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Integrating mitigation and adaptation in climate and land use policies in Indonesia: a policy document analysis

Monica Di Gregorio, Dodik Ridho Nurrochmat, Leandra Fatorelli, Emilia Pramova, Intan Maya Sari, Bruno Locatelli and Maria Brockhaus

November 2015

Centre for Climate Change Economics and Policy Working Paper No. 245

Sustainability Research Institute Paper No. 90

Center for International Forestry Research Working Paper No. 199

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List of Acronyms

Acronym	Name
BAPPENAS	Ministry of National Development Planning
BAU	Business as Usual
DNPI	National Council on Climate Change
ICCSR	Indonesia Climate Change Sectoral Roadmap
ICCSR-Agriculture	Road Map Strategy of the Agricultural Sector Addressing Climate Change
ICCTF	Indonesia Climate Change Trust Fund
INDCs	Intended Nationally Determined Contributions
LULUCF	Land use, land use change and forestry

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MAS	Strategy for Mainstreaming Adaptation into National Development Planning
MoE	Ministry of Environment
MoEF	Ministry of Environment and Forestry (MoEF)
MoF	Ministry of Forestry
MoU	Memorandum of Understanding
MP3EI	Masterplan on the Acceleration and Expansion of Indonesia Economic Development 2011-2025
MRV	Monitoring, Verification and Reporting
NAMAs	Nationally Appropriate Mitigation Actions
RAD-GRK	Provincial Action Plan for Greenhouse Gas Emission Reduction
RAN-API	National Action Plan on Climate Change Adaptation
RAN-GRK	National Action Plan for Greenhouse Gas Emission Reduction
RAN-PI	National Action Plan Addressing Climate Change
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD+	Reducing emissions from deforestation and forest degradation, conservation, sustainable forest management, and enhancement of forest carbon stocks
RPJMN 2010 -2014	National Medium Term Development Plan 2010-2014
RPJPN 2005-2025	National Long Term Development Plan (2005-2025) (RPJPN)
UKP4	President's Delivery Unit for Development Monitoring and Oversight
UNFCCC	United Nations Framework Convention on Climate Change

Abstract

Most of the climate policy integration literature focuses on mainstreaming mitigation *OR* adaptation into sectoral policies. Such approaches, however, tend to ignore possible interactions between climate change adaptation and mitigation, which are particularly important in the land use sector. This paper investigates climate policy integration and coherence in the forest and agricultural sectors in Indonesia. It assesses the extent to which climate change policies display internal 'climate change policy coherence' between climate change mitigation and adaptation objectives, and 'external policy coherence' between climate change and non-climate change objectives of land use policies.

The results indicate a shift since 2014 from a predominantly vertical to a more fragmented form of horizontal policy integration. Insufficient political action, resources and knowledge on vulnerability and adaptation options in forestry and agriculture and limited attention to reconcile mitigation and development objectives in land use sector are the main obstacles to internal and external policy integration. A present, for the most part climate change efforts still need to translate into revised sectoral policies. In a fragmented and predominantly horizontal policy architecture the willingness of sectoral ministries to recognize the importance of climate change objectives and of synergies between mitigation and adaptation will be crucial to moved toward a more effective climate policy integration.

Keywords: Climate change; Mitigation; Adaptation; Policy integration; Policy coherence; Indonesia, Forest; Agriculture; REDD+

Submission Date 03-08-2015; Publication Date 23-11-2015

About the Authors

Monica Di Gregorio is a Lecturer in Environmental Politics and Governance at the Sustainability Research Institute at the University of Leeds, UK and an Associate of the ESRC funded Centre for Climate Change Economics and Policy (CCCEP) and of the Center for International Forestry Research. Her main research interests relate to environmental politics, policy and natural resource governance. Her recent research focuses on climate change policies in the land use sector.

Dr. Dodik Ridho Nurrochmat is currently Director of Strategic Studies and Agriculture Policy and an Associate Professor on Forest Policy & Economics at Bogor Agricultural University (IPB). He has a PhD in forest policy and nature conservation from the Georg-August University of Goettingen, Germany. He has published numerous articles, papers and books on the subjects of forestry, environmental policy and socio-economics. He is member of the International Council of IUFRO (the International Union of Forest Research Organizations) and serves on the editorial board of the Journal of Forest Policy and Economics (Elsevier). Dr. Nurrochmat is actively involved in the policy dialogues and served as an invited expert in several processes of policy making at regional (ASEAN), national, and local levels.

Intan Maya Sari was a Policy Analysis Research Assistant at the Centre for international Forestry Research at the time when this research was undertaken and is a consultant working for the Rainforest Alliance. Her research interests and work centers on policy analysis, community forestry, and household economy approach for social development and sustainable agriculture. She has conducted research in Sumatra, Kalimantan and Sulawesi. Intan has a Masters in Peace and Conflict, and Environment and Development from the Centre for Development and the Environment at the University of Oslo.

Leandra Fatorelli is a postdoctoral researcher at the Sustainability Research Institute at the University of Leeds, UK and an Associate of the ESRC funded Centre for Climate Change Economics and Policy (CCCEP). Leandra holds a PhD in Sustainable Development on smallholders perceptions about environmental change in the Brazilian Amazon. Her main interests include research on environmental change, climate change mitigation and adaptation, natural resource management

and governance. She is currently involved in research on synergies between mitigation and adaptation policies and REDD+.

Emilia Pramova is a researcher with the Center for International Forestry Research. Her research focuses on the synergies between climate change adaptation and mitigation, and the policies and networks related to ecosystem services. She has conducted research in the Asia Pacific Region and in South America. Emilia has a Masters degree in Sustainable Resource Management and a background in psychology and communications.

Bruno Locatelli is a scientist with CIRAD (French Agricultural Research Centre for International Development), currently seconded to CIFOR (Center for International Forestry Research). He holds a PhD on Environmental Sciences, Economics, Geography. His main research interests are ecosystem services and adaptation to climate change.

Maria Brockhaus is a Senior Scientist at the Center for International Forestry Research. Her background is in agricultural economics and forest policy. In her research she focuses mainly on policy, institutional change and social network analysis. Since 2009 she has been leading the research component on REDD+ policies in CIFOR's Global Comparative Study (GCS) on REDD+.

The research described in this working paper is published jointly with the **Center for International Forestry Research** (CIFOR).

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1. Introduction

The hosting of the COP13 in Bali was a catalyst for climate change policy action in Indonesia. The realization that Indonesia's land use sector could contribute to mitigation actions globally and that domestic and international support for climate change mitigation could at the same time reduce deforestation and contribute to improve management of land and natural resources domestically led Indonesia to commit to mitigation targets (RoI 2007, MoE 2010, Sahide *et al.* 2015). At the same time, the need to take steps to address the impacts of climate change has also been growing. Indonesia is an archipelago prone to natural hazards and at an increased threat from climate change impacts such as sea level rises and extreme weather events (Boer and Perdinan 2008). El-Niño events in 2003 and 2006 led to droughts that reduced the ability of households to meet their food requirements (Boer *et al.* 2006). Climate change mitigation is seen as a way to contribute to a global emission reduction efforts, but more importantly as a way to reduce the severity of future climate change impacts and therefore help to address the environmental crisis in Indonesia (RoI 2007).

Major steps have been taken since Bali to develop a climate change policy framework aimed at including climate change objectives in land use policies and practices. This process is variously labelled as climate policy integration or climate mainstreaming (Kok and de Coninck 2007, Swart and Raes 2007, Adelle and Russel 2013, Brouwer *et al.* 2013). The climate policy integration literature has primarily focused on how to integrate mitigation *OR* adaptation into sectoral policies. This paper focuses on how to integrate jointly mitigation *AND* adaptation objectives within climate change as well as in land use policies (Klein *et al.* 2005, Tol 2005). In so doing, it expands the scope of climate policy integration by considering internal synergies and trade-offs.

While the need to address climate change is recognized, less evidence is available worldwide on the need to devise policies able to effectively manage the interactions between the two climate change objectives of climate change mitigation and adaptation (Locatelli *et al.* 2015). On the one hand, there are a number of justifications to separate efforts to pursue them. Often mitigation and adaptation operate at different spatial and temporal scales and involve different policy actors and priority sectors (Klein *et al.* 2005, Tol 2005). For example, mitigation benefits

global climatic conditions in the long term, while adaptation provides both short and long term benefits at the local level (Swart and Raes 2007, Locatelli *et al.* 2011).

However, interactions between climate change adaptation and mitigation are particularly important in the land use sector. Adaptation actions can have positive, negative or neutral effects on mitigation and vice-versa (Locatelli *et al.* 2015). For example, adaptation strategies, such as water saving and soil conservation can maintain and sequester carbon (Maraseni *et al.* 2012). Yet, increasing nitrogen fertilization or energy-intensive irrigation can increase carbon emissions (Moser 2012). Similarly, carbon payments can contribute to local adaptation through diversification of livelihoods and improved economic resilience to climate shocks (Campbell 2009). Yet, other mitigation measures, such as the development of fast growing tree monoculture aimed at maximizing carbon sequestration may reduce options for ecological adaptation (Ravindranath 2007). This means that at times it can be advantageous to integrate the two climate change objectives (Barker *et al.* 2007, Verchot *et al.* 2007, Locatelli *et al.* 2011). Taking positive and negative interactions into account when devising climate change policies in the land use sector can lead to more effective outcomes and avoid incoherence in policy design (Locatelli *et al.* 2011, Duguma *et al.* 2014).

2. Climate Policy Integration and Policy Coherence

In practice, climate change mitigation and adaptation policy objectives in the land use sector are often pursued separately and decision-making processes are rarely integrated (Duguma *et al.* 2014). Similarly, most of the studies on climate policy integration have focused on mainstreaming *either* mitigation *or* adaptation into sectoral policies, but do not consider explicitly possible positive or negative interactions between mitigation and adaptation (Kok and de Coninck 2007, Mickwitz *et al.* 2009, Adelle and Russel 2013). Only a few studies have specifically looked at the integration *between* mitigation *and* adaptation policy objectives (Klein *et al.* 2005, Swart and Raes 2007, Thuy *et al.* 2017).

Climate Policy Integration (CPI) is a recent concept, which developed only in the last decade (Swart *et al.* 2003, Nilsson and Nilsson 2005, Kok *et al.* 2008, Adelle and Russel 2013). It largely builds on the Environmental Policy Integration (EPI) literature (Lafferty and Hovden 2003, Jordan and Lenschow 2010, Adelle and Russel 2013),

but has some distinctive features. EPI is sometimes understood in strongly normative terms with environmental objectives having priority over other policy objectives (Lafferty and Hovden 2003). Instead, the CPI literature sees climate policy as a complementary or a 'no regret' approach, where climate change policies needs to deliver also development goals (Kok *et al.* 2008). While climate policy is quite well developed in a number of countries, actual mainstreaming of climate objectives into sectoral policies is much less advanced, as existing policy frameworks often work against sectoral integration (Urwin and Jordan 2008). For the most part mainstreaming into sectoral policies is conceptualized and has occurred separately for mitigation and for adaptation, and multi-sectoral interactions are often ignored (Nilsson and Nilsson 2005, Urwin and Jordan 2008, Van Bommel and Kuindersma 2008, Nilsson and Persson 2012, Kivimaa and Virkamäki 2014).

Drawing on EPI, Climate Policy Integration is variously understood as a purposeful process of integration of organizational structures or policy decisions (Sørensen 2003), as a policy learning and reframing process (Nilsson and Eckerberg 2007), or as the alignment of policy goals (Lenschow 2002).

The terms 'policy integration', 'policy coherence' and 'mainstreaming' have not always been used in consistent ways in the environmental and climate policy literature and there are slightly different interpretations of these overlapping meanings (Russel and Jordan 2010, Nunan *et al.* 2012, Adelle and Russel 2013, den Hertog and Stroß 2013). In this paper, we follow Nilsson et al.'s (2012) distinction between policy integration and policy coherence.

According to their conceptual framework, policy integration refers to the integration of governance arrangements and policy making processes. In our case, we focus on the climate change policy architecture at the national level in Indonesia, which includes the policy actors responsible for the development and implementation of climate change mitigation and adaptation policies, their mandates and the governance arrangements that facilitate climate change policy coordination among key policy actors in the land use sector. To analyse policy integration we investigate the administrative dimension, which can be distinguished between vertical and horizontal types. Horizontal policy integration then refers to interactions across different policy domains at one level of governance or administrative jurisdiction. Dominance of horizontal integration often sees the ministry of the environment having a lead role and mandate to support cross-sectoral coordination. Vertical

policy integration has been used to refer either to interactions within one administrative sectoral domain or across levels of governance (global, national, local) (Lafferty and Hovden 2003, Nunan *et al.* 2012). Lafferty's view of vertical policy integration would see the lead taken at government level with a strong supervisory and monitoring role over ministries, while each sectoral ministry is responsible for mainstreaming climate change objectives within its sectoral policies. The second definition of vertical policy integration is closer to the understanding of 'vertical interplay' referred to by Young (2002), and focuses on interactions across levels of governance.

Policy coherence refers to policy outputs and outcomes, or the consistency of multiple policy objectives and associated implementation arrangements. Den Hertog and Stroβ define it as the 'synergic and systematic support towards the achievement of common objectives within and across individual policies' (den Hertog and Stroß 2013: 4 cited in Nilsson 2012). Following Nilsson et al.'s (2012) we analyse policy coherence with reference to policy outputs, assessing the extent to which policy objectives are complementary and mutually supportive. To study policy coherence we assess the interactions within as well as across policy domains. In relation to policy coherence we are interested in investigating interactions between the two climate change policy aims of mitigation and adaptation, as well as between these and non-climate policy objectives of land use related policies. We label the former as internal policy coherence, which generally refers to interactions within a single policy domain - and the latter as external coherence referring to interactions across different policy domains (May *et al.* 2006, Nilsson *et al.* 2012).

We suggest that climate change policy coherence requires to formulate and implement policies, so that they achieve:

a) *Internal climate change policy coherence* defined as the reduction of negative interactions (trade-offs) and the pursuit of positive interactions supporting mutually beneficial practices (synergies) between climate change mitigation *AND* adaptation;

and

b) *External climate change policy coherence* defined as the reduction of negative interactions (trade-offs) and the pursuit of positive interactions supporting

mutually beneficial practices (synergies) between climate change aims (mitigation *OR* adaptation) *AND* non-climate policy objectives.

All of these are analytical distinctions, useful to investigate the extent to which policies take into account multiple objectives, but in practice these processes are intertwined (Nunan *et al.* 2012). Well integrated governance arrangements and policy processes will facilitate policy coherence of outputs, which will contribute to better integrated outcomes (Nilsson *et al.* 2012).

We do not suggest that any one of the policy objectives - reducing carbon emissions, addressing climate change adaptation or pursuing non-climate objectives - should take precedent over the others, or in other words, that one objective should have 'principled priority' (Lafferty and Hovden 2003). This has sometimes been suggested in the environmental policy integration literature, the argument being that if environmental objectives are not prioritized, environmental protection aims are unlikely to be achieved (Lafferty and Hovden 2003). The climate policy integration literature takes a 'weaker' approach to policy integration (Adelle and Russel 2013). One of the reasons is that in practice, development objectives tend to take precedent over climate change objectives (Kok *et al.* 2008). This means, however, that when trade-offs arise among multiple objectives, policy actors do not just try to minimize negative interactions among multiple goals, but have also to decide how to balance remaining conflicting aims. Consequently, internal climate policy coherence of mitigation and adaptation does not necessarily imply that joint outcomes are always to be favoured, as prioritizing only win–win measures could leads to neglecting other measures that can effectively contribute to either adaptation or mitigation separately (Moser 2012). Whether a balance is achieved between multiple objectives remains an empirical question.

Very limited work has been undertaken so far on the actual processes and instruments used – or to be used – to achieve climate policy integration (Van Bommel and Kuindersma 2008, Kivimaa and Mickwitz 2009, Mickwitz *et al.* 2009, Nilsson *et al.* 2012, Adelle and Russel 2013, Kalaba *et al.* 2014, Kivimaa and Virkamäki 2014). Even fewer studies have investigated how mitigation and adaptation policy processes and objectives interact. This paper contributes to the CPI literature in two ways. First, it reframes the concept of *internal* climate policy coherence as referring to the integration of the two climate change objectives of mitigation and adaptation, drawing attention to the importance of these interactions

in the land use sector. Second, it provides the first in-depth empirical analysis of Indonesia's CPI processes, which reveals weaknesses in the vertical structure of the climate policy architecture, but also the recognition of the importance of integrated approaches despite the imbalances in the pursuits of the two climate change objectives.

In the next section we illustrate the methods used to analyse policy integration and policy coherence. This is followed by the presentation of the results of the analysis of the policy architecture and of the content of the climate change, and key forest, agricultural and land use policies. The findings illustrate the extent to which climate change and sectoral policies take into account the interactions between climate change mitigation, adaptation and non-climate objectives. The discussion draws implications and provides some policy recommendations for improved climate change policy integration and policy coherence.

3. Methods

The research design includes the analysis of the national climate change policy architecture and the analysis of climate change and land use related policy documents[1]. The policy architecture analysis identified the main institutional actors involved in the development of climate change policies, their mandates and the processes that led to the establishment of climate change policies, as well as the evolution over time of the main institutions.

The selection of documents for the policy analysis focused on national level laws, regulations, strategies, plans and major programmes from national government institutions with regulatory mandates, and cross-sectoral working groups or semi-independent bodies with a mandate to devise strategies or plans in the following sectors: climate change, forestry, agriculture, environment and biodiversity and development policies as they relate to agriculture and forests. In total we coded policy documents related to 25 policies (see annex 1 for a full list of policy documents).

[1] The same theoretical approach, research design and analysis has been undertaken in Brazil and Peru. The working papers therefore share substantial aspects of the theoretical and methods sections (Di Gregorio *et al.* 2015, Pramova *et al.* 2015).

We coded policy documents using a directed coding approach, by identifying in advance of the coding an initial list of categories to be coded (Weber 1990, Hsieh and Shannon 2005). We identified a number of concepts as main categories based on a literature review on synergies between mitigation and adaptation (Locatelli *et al.* 2015). All text passages that discussed any of the predefined categories were coded accordingly and any further text that was relevant to synergies and did not fall under these initial categories was coded under a new category. We coded the documents using NVivo software (QSR International Pty Ltd 2012).

Relevant categories used in this particular analysis include different types of interactions between adaptation, mitigation and non-climate domains, types of co-benefits, actions facilitating synergies, the sectors or policy domains involved (agriculture, forestry, energy, environment and biodiversity, disaster management, gender, governance, health, infrastructure, livelihoods, sustainable development, tourism, water). We also coded passages that referred more generally to ecosystem services, linkages between sustainable development and climate change and reference to mainstreaming climate change into development.

The central category of 'types of interactions' identified all text passages that mentioned respectively positive and negative interactions between mitigation and adaptation and between these and non-climate change policy domains. Within positive interactions we distinguish between 'co-benefits' and 'integration'. We define co-benefits as 'positive effects that a policy or measure aimed at one objective might have on other objectives' (Allwood *et al.* 2014, p.1257). And we understand integration of adaptation and mitigation as a policy or measure pursuing both objectives jointly in a way that aims at achieving mutual benefits (or synergies) (Murdiyarso *et al.* 2005).

We classified 7 different types of positive interactions: six are categories expressing different co-benefits, plus one that refers to an integrated approach. A residual category refers to instances where both mitigation and adaptation are pursued, but without any explicit mention of interactions.

These categories are:

Positive interactions:

a) Adaptation actions or aims that result in mitigation co-benefits
b) Adaptation actions or aims that result in non-climate co-benefits

c) Mitigation actions or aims that result in adaptation co-benefits
d) Mitigation actions or aims that result in non-climate co-benefits
e) Non-climate actions or aims that result in adaptation co-benefits
f) Non-climate actions or aims that result in mitigation co-benefits
g) Integrated actions considering both adaptation and mitigation aimed at enhancing mutual benefits

Residual category:

h) Actions and aims pursuing both adaptation and mitigation, without specific reference to interactions or mutual benefits.

We classified four types of negative interactions (trade-offs), which we define as negative effects that a policy or measure aimed at one objective might have on other objectives:

Negative interactions:

a) Adaptation actions or aims that result in negative impacts on mitigation
b) Adaptation actions or aims that result in negative impacts on non-climate domains
c) Mitigation actions or aims that result in negative impacts on adaptation
d) Mitigation actions or aims that result in negative impacts on non-climate domains

See Annex 2 for further specification of these categories.

When coding the type of interaction, we coded according to what was explicitly mentioned. For example, if an adaptation strategy mentioned reforestation, the mitigation co-benefit was only coded if it was described in terms of contribution to mitigation, carbon sequestration, reduction of greenhouse gases (GHG) and other related concepts. Likewise, adaptation co-benefits were coded only when there was mention of e.g. resilience, reduction of vulnerability, decreased drought risk, protection from flood, etc. Integrated actions or aims refer to instances where it was clear that there was a joint mitigation and adaptation objective. We coded the passages referring to linkages between climate change and sustainable development, and references to ecosystem services independently from there being an explicit mention of climate change. We use the resulting evidence to draw some implications about the extent to which policies are attentive (or not) to possible interactions between adaptation, mitigation and non-climate objectives and the

extent to which the policy architecture and policy priorities take into account integrated approaches.

4. Climate Change Policy Architecture related to Forests and Agriculture in Indonesia

This section investigates two aspects of the climate change policy architecture: 1) The evolution of the organizational structures of climate change policy framework encompassing lead institutions, their mandate and linkages, 2) The main policies, policy objectives and their linkages.

4.1 Governance Arrangements of the National Climate Change Policy and Main Land Use Sector Mitigation and Adaptation Strategies

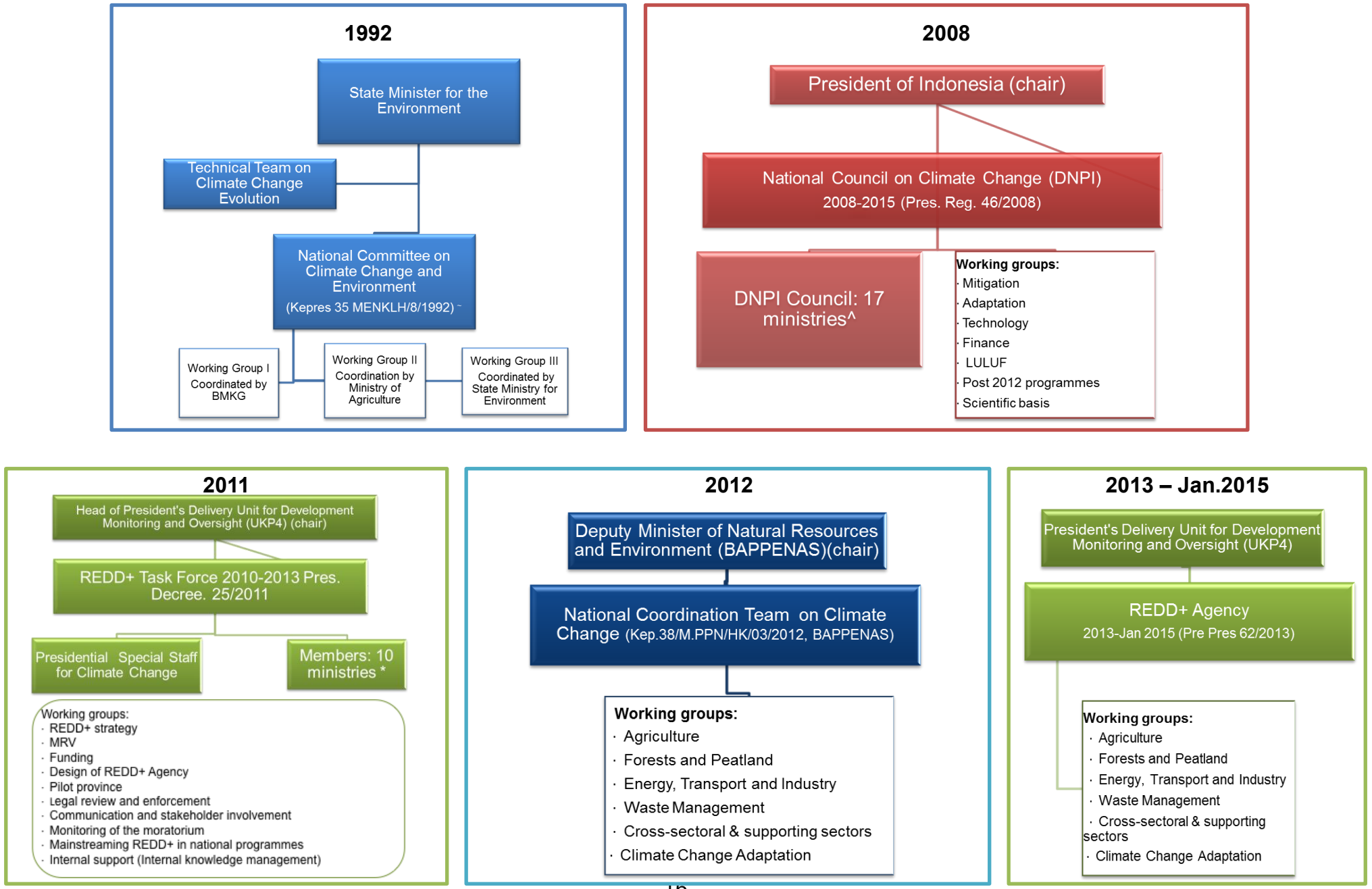
Indonesia started to engage with climate change issues in the 1990s. The first climate change committee was created in 1992 under the State Ministry for the Environment and led the development of national policies and of the preparation of the communications to the United Nations Framework Convention on Climate Change (UNFCCC) (Figure 1). An acceleration of national climate policy action occurred with hosting of the 13th UNFCCC Conference of Parties meeting in Bali. The preparations for the Bali meeting were accompanied by the development of the National Action Plan of Climate Change (RAN-PI) released in 2007 and coordinated by the Ministry of Environment under the Deputy Minister for Nature Conservation Enhancement and Environmental Degradation Control (Purnomo *et al.* 2013) (see Figure 2 for climate change policy developments).

One key development after Bali was the creation of the independent multi-sectoral National Council on Climate Change (DNPI) to contribute to the one of main aims of the National Action Plan, namely the integration of mitigation and adaptation targets into sectoral and national development policies. The President of Indonesia established the DNPI Council in 2008 (Presidential Decree 46/2008), which was composed by 16 ministries plus the Head of the Indonesian Agency for Meteorological, Climatological and Geophysics and 7 working groups, respectively on climate change mitigation, adaptation, technology, finance, land use land use change and forestry (LULUCF), post 2012 programmes and on the science basis and climate data inventory. The working groups had multi-stakeholder representation

and included government officials, academics, NGOs, private sector and community representatives. The Council was chaired by the President of Indonesia with the Coordinating Minister of the Economy and the Coordinating Minister of Social Welfare as vice chairs (Figure 1).

The Council had both an outfacing international role interacting with global climate change institutions and a domestic advisory role to the President and coordination role across sectoral ministries. In particular, the aim of the Council was to improve integration of climate change mitigation and adaptation in the key strategic sectors of energy and land use across agriculture, forestry, public works, land and spatial planning (Purnomo *et al.* 2013). The working groups coordinated the formulation of national climate change policies through research, integration of science into policy development, mobilization of resources and policy information exchange (Purnomo *et al.* 2013).

Figure 1: Organization structure of the main multi-actor climate change bodies



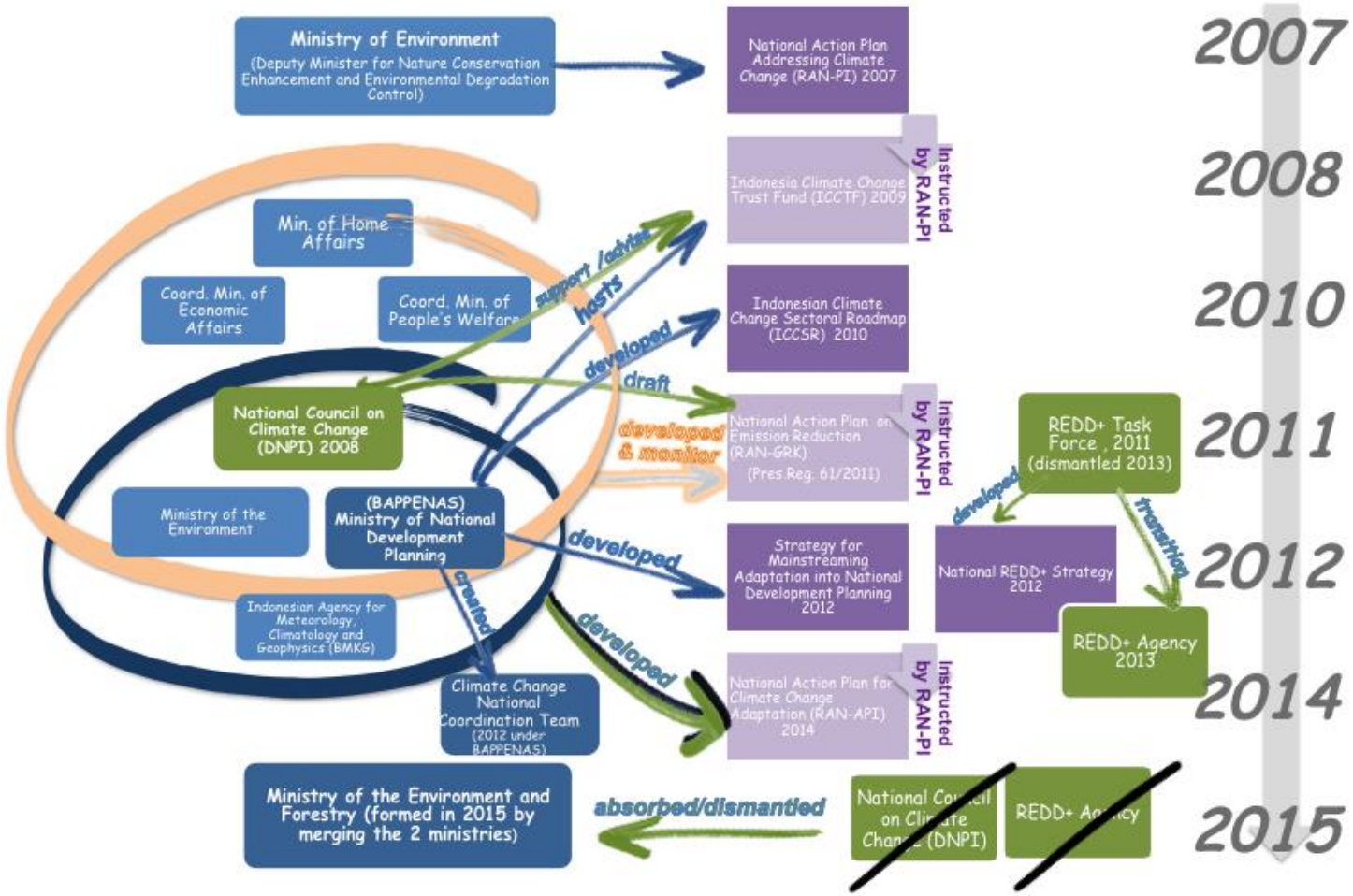
See notes next page

Notes on figure 1 above:

Members of **National Committee on Climate Change and Environment**: government agencies (Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), Ministry of Health, Minis of Trade and Industry, Ministry of Forestry, Ministry of Agriculture, National Aeronautical and Aerospace Institute), NGOs (WALHI) and academia/

The **DNPI** is chaired by the President of Indonesia, with the Coordinating Minister for People's Welfare and the Coordinating Minister for Economic Affairs as vice chairmen, and its members are: Ministry of State, Head of the Cabinet, State Ministry of Environment, Ministry of Finance, Ministry of Home Affairs, Ministry of Foreign Affairs, Ministry of Forestry, Ministry of Energy and Mineral Resources, Ministry of Agriculture, Ministry of Industry, Ministry of Public Works, Ministry of National Development Planning, Ministry of Marine Fisheries, Ministry of Trade, State Ministry of Research and Technology, Ministry of Transport, Ministry of Health , and the Head of the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG).

Figure 2: Evolution of the national climate change framework: Key policy actors and climate change policies related to land uses



Blue=Government agencies; Purple=climate change policies; Green=independent agencies reporting to the President of Indonesia

In 2009, the President of Indonesia announced that Indonesia would pledge to reduce emission by 26% from a business-as-usual baseline by 2020, and up to 41% with international support. In its Intended National Determined Contribution (INDC) draft In September 2015 Indonesia is maintaining its target by 2020 and increasing it to 29% by 2030 (GOI 2015). These targets correspond to actions listed in the Nationally Appropriate Mitigation Actions (NAMAs) to be funded domestically and with support on international donors (remaining 15%), through the national budget and international funding mechanisms. The RAN-PI included also the establishment of the Indonesian Climate Change Trust Fund (ICCTF) (PerPres 80/2011 2011). This was followed by the release of the Indonesian Climate Change Sectoral Roadmap (ICCSR 2010), which indicates the plans for mainstreaming climate change into development planning and precedes the development of sectoral plans. Sectoral adaptation plans to be developed cover the water, marine, agriculture, and health sectors, while sectoral mitigation plans focus on transport, forestry, industry, energy and waste. The the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) was released in 2011 (Kep.Pres 61/2011 2011) and operationalizes the mitigation pledge and includes the development of provincial level plans (RAD-GRK).

Despite progress on climate change policy development, the choice of having an independent Council at the lead of climate change policy as opposed one of the ministries — e.g. Ministry of the Environment at the time or the Ministry of National Development Planning (BAPPENAS)- has been a continuous challenge in Indonesia (Purnomo *et al.* 2013). Ministries felt sidelined, while still bearing the responsibility for sectoral level implementation and this impacted on the legitimacy and authority of the Council. In 2012 the government established the National Coordination Team on Climate Change chaired by the Deputy Minister of Natural Resources and Environment, under the Ministry of National Development Planning (BAPPENAS) (Kep.38/M.PPN/HK/03/2012 2012) (Figure 1) and in 2012 the ministry released the Strategy for Mainstreaming Adaptation into National Development Planning (referred to as MAS in the rest of paper, short-form for

‘Mainstreaming Adaptation Strategy’) and took the lead in the development of National Action Plan on Climate Change Adaptation (RAN-API), which was released in 2014 (BAPPENAS 2013).

One of the milestone of the Bali roadmap was the decision to develop a mechanism for Reducing Deforestation and Forest Degradation (REDD) and, with support from Norway (Government of Norway 2011), in 2011 Indonesia established an independent REDD+ (reducing emissions from deforestation and forest degradation, conservation, sustainable forest management, and enhancement of forest carbon stocks) Task Force (Kep.Pres 10/2010 2010, Kep.Pres 25/2011 2011). It brought together various ministries and the DNPI, it was chaired by the Head of the President's Delivery Unit for Development Monitoring and Oversight (UKP4) and was mandated to formulate the REDD+ National Strategy, which was released in 2012. In 2013, the Task Force was replaced by the short-lived REDD+ Agency, a cabinet-level ministry reporting directly to the President (PerPres 62/2013 2013) (Figure 1). This agency was responsible for governance and coordination of REDD+, overseeing the reduction rate of deforestation and degradation, ensuring funding and fair benefit distribution, following the Letter of Intent signed with Norway. REDD+ institutional arrangements included a REDD+ funding instruments, and REDD+ MRV (Monitoring, Verification and Reporting) Institution. Like the DNPI, the REDD+ Task Force and the REDD+ Agency reported directly to the President on Indonesia. And like DNPI, the Task Force and the Agency were undermined in their authority by a main rival, the Ministry of Forestry (MoF). Despite the lack of a leading mandate on climate change mitigation the MoF was able to assert itself as the lead agency in REDD+. In 2009 it established the Working Group on Climate Change (or “REDD Commission”) with the mandate to provide input on policies, activities, monitoring and evaluation of adaptation, mitigation and technology transfer technology, and facilitate stakeholders initiatives with regard to CDM and REDD+ to the Ministry of Forestry (SK.455/Menhut-II/2008 and SK. 13/Menhut-II/2009)(Scheyvens and Setyarso 2010).

At the end of 2014 the new President of Indonesia, Joko Widodo, brought major changes to the climate change policy architecture in Indonesia, in particular in relation to the land use sector. To streamline and reduce overlap of government agencies the President merged two key ministries of the environment and forestry. He also addressed the uneasy relationship between independent climate change agencies and ministries by dismantling the DNPI and the REDD+ Agency and incorporating some of its functions in the Ministry of Environment and Forestry (MoEF) under the Directorate General of Climate Change Oversight (Kep/Pres.16/2015) (Kemen *et al.* 2012, Widiaryanto 2015). The MoEF also established a Steering Committee on Climate Change that includes government and non-governmental actors. These changes transformed what was a vertical form of climate change policy architecture, where all major agencies reported directly to the President, to a more horizontal approach led by the MoEF and the Ministry of National Development Planning (BAPPENAS). This implies that these ministries should also adopt major coordination roles, but procedural rules for such coordination are less clear. The strong dependence of the former institutional architecture on the lead of the President of Indonesia, the dismantling of a strongly vertical policy architecture and the absence of a law on climate change, could weaken the climate change agenda in Indonesia, unless this is compensated by the emergence of a new strong institutional leadership with sufficient authority to coordinate and monitor sectoral climate change implementation. This is particularly true in relation to climate change mitigation targets that were championed by the former President, but have been questioned by sectoral ministries, who felt that they were way too ambitious and unrealistic. BAPPENAS is currently revising the RAN-GRK targets and policies within the process of preparation of the Intended Nationally Determined Contributions (INDCs) (Darajati 2015). These revisions are likely to have major implication for the land use sector. At present the draft of the INDCs maintains the commitment to mitigation actions and commits to reduce GHG emission by 29% pf the country's business as usual (BAU) scenario by 2030. Yet, the draft has been criticized because BAU scenarios

and no specific indication of how this target will be reached have been released (Fransen 2015, The Ecologist 2015, 21st September).

4.2 Mitigation and Adaptation Objectives in the National Climate Change Policy

The National Action Plan Addressing Climate Change (RAN-PI) has the objective to provide ‘guidance to various institutions in carrying out a coordinated and integrated effort to tackle climate change’ (RoI 2007, p.2). The justification for the plan is expressed as the need to respond to not just to climate change impacts, but to a broader environmental crisis related particularly to the land use, land use change and forestry (LULUCF) sector expressed an agrarian crisis, a water crisis, and an infrastructure crisis(RoI 2007).

Within the plan, both mitigation and adaptation aims are very general and are both subsumed under a broader national development agenda. The priority sectors for mitigation are energy, forestry, agriculture and infrastructure sectors and there is a strong emphasis on mainstreaming mitigation through the triple track strategy of a ‘pro-poor’, ‘pro-job’, and ‘pro-growth’ approach as well as adaptation into national development plans. The adaptation aim is to ‘achieve development that is resilient to climate change’ (RoI 2007, p. 29) and focus on the areas most vulnerable to climate change, which are identified as: water resources, agriculture, fisheries, coastal and marine, infrastructure and settlement, health and forestry. Thus, agriculture and forestry are priority areas for both mitigation and adaptation. The RAN-PI shortly mentions the need for policy integration across levels of government and across sectors, and indicates the willingness to cooperate as essential for the National Adaptation Plan (RoI 2007, p. 34).

The Climate Change Roadmap for Agriculture was released in 2011 by the Ministry of Agriculture (BPPP 2011). It includes both mitigation and adaptation targets and activities. To reach the mitigation target in agriculture the roadmap relies on the optimization of land, the application of crop and cultivation technologies - including ‘no burning’ -, the use of organic fertilizers and

biopesticides, plantation development in non-forested land, biogas development from livestock waste, peatland management for agricultural production, and agricultural development in abandoned and degraded lands.

4.3 Climate Change Mitigation in the Land Use Sector: The National REDD+ Strategy

The main land uses discussed in the National Action Plan on Greenhouse Gas Emission Reduction (RAN-GRK) are agriculture, forestry and peatlands. Forests and peatlands are the main target for emission reduction representing 87% of planned emission reductions. Agriculture has a minor role contributing just 1% (BAPPENAS 2011). The target in relation to forests and peatlands includes REDD+ activities, reduction and control of forest fire and illegal logging, maintenance of marsh reclamation and increased efficiency of agriculture in peatlands with lowest emissions. In agriculture, mitigation activities focus on introduction of low emission rice varieties, reduction in the use of fire for land clearing, efficiency of water irrigation and use of organic fertilizer. Water management activities are central in both forest and agricultural mitigation efforts. The RAN-GRK policy emphasizes how it is an integral part of the National Development Plan, and in fact frames mitigation targets as co-benefits of development activities. The main cross sectoral programmes mentioned are the development of NAMAs, a Low Carbon Development Strategy led by BAPPENAS, and the National REDD+ Strategy. Most notably there is a lot of uncertainty at present about mitigation targets, as the RAN-GRK is currently under revision by BAPPENAS (Darajati 2015, Jong 2015). This is likely to have major implications for the land use sector, forests and peatland. Although mitigation targets have been maintained it is suggested that more weight might be given in the short term to emission reductions in the energy sector. Any revisions are likely to have strong implications for the implementation of the National REDD+ Strategy (personal communication).

The main aim of the National REDD+ Strategy is to ‘achieve the vision of sustainable management of natural forests and peatlands through an effective governance systems’ (Indonesia REDD+ Task Force 2012, p.8). It includes

the preparation of the institutional system to implement REDD+, consolidate processes and approaches to conserve natural forests and biodiversity, as well as the expansion of investments in forest and peatland uses for forestry and agriculture and the provision of ecosystems services that include conservation and enhancement of carbon stock (Indonesia REDD+ Task Force 2012). It includes three strategic programmes on sustainable landscape management - which includes the forestry, the agricultural and the mining sectors -, the implementation of an economy based on sustainable natural resource management, and conservation and rehabilitation. The last objective is to work toward a shift in paradigm towards an inclusive, transparent forest conservation approach through stakeholder participation, awareness raising and financial incentives. The strategy includes the development of provincial action plans and the establishment of regional REDD+ agencies. Before being dissolved, the REDD+ Agency signed a number of Memorandum of Understanding (MoU) on REDD+ with provincial governments. At present the status of these MoUs remains unclear with the dismantling of the REDD+ Agency and the restructuring of the Ministry of Environment and Forestry. The REDD+ strategy is supported by the moratorium on new concessions for the conversion of primary forests and peat lands, adopted in 2011 and renewed for the second time in 2015, which applies to around 43 million hectares of forests, protecting an additional 13% of forests in Indonesia (Kemen *et al.* 2012).

Over the years a number of concerns have emerged with regard to REDD+ challenges, risk and opportunities in general and specifically in Indonesia, which relate to issues governance, effectiveness of policy tool and processes, environmental justice, political challenges and the difficulties in reconciling economic development and emission reduction targets in the land use sector (Nurrochmat 2009, Edwards and Laurance 2011, Indrarto *et al.* 2012, Mulyani and Jepson 2013, Agung *et al.* 2014, Luttrell *et al.* 2014, Resosudarmo *et al.* 2014, van Noordwijk *et al.* 2014, Butt *et al.* 2015). At the global level, some of these concerns led to the inclusion of safeguards in the UNFCCC text on REDD+. One of the safeguards refers to adaptation and indicates that REDD+

should ‘Be consistent with the adaptation needs of the country’ (UNFCCC 2011, p.26).

4.4 Climate Change Adaptation in the Land Use Sector

The first climate change policy in the land use sector that discussed in some detail explicitly climate change adaptation, was the Climate Change Roadmap for the Agricultural Sector (BPPP 2011). The main adaptation activities in the sector are the mapping of areas vulnerable to climate change (floods, droughts, land degradation), the preparation of guidelines and tools for integrated cropping, the development of information systems such as flood early warning systems, and on drought and pests, the improvement of irrigation and water conservation and the development and dissemination of adaptive technologies. Emphasis on mainstreaming adaptation applies to all climate change adaptation efforts in Indonesia, and the main focus resides in the agricultural sector.

In 2012 BAPPENAS released the Strategy for Mainstreaming Adaptation into National Development Planning (MAS) (BAPPENAS 2012). The document was aimed at developing an integrated and cross-sectoral plan related to various aspects of mainstreaming adaptation (planning, implementation, evaluation) and served as a background study for the Mid-Term Development Plan (2015-2019) and an anticipation of the broader RAN-API development (BAPPENAS 2012, p.4). It was to be followed by sectoral strategies on mainstreaming adaptation.

The lead on the RAN-API was taken by the Ministry of National Development Planning (BAPPENAS), with key roles assigned to the Ministry the People’s Welfare and the Minister of Home Affairs, while sectoral ministries remain responsible for implementation. Under the Climate Change Management Coordination Team established by BAPPENAS there are 6 working groups, including one of agriculture, one of forestry and peatland and one on climate change adaptation (Kep.38/M.PPN/HK/03/2012 2012) (Figure 1).

The RAN-API has the same aim as the 2012 MAS. It is meant to guide both sectoral and cross-sectoral climate change adaptation actions, direct the most

immediate priority for adaptation and improve coordination across sectors and government levels. The action plan is directed to: ‘(a) reduce the effects of climate change to a minimum, (b) increase the resilience and/or reduce the level of vulnerability of natural system, livelihood, programs and activities to the impacts of climate change’(BAPPENAS 2014, p.29).

Priority areas for adaptation are the health and disaster management sectors. The two objectives that are most relevant for the land use sector are food security (under the objective of economic resilience), which focuses on the agricultural sector and maintaining forest ecosystems and other ecosystems including biodiversity (under the objective of ecosystem resilience). The food security aim is to be achieved through the adjustment and development of farming systems that are resilient to climate impacts, including action to reduce climate risk, food diversification and climate proof irrigation infrastructure, the use of adaptive technologies, and the development and optimization of land use, maintenance of water and genetic resources, and improved climate information and communication systems. Ecosystem resilience focuses on securing and protecting water resources from extreme weather events, avoiding ecosystem and biodiversity loss, ensuring sustainability of water supply and conservation of ecosystems and biodiversity. These objectives include various forest management activities, forest and land rehabilitation, improved governance of conservation areas, and control of forest and land fires. The next section presents the results of policy coherence analysis based on the in depth coding of the main climate change and land use policies and discuss how these take into account the interactions between mitigation and adaptation.

4.5 Positive Interactions between Mitigation and Adaptation

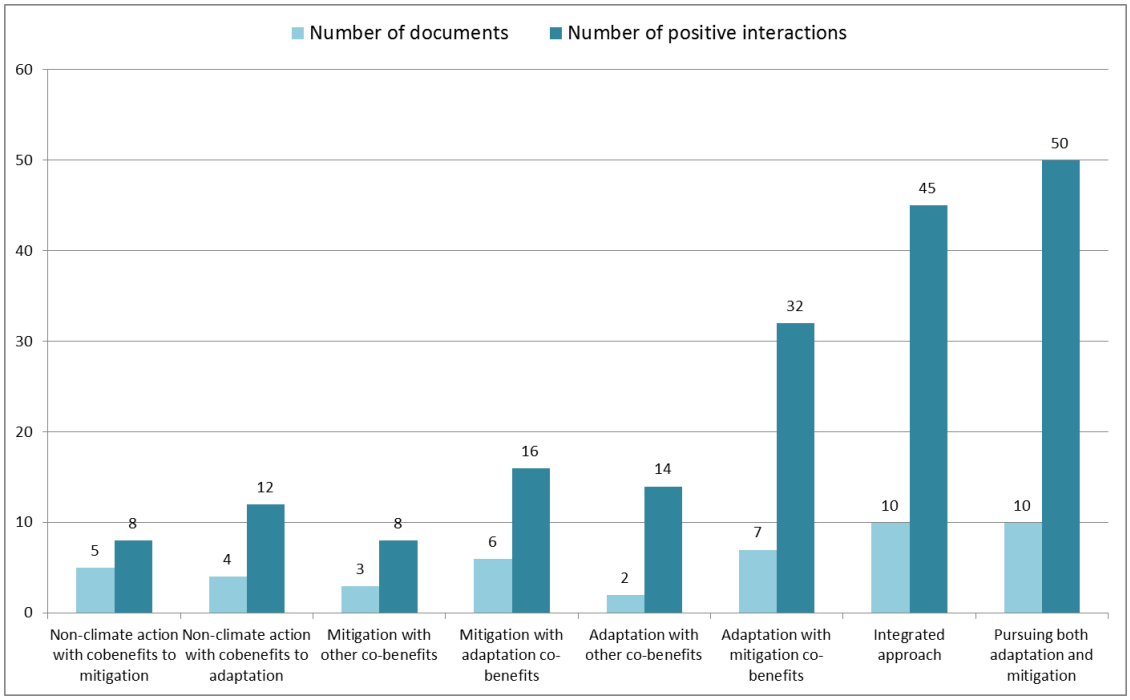
A. Overview on Interactions

More than two-thirds of the 25 policies analysed make reference to some form of positive interactions between climate change mitigation, adaptation and/or non-climate related policy objectives or actions. The majority of passages referring to both mitigation and adaptation indicate the need to pursue both

objectives, but without expressly discussing the way in which the two climate change approaches might interact (labelled as 'pursuing both adaptation and mitigation' in Figure 3). The second highest count of text passages on interactions refers to integrated approaches, where mutual benefits between mitigation and adaptation are recognized or expressly pursued. This indicates that some form of internal climate policy coherence is referred to in about half of the documents, making it quite prominent.

In terms of co-benefits, about one third of the documents refer to adaptation aims or actions that provide co-benefits for climate change mitigation, while co-benefits for adaptation deriving from mitigation actions are referred to much more sporadically. This is followed by references to linkages between climate change - adaptation or mitigation- and non-climate objectives. In particular, there is limited discussion of linkages between mitigation action in the land use sector and non-climate objectives (Figure 3).

Figure 3: Number of documents and text passages referring to different types of positive interactions

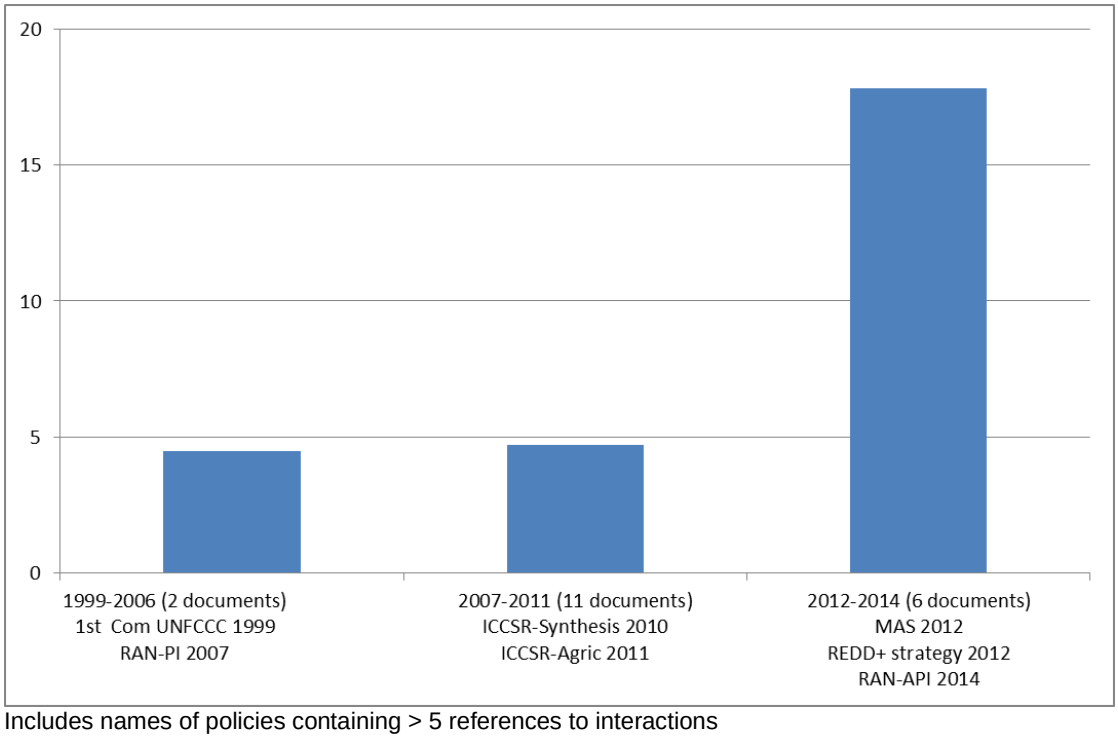


The focus on positive interactions between adaptation and mitigation in the land use sector is particularly evident in policy documents on adaptation,

foremost in the MAS, in the RAN-API, as well as in the RAN-PI. The RAN-API contains the majority of references to adaptation actions with co-benefits to mitigation. The overwhelming focus of adaptation policies on co-benefits to mitigation, is used as a way to underline the relevance of adaptation actions for the mitigation policy domain, a domain that is much better resourced in Indonesia through REDD+ funding and initiatives, than adaptation (see annex 2 for a definitions of types of interactions).

In terms of how trends change over time, there is an upward trend in the mentions of positive interactions – although not continuously increasing – with three peaks, which correspond with the release of National Policy Addressing Climate Change (RAN-PI) in 2007, the Strategic Plan to Mainstream Agriculture into Development released in 2012 and the RAN-API released in 2014 (Figure 4). Clearly, the development of the adaptation climate change agenda, as opposed to the mitigation agenda, has increasingly drawn attention to synergies between adaptation and mitigation in policy documents in Indonesia.

Figure 4: Average interactions per document over time



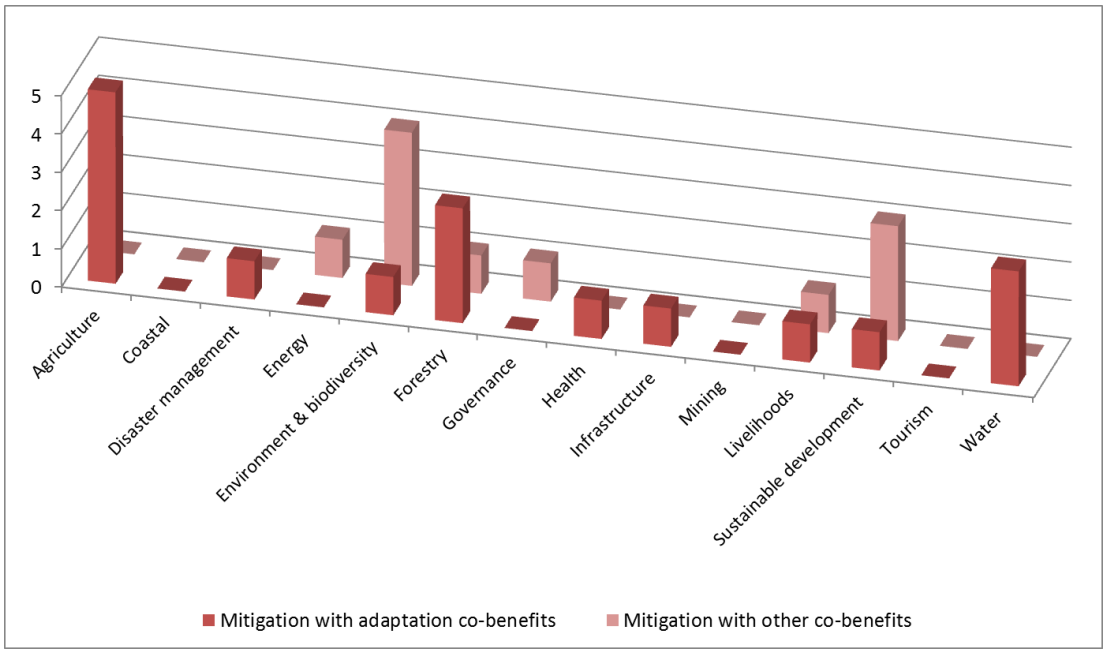
Includes names of policies containing > 5 references to interactions

B. Co-benefits of Mitigation

Co-benefits of mitigation to either adaptation or other non-climate objectives are mentioned 28 times in total in six of the policy documents. The majority of references to co-benefits mitigation to adaptation relate to the agricultural, forestry and the water sectors (Figure 5). The MAS includes six examples of mitigation actions that support also adaptation that include water use, agro-forestry, reforestation and soil carbon sequestration providing ecosystem services that reduce impacts such as floods. The REDD+ strategy (3 mentions) is less explicit and refers to co-benefits for ecosystem services and people's livelihoods from forest and peatland mitigation actions. In the agricultural sector organic fertilizers and biopesticide are indicated as contributing to both mitigation and adaptation. The most explicit, although quite general statement, is found in the RAN-PI, which indicates that forest mitigation efforts through conservation also contribute to adaptation to extreme climate events.

Mitigation co-benefits to other sectors relate in particular to benefits for ecosystems and biodiversity, and sustainable development objectives. These synergies are indicated as something to actively pursue, to ensure that mitigation actions also deliver, ecosystem services, biodiversity conservation and development needs. Most of these mentions (5) are found in the national REDD+ strategy, where the need to reconcile development objectives is indicated as a prerequisite for mitigation actions.

Figure 5: Co-benefits of mitigation by sector



C. Co-benefits of adaptation

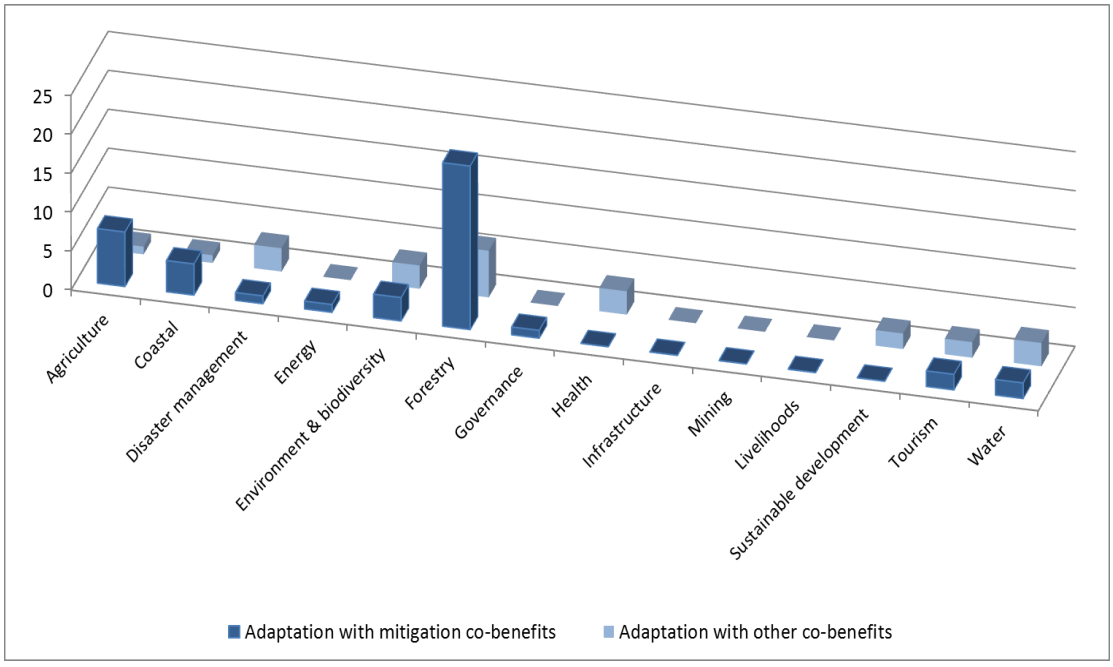
Overall there are many more references to co-benefits of adaptation to mitigation and to other sectors (46) compared to co-benefits from mitigation (24) discussed above. Co-benefits of adaptation are mainly focused on measures related to forestry and peatlands and to a lesser degree agriculture and one third of these mentions are contained in just one adaptation policy document, namely the RAN-API. The vast majority of mentions refer to adaptation measures linked to forest conservation, which have also carbon emission reduction benefits. For example the ICCSR synthesis states (BAPPENAS 2010a, p.86):

"Adaptation priority programs ...[are]…directed at accomplishing: forest resource conservation and preserving the potentials of biodiversity, research on e.g. germplasm, enhancing the potentials and value of natural biotic resources to maintain the role of forestry in national development and the revitalization of river catchment areas…. The implementation of these activities also supports the success of mitigation programs (i.e., addressing permanence)."

The RAN-API makes a very clear effort to pursue adaptation objectives within forestry and peatland, related to forest conservation or to the reversal of degradation. These are actions that in the REDD+ strategy are promoted as key mitigation strategies. Similar emphasis on adaptation-mitigation linkages is not found in mitigation policy documents. Most references in the agricultural sector refer to increases in the resilience of food production systems to climate change impacts that also have mitigation benefits. This is followed by references to adaptation measures in coastal areas, through integrated coastal management and mangrove planting.

A number of the above references to adaptation actions that have mitigation co-benefits are also indicated as benefiting non-climate related objectives (see the quote above). Consequently, the distribution across sectors of mentions of the two co-benefits from adaptation is quite similar, although overall references to non-climate objectives are fewer in numbers. Apart from forestry, non-climate objectives that can gain from adaptation actions are referred to in the health, disaster management and the water sectors (Figure 6). The RAN-API contains 65% percent of all mentions of co-benefits from adaptation.

Figure 6: Co-benefits of adaptation by sector



D. Integrated approaches

Around one third of the policy documents refer at least once to integrated approaches between mitigation and adaptation (44 mentions in total). The most mentions are in the MAS for (10), led by BAPPENAS, which is the only policy document that dedicates a whole section to synergies between climate change mitigation and adaptation. This document draws on literature on synergies and lists specific examples of integrated actions to pursue joint benefits and highlights potential trade-offs (BAPPENAS 2012, section 2.3, p.18).

Table 1: Policies with references to integrated approaches in descending order

No. of passages on integrated approaches	Policy
10	Strategy for Mainstreaming Adaptation into National Development Planning (2012)
9	National Action Plan Addressing Climate Change (RAN-PI) (2007)
9	National Action Plan for Climate Change Adaptation (RAN-API) (2014)
5	Road Map Strategy of the Agricultural Sector Addressing Climate Change (ICCSR-Agriculture) revised (2010)
3	Indonesia Climate Change Sectoral Roadmap (ICCSR) Synthesis Report (ICCSR) (2010)
3	Presidential Regulation No 61/2011 on The National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) (2011)
2	Indonesia Second National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC) (2010)
1	Indonesia First National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC) (1999)
1	REDD+ National Strategy (2012)
1	Strategic Plan of Ministry of Agriculture 2010-2014 (2011)

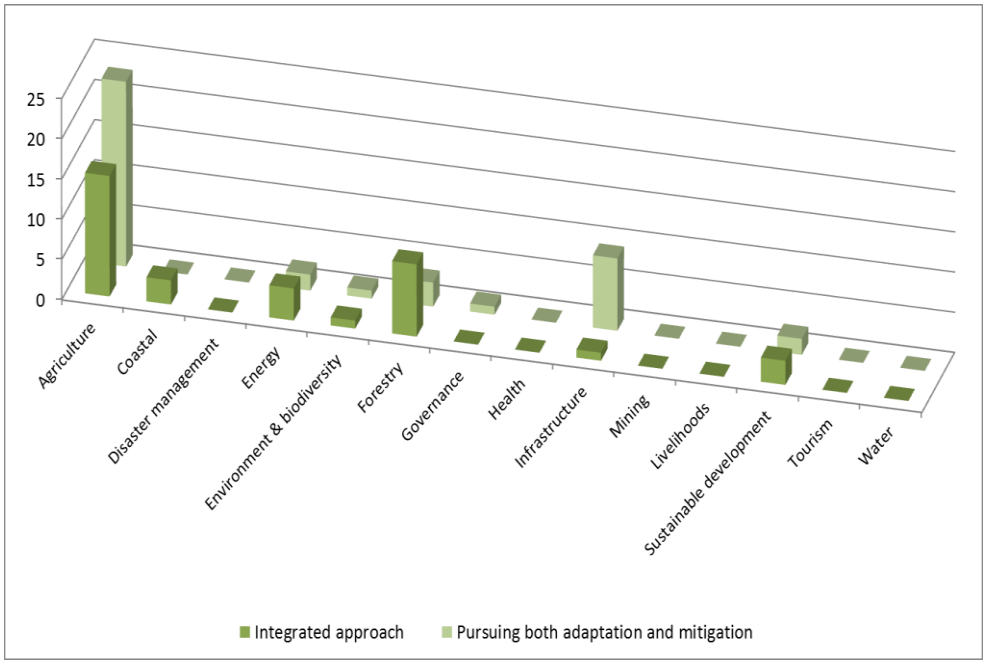
The vast majority of mentions of integrated approaches refer to the agricultural sector (15), followed by the forestry (9), energy (4), coastal (3) sectors and sustainable development (3) domain (Figure 7). Examples

related to food security, included the development of low emission and well adapted varieties, the increase of organic matter, fire management in agriculture accompanied by crop diversification, and livestock breeding programs that contribute to both mitigation and adaptation. The strategy in fact indicates that: “Mitigation activities need adaptation. The negative effects of climate change on ecosystems and people can potentially jeopardize the success of mitigation and adaptation activities.” (BAPPENAS 2012, p.24).

In the forestry sector, control of fires, forest rehabilitation and reclamation, including in mangrove forests, and securing land tenure are seen as a means to contribute to both mitigation and adaptation. Actions plans also underline the need for further knowledge on mitigation and adaptation. The majority of references to integrated approaches are included in adaptation policy documents.

Mentions of the importance of pursuing both mitigation and adaptation, without specific indication to assess linkages between the two, are more numerous than references to integrated approaches, but have a similar distribution across sectors, which the exception of forestry, where integrated approaches dominate, and infrastructure, where there is more reference to the importance of pursuing both.

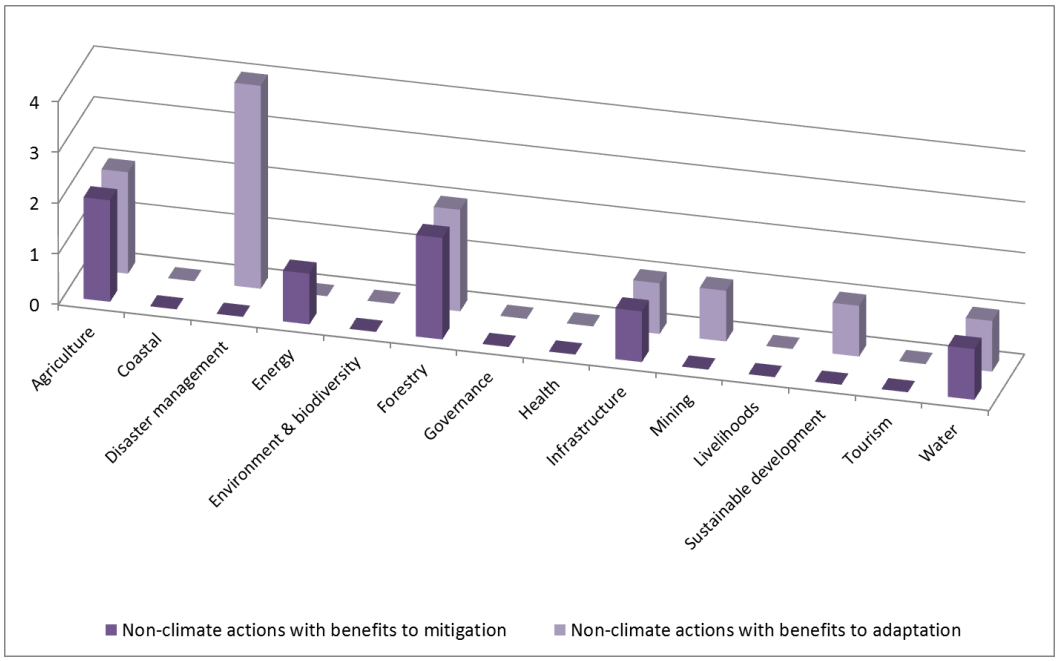
Figure 7: Integrated approaches and pursuing both adaptation and mitigation by sectors



E. Benefits of non-climate activities and plans to adaptation and/or mitigation

There are only a few explicit mentions of non-climate objectives and actions providing co-benefits for climate change adaptation (7) and a few more referring to mitigation (12), the majority of which are found in the RAN-PI, the mainstreaming adaptation into development policy, the forestry law and the disaster management strategy. Synergies between disaster management and climate change adaptation display the most mentions and are recognized as important in the disaster management strategy draft of 2014 (Figure 8). Yet, there is no detailed discussion or policy actors mentions, the co-benefits are primarily indicated as something to be focused on in the future. In the forestry sector, rehabilitation of forests is indicated as contributing to the reduction of the impacts of floods and erosion. A general mention in the RAN-PI of the need to harmonize mining, agriculture and regional development plans suggest that such a process will contribute to both conservation of ecosystems and prevention of climate related impacts, such as floods. Two passages referring to non-climate change actions that also support climate change mitigation objectives are mentioned in the RAN-PI. One suggests that the broader national development strategy framework, which aims to improve human wellbeing, productivity and sustainability, will also contribute to mitigation. The other refers to policies incentivizing local governments to increase forest cover, those addressing forest fires and the sustainable management of peatlands. Finally, one reference in the 1st Communication to the UNFCCC indicates measures to improve quality of forage for livestock, such as the use of legume and feed derived from crop residue, and improved irrigation systems for rice cultivation as contributing also to mitigation objectives. Disaster management actions are recognized as contributing to climate change adaptation.

Figure 8: Non-climate aims/actions with co-benefits to adaptation or to mitigation by sector



4.6 Negative Interactions between Mitigation and Adaptation

Trade-offs are mentioned in only four of the 25 document, with two-thirds of all mentions occurring in one document: the Strategy for Mainstreaming Adaptation in the National Development Plan (MAS) – the document that has a section dedicated to exploring the synergies between mitigation and adaptation.

The vast majority of negative interactions mentioned (28 out of 33) relate to mitigation actions having potential negative impacts on climate change adaptation or on non-climate objectives. In particular, both the MAS and the REDD+ strategy underline the importance of avoiding negative impacts of mitigation on development objectives. Mitigation actions that reduce access to resources to local communities, can affect food security and increase vulnerability of communities, or might impact negatively ecosystems (e.g. reforestation of high water demand species can decrease water availability for agriculture and reduce biodiversity) are mentioned. The biggest concern with possible negative impacts of mitigation on adaptation are listed under forest related mitigation actions, but are not mentioned in the REDD+ strategy, which instead refers to possible negative impacts only in the safeguards

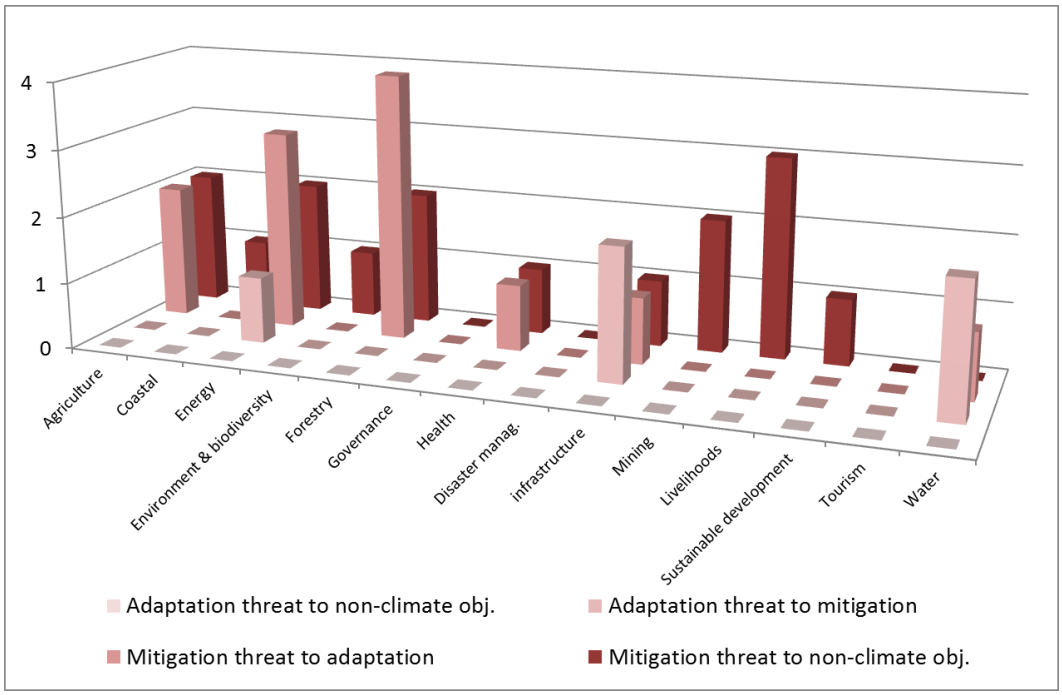
section, in terms of negative impacts on livelihoods, but not on climate change adaptation specifically. There is only one reference to negative impacts of mitigation in the RAN-PI and it is not very specific, warning about possible negative impacts of mitigation actions on local livelihoods.

Only five negative impacts of adaptation on mitigation are mentioned in the infrastructure, water and the energy sectors, and none relates to agriculture or forestry. Adaptation in the land use sector seems to cause little concern in terms of possible negative impacts on mitigation and there is no discussion of negative impacts of adaptation actions on non-climate objectives.

Table 2: Policies mentioning negative interactions between mitigation, adaptation and non-climate objectives.

No. of passages on negative interactions	Policy
21	Strategy for Mainstreaming Adaptation in the National Development Plan: Integration Framework (2012)
7	REDD+ National Strategy (RAN-PI) (2012)
5	Indonesia Climate Change Sectoral Roadmap (ICCSR) Synthesis Report (ICCSR) (2010)
1	National Action Plan Addressing Climate Change (RAN-PI) (2007)
34	**TOTAL**

Figure 9: Negative interactions between mitigation, adaptation and non-climate objectives



4.7 Mainstreaming Climate Change into Development Plans

Mainstreaming climate change into development policies includes integrating climate change objectives in medium and long-term development plans, as well as harmonizing sectoral policy objectives or devising new sectoral policies that address climate change (Kok and de Coninck 2007). Here we look at the extent to which recent development planning as well as climate change policy documents discuss issues related to mainstreaming climate change into development plans.

The 2010 Presidential Regulation on the National Medium Term Development Plan contains brief references to climate change mitigation targets as well as to the need to address adaptation in order to ensure food security and strengthen natural disaster management. It mentions climate change mainstreaming once in very general terms (BAPPENAS 2010b, p.32). The Masterplan on the Acceleration and Expansion of Indonesia Economic Development 2011-2025 (MP3EI) released in 2011, while mentioning Indonesia's emission reduction policy (RAN-GRK) and the plans to develop REDD+, does not elaborate on climate change or on its linkages to development plans. Instead the MP3EI highlights economic growth targets,

such as the potential to expand palm oil, mining and forest plantations in Kalimantan. The only brief mention of a concrete climate change impact refers to the effect of droughts on rice production. Yet, no adaptation measure is discussed. By 2011 the national development planning documents did not consider climate change and development linkages in detail, and no potential trade-off between development plans and climate change objectives was discussed or assessed at the time.

With regards to climate change policies, RAN-PI mentions mainstreaming climate change into development a number of times, but it is between 2012 and 2014 that the number of text passages increases substantially with the focus on mainstreaming adaptation into development given in the MAS released in 2012 and in the RAN-API released in 2014 (Table 3). Out of 74 references found in the 25 documents published by 2014, 65% of mentions are found in those two documents. Around 60% percent of all references refer to mainstreaming adaptation into development, just under 30% refer to mainstreaming climate change in general (mainly referred to in the RAN-PI) and under 10% refer to mainstreaming mitigation into development or into sectoral policies. The MAS indicates the need to focus on integrating adaptation into food security, energy and water, national budget allocation, agricultural and disaster management policies and decentralization policies. M3PI is mentioned as a main point of entry for mainstreaming adaptation, which will require the establishment of policy coherence of development and climate change adaptation objectives. On the mitigation side, the REDD+ strategy mentions the need to mainstream mitigation into development plans three times, highlighting the importance of mainstreaming mitigation in land use system in national development plans, and indicating that a series of policies already require such integration. The RAN-GRK guidelines mention mainstreaming of mitigation into development only once.

In sum, policy formulation to mainstream climate change into development policies has so far occurred primarily in relation to climate change adaptation. Such mainstreaming is, however, not yet extensively integrated, into the main national development policies (Table 3).

Table 3: Comparing mentions of mainstreaming climate change in climate change and development policies

No. of passages on mainstreaming climate change		Policies
total	breakdown*	
		Adaptation Policies
34	(**29A** +5CC)	Strategy for Mainstreaming Adaptation into National Development Planning: Integration Framework (2012)
14	(**12A**+1M +1CC)	National Action Plan for Climate Change Adaptation (RAN-API) (2014)
		Climate Change Policies
12	(3A, **9CC**)	National Action Plan Addressing Climate Change (RAN-PI) (2007)
2	(**1A**)	Indonesia Climate Change Sectoral Roadmap (ICCSR) Synthesis Report (2010)
		Mitigation Policies
2	(1CC, 1M)	Guidelines for Implementing Greenhouse Gas Emission Reduction Plan (RAN-GRK) (2011)
3	(1M)	REDD+ National Strategy (RAN-PI) (2012)
		Development Policies
0		Law No. 17/2007 on National Long-Term Development Plan (2005-2025) (RPJPN) (2007)
1	(**1CC**)	Regulation of the President of the Republic of Indonesia No. 5/2010 regarding the National Medium-Term Development Plan (RPJMN) 2010-2014 – Book 1: National Priorities (2010)
0		Masterplan: Acceleration and Expansion of Indonesia Economic Development 2011-2025 (MP3EI) (2011)

*: A= passage on mainstreaming adaptation into development plans; CC= general passages on mainstreaming climate change into development plans; M= passages on mainstreaming mitigation into development plans.

The lack of attention to the linkages between climate change and sustainable development objectives in development planning policy documents to date is also evident (Table 4). Thus, there is progress in terms of climate change policy documents recognizing the linkages between climate change and development objectives. However, the main national policy development planning documents do not at this stage fully take into account these multiple aims, do little to address any possible trade-offs, and fail to explore in depth opportunities for achieving mutually supportive sustainable development and climate change objectives and outcomes. The Indonesia policy landscape seems to privilege the formulation of climate change sectoral level policy documents – e.g. sectoral roadmaps such as ICCSR in the agricultural sector

– but the main focus remains on mainstreaming adaptation in development planning. Mainstreaming of mitigation into development planning is not discussed in detail in any of the policies.

Table 4: Comparing mentions of linkages between climate change and sustainable development

No. of passages on linkages between climate change and sustainable development	Policies
	Climate Change Policies
13	National Action Plan for Climate Change Adaptation (RAN-API) (2014)
12	REDD+ National Strategy (RAN-PI) (2012)
12	National Action Plan Addressing Climate Change (RAN-PI) (2007)
8	Guidelines for Implementing Greenhouse Gas Emission Reduction Plan (RAN-GRK) (2011)
	Development Policies
0	Law No. 17/2007 on National Long-Term Development Plan (2005-2025) (RPJPN) (2007)
0	Regulation of the President of the Republic of Indonesia No. 5/2010 regarding the National Medium-Term Development Plan (RPJMN) 2010-2014 – Book 1: National Priorities (2010)
0	Masterplan: Acceleration and Expansion of Indonesia Economic Development 2011-2025 (MP3EI) (2011)

5. Discussion

5.1 Climate Policy Integration

Indonesia's policy architecture has undergone major changes following the 2014 Presidential elections. Previously, under the Presidency of Susilo Bambang Yudhoyono, climate change governance was characterized by a technocratic form of vertical policy integration accompanied by strong competition between different agencies on who should take the lead in climate change policy development.

The Presidency favoured the creation of new institutions with a unique mandate on climate change (the DNPI) and on climate change mitigation in the land use sector (the REDD+ Task Force and REDD+ Agency). There was also a very strong international influence, with the "Letter of Intent" of Norway

requiring an ‘independent’ REDD+ institution (Government of Norway 2011). Consequently, climate change policy in the land use sector was formulated through the support of ‘independent’ advisory agencies with direct access to the highest executive power. And through UKP4, the Presidency was about to monitor REDD+ progress of the various ministries. This structure enjoyed legitimacy from the NGOs sector, because of the participatory approach to policy consultations of the two independent agencies, but very low legitimacy among key government ministries (Luttrell *et al.* 2014, McGregor *et al.* 2015). Notoriously, the Ministry of the Environment felt sidelined by DNPI after having contributed to the development of Indonesia’ climate change agenda and there were major disagreements and parallel developments of policy drafts and regulations between the REDD+ Task Force and the Ministry of Forestry (Astuti and McGregor 2015). This centrally directed vertical policy integration with a strong monitoring system was only partly successful, because of the perceived sidestepping of ministries, which created tensions, disagreements and reduced compliance. Ineffective vertical policy integration was therefore due to international donors and national bureaucratic actors having conflicting visions for the Indonesian climate change governance architecture, and the support of the President for a donor driven framework, which led to a lack of legitimacy of the policy architecture domestically. Such an example of failed policy integration, can be interpreted also as a case of conflicting international and national policy regimes labelled as conflicting fragmentation or as a typical problem of vertical interplay where higher level interests dictated a policy architecture, which did not reflect the interests of lower level policy actors, thus impacting legitimacy and compliance with rules (Young 2002, Giessen 2013, Nurrochmat *et al.* 2014).

During this period the President’s climate agenda focused on land use based mitigation, which was supported by bilateral and multilateral funding, and meant that climate change mitigation overshadowed concerns and policy actions on climate change adaptation (Djalante and Thomalla 2012). The adaptation agenda expanded over time, supported by the work of the adaptation working group of DNPI, as well as through the lead of BAPPENAS

and funding from a number of donors including the World Bank, USAID, JICA, GIZ and the Asian Development Bank (Katsurai and Murakamo 2012). During this period, policy processes in climate change mitigation and adaptation remained largely separate (Pham *et al.* 2014).

With the new Presidential elections in 2014 and the increasing realization that more needed to be done on the adaptation front, in 2015 a new policy architecture emerged. The dismantling of the UK4 and the integration of the some of the former DNPI and the REDD+ Agency's functions within the newly merged Ministry of Environment and Forestry, and the appropriation of the adaptation agenda by BAPPENAS, reshaped the climate change policy landscape. These changes resulted in a new predominantly horizontal form of climate policy integration, deeply embedded within the political bureaucratic system of ministries. While this change represents a more legitimate policy architecture from the point of view of the ministries, the shift of control from the Presidency to the ministries subjects climate change policy to bureaucratic politics that in the past has been plagued by inefficiency, lack of transparency and corruption in the forestry sector (Tacconi 2007). A major concern is that these changes could slow down progress on climate change mitigation action in particular. It might also become more difficult to maintain climate change as a priority policy agenda item, as none of the above mentioned ministries has the climate change targets as its main objective, and no ministry has the authority to impose actions on other ministries (Jordan 2002). The new systems did not just dismantle the 'newly' created institutions. It also eliminated a useful control and monitoring system over ministerial action, the UKP4. Lack of monitoring and assessment of mainstreaming of climate change into development, and the absence of such a mechanism is likely to reduce effectiveness of policies (Jenkins 1978). It seems then, that since 2015 increased buy-in from the ministries has come at the expenses of the potential effectiveness of centrally directed and monitored technocratic decision making.

In the adaptation domain, the change from vertical to horizontal policy integration might be less subject to possible conflict of interests. Apart from

taking the lead on adaptation policy, BAPPENAS also controls the budget allocation for the spatial planning and has a mandate to facilitate coordination across ministries. Yet, although a number of bilateral funders are supporting climate change adaptation in Indonesia, funding is more limited for adaptation programmes compared to mitigation (Elias *et al.* 2014). Given BAPPENAS focus on integrated approaches to climate change adaptation and mitigation, the new architecture could also facilitate internal climate policy integration in land use systems. But, so far there is little evidence that focus on pursuing mitigation and adaptation jointly has translated into integrated approaches in medium and long-term development plans and sectoral policies. To this end, integrated approaches need to become part of a shared vision between BAPPENAS and the sectoral ministries.

Principled priority: Privileging development or climate change objectives?

Climate change policies in Indonesia are quite explicit about the need of pursuing mitigation objectives within a broader development framework. Mitigation should be pursued without forgoing development opportunities. This is also reflected in a few references discussing the need to avoid trade-offs between mitigation and development objectives in climate change documents. In development planning documents the need to take into account mitigation is less evident, suggesting that trade-offs between development and mitigation objectives are not fully embedded in the development plans. This indicates that national development objectives seem to take precedent over mitigation objectives, suggesting that development has principled priority over climate change mitigation.

This is very much in line with the climate policy integration literature (Kok *et al.* 2008, Adelle and Russel 2013, Rietig 2013), but poses the question as to whether mitigation targets in the land use sector, can be achieved, while maintaining ambitious development objectives that include, for example, expansion of large scale plantation agriculture, which is second most important driver of deforestation in Indonesia (CMoEA and BAPPENAS 2011, Kissinger *et al.* 2012). In addition, the impacts of major regulations as the moratorium on new concessions in natural forest and peatlands on overall

emission reduction from land uses have been questioned in terms of large-scale effectiveness to substantially support additional climate change mitigation targets (Edwards and Laurance 2011).

In general, the lack of focus of national development plans on mitigation targets to date seems to indicate that in practice development processes might sidestep climate change targets and privilege instead development and economic growth objectives. In addition, the shift from a vertical policy integration governance structure towards one in favour of ministerial control over climate change objectives, could also suggest a reduction in the commitment of central government towards land base mitigation goals. Outcomes will also depend on the extent to which the Green Economy and the Low Emission Development agendas, supported by UN agencies and bi-lateral international cooperation agencies such as USAID and GIZ, will take hold in Indonesia. In 2013 a Green Economy Caucus was established in the Indonesian parliament and some environmental initiatives, such as the Heart of Borneo are starting to use such framing (van Paddenburg *et al.* 2012, GLOBE International Secretariat 2013). Yet, within all the documents analysed the Green Economy is explicitly mentioned only a few times in the 2nd Communication to the UNFCCC, and in the national REDD+ strategy.

In the case of adaptation, climate change impacts are recognized as an ongoing threat to development and adaptation measures are seen as complementary, and in some cases as necessary, to achieve sustainable development goals (BAPPENAS 2012, Denton *et al.* 2014). This would suggest that there are no trade-offs between climate change adaptation and development. This is disputable, however, and in any case integrating adaptation into development planning would entail a shift in priorities in development policies, such as an increased focus on the protection of vulnerable ecosystems (Swart *et al.* 2003). It is therefore important to consider linkages and possible trade-offs between climate change adaptation and development objectives. However, in Indonesia, the adaptation agenda in the land use sector remains quite limited, due to lack of funding for adaptation, but also due to limited knowledge of the adaptation needs in the

land use sector, compared to mitigation (Pham *et al.* 2014). Given such imbalance between the mitigation and adaptation focus in the land use sector, a comprehensive form of climate change policy integration that brings together mitigation, adaptation and development policy processes is still far away.

5.2 Internal and External Climate Change Policy Coherence

Internal Climate Change Coherence

The Ministry for National Development Planning (BAPPENAS) is the institution that has been engaging most with internal climate change policy coherence. Through its MAS it has been taking into account mutual benefits as well as trade-offs between adaptation and mitigation. We might have expected the National Council on Climate Change to take the lead in exploring interactions between climate change objectives, and also a stronger role of the Ministry of Environment and Forestry. The analysis shows also that the strongest calls for integrated approaches come from the climate change adaptation camp. The argument that “mitigation activities need adaptation” (BAPPENAS 2012, p.24) is a compelling one, in a country where the focus on mitigation actions and REDD+ has dominated the climate change agenda in the land use sector. But the lack of scientific information on and human and financial resources for climate change adaptation, which are recognized by government agencies (MoE 2010) hampers joint approaches. Thus, more investments in knowledge, skills and expertise at multiple governance levels is necessary in order to be able also to exploit the positive and address the negative interactions between adaptation and mitigation in and across the agricultural and forestry sectors (Locatelli *et al.* 2011). Calls for integrated approaches to adaptation and mitigation exist in the various climate change policy documents, but apart from some efforts from BAPPENAS, they remain at the level of general aspiration, as opposed to being operationalized in precise plans and actions. Given the importance of the land use mitigation agenda in Indonesia, it is particularly important that national agencies leading REDD+ engage more with climate change adaptation actors, broaden their

climate change objectives and adopt a holistic policy approach that delivers co-benefits and takes into account linkages to climate change adaptation.

External Climate Change Coherence

In terms of external climate policy integration, explicit discussion about linkages between non-climate change and climate change objectives is rather limited in Indonesia's policy documents. Disaster management is the main area where the importance of the linkages with adaptation is recognized. Yet, policies bringing together adaptation and disaster management still need to be developed (Djalante and Thomalla 2012). But overall, detailed discussions of how non-climate objectives relate to climate change objectives are rare. This indicates that currently, climate policy objectives are not yet well integrated into sectoral policies, and the value of potential synergies as well as the risks of potential trade-offs across climate change and non-climate domains remains largely unexplored. The lack of attention to trade-offs, coupled with development objectives having principled priority over climate change objectives, indicate that climate mainstreaming has not yet fully materialized.

The lack of discussion of these linkages means also that many policy actors do not envision yet the potential of climate change objectives contributing to other policy objectives. Without such a vision, integrated approaches are likely to remain unexplored (Nilsson *et al.* 2012, Haywood *et al.* 2013, Hulme 2013). Further, it is important that joint approaches are actually operationalized through the setting of joint objectives– including both climate change non-climate objectives in sectoral policies –, guidelines, monitoring and policy evaluations (Van Bommel and Kuindersma 2008, Kivimaa and Mickwitz 2009). So far there is little evidence that this is occurring. In both forestry and agriculture there is considerable scope to explore further how non-climate objectives can contribute to climate change policy objectives, and vice-versa and whether and how synergies can be systematically pursued and trade-offs taken into account. How to address potential trade-offs between mitigation and economic development objective, which is the area where conflicts are

likely to be strongest, needs to be discussed in further depth within the national development plans and related sectoral policies.

Building such external policy coherence will also require more discussions between climate change and non-climate change experts within and collaboration on mainstreaming efforts between different sectoral ministries (e.g. between the Ministry of Agriculture and the Ministry of Environment and Forestry). In other words, increased integration of decision-making policy processes is necessary to lead to improved policy coherence (Dupont and Oberthür 2012). BAPPENAS' role will be crucial in this respect, but will also require clear support from government and parliament for the climate change agenda and for integrated approaches. In this respect, the absence of a 'law' on climate change in Indonesia remains a weakness, given that the capacity to regulate with 'strategies' and 'plans' remains more limited (Hey 2002). Evidence shows that soft incentives such as nonbinding guidance documents, plans and strategies alone, while important, fail to advance climate mainstreaming significantly (Brouwer *et al.* 2013).

6. Conclusion

This paper provides the first in-depth analysis of Indonesia's CPI process in the land use sector. It expands the current approach to CPI by drawing attention to *internal* climate policy integration, conceptualized as the need to address trade-offs and better exploit synergies between mitigation and adaptation objectives in climate and land use policies.

It identifies a number of challenges to effective CPI, including a weak vertical policy integration set-up, a strong imbalance between mitigation and adaptation resources and efforts, and the need to mainstream integrated approaches into development planning and sectoral policies.

While climate change policies recognize in part the interactions between climate change adaptation and mitigation in the land use sector, mainstreaming these approaches into sectoral policies still poses major challenges.

Further resources, knowledge, and actions to address climate change adaptation in the agriculture and forestry are needed, before joint approaches can be effectively explored and pursued in the land use sector. It is also crucial that, government agencies working on mitigation and forests (REDD+) recognize and address these interactions in the formulation as well as in the implementation of policies and in the management of REDD+ projects. Foremost, national development policies and practices need to reconcile ambitious development objectives in the land use sector with mitigation targets in forests and agriculture and address more clearly adaptation needs within the two sectors. In the absence of a climate change entity with overarching management authority over ministries, effective CPI will largely depend on the extent to which sectoral ministries will incorporate climate change and integrated approaches within their sectoral objectives.

ACKNOWLEDGMENTS

This research was funded by Economic and Social Research Council (ESRC) (grant number ES/K00879X/1), the Australian Department of Foreign Affairs and Trade (AusAID Agreement No. 63560), the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), NORAD, the CGIAR Research Program on Forests, Trees and Agroforestry (CRP-FTA) with financial support from the CGIAR Fund. Support was also provided by Bogor Agricultural University, the Indonesian collaborating academic institution. We would like to thank Suzanty Sitorus and Jouni Paavola for very useful comments on an earlier draft of the paper.

Annex 1: List of Policy Documents

Name of document	Date	Type of document	Lead institution	Main sector
National Action Plan for Climate Change Adaptation (RAN-API)	2014	Government plan	Ministry of National Development Planning	Adaptation
National Plan for Disaster Management (RENAS) 2015-2019 (draft)	2014	Government plan	National Agency for Disaster Management	Disaster management
Presidential Decree regarding the Managing Agency for the REDD and Peatlands (No.62/2013)	2013	Presidential Decree	Office of the President	Mitigation
Presidential Instruction No. 6/2013 Suspension of New License Issuance and Improvement of Primary Natural Forest and Peatland Governance	2013	Decree	Office of the President	Land use
REDD+ National Strategy	2012	Government plan	Indonesian REDD+ Task Force	Mitigation
Strategy for Mainstreaming Adaptation into National Development Planning: Integration Framework (MAS)	2012	Government plan	Ministry of National Development Planning	Adaptation
Ministry of Public Works National Action Plan on Adaptation and Mitigation 2012-2020 (includes Min of Public Works regulation 11/2012)	2012	Ministerial Regulation and Policy	Ministry of Public Works	Public Works
Road Map Strategy of the Agricultural Sector Addressing Climate Change (ICCSR-Agriculture) revised	2011	Government plan	Ministry of Agriculture	Agriculture
Masterplan: Acceleration and Expansion of Indonesia Economic Development 2011-2025 (MP3EI)	2011	Government plan	Coordinating Ministry of Economic Affairs	Development
Presidential Regulation No 61/2011 on The National Action Plan for Greenhouse Gas Emission Reduction	2011	Presidential regulation	Office of the President	Mitigation
Presidential Instruction No. 10/2011 on Suspension of Granting New Licenses and Improvement of Governance of Natural Primary Forest and Peatland	2011	Presidential Instruction	Office of the President	Land use
Guidelines for Implementing Greenhouse Gas Emission Reduction Plan (RAN-GRK)	2011	Government plan	Ministry of National Development Planning	Mitigation

Strategic Plan of Ministry of Agriculture 2010-2014	2011	Government plan	Ministry of Agriculture	Agriculture
Indonesia Second National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC)	2010	Government document	Ministry of Environment	Climate Change
Indonesia Climate Change Sectoral Roadmap (ICCSR) Synthesis Report	2010	Government plan	Ministry of National Development Planning	Climate Change
Strategic Plan of the Ministry of Public Works 2010-2014	2010	Government plan	Ministry of Public Works	Public Works
Regulation of the President of the Republic of Indonesia No. 5/2010 regarding the National Medium-Term Development Plan (RPJMN) 2010-2014 – Book 1: National Priorities	2010	Presidential regulation	Ministry of National Development Planning	Development Planning
Minister of Forestry Regulation No 30/2009 on REDD Procedures	2009	Ministerial regulation	Ministry of Forestry	Forestry
Minister of Forestry Decree No P36/2009 on Procedures for Licensing of Commercial utilisation of Carbon Sequestration and/or storage in Production and Protected Forests	2009	Ministerial decree	Ministry of Forestry	Forestry
Minister of Forestry Decree No P68/2008 on The Implementation of Demonstration Activities on REDD	2008	Ministerial regulation	Ministry of Forestry	Forestry
Law No. 24/2007 on Disaster Management	2007	Law	National Agency for Disaster Management	Disaster management
Law No. 17/2007 on National Long-Term Development Plan (2005-2025) (RPJPN)	2007	Law	Ministry of National Development Planning	Development Planning
National Action Plan Addressing Climate Change (RAN-PI)	2007	Government plan	Ministry of National Development Planning	climate change
Forestry Law No. 41 /1999 (including explanations on the law)	1999	Law	Ministry of Forestry	Forestry
Indonesia First National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC)	1999	Government document	Ministry of Environment	Climate Change

Annex 2: Definition of Types of Interactions

category	Sub-category	description	Positive relationship*	Negative relationship
Type of interactions	1. Co-benefits/trade-offs	Positive/negative effects that a policy or measure aimed at one objective (adaptation, mitigation, or non-climate objective) might have on another objective	+	-
			++	
	2. Integrated approach	Policies or measures where mitigation and adaptation are pursued together as joint objectives and seeking mutual benefits.		
1. Co-benefits / trade-offs		Text passages referring to co-benefits/trade-offs between adaptation, mitigation and/or non-climate change specific domains		
	a. Adaptation with mitigation co-benefits/trade-offs	Text passages on adaptation resulting in co-benefits/trade-offs for mitigation	a → +A+M	a → +A-M
	b. Adaptation with other co-benefits/trade-offs	Text passages on adaptation resulting in co-benefits/trade-offs to non-climate change specific domains	a → +A+X	a → +A-X
	c. Mitigation with adaptation co-benefits	Text passages on mitigation resulting in co-benefits to adaptation	m → +M+A	m → +M-A
	d. Mitigation with other co-benefits/trade-offs	Text passages on mitigation resulting in co-benefits other than adaptation	m → +M+X	m → +M-X
	e. Non-climate action with co-benefits/trade-offs for adaptation	Text passages referring to non-climate change strategies or actions resulting in co-benefits to adaptation	x → +X+A	not coded
	f. Non-climate action with co-benefits/trade-offs for mitigation	Text passages referring to non-climate change strategies or actions resulting in co-benefits/trade-offs for mitigation	x → +X+M	not coded
2. Integrated approach	g. Integrated approach	Text passages related to pursuing both adaptation and mitigation objectives together in an integrated manner aimed at realizing mutual benefits.	a ∩ m → +AA+MM	
3. Pursuing both mitigation and adaptation without specific mention of interactions	h. Pursuing mitigation and adaptation	Text passages that indicate pursuing both mitigation and adaptation activities, but it is not clear that interactions between the two are explicitly taken into account.	a | m → +A? | +M ?	

*= a: adaptation objective, m: mitigation objective, x: non-climate related objective, →: results in, +: positive outcome, -: negative outcome, A: adaptation outcome, M: mitigation outcome, +AA or +MM increased outcome as a result of an interaction between A and M, -AA or -MM decreased outcome as a result of an interaction between A and M; ∩ : joint objective; | : separate objective ; ? outcome unknown or not considered for A or M.

7. References

Adelle, C. & Russel, D., 2013. Climate Policy Integration: a Case of Deja Vu? *Environmental Policy and Governance,* 23 (1), 1-12. doi: 10.1002/eet.1601.

Agung, P., Galudra, G., Van Noordwijk, M. & Maryani, R., 2014. Reform or reversal: the impact of REDD+ readiness on forest governance in Indonesia. *Climate Policy,* 14 (6), 748-768. doi: 10.1080/14693062.2014.941317.

Allwood, J.M., Bosetti, V., Dubash, N.K., Gómez-Echeverri, L. & von Stechow, C., 2014. Glossary. *In* Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Farahani, E., Kadner, S., Seyboth, K., Adler, A., Baum, I., Brunner, S., Eickemeier, P., Kriemann, B., Savolainen, J., Schlömer, S., Von Stechow, C., Zwickel, T. & Minx, J.C. eds. *Climate change 2014: Mitigation of climate change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Astuti, R. & McGregor, A., 2015. Governing carbon, transforming forest politics: A case study of Indonesia's REDD+ Task Force. *Asia Pacific Viewpoint,* 56 (1), 21-36. doi: 10.1111/apv.12087.

BAPPENAS, (Menteri Negara Perencanaan Pembangunan Nasional), 2013. Rencana Aksi Nasional Adaptasi Perubahan Iklim. Jakarta, Indonesia: Menteri Negara Perencanaan Pembangunan Nasional.

BAPPENAS, (Ministry of National Development Planning), 2011. Guideline for Implementing Greenhouse Gas Emission Reduction Action Plan. Jakarta, Indonesia: BAPPENAS.

BAPPENAS, (State Ministry of National Development Planning), 2010a. Indonesia Climate Change Sectoral Roadmap: Synthesis report Jakarta, Indonesia: BAPPENAS.

BAPPENAS, (State Ministry of National Development Planning), 2010b. Regulation of the President of the Republic of Indonesia number 5 of 2010 regarding the National Medium-term Development Plan (RPJMN) 2010-2014: Book 1, National Priorities. Jakarta, Indonesia: Ministry of National Development Planning.

BAPPENAS, (State Ministry of National Development Planning), 2012. The Strategy for Mainstreaming Adaptation in National Development Planning: Integration Framework. Jakarta, Indonesia: BAPPENAS.

BAPPENAS, (State Ministry of National Development Planning), 2014. National Action Plan for Climate Change Adaptation (RAN-API). Jakarta, Indonesia: BAPPENAS.

Barker, T., Bashmakov, I., Alharthi, A., Amann, M., Cifuentes, L., Drexhage, J., Duan, M., Edenhofer, O., Flannery, B., Grubb, M., Hoogwijk, M., Ibitoye, F.I., Jepma, C.J., Pizer, W.A. & Yamaji, K., 2007. Mitigation from a cross-sectoral perspective. In Climate Change 2007: Mitigation. *In* Metz, B., Davidson, O.R., Bosch, P.R., Dave, R. & Meyer, L.A. eds. *Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Boer, R. & Perdinan, 2008. Adaptation to climate variability and climate change: Its socio-economic aspect. *EEPSEA Conference on Climate Change: Impacts, Adaptation, And Policy in South East Asia With A Focus on Economics,*

Socio- Economics and Institutional Aspects. Bali: Economi and Environmental Program for Southeast Asia.

Boer, R., Subbiah, A.R., Tamkani, K., Hardjanto, H. & Alimoeso, S., 2006. Institutionalizing climate information applications: Indonesian case. *In* Motha, R., Sivakumar, M.V.K. & Bernardi, M. eds. *Strengthening operational agrometeorological services at the national level. Proceedings of a Inter-Regional Workshop held 22-26 March 2004 in Manila, Philippines. AGM-9, WMO/TD-No. 1277.*

BPPP, (Badan Penelitian dan Pengembangan Pertanian), 2011. Road Map: Strategi Sektor Pertanian Menghadapi Perubahan Ilklim (Revisi). Jakarta, Indonesia: Badan Penelitian dan Pengembangan Pertanian.

Brouwer, S., Rayner, T. & Huitema, D., 2013. Mainstreaming climate policy: The case of climate adaptation and the implementation of EU water policy. *Environment and Planning C: Government and Policy,* 31, 134-153. doi.

Butt, S., Lyster, R. & Stephens, T., 2015. *Climate change and forest governance: Lessons from Indonesia* Abingdon, Oxon [UK] ; New York: Routledge.

Campbell, B.M., 2009. Beyond Copenhagen: REDD plus , agriculture, adaptation strategies and poverty. *Global Environmental Change-Human and Policy Dimensions,* 19 (4), 397-399. doi: DOI 10.1016/j.gloenvcha.2009.07.010.

CMoEA, (Coordinating Ministry for Economic Affairs) & BAPPENAS, (State Ministry of National Development Planning), 2011. Masterplan: Acceleration and expansion of Indonesia economic development 2011-2025. Jakarta, Indonesia: Coordinating Ministry for Economic Affairs.

Darajati, W., 2015. Indonesia INDC: Approach and challenges [online]. BAPPENAS. Available from: http://www.unorcid.org/upload/BAPPENAS_Environmental_Affairs_UNORCID_Dialogue_Series_9_March_2015.pdf [Accessed 30 July 2015].

den Hertog, L. & Stroß, S., 2013. Coherence in EU external relations: Concepts and legal rooting of an ambiguous term. *European Foreign Affairs Review,* 18 (3), 373-388. doi.

Denton, F., Wilbanks, T.J., Abeysinghe, A.C., Burton, I., Gao, Q., Lemos, M.C., Masui, T., O'Brien, K.L. & Warner, K., 2014. Climate-resilient pathways: Adaptation, mitigation, and sustainable development. *In* Field, C.B., Barros, V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., Girma, B., Kissel, E.S., Levy, A.N., Maccracken, S., Mastrandrea, P.R. & White, L.L. eds. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, United Kingdom and New York, NY: Cambridge University Press, 1101-1131.

Di Gregorio, M., Fatorelli, L., Pramova, E., May, P.H., Locatelli, B. & Brockhaus, M., 2015. Integrating mitigation and adaptation in climate and land use policies in Brazil. Working Paper 194. Bogor, Indonesia: CIFOR.

Djalante, R. & Thomalla, F., 2012. Disaster risk reduction and climate change adaptation in Indonesia. *International Journal of Disaster Resilience in the Built Environment,* 3 (2), 166-180. doi: doi:10.1108/17595901211245260.

Duguma, L.A., Minang, P.A. & van Noordwijk, M., 2014. Climate change mitigation and adaptation in the land use sector: From complementarity to synergy.

Environmental Management, 54 (3), 420-432. doi: DOI 10.1007/s00267-014-0331-x.

Dupont, C. & Oberthür, S., 2012. Insufficient climate policy integration in EU energy policy: the importance of the long-term perspective. *Journal of Contemporary European Research,* 8 (2), 228 - 247. doi.

Edwards, D.P. & Laurance, W.F., 2011. Carbon emissions: Loophole in forest plan for Indonesia. *Nature,* 477 (7362), 33-33. doi.

Elias, P., Leonard, S., Cando, L., Fedele, G., Gaveau, D.L.A., Locatelli, B., Martius, C., Murdiyarso, D., Sunderlin, W.D. & Verchot, L.V., 2014. *Synergies across a REDD+ landscape: Non-carbon benefits, joint mitigation and adaptation, and an analysis of submissions to the SBSTA* Bogor, Indonesia: Center for International Forestry Research (CIFOR).

Fransen, T., 2015. Indonesia's Draft Climate Plan (INDC): A Good Start, but Improvements Necessary for Success [online]. http://www.wri.org/blog/2015/09/indonesia%E2%80%99s-draft-climate-plan-indc-good-start-improvements-necessary-success [Accessed 5 October 2015].

Giessen, L., 2013. Reviewing the main characteristics of the international forest regime complex and partial explanations for its fragmentation. *International Forestry Review,* 11 (1), 60-70(11). doi.

GLOBE International Secretariat, 2013. New Green Economy Caucus Indonesia launched in Bali [online]. Globe International. Available from: http://globelegislators.org/news/item/new-green-economy-caucus [Accessed Access Date 2015].

GOI, (Government of Indonesia), 2015. Intended Nationally Determined Contribution, Republic of Indonesia (INDC) (draft). Jakarta: Government of Indonesia.

Government of Norway, 2011. Letter of Intent between the Government of the Kingdom of Norway on Cooperation on reducing greehouse gas emissions from deforestation and forest degradation. Oslo, Norway: Minister of Environment and International Development.

Haywood, B.K., Brennan, A., Dow, K., Kettle, N.P. & Lackstrom, K., 2013. Negotiating a mainstreaming spectrum: Climate change response and communication in the Carolinas. *Journal of Environmental Policy & Planning,* 16 (1), 75-94. doi: 10.1080/1523908X.2013.817948.

Hey, C., 2002. Why does environmental policy integration fail? The case of environmental taxation for heavy goods vehicles. *In* Lenschow, A. ed. *Environmental policy integration: Greening sectoral policies in Europe.* Earthscan

Hsieh, H.-F. & Shannon, S.E., 2005. Three approaches to qualitative content analysis. *Qualitative Health Research,* 15 (9), 1277-1288. doi.

Hulme, M., 2013. *Exploring climate change in science and society: An anthology of Mike Hulme writings, interviews and speeches* London: Earthscan/Routledge.

Indonesia REDD+ Task Force, 2012. REDD+ National Strategy. Jakarta, Indonesia: Indonesia REDD+ Task Force.

Indrarto, G.B., Murharjanti, P., Khatarina, J., Pulungan, I., Ivalerina, F., Rahman, J., Prana, M.N., Resosudarmo, I.A.P. & Muharrom, E., 2012. The context of REDD+ in Indonesia. Working Paper, 92. Bogor, Indonesia: Center for International Forestry Research.

Jacob, K. & Volkery, A., 2004. Institutions and instruments for government self-regulation: Environmental policy integration in a cross-country perspective. *Journal of Comparative Policy Analysis,* 6 (3), 291–309. doi: 10.1080/1387698042000305211.

Jenkins, W.I., 1978. *Policy analysis: A political and organizational perspective* London: Martin Robertson.

Jong, H.N. 2015. RI not rushing into emissions commitments for Paris summit *The Jakarta Post*, February 20.

Jordan, A., 2002. Efficient hardware and light green software: Environmental political integration in the UK. *In* Lenschow, A. ed. *Environmental policy integration: Greening sectoral policies in Europe.* Earthscan

Jordan, A. & Lenschow, A., 2010. Environmental policy integration: A state of the art review. *Environmental Policy and Governance,* 20 (3), 147-158. doi: Doi 10.1002/Eet.539.

Kalaba, F.K., Quinn, C.H. & Dougill, A.J., 2014. Policy coherence and interplay between Zambia's forest, energy, agricultural and climate change policies and multilateral environmental agreements. *International Environmental Agreements-Politics Law and Economics,* 14 (2), 181-198. doi: 10.1007/s10784-013-9236-z.

Katsurai, T. & Murakamo, Y., 2012. Effectiveness of development policy lending in mainstreaming and financing climate change:Case studies from Indonesia and Vietnam. *In* Fujikura, R. & Toyota, T. eds. *Climate change mitigation and international development cooperation.* Abingdon, UK: Earthscan, Routledge.

Kemen, A., Sheppard, S. & Stolle, F., 2012. Indonesia's moratorium on new forest concessions: key findings and next steps. WRI Working Paper. Washington DC: World Resources Institute.

Kep.38/M.PPN/HK/03/2012, Menteri Negara Perencanaan Pembangunan Nasional, 2012. Keputusan Menteri Negara Perencanaan Pembangunan Nasional, Kepala Badan Perencanaan Pembangunan Nasional Nomor Kep.38/M.PPN.HK/03/2012 Tentang Pembentukan Tim Koordinasi Penangannan Perubahan Iklim. Jakarta, Indonesia: Menteri Negara Perencanaan Pembangunan Nasional.

Kep.Pres 10/2010, President of the Republic of Indonesia, 2010. Instruction of the President of The Republic of Indonesia Number 10 of 2011 about suspension of granting of new licenses and improvement of governance of natural primary forest and peatland. Jakarta, Indonesia: President of the Republic of Indonesia.

Kep.Pres 25/2011, President of the Republic of Indonesia, 2011. Presidential Regulation of the Republic of Indonesia No 25 Year 2011 Concerning the Task Force for preparing the establishment of teh REDD+ agency Jakarta, Indonesia: Republic of Indonesia.

Kep.Pres 61/2011, President of the Republic of Indonesia, 2011. Presidential Regulation of the Republic of Indonesia No 61 Year 2011 on The National Action Plan for Greenhouse Gas Emissions Reduction. Jakarta, Indonesia: Republic of Indonesia.

Kissinger, G., Herold, M. & De Sy, V., 2012. Drivers of deforestation and forest degradation: A synthesis report for REDD+ policymakers. Vancouver Canada: Lexeme Consulting.

Kivimaa, P. & Mickwitz, P., 2009. *Making the climate count: Climate policy integration and coherence in Finland* Helsinki: Finnish Environment Institute.

Kivimaa, P. & Virkamäki, V., 2014. Policy mixes, policy interplay and low carbon transitions: The case of passenger Transport in Finland. *Environmental Policy and Governance,* 24 (1), 28-41. doi: 10.1002/eet.1629.

Klein, R.J.T., Schipper, E.L.F. & Dessai, S., 2005. Integrating mitigation and adaptation into climate and development policy: three research questions. *Environmental Science & Policy,* 8 (6), 579-588. doi: DOI 10.1016/j.envsci.2005.06.010.

Kok, M., Metz, B., Verhagen, J. & Van Rooijen, S., 2008. Integrating development and climate policies: National and international benefits. *Climate Policy,* 8 (2), 103-118. doi: DOI 10.3763/cpol.2007.0436.

Kok, M.T.J. & de Coninck, H.C., 2007. Widening the scope of policies to address climate change: directions for mainstreaming. *Environmental Science & Policy,* 10 (7–8), 587-599. doi: http://dx.doi.org/10.1016/j.envsci.2007.07.003.

Lafferty, W.M. & Hovden, E., 2003. Environmental policy integration: Towards an analytical framework. *Environmental Politics,* 12 (3), 1-22. doi: Doi 10.1080/0964401041233130825 4.

Lenschow, A. ed. 2002. *Environmental policy integration: Greening sectoral policies in Europe*: Earthscan

Locatelli, B., Evans, V., Wardell, A., Andrade, A. & Vignola, R., 2011. Forests and climate change in Latin America: Linking adaptation and mitigation. *Forests,* 2 (1), 431-450. doi: Doi 10.3390/F2010431.

Locatelli, B., Pavageau, C., Pramova, E. & Di Gregorio, M., 2015. Integrating climate change mitigation and adaptation in agriculture and forestry: Opportunities and trade-offs. *WIREs Climate Change*. DOI: 10.1002/wcc.357.

Luttrell, C., Resosudarmo, I.A.P., Muharrom, E., Brockhaus, M. & Seymour, F., 2014. The political context of REDD+ in Indonesia: Constituencies for change. *Environmental Science & Policy,* 35, 67-75. doi: http://dx.doi.org/10.1016/j.envsci.2012.10.001.

Maraseni, T.N., Mushtaq, S. & Reardon-Smith, K., 2012. Climate change, water security and the need for integrated policy development: the case of on-farm infrastructure investment in the Australian irrigation sector. *Environmental Research Letters,* 7 (3). doi: Artn 034006

Doi 10.1088/1748-9326/7/3/034006.

May, P.J., Sapotichne, J. & Workman, S., 2006. Policy coherence and policy domains. *Policy Studies Journal,* 34 (3), 381-403. doi: DOI 10.1111/j.1541-0072.2006.00178.x.

McGregor, A., Challies, E., Howson, P., Astuti, R., Dixon, R., Haalboom, B., Gavin, M., Tacconi, L. & Afiff, S., 2015. Beyond carbon, more than forest? REDD+ governmentality in Indonesia. *Environment and Planning A,* 47 (1), 138-155. doi.

Mickwitz, P., Aix, F., Beck, S., Carss, D., Ferrand, N., Görg, C., Jenzen, A., Kivimaa, P., Kuhlicke, C., Kuindersma, W., Máñez, M., Melanen, M., Monni, S., Pedersen, A.B., Reinert, H. & van Bommel, S., 2009. Climate policy integration, coherence and governance. Peer Report. Helsinki: Partnership for European Environmental Research.

MoE, (Ministry of Environment), , 2010. Indonesia Second National Communication under the United Nations Framework Convention on Climate Change. Jakarta, Indonesia: Ministry of Environment.

Moser, S.C., 2012. Adaptation, mitigation, and their disharmonious discontents: An essay. *Climatic Change,* 111 (2), 165-175. doi.

Mulyani, M. & Jepson, P., 2013. REDD plus and Forest Governance in Indonesia: A Multistakeholder Study of Perceived Challenges and Opportunities. *Journal of Environment & Development,* 22 (3), 261-283. doi: 10.1177/1070496513494203.

Murdiyarso, D., Robledo, C., Brown, S., Coto, O., Drexhage, J., Forner, C., Kanninen, M., Lipper, L., North, N. & Rondón, M., 2005. Linking between mitigation and adaptation in land-use change and forestry activities. *In* Robledo, C., Kanninen, M. & Pedroni, L. eds. *Tropical forests and adaptation to climate change: In search of synergies.* Jakarta, Indonesia: Center for International Forestry Research.

Nilsson, M. & Eckerberg, K., 2007. *Environmental policy integration in practice: Shaping institutions for learning.* London: Earthscan.

Nilsson, M. & Nilsson, L.J., 2005. Towards climate policy integration in the EU: Evolving dilemmas and opportunities. *Climate Policy,* 5 (3), 363-376. doi: 10.1080/14693062.2005.9685563.

Nilsson, M. & Persson, A., 2012. Reprint of "Can Earth system interactions be governed? Governance functions for linking climate change mitigation with land use, freshwater and biodiversity protection". *Ecological Economics,* 81, 10-20. doi: 10.1016/j.ecolecon.2012.06.020.

Nilsson, M., Zamparutti, T., Petersen, J.E., Nykvist, B., Rudberg, P. & McGuinn, J., 2012. Understanding policy coherence: Analytical framework and examples of sector-environment policy interactions in the EU. *Environmental Policy and Governance,* 22 (6), 395-423. doi: Doi 10.1002/Eet.1589.

Nunan, F., Campbell, A. & Foster, E., 2012. Environmental Mainstreaming: The Organisational Challenges of Policy Integration. *Public Administration and Development,* 32 (3), 262-277. doi: Doi 10.1002/Pad.1624.

Nurrochmat, D.R., 2009. Anticipation of REDD Traps (Mengantisipasi Perangkap REDD). *Tempo.* Jakarta, 178-179.

Nurrochmat, D.R., Dharmawan, A.H., Obidzinski, K., Dermawan, A. & Erbaugh, J.T., 2014. Contesting national and international forest regimes: Case of timber legality certification for community forests in Central Java, Indonesia. *Forest Policy and Economics*. doi: http://dx.doi.org/10.1016/j.forpol.2014.09.008.

PerPres 62/2013, President of the Republic of Indonesia, 2013. Peraturan Presiden Republik Indonesia nomor 62 tahun 2013 tentang Badan Pendelola Penurunan Emisi Gas Rumah Kaca Dati Deforestasi , Degradasi Hutan dan Lahan Gambit Jakarta, Indonesia: President of the Republic of Indonesia.

PerPres 80/2011, (President Republik of Indonesia), 2011. Peraturan Presiden Republik Indonesia Nomor 80 Tahun 2011 tentang Dana Perwakilan. Jakarta, Indonesia: Republic of Indonesia.

Pham, T.T., Moeliono, M., Locatelli, B., Brockhaus, M., Di Gregorio, M. & Mardiah, S., 2014. *Integration of adaptation and mitigation in climate change and forest policies in Indonesia and Vietnam*.

Pramova, E., Di Gregorio, M. & Locatelli, B., 2015. Integrating adaptation and mitigation in climate change and land-use policies in Peru. Working Paper 184. Bogor, Indonesia: CIFOR.

Purnomo, A., Katili-Niode, A., Melisa, E., Helmy, F., Sukadri, D. & Sitorus, S., 2013. Evolution of Indonesia's climate change policy: From Bali to Durban. Jakarta, Indonesia: National Council on Climate Change.

QSR International Pty Ltd, 2012. NVivo qualitative data analysis software; Version 10.

Ravindranath, N.H., 2007. Mitigation and adaptation synergy in forest sector. *Mitigation and Adaptation Strategies for Global Change,* 12 (5), 843-853. doi.

Resosudarmo, I.A.P., Atmadja, S., Ekaputri, A.D., Intarini, D.Y., Indriatmoko, Y. & Astri, P., 2014. Does Tenure Security Lead to REDD+ Project Effectiveness? Reflections from Five Emerging Sites in Indonesia. *World Development,* 55 (0), 68-83. doi: http://dx.doi.org/10.1016/j.worlddev.2013.01.015.

Rietig, K., 2013. Sustainable climate policy integration in the European Union. *Environmental Policy and Governance,* 23 (5), 297-310. doi: 10.1002/eet.1616.

RoI, (Republic of Indonesia), 2007. National Action Plan Addressing Climate Change. Jakarta, Indonesia: State Ministry of Environment.

Russel, D. & Jordan, A., 2010. Environmental Policy Integration in the UK. *Governance for the Environment: A Comparative Analysis of Environmental Policy Integration*, 157-177. doi.

Sahide, M.A.K., Nurrochmat, D.R. & Giessen, L., 2015. The regime complex for tropical rainforest transformation: Analysing the relevance of multiple global and regional land use regimes in Indonesia. *Land Use Policy,* 47, 408-425. doi: http://dx.doi.org/10.1016/j.landusepol.2015.04.030.

Scheyvens, H. & Setyarso, A., 2010. Development of a national REDD-plus system in Indonesia. *In* Scheyvens, H. ed. *Developing national REDD-plus systems: Progress, challenges and ways forward.* Hayama, Japan: IGES.

Sørensen, C.H., 2003. Environmental Policy Integration: Organisational Obstacles. *The Journal of Transdisciplinary Environmental Studies,* 2 (1), 1-12. doi.

Swart, R. & Raes, F., 2007. Making integration of adaptation and mitigation work: mainstreaming into sustainable development policies? *Climate Policy,* 7 (4), 288-303. doi.

Swart, R., Robinson, J. & Cohen, S., 2003. Climate change and sustainable development: expanding the options. *Climate Policy,* 3 (sup1), S19-S40. doi: 10.1016/j.clipol.2003.10.010.

Tacconi, L. ed. 2007. *Illegal logging: Law enforcement, livelihoods and the timber trade,* London: Earthscan.

The Ecologist, 2015, 21st September. Indonesia chokes as forest and peatland fires rip [online]. http://www.theecologist.org/News/news_round_up/2985488/indonesia_chokes_as_forest_and_peatland_fires_rip.html [Accessed Access Date 2015].

Thuy , P.T., Moeliono, M., Locatelli, B., Brockhaus, M., Di Gregorio, M. & Mardiah, S., 2017. Integration of adaptation and mitigation in climate change and forest policies in Indonesia and Vietnam. Forests. DOI: doi: 10.3390/f5082016.

Tol, R.S.J., 2005. Adaptation and mitigation: trade-offs in substance and methods. *Environmental Science & Policy,* 8 (6), 572-578. doi: DOI 10.1016/j.envsci.2005.06.011.

UNFCCC, 2011. Decision 1/CP.16 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (FCCC/CP/2010/7/Add.1).

Urwin, K. & Jordan, A., 2008. Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance. *Global Environmental Change,* 18 (1), 180-191. doi: DOI 10.1016/j.gloenvcha.2007.08.002.

Van Bommel, S. & Kuindersma, W., 2008. Policy integration, coherence and governance in Dutch climate policy: A multi-level analysis of mitigation and adaptation policy. Alterra-rapport, 1799. Wageningen: Alterra.

van Noordwijk, M., Agus, F., Dewi, S. & Purnomo, H., 2014. Reducing emissions from land use in Indonesia: motivation, policy instruments and expected funding streams. *Mitigation and Adaptation Strategies for Global Change,* 19 (6), 677-692. doi: 10.1007/s11027-013-9502-y.

van Paddenburg, A., Bassi, A.M., Buter, E., Cosslett, C.E. & Dean, A., 2012. Heart of Borneo: Investing in nature for a green economy [online]. WWF GoB Global Initative. Available from: http://www.hobgreeneconomy.org/downloads/mainreport/heartofborneo_investing_nature_green_economy_FULL.pdf [Accessed Access Date

Verchot, L.V., van Noordwijk, M., Kandji, S., Tomich, T.P., Ong, C.K., Albrecht, A., Mackensen, J., Bantilan, C., Anupama, J. & Palm, C.A., 2007. Opportunities for linking adaptation and mitigation in agroforestry systems. *Mitigation and Adaptation Strategies for Global Change,* 12 (5), 901–918. doi: doi:10.1007/s11027-007-9105.

Weber, R.P., 1990. *Basic content analysis* Thousand Oaks, CA: Sage.

Widiaryanto, P. 2015. Merging REDD+ into ministry should be more effective *Jakarta Post*, January 31.

Young, O.R., 2002. *The institutional dimensions of environmental change: Fit, interplay, and scale* Cambridge, Massachusetts, USA: MIT Press.