bureaucratic process. An international consultant auditing this Re-greening Fund stated that the management of the fund is inefficient and needed revising<sup>1</sup>.

Moreover, especially for the protected area system, the current national budget distribution is based on dividing the overall directorate budget allocation to the areas as opposed to allocating budget to the protected areas based on priorities related to their biodiversity value and management requirements. A study prepared by the Indonesian State Ministry of Environment (McQuinstan et al 2006) emphasized the existences of severe funding limitation resulting in inadequate staff, vehicles and support for day-to-day activities on protected area management in Indonesia. The condition mismatches between available investment and Indonesian's commitment in developing 30 million-hectares of terrestrial and marine areas as one of the key implementation for the Convention of Biological Diversity (CBD). The study concluded that all the protected areas in Indonesia suffer a financial shortfall by \$81.94 million per year for the annual operating budget.

The setting of the rehabilitation grant is based on yearly budget reporting. It means the fund should be reported within one-budget year. For the field implementers, this condition is very hard since the rehabilitation activities depend heavily on rainy seasons, which sometimes come at the end of the annual budget year. The pressure to use the budget in a year usually results in arbitrarily spending of the fund. In addition to that, the process in fluidizing the fund is full of complicated and unaccountable bureaucratic process<sup>1</sup>. In addition to that, the existing forestry law and rules are weak to support the initiatives on creating new sources for forest and land rehabilitation and conservation, even some rules tend to become barrier or constraint for those initiatives and distorted become driver factor on forest land degradations.

### **Box 1.**

The Presidential Decree No. 35/1980 legitimized the Re-greening Guaranteed Fund (*Dana Jaminan Reboisasi – DJR*) as an effort to rehabilitate the cutting-areas of production forests. At that time, retribution of \$4.00 and \$0.50 is regulated for every metre-cubic of cut-log wood and wooden chips respectively. A governmental bank stored the fund under a special account of the Directorate General of Forestry and monitored by the Ministry of Agriculture.

<sup>1</sup> Roffandi, R.A. 2005. The Development of Alternative Financing Institution to Support Sustainable Forest Management. Draft for publication (in Indonesian).

### Box 1. Continued

This fund is a performance bond meaning it will be returned to the production forest concessions if they have performed forest re-greening or rehabilitation on their cutting areas.

The responses of these concessions were low to refund this retribution are low. Two reasons could be found. Firstly, their benefits were high enough to cover the cost of forest rehabilitation. Secondly, some considered the fund as an alternative for not doing any rehabilitation because of limitation of cutting permits. As the consequence, the fund became ineffective and idle because of its limited use, i.e. only for rehabilitating the cutting area within the production forest being charged for the fund.

Some changes have been made in the management of this DJR:

1. The government widened the scoping area of this DJR – adding other forest types outside production forests and degraded land in general, and as the consequences changed its name to the Re-greening Fund (Dana Reboisasi – DR).
2. In 1989, a government regulation stated that the DR is only for rehabilitating forest outside production forests. The DR became a cross-subsidy to rehabilitate forests in general. Controversies occurred and worried about the failures of production forests to sustain their forest management due to other obligation loaded to them.
3. In 1999, another government regulation supported by Law No. 20/1997 made a drastic change to the status of DR from obligatory contribution to non-tax state revenue. Therefore it also philosophically reversed its function and distribution mechanism. The DR was not utilized for forest and land rehabilitation but for government operational and national development, managed under the Ministry of Finance. However, the new Forestry Law No. 41/1999 has put some efforts to revert the function of DR for forest and land rehabilitation and stated that an alternative financial institution needed for this purpose.

Source: Roffandi (2006)

### **Institutional and policy reforms needed to capture additional finances for sustainable forest management in Indonesia**

To manage effectively the existing fund is one of the key successes in solving the current forest financing problems in Indonesia. Learning from the experiences of Costa Rica's forest financing institution – FONAFIFO and other developed countries, an autonomous and independent financing institution can become an alternative national institution in managing the existing funds, mobilizing other funds from external sources, including from global ones, and channelling those funds specifically for forest conservation purposes.

As mentioned previously, some supportive regulations and policies have existed to enable the establishment of this independent institution. For example, in the explanation of Article 21- Forestry Law Number 41/1999 stated that a financing institution that can support the development of forestry domain is needed. At the policy level, the development of alternative financing institution becomes one of the activities under the 'Institutional Development of Forestry and Plantation Programs'. This program is one parts of Strategic Plan for National Forestry Program (*Renstra Dephutbun*). It is recommended that the financing institution should be autonomous, independent and credible to manage and allocate funds for forest rehabilitation and management, either from national or international level.

Roffandi (2005) recommended that this alternative financing institution (*Lembaga Keuangan Alternatif - LKA*) should have acted as an executing agency in distributing the funds. In this case, the funds are saved under the LKA's account and not under the Ministry of Finance anymore. It implies that the funds under LKA should not be limited to one year budget cycle as applied to other state budgets. Transaction should be able to be done any time depending on planting seasons and investors' readiness.

The LKA can be based at national level in the capital city and the LKAs at provincial level are suggested to manage funds at that level (i.e. the portion of reforestation fund for the province is 40%). From regulation perspective, the LKA should be developed as a financing institution legitimated by Governmental Regulation (Peraturan Pemerintah – PP) based on the previously mentioned Forestry Law. Furthermore, Roffandi (2005) recommended that the status of LKA was 'state-owned-company'. To support the LKA, a set of institutions should be established in form of 'land and forest management units'. These units at national, provincial and district level are to formulate and to review the schemes of rehabilitation plan, fund disbursement and accounting rules, and to monitor and evaluate the mechanisms.

Currently in Indonesia, a competitive based fund allocation for a budgeting system for higher education has been applied to improve the management capacity and performance of the higher education institutions. The system allows the Ministry of National Education to disburse fund as a block grant to state and private universities to support multi-year programs although the operational of this grant is still under national financial regulations. The Ministry or Directorate General will not intervene but regulate its implementations, such as to monitor and to nurture the implementation based on assigned criteria. The fund recipient must provide the commitment for counter budget. The management of forestry fund can learn from this system to allocate and manage funds to its management units.

## **THINKING FOR THE FUTURE**

### **How to improve financing sustainable forest management within existing setups in Asia-Pacific region?**

Tomich et al (2004) argued the existence of three broad categories causing people's ignorance in environmental conservation. These were policy distortion, market imperfection and market failures. Policy distortions or misguided policy are often resulted from the target setting by the government though their programs without considering further risks on local livelihood and other environmental impacts. For example, from the description above, setting a yearly budget for national reforestation program pushed the operators to accelerate the activities and treat it as a project based one. Most of the time, it leaves the communities' interests and participations. These result in wasting in financial resources due to ineffective use of it and unsustainable reforestation program due to lack of maintenance efforts and lack of ownership from the communities surrounding the sites.

Furthermore, the policy distortion is not the only causes of environmental degradation. Market imperfection including high transaction costs, insecure tenure and lack of access to banking services can create constraints into practical purposes in land and forest conservation and rehabilitation (Tomich et al 2004). These problems often occur in developing countries and closely relate to Kartodihardjo, et al. (2004) and Haryanto, et al. (2003) who mentioned pre-conditions for successful land and forest conservation and rehabilitation.

Market failures also exist, where no market price exists for public goods, in this case, environmental services. It results in externalities referring to the effects of activities by one economic agent on another that are not reflected in market prices. The existence of

externalities opens the negotiations, between actors who provide environmental amenities and protective functions (environmental service providers/ ES providers) and beneficiaries of these services (ES beneficiaries). Economic incentives for rehabilitating the environment usually drive stronger than command or rules for actors involving in keeping the current or improving the environmental quality.

The stages of the ‘environmental issue cycle’ (Winsemius 1986; Tomich et al 2004; van Noordwijk et al 2006) determine the prominence of environmental externalities – both positive (environmental service) or negative (environmental degradation) – and the evolution of public perception over time through social interaction and scientific enquiry. Depending on the scale of people involved, their influences and concerns impacted, officials or policy makers at various level of the government bureaucracy can choose at least four strategies in responding the pressure from various stakeholders (Tomich et al 2004; van Noordwijk et al 2006). These are (1) ignore the issues for as long as possible; (2) make efforts to stop the ‘root causes’; (3) mitigate degradation to meet agreed environmental threshold; (4) prevent (or reduce) degradation by modifying the behaviour of land users.

Van Noordwijk et al (2006) further offered a number of options in solving environmental problems for political discussion. The options could be (1) regulating the behaviour by setting standard based on (sometimes perceived) environmental threshold, (2) stimulating stakeholders to seek innovative solutions within set of standards, or (3) providing an incentive scheme to ‘reward’ stakeholders who give positive externalities or improve the environmental quality. Environmental problem that exceeds the setting standard will usually cause damages and human victims. The ‘polluter-pays-principle’ applies in this situation, or in other words, the victims need compensating (compensation for environmental services/*CES type 1*). For Indonesia, current case of hot-mud flows in East Java is one of good examples of how both environmental and human-welfare damages have been inflicted.

The other situation is when ‘rights-to-pollute’ exist and the actors (‘sellers’) have not utilized fully this right. The ‘buyers’ can either utilize these rights by operating in ‘red zone’ (lower than the environmental threshold), for example, ‘cap and trade’ mechanism under the Kyoto Protocol or program for reducing water salinization in Australia. Or they decide not to utilize them for conservation sake, for example, the conservation concession concept. Both are *CES type 2*. The conceptualization of ‘rewards for environmental services (*RES*)’ starts with the understanding that the behaviour of actors will either improve or maintain the environmental quality above the setting standard. These are respectively *RES type 1*, for example, efforts of farmers applying land conservation techniques to reduce river sedimentation and *RES type 2*, for example, efforts of local communities to protect certain land use for conservation.

## **Markets for environmental services as potential for financing sustainable forest management**

Market mechanism has potential to give additional revenues for financing forest management and rehabilitation. Many literatures describe that markets for environmental services can take the form of either *CES* or *RES* and somehow switch each definition indistinctly. The current situations show that a patchwork of regulation and initiatives in developing rewards for ES schemes have occurred at different scales (van Noordwijk et al 2006). Therefore, applying markets for environmental services as financing instruments, especially at national level, should be started with good understanding of these different scales and careful steps in determining the *CES* and *RES* concepts.

The step can be started by understanding the different scales of environmental goods and services. Adapted from Norton (1988), Tomich et al (2004) highlighted the distinctions of

macro (global), meso (regional transboundary<sup>1</sup>, national<sup>2</sup> and inter-community<sup>3</sup>) and micro (intra-community<sup>4</sup>) scales of environmental goods and services. Table 1 presents 12 prototype situations describing the effect of environmental services at each scale. This implies to opportunities of the ES markets existence at different scales.

At the global scale, markets for biodiversity and carbon sequestration have great potential. Markets for watershed protection mostly apply meso-scale, especially at inter-community one at watershed scale, where the effects of land cover change upstream on hydrology downstream can be obvious. Additionally, from the communities' perspective, the watershed functions in providing good quality and regularity of water, somehow, is easier to be understood. Therefore 'watershed conservation markets' can be easily comprehended and penetrated at this level. It can also work well at regional transboundary scale, especially for 'land-countries', such as in Europe. Markets for landscape beauty (and somehow biodiversity conservation) can exist at global, regional and national levels when there are bequest values of biodiversity and natural amenities for future generation. At micro level, the existence of specials and cultural support for livelihoods are important.

**Table 1.** Environmental services at different scales

Environmental Service Typology	Macro	Meso			Micro
	Global	Regional trans-boundary	National	Inter-community (within province, district)	Intra-community
<b><i>Watershed protection</i></b>					
1. Total water yield for hydroelectricity via storage lake	---	-	+	+++	-
2. Regular water supply for hydroelectricity via run-off-the- river	---	+	+	+++	-
3. Drinking water provision (surface or groundwater)	---	+	+	+++	+
4. Flood prevention	---	++	+	+++	+
5. Landslide prevention	---	++	+	++	+
6. General watershed rehabilitation and erosion	---	++	++	+++	-

<sup>1</sup> Regional transboundary scale environmental effects cross the borders of neighboring countries, such as smoke hazards across Southeast Asia countries.

<sup>2</sup> National scale environmental effects emerge large within national borders.

<sup>3</sup> Inter-community environmental effects are landscape or watershed scale effects that span more than one settlement or village such as the effects of land cover change upstream on hydrology downstream.

<sup>4</sup> Intra-community environmental effects are confined to a single settlement or village.



Environmental Service Typology	Macro	Meso			Micro
	Global	Regional trans-boundary	National	Inter-community (within province, district)	Intra-community
control					
<b><i>Biodiversity conservation</i></b>					
7. Biodiversity buffer zones around protected area	+++	+	++	+	-
8. Biodiversity landscape corridor	+++	+	++	+	-
<b><i>Carbon sequestration</i></b>					
9. C restocking degraded landscapes	+++	++	+	--	---
10. C protecting soil and tree stocks	+++	++	+	--	---
11. Guaranteeing production landscapes meet environmental standards	+++	++	+	--	---
<b><i>Landscape beauty</i></b>					
12. Providing guided access to landscapes of high beauty and/or cultural and spiritual value (ecotourism)	+++	++	++	+	+

Adapted from: van Noordwijk (2005).

Recognizing different levels of these environmental service markets, roles of government at each level will differ as well. At global level, the national government can act as ES providers. For example, when an Annex I country such as Indonesia join the carbon market under the Kyoto Protocol. Indonesian government will be the one who receive 'carbon payment' though their rehabilitation efforts as required by the Protocol. In Costa Rica, the National Institute for Biodiversity represents the national government to make agreements with bio-pharmaceutical industries and universities for bioprospecting under state-protected conservation forests (Rojas and Aylward 2003).

## CONCLUSION

To achieve sustainable forest financing scheme in Indonesia, it is essential to solve the root problems on forest resource conservation, such as uncertainty forestry land tenure, limited access for locals to forest resources, limited capacity of human resources in managing forests, and inconsistency in forest law, regulations and management scheme. Therefore, reformulation of rehabilitation plan, forest fund disbursement and accounting rules, and monitoring evaluation mechanism will become a good foundation in setting any innovation in forest financing schemes.

Despite its many constraints, the forest-land rehabilitations have been a good will from the Indonesian government since early 70's. A various funds, regulations and policies have been developed. The most recent and promising one is the support from the National Forestry Law to establish a financing institution that can support the development of forestry domain. The financing institution needs to be an autonomous, independent and credible to manage and allocate funds for forest rehabilitation and management. It should expectedly shorten complicated bureaucratic process.

The payment for environmental services as the most recent trends in financing forest management has growing interests of many governments in this decade. In many cases, these PES schemes have been sought as gold mines for additional country's income. Special attentions have to be taken care when applying the schemes at national level. It should be started by understanding different levels of environmental services as well as the role of governments at each level. Moreover, the income from PES should be fully utilized in forest management as the source of environmental service provision with good monitoring processes. Last but not the least; strong political will from the government is still the strongest point to develop a robust financing mechanism for sustainable forest management.

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