

The 2015 Global Climate Legislation Study

A Review of Climate Change Legislation in 99 Countries

Summary for Policy-makers



Michal Nachmany, Sam Fankhauser, Jana Davidová, Nick Kingsmill, Tucker Landesman, Hitomi Roppongi, Philip Schleifer, Joana Setzer, Amelia Sharman, C. Stolle Singleton, Jayaraj Sundaresan and Terry Townshend



Grantham Research Institute on
Climate Change and
the Environment



GLOBE
The Global Legislators Organisation



Inter-Parliamentary Union
For democracy. For everyone.



Grantham Research Institute on
Climate Change and
the Environment

The Grantham Research Institute on Climate Change and the Environment was established in 2008 at the London School of Economics and Political Science. The Institute brings together international expertise on economics, as well as finance, geography, the environment, international development and political economy to establish a world-leading centre for policy-relevant research, teaching and training in climate change and the environment. It is funded by the Grantham Foundation for the Protection of the Environment, which also funds the Grantham Institute for Climate Change at Imperial College London. More information about the Grantham Research Institute can be found at: <http://www.lse.ac.uk/grantham/>



GLOBE
The Global Legislators Organisation

GLOBE - The Global Legislators Organisation is an international organisation comprising national parliamentarians from over 80 countries committed to developing and overseeing the implementation of laws in pursuit of sustainable development. GLOBE is a non-party political organisation that supports legislators through national chapters to develop and advance laws on climate change, natural capital accounting and forests. More information about GLOBE can be found at: <http://globelegislators.org/>



Inter-Parliamentary Union
For democracy. For everyone.

The IPU is the international organization of Parliaments. It was established in 1889. The Union is the focal point for world-wide parliamentary dialogue and works for peace and co-operation among peoples and for the firm establishment of representative democracy. More information about the IPU can be found at: <http://www.ipu.org/>

The 2015 Global Climate Legislation Study

A Review of Climate Change Legislation in 99 Countries

Summary for Policy-makers

Michal Nachmany, Sam Fankhauser, Jana Davidová, Nick Kingsmill, Tucker Landesman, Hitomi Roppongi, Philip Schleifer, Joana Setzer, Amelia Sharman, C. Stolle Singleton, Jayaraj Sundaesan and Terry Townshend

Typeset by Mike Scott, Carbon Copy Communications Ltd
Printed in the UK by Seacourt Ltd.

Contents

Terms and abbreviations	6
List of tables and figures	7
Foreword by the Chairman GLOBE International.....	8
Foreword by the President of the Inter-Parliamentary Union	10
Foreword by the Executive Secretary of the UN Framework Climate Change Convention	11
The 2015 Global Climate Change Legislation Study at a Glance	12
1. Introduction	14
2. Legislative dynamics.....	16
2.1 Progress in 2014.....	16
2.2 The year 2014 in the long-term context	19
2.3 Continuing momentum.....	22
3. Towards good practice in climate legislation	23
3.1 Information	23
3.2 Targets.....	25
3.3 Laws and policies.....	28
4. Methodology.....	30
4.1 Definitions	30
4.2 Scope.....	30
4.3 Data sources for country indicators	31
4.4 Review process.....	32
5. Acknowledgements.....	33
6. References.....	38
Annex – Framework laws and stock of laws per country.....	39

Terms and abbreviations

ADAPTATION - Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects

ANNEX I COUNTRIES – Group of OECD countries and Economies in transition listed in Annex I to the UN Framework Convention on Climate Change

NON-ANNEX I COUNTRIES - Countries that have ratified or acceded to the United Nations Framework Convention on Climate Change that are not included in Annex I of the Convention (mostly developing countries)

ANNEX 2 COUNTRIES – Countries of Annex I that have special obligation to provide financial resources and facilitate technology transfer to developing countries. This group includes 24 OECD countries and the European Union

CDM- Clean Development Mechanism of the Kyoto Protocol

COP – Conference of the parties to the UN Framework Convention on Climate Change

ETS – Emissions Trading System

EU ETS – European Union Emissions Trading System

GEF - Global Environment Facility

INDC - Intended Nationally Determined Contribution

LULUCF - Land Use, Land-Use Change, and Forestry

MOP – Meeting of the Parties to the Kyoto Protocol

MRV - Measurement, Reporting and Verification

PES - Payments for Ecosystem Services

MITIGATION - Initiatives to reduce emissions of greenhouse gases

NAMAs - Nationally Appropriate Mitigation Actions

NAPAS – National Adaptation Plans of Action

REDD+ - Mitigation measures related to “Reducing Emissions from Deforestation and Forest Degradation (REDD)” that also include conservation, sustainable management of forests and enhancement of forest carbon stocks, thus REDD+

UNDP - United Nations Development Programme

UNEP - United Nations Environment Programme

UNFCCC - United Nations Framework Convention on Climate Change

UN-REDD - United Nations collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries

List of tables and figures

Figure 1. Climate legislation over time - new climate change related laws and policies until 2014.....	19
Figure 2. Stock of climate change legislation by the end of 2014.....	20
Figure 3. Climate change legislation in 99 countries, 1997 (54 laws and policies)	21
Figure 4. Climate change legislation in 99 countries, 2009 (426 laws and policies)	21
Figure 5. Climate change legislation in 99 countries, 2014 (804 laws and policies)	21
Figure 6. Date of the most recent national greenhouse gas inventory.....	24
Figure 7. National risk assessment for 99 countries	24
Figure 8. Economy-wide emissions up to and beyond 2020.....	26
Figure 9. Countries with economy-wide emission reduction targets	26
Figure 10. Countries with economy-wide and specific targets, by emission ranking	27
Figure 11. Countries with specific emission reduction targets, by legislation type	27
Figure 12. Mitigation and adaptation framework laws and policies.....	28
Figure 13. Mitigation frameworks, by type	29
Figure 14. Adaptation frameworks, by type.....	29
Figure 15. Countries that have laws and policies for various areas	29
Table 1. Laws and policies passed in 2014	16
Table 2. Countries with absolute and relative economy-wide emission reduction targets	25

Foreword by the Chairman GLOBE International



GLOBE International is proud to sponsor the 5th edition of the Global Climate Legislation Study with our partners, the Grantham Research Institute at the London School of Economics - a collaboration that dates back to the 1st GLOBE Climate Legislation study in December 2010.

This year the study is co-sponsored for the first time, by the Inter-Parliamentary Union (IPU). In doing this we signal fresh determination by legislators to work together, in a consolidated fashion, for action on climate change. It also recognises the importance of 2015 and the need to build momentum ahead of the UNFCCC climate negotiations in Paris in December, when a legally-binding global agreement must be agreed.

This year not only marks 21 years since the first deliberations of the UNFCCC, it also marks a key moment in inter-governmental processes. Many have referred to 2015 as a 'generational opportunity' – a signal moment to build a new international framework addressing inter-connected global challenges of sustainable development and climate change.

Throughout this year, the international community takes stock of, and forges, new framework documents on disaster risk reduction (Sendai, March); finance for development (Addis Ababa, July); post-2015 sustainable development goals (New York, September); and climate change (Paris, December). It is essential that these international frameworks are not mutually exclusive, but mutually reinforcing.

For this reason, GLOBE International has developed a 'Coherence and Convergence' approach to the four UN summits in 2015. We are working closely with the UNFCCC, UNEP and others to ensure that the outcomes of these negotiations are aligned, not contradictory. We have also advocated National Parliamentary Hearings on the INDCs to ensure that pledges by governments are subjected to parliamentary scrutiny in advance of COP21. It is important that these pledges must be aligned with national development objectives and that they result in raised, not lowered, national ambition on climate action.

As this 5th study shows, climate change continues to be a prime concern for legislators worldwide. The study covers the countries responsible for the vast majority of global greenhouse gas emissions and practically all of them have some form of climate change legislation. Around half of them have explicit targets.

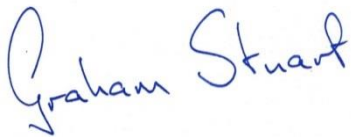
This study reflects the work that legislators have done around the world to build an architecture of legal response to the climate challenge. It will be an indispensable resource to those everywhere who seek to hold governments to account for action on climate change. But our work has only just started. As every legislator knows, passing laws is not the end, but just the beginning of the process of providing an effective response. The INDCs are key to this.

From now until December 2015, we will work to ensure that governments raise the bar and produce INDCs that are ambitious and adequately resourced, bearing in mind the needs of poorer and vulnerable nations. Crucially, the INDCs must collectively serve to keep global emissions below the 2°C warming threshold. At present, the INDCs that have been announced fail to do this and legislators have a role in correcting this. Other areas requiring our intervention are in securing language on long-term goals, and ensuring review mechanisms to continually ratchet up national ambition on mitigation and adaptation.

One pivotal area where legislators can make an immediate difference is in ratifying the Doha Amendment. This was adopted by parties in December 2012 following the end of the first commitment period of the Kyoto Protocol, and ushered in the second commitment period. Yet ratification lags far behind what is needed. Of the 144 instruments of acceptance required for the amendment to enter into force, only 28 have been deposited with the UN.

Ratifying the Doha Amendment is a clear indication of national intent and commitment. It would establish the political credibility required for another legally binding climate agreement in Paris. GLOBE International urges our members, as a matter of priority, to complete the legislative and political processes leading to the ratification of the Doha amendment in their countries.

For legislators, Paris is not the end point, but the beginning. In 2016, when the Paris agreement comes before Parliaments, legislators will determine whether it is fit-for-purpose. As befits our role, we must serve as the most effective form of national monitoring, reporting and verification (MRV) not only of the new international climate regime, but also the new frameworks to emerge from the overall 2015 agenda. To do any less would be to fall short of the generational opportunity presented by 2015.



Graham Stuart, MP, Chairman, GLOBE International

Foreword by the President of the Inter-Parliamentary Union



As President of the Inter-Parliamentary Union, the world organisation of parliaments, I am honoured to be associated with the 2015 Global Climate Legislation Study. This publication is distinctly unique and valuable. It has long been an indispensable reference tool for parliamentarians, diplomats and researchers alike.

At the IPU, we firmly believe that legislators are a central element of any successful strategy for tackling climate change and that they bear their own share of responsibility for its effective implementation. As mandated representatives of the people, parliamentarians are duty-bound to enact and amend laws, approve national budgets and hold governments to account.

It is for that reason that we consider periodic reviews of climate change legislation to be so important. The fact that this Study is in 2015 only adds to its topicality as three interlinked UN processes are supposed to culminate with substantive outcomes during the year.

In March, the Third UN World Conference on Disaster Risk Reduction adopted the Sendai Framework for Disaster Risk Reduction for 2015-2030, calling *inter alia* on the IPU to continue supporting and advocating for the strengthening of relevant national legal frameworks. In September, Heads of State and Government meeting in New York are expected to adopt a set of Sustainable Development Goals to succeed the Millennium Development Goals. Finally, in December, the UNFCCC session in Paris should adopt a new universal climate change agreement, to be applied from 2020 onwards.

Unless transposed into national legislation and followed by robust oversight, these international agreements will be neither credible nor effective. With regard to the eventual climate change agreement, the IPU has already declared its intention to accompany it with a parliamentary action plan, thereby laying the groundwork for legally effective results of climate-related global action for the years from the Paris session up to 2020.

I reiterate the IPU's readiness to step up climate action together with its 166 Member Parliaments. We are also open to co-operation with a broad circle of partners on global climate advocacy, including international organisations, sub-national and local authorities, research institutions and civil society. Wide circulation of the findings and conclusions of the Global Climate Legislation Study is part of these efforts.

Our objective is to use the constitutional leverage vested in parliamentary institutions to galvanize the political will necessary for low-carbon, energy-efficient development and climate-resilient societies.

A handwritten signature in black ink that reads "Saber H. Chowdhury". The signature is written in a cursive style and is positioned above a long, thin horizontal line that extends across the width of the signature.

Saber H. Chowdhury, President, Inter-Parliamentary Union (IPU)

Foreword by the Executive Secretary of the United Nations Framework Climate Change Convention



Climate change is one of the greatest challenges of our time. Around the world, a clarion call is rising from governments, civil society and business to urgently curb greenhouse gas emissions and adapt to climate change. Governments of the world have agreed to limit average global warming to less than 2° Celsius. In Paris at the end of this year, they have the opportunity to put in place a longer-term framework to achieve this by agreeing to a new universal climate change agreement.

A new universal climate change agreement needs to set the world on a clear path of declining emissions over time. The reality of the science indicates that global emissions need to be halved by 2050 and at some point in the second half of the century, emissions need to be so low that healthy ecosystems such as forests can readily absorb the emissions that are left. This is commonly referred to as ‘climate neutrality’.

A transformation to a climate-neutral, clean energy economic model needs to occur soon. In those areas where it has begun, it is already delivering huge benefits in and between nations.

Increasingly strong and co-ordinated domestic policies, laws and incentives encourage more ambitious climate action now and in the immediate future. They also ensure a firm foundation for the new international agreement, especially its effectiveness going forward over time.

In this context, the results of the 2015 Global Climate Legislation Study are encouraging. Over 800 laws and policies were identified across the 99 countries included in the study. The trend of passing climate legislation continues among both developing and developed countries. Nearly half the study countries have emission reduction targets up to 2020, most of them formally anchored in laws or policies and approximately 70 per cent of the study countries have framework laws or policies to address climate change mitigation.

The study breaks new ground by including a set of indicators for each country, which shed light on areas that require strengthening and aspects that would benefit from linking. These indicators allow for gaps in countries’ legislative responses to climate change to be identified and addressed. Overall, the indicators provide an important tool for countries to increase their ambition.

I invite legislators to take advantage of this new, powerful tool and to use it to help increase their contributions towards meeting the 2° Celsius goal. In doing so, legislators can help to put the Paris agreement on a solid foundation to decisively meet one of the greatest challenges of our time – climate change.

A handwritten signature in black ink, appearing to read 'Christiana Figueres', written in a cursive style.

Christiana Figueres, Executive Secretary, United Nations Framework Climate Change Convention

The 2015 Global Climate Legislation Study at a Glance

The 2015 Global Climate Legislation Study covers 99 countries worldwide



The study covers national laws and policies directly related to climate change mitigation and adaptation, passed before 1st January 2015.

It covers 33 developed and 66 developing countries; 32 Annex-I and 67 non-Annex-I countries.

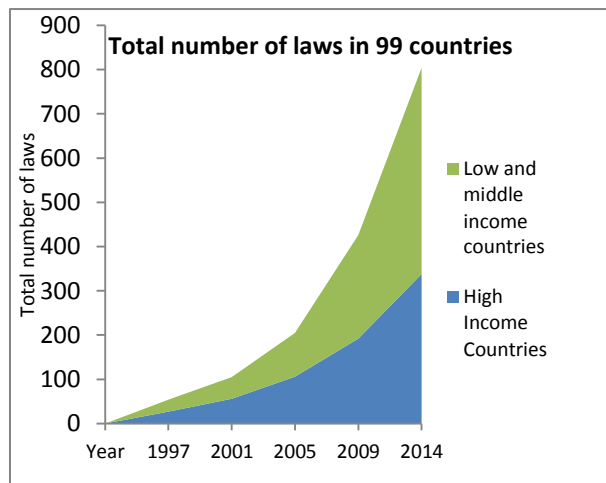
Taken together, the study countries produce 93 per cent of world emissions, including 46 of the world's top 50 emitters. They are home to 90 per cent of the world's forests.

Since 1997, the number of climate change laws and policies has doubled every 5 years

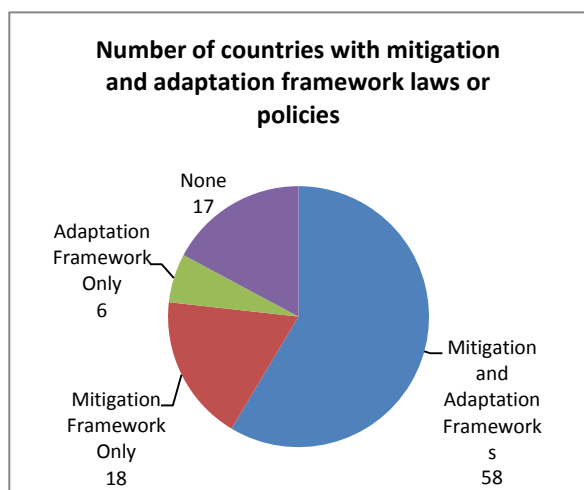
By the end of 2014 there were 804 climate change laws and policies – rising from only 54 laws and policies in 1997, and 426 in 2009 when the Copenhagen Accord was signed.

Approximately half of those (398) were passed by the legislative branch, and half (408) by the executive branch (e.g. policies, decrees).

46 new laws and policies were passed in 2014, compared with 82 in 2013.



58 countries have framework laws or policies to address both mitigation and adaptation



Framework legislation has been defined as a law or regulation with equivalent status, which serves as a comprehensive, unifying basis for climate change policy, which addresses multiple aspects or areas of climate change mitigation or adaptation (or both) in a holistic, overarching manner.

Frameworks have been shown to encourage a strategic approach to climate policy and generate further policy action.

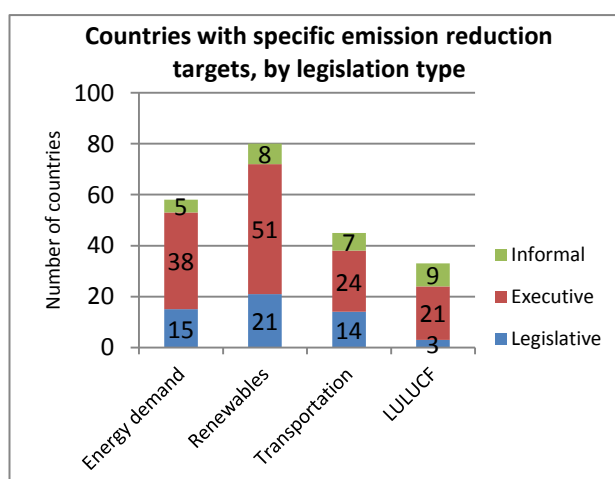
17 countries do not have any climate framework legislation.

Over 75 per cent of global emissions are covered by economy-wide emission reduction targets

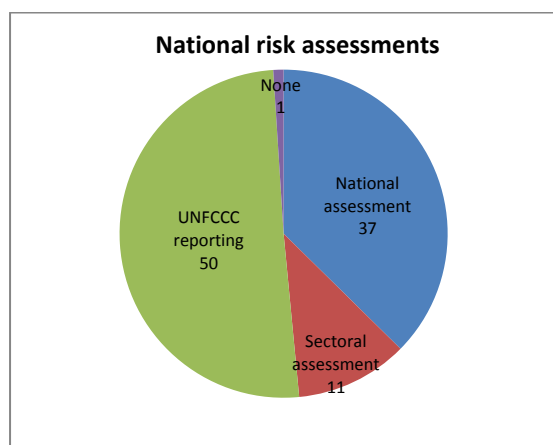
45 countries (including the EU as a block) have economy wide targets to reduce their emissions. Together they account for over 75 per cent of global emissions.

41 of them have economy-wide targets up to 2020, and 22 have targets beyond 2020.

86 countries have specific targets (for renewable energy, energy demand, transportation or LULUCF). 80 per cent of countries have renewable targets; the majority of them are executive policies.



Adaptation: half of the study countries have only minimal climate change risk assessments



In 51 countries adaptation plans do not go beyond the reporting requirements in the national communications to the UNFCCC.

Most of these countries are non-annex I countries, which include some of the most vulnerable countries to climate change.

48 countries have dedicated institutionalized adaptation processes at the national or the sectoral level.

1. Introduction

This report summarises the main insights from the 2015 Global Climate Legislation Study. It is the fifth edition in a series dating back to 2010 (Townshend et al., 2011). The 2015 edition covers 99 countries, up from 66 in 2014, which together account for 93 per cent of global greenhouse gas emissions.

In addition to this summary, the study includes detailed country chapters with a full list of laws for each of the 99 countries covered, a set of country fact sheets with key indicators, and the complete database of over 800 climate-related laws. All this information is available on the website of the Grantham Research Institute on Climate Change and the Environment at the London School of Economics (www.lse.ac.uk/GranthamInstitute/Legislation).

The 2015 study retains the broad definition of climate and climate-related laws of earlier editions, which reflects the relevance of climate policy for a wide range of areas, including energy, transport, land use and climate resilience. The authors maintain the focus on climate action at the national level, although they recognise the crucial importance of sub-national initiatives at the state, provincial and municipal level. Compared with the 2014 edition the methodology has been improved, with a more careful distinction between laws that are legislative in origin (passed by parliaments) and executive in origin (enacted by governments). The understanding of framework laws – the overarching laws that create a unifying basis for climate policy in many countries – has been refined and additional information about emissions targets and climate policies has been included.

The study comes at an important juncture in international climate diplomacy, as countries prepare for the crucial UN Conference of the Parties meeting in Paris in December 2015 and work out their intended nationally determined contributions (INDCs) to a new climate agreement. A review of the legislative basis on which the INDCs are based, like that provided in the study, can provide important insights into the credibility of these commitments and help to identify gaps.

The results are encouraging in this respect. Although current commitments made by top emitters are not consistent with the international goal of avoiding global warming of more than 2°C (Boyd et al., 2015), the pace and breadth of climate action identified provides cautious cause for optimism:

- Over the past five years the number of climate laws has nearly doubled from 426 in 2009 to 804 at the end of 2014.
- Nearly half of the study countries have emission reduction targets up to 2020, most of them formally anchored in laws or policies.
- Over 75 per cent of global emissions are subject to an economy-wide emissions reduction target.
- Eight out of ten countries have a renewable energy target, and nine out of ten have targets to promote low-carbon technologies.

The study is intended as a source of information for legislators, researchers and policy-makers. It is hoped that parliaments considering climate change legislation will benefit from the growing body of experience reflected in the study. Facilitating knowledge exchange among parliamentarians was one of the primary motivations behind the Climate Legislation Study when the series was conceived by the Grantham Research Institute, LSE and GLOBE International in 2010. Since then there have been many examples of parliamentarians learning from, and being inspired by, each other through forums such as GLOBE and the Inter-Parliamentary Union – the two co-sponsors of the 2015 study. For

example, China's sub-national carbon markets draw on the experience of the European Union's emissions trading system, and Mexico's 2012 General Law on Climate Change draws on the UK Climate Change Act of 2008 (Nachmany et al., 2014).

The study is also a rich source of information for scholars of climate policy, with all data openly available. Initial analysis has already provided interesting new insights. It has confirmed, for example, the importance of international policy diffusion in creating a virtuous circle in climate legislation: the number of laws passed elsewhere is a powerful determinant of climate legislation in a country (Fankhauser et al., 2015). It has also laid to rest the widespread view that climate change is a left-of-centre policy issue. In the overwhelming majority of countries there is no difference in the legislative behaviour of rightwing and leftwing governments (Fankhauser et al., 2014). The authors hope that many more research teams will use the data to shed light on the determinants and drivers of climate policy.

This summary of the 2015 Global Climate Legislation Study is structured as follows. Section 2 documents legislative dynamics, with an overview of new laws passed in 2014 and how this trend compares to previous years. Section 3 begins to assess the quality of climate laws, by comparing their content to good legislative practice in terms of information gathering, targets and policies. Section 4 summarises the study methodology, including definitions and scope. Section 5 acknowledges the many people in parliaments, think tanks, academia and civil society that have helped the authors to collect, review and assess the information contained in the study. The study would not have been possible without them.

2. Legislative dynamics

This section summarises the major developments in climate change legislation and policy-making in 2014. It considers the climate laws, regulations, policies and decrees issued by the 99 countries covered by the study up to the cut-off date of 1st January 2015. Climate legislation is an ongoing, dynamic process. Progress in 2014 is therefore also examined in relation to 2013 and in the long-term context. Several laws and policies that were passed in early 2015, after the cut-off date of this study, are acknowledged to illustrate how the momentum on climate legislation continues.

2.1 Progress in 2014

In 2014, **46 new laws and policies** were issued by 34 of the 99 countries covered by the study – 17 developing countries and 17 developed countries.^{1,2} Of these laws, 21 were legislative (passed by parliaments) and 25 were executive (enacted by governments). The climate-related laws and policies passed in 2014 are listed in table 1 below:

Table 1. Laws and policies passed in 2014

Country	Law/Policy	Legislative/ Executive
Algeria	Regulator Order on electricity generated from facilities using photovoltaics	Executive
Angola	Presidential Decree 85/14 approving the Statute of the Ministry for Environment (MINAMB) Presidential Decree 17/14 approving the Modernisation Programme of the National Institution of Meteorology and Geophysics (INAMET)	Executive Executive
Australia	Carbon Farming Initiative Amendment Bill	Legislative
Austria	Energy Efficiency Act	Legislative
Bangladesh	Climate Fiscal Framework	Executive
Belgium	Special Act to reform the finance of the Communities and the Regions, the extension of the tax autonomy of the Regions and the finance of new competences	Legislative
Bolivia	Law 602 on Risks Management	Legislative
Bulgaria	Climate Change Mitigation Act	Legislative
Chile	Law No. 20780 on environmental taxation (carbon tax); National Climate Change Adaptation Plan	Legislative Executive
China	Energy Development Strategy Action Plan (2014-2020); National Plan For Tackling Climate Change (2014-2020)	Executive Executive
Colombia	Law 1715, regulating the integration and promotion of non-conventional renewable energy to the national energy system	Legislative
Democratic Republic of Congo	Law 14/003 on the Protection of the Nature; Law 14/011 on the Electricity Sector	Legislative Legislative
Denmark	Climate Change Act 2014	Legislative
EU	2030 Framework For Climate And Energy Policies; European Energy Security Strategy; Regulation 517/2014 on fluorinated greenhouse gases	Legislative Legislative Legislative
France	Farming, forest and alimentation Framework Policy 2014-1170	Legislative

¹ According to World Bank classification for developing countries (countries with low and middle- income) and developed countries (countries with high income)

² The European Union is treated as one entity, see section 4.

Country	Law/Policy	Legislative/ Executive
Germany	Action Programme on Climate Protection 2020	Executive
Greece	Ministerial Decision 21906 on the compensation to carbon intensive industries (sectors and sub-sectors) exposed to carbon leakage caused by the indirect costs of the EU ETS	Executive
Indonesia	National Medium Term Development Plan (2015-2019); New Geothermal Law 21/2014	Executive Legislative
Ireland	The National Energy Efficiency Action Plan; Offshore Renewable Energy Development Plan	Executive
Italy	Law Decree 145/20131 that amended the incentive regime to electricity plants fuelled by renewable energy sources other than photovoltaic plants; Law 116 on urgent provisions for the agricultural sector, environment, company development and, inter alia, reduction of energy bills	Legislative Legislative
Mongolia	Green Development Policy	Executive
Morocco	Dahir 1-14-09, which promulgates the Framework Law 99-12, concerning the national charter of the environment and sustainable development	Executive
Pakistan	Pakistan 2025: One Nation, One Vision	Executive
Peru	Directive on the Commercialisation of Fees Generated by Ecosystem Conservation Projects in Nationally Protected Areas; Law 30215 on Mechanisms of Compensation for Services to Ecosystems	Executive Legislative
Philippines	Executive Order 174, institutionalising the Greenhouse Gas Inventory Management and Reporting System	Executive
Poland	Strategy for Energy Security and Environment	Executive
Romania	Law on energy efficiency 121/2014; Government Decision 1026/ 2014 on the reorganisation of the National Commission on Climate Change	Legislative Executive
Russia	Decree 321, approving the State Programme on Energy Efficiency and Energy Development	Executive
Senegal	Decree 2014-880 on the powers of the Minister of Environment and Sustainable Development	Executive
Slovakia	Resolution 148/2014 establishing the National Adaptation Strategy	Executive
Spain	Royal Decree 413/2014, regulating the production of electricity generation from renewable energy, cogeneration and waste; Royal Decree 525/2014, on the subsidisation of the Incentives Programme for Efficient Vehicles	Executive Executive
Tanzania	Agriculture Climate Resilience Plan	Executive
Zimbabwe	National Climate Change Response Strategy	Executive

Not all climate laws are equal in importance or scope. Research has shown that overarching **framework laws and policies** (Fankhauser et al., 2014) are of particular importance in driving climate policy. Eight such framework laws were passed in 2014. A framework law is defined as a law, or regulation with equivalent status, which serves as a comprehensive, unifying basis for climate change policy, addressing multiple aspects and issues of climate change mitigation or adaptation (or both) in a holistic, overarching manner.

The eight framework laws and policies passed in 2014 are listed below. Some of them update earlier frameworks (for example, in the case of the European Union) but many constitute the first attempt of a country to create an overarching basis for climate action.

Bulgaria issued a Climate Change Mitigation Act, which lays down the principles of the state policy in relation to climate change, the rules for operation of the emissions trading mechanism and procedures for financing green projects. It also sets the target of minimum 6 per cent reduction of the lifecycle greenhouse gas emissions of liquid fuels and energy for transport/unit of energy by 2020 compared to the 2010 fuel standards.

Chile adopted a National Climate Change Adaptation Plan. The plan provides the overall framework for the adaptation activities of different sectors and different administrative levels. The plan has four main themes: scientific research; communication and environmental education; institutional strengthening; and disaster risk reduction.

China adopted its National Plan for Tackling Climate Change, a comprehensive strategy that covers mitigation, adaptation, scientific research and public awareness. The plan includes the following targets: by 2020, to cut carbon emissions per unit of GDP by between 40 and 45 per cent from 2005 levels, to increase the percentage of non-fossil fuels in primary energy consumption to 15 per cent, and to increase the proportion of forest area and stock volume by 40 million hectares and 1.3 million square miles respectively from a 2005 baseline.

Denmark passed the Climate Change Act, which establishes an overall strategic framework for the National Climate Policy to achieve a low carbon society by 2050. A national greenhouse gas reduction target of 40 per cent by 2020 compared to 1990 levels was also approved in Parliament in 2014.

The **European Union** set out its 2030 framework for climate and energy policies, with leaders agreeing a target to reduce greenhouse gas emissions by at least 40 per cent and to increase the share of renewable energy to at least 27 per cent. A reform of the European Union Emissions Trading System was also agreed. The framework was passed in October 2014 by the European Council.

Germany adopted the Action Programme on Climate Protection, which aims to cut greenhouse gas emissions by 2020 by at least 40 per cent compared with 1990 levels. The Programme includes transport-specific measures, climate-friendly building and housing, and a reform of emissions trading. It also confirms an increase in subsidies for energy efficiency measures to USD4.2 billion per year (up from USD2.4 billion per year).

Mozambique approved a Framework Law for Disaster Management, including prevention and mitigation. This law addresses disaster prevention, mitigation, and management and emphasises the importance of strategic readiness and systematic preparedness to prevent the impacts of climate change.

Slovakia adopted a National Adaptation Strategy. The strategy aims to disseminate information and knowledge, strengthen institutional frameworks, and develop risk assessment methodologies. It also focuses on developing and applying economic assessments of adaptation measures.

These laws and policies were passed in a context where countries are increasingly willing to coordinate climate action. China and the United States, the top two global emitters, made an essential step towards a new global accord when, in November 2014, they announced measures to reduce their greenhouse gas emissions by 2030. Significantly, China agreed to slow and then reduce its emissions by 2030 while the United States agreed to reduce emissions by up to 20 per cent by 2025 below 2005 levels. Both countries also committed to ensure the negotiations in Paris were a success, and to co-operate on clean energy and environmental protection.

There were some legislation reversals in 2014. Notably, Australia repealed most of its carbon tax and Clean Energy Package, becoming the first developed country to take a legislative step back from

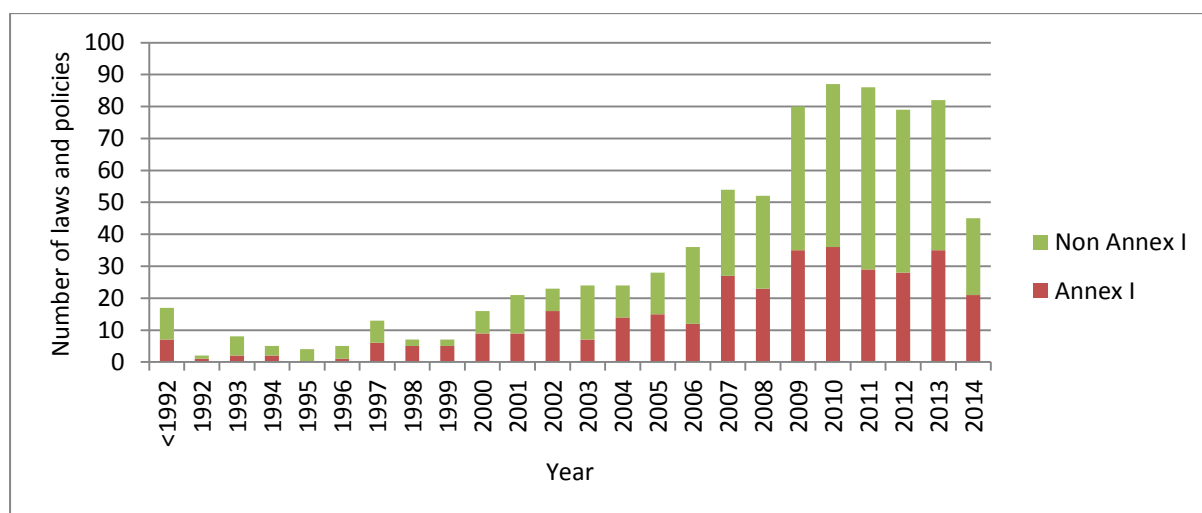
acting on climate change. Spain passed a controversial clean-energy decree that revised the subsidies regime for renewable energy, including for existing projects – a move that dismayed investors.

2.2 The year 2014 in the long-term context

Compared with 2013, the pace of adopting new climate legislation slowed in 2014 – the 46 laws and policies passed by 34 countries last year compare with 82 laws and policies passed by 55 countries in 2013. The drop is particularly marked for executive acts, which fell from 61 acts in 2013 to 25 in 2014. The number of legislative acts remained constant at 21.

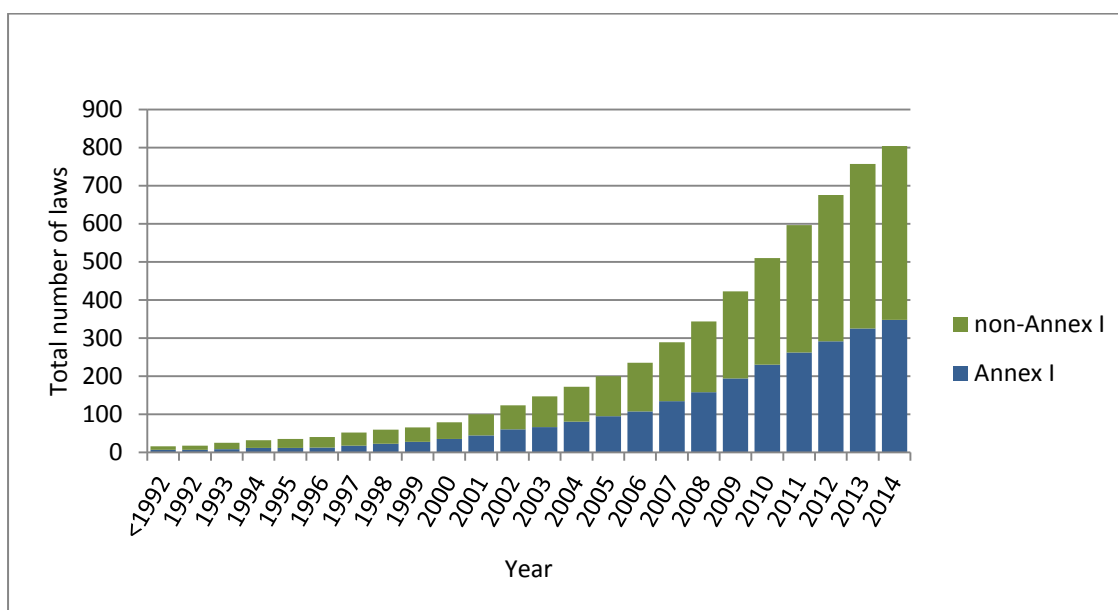
The number of framework laws and policies that were passed also reduced, from 20 in 2013 to 8 in 2014. This may reflect the fact that a growing number of countries already have overarching laws in place. With more and more countries having laws in place, there is a reduced need to legislate further; instead, the focus shifts to implementing existing commitments.

Figure 1. Climate legislation over time - new climate change related laws and policies until 2014



Despite the slow-down in 2014, we have seen a remarkable rise in climate change legislation over recent years. The stock of climate laws doubled between 2005 and 2009 and then doubled again between 2009 and 2014. At the end of 2014 there were 804 climate-related laws on the statute books of the 99 study countries (Figure 2).

Figure 2. Stock of climate change legislation by the end of 2014



The geographical spread of climate change legislation over the years can be seen in Figure 3 to 5. In 1997, when the Kyoto Protocol was signed, the 99 study countries had 54 laws and policies and few countries had more than two or three relevant acts. In 2009, the year the Copenhagen Accord was signed, the number of laws had grown to 426, distributed fairly evenly between developed and developing countries. The year 2014 sees a total of over 800 laws and policies, with much of the growth having come in developing countries. Additionally, we observe a shift from laws passed by the legislative branch towards policies passed by the executive branch – a trend that may signal a greater emphasis on implementation.

Figure 3. Climate change legislation in 99 countries, 1997 (54 laws and policies)



Figure 4. Climate change legislation in 99 countries, 2009 (426 laws and policies)

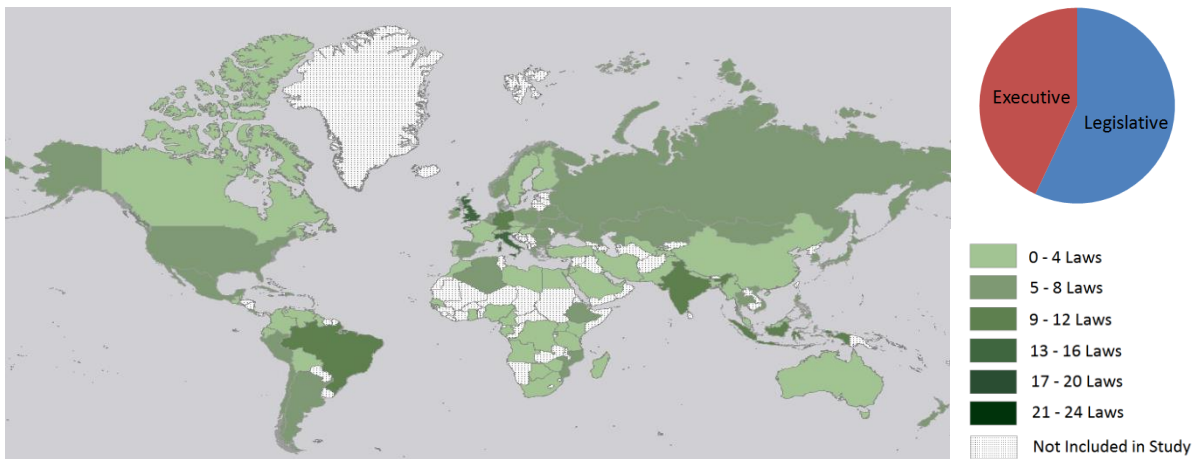
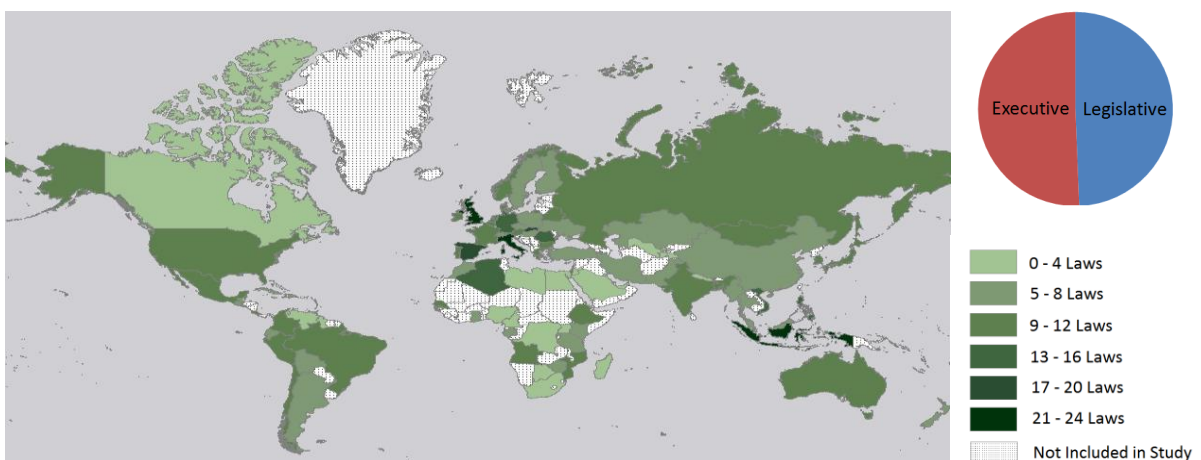


Figure 5. Climate change legislation in 99 countries, 2014 (804 laws and policies)



2.3 Continuing momentum

The passage of legislation continues, with a number of prominent laws and policies passed in early 2015, as this study publication neared publication. **Finland** passed a law committing to an 80 per cent emissions reduction by 2050 compared with a 1990 baseline, and allowing an increase in the target based on latest climate science. The law creates a legal framework for bottom-up, long-term, climate policy planning and implementation of a low-carbon society. Also in early 2015, legislators in **Norway** agreed to draft the country's first flagship climate change law by 2017. It should set binding greenhouse gas emission reduction targets for 2020, 2030 and 2050, regulations for reporting emissions and a series of carbon budgets. The **United States** published an executive order 'Planning for Federal Sustainability in the Next Decade', setting a new target for the federal government's greenhouse gas emissions to be reduced by 40 per cent by 2025 against a 2008 baseline. **Indonesia** launched a National Medium Term Development Plan for 2015-2019. The plan identifies a green economy as the foundation of the country's development programme, with emphasis on increasing environmental quality, disaster mitigation and tackling climate change.

More legislative action and reforms are expected as countries look to implement their intended nationally determined contributions (INDCs) to the expected Paris agreement.

3. Towards good practice in climate legislation

It is not possible to answer accurately the question ‘what makes a good climate law?’ In addition to the inherent complexity of climate policy (e.g., about the right approach to clean technology promotion, energy efficiency or forest protection) there are huge variations amongst countries in terms of economic structure, the stage of development, exposure to climate risk, legislative culture, public opinion and political leadership. There is no one-size-fits-all solution.

However, there are several high-level elements that may be considered good practice, and which can guide policy-makers in dealing with climate change mitigation and adaptation (GLOBE International and the Grantham Research Institute, 2014). Three mutually reinforcing elements are *information*, *targets*, and *policies*. *Information* tells us where countries are; *targets* tell us where countries want to go, and *laws and policies* show the way to get there. Each of these elements is explained below, and key findings are presented on how these elements are reflected in the 99 study countries.

Information, targets and policies are not the only factors that determine good climate legislation. Advanced climate laws such as the UK’s 2008 Climate Change Act and Mexico’s 2012 General Law on Climate Change also pay close attention to institutional arrangements and responsibilities. Another key aspect is financing arrangements, including processes to mobilise climate finance from private and public sources (e.g. from international climate funds). However, it is not yet possible to define and assess good practice in these areas.

3.1 Information

A good evidence base for informed climate policy requires data about both emissions and climate risks, as well as about options to reduce emissions and improve resilience to climate change. A key plank of good climate change legislation is therefore a detailed **greenhouse gas inventory** consisting of compulsory, timely and systematic reporting of greenhouse gas emissions from all sectors as well as regular **climate change risk assessments** that can inform adaptation measures.

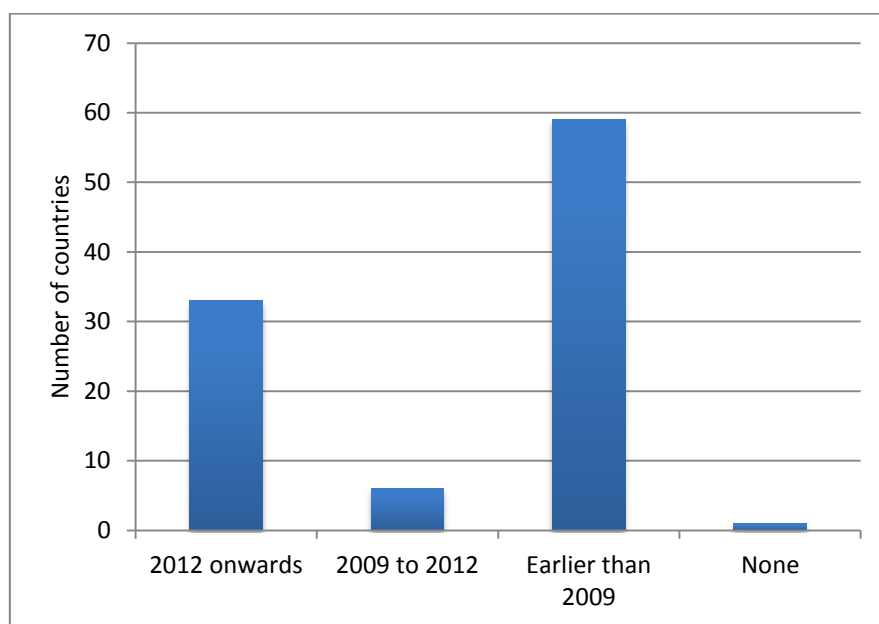
Greenhouse gas inventories

The most recent national greenhouse gas inventory data submitted to the UNFCCC (in the form of greenhouse gas inventory submissions for Annex I countries, and as part of National Communications for non-Annex I countries) show that all but one of the 99 countries have published some form of greenhouse gas inventory.

However, there is a large variation in the dates and frequency for which information is available, including some very outdated inventories. All 33 Annex I countries of the sample have up-to-date submissions for no later than 2012. However, the date of the latest available inventory for non-Annex I countries ranges from 2010 to 1990. Of the 59 countries for which the latest data is from before 2009, 19 have data available between 2001 and 2008, including China (2005) and Brazil (2005), while 40 countries report data for 2000 or before, including India (2000) and Indonesia (2000). Libya is the one country for which no data is available.

Some of these countries have published more up-to-date emissions data. However, they have not officially submitted it to the UNFCCC and it is therefore not taken into account in this analysis. India, for example, published in 2010 a more recent inventory for 2007.

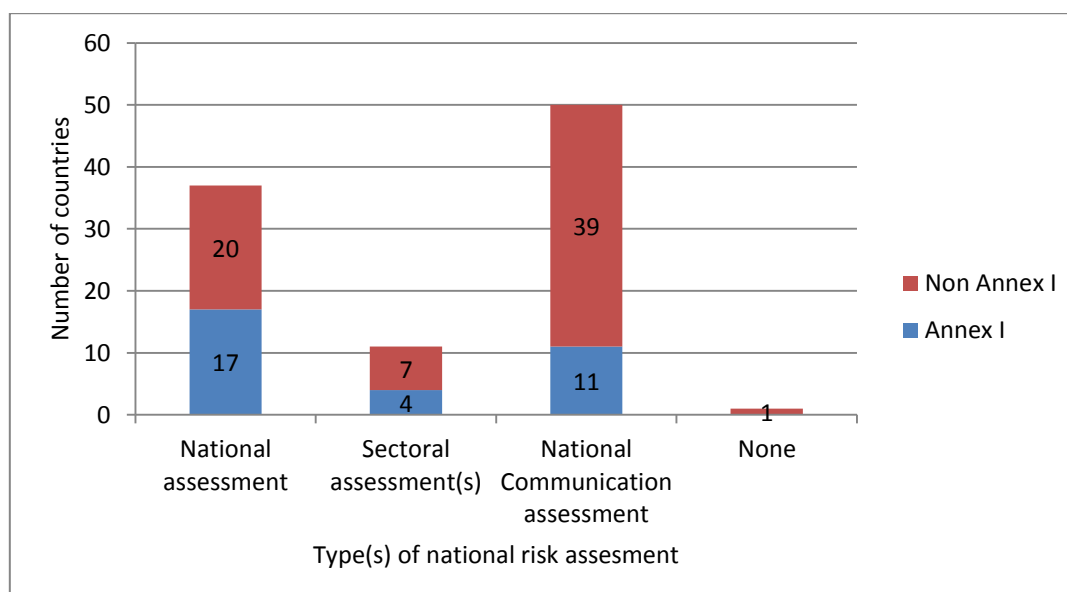
Figure 6. Date of the most recent national greenhouse gas inventory



Climate Change Risk Assessments

All countries except Libya have carried out some form of climate change risk assessment. However the assessments range from relatively light coverage in countries' national communications to the UNFCCC to comprehensive national-level risk assessments. Of the countries included in this analysis, the majority have only addressed climate risks within their national communications and the level of detail included in these varies significantly. A small number of the remaining countries have produced more specific risk assessments in addition to their national communications (such as water-, coastal- or desertification-themed assessments). However, almost two fifths of countries have also produced comprehensive national risk assessments. These assessments are sometimes stand-alone exercises, but are often included within climate change strategy documents or national adaptation plans.

Figure 7. National risk assessment for 99 countries



The quality of national risk assessments is linked to the capacity level of countries and in turn to their income. Only 40 per cent of developing countries are going beyond the minimal requirements of the national communications, while two thirds of Annex I countries have established more sophisticated procedures. Given that low-income countries are also the most vulnerable to climate change, this suggests substantial gaps in the global preparedness to climate risks and a need for continued technical assistance in this area.

3.2 Targets

Having clear climate targets helps to set a long-term trajectory and sends a signal of political intent to business and civil society. The long time horizon required for climate policy is at odds with the much shorter political cycle. Both short- and long-term targets are therefore required (Fankhauser, 2013). Targets may take various forms (absolute or relative) and economy-wide targets may be complemented by specific targets, for example on renewable energy, LULUCF or transport.

Almost half of the study countries – 45 out of 99, including the European Union – have economy-wide emission reduction targets, although in the case of India some sectors are excluded. The emissions covered by the above-mentioned targets represent nearly 75 per cent of global greenhouse gas emissions. That is, a clear majority of global emissions is now subject to an explicit emissions target. Of these countries, 41 countries have targets up to and including 2020; 27 countries have emission reduction targets going beyond 2020. Four countries do not have short-term targets but only targets beyond 2020 (Costa Rica, Dominican Republic, Ethiopia, and Iran). The remaining 54 countries have no economy-wide targets. These numbers are changing rapidly as countries are submitting their INDCs.

Economy-wide targets can either be absolute (emissions reductions against a known base year), which is the case for 33 countries. The remaining 11 countries that have economy-wide targets specify relative targets, either by stating a target against a business-as-usual (BAU) scenario, or by stating the reductions target as an emissions intensity reduction against a future GDP.

Table 2. Countries with absolute and relative economy-wide emission reduction targets

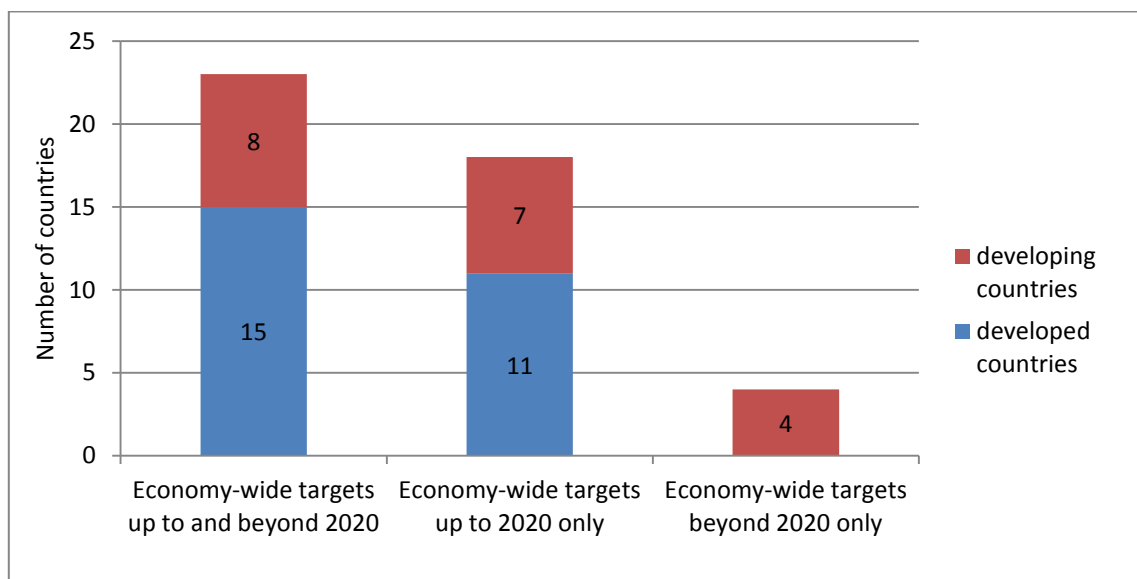
Absolute targets		Relative targets
Austria	Kazakhstan	Brazil**
Belgium	Maldives	China***
Bulgaria	Netherlands	India (excluding agriculture)** *
Costa Rica	New Zealand	Indonesia**
Czech Republic	Norway	Israel**
Denmark	Poland	Malaysia***
Dominican Republic	Portugal	Mexico**
Ethiopia	Romania	South Africa**
European Union*	Russia	South Korea**
Finland	Slovakia	Vietnam***
France	Spain	Iran**
Germany	Sweden	
Greece	Switzerland	
Hungary	Ukraine	
Ireland	United Kingdom	
Italy	United States of America	
Japan		
(covering 37% of global emissions)		(covering 38% of global emissions)

* Covering the EU28, including the 19 covered in this study

** Emissions reduction against BAU

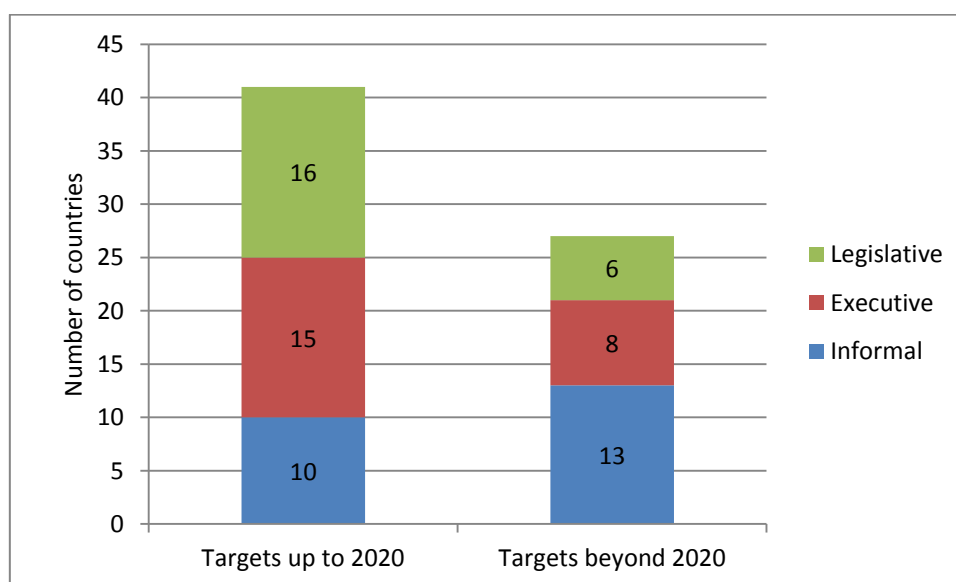
*** Emissions intensity target

Figure 8. Economy-wide emissions up to and beyond 2020³



Targets can be anchored in legislative acts (e.g., South Korea’s Framework Act on Low Carbon, Green Growth; Switzerland’s CO₂ Act), executive policies (e.g., Russia’s Presidential Decree 752; Singapore’s Climate Change Strategy), and informally, including in communications to the UNFCCC (e.g., the United States’ declaration in November 2014). Longer term targets are less likely to be anchored in legislative and executive acts and more likely to be informal communications.

Figure 9. Countries with economy-wide emission reduction targets⁴



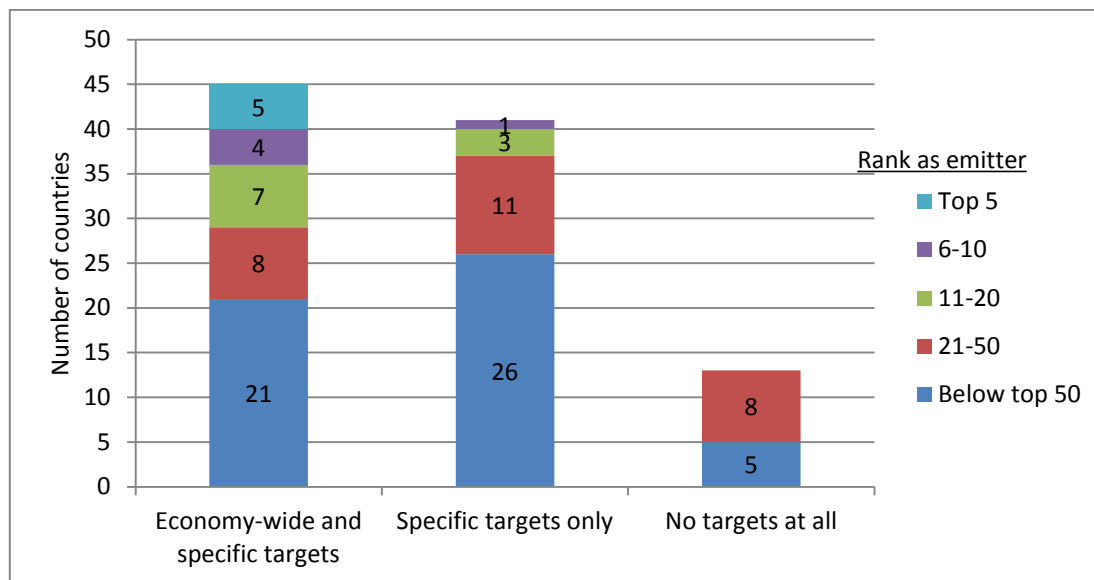
All 45 countries that have economy-wide emissions targets (including India) have technology or issue-specific targets to complement them, for example, renewable targets or targets for the transportation sector. Another 41 countries that do not have economy-wide targets instead have

³ Including India.

⁴ Note, the same country can have targets for both up to- and beyond 2020.

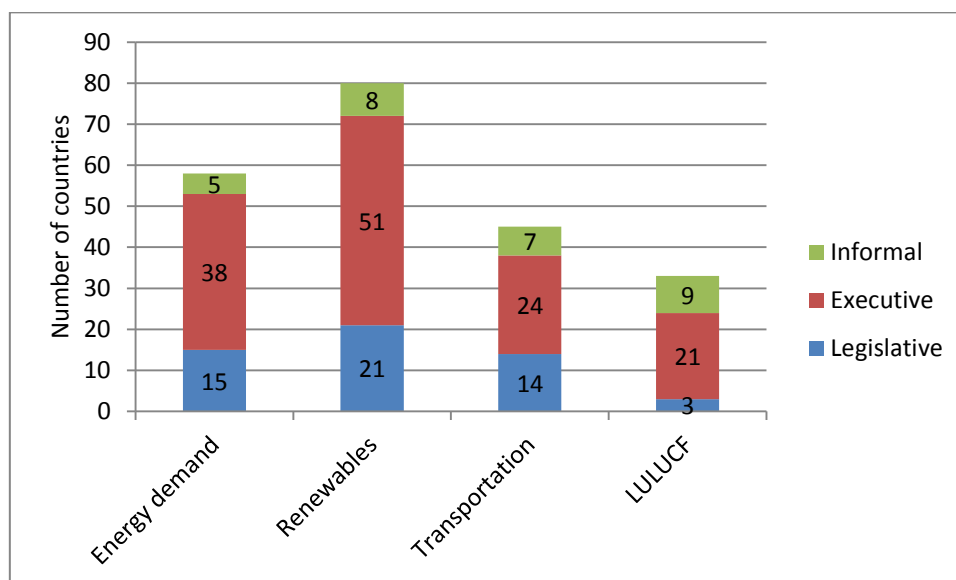
various specific targets. In total, 86 of the study countries have some sort of targets (of these targets, 37 are renewables targets, 16 LULUCF, 19 energy demand, 12 transport), and only 13 of the study countries have no stated targets at all.

Figure 10. Countries with economy-wide and specific targets, by emission ranking



Looking at the specific areas addressed by the targets, 80 countries have renewable energy targets; 57 countries have energy demand targets; 45 have transportation targets; 33 have LULUCF targets. The vast majority of technology or issue-specific targets are anchored in executive acts.

Figure 11. Countries with specific emission reduction targets, by legislation type



3.3 Laws and policies

Ultimately, the purpose of climate change legislation is to guide public policy. This is done either through a framework law or policy, or in a set of laws, regulations, decrees or binding plans, depending on the legislative culture in each country. Framework legislation has been defined as a law, or regulation with equivalent status, which serves as a comprehensive, unifying basis for climate change policy, which addresses multiple aspects or areas of climate change mitigation or adaptation (or both) in a holistic, overarching manner. This definition builds on the term ‘flagship legislation’, used in the 4th edition of the GLOBE Climate Legislation Study (Nachmany et al., 2014).

Nearly 60 per cent of the study countries (58 out of 99) have framework laws or policies to address both mitigation and adaptation. These are sometimes covered in a single act or policy and sometimes there are separate laws dealing with for mitigation and adaptation. A further 18 countries have a mitigation framework only, six have only an adaptation framework, and 17 countries do not have any framework laws or policies to address mitigation or adaptation. Saudi Arabia and Canada are the only top 20 emitters without framework policies for either mitigation or adaptation.

Figure 12. Mitigation and adaptation framework laws and policies

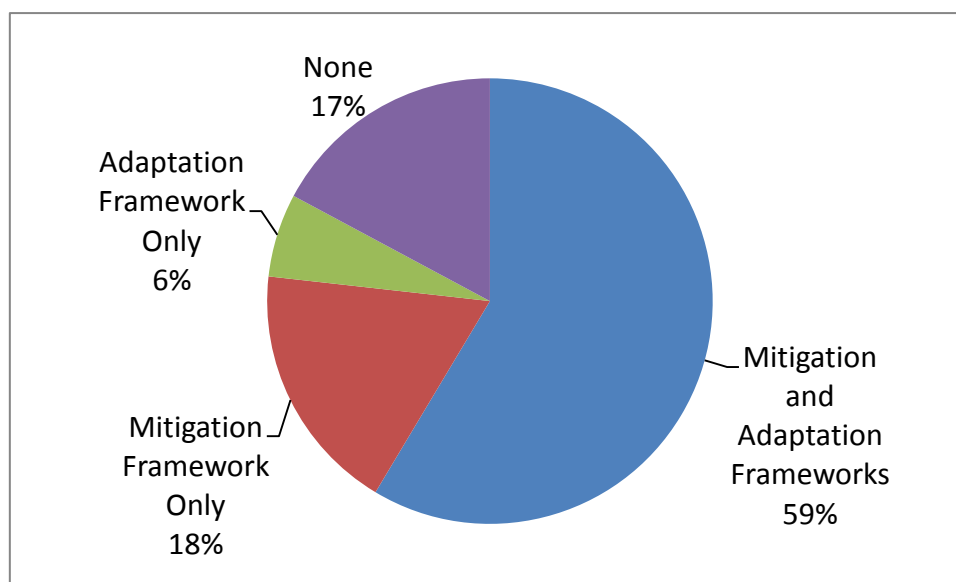


Figure 13. Mitigation frameworks, by type

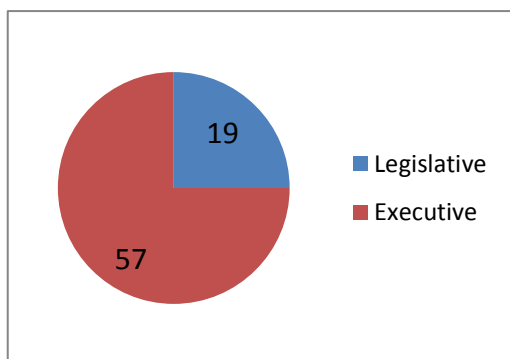
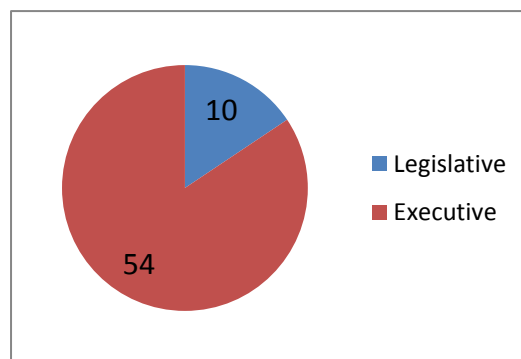


Figure 14. Adaptation frameworks, by type



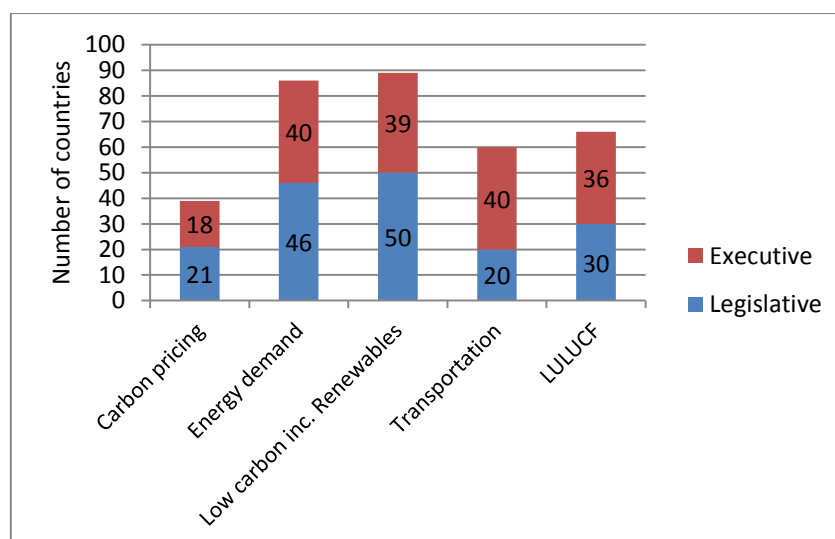
The link between targets and policies is important – targets signal the direction in which policies should go, and allow for oversight on the effectiveness of the policy. Forty-one of the countries that have mitigation frameworks also have multi-sector emission reduction targets (37 until 2020; 4 beyond 2020).

The study distinguishes laws and policies for: carbon pricing, energy demand, promotion of low carbon energy (including renewables), transportation, and LULUCF.

The study reveals extensive policy-making in the energy sector. Eighty-nine countries have passed policies to promote low carbon energy, 86 countries have passed energy demand policies, and 39 countries have a carbon pricing policy. Policies for renewable energy are heavily driven by targets – of the 89 countries that have policies to promote low carbon energy, 76 have renewables targets. 66 of the study countries have policies to address LULUCF, and 60 target the transportation sector. The two latter are less supported by targets (29 of the 66 have LULUCF targets; 38 of the 60 have transportation targets).

This study does not attempt to assess the quality of effectiveness of the policies, but points to the large variance in policy ambition and objectives. Some policies are clear and detailed, while others are more vague and declarative in nature.

Figure 15. Countries that have laws and policies for various areas



4. Methodology

The 2015 Global Legislation Study consists of a number of documents. In addition to this summary, they include detailed country chapters with a full list of laws for each of the 99 countries, a set of country fact sheets with key indicators, and the database of over 800 climate laws up to the end of 2014. This section documents the methodology behind all these documents, which are available on the website of the Grantham Research Institute, LSE (www.lse.ac.uk/GranthamInstitute/Legislation).

4.1 Definitions

The definition of ‘climate change legislation’ is not clear cut. There are ambiguities both with the term ‘climate change’ and the term ‘legislation’. Included in this study is legislation, or regulations, policies and decrees with a comparable status, that refer specifically to climate change or that relate to reducing energy demand, promoting low carbon energy supply, tackling deforestation, promoting sustainable land use, sustainable transportation, or adaptation to climate impacts.

This definition was applied with flexibility on a country-by-country basis to ensure the best reflection of the overall legislative, regulatory and policy response to climate change in the 99 study countries. The study distinguishes between legislative acts, which were passed by a parliament or equivalent legislative authority, and executive instruments (e.g. presidential decrees, executive orders, government policies or plans), which were passed or decreed by the government, president or equivalent executive authority.

In the case where both legislative and executive instruments exist, prominence is generally given to legislative over executive instruments. Therefore, in cases where a legislative act (law) has been enacted to fully implement an executive instrument (such as a policy or plan) any reference to the latter has been removed, leaving a reference to the legislative instrument only. However, where a legislative act covers only part of an executive instrument (for example, a law addressing emission reductions from transportation, whereas a policy exists to address emissions reductions from multiple sectors), references to both have been retained.

4.2 Scope

The 2015 Global Climate Legislation Study reviews climate change legislation and policies in 99 countries, which together account for approximately 93 per cent of world emissions, and include 47 of the top 50 world carbon emitters (World Resources Institute, 2011). Between them they are home to about 90 per cent of the world’s forests (FAO, 2010). They include 32 Annex-1 countries (including the European Union as a separate entity) and 67 non Annex-1 countries, as defined under the UN Framework Convention on Climate Change. Thirty three of them are high income countries (World Bank, 2013), 33 upper-medium income, 20 lower-medium income and 13 are low-income countries. They are spread across all world regions and represent large economies as well as small states.

The study focuses on legislation at the national level, and generally excludes significant action at regional and local levels of government. These levels are particularly significant in countries with federal structures (e.g. Australia, Brazil, Belgium and India) and, within this category, in countries where federal legislation has been slow when compared with activity at the sub-national level (e.g. United States and Canada). The detailed country chapters on the website include brief descriptions of this activity in the covering text.

The study surveys the European Union as a single policy area. It also surveys each member individually. European Union Directives are not repeated in individual Member States’ profiles unless that country has implemented legislation that goes significantly beyond the scope of the Directive.

For example, the French Farming Policy Framework goes beyond the European Union Biofuels Directive.

The analysis includes laws and policies passed before or on 1st January, 2015. The study does not list laws still under consideration. However, significant legislative efforts after the cut-off date, either passed, under consideration or recently failed, are referenced in the covering text of country chapters.

General environmental laws and policies, including water, biodiversity or desertification-related policies, are not included unless they are explicitly climate change-focused.

Issues of delineation are particularly prominent for laws dealing with climate change adaptation. This is related to the complex reality of adaptation policies. First, a country's approach to adaptation is determined by its climate and geography and therefore calls for context-specific strategies. For example, adaptation in one country may involve improving protection against sea-level rise, whereas in another it may involve addressing drought-related risks and improving water management. Therefore, many adaptation policies are embedded in development policies, general planning policies, risk-reduction and disaster management policies, water policies, health policies etc., making them more difficult to identify. This study did not capture these policies unless they were *explicitly* climate change-related. Second, adaptation measures are, by nature, less centralised than mitigation measures, as they often require action by local governments, from local building planning to evacuation plans. This study's focus on national level legislation, therefore, means that it doesn't capture the full breadth of adaptation activities in most countries.

National adaptation programmes of action (NAPAs)⁵ are not included in the detailed legislative or executive portfolios in country chapters, nor were they listed as framework policies for adaptation, unless the NAPAs have been converted into explicit government policies or legislative acts.

Laws and policies addressing forests and land use are included as long as they explicitly support climate change mitigation through activities that reduce emissions and increase carbon removals. Typically (but not exclusively), these would be under the REDD+ framework. General forest laws that regulate forest or timber management are not included, even if they have implicit consequences for climate change mitigation.

4.3 Data sources for country indicators

For each country in the individual country chapters (available online www.lse.ac.uk/GranthamInstitute/Legislation), several indicators are included, followed by stated targets and policies in various sectors. The following data sources were used for these indicators: The greenhouse gas emissions data is taken from the most recent official national submission to the UNFCCC. This means that the figures are not directly comparable from country to country as the submissions are from different years. Additionally, although some countries have published updated figures, they are only taken into account if they have been officially submitted to the UNFCCC. Note the 'latest reporting year' mentioned for each country refers to the date of the emissions data, and not to the date of the communication. For example, India submitted its second communication to the UNFCCC in 2012, using greenhouse gas inventory data from 2000. Therefore the 'most recent reporting year' for India is 2000 and not 2012. Also note that in 2010 India

⁵ NAPAs provide a process for Least Developed Countries (LDCs) to identify priority activities that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a later stage. See: unfccc.int/national_reports/napa/items/2719.php

published more a recent inventory (for 2007) but did not submit it to the UNFCCC so it is not included in this database.

For the category of *Rank as an emitter*, 2012 data from the World Resources Institute have been used (for total emissions including LULUCF). The data are comparable and the use of broad categories (Top 5, Top 10, etc.) allows for an indicative assessment rather than a specific ranking.

4.4 Review process

Country chapters have been subject to an extensive review and quality control process. After each chapter was written and reviewed by two other authors from the study team, it was sent for review in the respective country. Reviewers included legislators, government officials, academics, NGO representatives and independent observers. Reviews were received for 94 of the 99 countries. While every possible attempt was made to guarantee comprehensive and accurate information, the authors retain all responsibility for errors.

While the study aims to be comprehensive, there is no claim to have identified every relevant law or policy from all 99 study countries. Whether or not a given law has been detected depends on a number of factors such as the availability of information online and the strength of connections with relevant legislators and legislatures. As a result, the study does not claim to offer an exhaustive list of all climate-relevant legislation. The authors appreciate any feedback on the country chapters, to support the development and improve the accuracy of the material.

5. Acknowledgements

This work would not have been possible without the work and support of many talented and dedicated individuals and organisations.

The authors are particularly grateful for the contributions, advice and assistance of the IPU and GLOBE networks. They also acknowledge the World Energy Council and the UNFCCC Secretariat. The study team is grateful to Saber M. Chowdhury, Serguei Tchelnokov, Graham Stuart, Malini Mehra, Rafael Aybar, Pamela Ferro, Joan MacNaughton, Sandra Winkler and Dilleta Guiliani.

Colleagues across the Grantham Research Institute on Climate Change and the Environment provided much appreciated support, including. Alina Averchenkova, Samuela Bassi, Carolina Boniatti Pavese, Maria Carvalho, Murray Collins, Chris Duffy, Fergus Green, Courtney McLaren, Ben Parfitt, Merlin Sibley and Bob Ward.

Mike Scott from Carbon Copy Communications Ltd. edited and typeset the study, and Amitai Nachmany ably assisted with the design.

The study team would like to acknowledge financial support from the Grantham Foundation for the Protection of the Environment and the UK Economic and Social Research Council (ESRC), through the Centre for Climate Change Economics and Policy (CCCEP).

A large number of people have assisted with reviewing drafts of the individual country chapters. The authors wish to thank them all – legislators, legislative staffers, executive officials, academics, NGO representatives and independent observers – for their significant contributions to the accuracy and comprehensiveness of the study, while the authors retain all responsibility for errors:

Algeria	Dennis Kumetat (German Federal Foreign Office) and Emma Aberg (Lund University)
Angola	Giza Gaspar Martins and Catarina Dias (Ministry of Environment)
Argentina	Guillermo Urribarri (Senate) and Patricia Cazenave (advisor on Environmental Legislation)
Australia	Heike Phillips (Department of the Environment)
Austria	Volkmer Lauber (University Salzburg) and Angela Koepl (Austrian Institute of Economic Research)
Bangladesh	Ziaul Haque and Raisul Alam Mondal (Ministry of Environment and Forests)
Belarus	Viktar Khodzin (Department of Integrated Environmental Studies)
Belgium	Frank Venmans (University of Mons) and Henri Kevers (National Register)
Belize	Carlos Fuller (Caribbean Community Climate Change Centre), Anne Gordon (National Climate Change Office) and Lisel Alamilla (Minister of Forestry, Fisheries & Sustainable Development)
Bolivia	Diego Pacheco (Ministry of Environment and Water) and Justina Robles (Vice Ministry of Environment, Biodiversity and Climate Change)

Botswana	Keabile Tlhalerwa (Botswana University)
Brazil	Natalie Unterstell and Sergio Margulis (Presidency of Brazil) and Fernando Rei (Fundacao Armando Alvares Penteado and Catholic University of Santos)
Bulgaria	Detelina Petrova (Executive Environment Agency), Boryana Kabzimalska (Ministry of Environment and Water) and Yordan Uzunov (Department of Aquatic Ecosystems and Bulgaria Academy of Sciences)
Cameroon	Durando Ndongsok (SER-CSR Africa)
Canada	David McGuinty (MP)
Chile	Ministry of the Environment
China	Yang Xiu (National Centre for Climate Strategy and International Co-operation)
Colombia	Sandra Marcela Acero, Mariana Rojas Laserna and Nathaly Torregroza (Climate Change Division), and Santiago Uribe Sáenz (Ministry of Environment and Sustainable Development)
Costa Rica	Jorge Cabrera Medaglia (CISDL Legal Counsel)
Cuba	Orlando Rey Santos (Ministry of Science, Technology and Environment)
Czech Republic	Ministry of the Environment of the Czech Republic
Denmark	Steen Gade (MP)
Dominican Republic	Karen Hedeman Lluberés (National Council on Climate Change & Clean Development Mechanism) and Lida Virginia Sibilio Ayala de Garrido (Ministry of Environment & Natural Resources)
DRC	Crispin Mutumbe Mbuya (National Assembly)
Ecuador	Rodney Martinez and Juan José Nieto (International Centre for Research on El Niño Phenomenon - CIFEN)
Egypt	Guy Jobbins (Overseas Development Institute), Dr. Ibrahim Abdel Gelil (Arabian Gulf University), Dr. Hussein Abaza (Minister of State for the Environment), Mohamed Abdrabo (Adaptation Research Centre), and Ahmed Awadalla (LSE)
El Salvador	Sonia Baires, Antonio Canas Calderon and Cecilia Carranza (Ministry of Environment & Natural Resources)
Ethiopia	William Battye (Global Green Growth Institute – GGGI)
European Union	Kamila Paquel (Institute for European Environmental Policy) and Samuela Bassi (LSE)
Finland	Sini Pietilä (Ministry of the Environment)
France	Aline Baffalieu (National Assembly)
FS Micronesia	Lam Dang (legal counsel)

Germany	Andreas Löschel (Centre of Applied Economic Research, University of Muenster), Michael Pahle (Potsdam Institute for Climate Impact Research), Michel Köhler (Greenwerk - Climate Advisory Network), Hans-Jochen Luhmann (Wuppertal Institute for Climate, Environment and Energy), and María Mañez (Climate Service Centre)
Greece	Ioannis Maniatis, Kyriakos Psychas and Thanassis Dagoumas (Minister of the Environment, Energy and Climate Change) and Sophia Kokoni (LSE)
Grenada	Amanda Byer (Ministry of Agriculture, Lands, Forestry, Fisheries and the Environment)
Guatemala	Alejandra Sobenes (Institute of Environmental Law and Sustainable development and Nacional Climate Change Council) and Edwin Josué Castellanos (Universidad del Valle de Guatemala)
Guyana	Tim Laing (LSE), and Office of Climate Change Guyana
Hungary	Veronika Czako (European Commission, Policy Support for Energy Services Directive) and Jozsef Feiler (Environment and Climate Regional Accession Network)
India	Pranav A. Sinha (GLOBE India), Himanshu Gupta (LSE)
Indonesia	Binny Buchori (Perkumpulan Prakarsa)
Iran	Mohammad Sadegh Ahadi (Department of Environment, National Climate Change Office), Yousef Hojjat (Tarbiat Modares University) and Nasim Adeli (University of Waterloo)
Ireland	John O'Neill and Odette Gormley (Department of Environment, Community and Local Government), and Don Sexton (Embassy of Ireland)
Israel	Roni Cohen Ginat (Ministry of Environmental Protection) and Ofira Ayalon (Samuel Neaman Institute)
Italy	Gaudioso Domenico (Environmental Protection and Research Agency)
Jamaica	Alwyn Hales and Janet Blackwood (Ministry of Water, Land, Environment and Climate Change)
Japan	Jin-ichi Ueda (GLOBE Japan) and Environment Committee Research Office of the House of Councillors
Jordan	Mohammad T. Asfour (World Green Building Council and King Hussein Foundation)
Kazakhstan	Kassymkhan Kapparov (National Bureau for Economic Research of Kazakhstan) and Karlygash Kuralbayeva (LSE)
Kenya	Wilber K. Ottichilo (National Assembly)
Kuwait	Dennis Kumetat (German Federal Foreign Office)
Madagascar	Tiana Ramahaleo, Patricia Ramarojaona and Paula Tsialonina (Climate Change Thematic Group), Erik W. Reed and Giani Ruta (World Bank)
Malaysia	Sarah Aziz Abdul Ghani Aziz (Universiti Kebangsaan)
Maldives	Mohamed Aslam (LaMER Group)

Mexico	Dr. Andrés Avila Akerberg (Faculty of Political and Social Sciences)
Mongolia	Sambuu Demberel (MP), and Bulganmurun Tsevegjav and James Seong-Cheol Kang (Global Green Growth Institute)
Morocco	Moh Rejdali (House of Representatives and Jardin Botanique de l'I.A.V. Hassan II)
Myanmar	Min Zaw Oo (Forest Department)
Nepal	Lucky Sherpa (GLOBE Nepal)
Netherlands	Jos Timmerman (Wageningen University and Research Centre)
New Zealand	Cameron Smith (Ministry for the Environment)
Nigeria	Innocent Onah (Ministry of Environment and GLOBE Nigeria) and Apollonia Okhimamhe (University of Technology Mina)
Norway	Cathrine Ramstad Wenger (Department for Climate Change)
Pakistan	Kashif Shalik (SDPI)
Peru	Pamela Ferro (GLOBE Peru)
Philippines	Susan A. Yap (House of Representatives)
Poland	Jacek Mizak (Department of Climate Change) and Elżbieta Lenard (Senate)
Portugal	José Manuel Sousa (Institute for Housing and Urban Renewal)
Romania	Mihail Macovei (Stalfort Legal Tax Audit)
Russia	Alexey Kokorin (WWF Russia)
Rwanda	Rose Mukankomeje (Rwanda Environmental Management Authority)
Saudi Arabia	Abdulaziz Ahmed (King Abdullah Petroleum Studies and Energy Research Center)
Senegal	Cheikh Tidiane Wade and Mamadou Diop (Pathways to Resilience In Semi-Arid Economies)
Singapore	National Climate Change Secretariat
Slovakia	Helena Princova (Ministry of Environment)
South Africa	Scotney Watts and Mr Sivuyile Maboda (Parliament)

South Korea	Ohkeum Lee (UK Foreign and Commonwealth Office, and Ara Jo (LSE)
Spain	Oficina Española de Cambio Climático – OECC
Sweden	Alvar Palm and Emma Aberg (Lund University), Jonas Ebbesson and Katak Malla (Stockholm University), and Marlene Grunstrom
Switzerland	Cordelia Baehr, Juerg Bally, Isabel Junker, Regine Roethlisberger and Karine Siegwand (Federal Office for the Environment), Thomas Stocker (University of Bern), and Philippe Thalmann (EPF Lausanne)
Tajikistan	Nargiz Usmanova (UNDP)
Tanzania	Adolphine Kateka (Stockholm University) and Minty Bezabih (LSE)
Thailand	Chaiwat Muncharoen (Asian Institute of Technology) and Sopitsuda Tongsovit (Chulalongkorn University)
Trinidad and Tobago	Kishan Kumarsingh (Environmental Management Authority) and Patrick Watson (Canada-Caribbean C-Change Project)
Turkey	Bali Emrah Biçer (Grand National Assembly)
Tuvalu	Kapuafe Lifuka (Energy Department)
UAE	Dane McQueen, Tina Latif, and Shaima Al Aydarous (Ministry of Foreign Affairs)
Uganda	Revocatus Twinomuhangi (Makerere University) and Lynne M. Carter (USAIDs Climate Change Adaptation)
Ukraine	Natalie Kushko (National Environmental Investment Agency)
United Kingdom	Graham Stuart (Parliament)
USA	Ana Unruh Cohen (Office of Senator Edward J. Markey), Bill Irving, Jessica Gordon and Cate Hight (Environmental Protection Agency)
Uzbekistan	Chub Victor Evgenyevich (Centre for Hydrometeorological Service), Rano Baykhanova, Stefan Priesner and Daniela Carrington Stoycheva (UNDP), and Alina Averchenkova (LSE)
Vanuatu	Malcolm Dalesa (Vanuatu Meteorology and Geohazards Department)
Vietnam	Huong Thien Tran (Ministry of Natural Resources and Environment)
Zimbabwe	Saphira Patel (Development Bank of Southern Africa)

6. References

- Boyd, R., Stern, N, and Ward, R., 2015. *What will global annual emissions of greenhouse gases be in 2030, and will they be consistent with avoiding global warming of more than 2°C?*. Policy paper. [pdf] Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy. Available at: http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/05/Boyd_et_al_policy_paper_May_2015.pdf [Accessed 7 May 2015].
- Fankhauser, S., 2013. A Practitioner's Guide to a Low-Carbon Economy: Lessons from the UK, *Climate Policy*, 13(3), pp. 345-362.
- Fankhauser, S., Gennaioli, C. and Collins, M., 2014. *Domestic dynamics and international influence: What explains the passage of climate change legislation?* Working Paper. [pdf] Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy. [pdf] Available at: <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/05/Wp156-Domestic-dynamics-and-international-influence-what-explains-the-passage-of-climate-change-legislation.pdf> [Accessed 7 May 2015].
- Fankhauser, S., Gennaioli, C. and Collins, M., 2015. Do international factors influence the passage of climate change legislation? *Climate Policy*, NYP ISSN 1752-7457. In Press.
- Food and Agriculture Organization (FAO), 2010. *Global Forest Resources Assessment 2010 Estimates* [online] Available at: <http://www.fao.org/forestry/fra/fra2010/en/> [Accessed 7 May 2015].
- GLOBE International and the Grantham Research Institute on Climate Change and Environment, 2014. What Makes Effective Climate Legislation. Consultation paper. In: GLOBE International, *2nd World Summit of Legislators*. Mexico City, Mexico, 6-8 June 2014. London: GLOBE International and the Grantham Institute, 2014.
- Nachmany M., Fankhauser, S., Townshend, T., Collins, M., Landesman, T., Matthews, A., Pavese, C., Rietig, K., Schleifer, P., Setzer, J., 2014. *The GLOBE Climate Legislation Study - A Review of Climate Change Legislation in 66 Countries*. London: GLOBE International and the Grantham Research Institute, London School of Economics.
- Townshend, T., Fankhauser, S., Matthews, A., Feger, C., Liu, J., and Narciso, T., 2011. Legislating Climate Change at the National Level. *Environment*, 53(5), pp. 5-16.
- Townshend, T., Fankhauser, S., Aybar, R., Collins, M., Nachmany, M., Pavese, C., Landesman, T., 2013. *The GLOBE Climate Legislation Study - A Review of Climate Change Legislation in 33 Countries - 3rd Edition*. London: GLOBE International and the London School of Economics.
- United Nations Framework Convention on Climate Change (UNFCCC), 2009. *Copenhagen Accord: Draft decision -/CP.15, Fifteenth Session of the Conference of the Parties, Copenhagen, December 2009*. [pdf] Available at: <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf> [Accessed 7 May 2015].
- United Nations Framework Convention on Climate Change (UNFCCC), 2012. *Appendix I – Quantified Economy-wide Emissions Targets for 2020*. [online] Available at: http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php [Accessed 7 May 2015].
- United Nations Framework Convention on Climate Change (UNFCCC), 2012. *Greenhouse Gas Inventory Data – Detailed Data by Party*. [online] Available at: <http://unfccc.int/di/DetailedByParty/Event.do?event=go> [Accessed 7 May 2015].
- United Nations Framework Convention on Climate Change (UNFCCC), 2012. *Status of Ratification of the Convention* [online] Available at: http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php [Accessed 7 May 2015].
- United Nations Framework Convention on Climate Change (UNFCCC), 2012. *Status of Ratification of the Kyoto Protocol*. [online] Available at: http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php [Accessed 7 May 2015].
- World Resources Institute, 2011. *CAIT 2.0 - Country GHG Emissions*. [online] Available at: <http://cait2.wri.org/> [Accessed 7 May 2015].
- The World Bank, 2012. *Countries and Lending Groups, 2013*. [online] Available at: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups> [Accessed 7 May 2015].

Annex – Framework laws and stock of laws per country

Country	Greenhouse gas mitigation framework	Adaptation framework	Total No. of laws
Algeria	The National Climate Plan (2013)	The National Climate Plan (2013)	14
Angola	Resolution 52/08, establishing the National Strategy for the Implementation of UNFCCC and the Kyoto Protocol (2008)	None	9
Argentina	None	None	7
Australia	Carbon Farming Initiative Amendment Bill (2014)	None	9
Austria	Climate Protection Act (2011)	Austrian Strategy for Adaptation to Climate Change (2012)	10
Bangladesh	Bangladesh Climate Change Strategy and Action Plan (2009)	None	10
Belarus	National programme on climate change mitigation measures (2013-2020) (2013)	None	12
Belgium	National Climate Plan (2009)	National Climate Change Adaptation Strategy (2010)	9
Belize	Environmental Protection Act (1992)	National Adaptation Strategy to Address Climate Change in the Water Sector of Belize (2009)	2
Bolivia	None	None	6
Botswana	None	None	2
Brazil	National Policy on Climate Change (established by Law 12187/2009) (2009)	National Policy on Climate Change (established by Law 12187/2009) (2009)	12
Bulgaria	Climate Change Mitigation Act (2014)	None	10
Cameroon	None	None	4
Canada	None	None	3
Chile	National Climate Change Action Plan 2008–2012 (2008)	National Climate Change Adaptation Plan (2014)	11

Country	Greenhouse gas mitigation framework	Adaptation framework	Total No. of laws
China	National Plan For Tackling Climate Change 2014-2020 (2014)	National Strategy For Climate Change Adaptation (2013)	6
Colombia	Institutional Strategy for the Articulation of Policies and Actions in Climate Change (established by CONPES 3700) (2011)	National Plan for Climate Change Adaptation (2012)	10
Costa Rica	National Climate Change Strategy (2008)	National Climate Change Strategy (2008)	9
Cuba	National Environmental Strategy 2011-2015 (2010)	National Environmental Strategy 2011-2015 (2010)	7
Czech Republic	National Programme to Abate Climate Change Impacts in the Czech Republic (established by Government Resolution No. 187) (2004)	None	6
Democratic Republic of Congo	None	National Adaptation Action Plan (2006)	4
Denmark	Climate Change Act (2014)	Danish strategy for adaptation to a changing climate (2008) and the Action Plan for a climate-proof Denmark (2012)	11
Dominican Republic	National Development Strategy (2012); Climate Compatible Development Plan of the Dominican Republic (2011)	None	6
Ecuador	National Strategy on Climate Change 2012 - 2025 (2012)	National Strategy on Climate Change 2012 - 2025 (2012)	8
Egypt	None	National Strategy for Adaptation to Climate Change and Disaster Risk Management (2011)	3
El Salvador	The National Climate Change Strategy (2013)	The National Climate Change Strategy (2013)	7
Ethiopia	Climate Resilient Green Economy Strategy (2011)	Climate Resilient Green Economy Strategy (2011)	9
European Union	2020 Climate and Energy Package (2009); 2030 framework for climate and energy policies (2014)	None	24
Finland	Climate Change Act (2014)	National Strategy for Adaptation to Climate Change (2005) and Action Plan for the Adaptation to Climate Change of the Ministry of Agriculture and Forestry 2011-2015	7

Country	Greenhouse gas mitigation framework	Adaptation framework	Total No. of laws
France	Grenelle I (2009) and Grenelle II (2010)	National Adaptation Plan 2011-2015 (2011)	9
Gabon	National Climate Plan (“Plan Climat”) (2012)	National Climate Plan (2012)	7
Germany	Action Programme on Climate Protection 2020 (2014)	Germany Strategy for Adaptation to Climate Change (2008)	15
Ghana	National Climate Change Policy (2013)	National Climate Change Adaptation Strategy (2012)	7
Greece	National Climate Change Programme (last revised 2007)	None	12
Grenada	National Climate Change Policy and Action Plan (2007)	Grenada Strategic Program for Climate Resilience (2011)	6
Guatemala	Framework law to regulate reduction of vulnerability, mandatory adaptation to the effects of climate change, and the mitigation of greenhouse gas effects (2013)	Framework Law to Regulate Reduction of Vulnerability, Mandatory Adaptation to the Effects of Climate Change, and the Mitigation of Greenhouse Gas Effects (2013)	7
Guyana	Low Carbon Development Strategy (2009, updated 2013)	Low Carbon Development Strategy (2009, updated 2013)	2
Hungary	National Climate Change Strategy (2008)	National Climate Change Strategy (2008)	7
India	National Action Plan on Climate Change (2008)	National Action Plan on Climate Change (2008)	11
Indonesia	National Action Plan to reduce GHG emissions (by Presidential Decree No. 61/2011) (2011)	National Action Plan on Climate Change Adaptation (2012)	19
Iran	National Rules of Procedure for Implementation of the UNFCCC and the Kyoto Protocol (2009)	None	8
Ireland	National Climate Change Strategy (2007-2012)	National Climate Change Adaptation Framework (2012)	12
Israel	The First National Greenhouse Gas Mitigation Plan and Government Decision 2508 (2010)	None	12
Italy	Climate Change Action Plan (2007)	None	22
Jamaica	None	None	3
Japan	Law Concerning the Promotion of the Measures to Cope with Global Warming (Act on Promotion of Global Warming Countermeasures) (1998)	None	9
Jordan	The National Climate Change Policy of the Hashemite Kingdom of Jordan 2013-2020 (2013)	The National Climate Change Policy of the Hashemite Kingdom of Jordan 2013-2020 (2013)	3
Kazakhstan	None	None	6

Country	Greenhouse gas mitigation framework	Adaptation framework	Total No. of laws
Kenya	National Climate Change Response Strategy (2010)	National Climate Change Response Strategy (2010)	5
Kuwait	None	None	2
Libya	None	None	0
Madagascar	National Climate Change Policy (2010)	National Climate Change Policy (2010)	3
Malaysia	National Policy on Climate Change (2010)	National Policy on Climate Change (2010)	6
Maldives	Maldives National Energy Policy & Strategy (2010)	The Republic of the Maldives Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation 2010-2020 (2010)	4
Mexico	General Law on Climate Change (2012)	General Law on Climate Change (2012)	9
Micronesia	Federated States of Micronesia Climate Change Act (2013)	Federated States of Micronesia Climate Change Act (2013)	3
Mongolia	National Action Programme on Climate Change (2011)	National Action Programme on Climate Change (2011)	10
Morocco	National Plan of Action against Climate Change (2009)	None	7
Mozambique	2013-2025 National Climate Change Strategy (2012)	2013-2025 National Climate Change Strategy (2012)	11
Myanmar	None	None	6
Nepal	Climate Change Policy (2011)	None	4
Netherlands	National Climate Agenda (2014)	National Climate Agenda (2014)	9
New Zealand	Climate Change Response Act (2002)	Resource Management (Energy and Climate Change) Amendment Act (2004)	7
Nigeria	National Climate Policy (2013)	National Climate Policy (2013)	3
Norway	The Climate Settlement (2012)	White Paper on Climate Change Adaptation in Norway, Meld. St. 33 (2012-2013)	9
Pakistan	National Climate Change Policy (2012)	National Climate Change Policy (2012)	8
Peru	National Strategy on Climate Change (2003)	National Strategy on Climate Change (2003)	10
Philippines	Climate Change Act (2009)	Philippine Strategy on Climate Change Adaptation (2009)	15
Poland	None	Polish National Strategy for Adaptation to climate Change (2013)	8
Portugal	National Climate Change Programme (2006, amended)	National Strategy for Adaptation to Climate Change (2010)	10

Country	Greenhouse gas mitigation framework	Adaptation framework	Total No. of laws
	2008)		
Romania	National Climate Change Strategy 2013-2020 (2013)	National Climate Change Strategy 2013-2020 (2013)	13
Russia	Climate Doctrine of the Russian Federation (2009)	None	9
Rwanda	National Strategy on Climate Change and Low Carbon Development (2011)	None	7
Saudi Arabia	None	None	2
Senegal	None	None	10
Singapore	National Climate Change Strategy (2012)	National Climate Change Strategy (2012)	8
Slovakia	None	National Adaptation Strategy (2014)	17
South Africa	National Climate Change Response Policy White Paper (2011)	National Climate Change Response Policy White Paper (2011)	4
South Korea	Framework Act on Low Carbon, Green Growth (2010)	National Strategic Plan for Climate Change Adaptation 2011-15 (2010)	12
Spain	Strategy of Climate Change and Clean Energy (2007)	National Adaptation Plan to Climate Change (2006)	20
Sweden	An Integrated Climate and Energy Policy (2009)	An Integrated Climate and Energy Policy (2009)	8
Switzerland	CO2 Act (2013)	Swiss National Adaptation Strategy (2012, 2014)	8
Tajikistan	National Action Plan for Climate Change Mitigation (2003)	National Action Plan for Climate Change Mitigation (2003)	7
Tanzania	National Climate Change Strategy (2012)	National Climate Change Strategy (2012)	5
Thailand	Strategic Plan on Climate Change (2008)	Strategic Plan on Climate Change (2008)	6
Trinidad and Tobago	National Climate Change Policy (2011)	National Climate Change Policy (2011)	6
Turkey	Climate Change Action Plan 2011-2023 (2011)	Turkey's National Climate Change Adaptation Strategy and Action Plan (2011)	6
Tuvalu	None	National Strategic Action Plan for Climate Change Adaptation and Disaster Risk Management 2012-2016 (2012)	7
Uganda	National Climate Change Policy (2013)	National Climate Change Policy (2013)	4
Ukraine	National Action Plan for Implementation of the Kyoto Protocol (2005)	None	8

Country	Greenhouse gas mitigation framework	Adaptation framework	Total No. of laws
United Arab Emirates	None	None	2
United Kingdom	Climate Change Act (2008)	Climate Change Act (2008)	23
United States of America	None	Executive Order 13653: Preparing the United States for the Impacts of Climate Change (2013)	9
Uzbekistan	None	None	4
Vanuatu	None	None	5
Venezuela	None	None	3
Vietnam	National Climate Change Strategy (2011)	Law on Natural Disaster Prevention and Control No: 33/2013/QH13 (2013)	13
Zimbabwe	None	None	5

The full study, including all detailed country chapters, is available online at:
www.lse.ac.uk/granthaminstitute/legislation