



**CLIMATE & SDGS
SYNERGY CONFERENCE**



**1-3 APRIL
COPENHAGEN**

BACKGROUND PAPER

Leveraging Climate Change and SDG Interlinkages: Country Experiences

Working Draft / Not For Citation

Prepared by the TERI School of Advanced Studies for UN DESA

March 2019



Leveraging Climate Change and SDG Interlinkages: Country Experiences

[All of this document is a draft and work-in-progress. Representations of different countries are uneven and will be worked upon. Analyses and inferences have to be strengthened. Singapore case study hasn't started yet. All references in text have still to be added and Figures properly labelled and numbered]

1. Background and context

The framing of the Paris Agreement and of Agenda 2030, defining the Sustainable Development Goals (SDGs), both recognise the enormous opportunity to leverage the interlinkages between the many goals contained within these documents as well as and across the two for greater resource and implementation efficiency. An evolving robust academic literature base has been created in the few years since the adoption of Agenda 2030 and the Paris Agreement that identifies the synergies and potential trade-offs between different goals as also the strength of these inter-linkages.

This discussion paper attempts to present an analysis on the nature and degree of interlinkages between the SDG (Sustainable Development Goal) related actions and the Climate Change actions leveraged by countries, as inferred from the various country documents. The countries identified as case studies are those that have (i) prepared a Voluntary National Reviews document laying out their approach to the achievement of SDGs (ii) a Biennial Update Report (BUR) on climate action and, (iii) National Adaptation Plan (NAP) of any kind.

In doing so, this discussion paper bears in mind the fact that varying country contexts would prioritise different sets of climate and development actions which would, therefore, determine the opportunities and barriers to leveraging the possible inter-linkages identified in academic literature.

2. Summary of Literature (1 page)

Several papers have made an effort to characterise the nature of inter-linkages between the various SDGs themselves and between the SDGs and Climate change related goals.

The United Nations proposed a framework for analysis which explored the question of whether impacts of inter-linkages between SDGs are - a) reversible, or b) irreversible. The framework also suggested that while assessing the inter-linkages, the direction of the impact of interaction must be evaluated as also the strength of the interaction and the probability of the occurrence of the interaction (United Nations, 2014, 2015, 2016).

International Council for Science (Nilsson et al. 2017) established a framework to characterize and measure interactions among SDGs and their targets by means of a scoring system (Nilsson et al. 2016a; Nilsson et al. 2016b). The scores are given for a range of

interrelationships spanning from completely adverse to perfectly synergistic types of inter-linkages amongst the goals (Nilsson et al. 2016) (Table 1).

Table 1: Scoring the influence of one SDG or target on another (Source: Nilsson et al. 2016)

Name	Explanation	Score
Indivisible	Inextricably linked to the achievement of another Goal	+3
Reinforcing	Aids the achievement of another Goal	+2
Enabling	Creates the conditions that further another Goal	+1
Consistent	No significant positive or negative interactions	0
Constraining	Limits options on another Goal	-1
Counteracting	Clashes with another goal	-2
Cancelling	Makes it impossible to reach another goal	-3

Coopman et al. 2016 proposed an approach with three categories of interlinkages supporting, enabling/disabling, and relying. Each interlinkage can be scored based on its strength, with 0 indicating negative or no interlinkage and scores of 1-3 highlighting positive inter-linkages as per the degree of the strength of interlinkage (Table 2).

Table 2: Classification of Type and Nature of SDG Interlinkages (Source: Coopman et al. 2016)

Category	Type and Definition	Score
Supporting	Commonly supporting: both targets contribute to the same objective	1
	Mutually supporting: target A's objective is achieved by target B's means of implementation and vice versa	2
Enabling	Disabling: Implementing target B may hinder or reverse target A	0
	Indirect enabling: implementing target B indirectly enables achievement of target A	1
	Direct enabling: implementing target B indirectly enables achievement of target A	2
	Direct enabling in both directions: implementing target B indirectly enables achievement of target A and implementing target A directly enables achievement of target B	3
Relying	Partial reliance: target B is a subcategory of target A	1
	Full reliance: target B's implementation is necessary for, but not intrinsic to, target A's achievement	2

Similar concepts and approaches have been suggested by several others and several papers are available on the inter-linkages or alignments between SDGs and climate goals (UNESCAP, SIDA ... TERI, WRI, NDC Partnership, UNEOSG/UNFCCC [discussion on these papers to be added])

UNDP (2017) also identified several steps and processes as key determinants for the implementation of an interlinked SDG and NDC Implementation: a) Robust National Statistical System to collect data, b) Coordinated Stakeholder Engagement, c) An Inclusive Coherent Policy Implementation and d) Strong Institutional Coordination Mechanisms. Dalkmann (2018) highlights capacity building as a key requirement to attain this interlinked implementation process.

3. Country Case Study Selection

In order to arrive at a manageable number of 8-10 case studies, VNRs of 38 countries which were in English were reviewed. The literature review shows that both developed and developing countries have taken the implementation of 2030 agenda seriously with a creation of institutional arrangements and inclusive stakeholder consultation. Some countries have also reported the process of VNR preparation in details apart from having the outcome VNR document.

As a first step we identified those countries with well-defined VNRs that have also submitted their Biannual Update Reports (BURs) to UNFCCC on their climate mitigation and adaptation actions and have National Adaptation Plans prepared.

In general it was found that the VNRs and BURs have been largely focussed on attaining the below mentioned process goals in the short, medium and long term:

- *Mainstreaming*: This part of the process attempts to help the government to contextualise the agenda at national and local levels by mainstreaming it in the national plans, budgets and strategies. This is being done through a mapping exercise at the national and local level of select countries.
- *Acceleration and Assessment and Reporting Progress*: This is being done to create synergies between the agencies at national and local level by assessing the synergies and trade-offs across sectors of the select countries.
- *Policy Support with and without mainstreaming* : *There is a push given towards coordinated, pooled policy support* to countries for satisfying the demand of making a thematic exercise within the integration process of SDGs, NDCs and make it available in an effective and coordinated way.

From the above short-list, a further shortlist of countries was made for purposes of illustrating the approach to inter-linked goals keeping in mind various factors:

- a. Geophysical and economic diversity
- b. Comprehensiveness of VNRs, BURs and NAPs
- c. Maturity of implementation actions
- d. Social, Economic and Development Indicator positions

Each country case study will highlight the prioritised SDG which is being emphasized in the respective VNRs and BURs of the country (as emerging from the literature review) and will establish the corresponding interlinkages of those SDGs with the climate mitigation and adaptation actions within the select countries.

Our first case study country is Namibia. Namibia is a major economy driven by resource rich extractive capital intensive sectors like gold, uranium, diamond and is also marked by stark economic and income inequalities. The country has a poverty level of 25.1% and has embarked upon several social safety measures to take the nation out of poverty. It has increased its spending on health and education which has led to an improvement of HDI from 0.57 in 1990 to 0.64 in 2015. Despite a focus on employment generation in small, medium and micro enterprises, Namibia is still ranked in the top 10 countries with unequal income distribution and poor employment facilities. More than 60% of the food consumption of the country is still dependent on international imports making them extremely vulnerable to global impacts of climate change.

The second case study is from Jordan - a small economy with low per capita income and a high unemployment rate. Jordan was doing well till 2008 when it was hit by a financial crisis which slowed, and possibly reversed, the developmental gains it had made in trying to achieve the MDGs. The country is now also facing a backlash from an increase in global migration and a rise in the number of refugees from Syria, owing to which the population of the country has increased from 1.3 million to 2.8 million. This rise in the population also creates an increased pressure on Jordan's limited natural resources and infrastructure. This makes Jordan an interesting case study on the approach to interlinkages between the NDC and SDG Implementation.

The third case study choice is of Indonesia. Indonesia is a developing, island country vulnerable to the impacts of climate change from sea level rise and has a low inequality adjusted HDI of 0.563 and ranks 116 in terms of HDI. Poverty and inequality are still a major challenge faced by the country and major efforts are being made to increase the annual income of the people of Indonesia. The country is vulnerable to severe risks from droughts and floods arising from climate change impacts. The country is suffering from observed temperature increases due possibly to human induced carbon emissions combined with the effect of El Nino thereby increasing the frequency of droughts and wildlife fires, disturbing the largest terrestrial carbon sink in the country. In 2016, economic losses due to floods and land/forest fires reached USD 2.5 billion. Food security has also been identified as a problem for the country.

The fourth case study is from Japan - a developed country often considered to be a role model in the implementation of measures to achieve the SDGs and NDCs together through an integrated process. Japan has set human security as the guiding principle that lies at the foundation of its foreign assistance. It has also placed issues such as health, disaster risk reduction and gender equality, which are listed in the SDGs as major challenges to be addressed, at the core of its international cooperation. Japan's high vulnerability to impacts of climate change in terms of sea level rise, increase in temperature etc., needs and calls for

an effective integration for the implementation of SDGs and the NDCs in an effective, cohesive way.

The fifth case study choice is of Australia – a country of great cultural diversity well endowed with a range of natural resources that are under risk of being unexploitable due to climate concerns. Equality, inclusion, tolerance and mutual respect are pillars of sustainability in Australia. As a developed country it has a responsibility to play a proactive role to address the mitigation and adaptation impacts of climate action as well as the SDGs to provide a vision for various developing and emerging countries.

The sixth and seventh case studies are on *Romania and Brazil*. Both countries are chosen for different background contexts. Romania as a country that is highly vulnerable to climate change impacts and hence effective integration for the implementation of SDGs and the NDCs becomes a top priority for Romania. Brazil has faced fiscal crisis worsening employment and poverty levels in the country. It is also vulnerable to impacts of climate change impacts such as droughts, sea level rise, storm surge, etc.

The final two case studies are Vietnam and Singapore. Vietnam is a low middle income country and is experiencing a rapid turnaround. However, the country is vulnerable to economic volatility as it is increasingly integrated into world economy and exposed to world economic fluctuations. The country is also facing social, environmental, and other emerging challenges and is committed to work with international community to reduce the future impacts of climate change on the economy. Singapore is a well-developed city state with many vulnerabilities.

With this context setting of all the case studies, the next sections will highlight the interlinkages visible or inferred from the VNR and BUR documents, defined institutional mechanisms for policy coherence including institutional innovations, if any, implementation progress, and capacity building initiatives followed by some analytical inferences that can be drawn.

4. Summary assessment of CC and SDG inter-linkages in selected Countries

NAMIBIA

The institutional process of VNR is well structured. The VNR process has been institutionalised in Namibia through the 5th National Development Plan which clearly mentions creating interlinkages between economic progression, social transformation, environmental sustainability, good governance and climate resilient society. This development plan was formulated through a multi-stakeholder consultative exercise with public sector, private sector, civil society, developmental partners, UN, academia, other interest group.

In order to implement this plan, the government regularly collects ground level data through Namibia Statistical Agency (NSA) and through qualitative research with the help of key data collectors. The VNRs and BURs mention the importance of these data collection process, monitoring and its review progress as a key measure to implement SDGs and NDCs within Namibia. The data is regularly assessed and monitored at a local community level.

The local authorities, community, civil society, academia are constantly appraised through campaigns and local awareness programmes on attainment of SDGs and their interlinkages with the climate mitigation and adaptation measures for generating a climate resilient society. Radio channels, local languages and vernacular communication play an important role in this sensitisation process.

Education, Employment, Health, Hunger, Poverty and Inequality come across key priority areas within the SDG targets in Namibia. Within the health domain, Namibia has specifically set a target of reduction of stunting to 12 percent by 2022 and anaemia to 10 percent by 2022 and complete eradication of HIV. The country has also initiated a zero hunger strategy as low income people of the country are still spending almost 57% of their subsistence income for their food with high food prices in urban areas. High food prices along with gender inequality in the access to food has also led to unequal impact of poverty and hunger on different gender domains. In order to address these issues, the country has initiated important measures like launch of emergency food relief scheme, creation and passing of a legislation to address malnutrition through breastfeeding, usage of iodised salt for household. To address SDG 5 (gender equality), Namibia, has created an updated National Gender Policy along with Gender Responsive Budget Guidelines through National Gender Mainstreaming Programme of 2003. Article 10 of the Constitution of The Republic of Namibia guarantees gender equality before the law and the right to non-discrimination to any gender. Both the VNRs and BURs clearly spell out the importance of addressing SDGs related to Education, Employment, Health, Hunger, Poverty and Inequality through an interlinked mechanism with the NDC implementation process that have climate mitigation and adaptation measures related to promotion of renewable energy and eradication of poverty, hunger, enhancement of food security.

Several Ministries are being involved in the implementation process of the SDGs in Namibia. These Ministries include - Agriculture, Water and Forestry, Finance, Trade and Industry, Works and Transport, Regional and Local Government, and Housing and Rural Development.

However, these Ministries have to collect data, implement the process, review the mechanism of the process and report to the two key focal points viz. National Planning Commission, Namibia Statistics Agency. These two key agencies are solely responsible for monitoring, evaluation of the progress of the SDGs and its interlinkages with the Climate Mitigation and Adaptation Actions in Namibia. At the local level, through the data collection process of Namibia Statistics Agency, GHG inventories are also created and they are further connected to the SDG Implementation Process.

All the 17 SDGs are mentioned in the National Development Plan which is implemented through a three tier mechanism. The three tier mechanism involves a Development Partners Forum at the highest level to provide coordination oversight; a multi-stakeholder National Steering Committee composed of senior officials from both government and development partners at implementation level to provide tracking of implementation; and lastly the coordination of all developments pertaining to SDGs, through the National Development Plan, which rests with the National Planning Commission as the Secretariat.

The Cabinet of Namibia is responsible for the successful implementation of the NDC. The National Climate Change Committee (NCCC) oversees the implementation of the NDC including the preparation of the reports (BURs) for submission to the Convention and plays an advisory role to Government on climate change (both mitigation and adaptation) issues. It comprises representatives of various ministries and other stakeholders from the private sector and civil society. MET, is the official government agency acting as national focal point which is responsible for coordinating and implementing various activities related to NDC, including the preparation of both the National Communications and Biennial Update Reports (BURs) to enable the country to meet its reporting obligations. This is done through the Climate Change Unit (CCU) established within the Department of Environmental Affairs. Being a formalized and multi-sectoral committee, the NCCC advises and guides the CCU for sector-specific and cross-sector implementation and coordination of climate change activities and they are supposed to interact with the National Planning Commission and Namibia Statistics Agency to establish synergies between the SDGs and NDC Implementation process.

The progress of the NDC is being tracked through a strong MRV (Monitoring, Review and Verification) system which is being implemented under the aegis of the National Planning Commission. The National Planning Commission tracks the data, progress of NDC targets and SDG targets. At a lower level, GHG Inventories are also being prepared which feed into the national level NDC mapping process. However, the GHG inventory process has not yet become fully robust and needs more data related capacity building and training. The local level GHG emission inventories are being made through small working groups who are supposed to gather and report data at a very short span of time which often impacts the quality of the data and its monitoring and verification process.

As a part of the implementation process of NDC within Namibia, GHG inventories are being made at the local level. It has established a NDC Partnership Plan to get into international collaboration for mobilising international resources for climate action in the priority areas within the country. One of the key focus of the NDC Partnership Plan is to access, enhance technical knowledge related to climate action (both adaptation and mitigation) and provide financial support to achieve the NDC targets and the SDGs in an interlinked manner. Five year targets are being placed within the NDC Partnership Plan and these five year targets are further connected to SDG 1 to a large extent. Some of the NDC targets are also interconnected with the SDG of decreasing food insecurity from 25 percent to 12 percent by 2022. NDC also has a specific focus through an adaptation side towards a 30 percent increase in food production. The NDC has a focus to increase agricultural production which is currently done only in 3% of the available fertile land creating 40% of the required cereals.

The NDC also has a specific mention about addressing floods and droughts that can emanate from climate change. The key mitigation side measures of Namibia include - promotion of solar energy to reduce fossil fuel dependence, establishment of larger hydro generation plant and range of demand side management measures with a focus on energy security and reduction of fossil fuel import bill for meeting the energy demand in the transport, industry, commercial, residential and agriculture sector. The mitigation actions also focus on reduction of emissions from household firewood usage for cooking, improved energy

efficiency measures in the small and micro enterprises , transport sector along with a focus on job creation.

JORDAN

NDC targets of Jordan in the mitigation and adaptation domains are well interconnected with the SDGs. One of the most important mitigation and adaptation strategy in Jordan is related to waste sector through waste water treatment discharge measures to create new jobs as well as generate jobs in the waste discharge sector. This measure is linked with SDG 6 as Jordan is water poor country, wastewater handling accounted for 9% (142.42 Gg of CO₂eq) of total waste related emissions. Jordan has severe water scarcity, but more than 94% of Jordanians have access to safe drinking water and 93% have access to improved sanitation through strong measures in waste management and clean sanitation and water conservation. These conservation measures also fit into the domain of climate mitigation and adaptation.

Water is also used in agriculture sector and agriculture sector also provide employment which is also one of the SDG goal (SDG 8). As per the GHG inventory of Jordan, 66% of all emissions comes from Energy Industries (Gaseous Fuels), Road Transportation, Energy Industries (Liquid Fuels), Manufacturing Industries and Construction (Liquid Fuels) and other sectors (commercial/institutional and residential-Liquid Fuels). Hence strong climate mitigation measures are being implemented to address emission reduction from these sectors.

All the 17 SDGs are mentioned in National Development Plan of Jordan and the plan is implemented through the three tier mechanism defining the quality of data. Department of Statistics (DOS) and other institutions are responsible to disaggregate data, and improve data availability and quality and then they report to the higher authority for the implementation of the SDG related National Development Plan. The Ministry of Planning and International Cooperation has prepared a stakeholder engagement strategy to ensure the widest participation from all Government Ministries (MGOs) in the SDG implementation and VNR preparation of Jordan. The stakeholder engagement strategy specifically focuses on measures to involve larger *Nongovernmental Organizations (NGOs) along with smaller, community based organizations (CBOs) and individuals*. In order to ensure enhanced coherence in the policy implementation process of different SDGs, national development planning institutional system and mechanisms are being implemented through mainstreaming of SDGs as part of successive EDPs (national integrated development plans). Restructuring of the Higher National Committee for Sustainable Development is being done and the body is responsible for overseeing the implementation of 2030 Agenda. This National Committee has a Coordination Committee under it with 18 working groups, including two new working groups developed to focus on gender as well as human rights & freedom of expression to ensure coverage of all SDGs. The working groups are the ones which are institutionally working on successive EDPs. Several Ministries are being involved in the implementation process of SDGs in Jordan. These Ministries include - Ministry of Finance (MOF), Ministry of Health, Ministry of Water and Irrigation (MWI) and Ministry of Justice. These ministries collect data, implement the process of various SDG related implementation

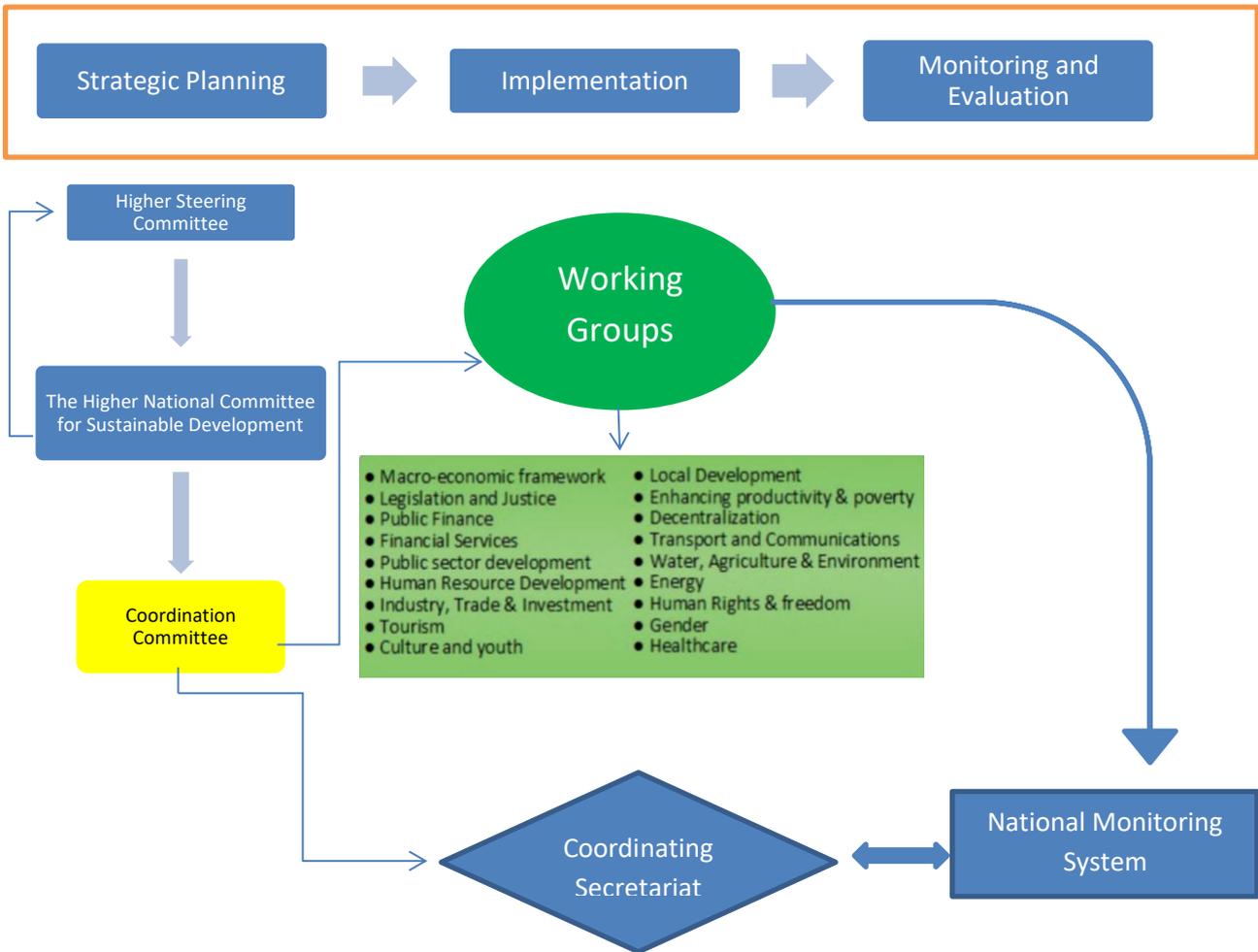
plans, review the mechanism of the process and report to the focal point, Ministry of Planning and International Cooperation (MOPIC). MOPIC is responsible for monitoring and evaluation of the progress of SDGs (through the policy implementation processes) and its interlinkages with climate mitigation and adaptation actions in Jordan. The Directorate acts as the institutional coordination hub for coordinating all climate change activities in Jordan in relation to the UNFCCC. A representative National Climate Change Committee (NCCC) is also constructed and implemented based on a decision by the Prime Minister and Members of the committee include many stakeholders directly associated with climate change mitigation and adaptation sectors in Jordan. It also comprises of representatives of various ministries and other stakeholders from the private sector and civil society.

There are three types of MRV (Monitoring, Verification and Review) systems in Jordan and they are -

- The first is the MRV of GHG emissions, conducted at the national level, which seeks to understand the emissions profile and report it in the form of emissions inventory.
- The second is the MRV of mitigation actions (e.g., policies and projects) which seeks to assess GHG mitigation effects as well as monitor their implementation.
- The third is the MRV of support (e.g., climate finance, technology transfer, and capacity building) which seeks to track provision and receipt of the support and facilitating environment to address the climate mitigation and adaptation actions.

The institutional structure of NDC implementation process to bring a larger policy coherence is explained in the following diagram (Fig -)

A close inspection of the interlinked approach in Jordan highlights that there is a gap in terms of sufficient institutional arrangements in Jordan which can define clear roles and responsibilities of different ministries with regard to climate change and its impact on SDGs and SDG targets. Insufficient technical processes and systems to identify and record climate finance expenditures (such as reporting formats and software platforms for storing and sharing information) and mechanisms to integrate climate change into national systems for budgeting, monitoring, and reporting can impede the faster interlinked implementation of achieving the SDG targets along with interconnected climate mitigation, adaptation goals within the country of Jordan.

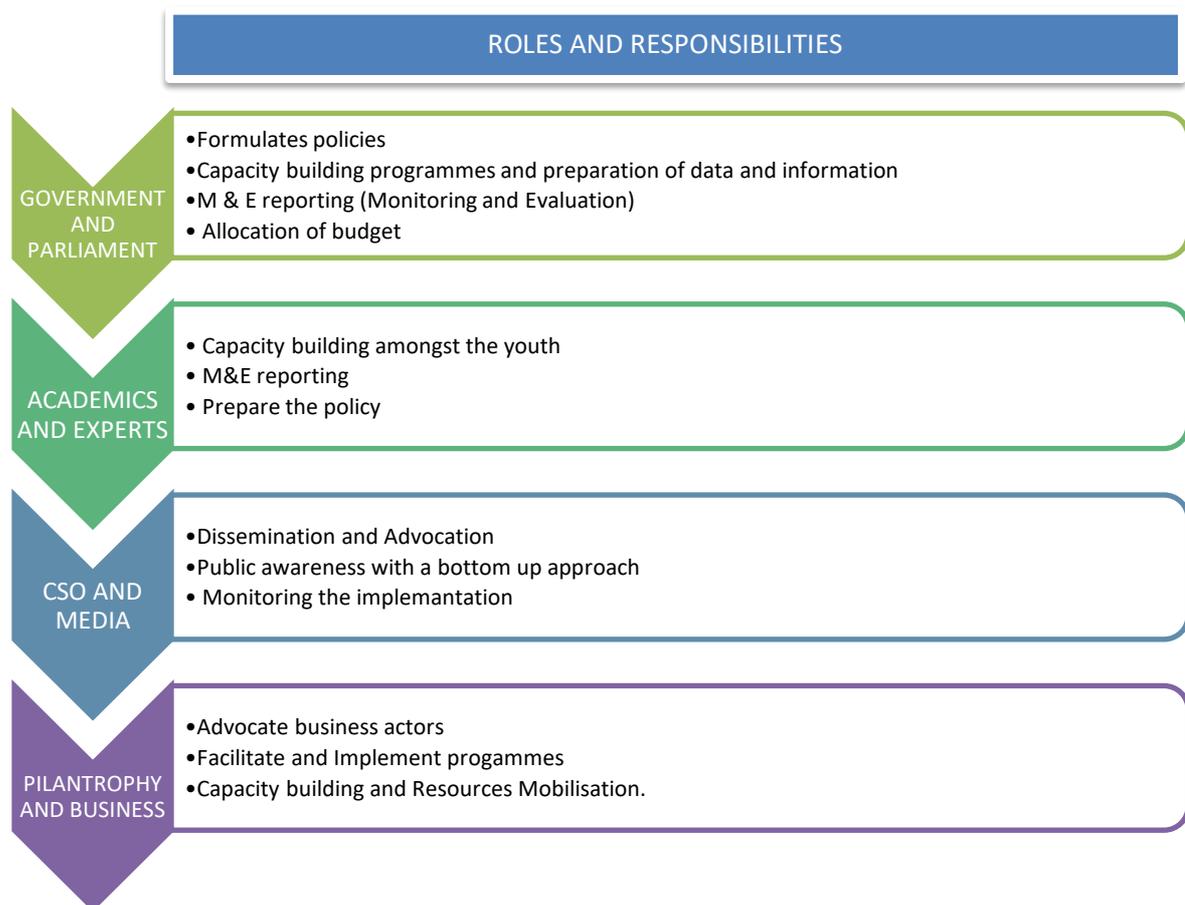


INDONESIA

Indonesia is highly committed to implementing the Sustainable Development Goals. Implementation of SDGs has been merged with the National Development Plan “NAWACITA”, “National Long Term Developmental Plan (RPJPN: 2005-2025)” and the mid-term Developmental Plan (RPJMM) 2015-19. The 2017 VNR report for Indonesia mainly focuses on 7 SDGs with a special emphasis on poverty, health and nutrition to a large extent. The principle of “leave no one behind” is applied for making the VNR in Indonesia by means of a transparent participatory mechanism and in line with open governmental policies. To end poverty level, substantial measures have been taken. Programmes such as The National Health Insurance (JFK), Basis Data Terpadu (BDT) were implemented to provide social protection in a more comprehensive manner. Basic services such as child delivery, immunization, childcare, contraceptive prevalence, access to birth certificates, Net Enrolment Rate (NER) in the primary level, clean water and proper sanitation have been increased at a substantial rate by the measures of the government. One major implementation focus of the VNR relating to SDG 1 was provision of basic services to disaster victims to end poverty. This is also connected to the adaptation measures of climate change. As mentioned earlier the country is prone to several natural calamities and climate induced hazards; therefore the

government provides basic facilities to the poor households that are most vulnerable to disasters from climate change. There is still a lack of synergy amongst the above mentioned poverty alleviation programmes at both national and subnational levels. One of the major SDG challenge in Indonesia is related to prevalence of high child poverty. The VNR recognises the fact that such poverty prevalence is not only in terms of income and economy but also in terms of access to basic services required for child growth and development. Hunger is also an important developmental challenge faced by the poor in rural setups and disaster prone areas. People with minimum calorie intake below 1400 Kcal/capita/day decreased between 2012-2016. But this issue has been taken up by the government and several programmes and schemes are being introduced to end hunger. Since drought and flood (El Nino/ La Nina) are very frequent in Indonesia, sustainable agricultural practices are adopted to minimize food shortage and enhance production of carbohydrates such as rice, corn, sweet potato. Pulse production has been increased by the government which resulted in an increase of the Desirable Dietary Pattern (DDP) score across the nation. Introduction of genetic banks of crops and livestock to produce High Yielding Variety Crops which links to the SDG 1,2 and as well as to climate adaptation measures are some of the important measures taken up to address the interlinked SDG and climate adaptation processes within the country.

Within Indonesia, the institutional mechanisms to implement an integrated SDG and NDC Implementation process for a policy coherence follows the below mentioned vision. This includes the below mentioned structural process:





The implementation of climate change mitigation policies and actions follow several stages from planning, implementing, monitoring, reporting, verification and/or registering. The institutions responsible for the climate change mitigation actions are MoEF (Ministry of Environment and Forest) and other related ministries. The focal points are the Directorate General and Secretary General of the related ministries. The mitigation action plans are created by the related ministries under the guidance and supervision of MoEF and Ministries have implemented these plans as an integral part of the National Development.

Implementation, monitoring and reporting of the mitigation actions are undertaken by related ministries and the reports are submitted to Bappenas, MoEF, as well as to the Ministry of Home Affairs (MoHA). Institutional arrangements of MRV (Monitoring, Review and Verification) follows the international guidance for domestic MRV with several adjustments according to the national circumstances. The implementation of the MRV is coordinated by the MoEF (c. q. Directorate General of Climate Change or DGCC). The verification process is quite straightforward. The parties are called who are responsible for the emission generation. They have to provide a detailed reporting of the emission data along with the planning and implementation process to tackle the emission over a certain timeline. All these reporting are being done to the Directorate General of Climate Change or DGCC which is the coordinating agency of MRV process.

The coordination between the ministries and the focal points of Indonesia are not so strong which need to improved. No new institutional structures are required at this point but the existing ones should be revised for the better cause. The stakeholders are needed to be more efficient for better results and ease in achieving the national targets.

JAPAN

The institutional process of SDG and NDC implementation in Japan is well structured and integrated. Related ministries¹ and agencies of government will closely cooperate with each

¹ These ministries include : Ministry of Defense, Ministry of Environment, Ministry of Land, Infrastructure, Transportation and Tourism, Ministry of Economy, Trade and Industry, Ministry of Agriculture, Forestry, and Fisheries of Japan, Ministry of Health, Labor and Welfare, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Finance, Ministry of Foreign Affairs, Ministry of Justice,

other which were led by “Global Warming Headquarters” chaired by Prime Minister and all Cabinet ministers as member and the “Directors Meeting of Global Warming Prevention Headquarters” as a ministries’ director-general level meeting. For regions, there is a “Regional Committee for Promoting Energy and Global Warming Counter measures” which has been established in each regional block in Japan. Japan has also developed “Global Warming Counter measure Plan” based on the Article 8.1 of “Act on Promotion of Global Warming Counter measures” in order to promote global warming counter measures in a comprehensive and planned manner in cooperation with Japanese government, local governments, business operators and general public. The Government of Japan has strictly managed the progress of policies and measures. The Government council conducts an annual review on the progress of national policies and measures and also, voluntary initiatives conducted by business operators (Commitment to a Law Carbon Society), in order to ensure the effectiveness of climate change policy. In addition, the Government of Japan also estimated the greenhouse gas emission levels biannually (preliminary and definite values) to check the emission trends by sector and by gas. All the Ministries and agencies implement the SDG and NDC implementation process together by constantly cooperating with each and then reporting the progress to the Cabinet Office and Cabinet Secretariat.

Japan follows the interconnected goals of SDG and NDC in the following way:

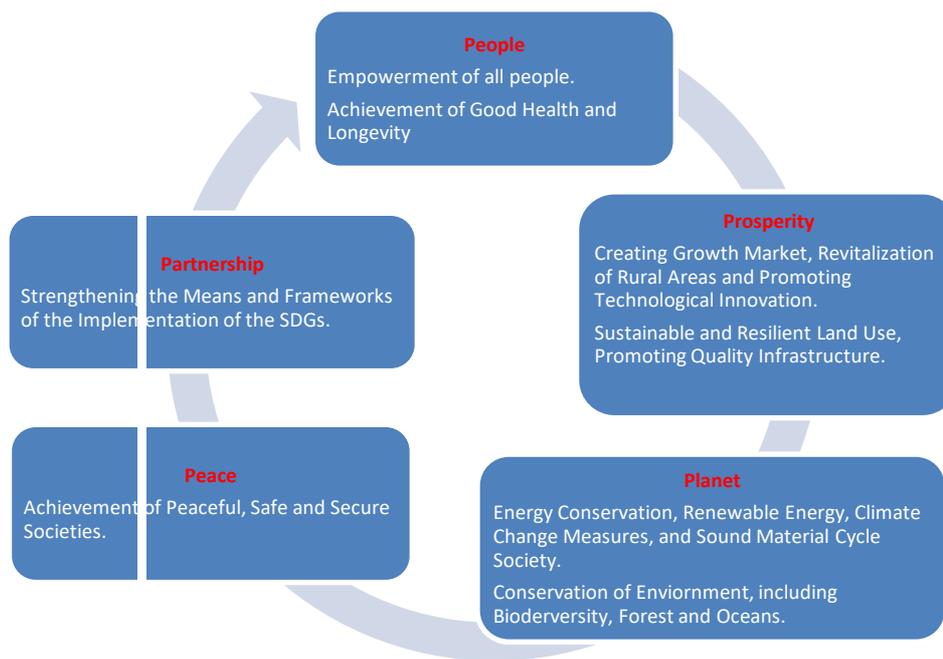


Fig 2:

Fig 2:

ROMANIA

Romania's Institutional arrangement is done by the coordination body on the implementation on the SDGs for the 2030 agenda by a department of Sustainable Development under the Ministry of Environment. The Inter Ministerial body was formed in the year 2011 by the government under the decision number 741/2011 which are held responsible for the sustainable development policy. A committee for Sustainable Development was formed under the Prime Minister's direct coordination, which will include all the ministries and relevant agencies. In 2015, the Parliament of Romania decided to create a Sub-Committee for Sustainable Development which in April 2016 adopted a Declaration of the Parliament of Romania on Sustainable Development Goals of the 2030 Agenda for Sustainable Development. One of the main provisions of the declaration states the creation of a unit under the direct authority of the Prime Minister dedicated to the implementation of 2030 Agenda. In April 2017, by the Government Decision 313/2017, the Department for Sustainable Development was created and it was supposed to have the main responsibility of the implementation of the 2030 Agenda at national level. To create policy coherence, the major strategy adopted by the nation is an Inter departmental Committee at an executive level under the authority of the Prime Minister by bringing together all the ministries and the national agencies of the Central Government that are a part of this strategy. The Inter ministerial Committee for the Coordination of the Integration of Environmental Protection into Sectorial Policies and Strategies at the National Level is responsible for the coordination of sustainable development at national level. The Minister of Environment is the head of the inter-ministerial committee responsible for the all the SDGs actions of the nation.

A review of the progress of Romania in the interlinked SDG and NDC implementation process shows that the country has already overachieved the set out target of 24% share of renewable energy generation by 2020. The overachievement has happened due to large scale solar and wind power generation which has helped the country to achieve a share of 26.7%. The country has also successfully implemented renewable energy generation and green energy transport infrastructure by means of implementation of a law 220/2008. The interlinked area of SDG 7 and SDG 12 and SDG 13 are being implemented systematically by Romania. Renewable energy promotion in the green infrastructure segment of the country has helped in enhancing the renewable energy promotion goal of SDG 7 along with climate action and sustainable production and consumption. The country has been able to implement SDG and NDC plans together as a part of the national level low carbon green growth strategy for the period 2016 - 2020.

BRAZIL

The institutional mechanism for policy coherence for SDG and NDC implementation process in Brazil follows the below mentioned structure:

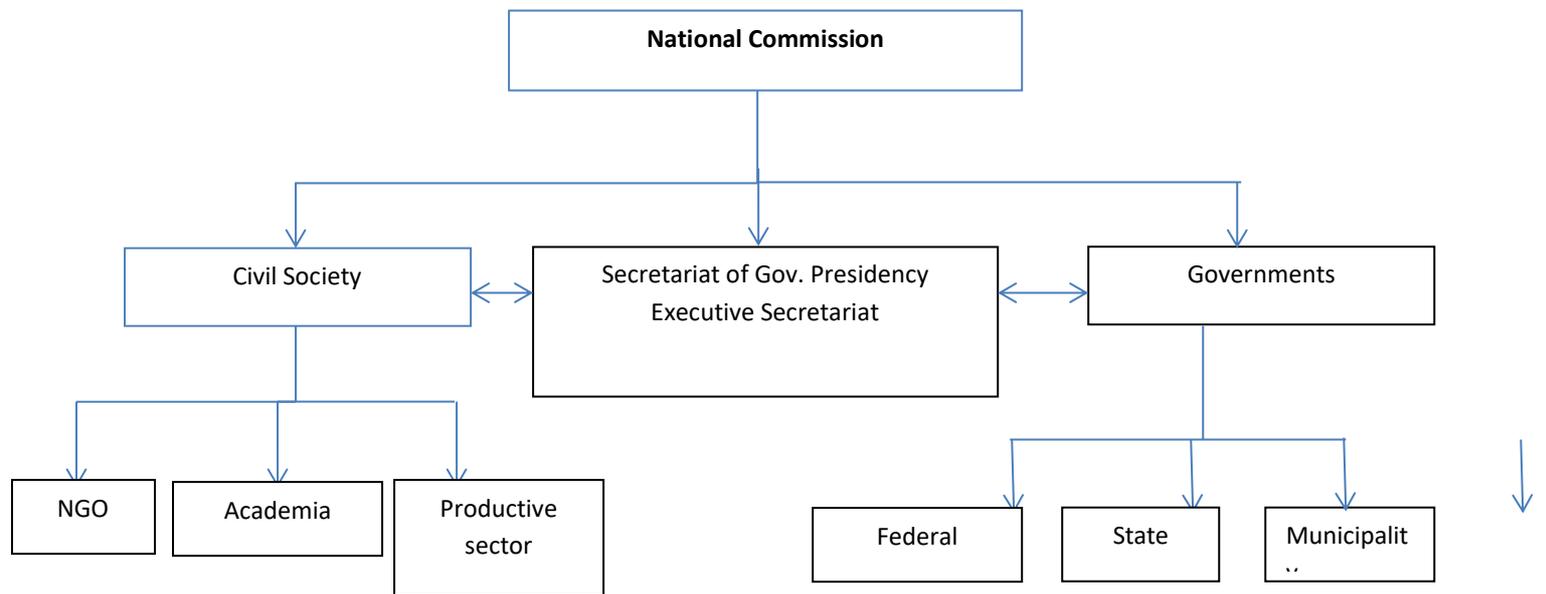


Fig 6:

The implementation flow of actions for SDG Implementation interlinked with the NDC implementation mechanism within Brazil maintains the following flowchart of actions which is:

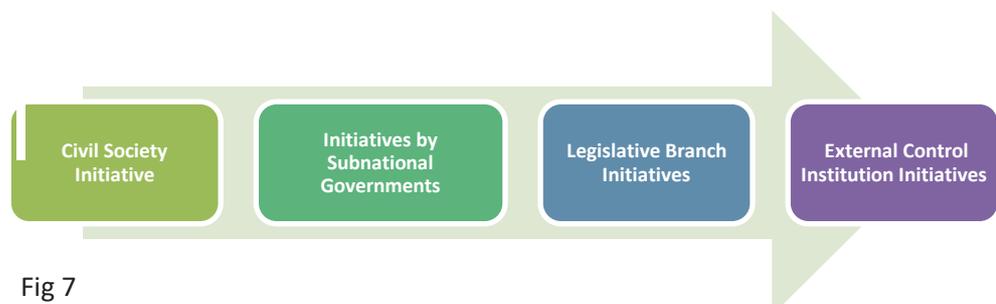


Fig 7

VIETNAM

Vietnam is another country which is being analysed in this case study analysis to understand how middle income countries which are slowly getting integrated to the world economy and exposed to future impacts of climate change and domestic economic, social and environmental challenges should implement the interlinked SDG and NDC implementation process.

The institutional process to implement the SDG and NDC integrated implementation mechanism in Vietnam is indicated in the figure 8 :

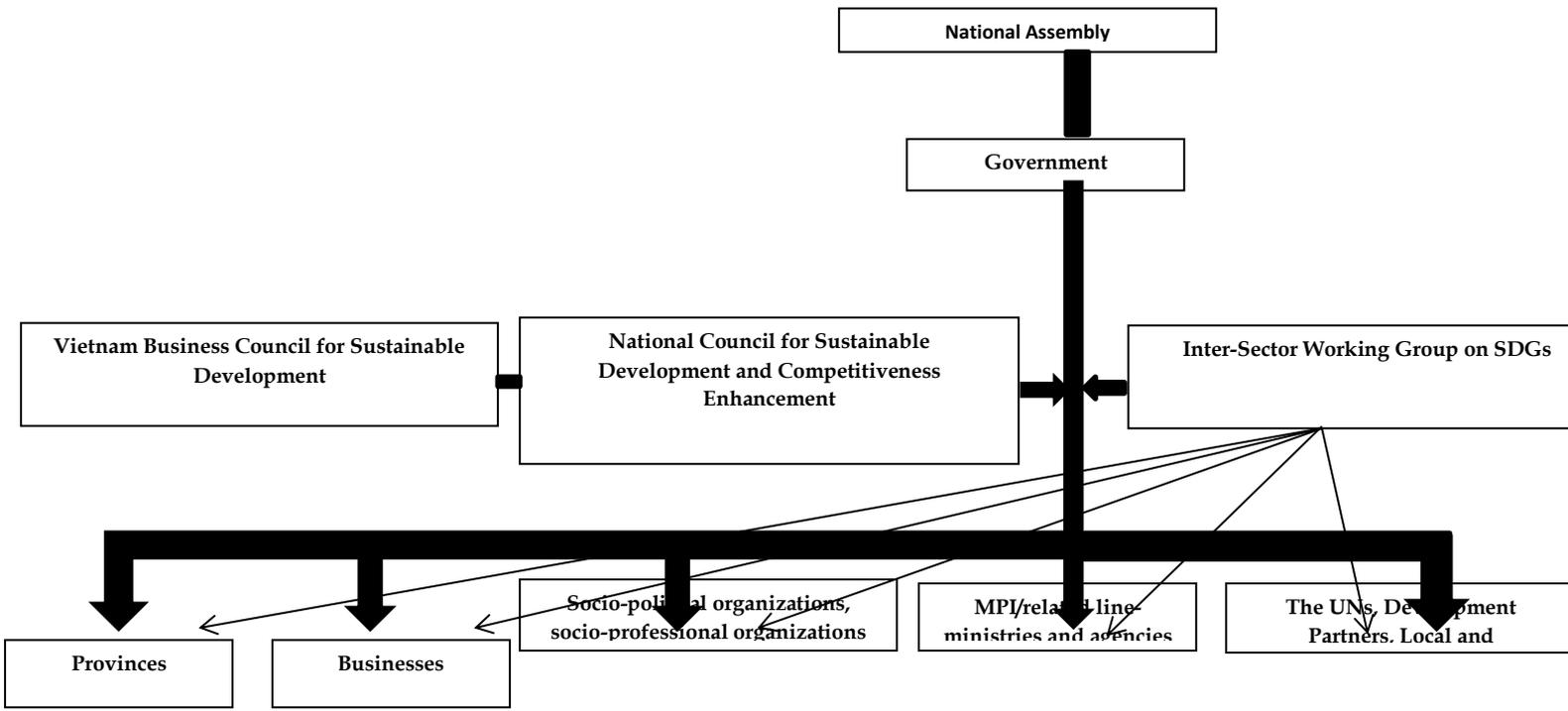


Fig 8 :

In order to create a coherence between the SDG and NDC implementation process, Vietnam has nationalized the global 2030 Agenda in the SDG NAP with 17 SDGs and 115 specific targets which fits national conditions and development priorities through the below mentioned steps:

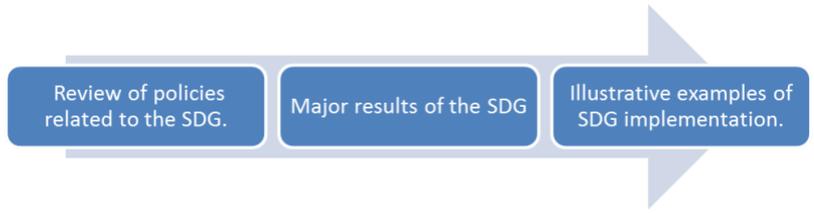
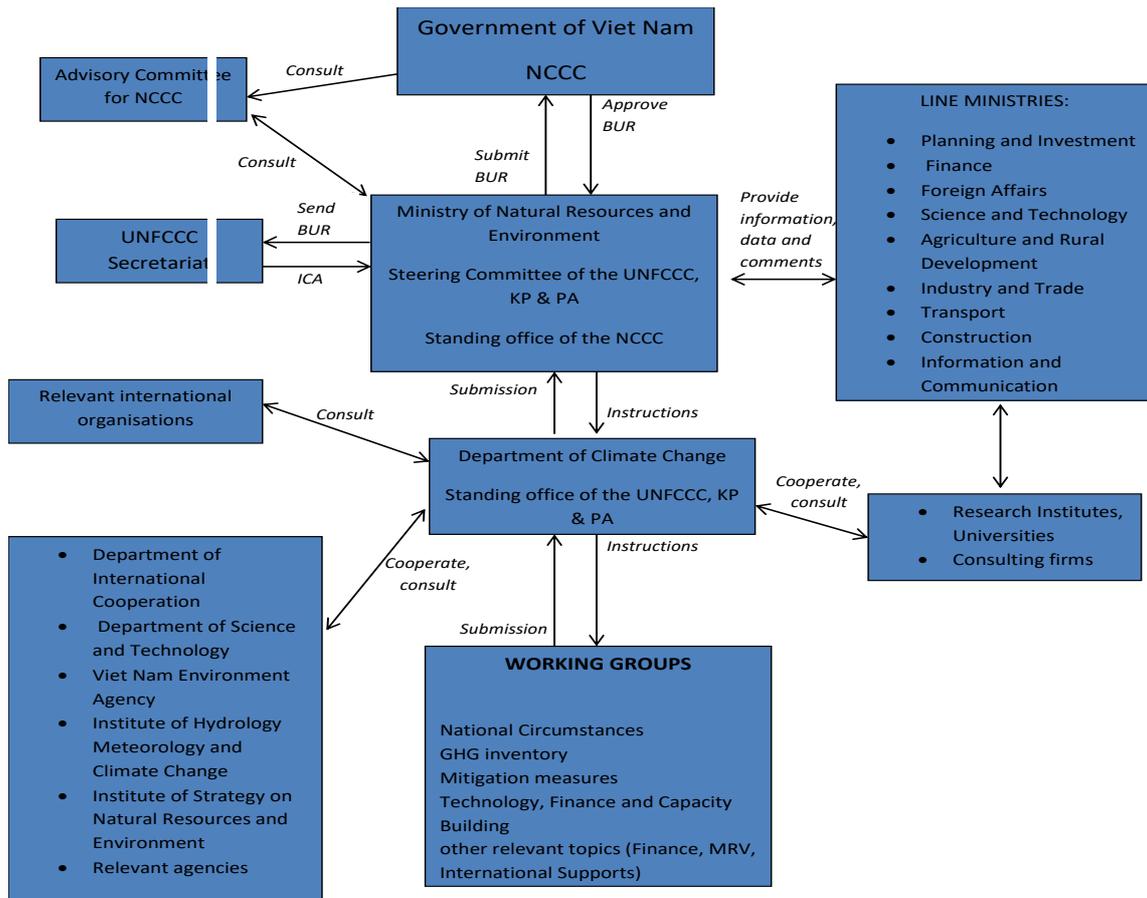
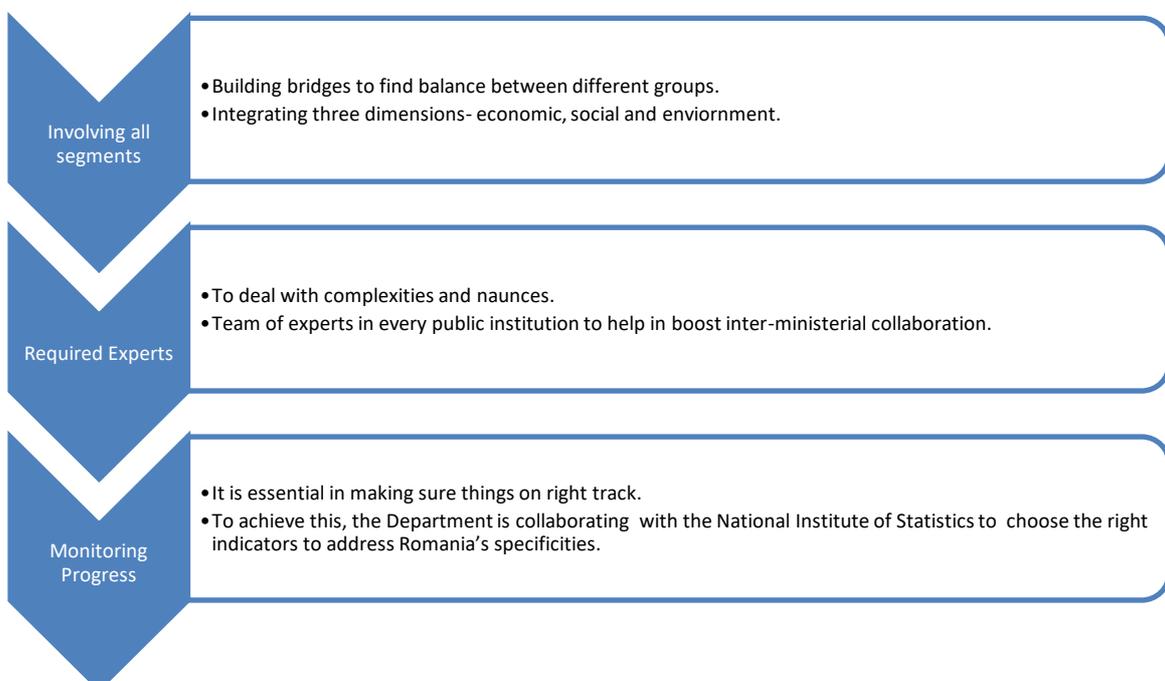


Fig 9:

Vietnam is one of the Asia Pacific countries which has completed Gender Mainstreaming particularly in the Law on State Budget 2015. Through a low carbon green growth strategy, Vietnam has implemented strong mitigation measures in the waste sector. The mitigation measures as a part of the green growth strategies are well linked to renewable energy promotion along with job creation. The institutional process to implement the mitigation actions as a part of NAMA is implemented in the following way:



The case study of Vietnam as a case study from Asia Pacific shows that integrating SDG and NDC implementation will help to meet the 2030 agenda. Vietnam is highly vulnerable to climate change and therefore institutional framework for the integrated SDG and the NDC implementation processes are required which is working very well for Vietnam. The coordination between the ministries and the focal points are very strong and they are helping in achieving SDGs.



5. Country specific SDG and NDC Prioritisation Area and interlinkages between the implementation processes – Some inferences

The case study of Namibia shows that the impact of a SDG and NDC integrated implementation process within the country is going to benefit the country in its attainment of SDG1, SDG2, SDG 10 (through larger food security, better income distribution, education and health outcomes, job creation through renewable energy promotion and demand side management measures), SDG 5 and SDG 7 (through gender equal climate mitigation measures at rural households and provision of clean energy access to rural women households for cooking), SDG 12 (through energy efficiency measures in small, medium and micro enterprises and in the transport, industry sector). For Jordan, the key focus areas of SDG are - SDG1 (No Poverty), SDG2 (No Hunger), SDG3 (Good Health and Well-being), and SDG5 (Gender Equality), and SDG9 (Industry, Innovation and Infrastructure), Education (SDG4), Water (SDG6), Energy (SDG7), Prosperity and Decent Work (SDG8), Environment and climate change (SDG13), and Justice, human rights, and participation (SDG16). Within the climate mitigation and adaptation domain, these SDGs are linked to agriculture sector, Energy Industries (Gaseous Fuels), Road Transportation, Energy Industries (Liquid Fuels), Manufacturing Industries and Construction (Liquid Fuels) and other sectors (commercial/institutional and residential-Liquid Fuels).

For Indonesia, the SDG focus areas are - poverty, health and nutrition, clean energy, energy access, clean water and sanitation and they are connected to climate mitigation and adaptation measures of peat management, effective land use and spatial planning, sustainable forest management including social forestry programme, restoration of degraded ecosystems functions including in wetlands to improve agriculture and fisheries productivities, enhancement of energy conservation, promotion of clean and renewable energy sources, the improvement of IPPU and improvement of waste management nationwide using the landscape and ecosystem management approaches for both adaptation and mitigation efforts.

Some of the prioritised areas of interlinkages for a country like Brazil are SDG 1 through its National Policy for Social Assistance (PNAS), implemented through the Unified Social Assistance System (SUAS), along with provision of social assistance benefits, services, programs and projects nationwide aiming at reducing poverty and improving the living conditions of the most vulnerable population. Health, education, gender equality and social assistance are prioritised areas for Brazil. Along with reduction of poverty and hunger through an enhanced agricultural production by reducing the future impacts of climate change on agricultural production is another key area of intervention in Brazil. Hence a large focus is being given to land and forest conservation measures along with reduction of emissions in this sector. Specific actions to enhance agricultural productivity for enhancing food security and reducing poverty and hunger is a key component of a SDG and NDC interlinked implementation programme in Brazil.

For Vietnam, which is a successful case study from Asia Pacific in terms of an integrated SDG and NDC implementation, the key focus areas have been SDG 1, 2 and 3 interlinked with

promotion of agricultural production, food security and job creation in the waste sector. The country has also aimed at increasing renewable energy share to more than 5% by 2020 along with job creation. Energy, Agriculture, Waste and LULUCF are some of the key prioritised areas of intervention through which Vietnam has been aiming to achieve SDG 1, 2, 3, 7 and as well as addressing the mitigation needs of clean energy promotion and adaptation needs of job creation, waste reduction, reduction in poverty, income inequality through an interlinked process of SDG and NDC implementation mechanism.

6. Identification of potential future benefits and challenges

The future challenges are related to existing institutional structures, statistical capacity building related to data collection, assessment, verification and reporting. The countries have to create more synergies in the inter, intra and cross sectoral interlinkages in the path of an integrated SDG and NDC implementation process through proper action plans and effective functioning of the institutions. Inadequacy of funds is also a major challenge in creating interlinked SDG and NDC implementation process as it creates a demand for funds to enable and generate new capacities through both a concrete bottom up and top down action plan. One of the challenges related to data monitoring and evaluation will be linked to capacity building of human resources for data storage, organization and its upgradation keeping in sync with the evolutionary path of technology. Inter departmental coordination emerges as a major challenge along with capacity building from most of the case studies.

7. INDIA – A specific case study [Still being developed]

As a part of the case study analysis, interviews were conducted with experts working on SDG and NDC interlinked implementation process within India as a part of two key implementation agencies - Ministry of Environment, Forest and Climate Change (MOEFCC) and NITI Aayog along with a range of nodal state agencies. The interview based analysis indicated that the focussed interlinked areas of SDG and NDC implementation in India has been SDG 1, 2, 3, 5, 7, 9, 12, 13 and 17. SDG 1 is addressed through a target of creating jobs to the tune of 2 billion person days: SDG 2 is being achieved by means of midday meal schemes for 100 million children and enhancement of food security through 62 million soil health cards. Universal health care is also being targeted for poor families with an insurance coverage of INR 1,00,000.

Woman empowerment, child girl education is being promoted through - “Beti Bachao Beti Pado” campaign. Clean energy access is being implemented through Ujjwala Programme with the promotion of SDG 7 and a climate resilient infrastructure through installation of renewable energy generation with a focus on small scale industrial growth and job creation . Various climate mitigation measures are being promoted and they are interlinked with SDG 1, 7 and 9. Climate adaptation measures of enhancing food security through provision of soil health cards and enhancement of soil and agricultural productivity, forest conservation measures are interlinked to SDG 2 and 3.

The institutional process of SDG implementation in India started way back in 2015. As a part of that process, international indicators were analysed, seen, contextualised into a national indicator framework. The data regarding the indicators were supposed to be collected by State specific agencies that will collate and report the data to Ministry of Statistics and Programme Implementation (MOSPI). MOSPI has been given the responsibility to study, assess and synthesize the data and continue a review, reporting and assessment of the data. In order to achieve the goals, targets have been set for every SDG and respective Ministries have been mandated to achieve the SDG targets. NITI Aayog has also created four working groups to deal with 6 SDGs. Different Ministries have been invited for the consultation for addressing the SDGs. Every Ministry is dealing with a particular theme and trying to implement the SDG targets through the schemes. The schemes are implemented through States by means of consultation between the State and the Centre. NITI Aayog created a mapping process of all programmes and schemes including the Central and State Schemes after identifying the linkages of the Schemes with the specific SDGs. The state departments report the progress of state specific schemes to the respective Central Ministries which thereafter report back to the MOEFCC. Respective Ministries have been assigned roles and responsibilities of linking their Central schemes to the respective SDGs by linking it to the State departments and in coordination by means of state consultation. Progress of the schemes are supposed to be monitored through the State level departments by means of different statistical indicators which are reported back to the MOSPI. NITI Aayog largely plays a role of a facilitator in the SDG Implementation Process with the Central and State ministries playing a more central role.

Currently, there is a need to review the degree and nature of the implementation process of the SDG by integrating it to the NDC implementation process. Gaps and challenges still do exist in such an integration process. NITI Aayog has prepared a list of 62 indicators and the progress of achievement of these indicators through the state specific schemes need to be done at a regular interval of 6 months. Capacity building has been an issue in that aspect along with the challenge of creating a common understanding of the SDG and NDC implementation process in an integrated way. In order to create this integration, apex committees are being formed at MOEFCC. Each Ministry responsible for the implementation of the SDG integrated climate mitigation and adaptation programmes are working with the state nodal agencies and are then also reporting to the nodal apex committees at MOEFCC to create an integration between the SDG and NDC implementation process within India. While conducting this implementation process the Climate Change Action Plan is being kept at the backdrop.

8. A FRAMEWORK TO UNDERSTAND THE IMPLEMENTATION PROGRESS: (Presented for Indonesia only for now)

In order to understand the implementation progress of interlinked approaches across countries, a detailed quantitative matrix and frame is constructed. Based on the Voluntary Update Reports, Nationally Determined Contribution's report and several academic literature written and published by different organisations working in the related field the matrix has been compiled.

In order to compile this new normative matrix, 9 VNRs, 9 BURs, 12 academic literature with various cross referenced literature is being analysed as a part of the metaliterature analysis of the matrix formation exercise. The sectors which have been considered for the analysis are - Agriculture, Industry, Transport, Residential, Commercial, Waste, Service, Energy and any other. Each of these sectors are interlinked with the SDGs - 1,2,3,5,7, 12, 13 and 17. The entry point of interlinkages are through the mitigation and adaptation segments. In both the government (including VNRs, BURs, NAPs) and academic literature some interlinkages and convergences are happening across sectors at varying degree and scale from low, medium to high. They are colour coded with blue with varying shades. For some sectors, the interlinkages are emerging only from the academic literature and there is no convergence between the academic literature sectors and the government literature. These sectors are coded as red with no varying shades as from the academic literature the degree and scale of interlinkage cannot be conclusively determined. Against the backdrop of the colour codes of the sectors, the interlinkages for Indonesia are superimposed where the numbers are entered and each number depict the following functional relationship:

Table 1:

<u>Number</u>	<u>Degree and Nature of Positive or Negative Functional Relationship Only for Indonesia</u>
1	+ or -
2	++ or --
3	+++

The interlinkages of some of the sectors are further explained below:

Agricultural Sector has a huge importance for the NDCs and SDGs in terms of both mitigation and adaptation and as a result of that the functional relationship is mostly positive from the literature. From the literature, it emerges that the agricultural sector is linked with the poverty, hunger, gender equality, energy for all, sustainable production and consumption and climate action. The relationship is found to be a positive one from almost all the literature review. As a result, a positive score with different degree of relationship is assigned for the agricultural sector.

The industry sector on the other hand has shown some variation. For example in the case study of Namibia the major problem faced by the nation is the lack of jobs as the extractive industries does not have new jobs and gender inequality in the industry sector is a serious issue in most of developing countries. As a result of that, the functional relationship in the industry sector is strong with SDG 1 and SDG 5 in case of Namibia.

On the other hand, for example SDG 1 (eradicate poverty) has a medium or positive relationship from all the literature (including government and academic) and on the contrary the gender equality and industries has low relationship from the Annex I countries, Non Annex I countries, LDC and SIDs owing to male dominance in the industry sector. Transport sector has been contributing towards poverty, hunger, sustainable consumption and production and climate action. Residential sector is showing low to medium positive relationship in terms of most SDGs. Waste sector has a huge importance on the SDGs especially in the developing countries due to the unmanaged disposal sites. Waste scavenging in the developing countries has been linked with poverty, hunger, health and well being, energy for all, sustainable production and consumption and climate action in the VNRs and BURs. The energy sector is linked to most of the SDGs. Renewable energy sector shows the potential to generate new jobs and also create jobs for women thereby addressing the SDG 1 and SDG 5. Overall energy sector has a strong positive functional relationship with almost all the SDGs. Almost all the literature showed a very strong institutionalised energy sector.

For Indonesia, SDG5 linkage with the agricultural sector has a negative relationship because of unfair work distribution as most of the drudgery is being borne by women in the agriculture sector. The energy sector has a positive influence on most of the SDGs for Indonesia as well. A strong positive functional relationship comes up while linking energy especially renewables with poverty, hunger, gender equality, sustainable consumption and production and climate action in case of Indonesia. Climate action and sustainable production and consumption measures in the waste sector through the mitigation responses of climate action can contribute to the SDGs of Indonesia. Lot of waste scavenging is being done in the nation especially in the 4-10 age groups within the waste sector which leads to low negative and low positive functional relationship in the adaptation segment of the super imposed matrix. Industry sector is not doing well in the country as very minimum jobs are coming up. All the values assigned to the case study of Indonesia (superimposed on the matrix) are capturing low negative to medium positive functional relationship which is different from other case study analysis countries like Japan, Australia, Vietnam, Jordan, Namibia, Brazil, Romania and Singapore. It is due to this variation, Indonesia is chosen as a case study for the interlinking analysis within the super imposed frame.

Codes and Explanation of the Matrix:

<u>Number</u>	<u>Degree and Nature of Positive Functional Relationship</u> <u>Only for Indonesia</u>
1	+ or -
2	++ or --
3	+++
<u>Colour Code</u>	<u>Source Documents of Literature - VNRs, BURs and Academic Literature</u>
Blue (Convergence between Government and Academic Literature)	Convergence Existing between VNR, BUR and Academic Literature with a degree of interlinkage showing the scale of low to medium and high blue shade
Red (No Convergence and the relationship of interlinkage is only coming from academic literature)	No Convergence Existing and the interlinkage between the sectors are coming only from the academic literature. The scale and degree of relationship did not emerge from the academic literature and so one colour red is used inspite of using a degree of shade of red.

References:

Bouyé, M., et al. (2018), Connecting the dots: Elements for a joined-up implementation of the 2030 Agenda and Paris Agreement, GIZ and WRI, July.

Cleary, J. (2009). Life cycle assessments of municipal solid waste management systems: A comparative analysis of selected peer-reviewed literature. *Environment international*, 35(8), 1256-1266.

Gomez-Echeverri, L. (2018). Climate and development: enhancing impact through stronger linkages in the implementation of the Paris Agreement and the Sustainable Development Goals (SDGs). *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 376(2119), 20160444.

H. Dalkmann (2018). Lessons from VNR/NDC Reporting. 11th Intergovernmental Regional Environmentally Sustainable Transport Forum in Asia, Ulaanbaatar, Mongolia

Kamau, M., et al. (2018), *Transforming Multilateral Diplomacy: The Inside Story of the SDGs*, Taylor and Francis.

Kosolapova, E. (2016). National Reporting under the International Climate Regime: Towards Implementation of the Sustainable Development Goals. IISD Climate Change Policy & Practice.

Le Blanc, D. (2015). Towards integration at last? The sustainable development goals as a network of targets. *Sustainable Development*, 23(3), 176-187.

McCollum, D. L., Echeverri, L. G., Busch, S., Pachauri, S., Parkinson, S., Rogelj, J., ... & Riahi, K. (2018). Connecting the sustainable development goals by their energy inter-linkages. *Environmental Research Letters*, 13(3), 033006.

Nerini, F. F., Tomei, J., To, L. S., Bisaga, I., Parikh, P., Black, M., ... & Milligan, B. (2018). Mapping synergies and trade-offs between energy and the Sustainable Development Goals. *Nature Energy*, 3(1), 10.

Rich, D., Olsen, K. H., Soezer, A., Campbell-Durufié, C., Desgain, D. D., Bakhtiari, F., ... & Song, R. (2018). Sustainable Development Guidance. Guidance for assessing the environmental, social and economic impacts of policies and actions.

Santika, W. G., Anisuzzaman, M., Bahri, P. A., Shafiullah, G. M., Rupf, G. V., & Urmee, T. (2019). From goals to joules: A quantitative approach of interlinkages between energy and the Sustainable Development Goals. *Energy Research & Social Science*, 50, 201-214.

SIDA (2017). Integrating Climate Action Into National Development Planning. Coherent Implementation of the Paris Agreement and Agenda 2030. A Guide To Support The Implementation of The Paris Agreement. Part Three. Stockholm.

United Nations Development Programme (2017). Voluntary National Reviews and National SDG Reports. Overview Report to Guide Their Preparation. New York.

United Nations Development Programme (2017). Aligning Nationally Determined Contributions and Sustainable Development Goals. Lessons Learned and Practical Guidance.

UNFCCC, (2017.) THE SECOND BIENNIAL UPDATED REPORT OF VIET NAM TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE. Retrieved March 23, 2019, from https://unfccc.int/sites/default/files/resource/97620135_Viet%20Nam-BUR2-1-Viet%20Nam%20-%20BUR2.pdf

UNFCCC (2018). VIET NAM'S VOLUNTARY NATIONAL REVIEW ON THE IMPLEMENTATION OF THE SUSTAINABLE DEVELOPMENT GOALS. Retrieved March 23, 2019, from https://sustainabledevelopment.un.org/content/documents/19967VNR_of_Viet_Nam.pdf

[UNFCCC \(2018\). Progress in the process to formulate and implement national adaptation plans. Note by the secretariat. Katowice.](#)

UNFCCC (2019). BRAZIL'S THIRD BIENNIAL UPDATE REPORT TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE. Retrieved March 23, 2019, from https://unfccc.int/sites/default/files/resource/2018-02-28_BRA-BUR3_ENG_FINAL.pdf

UNFCCC (2018). ROMANIA'S VOLUNTARY NATIONAL REVIEW Retrieved March 23, 2019, from https://sustainabledevelopment.un.org/content/documents/19952Voluntary_National_Review_ROMANIA_with_Cover.pdf

UNFCCC(2018). Romania's Third Biennial Report under the UNFCCC. Retrieved March 23, 2019, from http://unfccc.int/files/adaptation/application/pdf/3178045_romania-br3-1-br3-romania.pdf

Voluntary National Review Report (2017), On The Implementation of Sustainable Development Goals, United Nations High Level Political Forum. Report to be presented at New York.

VOLUNTARY NATIONAL REVIEW ON THE SUSTAINABLE DEVELOPMENT GOALS. (UNFCCC, 2017). Retrieved March 23, 2019, from https://sustainabledevelopment.un.org/content/documents/15806Brazil_English.pdf

Weitz, N., Nilsson, M., & Davis, M. (2014). A nexus approach to the post-2015 agenda: Formulating integrated water, energy, and food SDGs. SAIS Review of International Affairs, 34(2), 37-50.

W.G. Santika, T. Urme, M. Anisuzzaman, G. Shafiuallah, P.A. Bahri. Sustainable Energy for All (2018). Impacts of Sustainable Developmental Goals implementation on household sector energy demand in Indonesia. Presented at the 2018 International Conference on Smart Green Technology in Electrical and Informational Systems.

<https://sustainabledevelopment.un.org/vnrs/>

https://sustainabledevelopment.un.org/content/documents/20872VNR_hanbook_2019_Edition_v4.pdf

<https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-convention/biennial-update-reports-0>

<https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-convention/biennial-update-reports-0>

https://sustainabledevelopment.un.org/vnrs/index.php?str=namibia#results_area

<https://unfccc.int/sites/default/files/resource/Namibia%20BUR3%20FINAL.pdf>

https://sustainabledevelopment.un.org/content/documents/19880New_Version_Full_Voluntary_National_Review_2018_single_1_Report.pdf

<https://sustainabledevelopment.un.org/content/documents/15705Indonesia.pdf>

https://unfccc.int/sites/default/files/resource/Indonesia-2nd_BUR.pdf

<https://royalsocietypublishing.org/doi/full/10.1098/rsta.2016.0444>

http://www.ndcpartnership.org/sites/default/files/NDCP_Expert_Perspectives_NDC_NAP-SDG_full.pdf

<https://sustainabledevelopment.un.org/memberstates/japan>

https://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/japan_br2_revised.pdf

<https://www.mofa.go.jp/files/000287390.pdf>

<https://sustainabledevelopment.un.org/content/documents/16289Jordan.pdf>

<https://unfccc.int/sites/default/files/resource/Jordan%20BUR1.pdf>

<https://www.climatewatchdata.org/ndcs-sdg?goal=1>

<https://klimalog.die-gdi.de/ndc-sdg/>

https://sustainabledevelopment.un.org/content/documents/20470VNR_final_approved_version.pdf

https://unfccc.int/sites/default/files/resource/0512739_Australia-NC7-BR3-3-Aus%20NC7%20BR3.pdf

<https://www.msn.com/en-us/weather/topstories/extreme-weather-events-in-australias-history/ss-BBTfr8c>