

BioStrat-EPBRS: National Review on Biodiversity and Companies in Germany

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Table of Contents

- A – National Regulations concerning impact on Biodiversity and their implementation. 3**
 - 1.1. Activities in Biodiversity impact assessments 3
 - 1.2. Mitigation/compensation for biodiversity impact 4
 - 1.3. Implementation and enforcement of regulations..... 4
 - 1.4. Institutions managing impact evaluations and/or compensations-mitigations (such as mitigation banking...)? 5

- B – Measures taken by companies (private or public) concerning Biodiversity conservation and research and National B&B 6**
 - 2.1. Accounting for biodiversity impacts by companies 7
 - 2.2. Which main measures have they taken to minimize their impacts? 7
 - 2.3. Companies’ contribution to the conservation of biodiversity 8
 - 3. National or Regional Business & Biodiversity initiatives 8
 - 4. Biodiversity research supported by private companies..... 11
 - 4.1. Assess the existing or past research activities in partnership with the private sector and the public companies in the field of biodiversity..... 11

- C – Ecological engineering 12**
 - 5. Ecological engineering in Germany 12
 - 5.1. State of the art of Ecological engineering applied to industrial impact assessment and restoration / mitigation in your country 12

A – National Regulations concerning impact on Biodiversity and their implementation

1.1. Activities in Biodiversity impact assessments

Based on the respective European EIA (85/337/EEC) and SEA (2001/42/EC) Directives, the German EIA and SEA Act (“Umweltverträglichkeitsprüfungsgesetz”) requires impact assessments for certain private and public projects, and public planning schemes of all kinds of significant impact level of certain project related thresholds and their interactions.

There is also a summarizing Environmental Report (“Umweltbericht”) necessary on the different impacts on the environment according to the German Building Act (“Baugesetzbuch”). In addition, plans and projects are checked, which might have an impact on certain species, and habitats on national level and of the Natura 2000 network protected by the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) according to the Federal German Nature Conservation Act (“Bundesnaturschutzgesetz”). Permissions of plans and projects with an impact on biodiversity are widely exempted from applying the Environmental Liability Directive (2004/35/EC) in favour of the established specific regulations above (Figure 1).

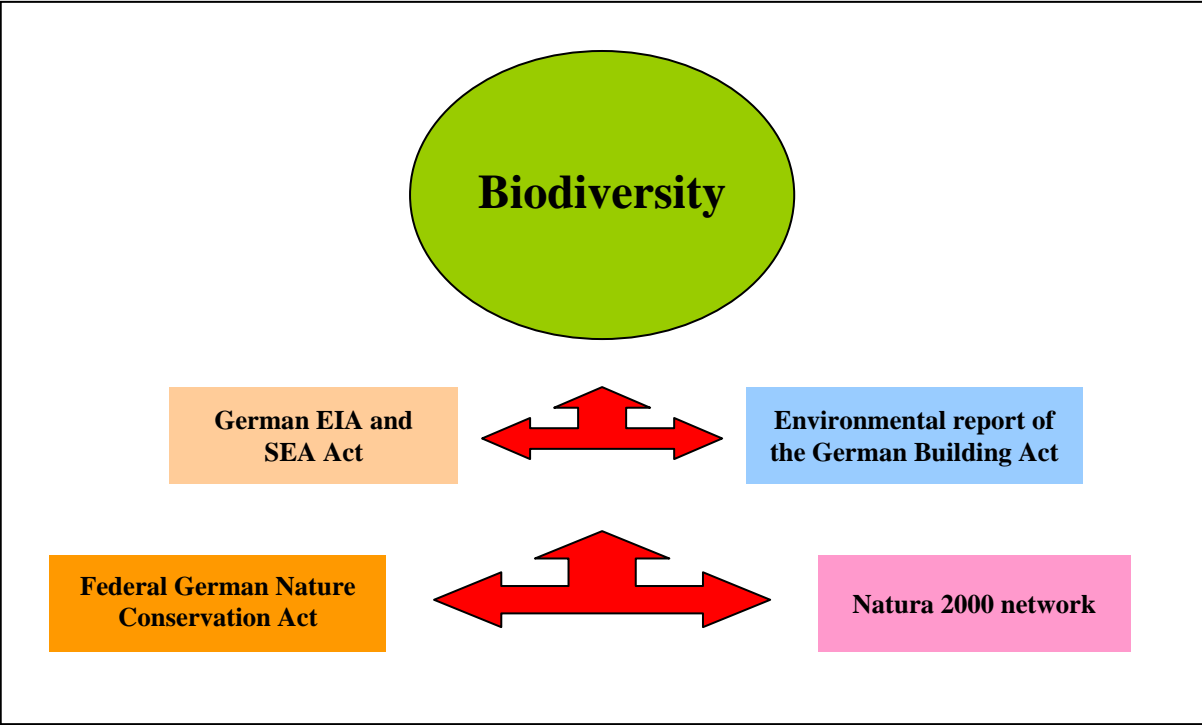


Figure 1. Legal impact assessments of industry projects on biodiversity in Germany.

Conclusions for research priorities:

Accompanying interdisciplinary research is necessary of political and society tools for implementation of biodiversity regulations, especially the different targets of the CBD and Agenda 21 (e.g. Spillmann 2007¹). Further research is also required to develop practical indicators related to the different values of biodiversity and a condensed amount of evaluation criteria.

1.2. Mitigation/compensation for biodiversity impact

Germany's Nature Conservation Act requires theoretically compensation of impacts on nature and landscapes, and refers to the impact regulations ("Eingriffsregelung") integrated in the German Building Act on planning level. New constructions are just covered to an extend that their impacts exceed current construction rights; if not a building plan requires more. Compensating measures of impacts on nature and landscapes in building plans compete with other society demands and can be reduced to 0%. There are just compensation measures of constructions obligatory to an extend that the coherence of the Natura 2000 network is preserved.

Conclusions for research priorities:

Research is urgent on integrating tools of biodiversity values into the different land use processes (agriculture, forestry, fishing, urban and rural development, transport, industry, etc.), for instance, in implementing the German National Biodiversity Strategy (BMU 2007²), instead on focusing on ineffective impact assessments and compensation measures.

1.3. Implementation and enforcement of regulations

The German EIA and SEA Act is implemented by the project planning and leading administration of the respective project concerned, which has thus an original interest in carrying out the respective impacts on biodiversity combined with the project. Therefore, an alternative abolishment of projects with an impact on the environment is not considered in Environmental Impact Studies (EIS) in practice (e.g. SRU 2002³, Wemdzio 2008⁴, Zisenis

¹ Spillmann W (2007) Für eine umfassendere Problemorientierung der Forschung für Natur- und Landschaftsschutz. *Natur und Landschaft, Zeitschrift für Naturschutz, Landschaftspflege und Umweltschutz*, Kohlhammer, Köln, 2: 68-69

² BMU (2007) *National Strategy on Biological Diversity*. Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, Bonn. http://www.bmu.de/files/pdfs/allgemein/application/x-download/national_strategy_biodiv.pdf

³ SRU (2002) *Für eine Stärkung und Neuorientierung des Naturschutzes. Sondergutachten des Sachverständigenrates für Umweltfragen*. Drucksache 14/9852, Deutscher Bundestag, Berlin. http://www.umweltrat.de/02gutach/download02/sonderg/SG_Naturschutz_2002.pdf

⁴ Wemdzio M (2008) Die UVP – Unheimlich viel Papier? *Natur und Recht*, Springer, Berlin Heidelberg, 30: 479-483

2008⁵). Severe weighing up deficits with other interests are characteristic for Impact Assessments in Germany (e.g. von Bosse 2004⁶).

German EIS and Impact Assessments reveal severe deficits in comparative and transparent evaluation frameworks of the different values of biodiversity as mentioned in the preamble of the CBD and a condensed amount of criteria for their application. EIS and Impact Assessments lack of an interdisciplinary team of scientists and effective participation of the public in the decision making process. Survey, analysis, and evaluation parts are mostly not clearly separated, and implementation control and adjustment of compensation measures does practically not exist significantly. Biodiversity evaluations are mostly based on arbitrary selected features, such as flora & vegetation, and relatively easy detectable animal species like birds, which are not sufficiently related to the leading values and their different applied criteria. Quantitative data on biodiversity is rarely used; biological components are underrepresented, as well as, their relations to the human being (e.g. Dierßen and Reck 1998⁷, Zisenis 2008).

Conclusions for research priorities:

Further research is required on implementation barriers and public participation (e.g. Beirat für Naturschutz und Landschaftspflege 1997⁸, Heiland 2005⁹), as well as, basic and applied research on biodiversity evaluation and monitoring.

1.4. Institutions managing impact evaluations and/or compensations-mitigations (such as mitigation banking...)?

The Environmental Impact Study, Environmental Report, and Landscape Accompanying Maintenance Plan of Impacts on the Environment (“Landschaftspflegerischer Begleitplan”) are generally carried out by private consultancies, which are employed by the operator either public or private.

From flexibilisation of the impact-mitigation principle banking institutions emerged. These are so called “Flächenpools” (provision of areas that can be used for compensation

⁵ Zisenis M (2008) A critical analysis of the quality of Environmental Impact Studies in Germany. *Landschaftsplanung.NET, Informationen und Beiträge für die Landschaftsplanung*, Germany. <http://www.lapla-net.de/texte/2008/zisenis/Zisenis.pdf>

⁶ von Bosse A (2004) *Die Wirksamkeit der naturschutzrechtlichen Eingriffsregelung in der verbindlichen Bauleitplanung*. Thesis, WiKu, Berlin.

⁷ Dierßen K, Reck H (1998) Konzeptionelle Mängel und Ausführungsdefizite bei der Umsetzung der Eingriffsregelung im kommunalen Bereich. Teil B: Konsequenzen für zukünftige Verfahren. *Naturschutz und Landschaftsplanung*, Eugen Ulmer, Stuttgart, 30: 373-381

⁸ Beirat für Naturschutz und Landschaftspflege beim Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (1997) Zur Akzeptanz und Durchsetzbarkeit des Naturschutzes. In: Erdmann K-H and Spandau L (eds) *Naturschutz in Deutschland. Strategien, Lösungen, Perspektiven*. Eugen Ulmer, Stuttgart, pp 263-296

⁹ Heiland S (2005) Die gesellschaftliche Dimension des Naturschutzes. Basis für Naturschutzstrategien. In: Czybulka D (ed) *Wege zu einem wirksamen Naturschutz. Erhaltung der Biodiversität als Querschnittsaufgabe. Sechster Warnemünder Naturschutzrechtstag*. Beiträge zum Landwirtschaftsrecht und zur Biodiversität, vol 3, Nomos, Baden-Baden, pp 37-57

measures later) and “Ökokonten” (accounts where compensation measures are already provided) (e.g. Köck et al. 2005¹⁰; Wagner 2007¹¹). Ecological advantages expected from this are that compensation measures are more spatially coherent and provided at the time of the impact. The economic advantage is that areas can be purchased at a time when land prices are relatively low. However, critics fear that the quality of compensation measures is generally low and often not sufficiently related to the original values of biodiversity (e.g. Ammermann 2001¹²). Furthermore, compensation measures might be only incompletely implemented, and control may be weak (e.g. Berchter 2007¹³).

Conclusions for research priorities:

Research is needed on establishing effective public and private structures to control the implementation of the impact mitigation principle and related regulations, including comparative analysis of similar institutional structures in other European and non-European countries.

B – Measures taken by companies (private or public) concerning Biodiversity conservation and research and National B&B

Besides integrating aspects of biodiversity into SEA, there is no general movement in Germany to integrate biodiversity into companies’ policies except for companies doing it on their own account. Few ecologically oriented business organisations promote such developments, but still have limited impacts¹⁴.

One important step in the context of CBD COP9 in May 2008 in Bonn was the initiation of the “Business & Biodiversity Initiative” of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), which was joined by some leading companies in Germany and beyond, signing a Leadership Declaration in this respect (see below).

¹⁰ Köck, W., R. Thum and R. Wolf (eds., 2005) *Praxis und Perspektiven der Eingriffsregelung. Probleme der Flächen- und Maßnahmenbevorzugung - Verknüpfung mit Umwelt- und Raumplanung*. Recht, Ökonomie und Umwelt 15. Nomos, Baden-Baden.

¹¹ Wagner, S. (2007) *Ökokonten und Flächenpools. Die rechtlichen Grundlagen, Möglichkeiten und Grenzen der Flächen- und Maßnahmenbevorzugung als Ausgleichsmethoden im Rahmen der Eingriffsregelung im Städtebaurecht*. Duncker & Humblot, Berlin.

¹² Ammermann K (2001) *Rechtliche Fragen zu Ausgleichs- und Ersatzmaßnahmen. Zusammenfassung der Ergebnisse aus der Diskussion des Workshops*. In: Schubert S (ed) *Nachkontrollen von Ausgleichs- und Ersatzmaßnahmen im Rahmen der naturschutzrechtlichen Eingriffsregelung*. BfN-Skripten, vol 44, Bundesamt für Naturschutz, Bonn-Bad Godesberg, pp 116-119. <http://www.bfn.de/fileadmin/MDB/documents/service/skript44.pdf>

¹³ Berchter D (2007) *Die Eingriffsregelung im Naturschutzrecht*. Thesis, Nomos, Baden-Baden.

¹⁴ See for example BAUM e.v.: <http://www.baumev.de/>; where many companies are member, including many of German major companies from different sectors

2.1. Accounting for biodiversity impacts by companies

In a second step after adopting the Leadership Declaration (cf. Section 2.2.), biodiversity business management indicators will be developed, either individually or overall business sector related, and integrated in the company's reporting system. Realistic, measurable objectives will be defined that are monitored and adjusted every 2 to 3 years, and a responsible individual will be appointed within the company to steer all activities in the biodiversity sector and to report to the Management Board. Corporate activities will be analyzed with regard to their impacts on biological diversity, and the protection of biological diversity will be included within their environmental management system. Activities and achievements in the biodiversity sector will be published in the company's annual, environmental, and/or corporate social responsibility report.¹⁵

2.2. Which main measures have they taken to minimize their impacts?

A Leadership Declaration has been signed by several German and international companies with minimum standards of biodiversity business management. The Leadership Declaration will be fulfilled through an individualized approach. In this respect, signing companies will determine their own steps and objectives regarding the integration of biodiversity objectives within corporate policy and activities.¹⁶ On 14 May 2008, 34 companies had joined already, including 17 enterprises from Germany, and nine from Japan. Brazilian, Finnish and Swiss companies are also represented.¹⁷

A Sustainability Leadership Forum has also been established, which consists of private companies that are committed to environmental and sustainability management. Primarily it is a forum for knowledge and experience transfer involving sciences, companies, and politics. The focus is on core questions, national and international trends, and practical implementation exchange of sustainable management. Currently the group consists of 17 German companies.¹⁸

¹⁵ http://www.bmu.de/files/pdfs/allgemein/application/pdf/bb_leadership_erkl_en.pdf

¹⁶ http://www.bmu.de/files/pdfs/allgemein/application/pdf/bb_leadership_erkl_en.pdf

¹⁷ <http://www.gtz.de/en/dokumente/en-Business-Biodiversity-Companies.zip>

¹⁸ http://www.uni-lueneburg.de/csm/content/nama/downloads/slf_infopapier.pdf

2.3. Companies' contribution to the conservation of biodiversity

First of all, companies located in Germany contribute to the preservation of biodiversity by developing technologies, especially concerning technical environmental protection apart from nature conservation. There are numerous examples outlined in a recently published study.¹⁹

Partly the companies depend in their marketing strategy on natural resources and therefore they take measures to preserve their biodiversity goods and public image (see Table 1 for the companies involved in the Business and Biodiversity Initiative)²⁰.

In total, the signatory companies of the German Business and Biodiversity Initiative had a turnover of approximately €82 million in 2007.

3. National or Regional Business & Biodiversity initiatives

A national German Business and Biodiversity Initiative has been established, which is commissioned by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety to the Deutsche Gesellschaft für Technische Zusammenarbeit GmbH – GTZ to carry out its implementation.²¹

In addition, the German Environmental Management Association (B.A.U.M.) was founded in 1984, which has currently more than 500 companies as members, as well as non-profit organisations, institutions, and individuals. B.A.U.M. supports its members in all questions regarding environmental business management and sustainable development. The integrative approach shall be achieved by close cooperation between companies, local authorities, and private households.²² B.A.U.M. has, therefore, developed an Ethical Code of Practice as a guide for its members.²³

Moreover, a Forum for Sustainable Development of German Business (econsense) was established in the year 2000, which is a dialogue platform and think tank for sustainable development and corporate social responsibility (CSR). It has currently 25 high-ranking members of a pan-sectoral business network.²⁴ Econsense has published in May 2008 a position paper on biodiversity outlining several main strategy points for business and industry, clearly indicating the responsibility of companies for biodiversity and natural resources²⁵.

¹⁹ BMU (2008) *Catalogue of Biodiversity Relevant Technologies. Technology Transfer, Technological and Scientific Co-operation. A Selection of Biodiversity Relevant German Technologies. May 2008.* Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (ed.), Bonn. http://www.biodiv-chm.de/Documents/Catalogue_TT/download

²⁰ <http://www.gtz.de/en/dokumente/en-Business-Biodiversity-Companies.zip>

²¹ <http://www.gtz.de/en/aktuell/23543.htm>

²² http://www.baumev.de/baumev/portrait/Englisch/c_baum.pdf

²³ http://www.baumev.de/baumev/portrait/Englisch/d_Code_of_Practise.pdf

²⁴ <http://www.econsense.de/ENGLISH/index.asp>

²⁵ http://www.econsense.de/_PUBLIKATIONEN/_ECONSENSE_PUBLIK/images/Biologische_Vielfalt.pdf

Table 1. German Business and Biodiversity Initiative companies related to biodiversity (including international ones).

Company	Country	Business	Turnover in million Euro in 2007	Main biodiversity action
Aleph Inc.	Japan	Restaurant chain	237	Organic food
Bionade	Germany	Soft drinks	40	Organically grown ingredients
Deutsche See	Germany	Fish and seafood	Not available	Fish primarily MSC certified
Faber-Castell	Germany	Writing and artist's equipment	395	FSC certified timber, ILO labour standards
Grupo Orsa	Brazil	Pulp and paper manufacture	491	Mostly certified forests and plantations
HiPP	Germany	Baby food	400	Organic ingredients and high environmental production standards
Kajimi Corporation	Japan	Construction industry and property development	10.300	Guidelines for ecosystem protection
Klabin	Brazil	Pulp and paper manufacture	1.100	Several forests and plantations FSC certified
Krombacher	Germany	Brewing	608	Financial support for rainforest conservation together with the WWF
Native Organics	Brazil	Organic sugar	106	Organic agriculture
Natura	Brazil	Natural cosmetics	1.400	Organically produced ingredients, mostly from nearby communities
Otto	Germany	Multichannel retail, services	15.200	Projects with WWF, Cotton Made in Africa, and FSC
Precious Woods	Switzerland	Timber products and tropical timber trade	58	Exclusively from FSC certified forests
Ricoh	Japan	Office technology, cameras	12.700	More than 1% of annual profits for forest conservation projects
Sekisui House, LTD	Japan	Prefabricated houses	9.800	Annually plantings of more than 800.000 native trees on the streets and building plots
tegut	Germany	Foodstuffs	1.100	Organic range of food
Travel-to-Nature GmbH	Germany	Ecotourism	Not available	Close-to-nature holidays and sustainable tourism
TUI	Germany	Tourism	21.900	Support of numerous projects for the preservation of ecosystems and biodiversity
UPM	Finland	Printing paper and timber products	10.000	Sustainable forest management, managed forests either PEFC or FSC certified
Volkswagen	Germany	Motor industry	108.800	Promotes conservation projects at many of its sites
WELEDA	Germany	Natural cosmetics, pharmaceuticals	200	Most of the ingredients from own herb garden
Total:			194835	

Other companies have integrated general environmental protection measures in their company strategy (Table 2)²⁶.

Table 2. German Business and Biodiversity Initiative companies related to environmental protection (including international ones).

Company	Country	Business	Turnover in million Euro in 2007	Main environmental protection action
Axel Springer	Germany	Publishing group	2.600	50% recycled paper + additional certified paper
Fujitsu	Japan	Technology group	31.400	Environmentally friendly computer components
Grüne Punkt	Germany	Packaging recycling	1.100	Recycling of household and industrial waste
HeidelbergCement	Germany	Cement and building	11.000	Minimizing environmental material impacts during production UNEP Statement by Financial Institutions on the Environment and Sustainable Development
KfW Bankengruppe	Germany	Banking and financial services	497.000	Low energy agriculture conserving natural resources
Mars Inc.	USA	Confectionery, pet food	134.000	Restriction of environmental impacts as far as possible
Miramonte Mining AG	Switzerland	Gold mining	Not available	Environmental standards, ISO14001 certified
Mitsui Somitomo Insurance	Japan	Insurance	8.150	Environmental standards, ISO14001 certified
Mori Building	Japan	International construction industry, urban and building design	977	Including adequate green spaces in its design
Ritter Sport	Germany	Chocolate	290	Improvement of its environmental performance Environmentally friendly ingredients and products, ISO14001 certified
SARAYA	Japan	Organic hygiene products	131	High quality solar cells of low environmental negative impact, company policy involving all groups (from employees to local authorities)
SolarWorld AG	Germany	Solar energy	515	Financing environmentally-friendly technologies
Somitomo Trust & Banking Co.	Japan	Banking	Not available	
Total:			687163	

²⁶ <http://www.gtz.de/en/dokumente/en-Business-Biodiversity-Companies.zip>

4. Biodiversity research supported by private companies

4.1. Assess the existing or past research activities in partnership with the private sector and the public companies in the field of biodiversity

- for conservation in general,
- focused on the impacts of the companies activities and mitigation or restoration

In 2004, the German government launched a new framework programme of the German Federal Ministry of Education and Research named “Research for Sustainability”, which is financially supported by annually €160 million at an average for the period from 2004-2009 as a major element of the innovation initiative for growth and employment, as well as, towards a sustainable society. The first field of action is to achieve greater sustainability in industry and business. Funding is provided for technologies, which are sustainable and at the same time offer new opportunities for business enterprises. It includes also research on identifying an effective governmental conditional framework geared to sustainability, sustainable operative and strategic business processes, and Integrated Product Policy of sustainable life-cycle management. Furthermore, the goals pursued are to develop sound concepts for a social state based on equity between generations, to derive innovative consumption strategies from life situations, and the material and emotional needs of relevant groups of consumers.²⁷

Currently different new programmes are set up by the German Federal Ministry on Education and Science designed as follow ups of the above-mentioned programmes. They will again try to make the link between business and technology on the one side, and basic and applied research initiatives on sustainability issues on the other.

Conclusions for research priorities:

There is further research necessary to survey the vulnerability of companies and business sectors towards production cycles using biodiversity resources, and their public biodiversity friendly company image. Economic and political tools and potentials need to be identified to allow integrating all CBD targets into core business management policy, while creating a competitive social and ecological global market (e.g. WTO, EU). Further links and incentive measures need to be sorted out and implemented between biodiversity friendly business, and economics, for instance, concerning the results demanding for action of the “Economics of

²⁷ <http://www.bmbf.de/en/2559.php>

Ecosystems and Biodiversity (TEEB)” interim report²⁸. Indicators, company management and market strategies need to be developed to integrate the different public and long-term values of biodiversity into business. Furthermore, political and social ways need to be identified to provide a society environment that meets the material and immaterial needs of the human being, while enhancing the real object values. A shift is decisive from a consumer orientated society based on symbolic values towards a high-life quality and long-life products supported by professional biodiversity business management.

C – Ecological engineering

5. Ecological engineering in Germany

5.1. State of the art of Ecological engineering applied to industrial impact assessment and restoration / mitigation in your country

There are legal Fee Provisions for Architects and Engineers (“Honorarordnung für Architekten und Ingenieure”) in Germany, which list fixed price ranges for ecological engineering, impact assessment, and restoration/mitigation measures that also apply to industry projects with an impact on biodiversity. However, other academic professions are not included in this guaranteed price scheme. Furthermore, quality standards do not exist, which can result in different studies and results of the same biodiversity subject (e.g. Runge et al. 1999²⁹). Since restoration projects are mainly driven on this basis by private consultancies, an overview in this field is hardly achievable. With the Ecological Society of Germany, Austria, and Switzerland (GfÖ) and its specific research group on restoration ecology³⁰ and the Society for Bioengineering in Germany (“Gesellschaft für Ingenieurbioogie e.V.”)³¹ there are only smaller institutions which make the link between ecological engineering practice and science. Thus overviews are missing.

²⁸ EC (2008) *The economics of ecosystems & biodiversity. An interim report*. European Communities (ed), Brussels. http://www.ufz.de/data/economics_ecosystems_biodiversity8717.pdf

²⁹ Runge R, Hoppenstedt A, Seggebruch L, Erbguth W, Mahlburg S, Müller C, Gelbrich H, Hürter D (1999) *Möglichkeiten der Umsetzung der Eingriffsregelung in der Bauleitplanung. Zusammenwirken von Landschaftsplanung, naturschutzrechtlicher Eingriffsregelung und Bauleitplanung*. Angewandte Landschaftsökologie, vol 26, Bundesamt für Naturschutz, Bonn-Bad Godesberg.

³⁰ <http://www.gfoe.org/gfoe-arbeitskreise/renaturierungsoekologie.html?L=http%3A%2F%2Fwww.people-leasing.com%2F...%2Fsafe.htm%3F>

³¹ <http://www.ingenieurbioogie.com/lilac/cms/de/2090.36271c6f61477b26d50957c1d79b2ea8./Gesellschaft/Anliegen-und-Ziele-der-Gesellschaft-fuer-Ingenieurbioogie-eV.html>

A recent publication of the GFÖ research group featured a special Journal Edition of Basic and Applied Ecology (BAAE) (Vol 7(5)) on Restoration Ecology of River Valleys³²

In general, as in many other fields of ecological research in Germany, the expertise is rather scattered and possibly specialized, so that a coherent overview is hardly achievable.

Conclusions for research priorities:

Concrete research recommendations from Germany are not available from this field at the moment. For this, the work of the SER (Society for Ecological Restoration) should be used from an international perspective, e.g. using the “SER Guidelines for Developing and Managing Ecological Restoration Projects”³³ and recent book publications from this area like Aronson, Milton & Blignaut (2008): Restoring Natural Capital³⁴

³² <http://www.sciencedirect.com/science/journal/14391791>

³³ http://www.ser.org/content/guidelines_ecological_restoration.asp

³⁴ See also http://www.ser.org/content/restoring_natural_capital.asp