



# An integrated conflict analysis approach for the sustainable supply of Forest Ecosystem Services in Germany - the case of forest-based biofuel production

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Aktuelle wissenschaftliche Diskurse und Ergebnisse I

Zuständig: Prof. Dr. Daniel Johnson  
Von: Artur Täsler (24215668)  
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**Hochschule  
für nachhaltige Entwicklung  
Eberswalde**

# Agenda

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- Überblick über den Artikel
- Methodische Vorgehensweise
- Ergebnisse
- Fazit der Studie
- Fazit von Mir
- Diskussion

# Topic

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Wie wirkt sich die vermehrte Ernte von Wald-Biomasse und die damit einhergehende Steigerung der Biokraftstoffproduktion auf die Ökosystemleistungen aus und welche Konflikte werden dabei entstehen?

# Überblick

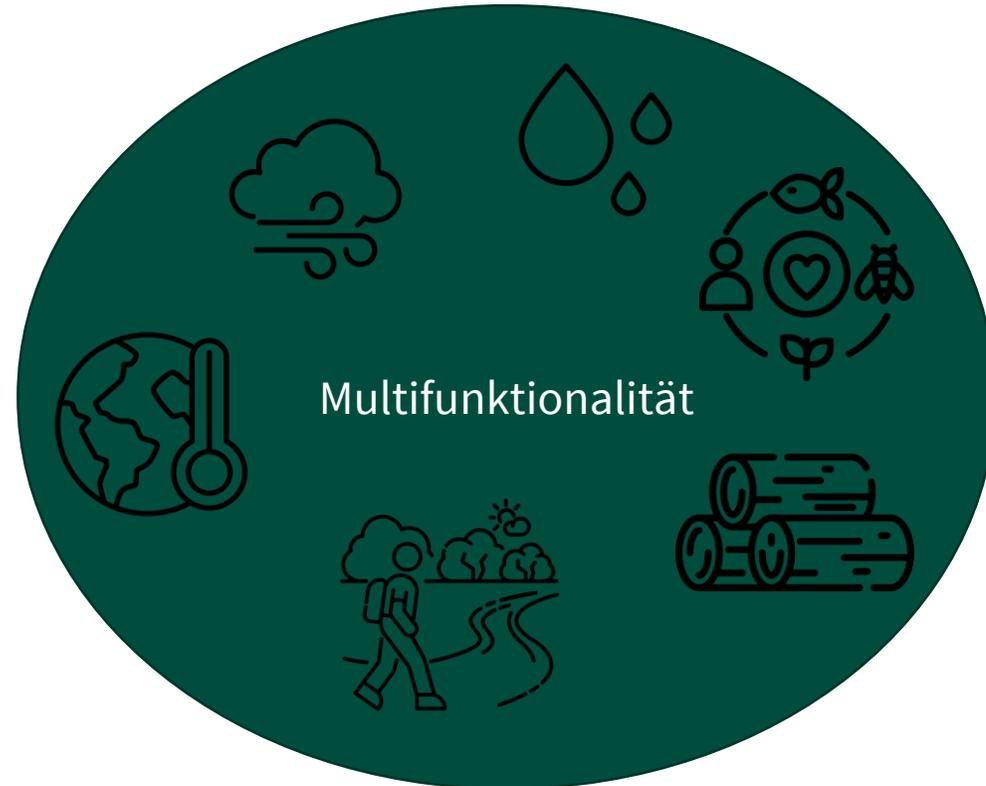
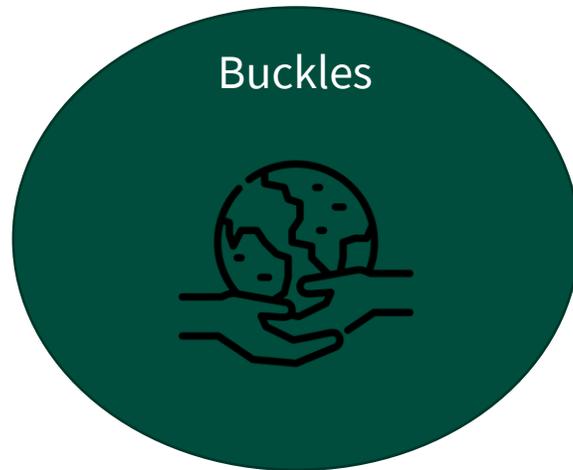
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**Fig. 1.** Methodology overview. (Template provided by [powerpointschool.com](http://powerpointschool.com)).

# Konzepte

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# Vier Hauptursachen der Ressourcenknappheit

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- Independenz der Stakeholder
- Ungleiche Machtverhältnisse
- Ressourcenknappheit
- Identitätsbezogene Konflikte

# Überblick

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Fig. 1. Methodology overview. (Template provided by [powerpointschool.com](https://www.powerpointschool.com)).

# Stakeholder Analyse

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**Table 1**

Identified stakeholder groups with various interests in the forestry arena in Germany.

Stakeholder Group	Description
1. Forestry	<ul style="list-style-type: none"><li>• Groups that are responsible for the administration and management of forests</li><li>• This includes private and public sectors</li></ul>
2. Nature Conservation	<ul style="list-style-type: none"><li>• Groups that seek to protect forests and biodiversity and by extension the ecosystem services that they provide</li><li>• This is generally through the promotion of decreased anthropogenic activities in forests</li></ul>
3. Politics	<ul style="list-style-type: none"><li>• Political actors who have an influence on public policy or its implementation that directly or indirectly affect the management of forests</li></ul>
4. Industry	<ul style="list-style-type: none"><li>• Covers all groups that receive and process forest biomass for the production of a wide range of products</li></ul>
5. Science/Academia	<ul style="list-style-type: none"><li>• Includes scientists, researchers, groups that are affiliated with education and research institutions</li></ul>
6. Tourism	<ul style="list-style-type: none"><li>• Encompasses groups that use forests for leisure activities, e.g. biking, hiking, yoga.</li><li>• These can be profit or non-profit oriented</li></ul>
7. Health and Recreation	<ul style="list-style-type: none"><li>• Are using the forest for health purposes or for enjoyment and pastime, spiritual uses</li></ul>

# Experteninterviews

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**Table 2**

List of interviewed experts representing one of the seven stakeholder groups.

Code	Position	Stakeholder Group
TM	Manager at a State Forest	Forestry
LR	Manager at a State Forestry Institution	Forestry
OZ	Coordinator at a Non-Government Organization on Environment	Nature Conservation
ZR	Adviser on Forestry at a Non-Government Organization	Nature Conservation
NM	Adviser on Forest Protection at a National Institution	Politics
NE	Adviser on Sustainable Forest Management at a National Institution	Politics
LH	Director at a Private Biorefinery	Industry
RD	Forest Scientist at a University	Science/Academia
ER	Manager at a National Park	Tourism and Recreation
EH	State Advisor on Forest Politics and Nature Conservation	Tourism and Recreation
EE	Chief Executive at a Health Association	Health
EN	Chief Executive at a Learning Institution for Forest Bathing	Health

# Experteninterviews

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„(...) identify potential conflicts related to increased forest biomass uses for biofuel production.”

# Experteninterviews

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- Haltung der Befragten zur gesteigerten Nutzung von Waldbiomasse für Biokraftstoffe in Deutschland
- Mögliche Konflikte zwischen Stakeholdergruppen benennen
- Innovationen und Synergien im Zusammenhang mit veränderter Waldbewirtschaftung erfassen

# Experteninterviews

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Meinung zur Nutzung von  
Waldbiomasse für  
Biokraftstoffproduktion?

Ob, und wenn ja, welche  
Konflikte können auftreten  
falls sich diese Nutzung  
erhöht?

Mögliche positive  
Entwicklung im  
Zusammenhang mit einer  
zunehmenden Nutzung von  
Waldbiomasse?

Einschätzung – nimmt die  
Nachfrage nach  
Waldbiomasse ab oder zu?

# Workshop 1

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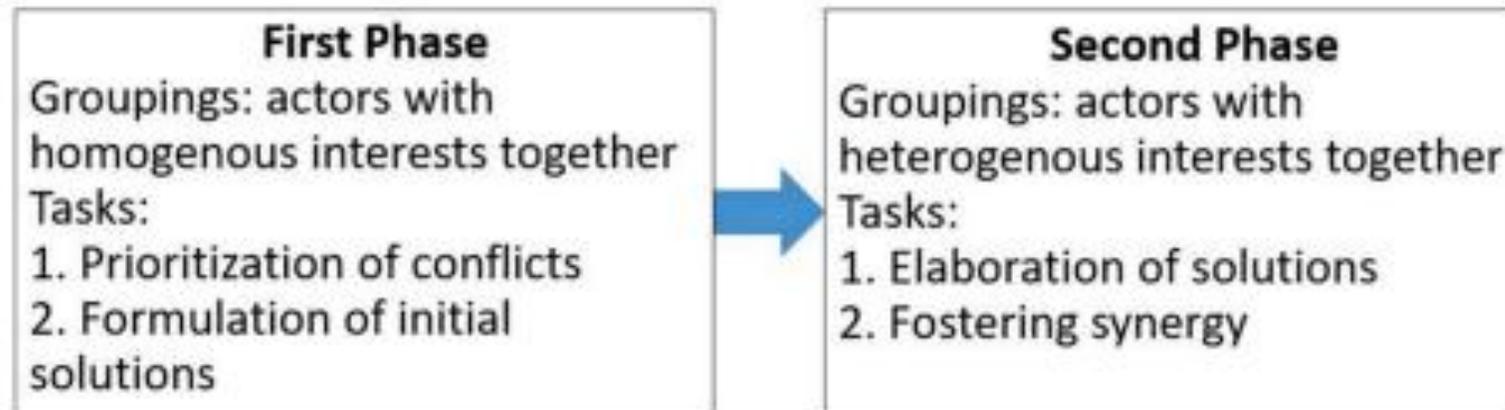


Fig. 2. Overview of Proceeding for the First Workshop.

# Workshop 2

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**Table 3**  
The three scenarios used for the second workshop.

Scenario	Description	Conflicts Addressed	Strategies
Nature Conservation Scenario	Aspects of nature conservation take precedence over all other forms of forest use	<ul style="list-style-type: none"> <li>• Forest Production vs. Conservation</li> </ul>	<ul style="list-style-type: none"> <li>• Payment for Forest Ecosystem Services</li> <li>• No bioeconomy</li> <li>• Use of only local timber</li> <li>• Use of only native trees</li> </ul>
Economic Scenario	Timber utilization is prioritized and other types of forest use must be subordinated to it	<ul style="list-style-type: none"> <li>• Forest Production vs. Conservation</li> <li>• Competition on forest biomass between different kinds of production</li> </ul>	<ul style="list-style-type: none"> <li>• Support for bioeconomy</li> <li>• Subsidy program for carbon storage in wood products</li> <li>• Wood and wood products gain political support as being sustainable</li> <li>• Research into innovative wood use</li> </ul>
Society Scenario	Future forest use is decisively shaped by participatory processes and thus by a broad public	<ul style="list-style-type: none"> <li>• Forest Production vs. Recreation</li> <li>• Forest Production vs. Conservation</li> <li>• Competition on forest biomass between different kinds of production.</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasis on multi-functionality of forests</li> <li>• Participative processes integrated in decision-making</li> <li>• Support for bioeconomy</li> <li>• Use of non-native tree species better adapted to climate change</li> </ul>

# Fokusgruppendifkussion

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- Die Expertinnen beschäftigten sich mit 3 ausgewählten Strategien um diese detailliert zu erörtern
- 2-4 Expert:innen
- civil service, academia, NGO and private practice

(1) “Strengthening participatory processes in forest management through the formation of forest committees”,  
(2) “More systematic use of market-based instruments and compensation systems”,  
(3) “Harmonization of government regulation for the provision of FES”.

# Ergebnisse Interviews

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Conflict	Description
Energetic vs. Material Use	This refers to the choice that needs to be made between using wood for energy as a substitute for fossil fuels and storing carbon in material use, where carbon is stored for longer and a higher overall economic value is created.
Wood Use vs. Carbon Storage	The conflict asks: which is the better strategy against climate change – storing carbon in wood products or in trees?
Reforestation vs. Agricultural Use	A growing demand for wood can increase the demand for additional areas for afforestation. These areas are often used for agriculture.
New Products vs. Already Established Products	Many wood products are made from similar ranges, so they compete with each other for a common raw material base. Biofuels, for example, would be a new product, increasing the demand for forest biomass that is already highly demanded.
Wood Use vs. Biodiversity	An increasing demand for forest biomass is associated with an incentive to harvest more biomass in the forest. This can result in a reduction of the proportion of deadwood in the forest or in the stock of older, larger-sized trees.
Forest Biomass Use vs. Recreation	Increased harvesting of forest biomass could affect the recreational value of forests by limiting access to forest areas or by a decrease of forest area in general.
Use of Wood vs. Remuneration for Public Services	Remuneration for public services (e.g. regulatory and cultural FES) could reduce the willingness of forest owners to use wood. This could result in a wood shortage.
Rising Commodity Prices vs. Other Types of Forest Use	If commodity prices rise, other types of forest use could be deprioritized.
Value Creation vs. Non-Utilization	Different targets are being set for the proportion of forests being set aside for non-utilization or conservation. These would further promote the scarcity of raw materials.

Tabelle 4 (Anhang A): The nine identified stakeholder conflicts from the expert interviews

# Ergebnis Workshop 1

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**Table 4**  
Conflict prioritization by the homogeneous groups during the first workshop.

Stakeholder Group	Prioritized Conflict
Politics & Science/ Academia	Wood Use vs. Carbon Storage
Forestry & Nature Conservation	Wood Use vs. Biodiversity
Forestry & Industry	New Products (including biofuels) vs. Already Established Products
Tourism, Recreation & Health	Cultural FES vs. Conservation vs. Wood Industry

**Table 5**  
Examples for initial strategies from the heterogeneous groups during the first workshop.

Prioritized Conflict	Selection of Initial Strategies
Wood Use vs. Carbon Storage	<ul style="list-style-type: none"> <li>• Development of indicator set for establishing nature reserves</li> <li>• 10 % set-aside of forest area</li> <li>• Further research on how much energy can be provided by biofuels from forest biomass</li> <li>• Establishment of a cascade use for forest products</li> </ul>
Cultural FES vs. Conservation vs. Wood Industry	<ul style="list-style-type: none"> <li>• More communication and mediation between user groups.</li> <li>• Consideration of regional context when defining existing conflicts</li> <li>• Determination which FES are in demand (where do biofuels stand)</li> <li>• Move away from classic economic perspective/ do not let economic pressure solely dictate forest management</li> </ul>

# Ergebnis Workshop 2

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**Table 6**

Strategies for managing conflicts and the provision of FES derived from the second workshop.

Strategy	Description
1. Strengthening participatory processes in forest management through the formation of forest committees	The forest committee acts mainly through participatory processes and decides how to manage the forest in a particular area with the inclusion of heterogeneous interests and in consultation with all stakeholders
2. More systematic use of market-based instruments and compensation systems	Alternative approaches for generating income from FES beyond timber provision should be supported. This calls for accounting for and valuing natural capital and is especially important for small private forest owners to show management alternatives.
3. Harmonizing government regulation for the provision of FES	A strategy for FES provision is needed. This could begin with identifying which forest policies conflict with each other and addressing them through prioritization or innovation. This could mean the designation of more protected areas with less forest production area being made available in total, which should be managed more intensively.

# Ergebnis Fokusgruppendifkussion

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- Strategie: Waldkomitees als Austauschplattformen
- Italien als Beispiel
- Biokraftstoffthema in lokale Stakeholder-Konsultation
- Erfassung der Anforderungen & Zielkonflikte

# Ergebnis Fokusgruppendifkussion

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**Table 7**

FGD results on strengthening participatory processes in forest management through the formation of forest committees.

Barriers	Chances	Framework Conditions
Hardly any participation processes available in public structures (internal as well as external)	Great project-related diversity of opinion	Creation of a general culture of participation in existing governance structures
Concerns/concerns from the population regarding forestry measures are often not taken seriously	Digitization of participation processes	New understanding of the roles of decision-makers; they must allow themselves to be questioned
"Information bubbles" (forestry/science vs. Internet)	Integration into participation processes that have already been successfully conducted	Legitimacy/binding nature of decisions must be ensured

# Fazit der Studie

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- Stark umstrittenes Thema
- Ökosystemleistungen unter ein Hut bekommen
- Erste Ansätze für Managementstrategien
- Bereits Übernutzung

# Fazit der Studie

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## Herausforderungen

- Corona Pandemie
- Fehlende Vertreter
- Teilnehmerzahl
- Groupthinking
- Autoren moderieren

## Verbesserungsmöglichkeiten

- externe Moderatoren
- Mehr Teilnehmer
- Mehr Perspektiven

# Eigene Einschätzung / kritische Reflektion

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# Diskussion

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QR Code: [mentimeter.com](https://www.mentimeter.com)

# Diskussion

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Inwiefern lassen sich ökologische Ziele (z. B. Klimaschutz, Biodiversität) mit ökonomischen Interessen (z. B. Bioenergieproduktion, Holzindustrie) vereinbaren?

Wie sinnvoll erscheint euch der Vorschlag, **Waldkomitees** als partizipative Plattformen einzuführen?

# Diskussion

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Welche Rolle könnte digitale Beteiligung (z. B. Online-Plattformen, Umfragen) bei der Entscheidungsfindung spielen?

Wird die Nutzung von Waldbiomasse für Biokraftstoffe eurer Meinung nach im Moment aktuell zu positiv oder zu negativ dargestellt?

# Quellen

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Titelbild: Selección de Combustibles - Sol Emilse Ungaro García (1759462), Valentino Criado (1763659), Valentín – Studocu, letzter Zugriff 15.04.2025

Ibisch, Pierre/Wohlleben, Peter: Waldwissen. Vom Wald her die Welt verstehen. München 2023

ScienceDirect: An integrated conflict analysis approach for the sustainable supply of Forest Ecosystem Services in Germany - the case of forest-based biofuel production, letzter Zugriff 16.04.2025

“Alle Tabellen und Abbildungen wurden aus dem oben genannten Artikel (Garcia et al 2025)

Entnommen”