

Annex

Annex I: Multilateral channels for green finance

Clean Development Mechanism

The Clean Development Mechanism (CDM) is an instrument of the United Nations Framework Convention on Climate Change (UNFCCC), enacted by the Kyoto Protocol in 2001. It is an incentive mechanism to support projects that reduce Greenhouse gas (GHG) emissions. The CDM gives industrialised countries the possibility to invest in emission reduction projects in developing countries, in order to earn certified emission reduction (CER) credits. These CERs can be used by industrialised countries to meet part of their emission reduction targets set by the Kyoto Protocol. The CDM can promote sustainable development and emission reductions worldwide while giving industrialised countries flexibility in how to meet their emission reduction targets. By September 2012, 4,626 projects have been registered as CDM projects, resulting in 1 bn CERs (each credit equivalent to one tonne CO₂) (UNFCCC 2013).

There are currently 76 registered CDM projects in Indonesia (as of May 2012) of which the majority are biogas projects. According to IGES (2012), these projects lead to an average annual emission reduction of 108,939 tonnes of CO₂. One example for a CDM project in Indonesia is the “Yogyakarta Bus Replacement” project which aims to reduce emissions by low-GHG emitting vehicles. The project targets the replacement of 200 buses and intends to retrofit existing diesel engines, enabling them to consume less fuel per kilometre (Napitupulu et al. 2004).

Climate Investment Funds

The Climate Investment Funds (CIFs), established in 2008, are administered by the World Bank and operate in partnership with regional development banks. The CIFs aim to help developing countries pilot transformations in clean technology, sustainable management of forests, increased energy access through renewable energy (RE), and climate-resilient development. The CIFs consists of two trust funds: the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF) (Climate Investment Funds 2013). Both funds are able to provide concessional loans, grants and guarantees to recipients via the partner Multilateral Development Banks (MDBs).

The CTF promotes investments to initiate a shift towards clean technologies. Through the fund, countries, the MDBs and other partners agree

upon country investment plans for programmes that contribute to the demonstration, deployment and transfer of low-carbon technologies with significant potential for GHG emissions savings.

The SCF finances targeted programmes in developing countries to pilot new climate or sector approaches. Programmes are for example the Forest Investment Program, the Pilot Program for Climate Resilience, and the Program for Scaling-Up Renewable Energy in Low-Income Countries. The CIFs have a total pledge of USD 6,951 million and contributors can provide funding to the trust funds in form of grants or capital contributions and additionally in the case of CTF, concessional loan contributions (Climate Investment Funds 2010).

The CTF Investment Plan for Indonesia proposes CTF co-financing of USD 400 million to support Indonesia's goals of providing 17% of total energy use from renewable energy and improving energy efficiency by 30% from a BAU scenario, by 2025 (Climate Investment Funds 2010). It proposes financing particularly for two programme areas: increase of large-scale geothermal power and acceleration of initiatives to promote energy efficiency and renewable energy (in particular biomass). The CTF investments aim to mobilise upto USD 2.7 bn from multilateral financiers, state-owned enterprises and the private sector (Climate Investment Funds 2010).

Global Climate Partnership Fund

The Global Climate Partnership Fund (GCPF) is a public-private partnership dedicated to mitigate climate change through a reduction of GHG emissions in emerging and developing countries. The GCPF focuses on financing energy efficiency and renewable energy projects, primarily in cooperation with local financial institutions (International Development Finance Club 2013). Loans to small- and medium-sized enterprises (SMEs), private households and small renewable energy projects are channelled through financial institutions (minimum 70% of total volume); direct lending is made to larger industrial companies, funding for Energy service companies (ESCOs), and small energy efficiency (EE)/ renewable energy projects (maximum 30% of total volume) (Global Climate Partnership Fund 2011). The fund is a joint approach of the German Ministry for Environment, KfW and IFC, with Deutsche Bank being the investment manager. GCPF is a fund capitalised by international investors; the target funding volume after five years is USD 500 million. Currently, the fund has a portfolio of approved investments of USD 105 million (Thies 2011). Beneficiaries of the fund are mainly private households, home owner associations and SMEs. Typical projects financed by the fund are for example energy efficient light systems, biomass ovens, solar heating or boiler replacements (Beck 2011).

Indonesia is one of the core countries among the recipients of the fund. One project example is the "Industrial Efficiency and Pollution Control

Loan". The project aims to reduce industrial pollution through the provision of loans for SMEs for investments in environmentally friendly technologies. The fund amounts to EUR10 million (Grant and IDA-Loan) and is channelled through BNI, Bank Ekspor Indonesia and commercial banks selected by the two institutions (CTF 2012).

The Global Environment Facility

The Global Environment Facility (GEF) was established in 1991 as an operating entity of the financial mechanism of the UNFCCC. Currently, the GEF is the largest public funder worldwide of projects aiming to generate global environmental benefits, while supporting national sustainable development initiatives (GEF 2012). The GEF unites 182 governments in partnership with international institutions, the private sector, and civil organisations and provides grants for projects related to biodiversity, climate change, international waters, land degradation, persistent organic pollutants and the ozone layer (GEF 2013a). Since 1991, the GEF provided USD 10.5 bn in grants and leveraging USD 51 bn in co-financing for more than 2,700 projects in more than 165 developing and emerging countries (ibid.). Through its Small Grants Programme, the GEF has also made available more than 14,000 small grants directly to civil society and community based organisations. More than 97% of the pledged contributions to the GEF Trust Fund are from members of the Organisation for Economic Co-operation and Development – Development Assistance Committee (OECD-DAC) and may be reported as official development assistance (ODA) (OECD 2012). The GEF also administers the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) to support small-scale adaptation plans and projects.

Indonesia received so far GEF grants totalling USD 150 million that leveraged USD 955 million in co-financing resources. With this budget, the GEF financed 42 national projects and 44 regional and global projects (GEF 2012). In addition, the GEF Small Grants Programme that started in Indonesia in 1992 received financial support totalling USD 6.6 million. This amount leveraged USD 6.8 million in co-financing for 356 projects executed by civil society and community-based organisations (GEF 2012). One GEF project in Indonesia is for example the Chiller Energy Efficiency Project. The aim of the project is to support the replacement of inefficient chillers with energy efficient chillers and to contribute to a reduction of GHG emissions and demand for electricity. The GEF grant for this project is approximately USD 3.6 million plus co-financing of USD 19 million (GEF 2013b).

Green Climate Fund

The Green Climate Fund (GCF) of the UNFCCC was agreed upon at the Durban COP in 2011 and is to be set up in South Korea. The fund will

promote the paradigm shift towards low emission and climate-resilient development pathways. This shall be done by providing support to developing countries to reduce their GHG emissions and to adapt to the effects of climate change (Green Climate Fund 2013). In future, it is expected to become the primary channel for international public climate finance. The goal is to make the fund operational by 2014. It remains to be seen, how Indonesia will benefit from the GCF.

ADB Carbon Market Initiative

The main goal of the Asian Development Bank (ADB) Carbon Market Initiative (CMI) is to help developing member countries benefit from CDM projects. The CMI pays upfront costs for carbon credits and gives technical support to CDM projects in the region. The fund size is approximately USD 152 million (UNDP 2013a).

ADB Climate Change Fund

The Climate Change Fund (CCF) was established in 2008 by the ADB to facilitate investment in the developing member countries to affect the causes and consequences of climate change. The CCF pools resources within ADB to address climate change through technical assistance and research as well as through grant components of investment projects. The three priority areas of the CCF are clean energy development, reduced emissions from deforestation and degradation and improved land use management and adaptation. Recipients of the investments are developing member countries of the ADB. The Bank provided the fund with an initial USD 40 million, which is open for contributions from other countries, development organisations and the private sector (ADB 2013a). The CCF finances several projects in Indonesia, many of them supporting Reducing Emissions from Deforestation and Forest Degradation (REDD+) initiative, but as well a number of energy efficiency and geothermal projects.

ADB Clean Energy Financing Partnership Facility

Another climate change mechanism, administered by the ADB is the Clean Energy Financing Partnership Facility (CEFPF), established in 2007. The aim of the CEFPF is to improve energy security in developing member countries and to reduce GHG emissions in the region. The main activity of the CEFPF is to finance the deployment of more efficient and less polluting supply and end-use technologies. Furthermore, resources are projected to finance policy, regulatory and institutional reforms that promote clean energy development. Approximately 30% of the fund will be used for technical assistance and approximately 70% for grant components of investments (ADB 2013b). The CEFPF investments include deployment of new clean energy technology, projects that lower the barriers to adopting clean energy technologies, projects that increase

access to modern forms of clean and efficient energy for the poor and technical capacity programs for clean energy. The fund size is approximately USD250 million; supporters of the grant are Australia, Norway, Spain, Sweden, Japan and the Australian Global Carbon Capture and Storage Institute (UNDP 2013b).

One project in Indonesia, for example, aims to strengthen the power supply grid in West Kalimantan and to extend access to electricity by investing in new power transmission lines and substations. The project is financed with USD 2 million and will provide access to electricity to approximately 16,000 households (AusAID 2013).

Source: Compiled by authors.

Annex II: Bilateral channels for green finance

A large share of public climate finance (an estimated USD 24.6 bn per year) is directed through bilateral channels, administered largely through existing development agencies (Buchner et al. 2011).

One example is Germany's *International Climate Initiative* (ICI) which focuses on four different areas: building a climate friendly economy, adapting climate change, REDD+ and conserving biological diversity. The ICI focuses on developing and newly industrialised countries as well as on states in transition. The initiative receives funding from emissions trading and has approved so far USD 770 million for a total of 219 mitigation, adaptation and REDD+ projects (Brown and Peskett 2011).

In Indonesia, there are currently several projects financed by the ICI. One example is the *Energy Efficiency for Sustainable Tourism in Pangandaran* project which focuses on emission reduction measures, particularly in the tourism sector. Project measures target more efficient utilisation of energy (especially in hotel complexes and by urban infrastructure services), elaboration of a municipal energy concept for renewable-energy applications, public awareness-raising on climate issues and the implementation of adjustment measures (BMU 2013).

The UK's *International Climate Fund* (ICF) is the primary channel of UK climate change finance. It became operational in 2011 and replaced the Environmental Transformation Fund (ETF). The main target of the ICF is to help developing countries to adapt to climate change, embark on low carbon growth and tackle deforestation (Climate Funds Update 2013a).

Japan's *Fast Start Finance*, set up in 2009, has pledged USD 15 bn through bilateral and multilateral channels, as well as for direct projects with the private sector with the aim to help developing countries address climate change. Indonesia is one of the major recipient countries (Climate Funds Update 2013b).

In May 2010, Norway signed a *letter of intent* with the Indonesian government to provide USD 1 bn for REDD+ finance between 2010 and 2016. The purpose of the partnership is to contribute to significant reductions in GHG emissions from deforestation, forest degradation and peat land conversion. The partnership aims to conduct a policy dialogue on international climate change policy and to support the development and implementation of Indonesia's REDD+ strategy (Caldecott et al. 2011).

Source: Compiled by authors.

Annex III: National climate change funds

Besides the international climate change funds and the bilateral agreements, Indonesia has established national funds with varied functions, resourced through international finance and/or domestic budget allocations and the domestic private sector.

As one of the first countries in the world, Indonesia has established a new national fund for organising climate change finance. The *Indonesian Climate Change Trust Fund* (ICCTF), established in 2009 by the GoI, is a national funding entity which aims to align development assistance for climate change more closely with development priorities defined by GoI and to pool and coordinate grants for climate change related programmes (Brown and Peskett 2011). The fund was established to support EE, sustainable forestry and peat land management, as well as climate change resilience. It acts as a catalyst to attract investments and to implement alternative financing mechanisms for climate change mitigation and adaptation programmes and as a place for donors making small financial pledges to pool resources for efficiency gains by reducing transaction costs (Brown and Peskett 2011). Currently the UK, Australia and Sweden are the only financial supporters of the fund, with the UK being the largest donor. The ICCTF is getting international attention as it is seen as a new model for how international support for climate change could be delivered, moving towards increased national ownership (Brown and Peskett 2011).

Furthermore, the GoI set up the *Climate Change Programme Loan* (CCPL) which is a concessional loan to support GoI's efforts to develop a lower carbon, more climate-resilient growth path. The programme loan focuses on mitigation, adaptation and strengthening the institutions and policy framework needed for a successful climate change response (Brown and Peskett 2011). Since its establishment in 2008, the CCPL has been jointly financed by Japan and France. Since 2010 it is also financed by the World Bank and is likely to be joined by other donor agencies.

Source: Compiled by authors.

Annex IV: Overview of climate funds

Fund name	Type	Instruments	Administered by	Area of focus	Donors	Recipients	Volume	Date operational	Project in Indonesia	Intermediary
Clean Development Mechanism (CDM)	Multilateral	Emission trading, Certified emission reduction credits	UNFCCC	Reduction of GHG				2001	“Yogyakarta Bus Replacement” project aims to reduce emissions by low-GHG emitting vehicles	
ADB Carbon Market Initiative (CMI)	Multilateral	Financial and technical support for CDM projects	ADB	Mitigation, Energy, EE, Fugitive Methane, Low-Carbon, RE, Waste Management		ADB developing member countries	USD 152 million	2006		
ADB Climate Change Fund (CCF)	Multilateral	Grant, technical assistance, research	ADB	Clean energy development, reduced emissions from deforestation and degradation, improved land use management and adaptation		ADB developing member countries	USD 50 million	2008		

ADB Clean Energy Financing Partnership Facility (CEFPF)	Multilateral	Grant, technical assistance	ADB	Deployment of more efficient and less polluting supply and end-use technologies	Australia, Norway, Spain, Sweden and Japan, and the Global Carbon Capture and Storage Institute		USD 250	2007	Investment in new power transmission lines and substations in West Kalimantan	direct
Global Climate Partnership Fund	PPP	Loan	German Ministry for Environment, KfW and IFC	Energy efficiency and renewable energy projects	KfW on behalf of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), OeEB (Development Bank of Austria)	Mainly private households and SMEs in developing and emerging countries	USD 105 million	2011		
The Global Environment Facility Trust Fund	Multilateral	Grant	UNFCCC	Adaptation, Mitigation – general	182 governments, international institutions, private sector, civil organisations		GEF provided USD 10.5 bn in grants	1991	Chiller Energy Efficiency Project	

Continued

Annex IV: Continued

Fund name	Type	Instruments	Administered by	Area of focus	Donors	Recipients	Volume	Date operational	Project in Indonesia	Intermediary
Climate Investment Funds – Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF)	Multilateral	Loan, grant, guarantees	World Bank	Mitigation, Agriculture, EE, Fuel Switching, Industry, Infrastructures, Transport	Australia, France, Germany, Japan, Spain, Sweden, United Kingdom, United States	Partner Multilateral Development Banks	USD 4.5 bn pledged by donors	2008		Through Multilateral Development Banks to recipients
Green Climate Fund	Multilateral		UNFCCC	Adaptation, Mitigation – general				Not yet operational		
International Climate Initiative (ICI)	Bilateral	Grant	Government of Germany	Adaptation, Mitigation, REDD	Germany	Developing and newly industrialised countries	EUR 120 million per year	2008	EE for Sustainable Tourism in Pangandaran	
International Climate Fund (ICF)	Bilateral	Grant	Government of the United Kingdom	Adaptation, Mitigation, REDD	United Kingdom	Developing countries	GBP 2.9 bn	2011	Indonesia Low Carbon Growth project	
Japan’s Fast Start Finance	Bilateral	Grant, loan	Government of Japan	Adaptation, Mitigation, REDD	Japan		USD 15 bn	2008		

Indonesian Climate Change Trust Fund (ICCTF)	Multi-Donor, National	Grant	BAPPENAS	Adaptation, Mitigation, REDD	United Kingdom, Australia, Sweden	Indonesia	USD 8.5 million	2010	Established as a place for donors making small financial pledges to pool resources
Climate Change Programme Loan (CCPL)	Multilateral	Concessional loan	Government of Indonesia – MoF	Adaptation, Mitigation	Japan, France, World Bank	Indonesia		2008	
Norway-Indonesia Letter of Intent	Bilateral	Grants, performance based grants	UNDP	REDD projects	Norway	Indonesia	USD 1 bn	2010	

Source: Compiled by authors.

Annex V: Energy tariff structure for the Indonesian corporate sector

Tariff group	Power limit	Continuous costs Fixed rates/ Manner of charging of costs	Consumption fee (Rp/kWh) und (kVArh) 2013				Prepaid (Rp/kWh) 2013				
			01.01–31.03	01.04–30.06	01.07– 30.09	Ab 01.10	01.01– 31.03	01.07– 30.06	01.07– 30.09	Ab 01.10	
Group tariffs for small/home industries with low installed capacity											
I-1/TR	450 VA	26.000	Blok I: <30kWh: 160 Blok II: >30kWh: 395	No change	No change	No change	485	No change	No change	No change	
I-1/TR	900 VA	31.500	Blok I: <72 kWh: 315 Blok II: >72 kWh: 405	No change	No change	No change	600	No change	No change	No change	
I-1/TR	1.300 VA	Minimum Account (RM): RM1: 40 (hours on) x installed capacity (kVA) x consumption fee	803	843	886	930	803	843	886	930	
I-1/TR	2.200 VA	(same group)	830	871	915	960	830	871	915	960	
I-1/TR	3.500 VA–14 kVA	(same group)	961	1.009	1.059	1.112	961	1.009	1.059	1.112	
Group tariffs for small businesses with low installed capacity											
B1-TR	450 VA	23.500	Blok I: <30kWh: 254 Blok II: > 30kWh: 420	No change	No change	No change	535	No change	No change	No change	
B1-TR	900 VA	26.500	Blok I: <108kWh: 420 Blok II: > 108kWh: 465	No change	No change	No change	630	No change	No change	No change	
B1-TR	1.300 VA	Minimum Account (RM): RM1: 40 (hours on) x installed capacity (kVA) x consumption fee	835	876	920	966	835	876	920	966	
B1-TR	2.200 VA–5.200VA	(same group)	950	998	1.048	1.100	950	998	1.048	1.100	

Other sized enterprises: Low installed capacity

I-2TR group tariffs for industrial purpose with low installed capacity	14kVA–200 kVA	Minimum Account (RM): RM2: 40 (hours on) x installed capacity (kVA) x consumption fee blok beyond peak time	Blok peak times: K x 840 Blok beyond peak time: 840 kVArh: 914	Blok I: K x 882 Blok II:882 kVArh: 959	Blok I: K x 926 Blok II: 926 kVArh: 1.007	Blok I: K x 972 Blok II: 972 kVArh: 1.057	–	–	–	–
B2-TR group tariffs for medium sized businesses with installed capacity	6.600 VA–200kVA	Minimum Account (RM): RM2: 40 (hours on) x installed capacity (kVA) x consumption fee Blok I	Blok I: 0–60 hours: 1.035 Blok II: 60+ hours: 1.380	Blok I: 1.245 Blok II: 1.380	Blok I: 1.310 Blok II: No change	1352 (keine Blöcke mehr)	1.215	1.316	1.347	1.352

Other sized enterprises: Medium voltage

B3-TM Group tariffs for special businesses with medium installed capacity	>200kVA	Minimum Account (RM): RM3 = 40 (x Hours used (kVA) x consumption fee blok beyond peak time	Blok peak times: K x 880 Blok beyond peak time: 880 KVArh: 963	Blok I: K x 925 Blok II: 925 KVArh: 1.013	Blok I: K x 975 Blok II: 975 KVArh: 1.067	Blok I: K x 1.020 Blok II: 1.020 KVArh: 1.117	–	–	–	–
I-3/TM Group tariffs for medium industrial use with medium installed capacity	>200 kVA	Minimum Account (RM): RM2 = 40 (x hours used (kVA) x consumption fee blok beyond peak time	Blok peak times K x 704 Blok beyond peak time: 704 kVArh: 757	Blok I: K x 728 Blok II:728 kVArh: 783	Blok I: K x 765 Blok II: 765 kVArh: 823	Blok I: k x 803 Blok II:803 kVArh:864	–	–	–	–

Group tariffs for large scale industrial use and high voltage:

I-4/TT	>30.000 kVA	Minimum Account (RM): RM3 = 40 (hours on) x installed capacity (kVA) x consumption fee blok peak time and beyond.	Blok peak time and beyond: 629 kVArh: 629	654 kVArh: 654	689 kVArh: 689	723 kVArh: 723	–	–	–	–
---------------	-------------	--	--	----------------	-------------------	----------------	---	---	---	---

Annex VI: Questionnaire bank survey

Bank Indonesia and the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) are conducting a survey among banks in Indonesia. The aim of the survey is to collect information about the current situation of banks regarding Green Finance. The findings of this survey will help Bank Indonesia to evaluate the status quo of Green Finance and to facilitate its development.

We would highly appreciate if you would take the time to complete the following survey. Overall, it should take approximately 10 minutes to complete the survey. Your responses are voluntary and will be treated confidentially. Responses will not be attributable to individual respondents. Responses will be compiled and analysed as a group. If you have any questions or concerns regarding the research project or the survey, please contact [REDACTED].

Thank you for your cooperation.

Part I: Green finance

Definition: Green finance comprises all forms of funding or lending that take into account environmental impact and enhance environmental sustainability. Green finance comprises for example lending to companies for investments to save electricity, water and fuel, to reduce waste or pollution, to establish and operate renewable energy facilities (e.g., geothermal, biomass, hydropower, solar, wind) or investments related to ecotourism or eco-labelling of products.

Does your bank have a unit responsible for green finance?

Yes

No

Do you consider green finance as a promising business area?

Not promising at all

A bit promising

Moderately promising

Very promising

Not applicable

Does your bank plan to expand its activities in green finance?	
No	<input type="checkbox"/>
Yes, slightly	<input type="checkbox"/>
Yes, moderately	<input type="checkbox"/>
Yes, it will be a priority	<input type="checkbox"/>
Not applicable	<input type="checkbox"/>

Why doesn't your bank extend more credit to finance green projects? (Multiple responses possible)	
Too risky	<input type="checkbox"/>
Not profitable enough	<input type="checkbox"/>
Too complicated	<input type="checkbox"/>
Lack of demand for green finance	<input type="checkbox"/>
Not enough experience with such projects	<input type="checkbox"/>
Not applicable	<input type="checkbox"/>
Other reasons. Please specify:	<input type="checkbox"/>

Part II: Risk management

How would you describe the availability of appropriately qualified and experienced staff in the banking sector with regard to environmental assessment of credits?	
Very scarce	<input type="checkbox"/>
Scarce	<input type="checkbox"/>
Sufficient	<input type="checkbox"/>
Abundant	<input type="checkbox"/>
Not applicable	<input type="checkbox"/>

Does your bank have the tools to assess environmental credit risks?	
No, not at all	<input type="checkbox"/>
To a low extent	<input type="checkbox"/>
To a medium extent	<input type="checkbox"/>
Yes, to a high extent	<input type="checkbox"/>
Not applicable	<input type="checkbox"/>

Has your bank sent staff to capacity building seminars focusing on environmental risk assessment?

- Yes
- No, suitable seminars
- No, not interested
- Not applicable

To what extent do environment or climate change risks impact on your portfolio diversification strategy?

- Not at all
- To a low extent
- To a medium extent
- Significant extent
- Not applicable

Part III: Green finance regulation

Do you think that a regulatory framework for green finance would be conducive to foster green investments?

- Not at all
- To a low extent
- To a medium extent
- Significant extent
- Not applicable

What kind of support from the banking supervision authority would help your bank to engage more in green finance? (Multiple responses possible)

- Capacity building (seminars, trainings)
- Technical assistance
- Prudential practices (e.g., ATMR)
- Recognition awards
- Access to information
- Other support. Please specify:
- Not applicable

Annex VII: Questionnaire for bank interviews

Lending to medium sized companies

What share of your loan goes to small, medium and large companies (please refer to footnote 1)?

- a. Small: ____%
- b. Medium: ____%
- c. Large: ____%

According to the new regulation from Bank Indonesia (December 2012), within 3 years 20% of credits have to be assigned to small and medium enterprises. How does this affect your current business model?

What is the average tenor for an investment loan to a medium sized company?

What is your interest rate range for a medium sized company for an investment loan?

In general, do interest rates for medium sized companies differ from rates for large companies?

If yes, please describe to what extent.

Under which conditions can your bank offer an investment loan with fixed interest rates to a medium sized company?

Footnote 1

Definition of MSMEs according to Bank Indonesia:	Net assets excluding sites and buildings of the enterprise (in IDR)	Annual sale income (in IDR)
Micro enterprise	up to 50 million	up to 300 million
Small enterprise	50–500 million	300 million–2.5 bn
Medium enterprise	500 million–10 bn	2,5 bn–50 bn

Green finance

Is environmental sustainability included in your bank's vision and mission statement?

The Indonesian government is now implementing a domestic carbon market "Nusantara Carbon Scheme (NCS)". Would you accept carbon credit as collateral?

Does your bank have a unit responsible for environmental sustainability issues/ green finance?

Does your bank have a specific definition of green finance? If yes, how do you define it?

In your opinion, financing for which of the following investments would be green finance?

- a. Investments related to waste management, e.g., waste water filter
- b. Investments related to renewable energy, e.g., mini-hydro and hydro projects
- c. Investments related to energy efficiency, e.g., more energy-efficient chillers
- d. Investments related to reforestation
- e. Investments related to energy security, e.g., coal plants
- f. Any type of investment which underwent an environmental risk assessment
- g. None of the above

What proportion of your credit portfolio would you approximately classify as “green”? Please specify what is included.

Do you consider green finance as a promising business area? Please explain.

Training measures

Which tools, if any, do you have to evaluate environmental credit risks?

Do your credit officers receive particular in-house training to make environmental credit assessments?

Which trainings would be beneficial to promote environmental credit assessments?

PROPER rating

Do your credit officers take the PROPER rating into consideration?

Within your credit portfolio are there currently any companies holding a credit, which are rated red or black in their PROPER rating?

If yes, what action, if any, do you take to mitigate the credit risks associated to a black PROPER rating?

Financing of renewable energy and energy efficiency projects

Does your bank have any experience in financing renewable energy or energy-efficiency projects?

What is the value of your outstanding loans to renewable energy (in IDR)?

Is there any regulation within your bank that hinders you to extent the grace period for investments in renewable energy facilities? For example, to wait for the completion of a renewable energy facility.

If a company requests a credit to replace a machinery by more modern (*energy saving*) machinery, would you accept the new machinery as collateral?

Do you take potential *energy savings* from investments into energy efficiency into consideration when calculating a customer's future cash-flow/ future pay-back capacity?

Do you consider energy efficiency / renewable energy investments to be more risky than conventional credits? Please specify.

Outlook

Which conditions have to change so that your bank would become more interested in developing green financial products?

What kind of governmental support would you like to receive in order to raise the share of your green financial products in your portfolio?

Which actions would you recommend to Bank Indonesia to foster green finance?

Would green loans be more attractive to you if you could ensure them?

Is there anything important you would like to add?

Annex VIII: Questionnaire company survey



Deutsches Institut für
Entwicklungspolitik

German Development
Institute

d.i.e



Indonesian Green Economy Survey

Bank Indonesia and the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) are conducting a survey among medium and large enterprises in Indonesia in collaboration with the GIZ Regional Economic Development Programme. The aim of the survey is to collect information about companies' potential demand for environmentally friendly investments, their awareness of energy saving potentials and their general access to finance. The findings of this survey will help Bank Indonesia to develop a regulatory framework that will improve a company's access to credits for green investments and thereby contribute to Indonesia's sustainable development.

We would highly appreciate if you would take the time to complete the following survey. Overall, it should take about 10 to 15 minutes to complete the survey.

Your responses are voluntary and will be treated with utmost confidentiality. No response will be attributable to an individual respondent. All responses will be compiled into one single dataset and analysed as a whole.

If you have any questions or concerns regarding our research project and/or our survey, please contact: [REDACTED].

Your participation is very important and will contribute to improving the business environment in Indonesia.

Thank you very much in advance!

Company characteristics

Begin of operations of the company:

Ownership

Ownership	Asset holder	Main business	Supplier
State owned company <input type="checkbox"/>	Domestic company – 100% of assets domestically owned <input type="checkbox"/>	Production mainly for domestic market <input type="checkbox"/>	Supplier of multinational company <input type="checkbox"/>
Privately owned company <input type="checkbox"/>	Assets are more than 50% held by foreigners <input type="checkbox"/>	Production mainly for export <input type="checkbox"/>	No supplier of multinational company <input type="checkbox"/>
Public-private ownership <input type="checkbox"/>	Assets are less than 50% held by foreigners <input type="checkbox"/>	Doesn't apply (Hotels & Malls) <input type="checkbox"/>	<input type="checkbox"/>

Location of headquarters / province:

Jakarta Special Capital Region <input type="checkbox"/>	East Kalimantan <input type="checkbox"/>	North Sulawesi <input type="checkbox"/>	Banten <input type="checkbox"/>
Central Java <input type="checkbox"/>	East Nusa Tenggara <input type="checkbox"/>	North Sumatra <input type="checkbox"/>	West Kalimantan <input type="checkbox"/>
East Java <input type="checkbox"/>	Gorontalo <input type="checkbox"/>	Special Region of Papua <input type="checkbox"/>	West Nusa Tenggara <input type="checkbox"/>
West Java <input type="checkbox"/>	Special Region of Aceh <input type="checkbox"/>	Riau <input type="checkbox"/>	Special Region of West Papua <input type="checkbox"/>
Special Region of Yogyakarta <input type="checkbox"/>	Jambi <input type="checkbox"/>	Riau Islands <input type="checkbox"/>	West Sulawesi <input type="checkbox"/>
Bali <input type="checkbox"/>	Lampung <input type="checkbox"/>	South East Sulawesi <input type="checkbox"/>	West Sumatra <input type="checkbox"/>
Central Kalimantan <input type="checkbox"/>	Maluku <input type="checkbox"/>	South Kalimantan <input type="checkbox"/>	Bengkulu <input type="checkbox"/>
Central Sulawesi <input type="checkbox"/>	North Kalimantan <input type="checkbox"/>	South Sulawesi <input type="checkbox"/>	<input type="checkbox"/>
Bangka-Belitung <input type="checkbox"/>	North Maluku <input type="checkbox"/>	South Sumatra <input type="checkbox"/>	<input type="checkbox"/>

City in which your company's headquarter is located:

Jakarta and surroundings	<input type="checkbox"/>
City with population over 1 Mio	<input type="checkbox"/>
City with population of over 250,000–1 Mio.	<input type="checkbox"/>
City with population between 50,000–250,000	<input type="checkbox"/>
City with population < 5,000	<input type="checkbox"/>

Number of employees:

0–20	<input type="checkbox"/>
21–50	<input type="checkbox"/>
51–100	<input type="checkbox"/>
101–200	<input type="checkbox"/>
201–500	<input type="checkbox"/>
501–1,000	<input type="checkbox"/>
1,001–5,000	<input type="checkbox"/>
5,001–10,000	<input type="checkbox"/>
10,001–50,000	<input type="checkbox"/>
More than 50,000	<input type="checkbox"/>

Business area: [Please tick all options that fit]

Packaging	<input type="checkbox"/>
Textile	<input type="checkbox"/>
Hotel	<input type="checkbox"/>
Cooking oil	<input type="checkbox"/>
Sugar-refining	<input type="checkbox"/>
Retail operator	<input type="checkbox"/>
Mall	<input type="checkbox"/>
Cement	<input type="checkbox"/>
Pulp & Paper	<input type="checkbox"/>
Food Processing (other than cooking oil)	<input type="checkbox"/>
Iron & steel	<input type="checkbox"/>
Glass	<input type="checkbox"/>
Ceramics	<input type="checkbox"/>
Others, please specify _____	

Assets of company (Net assets excluding sites and buildings of the enterprise in IDR)

Up to 50 million	<input type="checkbox"/>
50–500 million	<input type="checkbox"/>
500 million–10 bn	<input type="checkbox"/>
10 bn–50 bn	<input type="checkbox"/>
50 bn–100 bn	<input type="checkbox"/>
More than 100 bn	<input type="checkbox"/>

Questions

1. From the following list of environmental concerns; which are relevant for your company's future? (Multiple answers possible)

Electricity saving

Fuel saving

Pollution reduction

Water saving

Waste reduction

Waste water management

Environmental certification of your products

Renewable energy (e.g., geothermal, biomass, hydro, solar, wind)

Others, please specify...

2. Did you invest in the following areas in the last 3 years?

Electricity saving Yes No Do not know

Fuel saving Yes No Do not know

Pollution reduction Yes No Do not know

Water saving Yes No Do not know

Waste reduction Yes No Do not know

Waste water management Yes No Do not know

Environmental certification
of your product Yes No Do not know

Renewable energy Yes No Do not know

3. Did you replace equipment with more energy-efficient equipment in the last 3 years?

Yes

No

Do not know

Refuse to answer

4. What kind of energy-efficient equipment did you purchase precisely?

5. When you buy new machinery do you check their energy consumption levels?

Yes...why? (Multiple answers possible)

1) Because of cost-saving potential

2) For environmental reasons

3) Because of the Volt / Ampere restrictions

No

Do not know

Refuse to answer

6. Regarding current operational costs: How large are your electricity expenses?
 - Electricity is the largest expense
 - Electricity is among the top three expenses
 - Electricity is not among the top three expenses
 - Electricity is one of the smallest expenses
 - Do not know
 - Refuse to answer
7. Do you think investment in energy-efficient equipment would pay off from the savings in energy/resources it generates?
 - Yes, already in the short-term
 - Yes, but only in the long-term
 - No
 - Do not know
 - Refuse to answer
8. Does your company have an energy manager or dedicated person with specified knowledge about energy-efficiency?
 - Yes
 - No
 - Do not know
 - Refuse to answer
9. Is he /she consulted in the investment decision of the company?
 - Yes
 - No
 - Do not know
 - Refuse to answer
10. Energy subsidies will decrease by 15% this year and consequently electricity prices will rise. As a response, will your company invest more in energy-efficiency?
 - I do not receive direct energy subsidies
 - Yes, absolutely
 - Probably
 - Unlikely
 - No, definitely not
 - Do not know
 - Refuse to answer
11. How much will your firm's business competitiveness be affected by this rise in electricity prices?

- Not at all
- To a small extent
- To a large extent
- To a very large extent
- Do not know
- Refuse to answer

12. Are you aware of the Indonesian government's endeavour to decrease carbon emissions by 26% by 2020?

- Yes
- No
- Refuse to answer

13. Under which of the following conditions would you increase investments in energy-efficient equipment? (Multiple answers possible)

- Better quality of new equipment
- Better availability of new equipment
- Better access to credit
- Better information about energy and cost saving potential of alternative technology/equipment
- Better information about the sources of available technology/equipment
- Sufficient internal financing means
- Availability of fiscal incentives (tax reduction, subsidies etc.) for investments in energy-efficient equipment
- Stricter environmental regulation and enforcement
- Higher energy prices
- Do not know
- Others, please specify
- Refuse to answer

14. How would you finance an investment in new equipment?

- Internal funds or retained earnings
- Owners' contribution or issued new equity shares
- Borrowing from banks or other financial institutions
- Borrowing from capital markets
- Purchase on credit from suppliers and advances from customers
- International financing mechanisms
- Informal borrowing (moneylenders, friends, relatives)
- Others

- Do not know
- Refuse to answer
- 15. Is access to finance generally
 - No obstacle
 - Minor obstacle
 - Major obstacle
 - Very severe obstacle... to your company?
 - Do not know
 - Refuse to answer
- 16. Did you apply for one or more investment loans from a formal financial institution in the last 3 years?
 - Yes
 - No
 - Do not know
 - Refuse to answer
- 17. Was at least one of the credit applications approved?
 - Yes (go to question 20)
 - No (go to question 19) Do not know
 - Refuse to answer
- 18. What were the main reasons why your company did not apply for any loan in 2012? (Multiple answers possible)
 - No need for a credit – firm has sufficient capital
 - No need for investments in 2012
 - Application procedures for credits are complex
 - Interest rates are not favourable
 - Collateral requirements are too high
 - Size of credit and maturity are insufficient
 - Did not think it would be approved
 - Do not know
 - Refuse to answer
- 19. Did you take on a bank credit to invest in the following areas in the last 3 years? (Multiple answers possible)
 - Electricity saving Yes No Do not know
 - Fuel saving Yes No Do not know
 - Pollution reduction Yes No Do not know
 - Water saving Yes No Do not know
 - Solid waste reduction Yes No Do not know
 - Waste water management Yes No Do not know

- Environmental certification
of your products Yes No Do not know
- Renewable energy Yes No Do not know
20. If requests for new credits were rejected in the past, what were the main reasons? (Multiple answers possible)
- Credit requests have never been rejected
 - Bad credit record
 - Firm has already too high debt
 - No credit history
 - Insufficient profits
 - No collateral
 - No account held with bank
 - Application incorrect
 - Others
 - Do not know
 - Refuse to answer
21. What kind of collateral is required when you apply for a loan? (Multiple answers possible)
- Land, buildings under ownership of the establishment
 - Machinery and equipment including movables
 - Accounts receivable and inventories
 - Personal assets of owner (house, etc.)
 - Company's shares
 - Other forms of collateral not included in the categories above
 - No collateral required
 - Do not know
 - Refuse to answer
22. What do you regard as a major risk of an investment credit? (Multiple answers possible)
- Rising interest rate
 - Changing regulations
 - Rising business costs
 - Market risks
 - Currency risk
 - Political instability
 - Technology risk
 - Other, please specify
 - Do not know

- Refuse to answer
- 23. Would you invest more in energy-efficient equipment if you had the option of leasing it?
 - Yes
 - No
 - Do not know
 - Refuse to answer
- 24. Did you ever carry out an energy audit?
 - Yes
 - No
 - Do not know
- 25. Why not? (Multiple answers possible)
 - Too costly
 - No supplier
 - No trust in external auditor
 - Not enough information about energy audits
 - Not urgent
 - Not interested
 - Could not obtain financing for undertaking investment
 - Other
 - Do not know
 - Refuse to answer
- 26. Did you follow up on any of the recommendations of the auditor?
 - Yes
 - No
 - Do not know
 - Refuse to answer
- 27. Why were recommendations not followed up?
 - Recommended investment too costly
 - No trust in quality of new equipment
 - No trust in the recommendations
 - Not urgent
 - Not interested
 - No access to finance for investments
 - Other
 - Do not know
 - Refuse to answer

28. Which of the following environmental licenses does your company have? (Multiple answers possible)
- Amdal
 - UKL-UPL
 - PROPER
 - Other, please specify
 - None of the above
 - Do not know
 - Refuse to answer
29. Does your company have one of the following internationally recognised quality certificates?
- ISO 14000 (...)
 - ISO 50001 (...)
 - Do not know
 - No, we do not have one
 - Refuse to answer

Annex IX: Guideline for company interviews

Bottleneck – Awareness:

When you hear the term “Green Economy”, what do you spontaneously associate with this concept?

If you had to pick, from the list below, the most important issue your company needs to tackle in the future, which one would it be: a. Energy-efficiency b. Renewable Energies c. Waste management d. International environmental standards and certificates e. None of the above

Does your company consider investing / did your company invest in one of the following areas in the last 12 months?

- a. Energy-efficiency
- b. Resource-efficiency
- c. Waste management
- d. Waste water management
- e. Environmental certification of your products
- f. Renewable energy
- g. Do not know

From your point of view, what are the major challenges and potentials to reach less carbon intensive development?

Under which conditions would your company be willing to invest more in energy efficiency or renewable energies? / What would be an incentive for your company to invest more in energy efficiency or renewable energy?

Do you think you could reduce electricity costs by investing in energy-efficient equipment?

Do you have in-house capacities to plan and manage electricity expenses?

Instrument – Information:

Do you feel well informed about options to save energy or to produce your own energy from renewable sources?

What type of information would be relevant to inform your investment decisions? Whom would you trust most to provide you with this relevant information?

Instrument – Decrease subsidies:

Among Asian countries, subsidies in Indonesia are among the highest. Do you think Indonesia needs to abolish subsidies in the long run? How much longer do you think does Indonesia need energy subsidies?

Electricity subsidies will decrease by 15% in this year. How does this affect your company? Do you think investments in energy-efficiency are now more interesting?

Instrument – External pressure:

[In case, company has a black or red Proper rating]: Does your Proper rating influence your ability to obtain credit?

[In case, company has a black or red Proper rating]: How would you describe the impact of this rating on your company's success?

Do you have the impression that your clients demand "green" products or environmentally friendly production? Do you have the impression that you could sell more / improve your business opportunities via environmental certification of your production process?

Bottleneck – Access to finance:

How would you describe your company's access to loans from banks?

What makes receiving a loan from a bank difficult? / What do you perceive as your companies biggest bottleneck to receive financing? / What kind of collateral is accepted by your bank?

Which conditions should be given, to make you consider taking up an investment credit for an energy efficiency or renewable energy project?

Instrument – Third party liability:

Have you ever applied for a credit guarantee, for example to ASKRINDO?

Would you invest more in energy efficiency and RE, if you had the opportunity to apply for a credit guarantee scheme?

Instrument – Leasing:

Did you ever lease equipment? If yes, how often?

Bottleneck – Risk / macroeconomic uncertainty:

What would you favour, if you had the choice?

- a. Investments with moderate rates of return within the next year?
- b. Investments with high rates of return starting 3 years after the investment?

Bottleneck – Low quality of machinery

In general, when you bought new machinery, did the quality of the new machinery meet your expectations?

Yes, absolutely.

Yes, mostly.

No, not entirely.

No, not at all.

Do not know

Is high-quality, energy-efficient machinery readily available to you in Indonesia? / What could improve your access to new technology?

Do you trust in the quality of new machinery? / What would improve your confidence in the quality of new machinery?

Bottleneck – Scarce equity

Would you invest more in energy efficiency or renewable energy projects if you had the access to equity finance (instead of debt)?

Annex X: Notice of the China Banking Regulatory Commission (CBRC) on issuing the *Green Credit Guidelines*

CBRC local offices, policy banks, state-owned commercial banks, joint-stock commercial banks, financial assets management companies, the PSBC, provincial rural credit unions, as well as all trust firms, enterprise group finance companies and financial leasing firms directly regulated by the CBRC:

To implement the macro adjustment policies provided for in the *Integrated Working Plan of the State Council for Energy Conservation and Emission Reduction during the 12th Five-year Period* and the *Comments of the State Council on Strengthening Environmental Protection Priorities*, and to follow the requirements of matching supervisory policies with industrial policies, the CBRC has formulated the *Green Credit Guidelines* for the purpose of encouraging banking institutions to, by focusing on green credit, actively adjust credit structure, effectively fend off environmental and social risks, better serve the real economy, and boost the transformation of economic growth mode and adjustment of economic structure. The *Guidelines* are hereby printed and issued for implementation.

Banking supervisory authorities should forward the *Notice* to local banking institutions and urge them into implementation.

Feb. 24, 2012

The China Banking Regulatory Commission

Green Credit Guidelines

Chapter 1 General Provisions

Article 1 For the purpose of encouraging banking institutions to develop green credit, these Guidelines are formulated pursuant to the *Law of the People's Republic of China on Banking Regulation and Supervision* and the *Law of the People's Republic of China on Commercial Banks*.

Article 2 Banking Institutions mentioned herein include policy banks, commercial banks, rural cooperative banks and rural credit cooperatives lawfully incorporated within the territory of the People's Republic of China.

Article 3 Banking institutions shall promote green credit from a strategic height, increase the support to green, low-carbon and recycling economy, fend off environmental and social risks, and improve their own environmental and social performance, thus optimizing their credit structure, improving the quality of services, and facilitating the transformation of development mode.

Article 4 Banking institutions shall effectively identify, measure, monitor and control environmental and social risks associated with their credit activities, establish environmental and social risk management system, and improve relevant credit policies and process management.

The environmental and social risks mentioned herein refer to the hazards and risks on the environment and society that may be brought about by the construction, production and operating activities of banking institutions' clients and key affiliated parties thereof, including environmental and social issues related to energy consumption, pollution, land, health, safety, resettlement of people, ecological protection, climate change, etc.

Article 5 The CBRC is responsible for, in accordance with applicable laws, regulating and supervising banking institutions' green credit business and their environmental and social risk management.

Chapter 2 Organization and Management

Article 6 The board of directors or supervisory board of a banking institution shall build and promote green credit concepts concerning energy saving, environmental protection and sustainable development, be committed to giving play to the functions of facilitating holistic, coordinated and sustainable economic and social development, and establish a sustainable development model that will benefit the society at the same time.

Article 7 The board of directors or supervisory board of a banking institution is responsible for developing green credit development strategy, approving the green credit objectives developed by and the green credit report submitted by senior management, and monitoring and assessing the implementation of green credit development strategy.

Article 8 The senior management of a banking institution shall, pursuant to the resolutions of the board of directors or supervisory board, develop the green credit objectives, have in place relevant mechanisms and processes, define clearly the roles and responsibilities, conduct internal checks and appraisal, annually provide report to the board of directors or supervisory board on the development of green credit, and timely submit relevant reports to competent supervisory authorities.

Article 9 The senior management of a banking institution shall assign a senior officer and a department and configure them with necessary resources to organize and manage green credit activities. Where necessary, a cross-departmental green credit committee can be set up to coordinate relevant activities.

Chapter 3 Policy, System and Capacity Building

Article 10 Banking institutions shall, as per national environmental protection laws and regulations, industrial policies, sector entry policies, and other applicable regulations, establish and constantly improve the policies, systems and processes for environmental and social risk management and identify the directions and priority areas for green credit support. As for industries falling within the national “restricted” category and industries associated with major environmental and social risks, they shall customize credit granting guidelines, adopt differentiated and dynamic credit granting policies, and implement the risk exposure management system.

Article 11 Banking institutions shall develop client environmental and social risk assessment criteria, dynamically assess and classify client environmental and social risks, and consider the results as important basis for credit rating, access, management and exit. They shall adopt differentiated risks management measures concerning loan investigation, review and inspection, loan pricing, and economic capital allocation.

Banking institutions shall prepare a list of clients currently faced with major environmental and social risks, and require these clients to take risk mitigation actions, including developing and having in place major risk response plans, establishing sufficient, effective stakeholder communication mechanisms, and finding a third party to share such risks.

Article 12 Banking institutions shall establish working mechanisms conducive to green credit innovation to boost innovation of green credit processes, products and services while effectively curbing risks and ensuring business continuation.

Article 13 Banking institutions shall give priority to their own environmental and social performance, set up appropriate systems, step up the publicity and education on green credit concepts, standardize their operational behaviors, promote green office, and improve the level of intensive management.

Article 14 Banking institutions shall strengthen green credit capacity building, establish and improve green credit labeling and statistics system, improve relevant credit management systems, enhance green credit training, develop and employ related professionals. Where necessary, they can hire an eligible, independent third party to assess environmental and social risks or acquire related professional services by means of outsourcing.

Chapter 5 Process Management

Article 15 Banking institutions shall strengthen due diligence in credit granting. The scope of due diligence on environmental and social risks shall be defined according to the characteristics of the sector and region in which the client and its project is located, so as to ensure the due diligence is complete, thorough and detailed. Where necessary, the banking institutions can seek for support from an eligible, independent third party and competent authorities.

Article 16 Banking institutions shall examine the compliance of clients to whom credit will be granted. As for environmental and social performance, compliance checklist and compliance risk checklist shall be developed according to the characteristics of different sectors, so as to ensure compliance, effectiveness and completeness of the documents submitted by the clients, and make sure they have paid enough attention to related risk points, performed effective dynamic control, and satisfied the requirements on substantial compliance.

Article 17 Banking institutions shall strengthen credit approval management, and define reasonable level of credit granting authority and approval process according to the nature and severity of environmental and social risks faced by the clients. Credits may not be granted to clients whose environmental and social performance fails to meet compliance requirements.

Article 18 Banking institutions shall, by improving contract clauses, urge their clients to strengthen environmental and social risk management. As for clients involving major environmental and social risks, the contract shall provide for clauses that require them to submit environmental and social risk report, state and avow that they will strengthen environmental and social risk management, and promise that they are willing to be supervised by the lender; the contract shall also provide for clauses concerning the remedies banking institutions can resort to in the event of default on environmental and social risks made by the clients.

Article 19 Banking institutions shall enhance credit funds disbursement management, and consider appropriation management, and regard

how well clients have managed environmental and social risks as important basis for credit funds appropriation. As for projects to which credit is granted, all stages, including design, preparation, construction, completion, operation and shutdown shall be subjected to environmental and social risk assessment. Where major risks or hazards are identified, credit funds appropriation can be suspended or even terminated.

Article 20 Banking institutions shall strengthen post-loan management. As for clients involving potential major environmental and social risks, relevant and pertinent post-loan management actions shall be developed and implemented. They shall watch closely the impact of national policies on the clients' operation, step up dynamic analysis, and make timely adjustment to asset risk classification, reserve provisioning and loss write-off. They shall establish and improve internal reporting system and accountability system concerning major environmental and social risks faced by the clients. Where major environmental or social risk event occurs to the client, the banking institution concerned shall timely take relevant risk responses and report to competent supervisory authorities on potential impact of said event on itself.

Article 21 Banking institutions shall strengthen the environmental and social risk management for overseas projects to which credit will be granted and make sure project sponsors abide by applicable laws and regulations on environmental protection, land, health, safety, etc. of the country or jurisdiction where the project is located. The banking institutions shall make promise in public that appropriate international practices or international norms will be followed as far as such overseas projects are concerned, so as to ensure alignment with good international practices.

Chapter 5 Internal Controls and Information Disclosure

Article 22 Banking institutions shall incorporate green credit implementation into the scope of internal compliance examination, and regularly organize and carry out internal auditing on green credit. Where major deficiencies are identified, investigation shall be conducted to determine whom to be held accountable as per applicable regulations.

Article 23 Banking institutions shall establish effective green credit appraisal and evaluation system and reward and penalty system, and have in place incentive and disciplinary measures, so as to ensure sustained and effective offering of green credit.

Article 24 Banking institutions shall make public their green credit strategies and policies, and fully disclose developments of their green credit business. As for credit involving major environmental and social risks, the banking institutions shall disclose relevant information according to laws and regulations, and be subjected to the oversight by the market and stakeholders. Where necessary, an eligible, independent third party can be hired to assess or audit the activities of banking institutions in performing their environmental and social responsibilities.

Chapter 6 Monitoring and Examination

Article 25 Banking supervisory authorities at all levels shall strengthen the coordination with competent authorities, establish and improve information sharing mechanism, improve information services, and remind banking institutions of related environmental and social risks.

Article 26 Banking supervisory authorities at all levels shall strengthen off-site surveillance, improve off-site supervisory indicator system, enhance the monitoring and analysis of environmental and social risks faced by banking institutions, timely guide them to strengthen risk management and adjust credit orientation.

Banking institutions shall, pursuant to the provisions hereof, perform overall green credit evaluation at least once every two year, and submit the self-evaluation report to competent banking supervisory authorities.

Article 27 When organizing and conducting on-site examination, banking supervisory authorities shall take into full account the environmental and social risks faced by banking institutions, and make clear the scope and requirements of examination. As for regions or banking institutions involving prominent environmental and social risks, ad hoc examination shall be conducted and urge said institutions to improve in light of examination results.

Article 28 Banking supervisory authorities shall provide more guidance to banking institutions on green credit self-evaluation, and, in conjunction with the results of off-site surveillance and on-site examination, holistically assess the green credit performance of banking institutions, and treat the assessment results, as per applicable laws and regulations, as important basis for supervisory rating, institution licensing, business licensing, and senior officer performance evaluation.

Chapter 7 Supplementary Provisions

Article 29 These *Guidelines* become effective as of the date of promulgation. Village banks, lending firms, rural mutual cooperatives and non-banking financial institutions shall enforce actions in reference to these *Guidelines*.

Article 30 These *Guidelines* are subject to interpretations by the CBRC.

Source: China Banking Regulatory Commission (2012).

Notes

1 Introduction

1. See also UNEP's (2011) plea for a *green economy* as well as the World Bank's (2012d) call for *inclusive green growth*.

2 Financing the Green Transformation – Market Failures, Government Failures and the Role of the State

1. Moral hazard occurs when a party incurs risk because the eventual costs of risk-taking are burdened upon another, third party.

3 The Green Transformation in Indonesia

1. The sharp increase in emissions caused by peat fires that can be seen in Figure 3.1 between 2000 and 2005 is largely due to changes in the measurement methodology (MOE 2010).
2. Meetings of the 194 member countries of the UNFCCC take place annually to assess the progress made in dealing with climate change. Therefore, the meetings are also known as Conference of the Parties (COP) and represent the supreme decision making body of UNFCCC (UNFCCC 2013a). The most famous of these meetings was the one in Kyoto in 1997, where the Kyoto Protocol was concluded.
3. See, for example, the ministerial decree 002/2004 Article 44, Menteri Energi dan Sumber Daya Mineral.
4. The Indonesian energy supply mix is shaped not only by Indonesia's domestic consumers but also by international consumers since Indonesia is caught in long-term oil export contracts.
5. The BAU-scenario calculations were undertaken by the Ministry of Environment (MoE 2010) for their "Second National Communication" which was submitted to UNFCCC as an update of the Indonesian GHG emission planning process.
6. The emission reduction goal under the second estimation of BAPPENAS (2011) does not add up to 26% but 23.69%. The reason for the discrepancy is that they have not yet incorporated all sectors in their emission reduction scenarios.
7. It is important to distinguish between the total BAU level and the sectoral BAU level. Reductions compared to the sectoral BAU level are compared to the emissions calculated within one sector only under BAU. Thus, the shares of reductions compared to sectoral BAU level will always be higher than total BAU.

8. While Indonesia maintains tight restrictions on overseas borrowing for banks, corporate external debt has actually doubled between 2009 and 2014.
9. Particularly, investments in infrastructure would be necessary to increase GDP growth (BAPPENAS 2010b; World Bank 2012b).
10. Of the rural credit banks 154 are Islamic banks. Rural banks play an important role in Indonesia and provide mainly at the village level deposit and credit services to a large number of individual clients with small financial resources. Rural banks are usually owned by the regional government. Banking services are also provided by approximately 13,000 cooperatives which are supervised by the Ministry of Cooperatives and SMEs.
11. There are several reasons why access to finance is limited for SMEs. First, banks' transaction costs are relatively higher for SME lending than for lending to large enterprises, since the size of the loan is generally smaller. Second, collateral is often insufficient to meet banks' requirements. And third, bank credits require too high administrative efforts for short-term financing needs of enterprises. Due to the fact that SMEs often need quick financial support, they tend to use informal sources with high interest rates. Further reasons for turning down applications are poor credit history of the enterprise or business plan and insufficient sales, revenues or cash flow (Machmud and Huda 2011). Since the beginning of 2013 a new banking regulation attempts to overcome the financing shortcomings for SMEs. Indonesian banks are required to give 20% of total loans to SMEs. Besides the obvious positive effects for SMEs, the regulation challenges banks' capacities. Especially big and international banks that focus on large companies so far lack the capacity to give out a high number of very small loans. Furthermore, there is the concern that this regulation could increase banks' general credit risks.

4 Empirical Analysis of Supply of and Demand for Green Finance in Indonesia

1. The Indonesian banking sector is dominated by ten commercial banks that hold together 64% of all assets. Four of these are state owned: Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), Bank Tabungan Negara (BTN) and Bank Mandiri. Together they hold 36% of all earning assets in the commercial bank industry (GFA 2011). Among the privately-owned banks, the most important banks are the foreign exchange banks that together hold 38% of all earning assets. The largest ten banks are the important players in the banking system and largely determine the system's operational performance (GFA 2011).
2. The Indonesian financial supervisory system is currently undergoing transformation. In December 2012, OJK was established in order to supervise banks, stock brokerage companies as well as financing and insurance companies. Before the establishment of OJK, Bank Indonesia was responsible to supervise the banking sector while the MoF was in charge of supervising capital markets and insurance firms. These sectors are now all under the supervision of OJK.

3. The online-questionnaire took companies on average between 10 and 20 minutes to complete.
4. Among the eight companies was three small companies (50–500 Mn), two medium-sized companies (50–100 Bn.) and three large companies (>100 Bn).

5 Policy Recommendations

1. For this scheme, Banque du Liban has introduced a differentiated reserve requirements policy for green credit under which reserve requirements of commercial banks are lowered by an amount of 100–150% of the loan value if the bank's customer can provide a certificate from the LCEC which confirms the energy savings potential of the financed project.
2. This approach would follow on Bank Indonesia's requirement that banks extend at least 20% of their credit to SMEs.
3. Cf. Presidential Regulation of the Republic of Indonesia No.61 on the RAN-GRK.
4. For further information on the NCS, see: <http://skn.dnpi.go.id/en/>
5. For GF, this should include investment that reduce air or water pollution.
6. For a case study on sustainability standards and certification in the Indonesian palm oil sector see Brandi et al. (2012).
7. For a comprehensive discussion of emission reduction options in different sectors see Chapter 3 on "Technological and economic potential of mitigation options" of IPCC (2001a).
8. Cf. <http://firstforsustainability.org/sustainable-banking-network/>. The SBN was formally launched in September 2012 and is facilitated by the International Finance Corporation.
9. An example in this regard is the collaboration between the Ministry of Energy and Danida, the Danish development agency, for offering energy audits for free.

References

- ABB (2012): “Indonesia. Energy Efficiency Report”, Country Reports, Zurich: ABB Publications ([http://www05.abb.com/global/scot/scot316.nsf/veritydisplay/1a65dd16a3c538acc125786400514251/\\$file/indonesia.pdf](http://www05.abb.com/global/scot/scot316.nsf/veritydisplay/1a65dd16a3c538acc125786400514251/$file/indonesia.pdf)).
- ADB (2009): *The Economics of Climate Change in Southeast Asia: A Regional Review*, Manila: Asian Development Bank.
- ADB (2013a): “Climate Change Fund”, Manila: Asian Development Bank (<http://www.adb.org/site/funds/funds/climate-change-fund>).
- ADB (2013b): “Clean Energy Financing Partnership Facility (CEFPF)”, Manila: Asian Development Bank (<http://www.adb.org/site/funds/funds/clean-energy-financing-partnership-facility>).
- ADB-ADBI (2012): “Study on Climate Change and Green Asia: Policies and Practices for Low-Carbon Green Growth in Asia – Highlights”, Manila: Asian Development Bank (<http://www.adbi.org/files/2012.05.30.book.policies.practices.low.carbon.green.growth.asia.highlights.pdf>).
- Angelsen, A. (ed., 2009): “Realising REDD+: National Strategy and Policy Options”, Bogor: Center for International Forestry Research (http://www.cifor.org/publications/pdf_files/Books/BAngelsen1201-References.pdf).
- ANU Indonesia (2013): “News from Indonesia”, The ANU Indonesia Project News and Commentary Blog (<http://asiapacific.anu.edu.au/blogs/indonesiaproject/2013/02/22/news-from-indonesia-15-21-february-2013/>).
- APEC (2009): “Energy Demand and Supply Outlook”, Economic Review 4th Edition, Tokyo: Asia Pacific Energy Research Center.
- AusAID (2013): “Clean Energy Financing Partnership Facility”, Canberra: Australian Government (<http://www.aisaid.gov.au/aidissues/infrastructure/Pages/initiative-cefpf.aspx>).
- Azis, I. (2013): “Missed Opportunity”, *Development and Cooperation*, 11 November, (www.dandc.eu/en/article/iwan-azis-explains-what-difference-high-interest-rates-rich-world-make-emerging-markets).
- Bangladesh Bank (2011): “Green Banking Policy”, Banking Regulation & Policy Department, Dhaka: Bangladesh Bank (http://www.basicbanklimited.com/files/Green_Banking_Policy_Guidelines_of_Bangladesh_Bank.pdf).
- Bank Indonesia (2005): “Bank Indonesia Regulation Concerning Asset Quality Rating for Commercial Banks”, Regulation Number: 7/2/PBI/2005, Jakarta: Bank Indonesia.
- (2012): “Indonesian Banking Directory”, Jakarta: Bank Indonesia.
- (2013a): “Banking Overview”, Jakarta: Bank Indonesia (<http://www.bi.go.id/web/en/Perbankan/Ikhtisar+Perbankan/Lembaga+Perbankan/>).
- (2013b): *Financial Stability Report*, Jakarta: Bank Indonesia.
- BAPPENAS (2010): “Indonesia Climate Change Sectoral Road Map”, Jakarta: Government of the Republic of Indonesia.

- (2011): *Guideline for Implementing Green House Gas Emission Reduction Action Plan*. Ministry of National Development Planning/ National Development Planning Agency, Jakarta: Government of Indonesia.
- Bashmakov I. and C. Jepma (2001): “Policies, Measures, and Instruments”, in B. Metz (ed.), *Climate Change 2001: Mitigation*, Cambridge: Cambridge University Press, 399–451.
- Bator, F.M. (1958): “The Anatomy of Market Failure”, *Quarterly Journal of Economics* 72 (August): 351–379.
- Bayliss Associates Pty Ltd. (2005): “Investment Guide to the Indonesian Food and Agriculture Sector”, Report prepared for the Australian Government Department of Agriculture, Fisheries and Forestry, Canberra: Commonwealth of Australia.
- Beck, M. (2011): “Promoting EE / RE Investments via the Local Financial Sector”, Presentation at a workshop on leveraging private finance for climate action in developing countries, 12 April, Brussels: Economic Policy Committee, European Union (http://europa.eu/epc/pdf/workshop/4-3_Eu_workshop_april_12_kfw_gcpcf_En.pdf).
- Bell, C.J., S. Nadel and S. Hayes (2011): “On Bill Financing for Energy-efficiency Improvements: A Review of Current Program Challenges, Opportunities and Best Practices”, Washington, DC: American Council for an Energy-Efficient Economy.
- BMU (2013): “International Climate Initiative – About the ICI”, Berlin: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (<http://www.bmu-klimaschutzinitiative.de/en/results>).
- Bowen, A., M. Romani and D. Zenghelis (2009): “Section 2 – Analytical Framework: The Case for Public Sector Action”. In N. Stern (ed.), *Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries*, London: LSE Grantham Research Institute on Climate Change and the Environment.
- Brandi, C., T. Cabani, C. Hosang, S. Schirmbeck, L. Westermann and H. Wiese (2012): “Sustainability Standards and Certification: Towards Sustainable Palm Oil in Indonesia?” DIE Briefing Paper 9/2012, Bonn: German Development Institute / Deutsches Institut für Entwicklungspolitik.
- Brown, J. and L. Peskett (2011): “Climate Finance in Indonesia: Lessons for the Future of Public Finance for Climate Change Mitigation”, Working Paper No.11, Bonn: European Association of Development Research and Training Institutes (EADI).
- Buchner, B., A. Falconer, M. Hervé-Mignucci, C. Trabacchi and M. Brinkmann (2011): *The Landscape of Climate Finance*, Venice: Climate Policy Initiative.
- Caldecott, J., M. Indrawan, P. Rinne and M. Halonen (2011): *Indonesia-Norway REDD+ Partnership: First Evaluation of Deliverables*. Helsinki: Gaia Group.
- Campiglio, E. (2014): “Beyond Carbon Pricing: The Role of Banking and Monetary Policy in Financing the Transition to a Low-carbon Economy”, Grantham Research Institute on Climate Change and the Environment Working Paper No. 160, London: London School of Economics and Social Sciences.

- CCES (2013): *Weathering the Storm: Building Business Resilience to Climate Change*, Arlington, VA: Center for Climate and Energy Solutions.
- China Banking Regulatory Commission (2012): "Notice of the CBRC on Issuing the Green Credit Guidelines", Beijing, 24 February, (www.cbrc.gov.cn/EngdocView.do?docID=3CE646AB629B46B9B533B1D8D9FF8C4A).
- Climate Funds Update (2013a): "UK's International Climate Fund (formerly ETF-IW)", New York and London: Heinrich Böll Stiftung North America & Overseas Development Institute (<http://www.climatefundsupdate.org/listing/international-climate-fund>).
- Climate Funds Update (2013b): "Japan's Fast Start Finance", New York and London: Heinrich Böll Stiftung North America & Overseas Development Institute (<http://www.climatefundsupdate.org/listing/hatoyama-Initiative>).
- Climate Investment Funds (2010): "Clean Technology Fund Investment Plan for Indonesia", Document presented at the meeting of the CTF Trust Fund Committee, Manila (<http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/CTF%20Investment%20Plan%20for%20Indonesia2.pdf>).
- (2013): "Funds and Programmes", Washington, DC: World Bank (<https://climateinvestmentfunds.org/cif/funds-and-programs>).
- Coordinating Ministry for Economic Affairs (2011): *Masterplan for Acceleration and Expansion of Indonesia Economic Development 2011–2025*, Jakarta: Coordinating Ministry for Economic Affairs.
- CTF (2012): "Application for CTF Project Preparation Grant" (http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Approval_by_mail_Project_Preparation_Grant_Global_Climate_Partnership_Fund_Indonesia_EE_RE_Investment_Program_PPG.pdf).
- Davis, L. (2013): "The Economic Cost of Global Fuel Subsidies", EI @ Haas Working Paper No. 247, Berkeley, CA: Energy Institute at Haas.
- Differ (2012): "The Indonesian Electricity System – A Brief Overview", Oslo: Differgroup.
- Embassy of Norway to Indonesia (2010): "Fact Sheet Norway-Indonesia Partnership REDD+", Embassy of Norway Fact Sheets, Jakarta: Embassy of Norway to Indonesia (<http://www.norway.or.id/PageFiles/404362/FactSheetIndonesiaPeatMay252010.pdf>).
- ESMAP (2008): *Low Carbon Development Plan for Indonesia. Phase 1: Status Report and Findings*, Washington, DC: Energy Sector Management Assistance Program, World Bank.
- (2012): *Low Carbon Growth Country Studies Program: Lessons Learned from Seven Country Studies*, Washington, DC: Energy Sector Management Assistance Program, World Bank.
- Frankfurt School (2012): "The Energy Efficiency Revolving Fund", Frankfurt am Main: UNEP Collaborating Centre for Climate & Sustainable Energy Finance, Frankfurt School.
- GEEREF (2013): "Global Energy Efficiency and Renewable Energy Fund" (www.geeref.com).

- GEF (2012): "Indonesia and the GEF", Washington, DC: Global Environmental Facility.
- (2013a): "What Is the GEF?", Washington, DC: Global Environmental Facility.
- (2013b): "Detail of GEF Project Nr. 4217", Washington, DC: Global Environmental Facility.
- GFA Consulting Group (2011): "Feasibility Study and Project Preparation for Emission Reduction Investment Program. Indonesia." Presented to KLH/KfW. Hamburg.
- Global Climate Partnership Fund (2011): "Mitigating Climate Change Together." *Green Banking Workshop*. Jakarta: Bank of Indonesia.
- Government of Indonesia (2006): *Kebijakan energy Nasional*, Nomor 5/2006, Jakarta: Government of Indonesia.
- (2007): *Law of the Republic of Indonesia on Energy*, Number 30/2007. Jakarta: Government of Indonesia.
- (2009): *Konservasi Energi*, Nomor 70/2009, Jakarta: Government of Indonesia.
- (2012): *Regulation on Environmental Permits*, Nomor 27/2012. Jakarta: Government of Indonesia.
- Graham, T. (2004): *Graham Review of the Small Firms Loan Guarantee*, London: HM Treasury.
- Green Climate Fund (2013): "About the Fund", Bonn: Green Climate Fund (<http://gcfund.net/home.html>).
- GTZ (2009): "Green House Gas Emissions Released by the Manufacturing Industries in Java", Jakarta: GTZ.
- Hasan, J. (2012): "Developing ESCO in Indonesia", Presented at the Apkenindo conference, Yogyakarta, 29 March.
- Honohan, P. (2008): "Partial Credit Guarantees: Principle and Practice", IIS Discussion Paper No. 224, Dublin: Institute for International Integration Studies.
- ICCTF (2012): *External Report 2010–2011*, Jakarta: Indonesia Climate Change Trust Fund, UNDP Indonesia.
- IEA (2003): *Creating Markets for Energy Technologies*. Paris: OECD/International Energy Agency.
- (2010): "Executive Summary: Energy Technology Perspectives 2010 – Scenarios & Strategies to 2050", Paris: International Energy Agency.
- (2012): "CO₂ Emissions from Fuel Combustion: Highlights", Paris: International Energy Agency (<http://www.iea.org/co2highlights/co2highlights.pdf>).
- IISD (2011): "A Citizen's Guide to Energy Subsidies in Indonesia", Winnipeg: International Institute for Sustainable Development.
- (2013): "Indonesia Staff Report for the 2013 Article IV Consultation", IMF Country Report No. 13/362, Washington, DC: International Monetary Fund (<https://www.imf.org/external/pubs/ft/scr/2013/cr13362.pdf>).
- Institute for Global Environmental Strategies (2012): "Market Mechanisms Country Fact Sheet: Indonesia" (http://enviroscope.iges.or.jp/modules/envirolib/upload/984/attach/indonesia_final.pdf).

- Institute for Industrial Productivity (2012): "Energy Efficiency Revolving Fund (EERF) Thailand", Washington, DC: Institute for Industrial Productivity (http://www.iipnetwork.org/sites/iipnetwork.org/files/file_attachments/resources/IIP-FinanceFactsheet-3-EERF.pdf).
- International Development Finance Club (2013): "Global Climate Partnership Fund" (<http://www.idfc.org/Case-Studies/global-climate-partnership-fund.aspx>).
- IPCC (2001): "Climate Change 2001: Mitigation" (<http://www.ipcc.ch/ipccreports/tar/wg3/index.php?idp=0>).
- Islam, S. and P.C. Das (2013): "Green Banking Practices in Bangladesh", *IOSR Journal of Business and Management* 8 (3), 39–44.
- Jue, E., B. Johnson and A. Vanamali (2012): "Thailand Energy Conservation (ENCON) Fund: How Financial Mechanisms Catalyzed Energy Efficiency and Renewable Energy Investments", Washington, DC: Center for Clean Air Policy.
- Keech, W.R., M.C. Munger and C. Simon (2013): "The Anatomy of Government Failure", Duke PPE Working Paper 13.0216, Durham, NC: Duke University.
- Kiernan, P. (2014): "Risky Business", The Economist Intelligence Unit, 23 September (www.economistinsights.com/energy/opinion/risky-business).
- Krueger, A.O. (1990): "Government Failures in Development", *Journal of Economic Perspectives* 4 (3), 9–23.
- Kuntchev, V., R. Ramalho, J. Rodriguez-Meza and J. Yang (2014): "What Have We Learned from the Enterprise Surveys Regarding Access to Finance by SMEs?", mimeo, Enterprise Analysis Unit of the Finance and Private Sector Development, Washington, DC: The World Bank (<http://www.enterprisesurveys.org/~media/GIAWB/EnterpriseSurveys/Documents/ResearchPapers/Enterprise-Surveys-access-to-finance-and-SME.pdf>).
- Lang, K. (2011): "The First Year of the G-20 Commitment on Fossil-Fuel Subsidies: A Commentary on Lessons Learned and the Path Forward", Geneva: Global Subsidies Initiative of the International Institute for Sustainable Development.
- Leaton, J., N. Ranger, B. Ward, L. Sussams and M. Brown (2013): *Unburnable Carbon 2013: Wasted Capital and Stranded Assets*, London: Carbon Tracker & The Grantham Research Institute, London School of Economics and Political Science.
- Lindlein, P. (2008): "Mainstreaming Environmental Finance into Financial Markets – Relevance, Potential and Obstacles", Prepared for the KfW Financial Sector Development Symposium 2008 (http://www.kfw-entwicklungsbank.de/EN_Home/Sectors/Financial_system_development/Events/Symposium_2008/Pdf_documents_-_symposium_2008/Session_1_Expert_Paper_Final_Version.pdf).
- Lopez, J.A. (1999): "Using CAMELS Ratings to Monitor Bank Conditions", FRBSF Economic Letters 1999–19, San Francisco, CA: Federal Reserve Bank of San Francisco.
- Lubis Ganie Surowidjojo (2012): "Environmental Licenses Begin to be Implemented under Government Regulation No. 27 of 2012", *Footnotes*, April.

- (<http://www.lgsonline.com/pages/g/lgs4f8d14a0158bb/node/lgs4a1d783104616>).
- Machmud, Z. and A. Huda (2011): "SMEs' Access to Finance: An Indonesia Case Study", Jakarta: University of Indonesia.
- Manurung, N. and B. Moestafa (2012): "Indonesia Regains Investment Grade at Moody's after 14 Years", *Bloomberg News*, 19 January (<http://www.bloomberg.com/news/2012-01-18/indonesia-sovereign-debt-rating-is-raised-to-investment-grade-by-moody-s.html>).
- MEMR Indonesia (2011): "2011 Handbook on Energy and Economic Statistics of Indonesia" (<http://www.esdm.go.id/publikasi/handbook.html>).
- Menteri Energi dan Sumber Daya Mineral (2004): *Keputusan Menteri Energi dan Sumber Daya Mineral*. Nomor: 0002 tahun 2004, Jakarta: Menteri Energi dan Sumber Daya Mineral.
- Ministry of Energy (2012): "Conservation Policy and Program in Indonesia", Slides presented at the Indonesia EBTKE Conference and Exhibition 2012, 12 July, Jakarta.
- Ministry of Energy, Thailand. (n.d.). "Financing Energy Efficiency Projects through Financial Institutions: Revolving Fund", Bangkok: Ministry of Energy (<http://www.iesr.or.id/wp-content/uploads/8-Financing-EE-Projects-Chetapong-Chiralerspong.pdf>).
- MoE Indonesia (2010): *Indonesia Second National Communication under the United Nations Framework Convention on Climate Change: Climate Change Protection for Present and Future Generation*, Jakarta: Ministry of Environment, Republic of Indonesia.
- MoF Indonesia (2009): *Ministry of Finance Green Paper: Economic and Fiscal Policy Strategies for Climate Change Mitigation in Indonesia*, Jakarta: Ministry of Finance and Australia Indonesia Partnership (<http://www.illegal-logging.info/uploads/IndonesiasiaranpdfGreenPaperFinal.pdf>).
- (2010): "Applying Effective Financial and Fiscal Policies toward Low-Carbon Development", Working Group on Fiscal Policy for Climate Change, Jakarta: Ministry of Finance Republic of Indonesia (<http://www.fiscalpolicyforclimatechange.depkeu.go.id/index.php?pg0=2&lng=en>).
- (2013): "Energy Efficiency Measures in Indonesia", Workshop held at Ministry of Finance, Jakarta, 14 March.
- Ministry of Industry (2012): "Micro Financing: Peoples Entrepreneurs Credit (KUR) of Small and Medium Enterprises in Indonesia" (<http://www.sesric.org/imgs/news/image/675-s3-indonesia.pdf>).
- Mori, Akihisa (2013): *Sustainable Development and Environmental Governance in East Asia*, Tokyo: United Nations University Press.
- Mourougane, A. (2010): "Phasing Out Energy Subsidies in Indonesia. Sea Level Rise on Developing Countries: A Comparative Analysis", OECD Policy Research Working Paper, Paris: Organisation for Co-operation and Development.
- . (2012): "Promoting SME Development in Indonesia", OECD Economics Department Working Paper No. 999, Paris: Organisation for Co-operation and Development.

- Moomaw, B. (2007): "Energy Supply: Overview of Current Sources of Investments and Financing, Energy Consumptions and GHG Emissions under Reference and Mitigation Scenarios", Bonn: UNFCCC (http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/moomaw.pdf).
- Navajas, A.R. (2001): "Credit Guarantee Schemes: Conceptual Frame", Financial System Development Project, La Paz: GTZ/FONDESIF.
- Napitupulu, T., O. Tanujaya and M.H. Soejachmoen (2004): "CDM Development in Indonesia", Country Paper Indonesia for CDM-ASEAN, Jakarta: Pelangi (<http://cdmasean.pelangi.or.id/countrypapers/CP-Indonesia.pdf>).
- Nyboer, J. and J. Sharp (2007): "Mitigation: Industry, Buildings and Waste", Bonn: UNFCCC (http://unfccc.int/cooperation_and_support/financial_mechanism/financial_mechanism_gcf/items/4054.php).
- OECD (2012): "Development Perspectives for a Post-2012 Climate Financing Architecture", Paris: Organisation for Co-operation and Development – Development Assistance Committee.
- (2013): *Putting Green Growth at the Heart of Development*, Paris: Organisation for Economic Co-operation and Development.
- Owen, A.D. (2006): "Renewable Energy: Externality Costs as Market Barriers", *Energy Policy* 34 (5), 632–642.
- President of the Republic of Indonesia (2011): "The National Action Plan for Greenhouse Gas Emission Reduction", Presidential Regulation of the Republic of Indonesia No. 61, Jakarta.
- PWC (2010): "Green Products: Using Sustainable Attributes to Drive Growth and Value Sustainable Business Solutions", Washington, DC: PricewaterhouseCoopers.
- Rezessy, S. and P. Bertoldi (2010): "Financing Energy Efficiency. Forging the Link between Financing and Project Implementation", Joint Research Centre of the European Commission, Ispra: Institute for Energy.
- Risky Business Project (2014): *Risky Business: The Economic Risks of Climate Change in the United States* (riskybusiness.org/uploads/files/RiskyBusiness_Report_WEB_09_08_14.pdf).
- Ritchie, D. (2010): "Barriers to Private Sector Investment in the Clean Energy Sector of Developing Countries", *Private Sector Development*, Issue 6 on "Private Equity and Clean Energy: How to Boost Investments in Emerging Markets?", 20–23.
- Rochadi, B. (2010): "The Role of Central Bank in Financial Education Process in Indonesia", Presented at the OECD-Banque du Liban International Conference on Financial Education: Building Financially Empowered Individuals, Beirut, 18 October.
- Sari, A.P., M. Maulidya, R.N. Butarbutar, R.E. Sari and W. Rusmanto (2007): "Indonesia and Climate Change", Working Paper on Current Status and Policies, London and Washington, DC: UK Department for International Development and The World Bank.
- Sarkar, A. and J. Singh (2010): "Financing Energy Efficiency in Developing Countries – Lessons Learned and Remaining Challenges", *Energy Policy* 38, 5560–5571.

- Schick, S. and B.-H. Kim (2011): "Guarantee Arrangements for Financial Promises: How Widely Should the Safety Net be Cast?", *Financial Market Trends* 2011 (1), 1–35.
- Schleich, J. (2011): "Barrier Busting in Energy Efficiency in Industry", Development Policy, Statistics and Research Branch Working Paper No. 09/2011, Vienna: United Nations Industrial Development Organization.
- Sinsukprasert, I. (2010): "Financing EE and RE: Thailand's ENCON Fund", Presented at the International Energy Efficiency Forum, 27–30 September, Astana, Kazakhstan.
- Sipahutar, T. (2014): "Eximbank Starts Energy Financing Program", *The Jakarta Post*, 25 January (www.thejakartapost.com/news/2014/01/25/eximbank-starts-energy-financing-program.html).
- State Ministry of Environment (2007): *National Action Plan Addressing Climate Change, Jakarta*, November 2007 (thereddesk.org/sites/default/files/indonesia_national_action_plan_addressing_climate_change.pdf).
- Stern, N. (2007): *The Economics of Climate Change: The Stern Review*, Cambridge: Cambridge University Press.
- Stiglitz, J.E. and A. Weiss (1981): "Credit Rationing in Markets with Imperfect Information", *The American Economic Review* 71 (3), 393–410.
- Takahashi, K. and A. Kuriyama (2013): "Market Mechanisms Country Fact Sheet: Indonesia", Kanagawa and Jakarta: Institute for Global Environmental Strategies and National Council on Climate Change Indonesia.
- Thies, B. (2011): "KfW and Green Financing", Workshop at Bank Indonesia: Risk Management and Products for Green Banking, Jakarta.
- Tipton, F.B. (2008): "Southeast Asian Capitalism: History, Institutions, States, and Firms", *Asia Pacific Journal of Management* 26 (3), 401–434.
- UNEP (2011): *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, Nairobi: United Nations Environment Programme.
- UNDP (2013a): "Climate Finance Options – ADB Carbon Market Initiative", New York: United Nations Development Programme.
- (2013b): "Climate Finance Options – ADB Clean Energy Financing Partnership Facility", New York: United Nations Development Programme.
- (2013c): "Climate Finance Options", New York: United Nations Development Programme.
- UNFCCC (2009a): *National Economic, Environment and Development Study (NEEDS) for Climate Change. Indonesia Country Study. Final Report December 2009*, Jakarta: National Council on Climate Change.
- (2009b): "United Nations Framework Convention on Climate Change. Module 4 – Barriers to Mitigation" (http://unfccc.int/resource/cd_roms/na1/mitigation/index.htm).
- (2013): "About CDM", Bonn: UNFCCC (<http://cdm.unfccc.int/about/index.html>).
- UNIDO (2011): *Green Industry: Policies for Supporting Green Industry*. Vienna: United Nations Industrial Development Organization.
- USAID (2008): "Indonesia Energy Assessment", Washington, DC: USAID.

- (2011): “Non-Bank Finance – Measure Plus: Indonesia”, Washington, DC: Business Growth Initiative.
- Vattenfall (2007): “Global Mapping of Greenhouse Gas Abatement Opportunities up to 2030 Industry Sector Deep-dive” June (http://s3.amazonaws.com/zanran_storage/www.vattenfall.com/ContentPages/10536751.pdf).
- Vivid Economics in association with McKinsey & Co (2011): *The Economics of the Green Investment Bank: Costs and Benefits, Rationale and Value for Money*, Report prepared for The Department for Business, Innovation & Skills, London: UK Government.
- Volz, U. (2014): “The Role of Central Banks in Enhancing Green Finance”, Paper prepared for the UNEP Inquiry – CIGI Research Convening on Design Options for a Sustainable Financial System, Waterloo.
- WBGU (2012): “Financing the Global Energy-System Transformation”, WBGU Policy Paper 7, Berlin: German Advisory Council on Global Change.
- Winston, C. (2006): *Government Failure vs. Market Failure. Microeconomics Policy Research and Government Performance*, Washington, DC: AEI-Brookings Joint Center for Regulatory Studies, American Enterprise Institute for Public Policy Research and Brookings Institution.
- Wood, E. (2011): “On-bill Financing: Why Isn’t Everybody Doing It?” (<http://www.renewableenergyworld.com/rea/blog/post/2011/12/on-bill-financing-why-isnt-everybody-doing-it>).
- World Bank (2003): “Indonesia’s Program for Pollution Control, Evaluation, and Rating (PROPER)”, Empowerment Case Studies, Working Paper, Washington, DC: World Bank (http://siteresources.worldbank.org/INTEMPowerment/Resources/14825_Indonesia_Proper-web.pdf).
- (2004): “World Bank GEF Energy Efficiency Portfolio Review and Practitioners’ Handbook”, Thematic Discussion Paper, World Bank Environment Department, Climate Change Team, Washington, DC: World Bank (<http://siteresources.worldbank.org/INTCC/812001-1110807496989/20480590/WBGEFEnergyEfficiencyHandbook2004.pdf>).
- (2008): “Financing Energy Efficiency – Lessons from Brazil, China, India and Beyond”, Washington, DC: World Bank (http://www.esmap.org/sites/esmap.org/files/financing_Energy_Efficiency.pdf).
- (2009): “Investing in a More Sustainable Indonesia: Country Environmental Analysis 2009”, Report No. 50762, Jakarta: World Bank.
- (2010a): *Enterprise Surveys: Indonesia Country Profile 2009*. Washington, DC: World Bank and IFC.
- (2010b): *Green Infrastructure Finance – Leading Initiatives and Research*, Washington, DC: World Bank (<http://issuu.com/world.bank.publications/docs/9780821394885>).
- (2011): “Climate Risk and Adaptation Country Profile: Vulnerability, Risk Reduction, and Adaptation to Climate Change Indonesia”, Washington, DC: World Bank (http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdr_climate_change_country_profile_for_IDN.pdf).

- (2012a): *Green Infrastructure Finance – Framework Report*, Washington, DC: World Bank (<https://openknowledge.worldbank.org/handle/10986/9367>).
- (2012b): *Indonesia Economic Quarterly: Policies in Focus*, Washington, DC: World Bank (<http://www.worldbank.org/en/news/feature/2012/12/18/indonesia-economic-quarterly-policies-in-focus>).
- (2012c): “Thailand Energy Efficiency Revolving Fund” (<http://documents.worldbank.org/curated/en/2013/01/17457628/thailand-energy-efficiency-revolving-fund-case-study>).
- (2012d): *Inclusive Green Growth: The Pathway to Sustainable Development*, Washington, DC: World Bank.
- (2013): “Working for a World Free of Poverty. Countries. Indonesia. Country at a Glance”, Washington, DC: World Bank (<http://www.worldbank.org/en/country/indonesia>).
- Yusuf, A.A. (2010): “Climate Change Issues and Mitigation Actions in Indonesia”, Paper presented at the Asia Climate Change Policy Forum 2010, Crawford School of Economics and Government, Canberra: Australian National University.
- Yusuf, A.A., A. Komarulzaman, W. Hermawan, D. Hartono and K.R. Sjahrir (2010): “Scenarios for Climate Change Mitigation from the Energy Sector in Indonesia: Role of Fiscal Instruments”, Working Paper No. 201005, Bandung: Department of Economics, Padjadjaran University (http://www.crawford.anu.edu.au/accpforum/pdf/ppp/11_Yusuf.pdf).
- Zadek, Simon and Chenghui Zhang (2014): “Greening China’s Financial System. An Initial Exploration”, Winnipeg: International Institute for Sustainable Development.
- Zou, N., D. Mark, D. Lavine and L. Price (2010): “Overview of Current Energy Efficiency Policies in China”, *Energy Policy* 38 (11).

Index

- access to finance, 5, 10, 11, 32, 33, 51, 52, 70, 71, 72, 73, 81–4, 89, 114, 115, 118, 142, 148, 150, 152, 160
- AMDAL, 35, 63, 87, 88, 103, 151
- Arrow-Lin theorem, 15
- Bangladesh, 19, 98–100
- bank survey and interviews, 57–70
- bottlenecks to green investment, 5, 12, 21, 56, 70, 71, 76, 79, 91, 94, 116, 121, 123, 151–3
- bottlenecks to green lending, 5, 12, 21, 56, 57, 58–70, 105, 113
- business as usual (BAU), 3, 28, 36, 40, 43, 64, 47, 72, 95, 97, 120, 125
- CAMELS rating, 100
- capacity building, 17, 18, 19, 63, 68, 69, 91, 93, 94, 100, 101, 102, 104, 105–7, 122, 123, 138, 155, 156
- China, 43, 98, 99, 107, 121, 153–8
- Clean Development Mechanism (CDM), 29, 103, 124, 130
- climate change risk, 64, 65, 96, 97, 98, 99, 100, 121, 122, 138
- company survey and interviews, 70–92
- credit guarantees, 17, 18, 19, 21, 70, 94, 101, 102, 113–15, 119, 122, 124, 132, 152
- credit portfolio, 18, 60, 62, 65, 92, 140, 141
- defining green finance, 61–2, 102–5
- emission reduction potential, 36–40, 40–2, 73
- energy audit, 19, 31, 32, 33, 35, 44, 46, 74, 89, 108, 109, 150, 161
- energy conservation, 30, 32–4, 39, 44, 46, 49, 72, 98, 107, 111, 112, 153, 154
- Energy Service Companies (ESCOs), 107–9
- energy subsidies, 13, 16, 26, 33, 37, 40, 84–7, 91, 92, 95, 96, 119, 122, 146, 152
- environmental risk assessment, 63, 64, 66, 99, 105, 119, 121, 122, 138, 140
- Global Climate Partnership Fund, 125–6
- Global Environment Facility, 126
- government failures, 4, 7, 12–14, 21, 56
- Green Climate Fund, 126–7
- Green Credit Guidelines (China), 68, 98, 153–8
- Greenhouse gas emission mitigation, 16, 25, 27, 28, 29, 36ff., 40, 41, 48, 49, 104, 124, 125, 126, 127, 129, 130
- Indonesian financial system (overview), 50–5
- Indonesian Sustainable Palm Oil (ISPO), 100
- Indonesia's Climate Change Sectoral Roadmap (ICCSR), 39, 40, 43, 44, 47, 71
- Indonesia's emission profile, 22–5
- Intergovernmental Panel on Climate Change (IPCC), 29, 161
- investment needs, 40–9
- JAMKRINDO, 113

- KUR, 70, 113–15
- lack of information, 8–11, 52, 78–9, 80, 89, 91, 93, 105, 107, 118, 121, 150
- leasing, 20, 89–90, 106, 118, 150, 152, 153
- Lebanon, 98–9
- managing portfolio risk, 105–6
- market barriers, 9, 10, 15
- market failures, 7–12, 15, 16, 17, 21, 96
- micro, small and medium enterprises (MSMEs), 113, 14, 139
- National Action Plan for Greenhouse Gas Reduction (Ran-GRK), 29–31, 32, 34, 40, 49, 103, 161
- National Action Plan to Combat Climate Change, 25
- National Council on Climate Change, 28
- Nusantara Carbon Scheme (NCS), 103, 104, 139, 161
- planetary boundaries, 1
- PLN, 37–8, 40, 117
- portfolio diversification, 64, 65, 66, 138
- Program for Pollution Control, Evaluation, and Rating (PROPER), 35, 36, 64, 87, 140, 141, 151, 152
- Reducing Emissions from Deforestation and Degradation (REDD), 28, 127, 128, 129, 132, 133
- risk categorisation, 105–6
- risk perception, 57, 58, 63, 66
- Roundtable on Sustainable Palm Oil (RSPO), 100
- small and medium enterprises (SMEs), 33, 52, 53, 72, 115, 125, 126, 131, 160, 161
- soft loan, 69, 94, 96, 109–13, 119, 122, 123
- subsidised credit, 10, 11, 17, 18, 21, 70, 110, 112
- Thailand, 43, 111–12
- three-phased approach to fostering green finance, 96–102
- UKL-UPL, 35, 64, 87, 103, 151
- utility finance, 116–17
- vendor financing, 117–18
- Yudhoyono, President Susilo Bambang, 3, 25, 28, 29