# Community Forestry in Germany, a Case Study Seen Through the Lens of the International Model

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#### **Abstract**

Recent and on-going international research, especially on community forestry in developing countries, has begun to question the success of the international community forestry concept that was introduced more recently, by the end of the 1970s. Though it appears that community forestry does contribute to a positive ecological outcome, further analysis seems to reveal that other advantages promised by the model, i.e., devolution of power to the local resource users and improvement of their livelihoods, simply do not happen.

In comparison the German Community Forestry as a concept was first introduced during the 18th century. This article investigates the ways in which German community forestry works and, given that it's continued existence represents a measure of success, whether it can be a model for community forestry worldwide. To ascertain this, we analyse 11 community forests in Germany, applying power theory and methodology to identify the powerful actors and these actors' interests. In addition, we also analyse the outcomes of community forestry.

The results show that the researched community forests are sustainably managed, but that powerful actors control this management. The direct forest user is not very involved and benefits only slightly. Therefore, the article concludes that the German community forestry cannot be a worldwide model, but that it is nevertheless an interesting model in practice if the goal is to manage forest resources sustainably.

**Keywords:** power, power-theory, actor, interests, social, economic, ecological-outcome, network-analysis

#### 1. Introduction

Community managed forests in Germany have a long and ancient history and date back to the time when the first settlers started to use forest resources, around 400B.C. (Lerner, 1993, 1994). A considerable amount of research has been carried out to determine how far back in history such use of common resources can be traced, including the use of forests and land by communities, and the legal status of such practices (von Löw, 1829; Stieglitz, 1832; Burckhardt, 1876; Wobst, 1971; Hassel, 1971; Köppe, 1978; Giesen, 1979; Hassel, 1985; Lerner, 1993, 1994). The results are still highly disputed and find no consensus. What is sure is that today's community forests emerged mostly from village cooperatives that chaired common property, including forests. Throughout history the structure and ownership of these cooperatives changed and developed in different ways. In the beginning of the 18<sup>th</sup> century the notion emerged that common land could be better managed if transferred into private ownership. According to Wobst (1971, p. 39) there are several community divesture orders (Gemeinheitsteilungsordnung Provinz Hannover 1802, Preußische Gemeinheitsteilungsordnung 1821, Bayrisches Gesetz über die Teilung von Gemeindegründen 1834, Ablösung- und Gemeinschaftsteilungsordnung 1834) that created the legal basis upon which to split up the old village cooperatives. Wobst argues that, soon after the divesture of common land, it became increasingly understood that this would not lead to improved output of the now privately managed land. Therefore, shortly thereafter most of the orders were replaced by laws regulating the management of common-use forests and community forests, which would not allow the divesture of forest land, e.g., the Bavarian law on commune and community forests of 1869, or the Prussian law on common-use forests of 1821 (Wobst, 1971). Up until then, most of the old village forests had been attached to political communes or were privatized and only few survived as community managed forests (Wobst, 1971). Since most of the surviving community managed forests exist today, the introduction of these laws is seen as the beginning of the German community forestry concept.

The term "community forest" is also used in translation to refer to German forests owned by political communes, i.e., cities or rural communes, as used by Hartebrodt et al. (2005). For our understanding, the term "community forest" refers more generally to forests for which a community is responsible. In Germany that means that every person in the community is formally an owner of the forest, without there being a specific area of which he has ownership (ideal share), and therefore has access to the forest and its products and could partake in decision-making regarding management. This differentiates community forests from commune forests, which also exist in Germany, are owned by political communes, and over which the residents have limited user and decision-making rights.

McDermott et al. (2009, p. 158) define the term "community forestry" as follows: "[...], community forestry refers to the exercise by local people of power or influence over decisions regarding management of forests, including the rules of access and the disposition of products". Her definition reflects well the international understanding of Community Forestry. Since the concept of an ideally owned and managed forest in Germany most closely approximates the international understanding of the term "community forestry" we decided to use the term "community forestry" to refer to it.

In comparison, community forestry (CF) programmes in the developing world aim to improve the livelihood of local people as well as the condition of natural resources on which they depend for their living. If local people became involved in decision-making processes concerning natural resources, they would develop a sense of ownership and start using them in more conservative ways (Agrawal, 2002). This idea developed in the 1970s, when researchers and policy makers realised that conventional, centralised management practices were not the right approach to manage forest resources that involve local people. Many researchers concluded that this would require power devolution to the local users, even at the community level (Ostrom, 1999; Acharya, 2002; Lachapelle et al., 2004; Nygren, 2005). Experience gathered around the world has shown that CF programs contribute at least to improved forest ecology (Brendler & Carey, 1998; Chakraborty, 2001; Dietz et al., 2003; Tomas, 2006; Charnley & Poe, 2007; Adhikari et al., 2007; Singh, 2008; Wollenberg et al., 2008; Devkota, 2010; Vodouhe et al., 2010; Maryudi, 2011; Pandit et al., 2011). However, other objectives, related to direct forest users, have more questionable outcomes. Maryudi (2011) and Devkota (2010) analysed community forests and concluded that local forest users were not the decision makers and that their livelihoods improved only slightly. According to Edmunds and Wollenberg (2001, p. 192), it is likely that the poorest forest user is now worse off than before. Shackleton et al. (2002, p. 1) conclude: "The way in which local people realise the benefits of devolution differs widely, and negative trade-offs, mostly felt by the poor, are common". In addition, Wollenberg et al. (2008) state that neither the local government model nor co-management has met the high expectations of the community forest program. Several other researchers (Ribot, 2004, 2009; Larson, 2005; Blaikie, 2006; Dahal & Capistrano, 2006) analysed the common practice of decentralization policy and concluded that it is seldom followed by genuine power devolution to the local users. Edmunds & Wollenberg (2001) report similar findings. They even go one step further, and state that local institutions are vulnerable to external powerful actors and that these powerful actors are more likely to dominate the processes. In addition, Agraval and Gibson (1999, p. 629) suggested that it would be "more fruitful" to focus on "internal and external institutions that shape the decision-making process" and that it is important to know what the multiple interests of the actors are, and how they make decisions regarding natural resource conservation. Schusser (2012a, p. 213) and Yufanyi Movuh (2012) make similar findings and observe that "outcomes of community forestry depend mostly on the interests of powerful actors".

When one follows the international research discourse, one might raise the question of whether CR programmes could ever fulfil all their promises. It seems that CF has an positive outcome for the forest resource, but whether this is enough to be successful in the long run is doubtful. As indicated above, the existence of community forests in Germany can be traced historically far back into the past. For this reason, this article will examine eleven selected community forests in four federal states. Applying the actor-centred power aproach, the sequence design and a core objective based outcome evaluation methodology, we will investigate how German community forests function. We identify the related actors, their power status and their interests, in accordance with an international definition of CF. In addition, we will analyse the social, economic and ecological outcomes of the selected CFs. By doing this, we can determine who has decision power over management and outcomes in CFs, the degree to which forest users benefit from it, and the consequences for the forest. This way, we hope to answer the question of can the German concept serve as a model for CF worldwide.

# 2. Theory and Method

## 2.1 Case Selection

As cases for the empirical analysis we selected successful community forests in Germany. Since we were interested in rich empirical data, we preferred community forests that had been active for longer periods. Therefore, the community forests in the former GDR (German Democratic Republic) that had been under state management during the communist period are not suitable. Wobst (1971, p. 5) gives an overview of the community forests in the old territory of West Germany. Community forestry is most prominent in the federal states of Lower Saxony, North- Rhine Westphalia, Hessen and Rhineland Palatinate (Wobst, 1971). We selected cases from these states based on interviews with experts from the State Forests Administration and the Chamber of Agriculture (Failing & Gregory, 2003), (Interviews 83\_G-91\_G). The cases should meet the goals of community forestry in practice very well.

Our goal is to identify good examples and not to evaluate how often such examples appear in Germany. Therefore we do not need a representative sample. Furthermore, the cases from Germany are part of a comparative analysis comprising 7 countries (Schusser et al., 2012). For each country we select about 10 cases. The main methodology requirement is to identify very good community forests.

## 2.2 Actor- Power Analysis

Since this study is part of an international comparative research project about community forests worldwide, we needed to generate data that could be compared with the results of other country case studies Therefore in all case studies the same theories and methods needed to be used (Schusser, 2013a). To analyse to power capabilities of an actor we applied the actor- centred power approach (ACP) (Krott et al., 2013). The approach makes the power, which is often blurred, observable and it is easily applicable in research and practice. Power in this model is defined as the ability of an actor to influence the behaviour of another regardless of the latter's will. The actor-centred power approach is built on three power elements an actor might possess in order to exercise power. These are coercion, incentives and dominant information, which are defined as follows:

- Coercion: altering the behaviour of another actor by force
- Incentives: altering the behaviour of another actor by providing advantages (or disadvantages)
- Dominant Information: alteration of another actor's behaviour due to his accepting information without verifying it

The actor-centred power approach provides a suitable basis for research. Due to the clear-cut definitions and links to observable facts it can be applied well in qualitative and quantitative research, which has been done by Schusser et al. (2012b).

In order to compare results from different community forest case studies conducted internationally and to save resources we developed a sequence design of preliminary, quantitative methods and follow-up qualitative methods. According to Schusser (2012c, p. 4) "[...] the sequence of quantitative and qualitative surveys could save about half of the resources needed for the field work as compared to a single qualitative method. At the same time, the quality of the research could be kept high by having flexibility in the formulation of hypotheses and in the search for empirical evidence". The sequence design starts with a preliminary quantitative network survey. It aims to identify most of the participating actors, their power and the most powerful actors.

The preliminary quantitative network survey was followed by qualitative data analysis. Its aim is to examine individually the power sources of the actors representing the most powerful actors. Theoretically, the observations look for empirical evidence of specific power sources or processes within the framework of the three elements of power. For example, coercion can be exercised by using a power source or by threatening. The power source could be the rifle of a forest guard, the physical strength of a truck or igniting a fire. Qualitative in-depth interviews shed light into such power features, accompanied by observations and secondary data like a forest management plan, laws, meeting minutes, guidelines or letters of formal acts from the field. The interviewer identifies an empirical phenomenon in order to find a relation to the power element that would support the existence of the specific power element. For example, the possession of a rifle by a forest guard indicates that he can exert considerable coercion over a forest user with no gun (Schusser, 2012). If the quantitative and the qualitative sequence brought contradicting results the choice was given to the qualitative sequence due to their multi- source based empiricism.

## 2.3 Outcome Analysis

To answer the question of whether CF has an impact we needed to analyse the outcomes in a relatively simple way. For this, we used the international CF goals, i.e., that the direct forest user should be empowered (social outcome), that his livelihood should be improved (economic outcome) and that the forest should be sustained or even improved (ecological outcome). The concept of Maryudi et al. (2012) and the operationalisation of these concept (Schusser, 2013b) provide a method to assess community forests based on these goals. It relies on expert judgments, documents and field observations. The outcome analysis is summarized in the following table:

Table 1. Outcomes of CF with definition and key facts

| Outcome                    | Definition (core objective)                   | Key facts  |  |  |  |  |  |
|----------------------------|---|--|--|--|--|--|--|
| <b>Social Outcome:</b>     | <b>Empowerment of direct</b>                  | <ul> <li>Access to forest related information</li> </ul>   |  |  |  |  |  |
|                            | forest users                                  | <ul> <li>Access to decision making</li> </ul>  |  |  |  |  |  |
|                            |   | <ul> <li>Access to forest land and resources</li> </ul>  |  |  |  |  |  |
| Low                        | No empowerment                                | No access to information, decision making and/or forest land and resources   |  |  |  |  |  |
| Middle                     | Some empowerment                              | Limited access to information, decision mak and forest land and resources  |  |  |  |  |  |
| High                       | Full empowerment                              | Maximum access to information, decision mak<br>and forest land and resources   |  |  |  |  |  |
| Economical                 | Contribution to the                           | • Forest products  |  |  |  |  |  |
| Outcome:                   | livelihood of direct                          | <ul> <li>Monetary benefits</li> </ul>  |  |  |  |  |  |
|                            | forest users                                  | <ul> <li>Community development (Note 1)</li> </ul>   |  |  |  |  |  |
| Low                        | No contribution in livelihood                 | No access to forest products, no monetary beneand no community development   |  |  |  |  |  |
| Middle                     | Contribution up to subsistence (Note 2) level | Access to community development which was financed through community forestry and financial benefits and/or products providing subsistence               |  |  |  |  |  |
| High                       | Contribution above subsistence                | Access to community development which was financed through community forestry and/or financial benefits and/or products supplied above subsistence level |  |  |  |  |  |
| <b>Ecological outcome:</b> | Contribution to forest                        | • Forest growth  |  |  |  |  |  |
|                            | condition                                     | <ul> <li>Biodiversity</li> </ul>   |  |  |  |  |  |
| Low                        | No contribution on forest                     | Observation of decrease in stands and forest area,   |  |  |  |  |  |
|                            | stands and biodiversity                       | No management activities   |  |  |  |  |  |
| Middle                     | Contribution to sustained                     | Observation in increase of stands or forest area,  |  |  |  |  |  |
|                            | forest stands                                 | Forest Management plans,   |  |  |  |  |  |
|                            |   | Control of implementation  |  |  |  |  |  |
| High                       | Contribution to sustained                     | In addition to sustained forest stands   |  |  |  |  |  |
|                            | stands and biodiversity                       | monitoring and increase of biodiversity  |  |  |  |  |  |

Source: Schusser, 2013, p. 26.

## 2.4 Interest Analysis

Asking an actor directly what his interests are might be a way to determine these. But the answers might be questionable, especially if the actor wants to hide his real interests. To avoid this we analysed actors' interests

following Krott's definition (2005, p. 8): "Interests are based on action orientation, adhered to by individuals or groups, and they designate the benefits the individual or group can receive from a certain object, such as a forest". He states that interests cannot be observed directly, but according to this definition they can be determined through observations of a given actor's behaviour. How the actor behaves and what he does are indicators that show his interests, for example, if an actor has no interest in a positive biological outcome he will be indifferent toward biodiversity issues. Therefore field observations were made to assess these behaviours, complementing the interviews with powerful actors that were conducted (Schusser, 2012, p.10).

After we assessed the interests we wanted to know if these were related to the outcomes. We designed an indicator (PIDO: Powerful Interest Desired Outcome), which shows the degree to which the powerful actors' interests can be related to the outcomes. Based on the actual community forest outcomes we can now see the degree to which the powerful actor is interested in a specific outcome. The following scenarios are possible and are presented below:

- PIDO (+1): the powerful actor has an interest in a high outcome
- PIDO (1): the powerful actor has an interest in a middle outcome
- PIDO (-1): the powerful actor has an interest in a low outcome
- PIDO (0): the powerful actor has no interest in a specific outcome

#### 3. Results

With the sequence design eleven community forest networks were analysed. The results show that the composition of the group of powerful actors is quite similar throughout all cases (Table 2). With the sequence design we identified participating actors whose number (network size) varies from 6 to 7 actors. If an actor appeared only shortly and was then replaced by another one, and if these actors had the same power status as well as the same interests, we counted them as being one, as we did in the case of the forest entrepreneurs. In total, 77 actors were interviewed.

The following subsections will present the results of the sequence design together with the ACP approach, the outcome analysis and the results from the interest analysis. Due to the richness of the empirical findings we made throughout the study it is not possible to present all results in detail. Therefore we summarized the results and give representative examples to explain how we carried out the analysis.

# 3.1 Results of the Actor-Power Analysis

The power status results of the sequence design for the powerful actors of the 11 researched community forests are presented in the following Table.

Table 2. Summary of power elements of powerful actors for all 11 researched community forests

| Name of powerful actor         | Total frequency of appearance (%) | Dominant Information (frequency %) | Incentives (frequency %) | Coercion (frequency %) |
|--------------------------------|-----------------------------------|------------------------------------|--------------------------|------------------------|
| Management committee           | 100                               | 100                                | 100                      | 100                    |
| Local forest administration    | 100                               | 100                                | 0                        | 100                    |
| Regional forest administration | 100                               | 9                                  | 100                      | 100                    |
| Leasehold hunter               | 100                               | 55                                 | 100                      | 100                    |
| Town representative            | 9                                 | 9                                  | 0                        | 9                      |

The Management Committee bases its power on a mixture of all three power elements, whereby dominant information and coercion are at its full potential. The Management Committee is selected by the members of the community forests and takes on the responsibility of managing the community forest on their behalf, and its coercive power is based in its constitution or, if this does not exist, in the old law-based regulations. One

example is the regulation on coppice system management for the Altenkirchen commune, 1890, § 21 (Haubergordnung für den Kreis Altenkirchen), which states that the chairman has the power to issue fines against anybody who have not followed the management regulations. The constitution also regulates the election of the committee as well as its responsibilities in managing the community forest accordingly and defines conditions under which the committee can make decisions without consulting all members.

In most cases the committee informs the members about activities that have taken place and about the financial accounting. This we see as evidence for the power element of dominant information, because the members do not question most of this information. The committee can determine the amount of the annual revenue to be paid out or how the firewood is to be distributed among the members. This is seen as an ability to offer incentives, since these instruments can be used to support the committee for re-election. In addition, the committee can make decisions about the hunting leasehold rights, which in good hunting grounds are very valuable.

The local forest administration is a subsection of the regional forest administration. Local foresters are often in charge of advising, managing and supervising community forests for long periods. The foresters are often part of the local village community and in some cases they are also chair holders in the community forests (Interview source 26, 77). This might explain why most of the information distributed by the local foresters is not questioned. They also have a high level of expert forest knowledge that often cannot be checked by the members of the community forest (observation 5, interview source 2, 10, 18, 26, 39, 45, 50, 56, 63, 69, 77). These are the main reasons why local foresters in all cases are determined to be powerful in regard to the power element of dominant information. In comparison, the regional forest administration was determined to be powerful for the element of trust only in one case, in spite of the fact that the officers in charge had similar expert forest knowledge. However, they were deemed to be strong in the power element incentives, since most regional forest offices make decisions regarding management subsidies or help with the application process for such subsidies. They also approve the management plans and can therefore influence the annual use of forest products. For example, one observation we made was during meeting between the local forester and the head of the regional forest office, in which they discussed the sustainable annual cut. They decided to hide the real figure and quoted a smaller one to the committee. When asked why they did this, they answered that if they would mention the real figure the members might be scared that not enough firewood will be left for their use. In addition both actors were considered to be powerful actors in regard to the power element of coercion, in all cases. The phenomenon can be explained in part by the common law functions of the forest administration. That is, most federal state forest laws entitle the forest administration to intervene in forest use in cases of common danger (Allgemeine Gefahrenabwehr). Due to the still unsolved legal status in Rhineland-Palatinate and Hessen, the community forests are seen as bodies governed by public law (Körperschaften des Öffentlichen Rechts) from which an obligation emerges that this kind of forest should fall under the management jurisdiction of the forest administration. North Rhine-Westphalia created, in 1975, its own law concerning community forests. In the amended version of 2008, paragraph 19 states that supervision is the responsibility of the regional forest administration, and paragraph 23 states that the community forest has to have an annual management plan that has to be approved by the same administration. Lower Saxony also has a law concerning organisations and community forests in their different forms. The law (Niedersächsisches Realverbandsgesetz, 1969, amended 2010) does not regulate forest management, it just stipulates that overall supervision should be carried out by the nearest political commune. The Lower Saxony Forest Law requires a management plan but it only stipulates that the plan has to be developed by a forest expert. Lower Saxony recently changed the legal status of its Forest Administration, to have it become a foundation governed by public law. With this, the Forest Administration shifted its sovereign responsibilities to the Chamber of Agriculture. The community forests in Lower Saxony can decide who is to draft the management plan and whether they would like to be managed by the forest administration, the agricultural chamber or by a private forest expert. All tree researched community forests are managed by the Forest Administration. However, community forests have to pay for the agreed management packages. The management still receives subsidizes from the chamber of Agriculture, and the regional forest offices assist with the pertinent application. Most of the timber is still sold through the regional forest offices. The latter normally have access to large amounts of timber, which enables them to negotiate better prices. To this day, this timber trade forces the community forests to market their timber through the regional forest offices, which might give the forest administration a kind of coercive power.

These arguments concerning Lower Saxony lead us to conclude that as long as the subsidies are paid and this kind of timber monopoly exists, the Forest Administration still has some kind of coercive power.

The leasehold hunter offers incentives through the payment of leasehold fees and he can offer hunting opportunities. In addition, he is in charge of hunting control.

The town representative only appeared in one case, in which the community forest needed permission to construct a road. Because of his status as an elected representative, the town representative's information was not questioned.

# 3.2 Results of Outcome Analysis

The ecological outcome for all eleven community forests evaluated was determined to be in the middle level, meaning that they were all being managed on the basis of sustainability. Apart from one case, in which membership meetings were held only once every six years, social outcomes were determined to be in the middle category. According to our definitions, members of this category have some access to the forest and its products, and participate in some decision-making processes. Since they meet normally every year, they can influence the direction of management through majority decisions, but they still have very limited access to forest products. Access to the forest, i.e. for recreational purposes, is a common right for every citizen in Germany.

The members of a community forest receive an annual pay-out, which is around 200€ on average, in most cases. Sometimes they can purchase firewood at reduced prices, or even get it for free, and they can use common buildings, e.g., huts, if these exist. This is why in most cases the economic outcome was determined to be in the middle category. Only in two cases were the stand conditions unproductive enough for the pay-out to be close to zero. Nevertheless, even in these examples the income was able to cover management costs. The following table presents the summarized results of the outcome analysis according to their frequency of occurrence:

Table 3. Summarized results of the outcome analysis according to their frequency of occurrence, for all researched cases

| Number of cases per | Outcome  | Outcome  | Outcome    |  |  |
|---------------------|----------|----------|------------|--|--|
| outcome*            | social   | economic | ecological |  |  |
| Low outcome         | 1 (9%)   | 2 (18%)  | 0          |  |  |
| Middle outcome      | 10 (91%) | 9 (82%)  | 11 (100%)  |  |  |
| High outcome        | 0        | 0        | 0          |  |  |

# 3.3 Results of Interest Analysis

The results of the interest analysis vary wildly. But what is clear to see (Table 4) is that in all cases every actor apart from the town council is interested in having control according to his standing (100%).

Table 4. Summarized categories of interests according to their frequency of occurrence for all researched cases

| Powerful actor  | Interests  | Total<br>frequency (%) |  |  |  |  |
|-----------------|--|------------------------|--|--|--|--|
|                 |  |                        |  |  |  |  |
| Management      | *Financial interests   | 100                    |  |  |  |  |
| Committee       | *Control of the CF   | 100                    |  |  |  |  |
|                 | *Firewood management   | 55                     |  |  |  |  |
|                 | *Timber management   | 18                     |  |  |  |  |
|                 | *Ecological interests  | 27                     |  |  |  |  |
|                 | *Public relation interests                                       | 9                      |  |  |  |  |
|                 | *Interests associated with involving younger members in          | 9                      |  |  |  |  |
|                 | management   | 9                      |  |  |  |  |
|                 | *Management on a local level                                     | 18                     |  |  |  |  |
|                 | *Control over hunting  | 9                      |  |  |  |  |
|                 | *Reintroduction of the coppice management                        |                        |  |  |  |  |
| Local forest    | *Control of silvicultural decisions                              | 100                    |  |  |  |  |
| administration  | *Control of the sale of wood                                     | 18                     |  |  |  |  |
|                 | *Safeguard of employment   | 9                      |  |  |  |  |
|                 | *More authority and possibilities for influence                  | 100                    |  |  |  |  |
|                 | *Financial interests   | 9                      |  |  |  |  |
|                 | *Control over hunting  | 36                     |  |  |  |  |
| Regional forest | Ţ  |                        |  |  |  |  |
| administration  | *Interested in high income generated through the sale of CF wood | 100                    |  |  |  |  |
|                 | *Improvement of the prestige                                     | 100                    |  |  |  |  |
| Leasehold       | *Wildlife stock conservation and or enhancement                  | 100                    |  |  |  |  |
| hunter          | *Control of every decision in the CF related to hunting          | 100                    |  |  |  |  |
|                 | *Financial interests   | 18                     |  |  |  |  |
|                 | *Low wildlife damage compensation                                | 18                     |  |  |  |  |
| Town council    | *Control over authorized road construction measures              | 9                      |  |  |  |  |

The following table shows the powerful actors' interests and their relations to the outcomes. The results clearly point out that the most of the actors are interested in sustainably managed forests.

Table 5. Powerful actors and their summarized interests in a social, economic or ecological outcome for all researched cases

| Powerful actors                       |   | PIDO social |     |    | P   | PIDO economic |   |     | PIDO ecological |    |     |    |
|---------------------------------------|---|-------------|-----|----|-----|---------------|---|-----|-----------------|----|-----|----|
| who appear in all cases frequency (%) | 0 | -1          | 1   | +1 | 0   | -1            | 1 | +1  | 0               | -1 | 1   | +1 |
| Management<br>Committee               | 0 | 0           | 100 | 0  | 0   | 0             | 0 | 100 | 0               | 0  | 100 | 0  |
| Local forest administration           | 0 | 100         | 0   | 0  | 82  | 0             | 0 | 18  | 0               | 0  | 100 | 0  |
| Regional forest administration        | 0 | 100         | 0   | 0  | 100 | 0             | 0 | 0   | 0               | 0  | 100 | 0  |
| Leasehold hunter                      | 0 | 91          | 9   | 0  | 73  | 0             | 0 | 27  | 82              | 0  | 18  | 0  |

- PIDO (+1): the powerful actor has an interest in a high outcome
- PIDO (1): the powerful actor has an interest in a middle outcome
- PIDO (-1): the powerful actor has an interest in a low outcome
- PIDO (0): the powerful actor has no interest in a specific outcome

#### 4. Discussion

The results presented in Table 3 clearly show that the German community forestry concept contributes towards a positive ecological outcome. All researched cases, according to their ecological outcome, were determined to belong to the middle category, which means that they are managed sustainably. A majority of the researched cases have been declared to be FFH (Flora- Fauna-Habitat) areas. This means that they are affected by the FFH regulation. With this regulation the European Union tries to connect ecosystems of importance for nature conservation issues. The regulation commits forest management to the improvement of the ecosystem towards fulfilling biodiversity goals. Apart from this, most management concepts incorporate biodiversity issues surrounding items like habitat trees or a certain amount of dead wood that should be not removed from the forests. Based on these arguments alone the study might conclude that German community forests achieve high ecological outcomes. However, the study could not find evidence that would justify concluding that there are, generally, high ecological outcomes. All of the researched forests continue to be managed with the aim of producing large amounts of timber. Several officials from different regional forest administrations mentioned that the forest administrations need to sell the timber in order for the community forests to justify their number of employees (interview source 18, 87, 91). In addition, management committees aim for high economic outcomes in all researched cases (Table 5) (interview source 1, 9, 17, 25, 38, 44, 50, 56, 62, 68, 76). This means that if the forest administration is to keep its costumers satisfied, it needs to deliver a certain economic output. A majority of the local foresters interviewed did not see a problem with their management style and the FFH regulation (interview source 2, 10, 26, 39, 51, 63, 77). All of them answered that they had already incorporated biodiversity aspects into their management considerations, but generally their practices continued as they were before the regulations appeared. This can lead to two possible conclusions: that the practiced sustainable management is already contributing to an high biodiversity outcome, or that it is just not feasible to adopt such management in production forests, especially if these need to cover management costs and to satisfy the different interests of the members involved. Since no evidence for biodiversity was found to support the first possibility (see Table 1), this study concludes with the second assumption. The results of this research are not surprising and were observed in a variety of similar studies elsewhere (Brendler & Carey, 1998; Chakraborty, 2001; Dietz et al., 2003; Thomas, 2006; Charnley & Poe, 2007; Adhikari et al., 2007; Singh, 2008; Wollenberg et al., 2008; Devkota, 2010; Vodouhe et al., 2010; Maryudi, 2011; Pandit et al., 2011).

Combining the interrelated interest results (PIDO ecological, Table 5) with the ecological outcomes achieved, we can find three correspondences. The PIDOs of the management committee, the local forest administration and the regional forest administration (in all cases) correspond to the outcome. Considering their power status in regard to trust, incentives and coercion (Table 2), the study concludes that they determined the ecological outcome. The other correlations that can be made are not that explicit. Interesting is the fact that the forest administration aspires to a low social outcome. It can be explained by the fact that negotiations concerning management are easier to conduct if there is only one contact person to deal with, e.g., the chairman. For its part, the management committee does not want to have to consult every member for every decision, but it still needs the general agreement of the members to legitimize its existence.

Most interviewed leasehold hunters would like to hunt absolutely undisturbed. This can be attributed especially to the fact that, because they pay leasehold fees, they develop a sense that the forest somehow belongs to them. Therefore they are not interested in the empowerment of the members. Only in one case was the hunter in question interested in a middle social outcome, since he needed the members to keep the committee from revoking his leasehold rights.

The results presented indicate that the members of the community forests (direct forest users) do not play a big role. This statement can be confirmed by looking at the results presented in Table 3. The social outcome was evaluated in 10 cases as middle and even as low in one case. This means that the members can make some decisions, mostly about who gets elected as a committee member, and they can vote on common decisions (i.e., in the case of buying new land) in general assemblies, the weight of the vote being proportional to the number of shares held. As shown in the results chapter, they have limited rights. Many researchers around the world report similar findings (Brendler & Carey, 1998; Chakraborty, 2001; Dietz et al., 2003; Thomas, 2006; Charnley & Poe, 2007; Adhikari et al., 2007; Singh, 2008; Wollenberg et al., 2008; Devkota, 2010; Vodouhe et al., 2010; Maryudi, 2011; Pandit et al., 2011). Never less, they indicate that it is not the forest user who decides on CF matters entirely. In addition, other researchers point out that decentralisation policies in practise are seldom followed by genuine power devolution to the local natural resource user (Ribot, 2004; Ribot, 2009; Larson, 2005; Blaikie, 2006; Dahal & Capistrano, 2006).

The economic outcome was rated mostly as middle, which means that community forestry does not contribute significantly to their livelihood. Nevertheless, all researched cases can cover their costs with the generated income. The results are surprising, considering that, according to the forest experts, we had selected the community forests that functioned best. In addition, the community forests still receive a kind of subsidy and/or support from the respective forest administrations. This raises the question of what might happen if the subsidies and the support are cut, as the European Union has already requested. The answer might be useful in order to predict how the ecological outcomes might change. Several other studies concluded with similar results (Shackleton et al., 2002; Flint et al., 2008; Charnley & Poe, 2007; McDermott & Schreckenberg, 2009; Maharjan et al., 2009; Danks, 2009; Lawrence et al., 2009; McDermot, 2009; Vyamana, 2009; Pandit et al., 2011; Andersson & Agrawal, 2011; Maryudi et al., 2012; Maryudi & Krott, 2012). However, benefits for the direct user might not be always positive. Especially if they are distributed unfairly, this may increase inequity between the forest users (McDermott & Schreckenber, 2009; Maharjan et al., 2009; Danks, 2009; Lawrence et al., 2009; McDermot, 2009; Vyamana, 2009; Pandit et al., 2011). This aspect is not researched within the study.

Burckhardt (1876) had already suggested that to avoid divestiture from the forest and with this its destruction, the community forests could only be well managed by experts meaning the foresters. He added that these community forests are brought into the influence of the forest administration and that "nobody thinks about" (p.75) removing the laws that regulate the management of such forests. As we noted above, to this day the forest administration has a great influence on management decisions, so it seems little has changed since Burkhardt's observations. Given that the devolution of power to the forest user has not taken place or that said power has perhaps even been removed, and seeing how the forest user seems to be benefitting only slightly from present arrangements, we conclude that German CF cannot be a model for CF worldwide. However, it is an interesting model when it comes to sustainable forest management, if authorities have enough power to implement it for this purpose.

The role of the direct forest user is well presented by Poteete and Ostrom (2004, 2008) and Wollenberg et al. (2007). They see the local resource users as the unit that carries out collective action. Following that, the local resource user is the key for the success of a program like CF. This is a crucial point which is not questioned by this research. It only has researched the question of who influences CF at this present stage. The results clearly indicate that, so far, the forest user is not the one who determines CF. However, the results indicate that certain actors have taken the chance to improve their positions. This is clearly visible by looking at the results in respect of the forest administration. CF has helped the forest administration to keep the governmental control over the forest resources through the involvement of the forest user (devolution of power). Ribot and Agrawal (2006) report similar findings in their article "Recentralizing While Decentralizing: How National Governments Reappropriate Forest Resources". Apart from this, results in general support the general scientific notion that actors other than the local natural resource user are the ones who decide how CF is to work in practice (Maryudi, 2011; Devkota, 2010; Shackleton et al., 2002; Wollenberg et al., 2008; Ribot, 2004; Ribot, 2009; Larson, 2005; Blaikie, 2006; Dahal & Capistrano, 2006; Edmunds & Wollenberg, 2001; Agraval & Gibson, 1999).

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## Notes

Note 1. Illegal or legal.

Note 2. Subsistence an economy without the possibility to save something.

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