

Sustainable forest management for climate change mitigation and regional development –

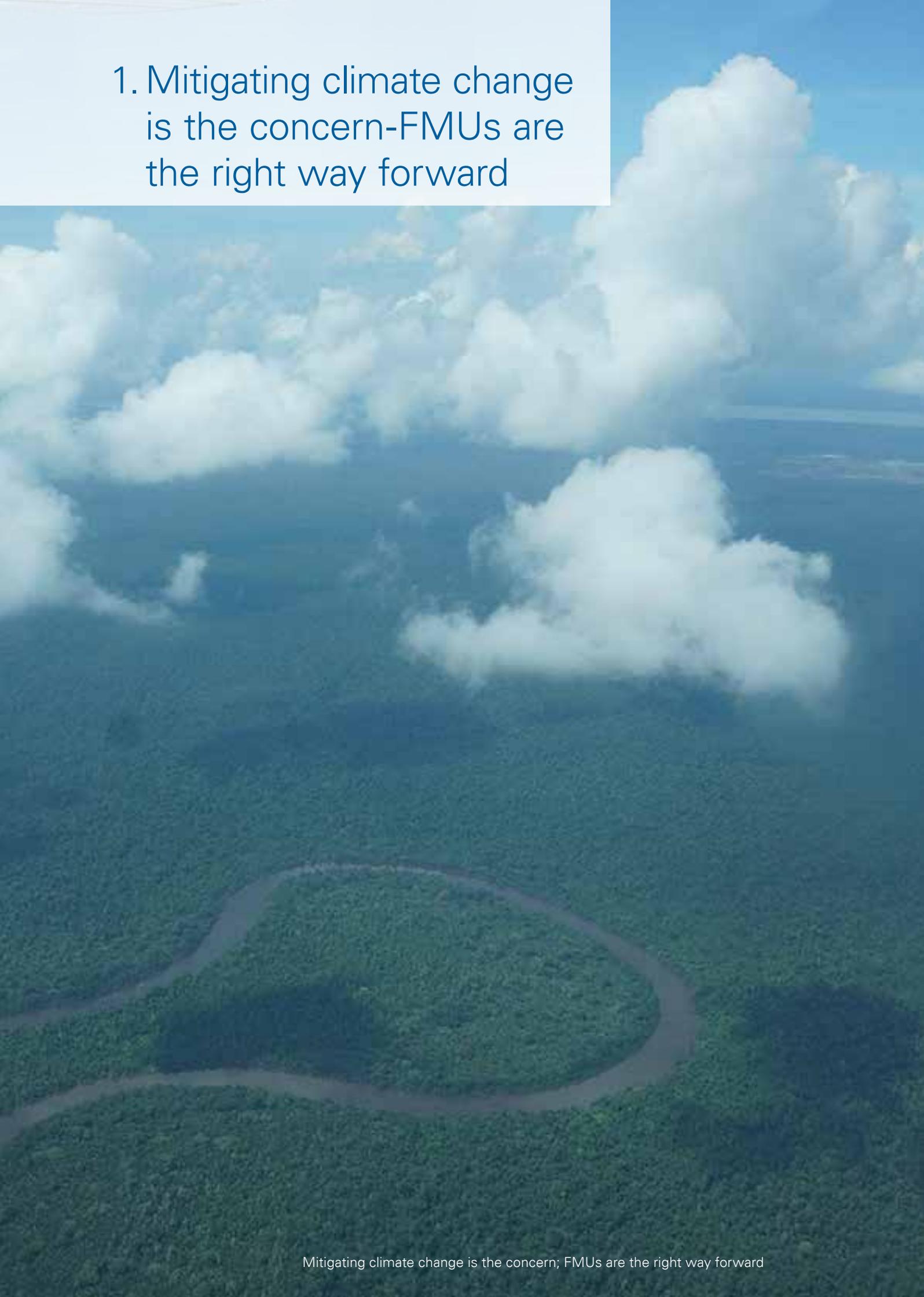
an expert dialogue between Indonesian and
German policy-makers and forest experts in
Hesse



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1. Mitigating climate change is the concern-FMUs are the right way forward



Indonesia is blessed with over 90 million hectares of rich forest resources, stretching over 5,000 kilometres from Sumatra in the west to Papua in the east. Forests are important for the nation's economic development and for local people's livelihoods, with up to 30 million people depending directly on forest resource management. As well as having a social function for the local population and being an economic factor in timber production, forests also perform vital ecological functions, such as protecting water catchment areas, soil and food sources. Furthermore, Indonesia's forests are home to over 10% of global plant diversity and play a decisive role in the global climate. The natural forest's high level of biodiversity defines it as a global ecosystem and underscores that successful sustainable resource management is a matter of great urgency.

Nevertheless, Indonesia is one of the world's largest emitters of carbon dioxide (CO₂), caused by non-sustainable agriculture and forestry and other kinds of land use. The major drivers of deforestation and forest degradation are the expansion of agricultural land, open-cast mining and unregulated and illegal forest clearance, which causes more than 600,000 hectares of forest to be lost each year. Limited capacity on the part of the administrative bodies and forest management units, including inadequate implementation of statutory guidelines, makes it hard to curb the rapid pace of deforestation.

The Indonesian Government is tackling these challenges proactively and since 2009 has been meeting its voluntary commitment to reduce emissions by 26% and cut them by 41% by 2020 with international assistance. The REDD+ mechanism (Reducing Emissions from Deforestation and Forest Degradation) is a way of potentially increasing the value of the carbon stored in forests, granting subsidies for emission reductions at forest level and investing in low-emission and sustainable growth. But REDD+ is also designed to go 'beyond carbon', since it promotes transparency and accountability, enhances governance capacity, reduces poverty, mediates land-use conflicts, and promotes resilient ecosystems and sustainable living conditions.

To implement such activities, Indonesia has launched its national REDD+ strategy, which is a historic milestone at international level. One of the most important instruments for REDD+ is the introduction of local forest management units (FMU), designed to manage forests sustainably and in consultation with the local population.



Thanks to a very long tradition of forestry, Germany's forests have become carbon sinks instead of accelerating global warming. For this reason, we welcome the German Government's support in establishing an expert dialogue between Indonesian and German policy-makers and forest experts. Using the example of Hesse, tried-and-tested forest governance structures will be explored and at the same time practical experience will be acquired to enable a discussion among equals to take place about how reforms can be better implemented in Indonesia. We hope that this transfer of knowledge is just the first step on a shared journey towards sustainability.

Dr Yetti Rusli
Executive Secretary of the National Climate Change
Coordination Committee at the Indonesian
Environment and Forestry Ministry



Indonesia, which ranks third in the world after Brazil and the Democratic Republic of Congo in terms of forest cover, faces a great many challenges but also opportunities to establish sustainable forest management structures. With its 17,000 islands and 250 million inhabitants, it is still one of the world's largest emitters of greenhouse gases. To a large extent, they are caused by deforestation and forest degradation, which in turn are mainly the result of palm oil plantations being created. However, Indonesia is also the first country in South-East Asia to have set its own binding climate targets early on.

An important instrument in achieving these national climate targets is the principle of financial compensation for reducing emissions from deforestation and forest degradation (REDD+), which aims to both curb emissions and create incentives for sustainable forest management and governmental reform.

A crucial step in achieving sustainable forestry and mitigating climate change is to establish permanent local forest management units (FMUs), which are responsible for managing a clearly defined area of forest. Due to Indonesia's decentralisation process, the current initiative to support the establishment of an FMU and REDD+ architecture is the responsibility of the provincial and district governments. The commitment and understanding of the decision-makers and technical staff for the FMU and REDD+ idea is therefore crucial to achieving forestry reforms and meeting climate targets. For that reason, the Indonesian delegation consisted of representatives from the provincial and district governments of Sumatra, Kalimantan and Sulawesi but also from the national REDD+ agency and the forest and planning ministry.

Germany is one of the chief supporters of global forest conservation and climate change mitigation, especially in countries rich in tropical forests. Indonesia is and will therefore remain a key partner country, and cooperation in the forest sector is currently being expanded – both regionally and in terms of content. Germany and Indonesia have been important development cooperation partners in the forest and climate sector for a long time, looking back over 35 years of trust-based cooperation. We are thus very well equipped to work in collaboration with our Indonesian partners to tackle the challenges.



At GIZ we are therefore delighted to have been commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ) and the Indonesian Government and are pleased that as a result we will be able to make a further contribution to building policy-making and technical capacity in the forestry sector through this expert dialogue. We hope that the experience gained will be beneficial and will be used to successfully implement reforms in the forest sector and achieve Indonesia's climate targets at national and local level. We are looking forward assisting our Indonesian partners in this task.

Mathias Bertram
GIZ Forests and Climate Change Programme
(FORCLIME)

Sustainable forestry is based on a 200-year-old tradition in Germany, especially in Hesse. The sustainability principle, developed by forest pioneers such as Georg Ludwig Hartig, evolved out of a crisis caused by escalating deforestation, forest degradation and the increasing scarcity of resources.

Today, Germany's forests and its volume of standing timber are once again increasing and therefore forming a carbon sink. Furthermore, the country's forests provide over 1.3 million jobs, so that Hesse's and Germany's forest management system has become a recipe for success.

Over time the forestry administration system has undergone numerous structural and political reforms. The size, facilities, organisational structure and distribution of responsibilities of the forest management units and the influence of the heads of the Forestry Agencies have been steadily optimised over the years. Today, expert forest management, based on precise inventory and planning, underpins the sustainable development of Germany's forests.

Key factors of productive forestry are appropriately sized districts, a continuous professional development programme for forestry personnel, the on-site presence of foresters (district-based management) and an effective monitoring system. Hesse operates a form of integrated forest management, which performs its social, environmental and economic functions in a way that all needs can be met at the same time and in the same forest.

The fact that Indonesia and Hesse have been linked in the forest sector for 80 years now seems to have been forgotten. At the beginning of the 20th century, three Hessian foresters provided support to studies in the Indonesian forest, helping to carry out a forest inventory and market teak. This collaboration was gradually expanded in the 1960s. Our current collaboration is based mainly on advice to the forestry sector on policy and processes of structural change in organisations in the form of expert dialogues. The exchange programme with Hesse enables our guests and partners to become familiar with tried-and-tested management structures and to discuss policy and technical aspects directly with their German colleagues.



It is my sincere wish that the expert dialogue in Hesse fulfilled the participants' expectations and that the impressions gained will provide an incentive for further discussions in order to promote the establishment of Indonesia's forest governance structures. I wish everyone working to reform Indonesia's forest sector much success with this important task.

Jörg Albrecht
Director Consulting, Hessen-Forst Agentur

2. Sustainability is the goal



Germany is a global pioneer in sustainable forestry, with a tradition going back over 200 years. Hesse played a particularly decisive role in the birth of the sustainability principle: it was here in the late 18th and early 19th century that Georg Ludwig Hartig – whose findings are still hugely important for sustainable and close to nature forestry worldwide and have been enshrined in Hesse’s Forests Act – was active as one of the German pioneers of silviculture. In the context of climate change mitigation, biodiversity conservation, and regional development, the hundreds of years of experience in resource-efficient and sustainable forestry provided inspiration for an expert dialogue between German and Indonesian policy-makers and forest experts.

Indonesia is the first country in South-East Asia to have set its own climate change mitigation targets. The establishment and compliance with these national targets will depend hugely on reforms in the forestry and land use sectors, since over 60% of national CO₂ emissions originate from these sectors. The aim of this expert dialogue was to enable participants to get to know the structure of Hesse’s forest administration authorities in order to establish permanent local forest management units (FMUs) in

Indonesia. The delegation team consisted of 32 decision-makers from Indonesian provincial and district governments and national ministries.

A diverse programme featured visits to the Hessian Ministry of Environment, the state-owned enterprise Hessen-Forst, the service centre for forest planning and nature conservation (FENA), the Federal Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, KfW Development Bank, Herbhorn Forest Management Unit and the Rhön Biosphere Reserve. It included presentations, discussions and field studies to stimulate an exchange of ideas among participants. The aim was to enable participants to transfer what they have learnt to the Indonesian context they work in, assisting them to reorganise Indonesia’s forest governance system and to advance forest sector reform processes.

Indonesia is making huge strides along the path already travelled by Hartig towards sustainability and climate change mitigation.

2.1. Protecting the forest for generations

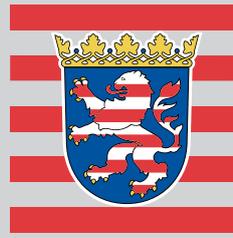
Hesse is situated in the center of Germany; with over 6 million inhabitants living on a land area of 2.1 million hectares, it is a densely populated state, although 42% of it is forested. This is the result of centuries of intensive efforts to protect the forest. However, the original primeval forest fell victim to rapid clearance to meet the iron and steel industry's demand for wood and to provide agricultural land. It has been replaced by 895,000 hectares of sustainably managed close-to-nature forest, which fulfils a diverse range of ecological, economic and social functions.

Hesse's forest legislation specifies close-to-nature forestry, i.e. that it be managed sustainably, competently and with due care. The guidelines are implemented by the state-owned enterprise Hessen-Forst along with its district foresters, forest owners and last but not least with the participation of the local population.

Hesse's forest has developed into a public cultural asset. Karl Apel, deputy head of the forest division at the state's Ministry of Environment stressed that the forest is a focal point for all Hesse's inhabitants: 'It is not just a key component of our livelihood, but part of our culture.' Here children are introduced to the forest at a very early age, with 'forest kindergardens' or trips to the forest for the youngest children being a firm fixture of school life. Hansel and Gretel, Little Red Riding Hood – these world-famous Grimm fairy tales originated in the forests of Hesse and they are not conceivable without the forest. Today, the Hessian forest is Central Europe's largest contiguous beech wood, which means it is not just of national but also of global importance.

Committed foresters, politicians and members of the public are now working together to conserve the forest and nature. As a result of the growing importance of the forest as an economic, environmental and cultural resource – and as part of Germany's transition to sustainable energy systems as an energy resource – Hesse's forested area is steadily increasing. Thanks to sustainable management and because the land they cover has remained stable, Germany's forests have become a carbon sink, absorbing significantly more climate-damaging CO₂ in the form of increased biomass than they release. This aspect is something that Germany and Indonesia have in common: Indonesia has set itself the target that by 2020 its forests will also be a carbon sink instead of being one of the country's largest sources of CO₂.

HESSEN



Facts and figures on Hesse

- Land area: 21,100 km²
- Inhabitants/km²: 287
- Gross domestic product/inhabitant: \$48,000
- from agriculture and forestry: 0.5%
- from the service sector: 37.1 %

Land use

- Forestry: 42 %
- Agriculture: 41 %
- Built-over land: 7 %
- Transport: 7 %

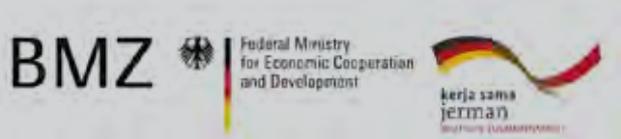
Environmental data

- Altitude: 90m – 950m
- Average temperature: 5-10°C
- Average temperature May-September: 12.5-17°C
- Precipitation: 600-1,300 mm
- Predominantly brown forest soil

3. An Indonesian-German forest and climate partnership



3.1. The German Federal Ministry for Economic Cooperation and Development (BMZ)



BMZ develops strategies and guiding principles for Germany’s development policy. They form the basis for its cooperation programmes with partner countries, which the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and KfW Development Bank, for example, implement in cooperation with partner institutions. Indonesia is one of the most important Asian development partners in terms of implementing joint environmental policy goals and it has a close relationship with Germany resulting from many years of trust-based cooperation, dating back to 1958. Germany is Indonesia’s fourth largest bilateral partner. Forest conservation and mitigating climate change by reducing greenhouse gases – particularly as a result of land use – are top priorities. That is why Germany is one of the principal supporters of the international REDD+ mechanism. The German Government is also the largest donor to the multilateral Forest Carbon Partnership Facility, which is mandated to build forest conservation and climate change capacity worldwide and underpin it with financial support. As part of their bilateral cooperation, Germany and Indonesia have held negotiations at two year intervals for many years now in order to discuss relevant issues relating to the following priority areas: integrated growth, good governance and global cooperation on transitioning to a new energy era and on combating climate change.



A dialogue between equals

**Interview with Katja Hummel
BMZ attache, responsible for Indonesia within
the regional division**

GIZ: How do you rate the bilateral dialogue between Indonesia and Germany in view of the many years of cooperation?

Hummel: Indonesia has become a global development partner for us, a partner with whom we go beyond the classical donor/recipient relationship usual in development cooperation and with whom we seek a dialogue between equals. Indonesia is a self-confident partner, defining its own approaches and seeing them through. We are working on the same issues and tackling the same obstacles, especially in the climate change mitigation sector. This dialogue format is important for us because it enables us to discuss our partner’s realities with them so that we do not run the risk of ignoring these realities. GIZ: Hesse is one of the most forested regions in Germany and also one of its most economically stable regions. Does the synergy between forest concerns and economic concerns point the way forward for successful international cooperation?

Hummel: Economic development is often seen as the polar opposite to climate change mitigation. It is time we had a change of paradigm, because economic growth is not sustainable if it destroys human and animal habitats and depletes natural resources. We need to work hand in hand with our development partners to find compromises and tackle this huge challenge.

GIZ: What would you consider to be a solution-oriented strategy?

Hummel: On my trips to Indonesia, my belief has been reaffirmed that nothing can be actually implemented unless it has been agreed with the local population and they are convinced of the benefits. Conflict prevention and do-no-harm approaches are very important to us. Local conflict structures have to be addressed in any solution strategies. A sustainable working relationship is not possible without respect for people. The benefits for the local population should be in the forefront of international and national endeavours.



A closer relationship with the forest

Interview with Mathilde Sari Panggabean Head of Field Office for Central Kalimantan Pilot Province, UNORCID

GIZ: At UNORCID you are right at the hub where the ministries, REDD working groups, local governments and administrations and the development programmes come together. What aspect of communication within Germany is particularly relevant to your work in Indonesia?

Panggabean: It was very informative for me to be able to see how different departments, institutions, authorities and ministries work together to achieve a common goal. As the example of Hesse illustrates, it is the government itself that has to take the first step towards change and towards implementing new regulations. Only then can other development partners add their support.

GIZ: Where would you like to intensify your work in Indonesia?

Panggabean: We have numerous pilot projects in which we would like to work with the local population in order to involve them in forest conservation. We can show people exactly where the REDD+ guidelines are effective and where living conditions, land use and forest conservation can be improved. We are very keen to improve the relationship of local populations and their governments to the forest; we believe it is an important factor in sustainable regional development.

BMZ's bilateral priorities

Energy and climate change

- Reducing greenhouse gases
- Expanding renewable energy
- Optimising sustainable forest management
- Conserving biodiversity

Pro-poor growth

- Strengthening the local economy
- Vocational education and training
- Expanding social protection

Good governance and global networks

- Decentralisation at all levels of administration
- Strengthening women's rights
- Preventing corruption
- South-South triangular cooperation and global government networks

3.2. The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



GIZ is wholly owned by the Federal Republic of Germany. It is commissioned to carry out international cooperation programmes by government departments such as BMZ or the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), and also by other institutions. GIZ works closely with its international partners to develop individual solutions and carries out a broad range of projects in areas such as strengthening the economy, promoting peace and security, establishing democratic structures, food security, health and basic education or climate change mitigation, resource conservation and environmental protection. Worldwide, a third of all the programmes funded by GIZ are devoted to the cross-cutting issue of climate change. Emissions reduction, adaptation to climate change and climate finance are priorities that have particular relevance.

Thirteen million hectares of forest are destroyed worldwide each year as a result of increased demand for raw materials, biogas, and food. Economic growth and the increased use of resources that accompanies it makes nature conservation measures all the more urgent.

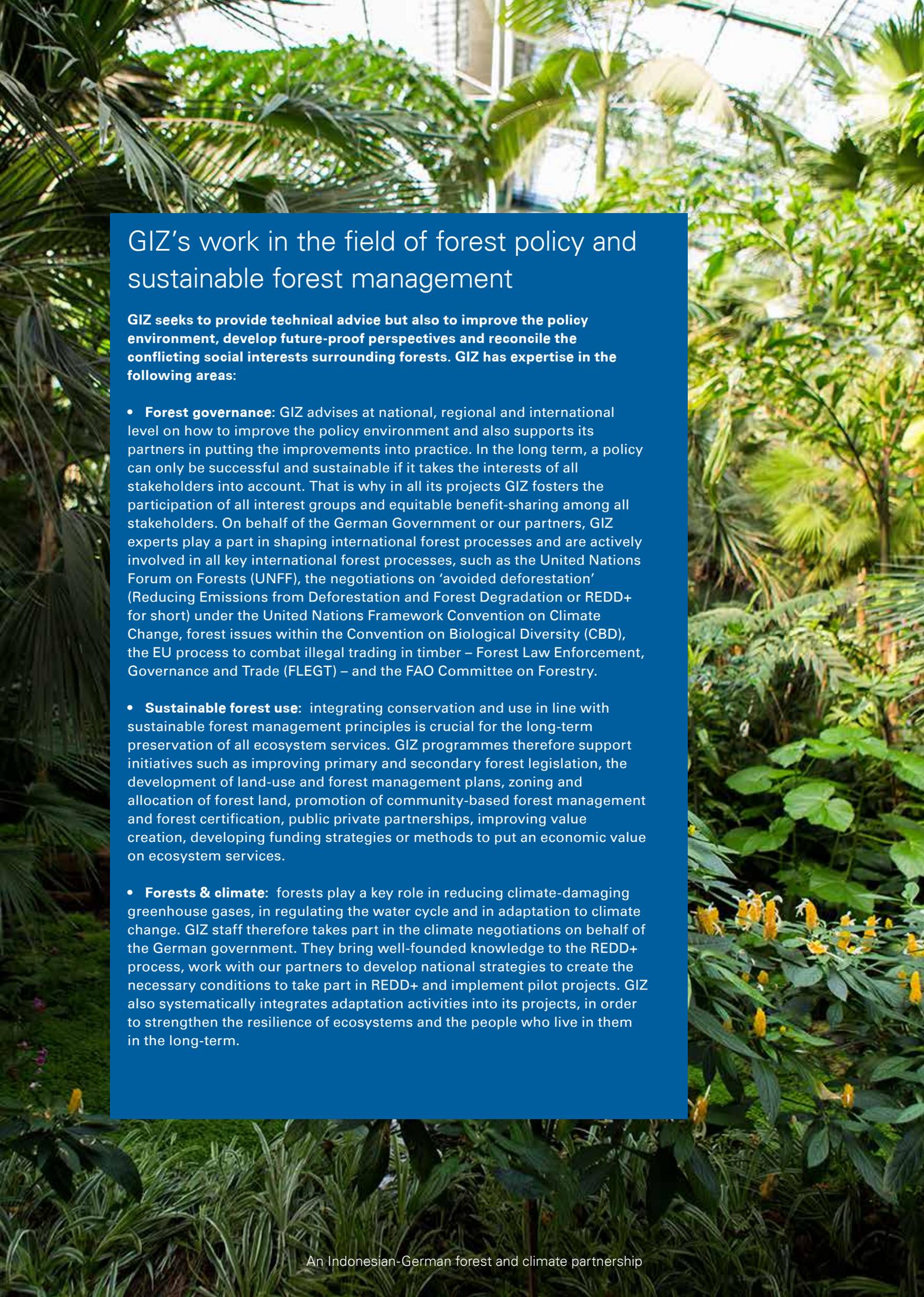
GIZ's work in the field of climate change

GIZ's advisory services are tailored to the particular situation of each partner country and combine services from three fields of action:

- **Reducing greenhouse gas emissions:**
GIZ staff advise policy-makers, especially those working on low-emission development strategies (LEDS), nationally appropriate mitigation actions (NAMAs), measuring, reporting and verification (MRV), carbon markets and emissions trading systems and on developing intended nationally determined contributions (INDCs) for a post-2020 climate agreement.
- **Adaptation to climate change:**
GIZ supports government and non-governmental actors in accessing and using climate change information, with climate risk and vulnerability analyses, in identifying, prioritising and implementing appropriate adaptation measures and in setting up adaptation-specific monitoring and evaluation systems (M&E). GIZ also works with partner countries that are seeking to mainstream climate risk into their planning and decision-making processes – including in their national adaptation plans (NAP).
- **Climate finance:** By tailoring its advisory services to actual needs, GIZ puts developing countries in a better position to access finance from international climate funds – especially the Green Climate Fund. The 'Ready for Climate Finance' approach developed by GIZ covers:
 - 1) Strategy and policy,
 - 2) Institutional frameworks and good financial governance,
 - 3) Access to international climate finance,
 - 4) Efficient and transparent use of funds
 - 5) Private sector participation.

GIZ's priorities in the forest sector:

- REDD Readiness and piloting performance-based payment mechanisms for forest conservation
- Integrating biodiversity conservation, poverty reduction and climate change mitigation into forest management
- Management of protected areas
- Forest sector reform processes and capacity building
- Supporting the EU's Forest Law Enforcement, Governance and Trade (FLEGT) process Action plan to combat illegal logging and trading in timber
- Collaboration with the private sector (sustainable forest management, certification, financing and trading)
- Regional cooperation



GIZ's work in the field of forest policy and sustainable forest management

GIZ seeks to provide technical advice but also to improve the policy environment, develop future-proof perspectives and reconcile the conflicting social interests surrounding forests. GIZ has expertise in the following areas:

- **Forest governance:** GIZ advises at national, regional and international level on how to improve the policy environment and also supports its partners in putting the improvements into practice. In the long term, a policy can only be successful and sustainable if it takes the interests of all stakeholders into account. That is why in all its projects GIZ fosters the participation of all interest groups and equitable benefit-sharing among all stakeholders. On behalf of the German Government or our partners, GIZ experts play a part in shaping international forest processes and are actively involved in all key international forest processes, such as the United Nations Forum on Forests (UNFF), the negotiations on 'avoided deforestation' (Reducing Emissions from Deforestation and Forest Degradation or REDD+ for short) under the United Nations Framework Convention on Climate Change, forest issues within the Convention on Biological Diversity (CBD), the EU process to combat illegal trading in timber – Forest Law Enforcement, Governance and Trade (FLEGT) – and the FAO Committee on Forestry.
- **Sustainable forest use:** integrating conservation and use in line with sustainable forest management principles is crucial for the long-term preservation of all ecosystem services. GIZ programmes therefore support initiatives such as improving primary and secondary forest legislation, the development of land-use and forest management plans, zoning and allocation of forest land, promotion of community-based forest management and forest certification, public private partnerships, improving value creation, developing funding strategies or methods to put an economic value on ecosystem services.
- **Forests & climate:** forests play a key role in reducing climate-damaging greenhouse gases, in regulating the water cycle and in adaptation to climate change. GIZ staff therefore takes part in the climate negotiations on behalf of the German government. They bring well-founded knowledge to the REDD+ process, work with our partners to develop national strategies to create the necessary conditions to take part in REDD+ and implement pilot projects. GIZ also systematically integrates adaptation activities into its projects, in order to strengthen the resilience of ecosystems and the people who live in them in the long-term.

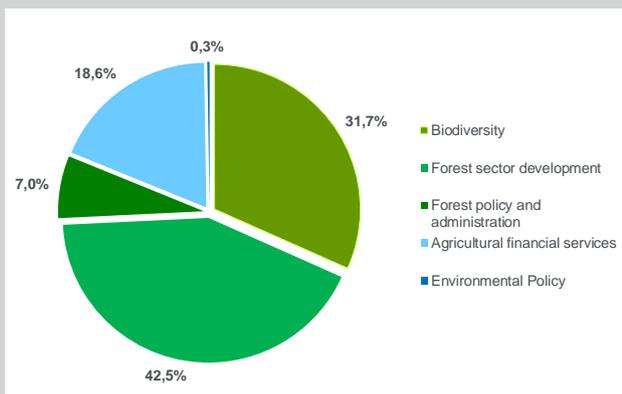
3.3. Financial cooperation for new climate change mitigation instruments – the KfW Group and KfW Entwicklungsbank



Originally founded in 1948 as the Kreditanstalt für Wiederaufbau, the KfW Group has always provided help where it is most needed – in the development phase and in implementing new goals. KfW is dedicated to promoting sustainable development, prioritising economic, social and environmental support at national and international level. Germany’s federal government owns 80% of shares in the bank, the Länder (states) own 20%.

KfW’s green sector climate portfolio combines ambitious climate targets with future-focused programmes. Supporting the REDD+ mechanism makes a decisive contribution to preserving forest ecosystems.

KfW is currently supporting three Indonesian forest programmes funded by BMZ and BMUB and four others are in the planning phase. Working in close conjunction with GIZ, REDD+ pilot projects to conserve species diversity and improve water management are developed. Here KfW helps in implementing Germany’s development cooperation goals, which seek to reduce poverty, mitigate climate change and promote peacekeeping.



- #### Key areas funded
- Promoting renewable energy
 - Implementing sustainable waste disposal in towns and cities
 - Preserving the rainforest (REDD+)
 - Vocational training and development programmes

» KfW green sector climate portfolio – Indonesia BMZ financed Programmes



Name	Amount	Status	Activities	Climate Relevance - Scale
Forest Programme I (FORCLIME) (Kalimantan)	20 Mio € (+ TC)	Ongoing	REDD Demonstration activities in 3 areas of sustainable land use in forestry	1.000-2.000 tons CO ² saved per demonstration site
Forest Programme II (REDD+) (Sumatra + Kalimantan)	23 Mio €	Started	Support to national park Kerinci-Seblat and rehabilitation of watersheds in Merangin and Kerinci district	
Forest Programme III (Sulawesi)	16.5 Mio €	Appraisal Mission ongoing	Implementation of biodiversity and watershed management component (REDD+)	
Forest Programme IV (Sulawesi)	23.5 Mio €	Planned	Rehabilitation and protection of watershed	
Debt-for Nature-Swap III	12.5 Mio €	Completed	Support to 3 national parks	

3.4. An example of a joint Indonesian-German Forests and Climate Change Programme



The Indonesian-German Forests and Climate Change Programme (FORCLIME) is jointly implemented by the Indonesian Forestry Ministry, local forest management authorities, GIZ and KfW. It is funded by BMZ. The programme, which runs from 2009 to 2020, supports the implementation of forest conservation and sustainable forest management strategies, reduces climate-damaging emissions from the forest sector and improves the living conditions of the rural poor.

The German technical cooperation contribution provides national policy advice, strategy development and implementation in the field of forest conservation and climate change mitigation and advises on the development of innovative instruments and mechanisms to reduce greenhouse gas emissions from forests. They are piloted in selected FMUs in Kalimantan and the results are fed into the national, regional and international discussion on forest conservation and climate change mitigation. Targeted human capacity development activities also strengthen training and continuous professional development in fields relevant to forests and the environment.

The interventions are closely coordinated with KfW Development Bank's financial cooperation module. The focus is on forest areas within those FMUs that are acutely or potentially under threat of being destroyed or changed into other forms of land use and that also have great potential for greenhouse gas reduction and special significance for species diversity and the water cycle.



4. The necessary framework – forest governance structures at national and regional level



Hesse's Ministry of Environment is the highest authority in the forest governance system and takes policy decisions on forest conservation and environmental protection, which are then implemented by lower level administrative bodies. It is a three-tier structure consisting of agencies at state (Land), administrative region (Regierungsbezirk) and administrative district (Landkreis) level.

The entire administration adheres to the Hessian Forests Act, which is based on the principle of sustainable and close-to-nature forestry.



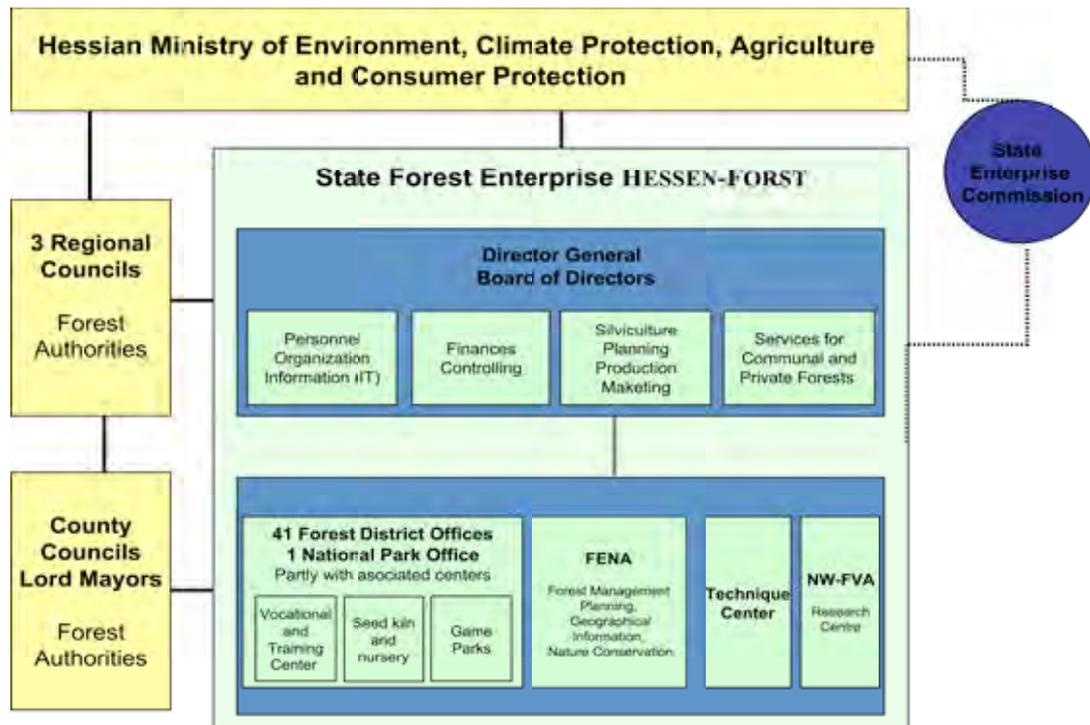
Methods to ensure sustainability, which are enshrined in the Hessian Forests Act

Forest owners are obliged to act in the general public interest in managing their forests properly, sustainably, competently, and according to plan and in compliance with forestry and countryside stewardship principles and by doing so to conserve the forest's practical usefulness, protective function, role in climate change mitigation, and recreational value.

Mandatory ten-year planning:

- No clear felling of areas greater than 1 hectare
- Supervision by staff of Hessen-Forst Sanctions
- Mandatory forest preservation and reforestation
- Taking forest areas on agricultural land into account
- Establishing, managing and harvesting forest areas in local authority and private ownership

Forest Governance Structure in Hesse



Ministry in Wiesbaden

Hessian Ministry of Environment, Climate Protection, Agriculture and Consumer Protection: forests division

- Highest administrative authority
- Supervisory responsibility for publicly owned forests and Hessen-Forst, a state-owned enterprise
- Issue of regulations to enforce the Forests Act
- Policy advice
- Platform for independent certification schemes (PEFC)

3 regional authorities in Darmstadt, Giessen and Kassel

- Approval of medium-term plans for local authority and privately owned forest.
- Forest management

21 administrative districts (Landkreise) and five towns not attached to administrative districts (kreisfreie Städte) in Hesse with responsibility for agriculture, forests and nature conservation

- Approval procedures relating to nature conservation and reforestation
- Collaboration with forest administrations
- Opinions on development plans
- Forest compensation sites

Forest ownership in Hesse

Publicly owned forest: 40%
 Local authority owned forest: 35%
 Privately owned forest: 25%

Hessian forests

Forest cover: 895,000 hectares
 Mixed forest: 73%
 Broadleaf: 50 %
 Volume of standing timber: 319 m³/hectare
 Annual increment: 10 m³/hectare
 Annual timber harvest: 8 m³/hectare
 Time for beech to reach maturity : 140 years
 Time for spruce to reach maturity: 80-100 years

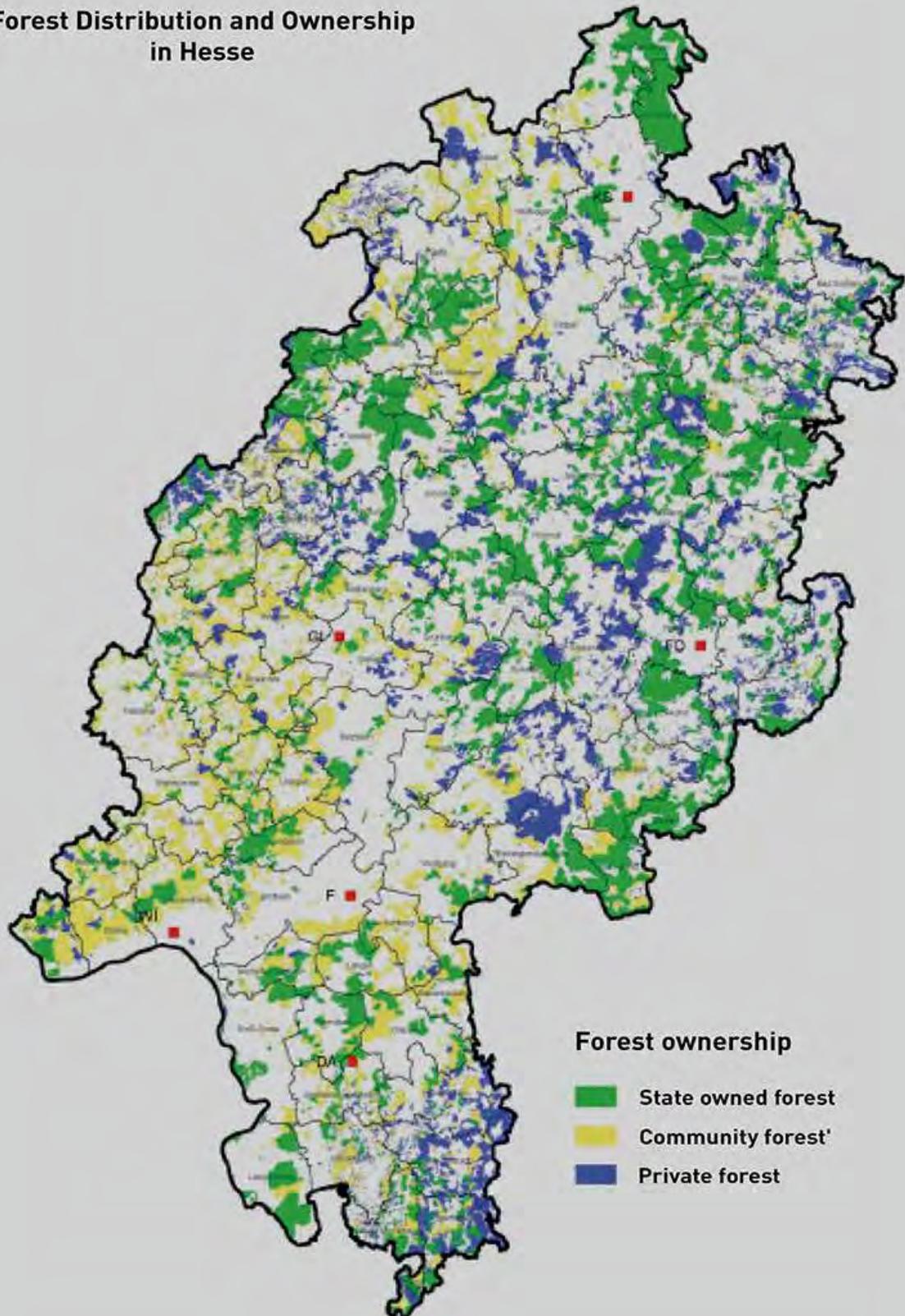


Species composition

Beech: 29%
 Spruce: 25%
 Oak: 13%
 Other broadleaved trees: 12%
 Pine: 11%
 European larch: 5%
 Douglas fir: 3%

Overall Goal	Maintenance and development of the ecosystem „forest“ and optimized combination of its impacts as the highest possible contribution to the environmental, economic and livelihood conditions				
Main Objectives	Timber Production (P 1)	Protection and ecological Impact (P 2)	Impact on recreation and culture; environm. Education (P 4)	Labor	Use for forest Owner
Objectives	Timber and NTFP (P 1)	Protection of <ul style="list-style-type: none"> • cycles • nature • biodiversity • landscape • wildlife • water, soil • climate • etc. 	Health Recreation Adventure Arts Education Scenic beauty	Labor in rural areas and humane labor conditions Income Service provision according to needs	Operating result Value of the forests Solvency Conceptual values
In forest operations multiple impacts have to be considered Objectives have to be considered simultaneously In case of conflicts, the protective functions have priority					

Forest Distribution and Ownership in Hesse





We will only succeed in reforming our forest management if we work with the local population

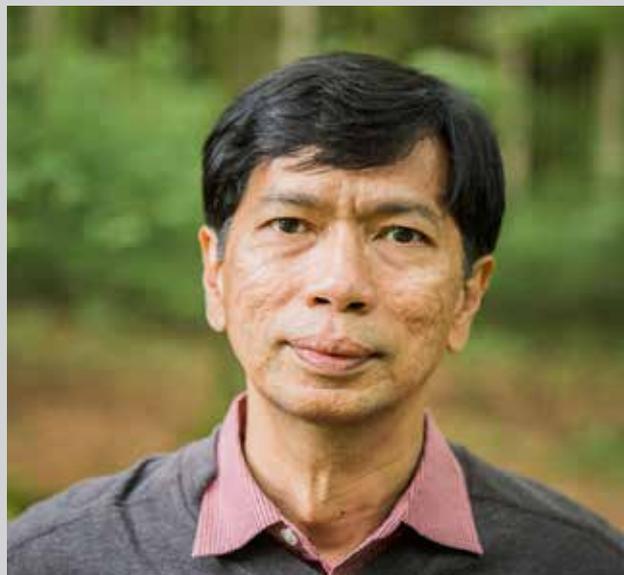
Interview with Dr Erwinsyah, REDD+ Agency Operations – Province Coordinator

GIZ: In Hesse the interests of the government and the private sector are reconciled in environmentally sound forest management, which is implemented by the FMUs. What is the situation in Indonesia?

Erwinsyah: As I see it, Indonesia has a problem in coordinating its three-tier governance system at national, provincial and district level. In Hesse the state makes regulations and the other administrative levels support and implement them. It is not like that in Indonesia; it is difficult there to implement legislation in the field. I don't think the regulations themselves are the problem; it is more a question of implementing them directly.

GIZ: Despite initial resistance to the new legislation on forest use, sustainable forest management is now being successfully implemented in Germany. Is Indonesia going to be able to find a solution?

Erwinsyah: I don't think the problem is a lack of technology. The will to change is essential and this is where our delegates from the provincial and district governments play an important role. We will only succeed in reforming our forestry sector if we work with the local population. The example of Hesse has shown us that it can take 200 years for an almost completely cleared forest to regenerate. Even though trees grow more quickly in Indonesia than in Germany, we should not necessarily follow this example. We have to take immediate action to avoid causing further climate problems.



We can learn a lot from Germany

Interview with Drasapolino, Director of Forest Utilization Planning, Ministry of Forestry

GIZ: Through Hessen-Forst and the collaboration with the Ministry of Environment you are learning a lot about Hesse's administrative structures. In what way do they differ from the Indonesian system?

Drasapolino: The structure is very different; we have only centrally regulated state-owned forest, for which the provincial and district authorities have administrative responsibility. For some years now, we have been involved in a huge process of decentralising forest authorities with a view to better meeting the needs of local forest use. Establishing forest management units is therefore a key issue in Indonesia right now.

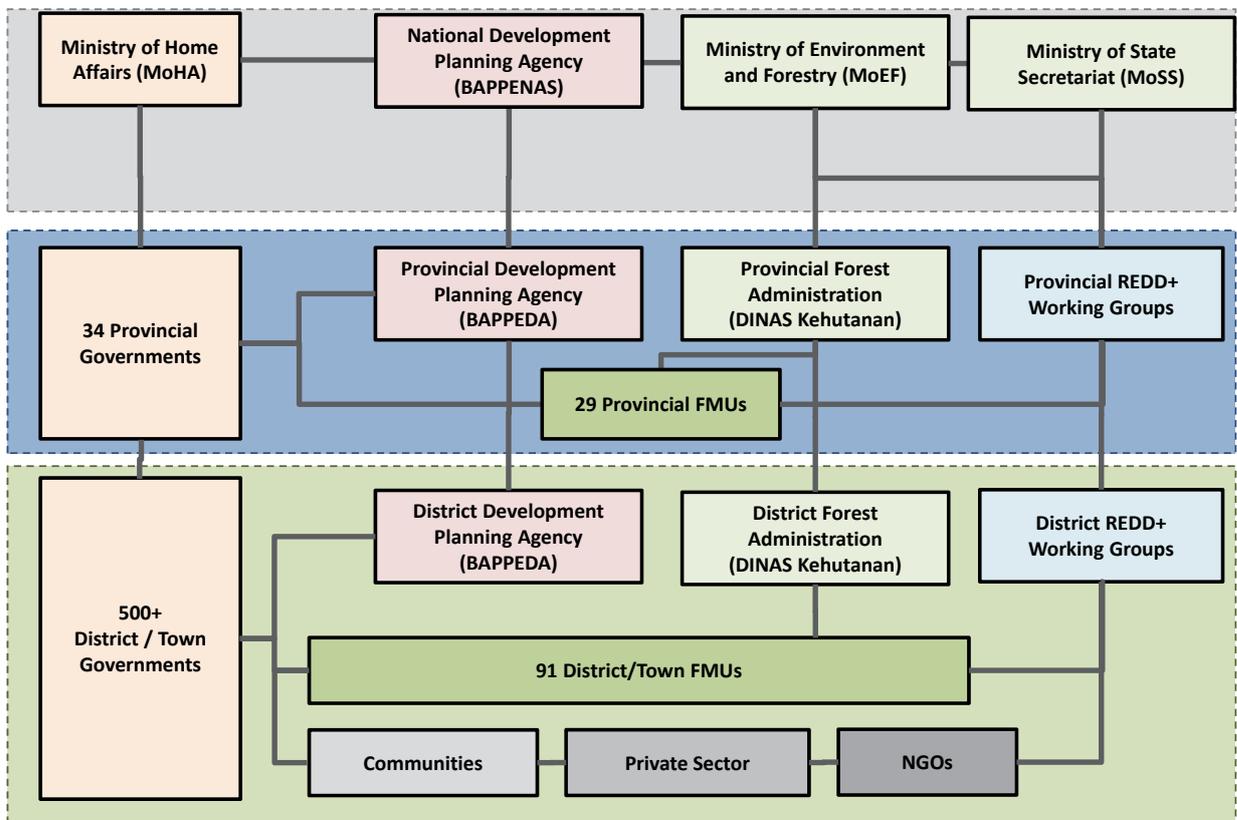
GIZ: How is the implementation progressing?

Drasapolino: We are currently setting up 120 forest management units (FMUs) in Indonesia, which will start to carry out their duties in 2015. At the moment we are preparing a management plan, in which 80 FMUs will primarily look after production forests and 40 will look after protected forests.

GIZ: You seem to be well on the way towards building up decentralised administrative and management structures. Why is a bilateral dialogue with Hesse so important to you?

Drasapolino: We will be talking on a colleague-to-colleague basis to key decision-makers such as district chief executives, mayors and foresters. They already have experience with how forest governance can work and they know where their strengths and weaknesses lie. To enable us to achieve optimum implementation of sustainable forestry in Indonesia, we are therefore looking to share experience with our German colleagues. We can learn a lot from them.

Forest Governance Structure of Indonesia with regard to Forest Management Units (FMUs)



5. Planning as the basis for forest conservation and climate change mitigation





5.1. FENA – the service centre for forest management planning and nature conservation

FENA is an independent service institute within Hessen-Forst, which is the central point of contact for all 41 FMUs, providing forest inventory data and cartographic material for them to base their planning and monitoring activities on.

FENA's remit covers inventories and plans, which are the basis of any sustainable forest management, processing and analysing spatial data on forests and designing and coordinating acquisition of nature conservation data across the entire state.

Through this work, FENA ensures that all forests – under whatever kind of ownership – are managed sustainably, proficiently and according to plan. FENA's inventories form the basis for the ten-year forest plans, which enable profit and loss to be measured for sustainably managed forests.

Terrestrial data on 320,000 hectares of state-owned, 290,000 hectares of local authority owned forest and 30,000 hectares of privately owned forest collected by experts at FENA are recorded in the geographic information system (GIS) and can be accessed online by the FMUs. Universal access to the data ensures transparency and makes it easier to evaluate the forest resources. FENA has over 86 highly qualified staff. They are all-rounders who have many years of experience in carrying out forest inventories, mapping, silviculture, soil science, financial and organisational planning, along with excellent local knowledge. Their planning work is based on a standardised forest registry, which has a binding character for all of Hesse's administrative bodies. The example of FENA illustrates the importance of an agency with skilled and experienced staff for medium-term and long-term planning and therefore for sustainable forestry.



FENA's departments

1. Forest management planning

- Preparing forest management plans as required by Hesse's Forest Planning Regulations (HAFEA)
- Mapping forest sites and safeguarding forest functions
- Devising and carrying out random sampling inventories
- Comparing plans with measures implemented (on-site assessments)
- Advising forest owners on all forest planning questions
- Preparing forest valuations and securing evidence on forest ecology
- Staff: 1 head of department, 5 planning experts, 15 inventory specialists, 7 other staff

2. Geographic information on forests

- Maintaining and updating data on structuring the forest (including paths, site information and actual forest functions) within the forest management planning process
- Publishing standard forest maps and registries
- Analysis of spatial data for in-house and other purposes
- Data preparation and release to third parties
- Participation in further developments of GIS applications
- Supporting applications and liming measures (maintaining and updating the liming registry)
- Staff: 1 head of department, 3 GIS experts, 18 other staff

3. Nature conservation

- Designing and coordinating data management across the state as a basis for species conservation
- Developing concepts and methods for recording and evaluating species and their habitats
- State-wide species reports
- State-wide species recovery plans
- Data acquisition, quality assurance and evaluations
- Natura 2000 monitoring and reporting obligations



Only people who have worked in the forest really understand it

Interview with Armin Offer, director of forests and head of the forest resources assessment department

GIZ: Drawing up a forest management plan requires reliable data on forest resources. Who carries out forest inventories?

Offer: Staff at Hessen-Forst and also private-sector forest experts, who usually have a degree in forestry. For reasons of cost, we are now increasingly contracting external experts. We publish invitations to tender for inventory contracts, which are usually awarded to the lowest bidder. Inventory results have to be closely checked to ensure a high level of quality. But we like our young forestry graduates at Hessen-Forst to have several years of experience in carrying out independent forest inventories before they progress along their career development path. You need years of experience of working in the forest, measuring and analysing forest resources, to be able to acquire the professional and personal skills needed to do a competent job at a higher level in the administration that is recognised by practitioners. And I believe that is the only way to ensure that forest programmes and management plans can be successfully implemented.

Forest inventory criteria

- Nature conservation
- Sustainability
- Biodiversity conservation
- Owners' objectives
- Condition of the forest and possible use factors
- Climatic aspects

Planning stages

Inventory:

- Quantified inventory: damage, size, tree species diversity
- Forest resource assessment based on random sampling

Monitoring:

- Evaluation of the latest completed operations, consideration of the pros and cons of the latest plan

Planning:

- Intensity of use and yield are stipulated, possible opportunities to optimise certain aspects for the benefit of nature conservation are implemented

Trees

Pine



Standardised maps are essential for well-functioning forest governance

Interview with Heracles Lang

GIZ: As a result of the 1999 forest sector reform, decentralisation endeavours were launched and FMUs established. Since then, forest conservation in Indonesian has made huge progress. At the moment, the One Map, One Forest programme is being developed. At what point is the Indonesian government involved in this work?

Lang: To work properly, forest governance needs standardised maps, in particular because many different ministries have to work together. That is why we call it the One Map movement. As the government, we can engage in dialogue with different tiers of the administration and develop appropriate measures. We don't have any authority in this respect but we can use our powers of persuasion to ensure that everyone uses a standardised system.

GIZ: The Indonesian Government is currently working on many different levels to support the establishment of sustainable forest conservation and climate change mitigation structures within the REDD+ framework. What aspects of Hesse's administrative structure are you feeding into your work?

Lang: The detailed, tried-and-tested procedures operating in Hesse's forest authorities were interesting for us. Different authorities were able to answer each of our questions. That is a sign of transparency and demonstrates that the Hessian system has proved its worth over more than 200 years. A standardised solution such as the one you have in Hesse is not possible for such a large country as Indonesia with our thousands of islands and numerous ethnic groups. We have established a firm framework for our forest conservation and climate change mitigation system at national level. Additional details have to be specified at province and district level and adapted to the particular context. This makes an exchange of ideas and experience even more important for implementation and that is why we are pleased that this delegation has so many representatives from different Indonesian provinces and districts. It means we are already on the right track.

5.2. The One Map movement

The One Map movement was instigated in 2010 by the Indonesian President's Delivery Unit (UKP4) with the remit of preparing a standardised and mandatory set of maps for the entire Indonesian forest sector. The drastic increase in illegal, climate-damaging activities and social conflicts over forest use illustrates the need for standardised maps to enable such activities to be recorded and curbed. The central administrative unit for collecting, maintaining and evaluating data is the Geospatial Information Agency (Badan Informasi Geospasial or BIG). The Ministry of Environment and Forestry recently has taken up the role in supporting the implementation of the One Map Policy and is evaluating geospatial information together with other sector ministries. The One Map movement is an important approach to solving forest conservation and climate change mitigation problems by standardising Indonesia's geospatial information system.

Access to the maps prepared by all the administrative authorities has numerous advantages on different levels:

- A single portal for geospatial data
- Standardised maps
- Reliable data on deforestation
- Clear licensing system for forest activities
- Localisation of project work
- Progress on reforestation measures
- Overview of resource depletion
- Index of land under agricultural use
- Curbing emissions



Indonesia is catching up in sustainable development

Interview with Ida Fitriati Basjuni, Mayor of Pagar Alam, South Sumatra

GIZ: The forest planning is one of the tasks of your government. What are your long-term planning goals?

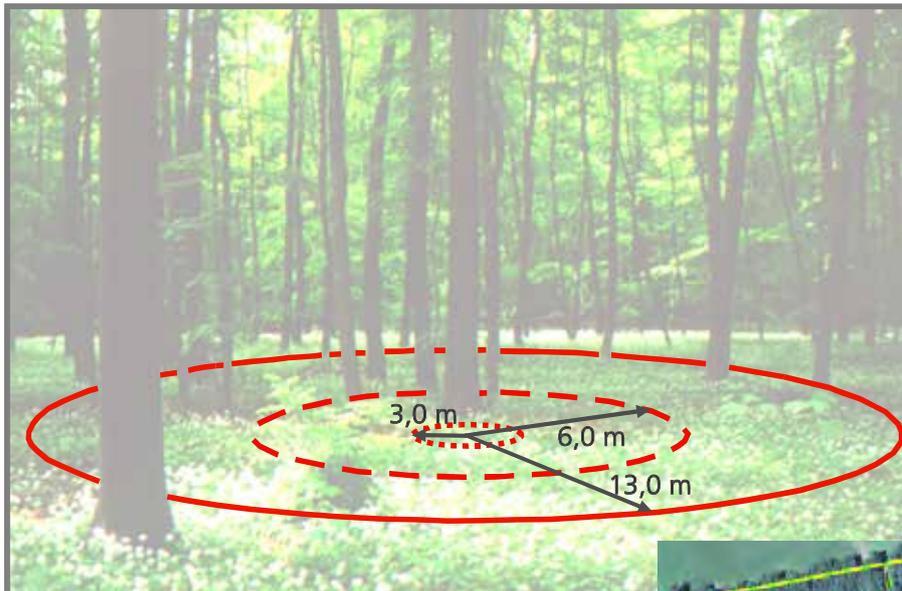
Basjuni: As I see it, good forest planning is the most important instrument for sustainable forestry. We are drawing up both short-term and long-term plans for forests and agricultural land. We are starting by afforesting land with trees that contribute to food production. In the long term, we will endeavour to cultivate precious wood species for the timber and furniture industry to halt forest dieback and counteract climate change.

GIZ: It is obvious from what you are saying that Indonesia has ambitious goals for optimising its forestry sector.

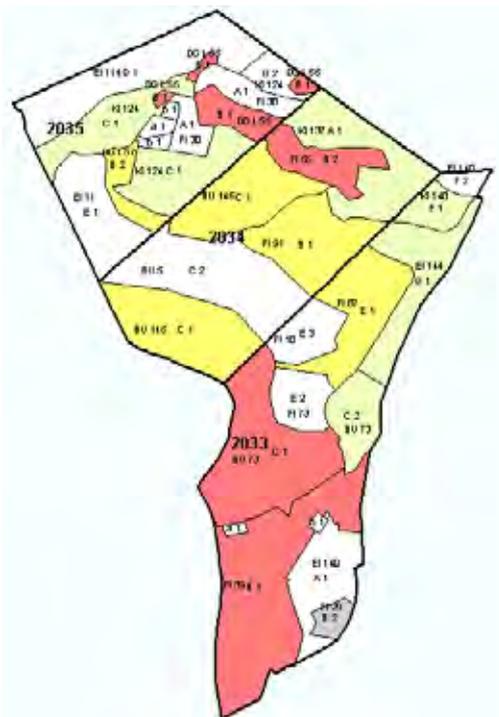
Basjuni: I am very optimistic that Indonesia will catch up in sustainable development. The most important thing we have learnt here is the necessity to set up FMUs. To do that we need well-trained foresters and monitoring and control systems that are closely interconnected. That is a long-term project we would like to tackle.



Maps centrally produced by FENA form the basis for managing the FMUs



A combination of FENA's remote sensing and soil inventory data creates the basis for forest planning



Rate of Implementation	Symbol
Nothing planned	White
1-10%	Grey
11-65%	Green
66-90%	Yellow
> 90%	red

6. A public service provider for sustainable forestry – state-owned enterprise Hessen-Forst

Forest management and timber production are the key tasks of the state-owned enterprise Hessen-Forst, with environmental protection and biodiversity as integral parts of its management philosophy. Hessen-Forst is owned by the state of Hesse and manages its forests. It implements the principles adopted by the ministry. They include focusing more on the forest's ecological function by maintaining nature conservation areas. As a service provider, Hessen-Forst supports private and local authority owners in managing their forests sustainably. Privately owned forests cover on average five hectares. The experts at Hessen-Forst support the implementation of forest plans that meet sustainability criteria. Hessen-Forst also trains apprentices, passing its knowledge on to young people and ensuring there is always a supply of young skilled professionals.

Hessen-Forst's key tasks

- Sustainable management of the state-owned forests, taking economic and public welfare aspects into account
- Providing advice and support to local authority and private forest owners, based on forest legislation and annual plans
- Forest inventories, ten-year plans, annual plans for state and local authority owned forest
- Research on ecology, biodiversity, growth, soil properties, the health of the forest and landscape and nature conservation
- Training and continuous professional development for all the staff at Hessen-Forst
- Public outreach and awareness campaigns on forest and nature conservation



Meeting the demands associated with climatic, social, environmental and economic changes

Interview with Jörg Albrecht

GIZ: Hessen-Forst practises close-to-nature forest management and natural regeneration. What are the key factors involved in preserving forests that have high potential both environmentally and economically?

Albrecht: Forest governance needs two important aspects: a policy and legal framework and socially accepted objectives. A good data set, good planning and, above all, competent personnel are also a must.

GIZ: That sounds like a tried-and-tested system.

Albrecht: Our job is to meet the demands associated with climatic, social, environmental and economic changes. This administrative system has developed over many years and is the result of political, cultural and natural changes.



Sustainable use does not necessarily mean restricting economic development

Interview with Dr Nur Hygiawati Rahayu, Head of Conservation and Development Services (BAPPENAS)

GIZ: You have looked at how communication between the state and local level works in Hesse. What were you hoping for from this exchange of experience?

Rahayu: It was especially important for us to find out how ministries work with the FMUs. In Indonesia we have a regulation at national level that dictates: 'No FMU, no budget.' That gives a clear policy signal and is meant to create incentives to accelerate the process of setting up FMUs. The highest administrative level has already established this principle and the province and district level will soon follow suit.

GIZ: Implementing new regulations is complex and fraught with obstacles. Are there any measures beyond the guidelines that provide some support?

Rahayu: We work closely with the Environment and Forestry Ministry and offer workshops and seminars for local government. We also provide a communications platform for all stakeholders.

GIZ: What insights will you take back to Indonesia?

Rahayu: I have noticed that my colleagues are very interested in structural questions connected with setting up an administration system. We need to give greater recognition to the forest sector and to the role its resources play in the economy. We also have to understand that sustainable use does not necessarily mean restricting economic development. I have seen that very clearly in Hesse.

7. Sustainable forestry at local level – forest management units (FMUs)

Hesse's forests are organised around forest regions, which are in turn divided into 41 forestry departments or FMUs and 441 forest districts. Within an FMU, the district foresters are responsible for close-to-nature maintenance, design and conservation of their areas which usually cover about 2,000 hectares.

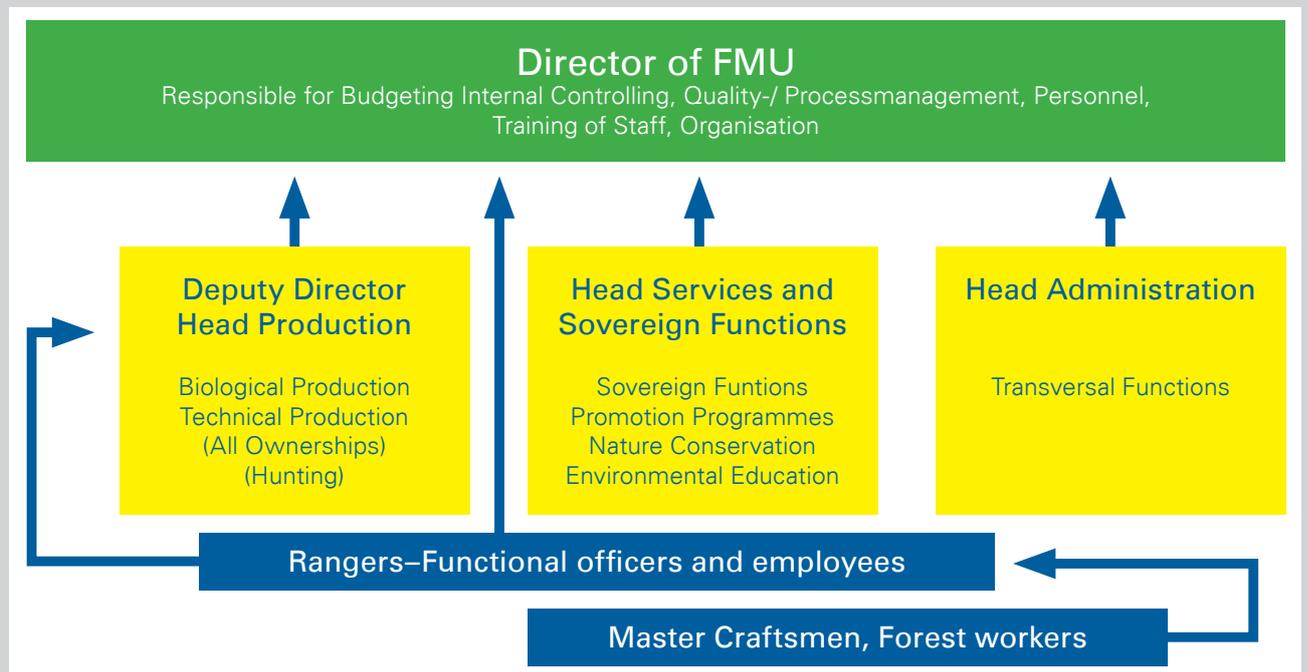
Responsibilities of the head of a Forest Management Unit

- Timber marketing
- Management control
- Quality and process assurance
- Human resources management
- Administrative activities

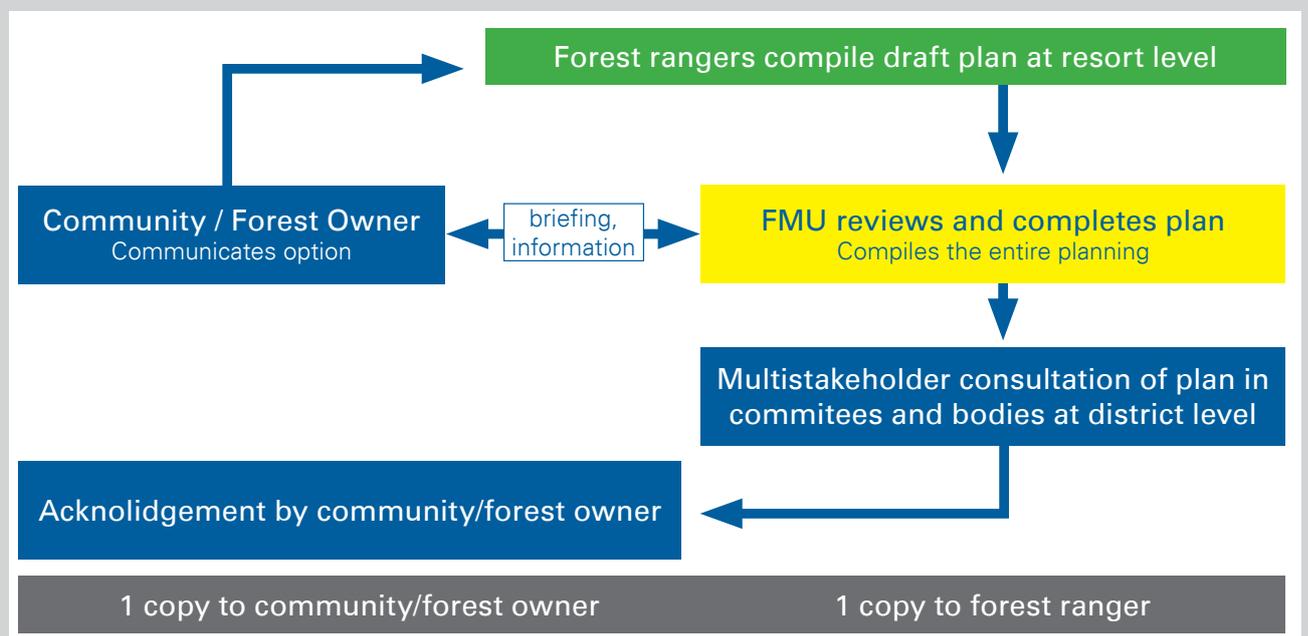
FMU resort manager (ranger)“ instead of „district forester

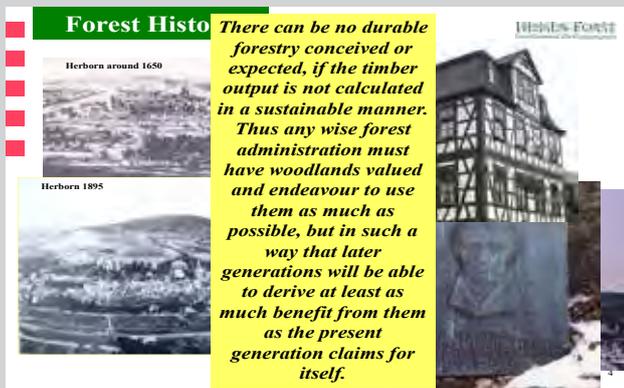
- Sustainable forest management in compliance with forestry legislation and based on medium-term and annual plans
- Reforestation measures
- Preparing forests for logging
- Supervising logging activities, recording the volume of timber and preparing it for sale
- Marketing the timber, communication between vendors and purchasers
- Preparing and supervising other forest maintenance work
- Forest conservation
- Building paths
- Wildlife control

Forest resorts within the Herborn FMU



Preparing the annual FMU management plan





7.1. A pioneer of sustainability: Georg Ludwig Hartig

200 years ago, vast areas of Germany’s forests suffered intensive overutilization; massive deforestation and forest degradation were the consequences. Mining and agriculture were the main drivers of deforestation in Germany. Not only the colossal demand for wood by the mining and iron and steel industries, but also people collecting seeds as animal feed prevented natural regeneration and caused the almost complete disappearance of Hesse’s primeval forest. Georg Ludwig Hartig came up with an idea to combat this development, which is still modern today: sustainability. In 1804, he wrote in his ‘Instructions on classifying and describing the forests’:

There can be no sustainable forestry conceived or expected, if the timber output is not calculated in a sustainable manner. Thus any wise forest administration must have woodlands valued and endeavour to use them as much as possible, but in such a way that later generations will be able to derive at least as much benefit from them as the present generation claims for itself.

The sustainability principle and the wellbeing of future generations became his vision for the future. On this basis, legislation was passed that was designed to halt the reckless use of resources. Hartig also set up the first forest school in Dillenburg, with its graduates working as foresters to implement the regulations. It is thanks to Hartig’s insights and reforestation activities that Hesse’s forests still have beech trees that are around 200-240 years old. Gert Rode, head of Herborn’s FMU noted that ‘What we harvest today was planted or sown by someone hundreds of years ago and it is part of an inter-generational agreement that we must treat our forest resources with care.’ Today Hartig’s progressive ideas underpin forest management in Hesse, Germany and worldwide.



A forester is a service provider for generations

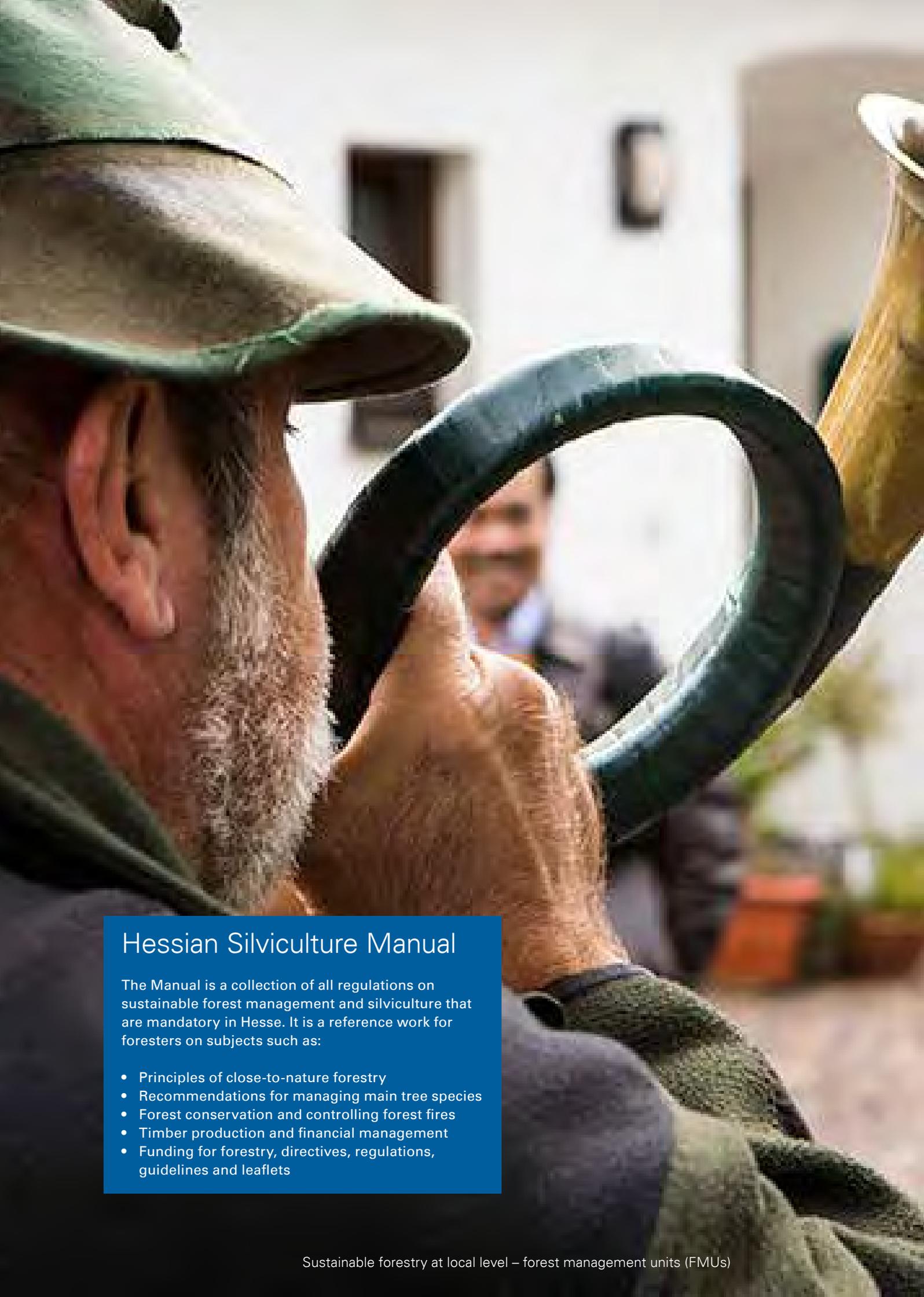
Interview with Gert Rode, head of Herborn’s forest management unit (FMU)

GIZ: When Hesse’s lords passed forest protection legislation based on Hartig’s insights about sustainable use of the forest, the pressure that forests were under was quite different from today. People lived from the forest and its products so that restricting its use met with stiff opposition. How was that dealt with?

Rode: There were huge conflicts that were not resolved until forestry staff were installed to implement the regulations.

GIZ: What effect did the implementation of the regulations have on the forests themselves?

Rode: Originally the lords set up forestry units in remote areas to tackle the problem of poachers. When more stringent legislation was passed, the foresters were instructed to take systematic action against over-use of the forests and the degradation of forest soils it was causing. As an incentive, forest houses and agricultural land were provided to offer a reasonable life for the forestry employees and their families in remote forests so far away from any village. But that meant that working as a forester could be quite dangerous. Today’s situation is, of course, quite different. A forester provides a service for the local population – across many generations. The incentives for today’s forestry staff are good salaries and a continuous personal development programme. Heads of forestry agencies and district foresters are sought-after jobs now that enjoy high social recognition in the population.



Hessian Silviculture Manual

The Manual is a collection of all regulations on sustainable forest management and silviculture that are mandatory in Hesse. It is a reference work for foresters on subjects such as:

- Principles of close-to-nature forestry
- Recommendations for managing main tree species
- Forest conservation and controlling forest fires
- Timber production and financial management
- Funding for forestry, directives, regulations, guidelines and leaflets



It is difficult to press ahead with changes without the backing of the public

Interview with Damsik Ladjalani, chief executive (Bupati), Tojo Una-Una District, Central Sulawesi

GIZ: Indonesia is making great efforts to reform its forest sector and develop greater awareness on how it uses its natural resources. What are the major obstacles to implementing radical changes?

Ladjalani: The local population is not yet sufficiently aware of the need for sustainable forest management – unlike in Germany, where general rules have been established, which are for the most part followed. It is difficult to press ahead with changes without the backing of the public.

GIZ: What is the major cause of forest destruction?

Ladjalani: 65% of my district is forested. That means that illegal clearing to create fields is the greatest problem, which is why we are launching agricultural programmes. We are currently aiming to cultivate long-lived fruit trees to achieve our long-term reforestation goal. We are setting up FMUs to work towards these goals and are already in the implementation phase. From 2015, each unit will be able to carry out its duties and look after 13,000-hectare districts.

GIZ: What would you like to see happen in Indonesia in the future?

Ladjalani: Solving Indonesia's social conflicts and ensuring people have secure livelihoods is very important. That is the only way to stop illegal forest activities and the destruction of the environment. Achieving sustainable forestry is a universal wish that all delegates share.



One-stop forest management

Interview with Sebastian Biener, district forester with Hessen-Forst

GIZ: Since graduating from university you have been working as a forester, managing 1,800 hectares of forest. What exactly does your job involve?

Biener: There are three different kinds of forest ownership in my district. I manage state, local authority and privately owned forest. The advantage of managing them all at the same time, even though they are under different ownership, is that there are no great distances to be covered, everything runs very efficiently. Ultimately, we follow the same guidelines for all the areas. The only difference is the profits flow into different channels.

GIZ: As a forester, you have to carry out both practical and administrative work. What are your main responsibilities?

Biener: My key responsibilities are forest maintenance and producing and marketing the timber. In addition to that, I have official duties, such as forest protection, developing infrastructure, maintaining roads and occasionally assisting the police in matters such as illegal forest activities.



8. Storm damage in the state-owned forest



In January 2007, hurricane Kyrill raged across vast areas of Europe with wind speeds of up to 225 km/h, destroying around 37 million cubic metres of growing trees in Germany. In Hesse, ten times the volume of trees that would normally be felled in a year were destroyed. The staff of Hessen-Forst cleared the fallen trees, marketed any timber that was usable, and reforested.

‘Although we were dismayed about the storm damage, we saw Kyrill as a new opportunity,’ says forester Wiebke Gerndt, who was involved in the planting work following the storm. Where spruce had been growing close to the stream before the hurricane, we planted alder, which is better suited to the damp soil. The guidelines on close-to-nature and sustainable forest management are set out in the Hessian Silviculture Manual. After the storm, we followed its instructions about what and how much to plant where, in order to ensure environmentally sound forestry.

To maintain a healthy mixed forest we plant up to 600 young spruce, Douglas fir and larch each day. Birch self-seed and we leave them for the time being for the sake of biodiversity.

Head of Herborn Forestry Agency Gert Rode reaffirms that ‘We sometimes have to lend nature a helping hand. The most important rules when doing that are keeping everything as natural as possible and making sure it is sustainable.’ Although compliance with ecological guidelines takes top priority for reforestation, it is important not to neglect the landscape aspect of forest planning. ‘As foresters we are responsible for sustainability, but also for the beauty of the forest and the safety of the people who visit it,’ Wiebke Gerndt explains. Nature conservation, economic viability and aesthetic considerations have to be in harmony in Hesse’s forests.

The storm-damaged areas were reforested taking all these aspects into account and have been able to develop into a sustainably managed mixed forest.



Forest utilization instead of using the forest

Interview with Wiebke Gerndt, forester, Struth forest district

GIZ: A huge amount of logistical effort was needed to deal with the storm damage so that the forest could regenerate. You had to clear the fallen trees and plant new ones although you at Hessen-Forst prefer natural regeneration.

Gerndt: Yes, there are a number of private tree nurseries in Hesse and one state-owned nursery, where we were able to buy the seedlings we needed for the reforestation work. But nothing is ever as good as what nature provides. That is why we count primarily on natural regeneration. If trees are growing in the right place and self-seed then natural regeneration is also better economically because we save time and money.’

GIZ: When it comes to use of the forest, it’s a thin line between environmental and economic factors. What is Hesse’s policy on commercial forests?

Gerndt: Using the forest is part and parcel of sustainability. Forests would always grow, but producing timber is Hessen-Forst’s commercial goal. We maintain the forest and the trees growing in it in order to produce the best possible material for which there is a market demand. We develop mixed forests to make sure that biodiversity concerns are also addressed.

9. Felling and harvesting



Timber is harvested in Hesse by removing single trees, because clear felling more than one hectare of land is prohibited under the state's forest legislation. To manage a forest on sustainability principles, a district forester selects trees for felling that are the right size and condition to be attractive for the timber market.

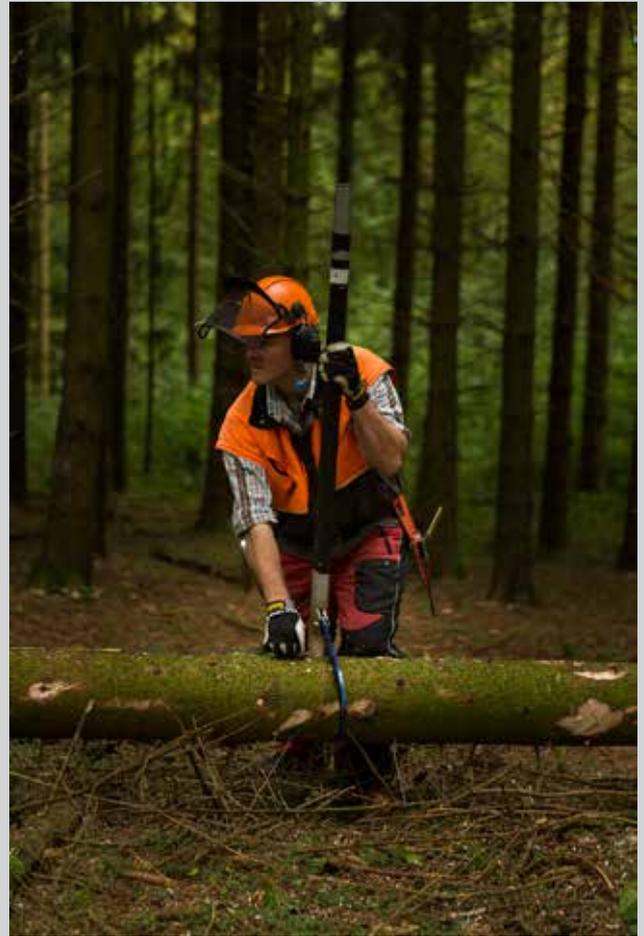
'Planting is not the only significant activity, preservation is also important,' says Wiebke Gerndt. Felling trees marked with an 'H' for habitat is prohibited. The letter indicates trees that are a habitat for bats, birds or insects; trees marked thus are under protection.

Manual reduced impact logging

Working in pairs and wearing protective clothing, forest workers are deployed in the forest where heavy machinery could compact the forest soil and compromise its quality. 'Our trees are felled by well-trained specialists, because they handle valuable timber grades more carefully than a harvester,' says forester Wiebke Gerndt, stressing the difference between people and machines.

If the soil in a particular part of the forest is low in nutrients, we do not practise whole-tree harvesting. Marco Menges, forester in the Struth forest district, explains that any part of the tree that measures less than 12 cm in diameter is chipped and left in the forest where it decomposes and puts nutrients back into the soil, making it rich and healthy.

Logging tracks are special tracks where forest machinery is allowed. The foresters need the machinery to drag felled tree trunks to the edge of the forest, using a rope sling or tongs. From there, they are transported to the saw mill by haulage contractors.



Mechanical felling using harvesters

As a result of poor soil, low precipitation and progressive climatic change, dry pines are being increasingly harvested and better adapted Douglas fir planted in their place. From 3,000 solid cubic metres upwards it is economically worthwhile using a harvester to harvest the timber. The machine does not damage the trunks left standing nor the forest floor.

Karsten Nöh works for the town of Herborn as a self-employed forest machine contractor: 'Before I make a cut I enter the quality of the wood into the harvester's computer and at the end of the day I know how much and what grades have been processed by the machine.'

The harvester owned by this family business processes 100 solid cubic metres of three different grades a day. The machine grades the wood by quality: from good timber or palette timber through to timber from the crown that can be used in energy generation.



Felling and harvesting



Felling and harvesting

10. Working with local communities – a forest owned by a Haubergsgenossenschaft cooperative



108 private forest owners joined forces to form a cooperative and have their forest, totalling 427 hectares, managed by the forest agency in Herborn. The cooperative, represented by master forester Georg Debus, consists of 50% high forest, which has mature trees and is managed according to plan, and 50% low forest, which is coppiced on short rotation. Each year, a portion is felled and divided among the members of the cooperative to reflect their shareholding. Ownership is organised around notional shares, with each member owning a percentage of the high forest and a percentage of the low forest. Debus describes being a member of this cooperative as having an equity stake in the entire forest.

A specified basic amount is also left in the cooperative's account to fund track building or special activities.

Gert Rode comments that 'Hauberg, if well-managed, is a type of cooperative that generates profits for its members each year.'



High forest

- Planned management
- Individual tree management
- The head of the Hauberg cooperative works with foresters to decide on the plans
- The timber logged is sold on the timber market
- Profits are distributed proportionally to members of the cooperative



Coppice forest

- Growth period is 20 years
- Portions of the forest are clear felled on a rotation principle
- The forest regenerates from the stump sprouts
- Owners receive their share of fuelwood for their own use or to sell
- 120-160 m³/hectare each year



Structure of the Hauberg cooperative

A manager of the Hauberg cooperative is elected by the members every six years. He or she is supervised by the administrative district.

- A Hauberg cooperative manager (receives a fixed salary, plus expenses, does not participate in profit-sharing)
- Two committee members (support the manager)
- A treasurer
- Members



Cooperative forest management is more lucrative, fairer and prevents conflicts

Interview with Georg Debus, master forester in the state owned forest and manager of a private cooperative

GIZ: Your cooperative currently owns 50% high forest and 50% coppice forest. Did you always have a fifty-fifty split between the two types of forest?

Debus: No, the higher demand for fuelwood meant that we used to have 100% coppice forest. Currently, it makes economic sense to maintain high forest, which is why there is now a balance. The current breakdown meets the demand for fuelwood, covers monetary interests and enables us to put our sustainable forest management ambitions into practice.

GIZ: The smallest shareholder in your cooperative owns one share and the largest 210. How often do members tend to sell their Hauberg shares?

Debus: People have rarely sold shares in recent years. Germany's energy transition means that wood is gaining in value. The most common scenario is that shares are bequeathed to younger generations. That happens several times a year and is recorded in the land registry.

GIZ: How long has your Hauberg cooperative existed in this form?

Debus: Cooperative forest management was first mentioned in 1500. Our form of cooperative was established at the end of the 19th century under the Hauberg statutes of 1887.

GIZ: What were the incentives to found it almost 130 years ago?

Debus: As a result of different soil conditions and fluctuating yields, collective forest management is more lucrative, fairer and prevents conflicts over land.



A forest cooperatively owned by a Haubergsgenossenschaft

11. Environmental protection promotes economic development in the Rhön Biosphere Reserve

11.1. A landscape in harmony with green economy principles

In 1991, this former large-scale protected area was designated a UNESCO biosphere reserve, extending into several German states. It is in the centre of Germany, divided among Bavaria, Hesse and Thuringia. Originally, 98% of the Rhön was under forest, but over the last thousand years the forest has been increasingly pushed back as a result of intensive agricultural use of the land. 'Until the biosphere reserve was set up, every square metre of land was intensively used,' says Ewald Sauer, the reserve's ecosystem manager, criticising the reckless treatment of the environment. Today, 3% of the forest is in the core zone of the reserve so that it is untouched by people. 'The idea is for it to become tomorrow's virgin forest,' explains Mr Sauer hopefully, because timber harvesting is not allowed here and nature conservation measures are not permitted either.

UNESCO's Rhön Biosphere Reserve comprises a great deal of open space, pasture land and a total of 42% forest, of which 39% can be sustainably used. This makes the reserve attractive for tourism and business and also in environmental terms. The differences in elevation in the hilly landscape open up vistas of the countryside and make the Rhön a country of wide open spaces.

As a result of sustainable reforestation activities, a balance between forest and agricultural land has been created. Today, not only nature conservation but also local organic produce is the Rhön's major selling point. Numerous food and animal products attract a higher market value because of their local provenance.

Breakdown of ownership

- 1/3 state owned forest
- 1/3 privately owned forest and agricultural land
- 1/3 local authority owned forest

High net output can be achieved without compromising environmental principles

Interview with Ewald Sauer, responsible for managing protected areas and monitoring planning processes

GIZ: Biosphere reserves are model regions with a particular kind of economic activity that are meant to inspire a new mind-set. In what way does the Rhön set an example?

Sauer: We endeavour to be exemplary in our agricultural sector by producing unadulterated food and promoting biodiversity. We believe we will achieve this aim by organic farming.

GIZ: The agricultural land in the biosphere reserve is either privately used or leased to third parties. Is organic farming on this land economically worthwhile?

Sauer: Our core idea is sustainable development. That is why our farming is on the whole extensive and organic. A special example is our organic cheese, which can only be produced using hay that is not harvested before it is fully ripened. European and national funds support our organic farmers.

GIZ: Over the course of 20 years, a broad range of organic produce has been developed in the biosphere reserve which has been certified and carries an organic label. Is this grouping of products advantageous?

Sauer: People associate purity, cleanliness, quality and reliability with the term 'biosphere reserve'. That in a word is sustainability. That is our unique selling point and it is reflected in market value.

GIZ: Europe's largest manufacturer of Euro pallets is based in the biosphere reserve. Can industrial production be reconciled with the reserve's principles?

Sauer: 60,000 pallets are produced and exported all over the world each day. We are able to convert our poorer timber grades in the region into pallets. This illustrates that high net output can also be achieved without comprising environmental principles.



Rhön biosphere reserve's three zones

Core zone

- Provides the highest level of protection
- Covers at least 3 % of the biosphere reserve's total area
- No activity is permitted
- Natural processes can develop
- Facilitates scientific research on areas of untouched nature

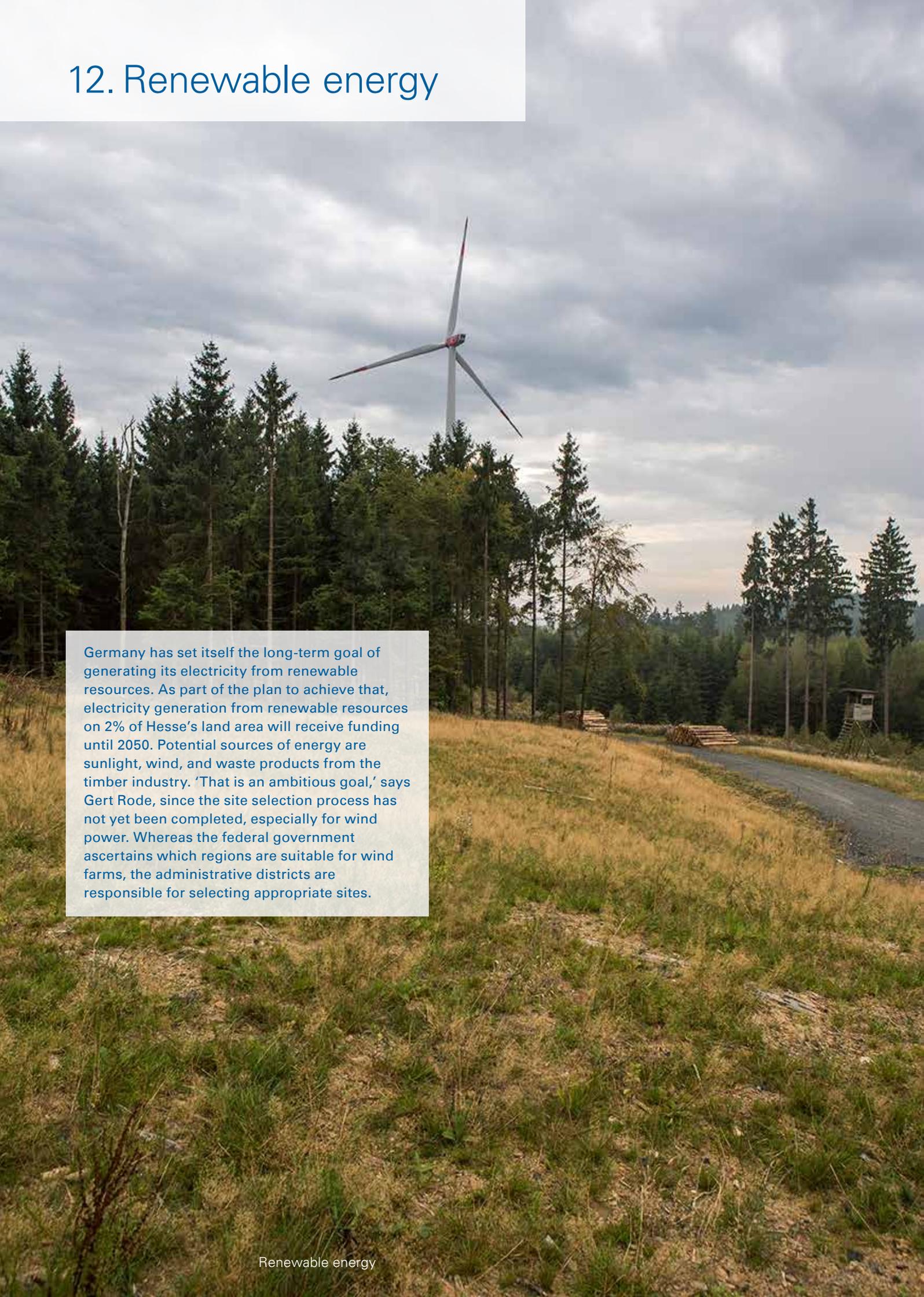
Buffer zone

- Provides the second highest level of protection
- Surrounds the core zone
- Together with the core zone makes up at least 20% of the total area
- Species, biotope and landscape conservation
- Extensive agriculture
- Development and preservation through adapted use and management
- Activities that are compatible with the protection objectives

Transition zone

- At least 50% of the total area
- Promotes sustainable management of resources
- Space for economic activity and recreation
- Settlement area

12. Renewable energy



Germany has set itself the long-term goal of generating its electricity from renewable resources. As part of the plan to achieve that, electricity generation from renewable resources on 2% of Hesse's land area will receive funding until 2050. Potential sources of energy are sunlight, wind, and waste products from the timber industry. 'That is an ambitious goal,' says Gert Rode, since the site selection process has not yet been completed, especially for wind power. Whereas the federal government ascertains which regions are suitable for wind farms, the administrative districts are responsible for selecting appropriate sites.

Wind power

To date, private or leased agricultural land has been used to set up subsidised wind farms, but now the search has been extended to forests. In Herborn's state-owned forest, 18 wind turbines are already feeding electricity into the grid and new ones are planned. 'It is interesting for forest owners because they stand to make a profit from leasing their land,' says Rode. 'It is very important to find sites that are suitable because of their average wind speeds but without neglecting forest protection, nature conservation and biodiversity aspects.'

As part of the approval process for wind farms, surveys were carried out and reports written, studying flora, fauna and impacts on nature conservation and biodiversity over many years. The administrative district council, local residents and forest owners were also involved.

The arguments in favour of wind power

- The most environmentally sound energy source
- Does not consume fossil energy reserves
- High yield at high elevations, boosted by wind turbines up to 240 m tall
- Profit from leasing the land and yield compensation payments for states, local authorities or private individuals

The arguments against wind power

- The range of action of animal populations is disturbed
- Negative impact on nature conservation, biodiversity and habitats
- Clashes with species conservation objectives
- Disturbance to local residents
- Conflict with landscape conservation



Managing protected areas in the Rhön Biosphere Reserve

Ewald Sauer, responsible for managing protected areas and monitoring planning processes

GIZ: The biosphere reserve is an interesting region in terms of wind power because it is in a low mountain range. Does this cause conflicts with nature conservation?

Sauer: As a result of our location, the reserve has favourable wind conditions that are better than in low-lying areas. But wind farms cannot be set up here because of landscape and animal conservation considerations. That is why we are the only upland region that does not have any wind farms in its highest areas. We have to maintain this standard in the biosphere reserve in order to preserve ecological quality.

GIZ: Does renewable energy other than wind energy play an important role in Hesse?

Sauer: It plays a hugely important role. As well as solar and wind energy, we also produce electricity and heat from by-products of the timber industry.

GIZ: Where does the wood come from?

Sauer: Leftover wood from the timber industry or material from managing local authority owned forests is an obvious energy source. In a regional power station, a wood gasification boiler produces heat and supplies households with a total of 250 people through insulated heating pipes. Their heating costs have halved and surveys of the population indicate that commissioning this plant was a good decision that has paid off.





13. Regional development at district and municipal level in Lahn-Dill district

The historical town of Herborn

Still boasting many half-timbered buildings, Herborn is a town steeped in history. Situated on a trading route, it has always been one of Lahn-Dill district's prosperous towns. In the Middle Ages, Herborn sold animal products such as butter and meat, whereas today its economic repertoire features high-value products in the electronics, engineering and aeronautical industry.

The forest sector, in which the administration and foresters work closely together, also plays a prominent role in the region's economy. 'Our forestry is designed to be sustainable,' says Hans Benner, Herborn's mayor, stressing that 'we want to ensure a good future for the people who live here in 50 years' time.' The aim is not just to derive financial benefits from the forest, but to conserve it as well. In Herborn, Hessen-Forst fulfils its obligation to act in the public good.

The historical part of the town with its picturesque half-timbered medieval buildings attracts international tourists. The town also offers excellent opportunities for hiking and cycling, tailoring its tourism facilities to its target group.

13.1. Dillenburg's transition towards sustainability

Dillenburg has been a human settlement for 2,000 years. Whereas it was once a mining region, the town is now transitioning to a sustainable economy. On the one hand, the tourism industry is flourishing here and, on the other hand, the suppliers to the German automotive industry that are based in the region are a key source of employment. Nevertheless, the forestry sector is the largest employer.

Dillenburg's history is an excellent example of a district that has made a deliberate transition from overexploiting nature to working towards sustainability and mitigating climate change. District chief executive Wolfgang Schuster puts the strategy in a nutshell: 'Lahn-Dill district has two main features: 50% of our land area is under forest and we are the most industrialised district in Hesse. That shows that sustainable forestry and industry are not necessarily mutually exclusive – if you get your policies right.'



Preserving traditions and remaining open to modern developments

Interview with Hans Benner, mayor of Herborn

GIZ: Local culture, profitability and sustainability go hand in hand in Herborn. How important is it to you to be able to welcome this Indonesian delegation on their third day in Hesse?

Benner: It's very important! Indonesia shares a responsibility towards the global climate. I see the dialogue as an opportunity for us to discuss experience and strategies. Herborn is an example of how it is possible to preserve traditions, yet remain open to modern developments. We bring culture and commerce together. Herborn is 1,000 years old and continues to prosper.





Regional development at district and municipal level in Lahn-Dill district



Forest management crosses generations

Interview with Wolfgang Schuster, district chief executive

GIZ: In Dillenburg, the Hartighaus – the building in which Georg Ludwig Hartig opened a forest school in the 18th century – still stands. Which of his guiding principles are still relevant to us today?

Schuster: He taught us that forest management crosses generations. Future generations 80 years down the line will suffer as a result of mistakes we make today.

Dillenburg Stadt der Oranier





Inter-generational equity requires us to preserve the quality of life on our planet for future generations

Interview with Michael Lotz, mayor of Dillenburg

GIZ: Dillenburg is in one of Germany's most economically thriving regions. Nevertheless, it does not look as if nature conservation and sustainability are neglected here.

Lotz: The link between economic success and sustainability is paramount for our district. We have to provide a livelihood for all our citizens but without putting too much stress on our economic and natural resources, because they are needed for future generations. Inter-generational equity demands that we preserve the quality of life on our planet for future generations.



We have to bear the welfare of the local population in mind

Interview with Perdrie M. Yoseph, district chief executive (Bupati), Murung Raya District, Central Kalimantan

GIZ: It is becoming increasingly clear that the Indonesian administration has to get everyone involved in forestry around the table to develop strategies for tackling illegal forest activities. Did you get any ideas from Germany about this kind of strategy?

Yoseph: Hesse's organisational structure of its administrative bodies and their staff is impressive. In Indonesia we are constantly up against the problem of lack of awareness for the forest and how critical it is to combat deforestation and the climate-damaging processes associated with it. But we have to proceed gradually. We cannot use pressure because that would meet with resistance. We have to bear the welfare of the local population in mind and work with sensitivity to reduce climate-damaging processes. I have realised that there are many strategies in Hesse that could be used in my home country in a modified form.

GIZ: Your district has plentiful water resources and many industrial areas. Do you see parallels between your situation and Dillenburg?

Yoseph: Its crystal-clear water, economic status and tourist appeal are unique features of Dillenburg. It was inspiring to see industry and nature conservation coexisting and being mutually beneficial rather than mutually exclusive. The symbiosis provides an incentive for people to stay in the region. This strategy offers a potential solution for Indonesia and its forestry.

14. Delegates



1.
Delegates from Jambi Province
(from left to right)

- Arwan Adnan Sari**
Merangin District deputy chief executive
- Dr Muhammad Ridwansyah**
REDD+ Commission, Jambi
- Haviz Husaini**
Assistant to the governor and Head of the REDD+ Commission, Jambi
- Muhammad Arief Rahman Hakim**
Head of the planning authority, Merangin District
- Agus Sunaryo**
Head of the planning authority, Tebo District



2.
Delegates from South Sumatra Province
(from left to right)

- Muzakir Sai Sohar**
Muara Enim District chief executive
- Ida Fitriati Basjuni**
Mayor of Pagar Alam
- Dr Najib Asmarni**
Special climate change advisor to the provincial governor



3.
Delegates from West Sumatra Province
(from left to right)

- Khairal**
Head of Sijunjung District Forestry Office
- Hendri Octavia**
Head of the Province Forestry Office
- Abdul Rahman**
Deputy district chief executive, Solok District
- Tri Handoyo Gunardi**
Head of Solok Selatan District Forestry Office
- Yuswir Arifin Datuk Indo Marajo**
District chief executive, Sinjungjung District (unfortunately not pictured)



4.
Delegates from Central Sulawesi Province
(from left to right)

- Anhar Syahrul Abdillah**
Head of Donggala District Forestry Office
- Kasman Lasa Rusagau**
Chief executive, Donggala District
- Nahardi Haddade Pallaca**
Head of the Province Forestry Office
- Damsik Ladjalani**
Chief executive, Tojo Una-Una District
- Hasmuni Hasmar Hasyim**
Head of Tojo Una-Una District Forestry Office



Delegates from Central Kalimantan Province
(from left to right)

Mathilde Sari Panggabean

Head of UNORCID Province office

Wartony

Head of the environmental authority, Pulang Pisau District

Edy Pratowo Suyono

Chief executive, Pulang Pisau District

Dr Siun Jarias

Province secretary

Perdie Midel Yoseph

Chief executive, Murung Raya District

Nyaru Tono Tundjan

Head of Murung Raya District planning authority



Delegates from East Kalimantan Province
(from left to right)

Stepi Hakim

REDD+ working group, Kutai Negara District

Prof. Dr Sigit Hardwinarto

Environmental advisor to the governor

Hamly Pide

Head of the Kutai Kartanegara District planning authority

Marli Nan

Head of Kutai Kartanegara District Forestry Office



Delegates from the national government
(from left to right)

Erwinsyah

Province coordinator, REDD+ Agency

Drasopolino

Director of Forest Utilization Planning, Environment and Forestry Ministry

Nur Hygiawati Rahayu

Head of Forestry Affairs and Water Resources Conservation Directorate, Planning Ministry

Apik Karyana

Vice-directing for budgeting, Planning Office at the Environment and Forestry Ministry

Dhita Rachmadini

Advisor, REDD+ Agency

Dr Heracles Lang

Province coordinator, REDD+ Agency

15. Itinerary



17. - 18. Sep.
Forest
Management Unit
(FMU) Herborn

19. Sep
Biosphere Reserve
Rhön & District
office Fulda

15. Sep
Hessian Forest
Planning and
Inventory Agency
(FENA)

16. Sep
Meeting with BMZ,
GIZ, KfW
& Visit to
Palmgarten

15. Sep
Hessian Ministry of
Environment
(HMUEL)

16. Agenda

Date	Time	Activity	Topic	Location
Sun. 14.09		Arrival in Frankfurt Travel to Wiesbaden		Wiesbaden
Mo. 15.09.	07:00	Departure for Gießen		
	08:30	Presentation, Demonstrations and Expert Dialogue	<ul style="list-style-type: none"> • Forest inventories and spatial planning as basis of sustainable forest management • Forest panning and data management (Map materials, 10 year and annual planning) • Forest functions 	Hessian Forest Planning and Inventory Agency (FENA), Gießen
	12:00	Departure from Gießen		
	13:00	Lunch in Wiesbaden		
	14:00	Presentation, Expert Dialogue	<ul style="list-style-type: none"> • The role of sustainable forest management in the context of regional development in the State of Hesse • Forest Administration and management reform in the State of Hesse (Role of HMUJELV, Hessen-Forst, forest owners) 	Hessian Ministry of Environment, Climate, Agriculture and Consumer Protection (HMUJELV) in Wiesbaden
Tue 16.09	09:00	Welcome of the Delegation	<ul style="list-style-type: none"> • Germany's international support in the environment and climate change sector 	Palmengarten, Frankfurt
	09:15	Dialogue with KfW and GIZ at KfW HQ (presentation and discussion)	<ul style="list-style-type: none"> • BMZs current and future support to Indonesia especially in the environment and climate change sector 	
	10:00	Coffee Break		
	10:30	Dialogue with KfW and GIZ at KfW HQ (presentation and discussion)	<ul style="list-style-type: none"> • Climate change programs of GIZ (environment and natural resource management, etc.) • Climate change programs of KfW (environment and natural resource management, water, energy etc.) 	
	11:30			
	13:00	Lunch at "palm garden"		Palmengarten, Frankfurt
	14:00-16:00	Tour at the "palm garden"		Palmengarten, Frankfurt
Wed 17.09.	08:00	Travel to Herborn	<ul style="list-style-type: none"> • Role, function and responsibility of a forest management unit (FMU) for local forest governance and public services to the district (organizational structure, legal status, tasks, professional profiles of FMU staff) 	Forest Management Unit (FMU) Herborn
	09:00	Presentation, Expert Dialogue, Excursion (field visit)	<ul style="list-style-type: none"> • Field visit to Herborn forest to discuss state forest management 	
	All day			
Thu 18.09.	08:30	Presentation, Expert Dialogue, Excursion (field visit)	<ul style="list-style-type: none"> • Field visit to Herborn forest and discussions with different stakeholders (small holder forest organization, communal forests) • Discussion on forest function and ownership, forest management, role of the FMU office (support, control) 	Forest Management Unit (FMU) Herborn
	All day			
Fri 19.09.	07:30	Departure to Biosphere Reserve Rhoe		
	09:30	Visit BR Rhoe Expert dialogue, Excursion (field visit)	<ul style="list-style-type: none"> • Field visit to BR Rhoe • Role and function of a Biosphere Reserve for biodiversity conservation and regional development • Spatial planning and distribution of protected areas and areas for economic activities, collaborative management of a Biosphere Reserve 	UNESCO-Biosphärenreservat Rhön Office Hessen
	13:00	Lunch		
	15:00	Courtesy call to Head of District Fulda	<ul style="list-style-type: none"> • BR Rhoe as a development factor for the district and the region 	District office Fulda
	17:00	Departure to Wiesbaden		Wiesbaden
Sat. 20.09.		Departure to Jakarta		

17. Credits

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Jakarta 2015

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