Recommendation for further development by designing prototype of green economy initiatives

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1 Abbreviations

CBD	Convention on Biological Diversity
COP	Conference of the Parties
DAK	Dana Alokasi Khusus – environmental fund
EEG	Erneuerbare-Energien-Gesetz (Feed-in tariff)
EEZ	Exclusive economic zone (in the sea along the coast line)
FIT	Feed-in tariff for renewable energy, mostly electricity.
KfW	Kreditanstalt für Wiederaufbau (German state-owned Development Bank)
RPJMN	National Medium-Term Development Plan

2 Structure of the report

This report aims at feeding the strategies for Indonesia how to achieve a green economy by providing examples of some international strategies and concrete implementations. To this end first the challenges ahead of us and a definition including its general objectives of a green economy are provided. Then the various international experiences, starting on UNEP and OECD level, but then focusing on the activities in Europe and as a concrete example Germany are presented in more detail. The latter comprises in particular the energy roadmap 2050 including nuclear phase out and achieving a share of almost 100% renewable energies. A brief assessment of already existing suggestions for strategies for Indonesia is made. Derived from the international experiences a few additional strategies are suggested for Indonesia, ending with conclusions.

3 Challenge, Definition and General Objectives of a Green Economy

The major challenges are obvious:

- In 2050, there will be around 9 billion instead of 7 billion people (2011) living on our planet;
- More and more people are using our limited reserves of resources and energy;
- As a result, prices for these limited resources and energy resources are constantly rising.

UNEP has developed a working definition of a green economy[1] as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive.

Practically speaking, a green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. These investments need to be catalyzed and supported by targeted public expenditure, policy reforms and regulation changes. This development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and source of public benefits,

[1] See UNEP, 2011, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers, http://www.unep.org/greeneconomy/Portals/88/documents/ger/GER_synthesis_en.pdf, at: www.unep.org/greeneconomy.

especially for poor people whose livelihoods and security depend strongly on nature.

This official definition is sometimes criticised because it does not make clear enough that it is not just about “significantly reducing environmental risks and ecological scarcities”, but it is about fully respecting the natural boundaries, which needs to be the long-term objective..

4 International experiences with Green Economy strategies

As often regions, institutions and countries pursue a somewhat similar general approach of policy strategy, and to avoid repetition, a focus regarding details is here put on OECD and on Germany.

4.1 UNEP

The UNEP-led Green Economy Initiative, launched in late 2008, consists of several components whose collective overall objective is to provide the analysis and policy support for investing in green sectors and in greening environmental unfriendly sectors.

Within UNEP, the Green Economy Initiative includes three sets of activities:

1. Producing a Green Economy Report and related research materials, which will analyse the macroeconomic, sustainability, and poverty reduction implications of green investment in a range of sectors from renewable energy to sustainable agriculture and providing guidance on policies that can catalyze increased investment in these sectors.

2. Providing advisory services on ways to move towards a green economy in specific countries.

3. Engaging a wide range of research, non-governmental organizations, businesses and UN partners in implementing the Green Economy Initiative.

Beyond UNEP, the Green Economy Initiative is one of the nine UN-wide Joint Crisis Initiatives (JCI) launched by the UN System's Chief Executives Board in early 2009. In this context, the Initiative includes a wide range of research activities and capacity building events from more than 20 UN agencies including the Bretton Woods Institutions, as well as an Issue Management Group (IMG) on Green Economy, launched in Washington, DC, in March 2010.

Another important green economy related initiative, but focusing on biodiversity which is of utmost relevance for Indonesia, is “The Economics of Ecosystems and Biodiversity” (TEEB). It was launched by Germany and the European Commission in response to a proposal by the G8+5 Environment Ministers (Potsdam, Germany 2007) to develop a global study on the economics of biodiversity loss. This independent study, led by Pavan Sukhdev, is hosted by the United Nations Environment Programme with financial support from the European Commission, Germany and the UK, more recently joined by Norway, the Netherlands and Sweden.

TEEB draws together experience, knowledge and expertise from all regions of the world in the fields of science, economics and policy.Its aim is to guide practical policy responses to the growing evidence of the impacts of ongoing losses of biodiversity and eco-system services.

In May 2008, the TEEB Interim Report was released at the Convention on Biological

Diversity's ninth meeting of the Conference of the Parties. This paved the way for the series of TEEB reports that followed, partly on specific sectors, ending with the launch of the synthesis report in 2010.[2]

4.2 OECD

The OECD has taken a slightly different approach, not focusing on "green economy", but on "green growth".[3] As definition, the OECD provides the following:[4]

• Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities.

• A return to 'business as usual' would be unwise and ultimately unsustainable, involving risks that could impose human costs and constraints on economic growth and development. It could result in increased water scarcity, resource bottlenecks, air and water pollution, climate change and biodiversity loss which would be irreversible; thus the need for strategies to achieve greener growth.

In a nutshell, the reasons for this approach are as follows: The crisis convinced many countries that a different kind of economic growth is needed. In response, many governments are putting in place measures aimed at a green recovery. Together with innovation, going green can be a long-term driver for economic growth, through, for example, investing in renewable energy and improved efficiency in the use of energy and materials.

By analysing economic and environmental policies together, by looking at ways to spur eco-innovation and by addressing other key issues related to a transition to a greener economy such as jobs and skills, investment, taxation, trade and development, the OECD can show the way to make a cleaner low-carbon economy compatible with growth.

Towards Green Growth provides recommendations to help governments to identify the policies that can help achieve the most efficient shift to greener growth, focusing, for example, on:

- green jobs and social aspects
- green taxes and regulatory approaches
- industrial restructuring and renewal
- fiscal consolidation
- green technologies
- peer reviews
- co-operation between OECD countries and emerging economies
- involvement of stakeholders

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[2] See TEEB – The Economics of Ecosystems and Biodiversity for National and International Policy Makers – Summary: Responding to the Value of Nature 2009, http://www.teebweb.org/Portals/25/TEEB%20Synthesis/TEEB_SynthReport_09_2010_online.pdf, http://www.teebweb.org/Portals/25/Documents/TEEB%20for%20National%20Policy%20Makers/TEEB%20for%20Policy%20exec%20English.pdf, at: http://www.teebweb.org/ForPolicymakers/tabid/1019/Default.aspx

[3] See http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=C/MIN(2009)5/ADD1/FINAL&doclanguage=en.

[4] See Summary: http://www.oecd.org/dataoecd/40/62/47984000.pdf

This strategy provides a practical framework for governments in developed and developing countries to seize opportunities that arise when the economy and the environment work together.

In May 2011, the Green Growth Strategy was launched. It consists of a series of documents.[5] An excellent practical policy guide for assessing which policy instruments do best fit for a specific situation is provided by the publication of the OECD "TOOLS FOR DELIVERING GREEN GROWTH".[6] The following guidelines are thus building on these tools:

Tools for integrating green growth into economic policy:

Strategic priorities

1. Assess the enabling environment e.g.

- Overall policy process
- Strategy development process
- Public dialogue

Priority issues, actions and actors

- Assess existing institutional arrangements with respect to economic strategies and development planning
- Link to key national policy issues e.g. infrastructure investment, food production, rural poverty
- Enlist experts with an understanding of links between environmental and economic policy

2. Identify key actors e.g.

- Government actors
- Opinion formers
- "Champions"

Priority issues, actions and actors

- Finance, economic development or planning ministries
- Environment and natural resource agencies
- Sector ministries
- Civil society organisations
- Private sector

3. Identify opportunities to shape organisational incentives e.g.

- Incentives
- Cross-agency working
- Understanding different perspectives

Priority issues, actions and actors

- Assess weaknesses in current (inter-agency) institutional set-up

[5] See http://www.oecd.org/document/10/0,3746,en_2649_37465_47983690_1_1_1_37465,00.html.

[6] See an excellent practical policy guide for assessing which policy instruments do best fit for a specific situation is provided by the publication of the OECD "TOOLS FOR DELIVERING GREEN GROWTH", Paris 2011, http://www.oecd.org/dataoecd/32/48/48012326.pdf.

- Enable participation of environmental agencies in key national planning and economic policy development processes e.g. involvement in key working groups
- Ensure incentives for economic and budget or development planning agencies to take account of relevant environmental issues
- Promote operational collaboration between key agencies
- Identify best available "entry point" in National Development Plans cycle and potential role of "champions"
- Prioritise according to realistic assessment of opportunities to effect improvements in policy process

4. Identify awareness and knowledge needs e.g.

- Briefing
- Training
- Knowledge products

Priority issues, actions and actors

- Ensure key actors in environmental agencies understand the framework and process for
- economic management and development planning
- Awareness raising on links between environment and social impacts, for both environment
- and economic policy agencies
- Provide knowledge products e.g. primers, case studies, exchange visits

5. Identify analytical tools to be adopted and develop relevant training

- Country-specific evidence
- Making the economic case
- Policy development

Priority issues, actions and actors

- Technical support/training on ecosystem services assessment and economic analysis of environmental assets and services
- Technical support/training to economic analysis targeted at planning processes e.g. value of environment to specific long-term economic and social objectives
- Technical support/training to analysis of effectiveness of cost-benefit of environmental policies and investments

6. Address options for policy influence

- Revise policy priorities
- Implementation strategies
- Measures and investments

Priority issues, actions and actors

- Provide support on using results of technical analysis to fit decision-making process
- Support to "making the economic case" for specific environmental policy measures
- Develop skills in communication and negotiation for environmental agencies staff
- Engage civil society organisations with potential to contribute positively to policy debate

Construct policy packages

A range of policy options are available for addressing green growth constraints. These are summarised below. Policy should take advantage of any overlapping objectives and ancillary benefits to capture potential synergies (Karousakis, 2009). In addition to the choice of policy instruments and objectives (e.g. whether a tax or a technology standard or infrastructure improvement over boosting R&D), it is also important to consider issues related to how policy is implemented. Across the range of issues to be considered, policy initiatives should, in general, be designed on the basis of the following criteria: cost-effectiveness, adoption and compliance incentives, and ability to cope with uncertainty and provide a clear and credible signal to investors (de Serres, Murtin and Nicoletti, 2010).

Possible policies to address green growth constraints

Green growth constraints	Policy options
Inadequate infrastructure	Taxes Tariffs Transfers Public investments Public-private partnerships for investments
Low human, social capital/poor institutional quality	Taxes Subsidy reform/removal
Incomplete property rights, subsidies	Review and reform or remove
Regulatory uncertainty	Set targets Create independent governance systems
Information externalities and split incentives	Labelling Voluntary approaches Subsidies Technology and performance standards
Environmental externalities	Taxes Tradable permits Subsidies
Low returns on R&D	R&D subsidies and tax incentives Focus on general-purpose technologies
Network effects	Strengthen competition in network industries Subsidies or loan guarantees for new network projects
Barriers to competition	Reform regulation Reduce government monopoly

Policies will need to be complemented by a strengthening of institutions and integrated into national development strategies. Some of the key dimensions include: operational independence of regulatory agencies; integration of policy objectives into legislative arrangements to reduce regulatory uncertainty; stable funding to environmental agencies; and multilevel governance. In general, policy options will vary according to institutional capacity and needs associated with different levels of development.

Strategies need to account for how these constraints and respective policies cut across different sectors and government agencies. Key issues to consider in this regard include (OECD, 2008):

- Are key domestic economic and sectoral policies (especially in the transport, energy, agriculture, trade, investment, and development assistance domains) subjected to a systematic review of their potential environmental consequences (both harmful and beneficial)?
- Are proposed international trade (including export credits) arrangements screened for their environmental impacts; where these impacts are expected to be significant, is a more detailed environmental impact assessment then carried out?
- Are opportunities for improved co-ordination between environmental, sectoral and economic policies periodically explored, at both the national and sub-national levels?

The formulation of policy should follow a well-defined and iterative process:

- Objectives should be informed by an assessment of business-as-usual (BAU) projections with respect to economic and environmental trends (taking into account population and economic growth). This will help to identify the key current and projected challenges.
- An assessment of BAU should form the basis for developing a long-term vision and accompanying interim objectives, with high-level buy-in and dialogue with major stakeholders within and outside government.
- The establishment of a long-term vision should be informed by cost-benefit analysis.
- Given a set of objectives, the policy process should proceed to identify least-cost policy options and areas for intervention - to identify policy priorities and sequencing.
- Implementation of policies should incorporate regular monitoring and review the effects of policy to assess progress towards the objectives over time. Policy should be robust but flexible, to allow for any adjustments as new information becomes available.

A major recommendation is to use prices where possible…

A central feature of green growth is integrating the natural asset base into everyday market decisions. This suggests extensive use of market-based and pricing instruments.
Prices also offer the potential for integrating environmental considerations into fiscal reform: an important aspect of aligning economic and environmental policy objectives. Environmentally-motivated fiscal reform can be conducted within the envelope of existing budget constraints. It can increase the overall efficiency of spending programmes, especially if it focuses attention on the negative impacts of some subsidy programmes. It can also be an efficient new source of revenue where this is needed for funding critical growth and welfare-enhancing expenditure programmes, such as health and education.

4.3 Europe

On 20th June 2011, the European Commission launched a document aimed at tackling the challenges in bringing about a more sustainable and green economy for Europe.[7] The document, titled "Rio+20: towards the green economy and better governance", reflects the twenty years that have passed since the first "Earth Summit" and reaffirms the Commission's dedication to achieving sustainable development. The Commission sent a strong message that "without the necessary skills and know-how, a transition to a green economy will not be possible." In particular they focused on establishing "green skills training programmes", re-skilling existing workforce to better tackle the challenges of a green economy and educating youth.

Another very recent initiative from the European Commission is a roadmap 2050 for energy policy.[8] Yet, the ambition is below the one from Germany, so that it is referred to Germany regarding this area.

4.4 Germany

There are at least three major interesting initiatives from the German side which are of relevance to Indonesia:

1. The initiative towards a green economy or a green new deal
2. The initiative to make businesses taking biodiversity into account
3. The energy transition to phase out nuclear power and achieving almost 100% renewables.

4.4.1 Green Economy

In this area, the most active Member State of the EU, Germany has started in 2006 an initiative for a “Green New Deal”.[9] In a Memorandum for a "new deal" for the economy, environment and employment a new quality of life is aimed at. As stated by the Minister for the Environment you do not have to be a staunch supporter of the environmental movement to recognise that we in Germany, Europe and worldwide urgently have to change our traditional political and economic strategies. Just a look at medium- and long-term economic success alone is sufficient:

Countries such as Germany that are both resource poor and export-orientated are facing extreme economic threats. At the same time, the hunger for energy and resources is leading to increasingly reckless methods of extracting or growing resources. The consequences of this escalating destruction of the environment and its resulting economic costs have long since hit even the rich industrialised countries, in the form of climate change, for example.

This initiative was substantiated in 2009 by launching a growth strategy for Germany, aiming at new jobs through investments in energy and environment. In a joint strategy paper then Federal Foreign Minister Frank-Walter Steinmeier and then Federal Environment Minister

[7] See http://www.seecel.hr/default.aspx?id=1417, Communication on Rio+20: towards the green economy and better governance, COM(2011) 363 final):
http://ec.europa.eu/environment/international_issues/pdf/rio/com_2011_363_en.pdf.

[8] See http://ec.europa.eu/energy/energy2020/roadmap/index_en.htm.

[9] See http://www.bmu.de/english/europe_and_environment/downloads/doc/38345.php.

Sigmar Gabriel analysed the economic and ecological challenges and outlined a strategy for new, sustainable growth.[10]

One further element of that strategy is to involve businesses and make them committed to biodiversity issues.[11] The business sector is an important partner in the implementation of the three objectives of the CBD and consequently for preserving the natural foundations of life for future generations. This has become apparent at various COP meetings, especially at the last one, COP 8 in Curitiba, Brazil. Under the German chair, COP 9 in May 2008 will focus on the positive, active role which private companies can play in the implementation of the UN Convention on Biological Diversity.

4.4.2 Aims of the Business and Biodiversity Initiative

The Federal Environment Ministry (BMU) commissioned the technical cooperation agency Deutsche Gesellschaft für Technische Zusammenarbeit GTZ (since 2011: Deutsche Gesellschaft für Internationale Zusammenarbeit GIZ) to press ahead with the Business and Biodiversity Initiative. The aim of this initiative is to involve the private sector more closely in achieving the CBD objectives, through

active participation of companies and their organisations in the UN meeting

voluntary commitments by companies, consortiums and sectors regarding concrete contributions to the objectives of the Convention

presentation at the meeting of outstanding examples of specific commitments by companies or consortiums to the global public.

By signing a leadership declaration industry is visibly involved in supporting the Convention's objectives. The goal is to win over companies from all sectors to greater commitment and concrete activities. Different sectors require different concepts and approaches, and some companies have more experience than others in dealing with biodiversity. We are not looking for the perfect company, but companies which are willing to join in a process and make biodiversity targets part of their company goals.

The companies can individualise the seven points of the leadership declaration by fleshing out the points with their own goals and measures.

Investments for a climate-friendly Germany[12]

Another important element is public and private investment. Advancing climate change, the increasing scarcity of fossil resources and fluctuations in price of fossil fuels are among the central challenges facing this century. If these challenges are to be met, the global economy must significantly improve energy efficiency and lower emissions. This, in turn, will require an appropriate restructuring of the world’s capital stock. Only then can energy needs be met through renewable resources, achieving the required reduction of greenhouse gas emissions.

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[10] See http://www.bmu.de/english/economy_products/downloads/doc/44573.php

[11] See http://www.bmu.de/english/economy_products/downloads/doc/44573.php.

[12] See http://www.bmu.de/files/english/pdf/application/pdf/studie_klimadeutschland_en.pdf.

4.4.3 Energy Transformation/Nuclear Phase Out

The Energy Concept and its accelerated implementation

On 28 September 2010 the German government adopted an ambitious energy concept which is unparalleled in Europe and throughout the world.[13] It lays down the main strategic targets of Germany's energy and climate policy for the long term. These targets remain valid and are the linchpin of the German government's energy policy. As a response to the nuclear disaster in Fukushima, in summer 2011 Germany adopted decisions on the gradual phase-out of nuclear power by 2022, greater energy efficiency and an accelerated switch to renewable energies. To this end, the German government drew up a concrete programme of measures and a sound financing plan for its implementation.

This programme of measures, as of October 2011[14], consists of the following:

The goals of Germany's energy and climate policy

- Climate-damaging greenhouse gas emissions are to be reduced by 40% by 2020, 55% by 2030, 70% by 2040 and by 80 to 95% by 2050, compared to reference year 1990.
- Primary energy consumption is to fall by 20% by 2020 and by 50% by 2050.
- Energy productivity is to rise by 2.1% per year compared to final energy consumption.
- Electricity consumption is to fall by 10% by 2020 and by 25% by 2050, compared to 2008.
- Compared to 2008, heat demand in buildings is to be reduced by 20% by 2020, while primary energy demand is to fall by 80% by 2050.
- Renewable energies are to achieve an 18% share of gross final energy consumption by 2020, a 30% share by 2030, 45% by 2040 and 60% by 2050.
- By 2020 renewables are to have a share of at least 35% in gross electricity consumption, a 50% share by 2030, 65% by 2040 and 80% by 2050.

The main decisions of the June/July 2011 package of measures for implementing the new energy policy

As a response to the nuclear disaster in Fukushima, in summer 2011 Germany adopted decisions on the gradual phase-out of nuclear power by 2022, greater energy efficiency and an accelerated switch to renewable energies. To this end, the German government drew up a concrete programme of measures and a sound financing plan for its implementation.

The decisions of June and July 2011 listed below supplement and accelerate implementation of the measures set out in the Energy Concept of September 2010.

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[13] Yet, Denmark has adopted a similarly ambitious plan, aiming at 100% renewables by 2050, yet starting at a higher level of employment of renewable energies and without phasing out nuclear as Denmark has no nuclear power plants: http://www.denmark.dk/en/menu/Climate-Energy/IndependentFromFossilFuelsBy2050/A+declaration+of+independence+from+fossil+fuels.htm.

[14] See http://www.bmu.de/english/transformation_of_the_energy_system/resolutions_and_measures/doc/48054.php.

Faster expansion of renewable energies

The central component of the energy supply of the future will be the continued and rapid expansion of renewable energies. To achieve this we are laying the foundations for an electricity market that will be increasingly based on renewable energies. This calls for optimised coordination of conventional power plants with electricity generation from renewables (market and system integration).

Renewable energies must be more able to generate electricity according to demand and to provide system services to ensure grid and supply security. At the same time, storage facilities and an increasingly flexible fleet of conventional power plants will make fluctuating electricity generated from renewables more stable.

Integration of renewable energies into the overall energy system

Renewable energies can make a growing contribution to security of supply. We have set ourselves the target of increasing the share of renewable energies in gross electricity consumption from the current 17% to 35% by 2020. By speeding up grid expansion, improving market and system integration and increasing the use of storage facilities, we plan to gradually bring renewable electricity production more in line with demand.

The Energy Concept envisages a 10% reduction in electricity consumption by 2020. This also contributes to security of supply.

With the amendment to the Renewable Energy Sources Act (EEG) the German government is continuing the dynamic expansion of renewables, making them more cost-effective and improving market and system integration, in particular with the following measures:

- The basic principles of the EEG are retained, thus creating planning and investment security.
- The amended EEG (Feed-in tariff) improves tariffs that are currently inadequate, for example those for offshore wind power, hdyropower and geothermal energy. At the same time, excessive support and windfall profits are restricted. For instance, the new EEG stipulates a half-yearly adjustment of degression rates for photovoltaics (flexible cap), drastically simplifies the tariff system for biomass and restricts windfall profits for the green electricity privilege.
- The introduction of an optional market premium and a "flexibility premium" for demand-based electricity generation from biomass provides targeted incentives for market and system integration of renewable energies. For the first time, this gives all operators of renewable energy installations the opportunity to market their electricity themselves and to create additional revenues by developing optimised processes for demand-based generation. Improving feed-in management promotes grid integration of photovoltaic systems.

Central component: wind energy

The "Offshore Wind Power" programme of the Kreditanstalt für Wiederaufbau (KfW) supports the establishment of the first 10 offshore wind farms with a total of 5 billion euros, in order to gain valuable experience in the field.

It is important to invest in these technologies now. In this way the huge cost reduction potential can be quickly exploited.

In addition, with an amendment to the Offshore Installations Ordinance (Seeanlagenverordnung), the German government is significantly simplifying and accelerating the approval procedure for installations in the German exclusive economic zone (EEZ).

Amending construction planning legislation will improve the options for exchanging old wind installations with new, more efficient turbines (repowering). Installing photovoltaic systems on buildings will also be made easier.

The designation of suitable sites is particularly important for onshore wind energy. The German government will cooperate closely with the Länder on this issue in the government-Länder initiative on wind energy.

In addition, the government and the Länder plan to commission an analysis of wind energy potential. This study is to be taken as a basis to jointly develop criteria for designating suitable new sites for onshore wind farms.

General "rigid" limitations on proximity and height are to be replaced with national criteria, developed jointly by government and Länder, for applying appropriate distance and height limits on a case-by-case basis.

More information on wind energy:

- Offshore wind energy
- Onshore wind energy

Cost efficiency

To guarantee affordable electricity prices, the expansion of renewables must be cost-efficient. Renewables must evolve from a niche market into a volume market. The sooner this happens, the stronger the growth dynamic arising from the switch to renewable energies will be.

It is important to tap existing cost reduction potential. Wind energy is the sector with the greatest potential for a swift and cost-efficient expansion of electricity generation from renewables.

Around one million people working in energy-intensive industries play a vital role in the value added of our country. For electricity-intensive companies the German government has therefore laid dwon comprehensive provisions to balance higher electricity prices due to emissions trading with support of up to 500 million euros from the Energy and Climate Fund, as well as from the federal budget. This is to be firmly underpinned at European level. In addition, the special equalisation provision in the EEG for easing the burden on energy-intensive companies has been made more flexible and more generous.

Expansion of the electricity grids

The amendment to the Energy Industry Act (Energiewirtschaftsgesetz) has created the first mandatory and coordinated grid expansion plan for the main electricity transmission grids and long-distance gas lines (10-year grid development plans).

The aim of grid development plans is to facilitate the necessary level of grid expansion and raise public acceptance for line construction through comprehensive consultations with stakeholders. On this basis the legislator will make the need for grid expansion legally binding through a requirement plan act (Bedarfsplangesetz).

Furthermore, the framework conditions for planning the low-loss high voltage direct current lines (HVDC) have been improved.

Grid expansion is of central importance for the expansion of renewable energies. With the Grid Expansion Acceleration Act (Netzausbaubeschleunigungsgesetz, NABEG), the German government has created the conditions for swifter expansion, in particular of electricity transmission grids, which essentially deliver the wind-generated electricity of the North to the consumption centres of the South. The public is ensured broad participation rights from an early stage.

The framework conditions for the construction of cross-border power lines and the use of underground cables in the 110 kV range have been optimised.

The connection of offshore wind farms to the grid has been made easier by allowing cluster connections to be used instead of costly individual connections.

The incentive regulation allows municipalities to agree financial compensation with grid operators for long-distance power lines running through their territory.

Smart grids and storage facilities

Smart distribution grids are vital for the expansion and system integration of renewable energies. The focus must be on gradually creating conditions for the market-driven development of these grids which can guarantee data protection and security, ensure decentralised generation and load management, achieve optimum integration of renewables and increase the energy efficiency potential for consumers.

Developing and using new storage technologies to stabilise fluctuating energy generation from renewable energies is equally important; we also need further progress in the deployment of renewables in Germany and Europe and their efficient combination.

The amendment to the Energy Industry Act (EnWG) strengthens the foundations for smart grids and storage facilities. The latter are essential for integrating fluctuating renewable energies. Therefore, new storage facilities are exempt from the usual grid charges.

Restructuring the fossil power plant park

The fossil-fired power plants currently under construction must be completed by 2013. As an additional safeguard, new build of up to 10 gigawatts guaranteed capacity is to be in place by 2020 to supplement the gas- and coal-fired power plants currently being built. An act to

accelerate planning procedures (Planungsbeschleunigungsgesetz) will ensure rapid development of the necessary capacities.

The German government is setting up a new funding programme for power plants to promote the necessary construction of highly efficient and flexible power plants. This will also help improve supply security and meet the climate protection targets. To enhance the competitive situation of smaller providers (e.g. municipal utilities), the support will be restricted to power plant operators with a share of less than 5% in Germany's generation capacities.

The German government will make more efficient use of the funds for supporting combined heat and power plants (CHP), in order to significantly strengthen energy generation and to continue it beyond 2016. CHP support will be further advanced this year through an amendment to the CHP Act.

Energy efficient buildings

In the building sector economic incentives and the requirements of energy saving legislation will remain key elements of the strategy to increase energy efficiency and for climate protection.

Ambitious standards aim to raise efficiency in buildings. In particular, the Energy Saving Ordinance (EnEV) stipulates that from 2012 to 2020 standards for new buildings are to be gradually brought into line with the future European standard for nearly zero-energy buildings, as long as this is economically acceptable based on a balanced consideration of the burdens for owners and tenants. The German government is leading the way: from 2012 all new government buildings will conform to the standard for nearly zero-energy buildings.

The energy-related modernisation of buildings saves CO_2 and energy. From 2012 to 2014, funding for the CO_2 Building Rehabiliation Programme will be raised to 1.5 billion euros per year (2011: 936 million euros). Additional depreciation options for the buildings sector will also be introduced. Moreover, the German government plans to review whether a budget-neutral solution (e.g. white certificates) can be applied from 2015.

A modernisation roadmap has been drawn up for existing buildings. This includes recommendations for action and gives building owners guidance on which renovation measures can be taken to achieve the nearly zero-energy standard by 2050. Economic incentives for energy-related building modernisation are geared to the roadmap. Federal buildings are to set an example in reducing energy consumption.

Efficient procurement

Compliance with stringent energy efficiency criteria have been made legally binding as a key criterion for public procurement through amendments to the Ordinance on the Award of Public Contracts (Vergabeverordnung). As a general principle, products and services with the highest performance and the highest energy efficiency must be procured.

European initiatives for energy efficiency

At European level the German government supports an ambitious and binding package of measures to increase energy efficiency. In particular the European product standards and energy labelling should be revised according to an advanced technological standard. They should be based more closely on best available technology and regularly updated (so-called top runner approach).

Monitoring

The landmark decisions on energy policy provide the frame for restructuring our energy supply. The German government will monitor this process to ensure that the energy policy goals of supply security, economic efficiency and environmental compatibility are met without the decision to phase-out nuclear power being called into question.

The German government will review the implementation of the programme of measures each year with in-depth monitoring. To this end, it will instruct a number of competent institutions (including the Working Group on Energy Balances, the Federal Statistical Office, the Federal Network Agency, the Federal Environment Agency, the Federal Cartel Office and the Federal Office of Economics and Export Control) to submit expert opinions on key energy issues each year.

The Federal Minister of Economics will report on grid and power plant expansion, replacement investments and energy efficiency. The Federal Environment Minister will report on the expansion of renewable energies. The German government will use these reports as a basis for informing the Bundestag and make any necessary recommendations.

4.5 Bhutan's Gross National Happiness Indicator

As indicators are not really a green economy strategy on its own, but just support that the monitoring and measuring is correct, this chapter is added at the end of this entire chapter.

GDP is not an appropriate indicator to measure people's welfare. It reduces the welfare measuring to economic aspects, and even there are several distortions in the measuring. Hence, there are serious attempts searching for other indicators. One is the Green GDP which is considered in detail in the draft regulation from KLH derived from law 32/2009.

Another one is e.g. the Gross National Happiness Indicator15 which is applied in Bhutan.

GNH: Concept

Gross National Happiness is a term coined by His Majesty the Fourth King of Bhutan, Jigme Singye Wangchuck in the 1970s. The concept implies that sustainable development should take a holistic approach towards notions of progress and give equal importance to non-economic aspects of wellbeing. The concept of GNH has often been explained by its four pillars: good governance, sustainable socio-economic development, cultural preservation, and environmental conservation. Lately the four pillars have been further classified into nine domains in order to create widespread understanding of GNH and to reflect the holistic range of GNH values. The nine domains are: psychological wellbeing, health, education, time use,

[15] See http://www.grossnationalhappiness.com/articles/.

cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standards. The domains represents each of the components of wellbeing of the Bhutanese people, and the term 'wellbeing' here refers to fulfilling conditions of a 'good life' as per the values and principles laid down by the concept of Gross National Happiness.

Definition and Methodology of the GNH Index

The Gross National Happiness Index is a single number index developed from 33 indicators categorized under nine domains. The GNH Index is constructed based upon a robust multidimensional methodology known as the Alkire-Foster method.

The GNH Index is decomposable by any demographic characteristic and so is designed to create policy incentives for the government, NGOs and businesses of Bhutan to increase GNH. The 33 indicators under the nine domains aim to emphasize different aspects of wellbeing and different ways of meeting these underlying human needs. The 33 indicators are statistically reliable, normatively important, and easily understood by large audiences. The domains are equally weighted. Within each domain, the objective indicators are given higher weights while the subjective and self-reported indicators are assigned lower weights.

The 2010 GNH Survey of Bhutan

The Gross National Happiness survey was carried out in 2010 with representative samples taken at district and regional levels. The survey was administered using the GNH questionnaire which gathered data on a comprehensive picture of the wellbeing of Bhutanese. The survey gathered data from 7142 respondents; 6476 or 90.7% of the respondents had sufficient data to be included in the GNH Index.

The methodology basically provides three types of results: headcount, intensity and the overall GNH index. Headcount refers to the percentage of Bhutanese who are considered happy, and intensity is the average sufficiency enjoyed by the Bhutanese.

- Headcount= 40.9% – This means that 41% of Bhutanese have sufficiency in six or more of the nine domains and are considered 'happy'.
- Intensity = 43.4% -The 59% of Bhutanese who are not considered 'happy' lack sufficiency in 43% of the domains. Nine domains times 0.43 = 3.87. Thus unhappy Bhutanese on average lack sufficiency in just under four domains and enjoy sufficiency in just over five domains.
- GNH Index = 0.743 – the GNH Index ranges from 0 to 1. A higher number is better. It reflects the percentage of Bhutanese who are happy and the percentage of domains in which not-yet-happy people have achieved sufficiency (headcount and intensity).

What else did the GNH Index reveal about happy people? Here are some highlights (only related to Bhutan):

- Men are happier than women on average.

- Of the nine domains, Bhutanese have the most sufficiency in health, then ecology, psychological wellbeing, and community vitality.
- In urban areas, 50% of people are happy; in rural areas it is 37%.
- Urban areas do better in health, living standards and education. Rural areas do better in community vitality, cultural resilience, and good governance.
- Happiness is higher among people with a primary education or above than among those with no formal education, but higher education does not affect GNH very much.
- The happiest people by occupation include civil servants, monks/anim, and GYT/DYT members. Interestingly, the unemployed are happier than corporate employees, housewives, farmers or the national work force.
- Unmarried people and young people are among the happiest.

5 Green Economy Strategies for Indonesia

Strategies suggested within report G[16] are all appreciated and will thus not be repeated, but just remarks are made on some of them and further ones are added.

Generally, the GoI is taking the climate policy serious as it aims integrating climate aspects in other policies as can be seen in the "National Development Planning: Indonesia Responses to Climate Change" which was launched by BAPPENAS (2008) in mid 2008 and had first impacts on the national development process, especially for RPJMN 2010-2014[17], then followed by the "Indonesian Climate Change Sectoral Road Map" (ICCSR) in March 2010, BAPPENAS (2010). Whereas the ICCSR aims also at ranking actions, the National Action Plan (RAN-GRK) sets out more details on how the 26% reduction will be achieved.

The current strategies suggested are quite climate and energy focused. However, as can be seen in the above mentioned initiative of TEEB, also biodiversity deserves high attention and political commitment and leadership, not least since this is of utmost importance for Indonesia. Such a strategy is still missing for Indonesia. With REDD+, some funds, some forestry and/or land related economic instruments, there are already some hooks to link on. Yet, it would be very important to streamline these according to the overall objective of greening the economy. An excellent source of information is the overview for 18 countries provided by GTZ.[18]

Partly in addition, partly overlapping with strategies proposed in Report G by LPM Equator[19], the following elements are proposed, partly derived and referring to the above experiences:

[16] See LPM EQUATOR REPORT G: Paper on the Initial Stage of Design and Strategy for The Selected Green Economy Strategy, November 2011.us and Future of the Green Economy in Indonesia, draft final report, 2011.
[17] See http://indonesia.unfpa.org/application/assets/files/3/RPJMN_2010-2014_English.pdf.
[18] See GTZ (2005): Environmental Fiscal Reform and National Forest Policies, An overview of forest fiscal revenue systems in 18 countries, http://www.gtz.de/de/dokumente/gtz2005-en-environmental-fiscal-reform.pdf.
[19] See LPM EQUATOR REPORT G: Paper on the Initial Stage of Design and Strategy for The Selected Green Economy Strategy, November 2011.us and Future of the Green Economy in Indonesia, draft final report, 2011.

1. All EFR-related proposals made in the other report on Indonesia's readiness for such an EFR should be implemented, embedded in a roadmap and accompanied by a good marketing and communication strategy.[20]
2. Setting up and implementing a) a public infrastructure investment plan and b) a private-public-partnership funding facility for infrastructure investment. All investment have to follow clear sustainability criteria to avoid or minimise possible negative environmental impacts.
3. Use the fiscal transfers from the central to the local level to streamline them according to sustainability criteria and thus provide incentives for a good environmental performance. This should be implemented in addition to the potential role of the special allocation fund (Dana Alokasi Khusus or DAK). Positive experiences available exist from Portugal and Brazil. The Portuguese Local Finances Law (LFL) of 2007, with its promotion of local sustainability, is a good basis for ecological fiscal transfers which can be significant for those municipalities with a large proportion of land under protected status.[21] Equally, the Brazilian case, where the ecological "ICMS" that was first introduced by a few states in Brazil during the 1990s, should be examined in more detail. Part of the revenue from this value-added tax is redistributed to the local level on the basis of ecological indicators. In this way, the state level uses fiscal transfers for incentivising environmental protection and nature conservation.[22]
4. A Feed-In Tariff (FIT) for Renewable Energy is urgently suggested given its great importance for the green economy (see on Germany above), apart from an EFR. A FIT is simple, has low administrative costs, and is thus highly effective for boosting renewable energy and provides long-term investment certainty. Today there are several dozens of countries, which have introduced a FIT, mostly electricity. The most recent neighbouring country is Malaysia which launched a FIT end 2011. Unlike some developed countries, Malaysia launched a full-featured program of advanced renewable tariffs from the start. The tariff schedule is fully differentiated by technology and size, and includes bonus payments for locally manufactured products. The ambitious program expects to develop more than 3,000 MW of new renewables by 2020, of which more than one-third will be from photovoltaics alone. Biomass will contribute another one-third. A FIT is also said to be worked out for the Ministry of Energy and Natural Resources.

[20] For details see the other report on "Rapid Assessment on the readiness of Indonesia towards an Environmental Fiscal Reform for greening the economy.

[21] See Rui Santos, Irene Ring, Paula Antunes, Pedro Clemente: Fiscal transfers for biodiversity conservation: The Portuguese Local Finances Law. UFZ Diskussionspapiere 11/2010. Helmholtz Centre for Environmental Research – UFZ, Leipzig, http://www.sciencedirect.com/science/article/pii/S026483771100055X.

[22] See: Ring, Irene: Integrating local ecological services into intergovernmental fiscal transfers: The case of the ecological ICMS in Brazil and Ring, I. (2004): Integrating local ecological services into intergovernmental fiscal transfers: the case of the ICMS-E in Brazil. UFZ Discussion Paper, No. 12/2004, Leipzig.