

Compensating Losses Caused by Restrictions on Forest Utilization

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Contents

Summary	iv
1 Introduction	1
2 The Economics of Natural Resource Management	2
2.1 <i>The economic value of environmental protection and nature conservation</i>	<i>2</i>
2.2 <i>Environmental principles and instruments of environmental policy.....</i>	<i>4</i>
2.3 <i>Costs and financing options for nature conservation</i>	<i>6</i>
The motives behind nature conservation.....	6
Cost types for nature conservation.....	7
Distribution of costs	7
Financing options for nature conservation.....	9
3 Compensation Measures as Forest Protection Inputs	10
3.1 <i>Forest protection needs a reconciliation of interests.....</i>	<i>10</i>
3.2 <i>Participation is no substitute for people's "bread and butter".....</i>	<i>12</i>
4 Compensating Restrictions on Utilization	13
4.1 <i>Compensation</i>	<i>13</i>
4.2 <i>Incentives</i>	<i>15</i>
5 Compensation Measures in African TC Projects	16
5.1 <i>Restrictions on utilization and changes in behaviour by the local population</i>	<i>16</i>
5.2 <i>Compensation and incentives</i>	<i>18</i>
5.3 <i>Potentials and limits – critical aspects</i>	<i>20</i>
6 On Designing Compensation Measures to Help Promote Livelihood Systems – Open Questions	23
References.....	26
Annex 1: Typology of Projects in Africa based on LISTRA Project Documents.....	27
Annex 2: Evaluation of Projects with Respect to Various Compensation Measures and Incentives (Database: project documents covering present implementation phases).....	29

Summary

Compensating losses caused by restrictions on forest utilization

1. Once forests and other biospheres and natural resources become scarce, they can be subjected to economic analysis. As public goods, their consumption is not controlled by a "scarcity price": the price paid by individual consumers is not commensurate with the costs of conserving or producing the goods in question. In economic terms, utilization of these resources is too "cheap". This leads to overexploitation, which is not sustainable in the long term.

2. The costs generated by environmental burdens and damage to the natural environment are distributed according to the ***polluter pays principle*** (the costs of preventing, repairing or compensating damage are borne by the causal agent), the ***burden-sharing principle*** (costs are met by government), and the ***beneficiary principle*** (costs are met by the direct beneficiaries). The ***prevention principle*** aims to prevent damage to natural resources and the environment. The latter is applied especially in forest protection, and utilizes instruments of the polluter pays and burden-sharing principles.

3. The "demand" for forest areas and biodiversity has increased considerably. This generates costs for the repair of damage, for prevention through restrictions on utilization, for control and sanctions, administration and consensus-building. Successful forest protection is crucially dependent on the appropriate sharing of these costs.

4. In conflicts over the utilization of resources, the actors inflict losses on each other. It is therefore not possible to say unequivocally that this or that actor caused the costs generated. Whether or not the polluter pays or the burden-sharing principle can be applied is also dependent on issues of equity and distribution of wealth. For instance, it does not seem fair for a small group of people who live in the surroundings of tropical forests to meet the costs of nature conservation by losing income if protection of the area in question is in the interests of the international community.

5. In industrialized economies, the acceptance of conservation and protection measures by the groups affected is achieved by ***payment of compensation*** calculated per unit area of land, and through incentives to ecologically sound management methods. In partner countries of development cooperation, rural populations are often not able to exert political pressure sufficient to ensure that conservation interests and compensation claims are negotiated and correspondingly implemented.

6. To make protection more sustainable in the long term, the local population are actively involved in the design and implementation of conservation strategies. Having said that, participation in planning and management will not necessarily cover the short-term losses incurred. If the costs of forest protection are not to be shifted onto the livelihood systems in and around the forests, compensation measures are needed to offset the restriction of utilization called for.

7. **Compensation measures** offset the assignment of property rights or rights of utilization by an authorized person. **Compensation in the strict sense** includes both monetary payments, and the provision of compensatory land. Unlike **incentives**, compensation in the strict sense does not require a change in behaviour on the part of the recipient, and is acknowledged as the outcome of a negotiation process. **Compensation in the broader sense** can include measures to promote alternative sources of income, to intensify agricultural production, or to implicitly transfer income generated through changed forest management practises. Compensation in the broader sense also implies changes in behaviour, as the concerned groups have to reorganize their livelihood systems correspondingly when implementing the promotion offers.

8. Confidence-building measures in particular are of only limited value as a substitute for negotiations and for building cooperation in partnership geared to a reconciliation of interests.

9. The **projects** promoted by TC are classified into two groups: One which aims to achieve protection through utilization, and one which aims to achieve protection through exclusion. Whilst in the first group the restrictions on utilization are of limited duration and are confined to a few forms of utilization, the ban on utilization in the second group extends to the entire protected area. Both types of project require changes in behaviour on the part of resource users. The promotion of village level organisations who control by laws and rules at the same time acts as a stimulus for change within the social system.

10. **Compensation in the strict sense** is only feasible in exceptional cases, such as resettlement. Some few projects compensate village organizations on a temporary basis for income lost through restrictions on timber utilization.

11. Alternative sources of income, income from forest management, and intensification of agricultural production are the areas promoted to provide **compensation in the broader sense** for losses caused by restrictions on utilization. Other measures employed are incentives which include construction measures, self-help promotion, access to credit and marketing services, and support in conflict management and securing land rights and rights of utilization.

12. Compensation measures should not be understood as incentives, but as the most direct way of offering to offset losses in income and/or yields

caused by restrictions on resource utilization, accepted in the interests of forest protection. A negotiation process should be initiated, in order to agree on the structural relationships and procedures forming the links between promotion institutions, national nature conservation and forest authorities, and farmers and other resource users.

13. With regard to designing a specific project strategy to compensate losses caused by restrictions on forest utilization, it is recommended that a number of points be addressed. As well as conducting an analysis of stakeholders and interests, efforts should also be made to identify the scope of anticipated losses caused by restrictions on utilization, the potential for direct compensation, the need for compensation in the strict sense, the options for control, and the financial sustainability of compensation measures.

1 Introduction

Although the UN Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992, led to numerous international and local initiatives and efforts to protect the tropical rain forests, there has been no significant reduction in tropical rain forest destruction. On the contrary, the growing pressure to exploit resources is leading to increasing claims on land and to the destruction of biospheres.

One basic problem in tropical forest protection is that, as long as the population in the transition zones of protected forest areas reject the protection activities, effective protection is not possible. Effectively, the implicit approach to nature conservation and forest protection in developing countries had for a long time been to completely exclude the inhabitants of zones adjacent to the areas worthy of protection.

For a number of years, development-policy practise has been attempting to take greater account of the interests of those living adjacent to protected areas, and actively involve them in measures to protect the forest. This is designed to strengthen people's self-interest in conserving the forest, and thus further guarantee forest protection.

The forest can only be protected with the local population.

A further aim is to compensate restrictions imposed on the local population with a view to protecting the forest. Having said that, the issue remains of how – especially at the level of project implementation – these restrictions on utilization can be appropriately compensated.

The present discussion paper aims to help provide a clear conceptual framework for the instruments employed in compensation measures, based on the discourse of environmental economics. It thus forms an initial basis for a proposal as to how compensation can be employed in forest protection projects.

How can restrictions on forest utilization be compensated?

First of all, the paper will attempt to characterize problems of environmental protection and conservation of natural resources from an economic perspective, and then define more precisely the term "compensation measures". A further distinction will then be drawn between "compensation in the strict sense" and "compensation in the broad sense". On that basis, documents of 15 German Technical Cooperation projects in Africa will be examined with respect to planned compensation measures. Potentials and limits of this instrument will be briefly discussed, after which key questions for the design of compensation measures will be identified.

2 The Economics of Natural Resource Management

Rational management of valuable resources.

Economics is the study of the rational management of scarce and thus "valuable" resources. Anything that is scarce or can become so can therefore be the subject of economic analysis.

2.1 The economic value of environmental protection and nature conservation

Water, soil, air and biodiversity are threatened.

In recent decades the increasing contamination of water and air, the degradation of agricultural soils, and the advancing destruction of tropical forests, which threatens species diversity, have placed numerous initiatives to protect biodiversity, natural resources and valuable biotopes on the agenda. The natural goods water, air, climate, soil and biodiversity, which had previously been considered inexhaustible, are coming to be seen as *increasingly scarce*. Thus *the environment and nature*¹ can be subjected to economic analysis.

Environmental problems are the result of an over-exploitation of natural resources which is not sustainable in the long term. Questions to be addressed in an economic analysis of resource protection are:

- What are the economic causes leading to the over-exploitation of resources and the destruction of biospheres?
- By which economic mechanisms can this process be steered or prevented?

No efficient "production" of resource protection in the existing market order.

In societies organized on the basis of a market economy, the market constitutes a key instrument for steering economic processes. The damage caused to nature and the environment clearly demonstrates that the market mechanism does not lead to an efficient "production" of resource protection. In environmental economics, this failure of the market is explained with reference to the theories of public goods and external effects.

Natural resources have been and still are largely considered to be **public goods**, i.e. they are not subject to competitive consumption. Access to these goods is not exclusive: Their consumption by one economic subject does not exclude their consumption by another. Having said that, pure public goods are in reality rare; "hybrid forms" usually exist, i.e. goods which possess features both of public and of private goods. In the case of private goods, and assuming that "ideal markets" exist, then the

¹The term "environment" refers to natural resources such as air, water and soil. The term "nature" covers biodiversity and biotopes.

market mechanism ensures that the consumer compensates the loss of the good to society - the good then becomes no longer available to the rest of society - by paying the market price.

By contrast, with public goods other consumers are not excluded. The payment of a so-called "scarcity price" is therefore not justified. However, scarce factors are also employed to supply the public good. Macroeconomic costs are incurred, which consequently have to be met by the general public. Nature conservation and environmental quality are public goods, since they benefit all. Yet the individual is not required to pay the price for their consumption which would be commensurate with the macroeconomic costs of their production or maintenance.

Inappropriate prices for nature conservation and environmental quality.

Among the users of natural resources, **external effects** may arise. If an economic subject influences production or consumption by another economic subject, without an agreement having been reached concerning those impacts, then the private costs will also not be commensurate with the macroeconomic costs of the activity. This is the case for instance when the groundwater level of a region falls as a result of wells being bored.

The market does not define a scarcity price for the conservation of natural resources and biotopes. The economic costs of resource utilization at an enterprise level are not commensurate with the macroeconomic costs for supply of the goods "environmental quality" and "intact biotopes". In this case, the costs incurred are borne by third parties who usually have not generated them. In the context of public goods, this phenomenon is termed "free-riding".

If companies do not meet all the costs of resource consumption which they gen-

Due to the discrepancy between the costs to an enterprise and the macroeconomic costs actually incurred, the "production factor nature and the environment" is not utilized efficiently, i.e. in line with the actual conditions of scarcity. In economic terms, exploitation of the environment is too "cheap", which is expressed in the destruction of habitats and in the reduction of environmental quality. At their economic core, today's environmental problems are indicators of scarcities that are not indicated by corresponding scarcity prices, since no functioning markets exist. The "demand" for nature and the environment has increased, as reflected for instance in the growing value attached to biotopes by society. By contrast, the supply of nature and environmental goods has decreased. The price for utilization has remained constant, i.e. zero.

... then the general public (national economy) has to pay.

Fehler! Unbekanntes Schalterargument.

If the costs incurred through utilization of public goods are met by third parties who have usually not generated those costs, then those who did generate the costs are termed "free-riders"

Conflict over utilization of water as a "good".

The example of farmers and waterworks illustrates how a scarcity of natural resources is caused. Both consumers utilize the resource "water". The farmers use it as an absorbent medium for applied nitrogen, whilst the waterworks use as little contaminated water as possible, in order to minimize their treatment costs for drinking water supply. Up until the point at which nitrate values posing a health hazard are recorded in the groundwater or surface water, the two consumers do not influence each others economic activities. However, when "nitrate in the groundwater" emerges as an environmental burden, a conflict arises over utilization of the good "water". The public good water becomes scarce, as the economic activities of one party become influenced by the external effects of the other parties. There is, however, no market regulation of this scarcity.

2.2 Environmental principles and instruments of environmental policy

Various instruments are available to implement the environmental-policy goals of a society, and keep environmental contamination at an acceptable level. These instruments can be categorized according to the environmental principles² on which they are based. The most important principles are the polluter pays principle, the burden-sharing principle and the prevention principle.

The ***polluter pays principle*** is considered the "guiding principle for development", on the basis of which the costs for prevention, elimination or compensation of environmental burdens and destruction of natural resources are charged to the polluter.

The polluter pays principle is not always politically feasible.

The main instruments based on the polluter pays principle are environmental licenses, environmental taxes, environmental conditions, voluntary measures (e.g. no disposable packaging), user benefits, cooperative solutions, and direct public environmental protection by means of concessions, fees and the financing of inputs.

All these instruments are designed to make the external costs (i.e. costs to the national economy) incurred through utilization of the environment as a good, an integral component of the cost-benefit calculations of the polluters, thus increasing the latter's costs³.

² Another classification criterion is the volume of public income and expenditure accounted for by the instruments (cf. Wicke, 1993, p. 193ff).

³ The phrase used is "Internatization of external effects".

Under the **burden-sharing principle** it is not the polluter but the public authorities who meet the costs of preventing, reducing or eliminating environmental burdens:

The instruments based on the burden-sharing principle include direct and indirect measures of environmental protection and nature conservation financed through taxation, subsidies for income or yield losses caused by discontinuation of practises harmful to the environment, subsidies to promote ecologically and environmentally sound production methods, products and raw materials, promotion of innovative environmental technologies, and public expenditure on the eradication of damage to nature and the environment once it has occurred.

One special form of the burden-sharing principle is the **beneficiary principle**. Here it is not the organization or individual causing the environmental damage who pays the costs, but the beneficiary of a measure which prevents that damage⁴.

Fehler! Unbekanntes Schalterargument.

Under the polluter pays principle, the costs of the environmental burden and the destruction of nature are charged to the polluter

The burden-sharing principle is applied when the costs of protecting nature and the environment which the individual would have to meet in order to prevent the environmental damage would constitute an "unreasonable hardship". The principle is also applied where the society is pursuing objectives which would burden the individual with inappropriately severe restrictions on resource utilization, or where the polluter pays principle is not politically feasible.

The **prevention principle** is designed not only to prevent damage to nature and the environment in the present, but also and above all to ensure that an intact environment is passed on to future generations. The aim is to prevent environmental hazards where possible entirely, and protect the natural resource base on which life depends. The development-policy instruments to apply this principle cannot be clearly defined: Instruments of both the polluter pays principle and the burden sharing principle can be of a preventive nature. The criterion by which they would be classified under this principle would be that they are used to prevent damage before it has occurred. Measures to conserve the forest and natural resources are usually based on this principle.

Preventing damage before it occurs.

⁴ One example of the beneficiary principle being applied that is well-known in Germany is the introduction of the "water penny" in Baden-Württemberg.

The issue of who has to meet the costs for protection of nature and the environment is thus largely determined by the underlying principle, and the instruments applied on that basis. The share of the costs for nature conservation met by the community is largely dependent on the severity of the burden and the issue of political feasibility.

2.3 Costs and financing options for nature conservation

The motives behind nature conservation

The term "nature conservation" covers a whole range of measures and activities to protect (or, expressed in economic terms, to "supply") biodiversity and ecologically intact biotopes.

The conservation and supply of protected habitats by establishing designated protected areas can be based on any of a number of motives.

- At the **international level** it has been acknowledged that the destruction of natural resources and biotopes has implications that extend beyond national borders. Climate change, the loss of genetic reserves and growing migrant flows, in part caused by destruction of the natural resource base on which life depends, create a need for transboundary action. *The consequences of environmental destruction do not stop at national borders.*
- On their part, **countries** practise nature conservation in pursuit of national interests. For many developing countries, conservation of their natural resources and ecologically intact habitats represents a potential for tapping new sources of income, e.g. in the form of tourism or the marketing of genetic resources.
- At the **local level** too, it has been recognized that environmental protection and conservation of the environment are playing an increasingly important role in securing sustainable livelihoods and development. At present, one significant factor in this connection is the willingness of the countries of the North to provide funds for the protection of forest areas and other ecologically valuable biotopes. *Livelihoods cannot be secured sustainably without an intact environment.*

The question now arises of which costs are generated by nature conservation, and how they might be distributed and financed.

Cost types for nature conservation

According to *Hampicke*, nature conservation is an economic activity which utilizes scarce resources (land, labour, funds). Once they are utilized for nature conservation, these resources are then no longer available for other economic or non-economic uses.

The macroeconomic costs associated with environmental protection and nature conservation can be broken down into:

- costs for the eradication of damage,
- private goods and income not generated as a result of restrictions on resource utilization (acceptance of restrictions),
- administration and control costs,
- consensus-building costs,
- opportunity costs with regard to other objectives.

From the point of view of the locally-based economic subjects, the microeconomic costs generated by restrictions on resource utilization are highly significant. The two latter cost types are especially difficult to assess. Having said that, negotiation and mediation are being conducted with increasing frequency in countries of the North⁵, hence corresponding experiences and reference values are available.

In nature conservation based on the prevention principle, the establishment of designated protected areas usually involves restrictions or prohibitions on utilization. For persons engaged in economic activity at those sites this can, under certain circumstances, mean considerable constraints on their mode of economic activity. In developing countries, the livelihoods of sections of the local population can be threatened, especially if their livelihoods are closely linked to forest utilization.

Bans on utilization in protected forest areas can threaten the livelihood of the local population.

In most cases the restrictions on utilization impact directly on "income" or "benefits"⁶. In developing countries these restrictions are usually imposed for instance on the utilization of land as crop- or pastureland, on the harvesting of high-grade timbers, on the collection of fuelwood, on the utilization of wild animals and the marketing of trophies, or on fisheries, to name but a few examples⁷.

The protection of natural resources does not come free of charge.

Distribution of costs

The successful implementation of nature conservation measures is crucially dependent not only on the scope of absolute costs, but also on the

⁵ In this connection the reader is referred to the publications issued by the GTZ pilot project Institutional Development in Environment.

⁶ If a section of the population has only limited access to markets, and subsistence products are very important for securing families' livelihoods, then the impact on benefits or yields must be explicitly taken into account. A purely monetary measure of the losses sustained is an inadequate measure of the impacts on livelihood systems.

Who should pay for protection of the rain forest?

allocation of costs to the individual economic subjects who ultimately have to meet them.

The principles on which development-policy instruments are designed and applied have already been described above. The polluter pays principle, which requires that those causing the environmental burden pay the costs incurred, is considered a guiding principle in environmental policy. It was established on the basis of the conditions prevailing in industrialized countries, where industry and consumers cause damage through the residues generated by their mode of economic activity and lifestyle.

Fehler! Unbekanntes Schalterargument.

The successful implementation of nature conservation measures is crucially dependent not only on the scope of absolute costs, but also on the allocation of those costs to the individual economic subjects

The question of who should actually meet the costs of nature conservation should always be answered in the specific context of the situation in hand. Issues of distribution, fairness and pragmatism should be considered. In a discussion of major relevance to an analysis from the environmental economics perspective, Coase has pointed out that there is actually no such thing as "the" polluter (in the sense of "the" causal agent), since the relations of causation are more complex. Each conflict over utilization involves a symmetrical relationship: by utilizing resources, each side "causes" the other a lost opportunity to utilize those same resources. The question of who is "the causal agent" (and should therefore meet the costs) is then decided by allocation of property and usufructuary rights on the natural good. The aforementioned example of water use may be helpful in this context.

Through excessive fertilization, farmers cause the waterworks additional costs when the latter supply safe water. Conversely, by calling upon the farmers to reduce fertilizer application, the waterworks cause farmers lower yields and lost income (i.e. costs). The conflict consists in the fact that both parties wish to use the resource water for mutually incompatible purposes.

The question of whether the polluter pays principle or the burden-sharing principle is applied is also influenced by issues of fairness. It might be asked whether or not it is fair or "just" for instance that a relatively small group of local people living around protected areas in a developing country should bear the costs of nature conservation by accepting restrictions (e.g. to serve international interests). Allocation of the costs to society as

⁷ The utilization of land or labour for nature conservation generates costs. This can be quantified by calculating the monetary inputs, and adding the prices of the products which would otherwise have been produced.

a whole would make the burden on the individual negligible, as is the case for instance with the "water penny".

In the context of nature conservation in developing countries, there is a further argument in favour of moving away from the polluter pays principle and towards the burden-sharing principle. Generally speaking, nature conservation costs should be broadly spread in cases where the negative impacts on nature are basically rooted in a fundamental and vital interest. This is the case with the population in and around protected areas in most countries of the third world. In the international context, a compensation of burdens by the industrialized countries for the developing countries might be the only option for sustainable protection and conservation of the tropical rain forests.

Financing options for nature conservation

Nature conservation can be financed either with existing funds, or by providing additional funds.

Existing funds can be accessed

Access fresh funds for environmental protection.

- by eliminating misallocations, i.e. the utilization for nature conservation of land on which for instance surpluses are being produced which cost more overall than the benefit they generate for the national economy;
- by discontinuing harmful activities for reasons other than to conserve nature (e.g. stopping pesticide applications for health reasons);
- by redirecting existing funds (e.g. tax monies).

Additional funds can be mobilized from

- donations;
- contributions;
- admission fees for parks etc.;
- levies on activities which burden the environment;
- financing through general taxation.

Fehler! Unbekanntes Schalterargument.

Nature conservation can be financed by accessing existing funds. These funds can be accessed for instance when environmentally harmful activities such as pesticide application are discontinued.

3 Compensation Measures as Forest Protection Inputs

Like other biomes, forests are highly complex natural systems which can only be effectively protected by applying the principle of preventive action. In view of their complexity, a purely economic analysis will not identify all aspects of the problem as a whole: it is not possible to reconstruct sub-components or even the entire system, once they have been destroyed. Consequently, in nature conservation the burden-sharing and polluter pays principles can only be applied in conjunction with the principle of preventive action.

Complex natural systems can only be effectively protected by preventive means.

The designation of protected areas is a core measure of environmental protection and nature conservation based on the prevention principle.

3.1 Forest protection needs a reconciliation of interests

Although there is increasing recognition of the need for environmental, nature and forest protection and conservation, the implementation of corresponding measures involves considerable difficulties.

This also applies to the designation of nature reserves in developing countries. Habitats identified as worthy of conservation often cannot be protected sustainably, because the measures involved meet with **acceptance problems** among the local population. The self-interest of public authorities and institutions (e.g. forest authorities) and their staff may be affected. Not infrequently, forest administrations finance a considerable proportion of their current costs from income generated by non-sustainable forest management practises⁸.

In the past, tropical forest protection has usually been strictly based on the concept of conservation. This led to rigid exclusion of the local population, who in many countries were then no longer permitted to utilize the forest. Instruments and mechanisms of environmental policy developed in the industrialized countries in order to **reconcile divergent interests**, are barely applied in developing countries. The payment of compensation per unit area of land for restrictions on its utilization, the provision of land as compensation, incentives for ecologically sound management etc. are common nature conservation and landscape pro-

When people in transition zones do not accept the designation of a protected area,...

⁸ This link also exists with respect to the personal income of individual forest officials. This is rarely discussed, but in practise may under certain circumstances be highly significant. Unfortunately the topic cannot be dealt with here. Nevertheless, its significance should not be underestimated.

tection practise in North America and Europe. As a result, relatively high ecological standards have now become established in environmental protection and nature conservation. However, results from the biosphere reserve in the Rhön region of Germany reveal that there too, farmers and other entrepreneurs, as well as other inhabitants of the region, reacted with an attitude of suspicion and rejection when the region in and from which they live and work was declared a protected area⁹.

...a way to reconcile interests must be sought.

In the partner countries of German Technical Cooperation, rural population have few means to exert political pressure. There is thus a risk that the tropical forest cannot be effectively protected, because the arrangements to reconcile protection interests and claims on resource utilization are not adequately negotiated.

Alternative strategies to safeguard protected areas.

Against this background, over the last few years an alternative strategy to safeguard protected areas has been elaborated¹⁰. The active involvement of the local population in the design of utilization and management strategies, and their participation in the benefits of nature conservation and forest protection, are intended to bring about a convergence between local interests in utilizing resources, and supraordinate interests in protecting them.

Fehler! Unbekanntes Schalterargument.

...the conflict potential arising from the divergent interests of nature conservation bodies, public authorities and the population must be defused

This is designed to defuse the conflict potential arising from the divergent interests of nature conservation bodies, public authorities and the population, and ensure sustainable protection of the areas in question. One important element of this process is the creation of incentives¹¹ designed to raise the motivation of the population to become actively involved in safeguarding protected areas.

⁹ The reader is referred to the LISTRA working paper on this topic.

¹⁰ The modified protection strategy, together with the preconditions and arrangements it requires, can be found in: Loebenstein, K., Welte, T. (1993a).

¹¹ For a detailed definition of the various types of incentive, cf.: GTZ Pilot Project Natural Resource Management through Self-Help (eds.) According to the definition proposed there, incentives include *subsidies, compensation and sectoral back-up measures*.

3.2 Participation is no substitute for people's "bread and butter"

The empirical data available are not yet sufficient to permit a conclusive evaluation of this approach. The responsible involvement of the local population in the elaboration and implementation of conservation strategies does seem to be an important step towards the sustainable protection of ecologically valuable areas.

Does the participatory approach take sufficient account of the material problems of the local population?

In an in-depth analysis, the question arises of whether participatory approaches take adequate account of the material problems encountered by the local population as a result of the short- and long-term **changes in and restrictions on utilization**. Although the population is actively involved in the planning and management of protected (forest) areas, especially the short-term demands placed on neighbouring populations by the changed or restricted forms of utilization can prevent or constrain implementation of the plans.

The basic response to these restrictions on utilization plays a key role in the effective protection of designated areas. Ultimately, the key question is who should be awarded property rights on the good "nature"

Who is granted the property rights on the good "nature"?

As in the example of farmers and waterworks with their competing interests in utilizing water as a good, in the context of nature conservation and forest protection in developing countries the issue of the "causal agent" needs to be addressed. Is it the population who have so far utilized the forest who "cause" its destruction, or do conservation interests "cause" a threat to the livelihood to the population living in and from the forest?¹² It has already been pointed out above that the question of "the" causal agent cannot be resolved, and that it is ultimately a question of perspective. The polluter pays principle¹³, which seeks to shift the costs of environmental damage onto the individuals or organizations causing it, often becomes unviable due to the social hardship or threat to the livelihood of disadvantaged groups, as well as for reasons of practical feasibility.

If the intention is not to shift the costs of forest protection onto the enterprises and households in the transition zones, one option would be to offset the restrictions impacting on their income and yields through **direct, swift and effective compensation**. The compensation inputs provided should be **directly commensurate with the required restriction on utilization**, i.e. should guarantee that the income and/or yields lost

Compensate restrictions on utilization directly and quickly.

¹²It should be pointed out here that these basic points relate to cases where nature conservation and forest protection are being pursued chiefly on the basis of supraordinate interests, and not primarily with a view to securing the livelihoods of actors through sustainable management of the natural resource base.

¹³ This term was developed in the context of industrial pollution in the industrialized countries. In the present context it might be rephrased as the "causal agent principle".

are offset. Especially in cases where protected areas are instituted on the basis of supraordinate interests, this might alleviate acceptance problems arising where the local population is required to accept a loss of concrete income or yields in the short or long term.

4 Compensating Restrictions on Utilization

In order to identify more clearly the potential applications of compensation measures, it would seem appropriate to define the term compensation. Whereas the Pilot Project Natural Resource Management through Self-Help (NARMS) sees incentives as project measures designed to increase the motivation of the local population to manage natural resources on an ecologically sound and sustainable basis¹⁴, the present paper proceeds on the basis of a different understanding of the term. This will now be discussed briefly.

4.1 Compensation

Compensation of assigned rights of utilization – not in the first instance requiring a change in behaviour.

Compensation should be understood as a means to offset the assignment by a party of a **property right or right of use to which they themselves are entitled**. Compensation measures understood in this sense, unlike incentives, do not in the first instance require in return a change in behaviour on the part of the local population. They respect the property rights

and rights of use of the population vis-à-vis their area, and aim to compensate income or yields lost (in the short term) as a result of an area being designated as protected. Where a form of utilization which generates income and yields is made subject to restriction, the compensation measure bears a direct relation to income and yields. In contrast to this evidently emerging practise, general development measures to compensate restrictions on utilization usually bear **no** direct relation to income.

The nature and scope of compensation measures should be determined in the course of a negotiation process involving all concerned groups. Preference should be given to negotiation as opposed to a rigid allocation of inputs by supraordinate institutions. The extent to which compensation measures are to be financed from public national or international

The scope and nature of compensation are jointly negotiated.

¹⁴ These are subdivided into subsidies, compensation and sectoral back-up measures. Cf. RMSH: Die Rolle von Anreizen..., Eschborn 1994.

budgets, or by private organizations, should be determined on a situation-specific basis, and should in principle also be open to negotiation.

A distinction is drawn between compensation in the strict sense and compensation in the broader sense:

Compensation in the strict sense covers the provision of

- monetary compensation payments,
- land as compensation.

In the "rich" economies, there are numerous documented instances of these forms of compensation. They are based on clearly defined commercial criteria.

Compensation in the broader sense covers

- the creation of alternative sources of income,
- promotion measures to intensify agricultural production,
- future income from changed forest management.

Compensation in the broader sense cannot be precisely calculated for livelihood systems.

These measures also imply changes in behaviour, as the promotion or the alternative sources of income can only be utilized if the way the family in question have hitherto organized their agricultural production and income generation undergoes change. Where changes to achieve sustainable forest management are envisaged, significant changes in the relationships between the population groups and their institutional environment also become necessary.

Changes in behaviour are required.

Thus the difference between these measures and compensation in the strict sense result from

- the fact that it is not possible to calculate precisely the relation between the loss incurred and the compensation received in return by the individual livelihood system,
- the change in temporal horizon, given that a time lag is usually to be anticipated between the impact of the restrictions on utilization, and the impact of the compensation at the level of the livelihood system,
- the fact that change processes must occur both within the livelihood systems themselves, and in their relationship to their institutional environment,
- the increased initiative and participation by the population (e.g. acquisition of additional expertise, investment).

It will be evident from the above that compensation in the broader sense is more likely to be effective among those livelihood systems which are willing and able to initiate the needed changes.

4.2 Incentives

Arouse the interest of actors with incentives.

Incentives are defined as measures employed to increase actors' willingness to cooperate, and induce a change in behaviour by the population. These measures are required in cases where the project objectives are not of any immediate interest to the actors, and are designed to generate such an interest.

The instruments employed as incentives are

- small-scale infrastructural measures,
- services and financial contributions,
- the promotion of existing initiatives,
- the establishment of revolving funds, etc.

Increase willingness to cooperate through confidence-building measures.

Closely linked to incentives are so-called "confidence-building measures" or "trust-inducing measures". These are designed to improve the relationships between the population, project institutions and implementing organizations. Underlying conflicts often exist which act as an obstacle to fruitful cooperation.

The basis of trust among the population can be so fragile that measures need to be taken in order to build confidence, establish a willingness to cooperate and forge alliances.

Whether or not the measures make a sustainable contribution towards the conservation of protected forest areas will depend primarily on how they are applied in the given local socio-cultural context. In cultures where relationships of clientelism are prevalent, there is a risk that "gratitude" will be a stronger factor than genuine motivation. Thus a system of service and return can be established ("The project builds wells for us, and in return we protect the forest against fire") that work only for as long as each partner meets their obligations.

Generally, the instrument of confidence-building measures has to date been too strictly geared towards implementing small-scale measures located at the top of local groups' agenda of development priorities. Processes need to be initiated to rebuild the often damaged basis of trust between forest protection agencies, forest officials, agricultural extension agencies and the rural population. In many situations, however, these processes require more than just small gifts. What is needed is rather processes of constructive negotiation to identify and reconcile the various interests. Initiating and fostering such processes should form the core of confidence-building measures for forest protection.

Interests must be made explicit in negotiations.

5 Compensation Measures in African TC Projects

This section covers projects in Africa for which German Technical Cooperation (in some cases in cooperation with international donors or other partners in implementation) contributes inputs¹⁵. It focuses on projects which pursue a national or international objective of protecting the tropical rain forest, and which are usually adjacent to designated protected areas or parks. These projects all tie the forest into their work directly, but can be subdivided into two groups according to how rigorous their concept of protection is, and what kind of approach they derive from that:

Type 1 Projects which aim to conserve forest resources through sustainable management involving active participation by the local population (conservation through sustainable management). One important aspect is that many of these projects enable the local population to utilize forest resources on a legal basis for the first time.

Type 2 Projects which aim to achieve protection of forest resources by largely excluding the local population (protection by exclusion).

For the purposes of the present paper, the BMZ commissions for a total of 15 projects of types 1 and 2 were closely examined with regard to:

- the anticipated restrictions on utilization resulting in loss of income and/or yields by the neighbouring population, and
- the measures employed to compensate those losses.

5.1 Restrictions on utilization and changes in behaviour by the local population

When conservation areas, protected biospheres, forest reserves or wildlife parks are set-up, then depending on how the process unfolds this may entail considerable changes to how the population groups living in the adjacent zones live and secure their livelihood. Changes are caused in part by total or partial restriction on utilization as described above, and by demands which conservation projects impose on the local population to change their behaviour.

The majority of GTZ project work proposals submitted to the commissioning body (BMZ) do not make any explicit reference to the form and scope of restrictions on utilization which the establishment of protected

Partial restrictions on utilization through forest management plans.

¹⁵These projects were documented by the sector project "Livelihood Systems and Tropical Forest Areas (LISTRA)". See the working paper "Who does what?". Eschborn 1996.

areas entails for the local population. When projects are designed, there is usually little specific information available on forest utilization by the population. Consequently, the initial project documents can only contain very broad statements concerning the restrictions on utilization which the designation of a protected area will involve. The project documents available at present list the following types of restrictions on utilization:

1. Total prohibition (exclusion)

In projects with an especially strong emphasis on conservation (which is typical of national parks, e.g. "Rehabilitation of Murchison Falls National Park", Uganda; "Korup National Park", Cameroon or "Kahuzi Biéga", Zaire), there is a complete prohibition on utilization of the core protected zone by the local population. The core zone is often clearly demarcated. The inhabitants are banned from engaging in any form of customary utilization within the zone, and from living there.

2. Partial restrictions on utilization

The term partial restrictions covers arrangements whereby the population are not prohibited from entering protected zones, but are subject to restrictions on the prevailing forms of utilization.

Partial restrictions on utilization can be observed in projects introducing forest management plans. In many cases, a forest management plan (such as those introduced in "Integrated Forest Management in Gonsé State Forest", Burkina Faso, or "Integrated Nature Conservation Mount Cameroon", Cameroon) enable the local population to utilize forest resources on a legal basis for the first time. However, the existing project documents give no clear indication concerning the extent to which the proposed sustainable forest management strategy will be able to satisfy the acute demand of the population for forest, cropland and pasture land, as well as wildlife. The documents rather indicate that – at least during the transition phase – the population will be required to accept restrictions on utilization.

3. Changes in behaviour

Above and beyond the aforementioned restrictions on utilization, projects to establish and consolidate protected areas often also require the local population to modify their practises in other respects. In many cases, an attempt is made to change the population's perception of the forest through measures of environmental education¹⁶. In order to make restric-

¹⁶ Cf. "Awareness, Education, Extension? Environmental Communication in Transition Zone Development". This LISTRA conceptual element proposes a subdivision of environmental communication into the domains of *environmental awareness* (targeting large, heterogeneous sections of the population with access to the appropriate media), *environmental education* (targeting educational institutions which transfer knowledge and expertise), and *extension for environmental protecti-*

tions on natural resource management effective, village-level control institutions are promoted.

5.2 Compensation and incentives

Given the limited information available on the application of compensation and incentives, only a provisional assessment can be made. The data contained in the documents relate solely to the German contributions. Several of the projects are being implemented in cooperation with other international institutions, hence it cannot be ruled out that corresponding contributions are being provided that are not mentioned explicitly in the German TC documents.

Fehler! Unbekanntes Schalterargument.

Compensation in the strict sense

In none of the 15 African projects considered do the documents indicate that the German contributions are designed to include the payment of monetary compensation for restrictions on utilization. In two cases, measures to resettle the local population are documented.

The resettlement measures to help protect the Korup National Park for instance incorporate a significant infrastructure development and improvement component. The population have also been compensated through the provision of compensatory land.

Judging by the information available, direct loss of income or yields resulting from total or partial restrictions on utilization do not appear to be compensated. Nevertheless, the payment of monetary compensation by the projects cannot be entirely ruled out. One project document reports for instance that in the course of changes to the forest management model, payments are being made to the neighbouring villages. The size of these payments is based on an anticipated sustainable volume of timber yield, which has not yet been achieved due to the fact that the forest

*No payment of
monetary com-
pensation...*

on and natural resource management. The latter activity area would be designed for a range of resource user groups, on an analogous basis to agricultural and forest management extension, and would link the extension services to concrete promotion offers.

is still in the rehabilitation phase. The money is utilized by the village for maintenance activities (fire protection, patrols), and to support the forest management committee. It is planned to continue the payments until the anticipated sustainable yield potential is realized.

...but development of village infrastructure and provision of compensatory land are documented.

Compensation in the broader sense

For a number of projects, the project proposal document makes explicit reference to the fact that the establishment of a protected area, and the changes in forest management, are expected to lead to direct loss of income and yields among the local population, which are then to be offset by project measures. Those projects in particular whose work seeks to integrate resource protection and utilization interests in some cases make major efforts to tap alternative sources of income and implicitly transfer future income from changed forest management practises.

Tapping alternative sources of income

Eight of the 15 projects aim to help tap alternative sources of income. To this end they focus on the options of tourism promotion, promotion of small-scale enterprise, and the promotion and marketing of timber and non-timber products. Activities primarily involve the identification, trial and examination of different options.

Tourism and small businesses create alternative sources of income.

Implicit transfer of future income from forest management

Participatory forest management is seen as offering a wide range of options for compensating (in the broader sense) restrictions on customary, usually non-sustainable forms of forest utilization. These revolve around the notion of utilizing and "monetizing" the forest, thus enabling the local population to develop an inherent interest in its protection. Project examples of income and/or yields obtained by the local population directly through sustainable forest management include:

- long-term utilization for subsistence and marketing of high-grade timbers, medicinal plants and existing livestock;
- participation in income generated through tourism in protected areas;
- securing property rights on forest resources.

The project documents give no indication as to how the participating institutions, which in some cases have to undergo processes of considerable change in awareness and behaviour, might be involved in the process of compensation.

"Monetize" the forest

The participating institutions must be involved in the compensation process.

Measures to identify agricultural production

The strategy of these measures consists in promoting site-specific land-use management which sustainably utilizes natural resources, in order to reduce the pressure of exploitation on neighbouring forest reserves, especially that caused by shifting cultivation.

According to the documents, eight of the 15 are explicitly planning "measures to intensify agricultural production". These involve for instance the provision of inputs, support of agricultural extension, land-use planning, alternative site-specific land use, agroforestry etc.. Through promotion of improved land-use methods, the measures aim to increase yields per unit area. They also promote the diversification of farm organization, in order to tap new subsistence and market options, and thus help stabilize the income and food situation.

Diversified and improved land use reduce the pressure of exploitation on the forest.

Incentives to cooperation

In contrast to compensation measures, incentives are not directly but only indirectly linked to the restrictions on utilization and corresponding losses associated with a nature conservation project. Incentives include both sectoral back-up and confidence-building measures.

All the projects examined include these types of incentive. The spectrum embraces:

- development of physical and institutional infrastructure within the scope of village development measures:
 - implementation of construction measures, such as schools or health facilities;
 - establishment of financing and lending institutions;
 - support of marketing structures;
- service delivery in the form of conflict management and environmental education;
- promotion of self-help initiatives at the local and regional levels;
- creation of legal frameworks.

Sectoral back-up and confidence-building measures create incentives to cooperation.

5.3 Potentials and limits – critical aspects

As is evident from the analyzed projects, the implementation of **compensation measures in the strict sense** is unusual in project practise. By contrast, compensation measures in the broader sense are an integral component of work in almost all the projects. Another common component of project practise are incentives designed to increase the

voluntary motivation of the population to manage natural resources, and especially forest resources, on an ecologically sustainable basis.

The present paper will not at this point seek to evaluate the "appropriateness" of the use of the different instruments in the various projects. The information base with respect to the specific project conditions, pressure generated by the respective problems, and the particular design of the measures, would be too imprecise for this purpose. It would seem more important to consider the opportunities and constraints inherent in the use of compensation measures, and thus draw conclusions concerning the potentials for applying this instrument.

Opportunities emerge primarily from the basic concept of "compensation" presented here. "Compensation" should **not be subsumed under "incentives"**. Where possible, these measures should as far as possible **directly offset** the restrictions on utilization causing loss of income or yields. The form they take should be openly negotiated, so that all actors clearly understand that the promotion measures bear a direct relation to protection of the forest. This will increase the likelihood that restrictions on utilization imposed to protect the forest are consciously accepted and also implemented. The livelihood activities of the local population are respected, and the latter share in the process of decision-making as to what form the necessary changes should take and how they should be promoted.

Negotiate compensation measures openly with the local population.

This creates an important precondition for **cooperation in partnership** between nature conservationists, forest administrations and local user groups. Claims on utilization must be acknowledged explicitly, and the scope and significance of the restrictions on local groups must be ascertained. Only this will create a basis for negotiations in which the local population can articulate their interests and assume responsibility when measures of nature conservation and forest protection are implemented in the area where they live and secure a livelihood.

Cooperation in partnership requires active responsibility on the part of the local population.

There is no question about the fact that there are relatively fixed **limits** to the use of compensation mechanisms in the strict sense, based essentially on monetary payments and the provision of compensatory land. The reasons for this include:

- The affected groups are not sufficiently aware of the design and mode of impact of development-policy instruments and compensation mechanisms.
- In formal terms there is an imbalance of power, leading to a situation in which the population are unable to publicly articulate their interests (no lobby).
- The legal frameworks governing ownership and utilization are often unclear, and make it more difficult to assert claims.

Funds and compensatory land are in short supply.

- Monitoring and steering mechanisms that are needed for fair compensation are difficult to put in place.
- Funds to finance compensation measures are usually scarce.
- As population densities increase, the amount of available compensatory land decreases.

Alongside these reasons, it is in some cases also necessary to take into account the **development-policy implications of compensation measures in the strict and broader senses as defined here**. Monetary payments in particular, but also compensation measures in the broader sense, carry an inherent risk of generating a **"recipient mentality"** among the population which might undermine commitment and active initiative.

All compensation measures involve treading a fine line between providing fair compensation and harnessing the population's inherent potentials.

It is also possible that **counterproductive effects** may result that impact negatively on forest protection. These involve activities which destroy forest resources, as well as pull effects from other regions. In a number of countries for instance, harvesting in primary forests increased when compensation was offered for leaving the resources untouched.

Self-sustaining measures have priority.

Compensation measures require **funds**. Against the background of increasingly scarce (public) funds, investment in economically efficient, self-sustaining measures enjoys clear priority over financial transfers from public funds.

Any kind of compensation becomes meaningless if it cannot be **distributed in a just manner**, i.e. if it does not beyond doubt benefit those who actually suffered the loss.

The questions raised (and not fully answered) here illustrate the importance of designing compensation measures on an individual and situation-specific basis.

6 On Designing Compensation Measures to Help Promote Livelihood Systems – Open Questions¹⁷

When projects wish to develop compensation measures to support livelihood systems or other user groups in making their natural resource management practises in protected forest areas more ecologically appropriate, it is recommended that a number of issues first be systematically addressed. The following points might be helpful in this context:

1. Analyze actors and interests

- Ascertain the objectives and motives of forest protection (Why are there plans to protect an area? How much scope is there to negotiate "protection by sustainable management"?).
- Identify the internal and external actors (Which groups play a role? What are their interests?).
- Establish property and utilization rights, and the rights of the individual groups.
- Which area is to be designated as protected forest?
- How are the population to be involved in the zonation process?
- Define the planned measures of ecological protection.

2. Identify the restrictions which the local resource users are being required to accept as a direct result of nature conservation measures

- Which group has been utilizing which resource to date, and how is the utilization organized? Who will utilize what in future?
- Which previous forms of utilization will no longer be possible against the background of nature conservation?
- How has this point been put across or negotiated?
- What will this mean for the income or yields of the local users?
- On what basis are the compensation measures to be based?
- Where do conflicts exist now, and where might they do so in the future?

¹⁷The reader is also referred to the RMSH Pilot Project on the subject of preconditions for the application of compensation measures.

3. Identify the direct and indirect beneficiaries of compensation measures

- Which user groups or persons should benefit from compensation in the strict and broader senses?
- Which measures should be applied for which groups? User groups, institutions, NGOs?
- Who should explicitly **not** be included in the measures?
- How can it be ensured that the measures ***bear and will continue to bear a direct relation to losses induced by restrictions on utilization?***

4. Identify the potential for compensation measures in the broader sense which bear a direct relation to losses induced by restrictions on utilization

- Analyze the existing natural, institutional and infrastructural potentials, and the preferences of the neighbouring population.
- What concrete options are available that would not require intervention at a fundamental level?
- What would be conceivable beyond that, and what preconditions would need to be created to that end?
- Which self-help initiatives already exist?
- How can the direct relationship between the measures and the restrictions which the actors are required to accept be made clear and firm?
- What counterproductive effects might be created by compensation measures in the broader sense?
- Which options exist for counteracting them?

5. Identify the necessary measures of compensation in the strict sense (financial or material transfers and compensatory land)

- Which bottlenecks will arise that in the short or long term can only be offset through direct financial transfers?
- On what basis should the compensation be measured? Land, labour input, one-off or recurrent payments?
- How can the link between the compensation and the loss incurred be made transparent and firmly established?
- What practical arrangements can be made for direct transfer payments? Should payments be made to individuals or groups? Who will guarantee monitoring?
- What pull effects are to be anticipated which will increase the pressure of exploitation on the protected area and the transition zones?

6. When compensation is provided, ensure that steering and monitoring mechanisms are in place

- Analyze local organizational structures, as well as structures of power and influence.
- Identify village monitoring mechanisms.
- Define competences of administration, management and monitoring.
- Identify conditions for fair distribution (e.g. large farmers, smallholders etc.).

8. Ensure the financial sustainability of compensation measures

- What are the overall costs generated by compensation in the strict and broader senses? What volume of funding and investment is necessary?
- Who should pay which cost contribution? What options are available for involving private sources of financing?

References

- Hampicke, U. (1991): Naturschutzökonomie.
- Henrichsmeyer, W. & H.-P. Witzke (1991) Agrarpolitik. Bd.1: Agrarökonomische Grundlagen.
- Henrichsmeyer, W. & H.-P. Witzke (1994): Agrarpolitik. Bd.2: Bewertung und Willensbildung.
- Kemper, M. (1989): Das Umweltproblem in der Marktwirtschaft. Wirtschaftstheoretische Grundlagen und vergleichende Analyse umweltpolitischer Instrumente in der Luftreinhalte- und Gewässerschutzpolitik. Volkswirtschaftliche Schriften Heft 390.
- Loebenstein, K. & T. Welte (1993a): Compensation and Reconciliation of Interests in the Field of Buffer Zone Development. Vol. 1: Experiences - Implications - Recommendations. Study commissioned by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. Pilot Projects "Environmental Protection and Resource Conservation (PV/UR) and Resource Management through Self-Help (RMSH)".
- Loebenstein, K. & T. Welte (1993b): Compensation and Reconciliation of Interests in the Field of Buffer Zone Development. Vol. 2: Case Studies in Asia and Africa. Prepared on behalf of the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. Pilot Projects "Environmental Protection and Resource Conservation (PV/UR) and Resource Management through Self-Help (RMSH)".
- Pilotvorhaben „Ressourcenmanagement über Selbsthilfeansätze“ der Deutschen Gesellschaft für Technische Zusammenarbeit (GTZ): Die Rolle von Anreizen bei der Anwendung von RMSH als Vorgehensweise. Eine Handreichung für Projektbearbeiter / -innen, Consultants und Projektmitarbeiter / -innen.
- Sektorvorhaben "Livelihood Systems and Tropical Forest Areas (LISTRA)" der Deutschen Gesellschaft für Technische Zusammenarbeit (GTZ) (1995): Zonierung von Schutzgebieten in Deutschland. Das Beispiel des Biosphären-Reservats Rhön. (1996): "Wer tut was?" Projektdokumentation.
- Sektorvorhaben "Livelihood Systems and Tropical Forest Areas (LISTRA)" der Deutschen Gesellschaft für Technische Zusammenarbeit (GTZ) (1996): Bildung, Erziehung, Beratung? Umweltkommunikation in der Randzonenentwicklung.
- Wicke, L. (1993): Umweltökonomie. 4. Auflage, Stuttgart.

Annex:

Typology of African Projects Contained in LISTRA Project Documents

The present section comprises an evaluation of the types of project identified in the *project documents*. Within the scope of work on the theme of "compensation measures", 26 projects in Africa were analyzed with respect to the design and application of such measures. In order to better highlight the distinctions between the respective projects, the projects were classified into four types by the following three criteria:

1st criterion:

What is the project's source of motivation for nature conservation and forest protection? (Supraordinate goal **or** immediate goal of forest conservation from the point of view of the local population?)

2nd criterion:

Is forest resource management an integral component of the project? (Forest management activities are an integral project component **or** forest management is not an integral project component).

3rd criterion:

How intensively do the population participate in forest management? (Protection of forest resources through sustained-yield management based on participatory planning **or** protection of forest resources by largely excluding the local population).

Depending on the permutation of responses to the three criteria, the projects were classified into four types:

Type 1: Projects aiming to utilize resources to generate income for the local population, due to the fact that the latter have hitherto been prevented (by existing legal frameworks) from utilizing the forest on a legal basis (protection through utilization and forest access).

Type 2: Projects focusing on the protection of natural resources (forest and livestock resources, biodiversity), and largely excluding the local population from utilization.

Type 3: Projects promoting site-specific land use and intensification of agricultural production, in order to reduce the pressure of exploitation on the surrounding forest resources. (Protection through improved management of non-forest resources).

Type 4: Projects focusing on the site-specific management of natural resources (primarily land use), designed to secure the natural resource base from which the population derive their livelihood directly (sustainable resource management).

A further project type (5), which is not identifiable by the three criteria, involves projects at a supraordinate level designed to improve institutional and legal frameworks (policy advisory services).

Annex: Evaluation of Projects with Respect to Various Compensation Measures and Incentives

(Database: project documents covering present implementation phases)

Country / Project	Compensation measures and incentives						Comments
	Compensation in the strict sense		Compensation in the broader sense			Incentives	
	Monetary payments	Land	Measures to intensify agricultural production	Tapping alternative sources of income	Transfer of future sources of income	Sectoral back-up and confidence-building measures	
Ethiopia Integrated Forest Management Adaba-Dodola			X ¹⁾		X ²⁾		¹⁾ Provision of inputs by the project. ²⁾ Utilization of forest products by the population.
Burkina Faso Integrated Forest Management in the Ougadougou Catchment Area	X ¹⁾				X ²⁾		¹⁾ During a transitional period, payments are made to villages to compensate the ban on logging. ²⁾ From sustained-yield timber exploitation; marketing assistance with timber and non-timber products.
Côte d'Ivoire Sector Programme Forest Management			X	X		- Confidence-building measures ¹⁾	¹⁾ The confidence-building measures were not specified in any further detail.
Ghana Forest Rehabilitation Volta Region			X ¹⁾	X ²⁾	X ³⁾		¹⁾ Conceptual development; agricultural and forestry extension. ²⁾ Promotion of agroforest systems. ³⁾ Logging fees and utilization of fuelwood from the community forest.

Country / Project	Compensation measures and incentives						Comments
	Compensation in the strict sense		Compensation in the broader sense			Incentives	
	Monetary payments	Land	Measures to intensify agricultural production	Tapping alternative sources of income	Transfer of future sources of income	Sectoral back-up and confidence-building measures	
Guinea Sustainable Natural Resource Management and Measures for the Local Population					X ¹⁾		¹⁾ Utilization of forest products.
Cameroon Promotion of Korup National Park		X			X ¹⁾	- Financing of village extension workers.	¹⁾ Utilization of forest and wildlife products.
Cameroon Integrated Nature Conservation Mount Cameroon				X ¹⁾	X ²⁾	- The establishment of a self-help fund is planned.	¹⁾ Alternative income measures are being examined. ²⁾ Utilization of forest and wildlife products.
Congo Nature Conservation Noubale-Ndoki			X ¹⁾	X ²⁾	X ³⁾	- Confidence-building measures ⁴⁾	¹⁾ Analysis of utilization potentials. ²⁾ Not specified in further detail, specifically for women. ³⁾ Utilization of forest and wildlife products. ⁴⁾ Not specified in further detail.

Country / Project	Compensation measures and incentives						Comments
	Compensation in the strict sense		Compensation in the broader sense			Incentives	
	Monetary payments	Land	Measures to intensify agricultural production	Tapping alternative sources of income	Transfer of future sources of income	Sectoral back-up and confidence-building measures	
Malawi Buffer Zone Development		X ¹⁾	X ²⁾	X ³⁾	X		¹⁾ It is not clear whether the resettlement activities took place as the park was established, or were a product of other national measures. ²⁾ Design and implementation of alternative production options. ³⁾ Support of small business and ecotourism (although the documents indicate that the parks have little potential) ⁴⁾ Sustainable utilization of the protected areas is permitted.
Zambia Conservation of Zambezi Teak Forests			X ¹⁾		X ²⁾	- Establishment of a revolving fund for forest management.	¹⁾ Improved land use. ²⁾ Legal utilization of forest products (timber and non-timber products).
South Africa People and Parks				X ¹⁾	X ²⁾	- Financial payments. - Moderation of negotiations.	¹⁾ Creation of initiatives for additional income (park protection, ecotourism). ²⁾ Participation in the benefits of the protected area.

Country / Project	Compensation measures and incentives						Comments
	Compensation in the strict sense		Compensation in the broader sense			Incentives	
	Monetary payments	Land	Measures to intensify agricultural production	Tapping alternative sources of income	Transfer of future sources of income	Sectoral back-up and confidence-building measures	
Tanzania Selous Game Management					X ¹⁾	- Infrastructural measures for village development through self-help.	¹⁾ Community game management.
Uganda Rehabilitation of Murchison Falls NP							It is not clear to what extent the project is involving the local population in the activities (although participation is an explicit aspect of the project purpose).
Zaire Nature Conservation East Zaire			X ¹⁾	X ²⁾		- Elaboration of concepts for forest utilization outside the parks. - Confidence-building measures ³⁾	¹⁾ Site-appropriate land use. ²⁾ Non-agricultural income as compensation, not specified in further detail. ³⁾ Not specified in further detail. It is not clear to what extent the local population participate in utilization of the park area.
Central African Republic Nature Conservation Bayanga			X ¹⁾	X ²⁾		- Confidence-building measures (cooperation with self-help initiatives).	¹⁾ Design of a land-use strategy. ²⁾ Tourism measures, small artisanal industries, alternative forest products, agricultural production, livestock and wildlife husbandry, fisheries, analysis of marketing problems.

