Research and Development Project „The ´ecosystem approach´ in selected forest Biosphere Reserves" – theoretical background and experiences of three case studies in Germany

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Contents

Aims and project overview

Aim:

… to investigate the relationship between
decisions relating to the protection and utilisation of forests in selected forest biosphere reserves in Germany and

the ecosystem approach (EA)

and moreover

… to draw conclusions from this with regard to the future developments and implementation of this approach

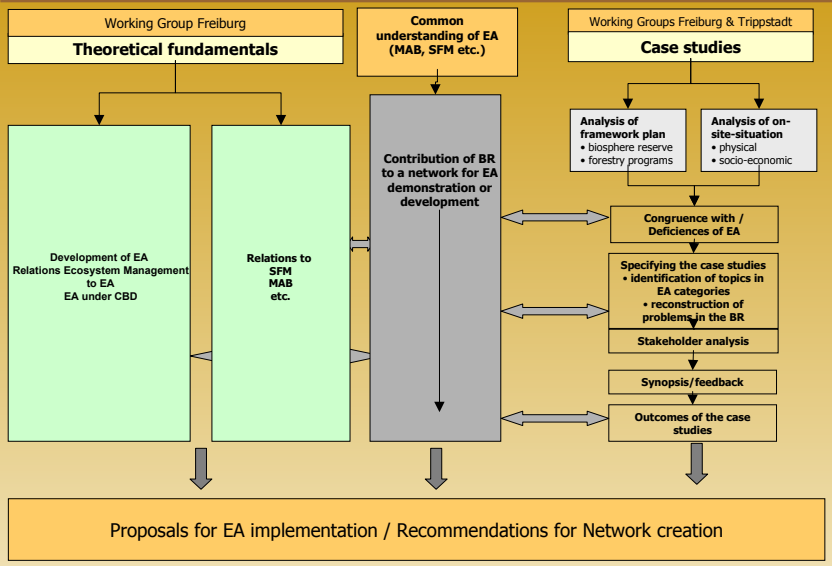
Starting points

Aims of the workshop – this presentation:

- International measures undertaken to stop the global loss of biodiversity (CBD)
- Approaches to the sustainable management of ecosystems
- Means to improve the stakeholder dialogue

Starting points

The ´Ecosystem Approach´
in selected forest biosphere reserves



Starting points

The ´Ecosystem Approach´
in selected forest biosphere reserves

Background/Fundamentals of Ecosystem Approach

- The 2nd meeting of the Conference of the Parties (COP 2) to the Convention on Biological Diversity urged the signatories **to implement the ecosystem approach (EA) as the central strategy** in order to achieve the integrated management of land, water and living resources (*Decision II/8*).
- In a resolution on **forest biodiversity**, the 6th meeting of the Parties to the Convention in Den Haag in 2002 urged the **widest possible application of the EA in these ecosystems** as well and at the same time stressed the need for an **international network** that would be best suited to pilot and demonstrate the implementation of the **EA in forests** (*Decision VI/22*).
- At the following Conference (COP 7) the **special contribution** that the approach could make to achieving a balance between **the three separate aims of the CBD** % the protection of biodiversity, its sustainable use and the fair and equitable sharing of the benefits derived therefrom - was outlined (*Decision VII/11*).

Background/Fundamentals of Ecosystem Approach

- The generally formulated **principles** of the EA were finally supplemented by a number of ***Implementation Guidelines***:
- Simultaneously the Conference fostered cooperation and analysis of existing *tools and approaches* that were in accordance with the ecosystem approach.
- The Ecosystem approch (EA) of the Convention on Biological diversity (CBD) stands as short formula for an holistic and sector-spreading beginning for the sustainable management of all forms of the land use.
- With the Ecosystem approach´ the rather abstract and to scientific contents aligned term of the ecological system was extended into social, administrative and political-economic dimensions of the resource management.
- To that extent the EA can be understood as holistic action-oriented political framework, which is to support a comprehensive management of ecological systems in accordance with the objectives of the CBD.

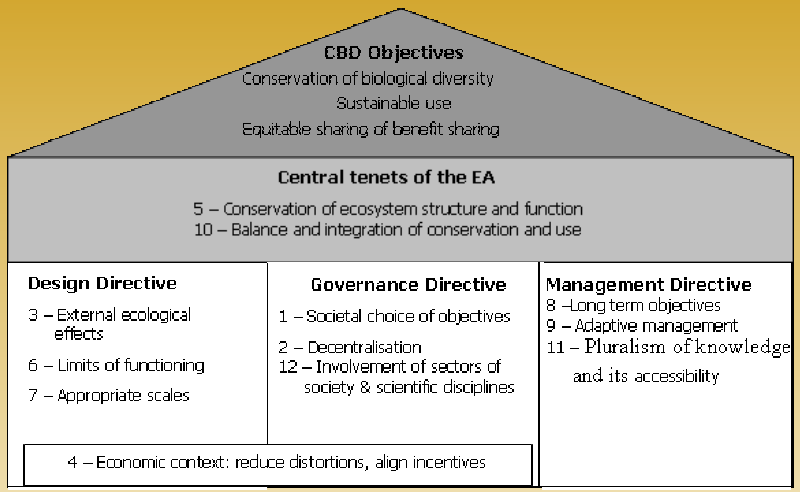
Since introduction of EA there were several attempts to subdivide or structure the EA in a logical or analytic manner

- to compare the EA with similar approaches or
- to classify the EA in existing models

In our study:
- New approach to structure the EA principles under CBD referring to resource management

Starting points

The Ecosystem Approach under the CBD



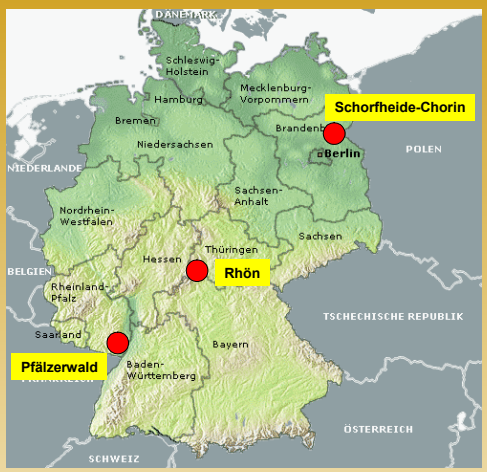
Starting Points

Integrative nature conservation in forests

➢ Relationship Sustainable Forest Management – Ecosystem Approach

Level of comparison	Sustainable Forest Management	Ecosystem Approach
1. Orientation and type of goals	Outcome-oriented approach, specific goals set, application of criteria and indicators	Science-based, comprehensive starting point of actions in and with reference to ecosystems, broad aims
2. Sectoral reference	Concentrates on forest ecosystems, starting point and measures mainly sectoral	Biological diversity seen broadly; sectoral boundaries must be crossed as a prime aim
3. Degree of operationalisation	In part, at least, already operationalised in detail	No worthwhile operationalisation up to now, rather 'management philosophy'
4. Production orientation	Orientated clearly, but not solely, towards timber production	'Holistic' approach, emphasis on integration of conservation and use
5. Dominant scale(s)	Up to now utilised on small scale	Applicable in large heterogeneous areas, emphasis explicitly on adequate scales and external effects
6. Adaptive management	Mainly reactive, "evolutionary"	Proactive, knowledge-oriented
7. Participation	Subordinate aspect, despite a few mentions	Central element, frequently emphasised

Case studies - Methodology



For the planned case studies along an imagined southwest-northeast-axis three forest biosphere reserves were selected,

- **Pfälzerwald-Vosges du Nord (14)**
- **Rhön (10) and**
- **Schorfheide-Chorin (7)**

representing the great diversity among the MAB areas and reserves in Germany with very different

- physical and
- socio-economic

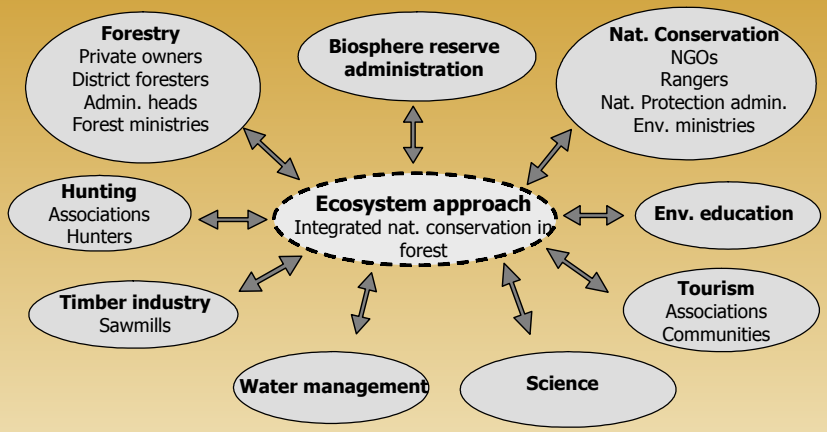
character.

Case studies - Methodology

	Schorfheide-Chorin		Rhön		Pfälzerwald	
	Hectares	%	Hectares	%	Hectares	%
Land use categories						
Forest	61.447	47,6	77.000	41,0	134.000	74,5
Acre	41.208	31,9	41.000	21,8	17.500	9,7
Grassland	7.378	5,7	55.000	29,3	6.000	3,3
Water courses	9.245	7,2	200	0,1	1.000	0,6
Colonies	5.133	4,0	14.000	7,5	12.300	6,8
miscellaneous	4.689	3,6	600	0,3	9.000	5,0
Total	129.100	100	187.800	100	179.800	100
Zone concept						
Core zones	3.500	2,8	4.468	2,7	3.844	2,2
Buffer zones	23.100	17,9	66.636	40,0	49.156	27,6
Transition area	102.500	79,4	95.570	57,3	124.842	70,2
Total	129.100	100	166.674	100	177.842	100
Inhabitants	33.000		122.000		160.000	
Inhabitants/km²	25		65		89	

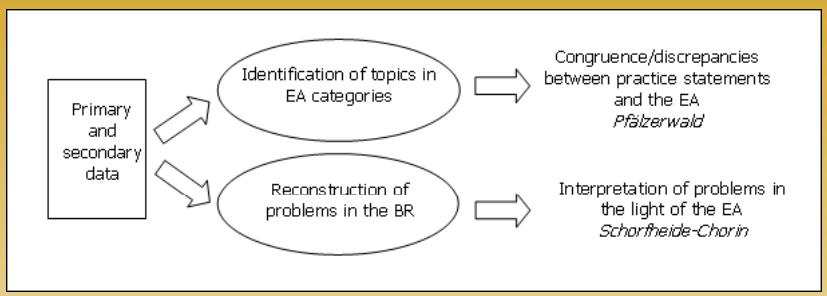
Case studies - Methodology

- Document analysis
- Stakeholder analysis with expert interviews



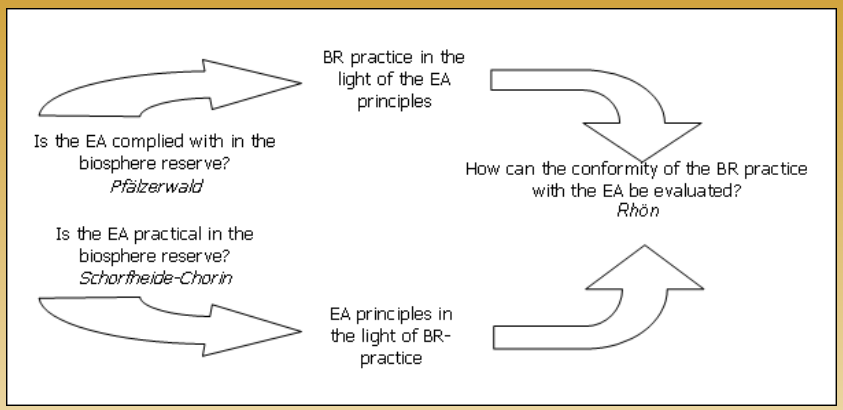
Case studies - Methodology

Evaluation variants



Case studies - Methodology

Integration of the problem formulation in the evaluation of the third case study



Case studies - Results

Participation in the case study Pfälzerwald (Principle 1)

Stakeholder	Involved at the forefront of zoning designation	Involved in the mountain bike project*
Forestry office	No information	Yes
Forestry administration	Yes	No information
Private forest small	No	No information
Private forest large	No	No information
Biosphere reserve administration	No	Yes
Sawmill industry	No	No information
MUF (land management)	Yes	Yes
Official nature conservation	No (only data)	No information
Nature conservation	No	Via advisory boards
Nature conservation	No	No information
Tourist industry community	No	Yes
Tourist industry organisations	No	Yes
Environmental education	No	No information
Water management	Yes	No information
State hunting association	No	No information
Hunting ÖJV	Not known	Yes (hunting)
Scientific advisory board	Not satisfactory	Yes (thesis, etc)
		*According to information from initiators

Case studies - Results

The stakeholders in the biosphere reserve have been integrated in different ways, depending on the circumstances. Participation started early in concrete projects, whereas in the zoning, participation open to all was only possible with the legal participation mechanisms of the legal regulations. After the biosphere reserve zones had been restructured in 2000, only the forestry and state administration as well as the representatives of conservationist and environmental protection groups (through the Landscape Management Association state management), for example, actually participated. The tourist industry, hunting organisations and private owners of forest land felt that they were being excluded from the zoning plans. Other examples, such as the creation of a mountain bike park, showed, in the

Final conclusion for principle 1

Excerpt from the text:
The stakeholders in the biosphere reserve have been integrated in different ways, depending on the circumstances. Participation started early in concrete projects, whereas in the zoning, participation open to all was only possible with the legal participation mechanisms of the legal regulations. After the biosphere reserve zones had been restructured in 2000, only the forestry and state administration as well as the representatives of conservationists and environmental protection groups (through the Landscape Management Association state management), for example, actually participated.

Interviewees agreed that the "local population" was showing little interest in the biosphere reserve. This impression could only be gathered from statements made by interviewees about the "population"

Environmental protection and conservation organisations would welcome a greater share in the decision-making processes and are demanding this, even though they do in fact have an earlier say on account of the legal requirements (public hearing) than does the local population

Current estimate: The principle is being adhered to only slightly. ☒

Case studies - Results

Analyse issues in the BR Pfälzerwald:
- planning for buffer zone
- zone konzept especially forest planning for the core zones

Principle text	assessment	rationale
3 - extern ecological effects: the manager should look over the fence and talk to the managers of other neighbouring ecosystems.	✓	• Forestry hardly has direct (negative) effects on other ecosystems • however other ecosystems have to be considered, which generally happens.
10 - equilibrium and integration of conservation and land use: conservation within the use; ecosystems should not be put under the safety glass bell.	+ -	• zone concept as presupposition for nature conservation and land use - transfer to concrete management plans only rudimental (forest development plan for core zones) • no plan for buffer and developing zone
4 - economical framework: to correct distortions and to harmonise incentives: to use the diversity of nature in a sustainable and responsible way instead of one-sided exploit (causer-pays principle!)	-	• no economical evaluation methods • hardly support of natur conservation of forest for private ownership • market distortions cannot be assessed • initiative of partner farms of the BR is assessed to be very positive

- The principle is hardly being adhered to
+ the principle is being adhered to only slightly
✓ the principle is being adhered to extensively or in relevant sectors

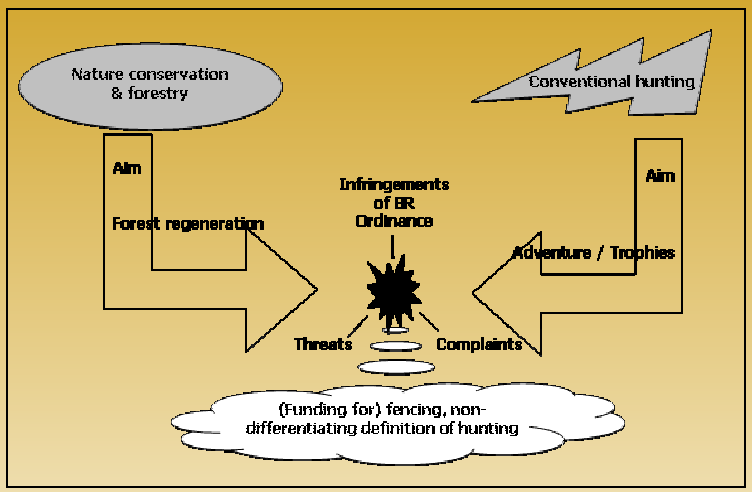
Case studies - Results

Estimation of congruence/discrepancies between practices and EA in the BR Pfälzerwald

Principle	Signature	estimate
Central tenets of the EA		
(5) Conservation of ecosystem structure and function	✓	The principle is largely being adhered to
(10) Balance and integration of conservation and use	✓	The principle is being addressed, but, in institutional terms , there are clearly still inadequacies
Design Directive		
(3) External ecological effects	✓	The principle is being addressed in the relevant areas
(6) Limits of functioning	✓	The principle is being addressed in broad terms, but the monitoring system is not adequate
(7) Appropriate scales	✓	Scales appear to be appropriate for the forest administration
Governance Directive		
(1) Societal choice of management objectives	x	The principle is being adhered to only slightly
(2) Decentralisation of the management	x	The principle is being adhered to only slightly
(12) Involvement of sectors and scientific disciplines	x	All the sub-goals of the principle are not being reached
(4) Economic context: reduce distortions, align incentives	x	Little development
Management Directive		
(8) Long-term objectives	✓	This principle is being followed to a very great extent
(9) Adaptive management/change	x	This principle is being followed to a certain extent
(11) Pluralism of knowledge and its accessibility	x	The implementation of this principle needs to be improved

Case studies - Results

Reconstruction of problems in the BR Schorfheide-Chorin



Case studies - Results

The central issue was which specific perspectives the ecosystem approach can offer to existing problems in the biosphere reserve:

Where is the ecosystem approach appropriate, where does it expand perspectives constructively, and which problems does it not help with?

A few problem situations were highlighted as examples:

***Participation*:**

The Schorfheide-Chorin biosphere reserve was set up during the confusion in East Germany after the fall of Communism on the innitiative of former conservationists; other stakeholders were not involved

After that, the state forest sector participated in drawing up an advanced body of legislation.

***Monitoring*:**

'integrated ecosystem monitoring system' complies with MAB requirements

This 'integrated ecosystem monitoring' operates - in contrast to Implementation Guideline 9.4- in a relatively isolated way.

Rather, it accords with the monitoring integrated into the daily work of the district forester that is governed by concrete problems such as damage from browsing game or the incidence of pernicious insects.

Case studies - Results

Adaptive management

- Pest calamity in the pine forest: help one to get off the usual tracks and to develop alternative models for a management problem and to pilot different strategies.
- some new management methods were pushed through at the beginning by some district foresters (e. g. hunting method)
- forest pest called the "nun moth", only an attempt at passive adaptive management could be ascertained (avoid chemical treatment, but only with the proviso that the calamity would develop and collapse as expected)
- chemical treatment happened - hesitant action was criticized
- decision-making alternatives ranged within the scope to prevent dying off of large forest areas – not conform to active adaptive management (considering other options and management strategies including the case of total lost of the forest)

Case studies - Results

Refusal of stakeholders:
ecosystem function of "groundwater formation" (*Principle 5*) of forest ecosystems is not guaranteed in an exclusively pine forest in Brandenburg;

forests being burdened beyond its limits (*Principle 6*) because of high game densities

Principle 4 … those who generate environmental costs should pay for the damage - does not happen

The stakeholder group of private hunters interested in trophy hunting was not involved in the participation process (*Principle 1*).

However the pursued goals – game management of trophy-bearing game that accepts excessive stocks – cannot be fundamentally reconciled with the most important objectives of close-to-nature forest management and are not in line with other principles of the EA.

The conventional private hunters visibly refuse to participate in the most important forest management goals – This phenomenon, however, lies outside the ecosystem approach.

Synthesis of the case studies

Central tenets of the EA
structure and functioning of ecosystems (*Principle 5*)
maintain balance between and integration of conservation and the use of biological diversity (*Principle 10*)

– can be identified in the MAB biosphere reserves (e. g. different variations of the zoning of the areas studied)
- for systematic assessment, however, the question still remains as to whether and when the surface areas and boundaries of conservation and sustainable use are appropriate for the aims of the EA (the sheer fact of the zoning cannot be automatically assessed as an achievement)

- In a multitude of concrete measures and programmes in all three areas studied (besides some deficites) the orientation towards the principles mentioned remain identifiable and is essentially not called into question by the stakeholders involved or affected.

All three areas studied follow the *central ideas* of the ecosystem approach as identified by us.

Synthesis of the case studies

Design Directive

deficits: systematic way of dealing with the issues of the critical loads and the off-site ecological effects (e. g. hunting in the Schorfheide-Chorin BR).
demand for *appropriate spatial and temporal scales (*Principle 7), is only verifiable with extreme difficulty (e. g. keeping the landscape in the Rhön partly open)

***Design Directive* appears to be on the whole comparatively unproblematic – according to the degree of compliance with SFM**

Governance Directive

- Basically, conservation and use processes are subject to very diverse management styles by numerous stakeholders,
- and, in part, widespread attempts to break up the inherited sectoral decision-making structures and to achieve a different, more open type of participation of various social groups were also evident.
- The degree of participation is not only associated with very different traditions sectorally, but also conforms to very different regional and institutional patterns. This requires to set up a moderated communication platform for the BR itself for all stakeholders.

Management Directive

- SFM aids the long-term objective (Principle 8) of ecosystem management and, to a certain extent, increases people's awareness of adaptive management (Principle 9).
- Thus the aim in the Pfälzerwald BR is to achieve a long-term "forest conversion" (even) in view of impending climate change, even though, up to date, management continues to take its bearings predominantly from the demands of the markets.
- passive adaptive management style comes up against its limitations (outbreak of pests in the woodland areas of the Schorfheide BR)
- objectives change - and achievement of these goals can scarcely be conclusively determined (exemples of the black grouse populations in the Rhön)
- adaptive management: definition of the goals and development of appropriate forms of management and associated monitoring can hardly be represented with reference to the relevant issues (but this is anyway questionable due to the uncertainty in principle of the forward-looking knowledge).
- scientific monitoring is present in important parts – deficits however in the field of socio-economic monitoring

Theoretical differences of EA to SFM and MAB (1)

- The *theoretical analysis* of the ecosystem approach furnished a sound structuring of the approach as a basis for the processing of the case studies
- Similarities as well as differences between the ecosystem approach (EA) and *Sustainable Forest Management* (SFM in the MCPFE version) became visible, as well as between the ecosystem approach and the programmatic statements of the UNESCO MAB programme.
- Theoretical or programmatic differences between the EA and SFM are mainly located in the *Governance Directive (*societal choice of objectives, decentral governance and broad participation are only found to a limited extent in SFM.
- A further less fundamental difference can also be discerned in the different understanding of adaptive management (Principle 9)

Theoretical differences of EA to SFM and MAB (2)

- Theoretical or programmatic differences between the EA and the MAB programme can primarily be found in the realm of the *Design Directive* and the *Management Directive*.
- The majority of the EA principles classified there (taking external ecological effects into account [3], critical loads [6], appropriateness of scales [7], long-term planning [8], adaptive management [9]) does not find any clear equivalent or sufficient treatment in the documents underlying the MAB programme.
- The first three principles, however, find an implicit equivalent in the multi-level structure (zoning) of biosphere reserves, the fourth finds its equivalent in their institutional form which is based on similar basic concepts.

Exemplary implementation?

→ Contradictory findings even at the level of individual EA principles – can hardly be subsumed

→ series of fundamental methodological problems - linked to normative and political issues.

→ an overall evaluation can only be a cautious consideration of the various trends.

→ The EA in particular seems to be hardly designed or suitable to furnish real substantial or procedural standards for dealing with different problems

→ Nevertheless, the Principles and Implementation Guidelines are clear enough to identify problematic decisions and decision-making processes in terms of the EA and to realign them under broader participation as the case may be.

Exemplary implementation?

→EA provision of a 'management philosophy', and not an operational tool

→ In all three areas studied, elements or principles of the ecosystem approach could be considered as completely or partially realised

→ positive factors prevail in our understanding of the approach, despite the shortcomings in the detail. However the ecosystem approach has not already been successful implemented in the areas studied *at the present time*.

→ Additional effort is necessary. The existing organisational, conceptual and expert preconditions seem to provide very good systematic conditions for setting *learning processes in terms of the ecosystem approach* in motion or keeping them going.

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