POLICY COHERENCE OF CLIMATE CHANGE, SUSTAINABLE DEVELOPMENT GOALS (SDGS) AND DISASTER RISK REDUCTION (DRR) IN SRI LANKA

Swaris W.D.N.P.

218110M

Degree of Master of Science

Department of Civil Engineering

University of Moratuwa
Sri Lanka

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Swaris W.D.N.P.

(218110M)

Thesis submitted in partial fulfillment of the requirements for the degree Master of Science

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DECLARATION

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Name of the Supervisor: Prof. R. U. Halwatura

Signature of the Supervisor: Date: 19 07 2023

UOM Verified Signature

Name of the Supervisor: Prof. D. Amaratunga

UOM Verified Signature

Signature of the Supervisor: Date: 18/7/2023

ABSTRACT

Policy coherence is critical in addressing the complex challenges that developing countries confront when coping with climate change, attaining sustainable development goals, and decreasing disaster risks. The research focuses on assessing the level of policy coherence for climate change adaptation (CCA), DRR, and SDGs, specifically in Sri Lanka, while identifying the pathways to enhance resilience. The objectives of this research include investigating the coherence of CCA, DRR, and SDGs, identifying issues within policy documents regarding their coherence in Sri Lanka, and determining policy coherence pathways for resilience. The research methodology comprises a review and content analysis of seventeen policy and legal documents in Sri Lanka, complemented by qualitative research through semi-structured interviews with ten government representatives and stakeholders. The data collected from both content analysis and interviews were analyzed using NVivo software.

Findings reveal several challenges in policy coherence within Sri Lanka, such as a fragmented approach, lack of integration, inadequate coordination, limited resources, and insufficient monitoring and evaluation. While international frameworks inspire policies, local implementation often falls short. Furthermore, there is a need for development cooperation to introduce innovative approaches like climate-resilient infrastructure and environmentally friendly solutions for CCA and DRR. Efficient management of land use and the accountability for constructing physical infrastructure that incorporates both disaster risk reduction and climate change adaptation are equally essential. Community involvement emerges as a significant factor in successful policy implementation, which helps bridge gaps in existing policies and acts.

Based on a preliminary evaluation of policy documents, relevant literature, and a comprehensive framework, this study provides recommendations to achieve policy coherence in CCA, DRR, and SDGs in Sri Lanka. These recommendations include enhancing strategic coherence, improving risk assessment frameworks for DRR and CCA, strengthening institutional cooperation and stakeholder management, establishing a common monitoring and evaluation system, formulating implementation strategies, and increasing community involvement. By addressing the identified gaps and pathways to policy coherence, policymakers can establish robust linkages among CCA, DRR, and SDGs, ultimately fostering long-term resilience

Keywords: Climate change adaptations, Disaster risk reduction, Policy coherence, Resilience, Sustainable development goals,

DEDICATION

This dissertation is dedicated to all who work persistently to preserve our world and defend our environment from the rising threat of climate change. This work is dedicated to the activists, scientists, policymakers, and people devoted to lowering our carbon footprint and establishing a more sustainable future.

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LIST OF ABBREVIATIONS

CCA	Climate Change Adaptation
CC	Climate Change
DGEC	Directorate General of the Environment and Climate
DoDMA	Department of Disaster management Affairs
DMA	Disaster Management Act
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DPR	Disaster Preparedness and Relief Act
EAD	Environmental Affairs Department
EWS	Early Warning Systems
LDRRMC	Local Disaster Risk Reduction and Management Councils
GDP	Gross Domestic Product
GIS	Geographic Information Systems
MDA	Ministries, Departments, Agencies
MDGs	Millennium Development Goals
MLCSD	Ministry of Living conditions and Sustainable
MNREM	Ministry of Natural Resources, Environment, and Minerals
MRE	Monitoring, Reporting, and Evaluation
NAP	National Adaptation Plan
NCPA	National Civil Protection Agency
NAP-CLD	National Action Program for Combating Land Degradation
NCCC	National Committee on Climate Change
NCPA	National Civil Protection Agency
NDC	National Determine Contribution
NDMC	National Disaster Management Center
NDMP	National Disaster Management Plan
NDRMC	National Disaster Risk Management Center
NDRMC-TC	National Disaster Risk Management Center-Technical Committee
NHP	National Housing Policy

NPDRR-CCA	National platform for Disaster Risk Reduction and Climate Change Adaptation
NPSSD	National Policy and Strategy for Sustainable Development
NPSCP	National Policy on Sustainable Consumption and Protection
NPDM	National Policy on Disaster Management
NSCCC	National Steering Committee on Climate Change
NTCCC	National Technical Committee on Climate Change
OECD	Organization for Economic Cooperation and Development
SD	Sustainable Development
SGD/SGDs	Sustainable Development Goals
TOSSD	Total Official Support for Sustainable Development
ODA	Official Development Assistance
UNDRR	UN Office for Disaster Risk Reduction
UNCCD	United Nations Convention to Combat Desertification

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1   INTRODUCTION

1.1   Background

Policy coherence is a highly discussed, relevant topic that has emerged as one of the most pressing issues in the modern world. This is a strategy that combines all relevant policy sectors to generate mutually beneficial outcomes by maximizing cooperation and eliminating trade-offs (ESCAP, 2018). The policymakers use this to accomplish collective decisions to ensure all the systems of the nation aim for the same direction without diverting from the overall vision of the nation. Policy coherence is challenging for developing countries because there needs to be more motivation for evidence-based inputs for policy decisions. It is essential to tackle these concerns since the risk surpasses resilience, thus the pressing need for policy coherence (ESCAP, 2018).

This research covers three policy aspects, namely: Climate Change Adaptation (CCA), Disaster Risk Reduction (DRR), and Sustainable Development Goals (SDGs). Numerous studies demonstrate that CCA and DRR techniques share similarities, linkages, and overlaps in terms of goals, objectives, and implementation methodologies. Thus, these commonalities can be utilized for updating the region's policies and strategies. (UNDRR, 2022). However, further study is required to determine how the Sustainable Development Goals (SDGs) relate to these two approaches. Despite this, there is evidence that both CCA and DRR are invisibly linked to the SDGs via alleviating poverty, economic expansion, inequality reduction, and sustainable development (ESCAP, 2018).

This study examines the legal and policy frameworks in Sri Lanka to evaluate policy and governance challenges in the aforementioned three sectors. Furthermore, the results will offer suggestions for ensuring policy coherence in Sri Lanka through an examination of policy papers and a collaborative approach involving government officials and other relevant stakeholders.

1.2   Research gap

Researching policy coherence is essential for several reasons:

- Improved policy outcomes: By ensuring that policies are consistent and aligned, policy coherence can lead to better policy outcomes, as well as reduced conflicts, duplication, and inefficiencies.

- Better coordination: Policy coherence can help to coordinate and align different policies and policy areas, reducing the risk of conflicting objectives and unintended consequences.

- Enhanced accountability: Researching policy coherence can increase transparency and accountability by examining the connections between different policy areas and ensuring that policies are consistent with each other and government priorities.

- Better informed decision-making: Research on policy coherence can provide valuable insights and data to inform policymakers' decision-making, helping them make more informed choices about policy design and implementation.

- Improved stakeholder engagement: Researching policy coherence can also increase stakeholder engagement by involving a more comprehensive range of stakeholders in policy formulation and implementation and encouraging greater collaboration between different policy areas.

Researching policy coherence is essential for promoting better policy outcomes, improved coordination, enhanced accountability, informed decision-making, and increasing stakeholder engagement in the policy process. Thus this research intends to research the policy coherence between Disaster Risk Reduction (DRR), Climate change adaptation (CCA), and Sustainable development goals (SDGs)

DRR and CCA have gradually gained much importance in global governance. Furthermore, limited recent research has focused on how these two approaches combined with SDGs and their ground-based implementation. However, despite adequate consideration of these three aspects in ensuring policy coherence in developed countries, many developed countries, including Sri Lanka, need to improve such integration. Consequently, there needs to be adequate policy Coherence in

Climate Change Adaptation (CCA), Sustainable Development Goals (SDGs), and Disaster Risk Reduction (DRR) in Sri Lanka. Moreover, there are difficulties relating international approaches in policy planning in Sri Lanka that should be explored in a larger perspective. Due to the country's prevailing political and economic instability, the need for the participation of professionals and the community in the policymaking procedure has brought a concern that creates a platform for new research arenas.

1.3 Research Questions

This study will specifically answer three main research questions during the process.

- What are the coherent policy approaches of Climate Change Adaptation (CCA), Sustainable Development Goals (SDGs), and Disaster Risk Reduction (DRR)?
- What are the issues in policy coherence of CCA, SSGs, DRR in Sri Lanka?
- What are the Pathways for policy coherence in Sri Lanka?

1.4 Aims and Objectives

As per the problem description, the main research objective is;

- To examine the coherent approach of Climate Change Adaptation (CCA), Sustainable Development Goals (SDGs), and Disaster Risk Reduction (DRR) in the Sri Lankan context.

It is expected to answer the following objectives during the research process while targeting the main objective.

- Identify the issues in policy coherence of CCA, SDG, and DRR in Sri Lanka.
- Identify the pathways for policy coherence in Sri Lanka.
- To provide recommendations on increasing professionals and community participation in the policymaking process.

1.5 Methodology

The study will employ two methods: review and content analysis of policy documents and participatory method that obtains deep and broad expertise knowledge with government representatives and stakeholders.

Review and content analysis of policy documents

Policy document review and content analysis are methods used to evaluate and analyze the content of policy documents, such as legislation, regulations, and strategic plans. These methods aim to understand the content of the policy documents, assess their quality, and identify any gaps, inconsistencies, or strengths.

Policy document review involves the following steps:

- Selection of policy documents: Based on the scope of the research, a sample of relevant policy documents is chosen for analysis.
- Development of a coding system: A coding scheme is created to categorize the content of policy documents into themes or topics depending on the research topic and aims of the analysis.
- Data collection: The necessary information from the selected policy documents is retrieved and coded in accordance with the coding system.
- Data analysis: The coded data is analyzed to identify patterns, trends, and relationships in the content of the policy documents.
- Interpretation and reporting: The analysis results are interpreted and reported clearly and concisely, highlighting the essential findings and implications for policy.

Policy document review and content analysis are valuable tools for evaluating the quality and effectiveness of policy documents. They can help to inform policy development and implementation by highlighting areas for improvement and providing evidence-based recommendations.

Participatory process

Questionnaires and Interviews are formed to address the policy coherence between CCA, SDG, and DDR, where government representatives and stakeholders participated. An interview questionnaire is formed to understand the issues and challenges Sri Lanka faces in developing and implementing policy coherence.

1.6 Main findings

The study highlights the significance of policy coherence for resilience in Sri Lanka, focusing on the coherence of CCA, SGDs, and DRR.

The study identifies issues in policy coherence, including fragmented approaches, lack of integration, inadequate coordination, limited resources, and limited monitoring and evaluation. The study also explores pathways for policy coherence, such as

- Enhancing strategic coherence,
- Intensification of institutional cooperation,
- Strengthening monitoring and evaluation,
- Promoting community involvement,
- Increase validity of coordinated framework for the development of DRR and CCA framework,
- Improve implementation strategies, and
- Encouraging stakeholder participation.

The analysis suggests policymakers and practitioners in Sri Lanka to strengthen policy coherence to increase resilience to CC and natural disasters, accomplish sustainable development goals, and meet international obligations.

1.7 Dissertation Structure

Chapter 1 Introduces and elaborates the motivation, aims, and objectives of this research. Moreover, the chapter outlines the methodology and main findings.

Chapter 2 reviews the relevant literature. The chapter defines the policy Coherence and identifies the importance of policy coherence. Further it discusses coherence of three global approaches: Paris Agreement, Sendai Framework, and 2030 Agenda. Chapter finishes with particularizing the Policy landscape for DRR, CCA, and SGDs in Sri Lanka.

Chapter 3 Includes the methodology and elaborates the qualitative research method. Furthermore, it discusses the content analysis and semi structured interview methods. Moreover, it discussed data collection, data sampling, and data analysis.

Chapter 4 delivers the results generated through the content analyses of the reviewed policies and survey outcomes. First part of the chapter discoursed the disaster impact

profile in Sri Lanka. This chapter illustrates the Analytical framework: Integration spectrum. Furthermore, it indicates the results of content analysis under strategic, conceptual coherence, institutional, operational, and financial coherence. Also Interview results are listed.

Chapter 5 provides the analytical discussions generated through the content analyses of the reviewed policies and survey outcomes. The issues in Policy Coherence of CCA, DRR, and SGD in Sri Lanka are discussed. And Pathways of Policy Coherence are deliberated.

Chapter 6 consolidates the study's findings into clear and concise conclusions while providing actionable recommendations. These conclusions and recommendations are intended to inform and guide stakeholders in their decision-making processes, ultimately facilitating positive change and advancement in the relevant field.

2 LITERATURE REVIEW

2.1 General

Countries throughout the world are now confronted with a variety of issues in controlling the risks of catastrophe vulnerability and climate change. These difficulties have harmed the countries' sustainability and hampered development efforts. The Sendai framework for disaster risk reduction and the Paris agreement on climate change were designed with these challenges in mind within a comprehensive framework. The implementation of these two efforts necessitates a greater degree of CC and DRR policy cooperation. Yet, familiarity with coherence in managing these two components adds to the coherent pursuit of both frameworks pertaining to Sustainable development goals (OECD et al., 2020). With this background, this chapter reviews policy coherence concerning global approaches. Further Institutionsl arrangements of policy areas and policy landscape for DRR, CCA, and SGDs in Sri Lanka are indicated.

2.2 Understanding Policy Coherence

Policy coherence is a method that combines all relevant policy domains to create mutually beneficial outcomes by maximizing partnerships and eliminating trade-offs (ESCAP, 2018). The policymakers use this to accomplish collective decisions to ensure all the systems of the nation aim for the same direction without diverting from the overall vision of the nation.

Although the word "policy coherence" frequently appears in international development, the terms "policy coordination" and "integration" are more prevalent. Integration and cooperation are linked to the government's responsibility to provide inhabitants with services and to execute policies without gaps. Additionally, it guarantees that the resources are used effectively, and that duplication is prevented.

According to Meijers and Stead (2004), policy integration creates the framework for an innovative joint policy for the concerned sectors and necessitates more cooperation. Contrarily, policy coordination tries to create mutually enforced, coherent policies. Persson (2004) disagreed with this assertion and claimed that varied degrees of policy integration could occur without producing new, coordinated policies. The result can

be one component integrated into a smaller (existing) unit or numerous pieces combined into a (new) entire part. According to Candel and Biesbroek (2016), the integration process is progressive, albeit occasionally linear since it can be slowed or even reversed at times.

The literature uses various terminology to define the actual and potential associates between the DRR and CCA agendas. With terminology such as integration and alignment, coordination and collaboration, synergies, and a common approach, the need for the two sectors to work together toward a common goal has been emphasized. (ESCAP, 2018).

The NAP Global Network proposes a continuum of informal to systematic climate change, disaster risk reduction, and sustainable development initiatives (2018). It accomplishes this by utilizing the idea of "alignment." Furthermore, because there is no optimal level of integration, UNFCCC (2017) refers to an integrated strategy for DRR and CCA. A strategy that is entirely integrated may be contradictory to achieving self-defined objectives.

2.2.1 The five dimensions of policy coherence

There are several dimensions of policy coherence, such as horizontal, vertical, spatial, temporal, and equality. According to ESCAP (2018) five dimensions are described below.
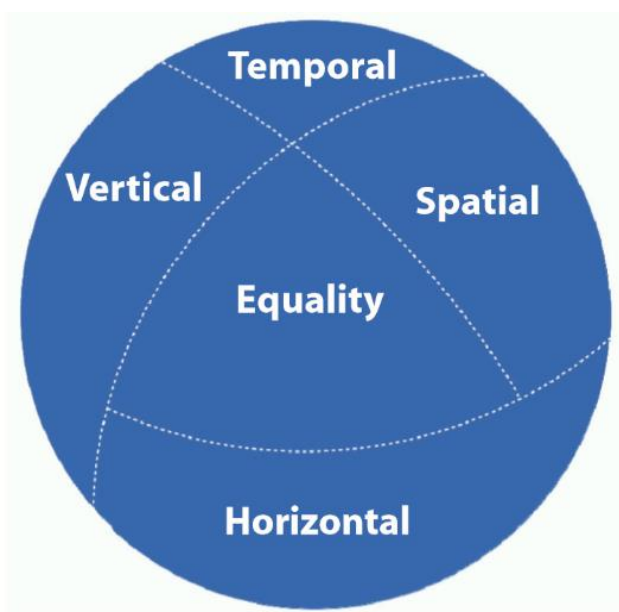
Figure 2.1: Five dimensions of policy coherence

Source: ESCAP, 2018

1. **Horizontal:** It stresses integrating policy domains, such as DRR, CCA, and SD, in order to maximize synergies. Nevertheless, strategies that promote the desired outcomes of these three policy components are preferable.

2. **Vertical:** It shows the importance of consistency between local government activities and national policies. Moreover, local policies should be harmonized with international requirements such as the 2030 Agenda for Sustainable Development, the Paris Agreement, the Sendai Framework, and their respective implementation procedures.

3. **Spatial:** The confidence that initiatives that minimize disaster risk will not have unintended negative consequences elsewhere is vital. It describes how the formulation of appropriate policies and actions addresses the transboundary dimensions of hazards (for example, flood risks in the same river sink that extends several political boundaries).

4. **Temporal:** The determinants of disaster risk, such as hazards, vulnerabilities, and management capability, are dynamic. Consequently, present-day policy actions might account for future risks and vulnerabilities, especially those associated with climate change.

5. **Equality:** It is essential to ensure that all the policies and interventions should not be undesirable for marginalized people such as the poor. More inclusive mechanisms are needed to make policy decisions.

2.2.2 Importance of Policy coherence

ESCAP (2018) has specified two essential factors to demonstrate the importance of policy coherence for resilience as below,

1. Disaster risk reduction is indirectly connected with the means of sustainable development, strategies for reducing poverty, economic expansion, reducing inequality, and creation of sustainable cities. DRR Improvements support achieving those goals, and contrariwise the deterioration can limit the achievement.

2. Exertions made in pursuit of other objectives may facilitate, impede, or even prevent DRR growth. Even the finest intentions occasionally aggravate dangers or introduce new ones. For instance, inadequate resource management,

ecological restoration, and infrastructure development can all result in risk escalation and long-term effects.

2.2.3   Types of policy coherence
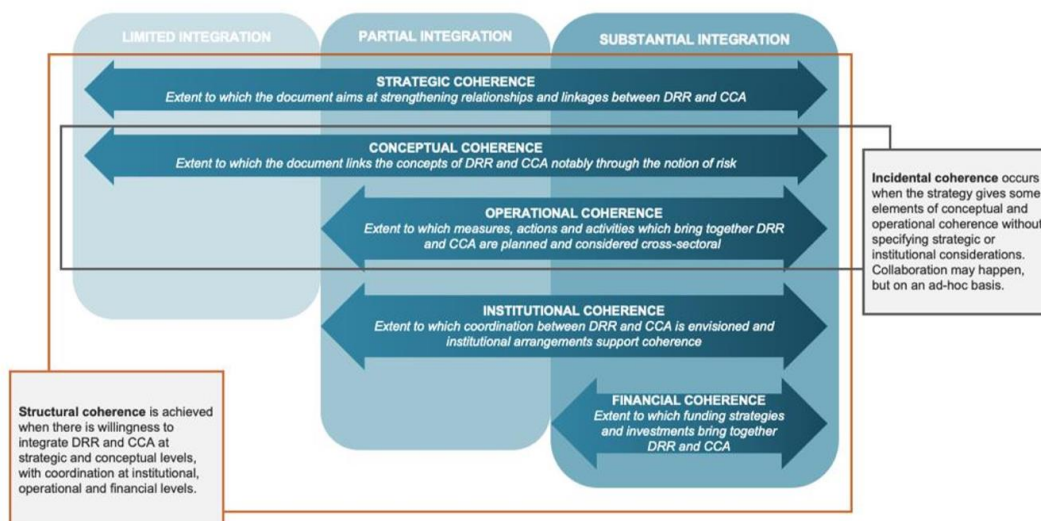
Figure 2.2: The conceptual framework of the integration spectrum
Source: UNDRR, 2020

Coherence can be accomplished vertically at the various government levels and horizontally throughout the various sectors, and through the collaboration of the different stakeholders, which links the public, community-based organizations, the private enterprises, and the government. According to the OECD (2020), this can be catalyzed in three groups.

- **Strategic (visions and goals) coherence:** It offers a structure for pursuing operational coherence with congruent vision objectives and goals for CCA and DRR. Strong coherence and implementation will naturally follow from a solid strategic basis of goals and objectives.

- **Operational (policy and institutions) coherence:** The execution of matched CCA and DRR objectives is aided by policy frameworks and institutional structures, which lessen the strain on human, technical, and financial resources. To put together successful policies and institutional arrangements, connecting DRR and CCA operationally would help avoid conflicting or redundant actions.

- **Technical coherence:** It usually reinforces technological ability to evaluate the possibilities and dangers and identifies and prioritizes measures of CCA and DRR. The use of methods and expertise that have previously been created within DRR community can assist adaptation planning. Additionally, implementation of new evidence-based methodologies in CCA can guide measures for lowering the chance of a disaster, thereby minimizing the risk of inadequate adaptation.

A method of evaluating the level of incorporation (limited, substantial, and partial integration) of DRR and CCA policy texts consist with two sectors were put up by UNDRR (2020) with a case study of sub-Saharan Africa. It has examined the CCA and DRR strategies' conceptual, institutional, operational, and financial elements.

- **Strategic coherence:** Investigates jointly addressing DRR and CCA to deepen the bond and connections between these two methods.
- **Conceptual coherence:** Examines how nations have conceptually connected DRR and CCA, notably using the concept of risk.
- **Institutional coherence:** examines the intention for synchronisation of DRR and CCA, as well as how institutional structures could promote coherence.
- **Operational coherence:** analyses the practices that connect DRR with CCA metrics, operations, and activities. Moreover, to determine the degree to which cross-sectoral planning is considered.
- **Financial coherence:** investigates how DRR and CCA are linked by funding methods and investments.

2.3   Understanding the three approaches

The Sendai Framework for DRR 2015–2030, the Paris Climate Agreement, and the SD 2030 Agenda are a base to initiate in national policy and a road map for constructing a sustainable and resilient world community.

CCA, DRR, and SGD are involved in national implementation (figure 2.3), which should connect governance procedures as an interlinking asset (Nerini et al., 2019). Consistency between national policy and local government activities is critical. The following could support consistent leadership in both fields.

(1) Greater collaboration between the influential institutions which are responsible for the development and climate policy-related aspects

(2) Either organization coordinating climate action or the SDGs.

(3) Establishment of a single organization with oversight responsibility for the SDGs and climate action (GIZ & WRI, 2018).
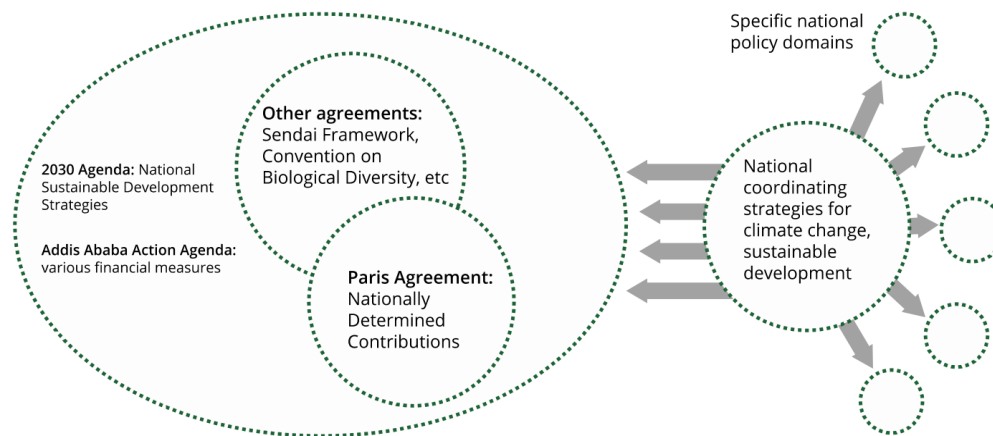
Figure 2.3: Process linkages between international climate change commitments and sustainable development

Source: Nerini et al., 2019

2.3.1   2030 Agenda: Sustainable development goals

The UN sustainability agenda has 17 goals that establish the worldwide framework for sustainable, social, and economic growth as well as the global framework for policies aimed at reducing poverty. It is noteworthy that enhancing coherence of policy is targeted within goal 17, strengthening partnerships that ensure that the policies and their actors work together.

SDG 13 on climate action aims to increase all countries' resilience and capacity to respond to dangers and natural disasters associated with climate change (UN, 2015). In addition, certain other SDGs also contribute to greater resilience. According to UNFCCC (2017), SDGs 1, 3, 5, 6, 14, and 15 are expected to improve climate change adaptability, while SDGs 7, 9, 11, and 12 particularly discuss the leading climate change causes. Instead, there are not any Goals that are specifically geared toward

DRR. It does, however, refer to the Sendai Framework (UN, 2015), and 11 of the SDGs, No Poverty, Sustainable Cities, and Climate Action, respectively are directly linked to the indicators of the Sendai Framework. (UNDRR, 2020). Even though these objectives are generally outlined as various components, they are combined with their corresponding targets. The interdependencies of these goals should be evaluated to ensure the risk-sensitive, coherent policies., Identical worries have been recognized when adaptation to climate change is coordinated with mitigating measures, 13 to reduce poverty, 14 to achieve Millennium Development Goals (MDGs), and 15 for the benefit of people balancing social inclusion, environmental sustainability, and economic growth (ESCAP, 2018).
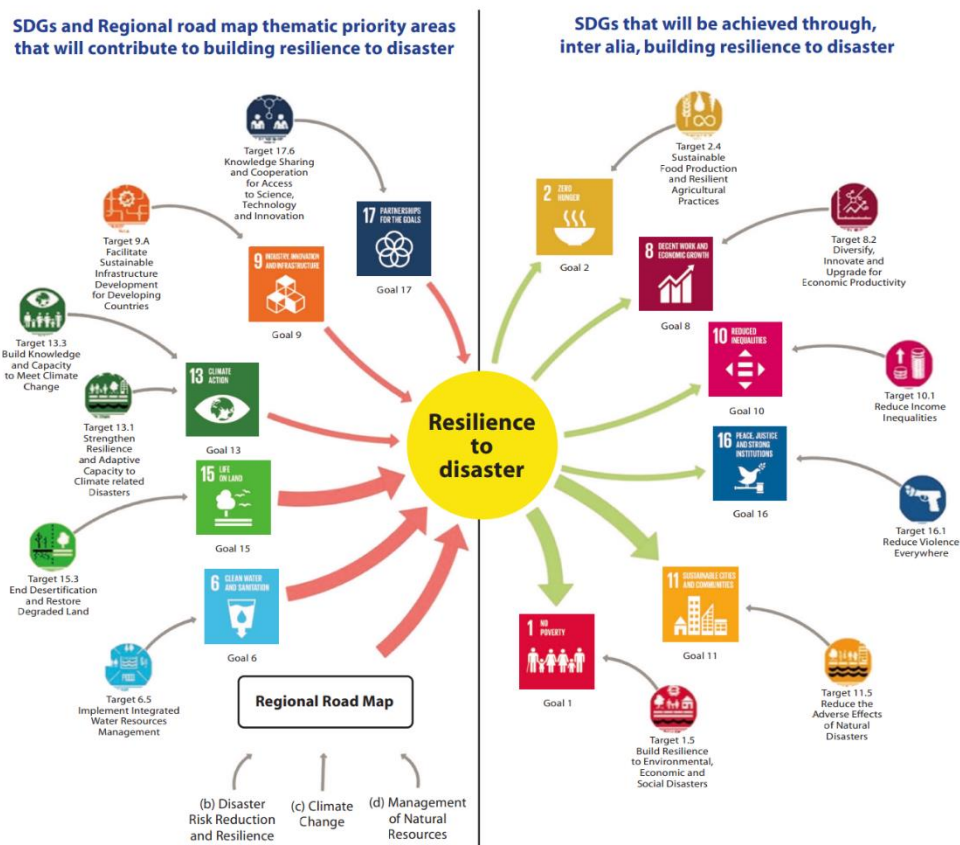
Figure 2.4: Conceptual map of disaster-related SDG goals and targets
Source: ESCAP. (2018)

2.3.2   Paris Agreement: Climate change

The primary objectives of the Paris Agreement are to keep the global temperature increase well below 2 degrees Celsius above pre-industrial levels and to encourage even greater efforts to limit the rise to 1.5 degrees Celsius. (UNFCCC, 2015). This agreement, established as an international response to combat CC, emphasizes the importance of mitigation and adaptation of CCA, and DRR (UNDRR, 2020).

Nevertheless, neither the Sendai Framework nor the DRR community is mentioned explicitly in this 10-year contractual agreement. However, Articles 7 and 8 address damage due to climate change effects, particularly extreme climatic conditions, and gradual onset situations, and are therefore inherently tied to DRR. Additionally, Article 8.4 offers a list of potential areas for collaboration to understand acts and assist for preventing, lessening, and dealing with damage and loss. For the DRR community, these are its primary work areas and are included in the Sendai Framework's scope, objectives, and goals. Concerning emergency readiness, early warning systems, and risk assessments, agreement ensures explicit collaboration among various stakeholders (UNDRR, 2020).

2.3.3   Sendai Framework: Disaster risk reduction

It is a 15-year voluntary agreement known as the Sendai Framework. It is hoped to avert fresh hazards and decrease current catastrophe dangers by comprehensive, combined techniques that restrict exposure to risks and susceptibility to disaster. The framework is structured around four (4) action priorities and seven (7) targets. (UNDRR, 2020).
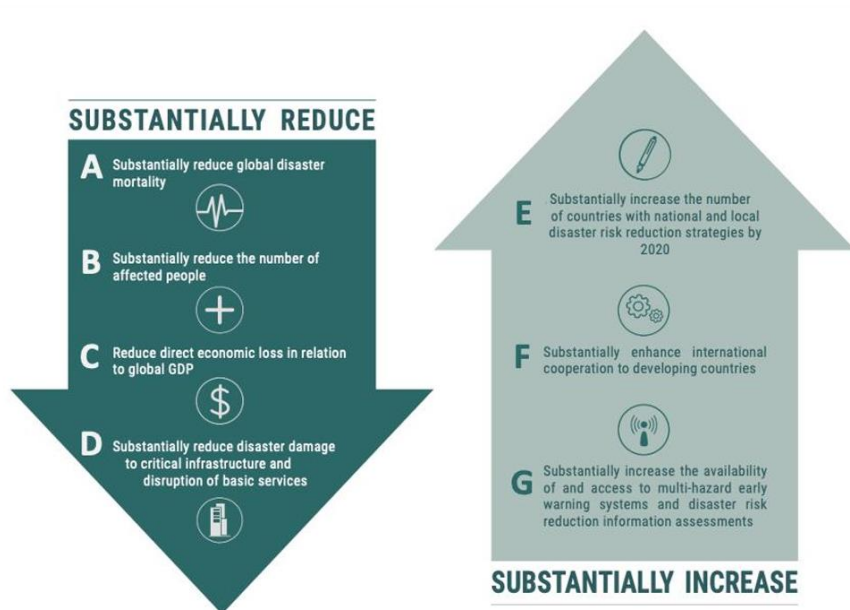
Figure 2.5: The seven Targets of the Sendai Framework
Source: UNDRR. (2020).

In connection to (UNDRR, 2020), the Sendai Framework encourages direct involvement with the communities dealing with climate change under priorities 1, 2, and 4:

1. Using climate change scenarios to improve response, recovery, and readiness

2. Increased the international, regional, and UNFCCC levels collaboration to tackle climate change.

Regarding thorough risk analyses and policy creation, the Sendai Framework generally advocates activities consistent with combating the changing climate. However, when considering the requirement for investments and using monetary channels for DRR, there are areas for improvement, particularly references to the climate change community.

2.3.4 Coherence of three global processes

Table 2.1: Coherence of three global processes, 2030 Agenda, Paris Agreement, and Sendai Framework

	2030 Agenda: Sustainable Development Goals	**Paris Agreement for Climate Change Adaptation**	**Sendai Framework for Disaster Risk Reduction**
Background	The 2030 Agenda for Sustainable Development is a comprehensive plan to create a better and more sustainable future for everyone. Its goals include eliminating poverty, preserving the environment, and fostering peace and prosperity for all.	Paris Agreement is a worldwide agreement established within the United Nations Framework Convention on Climate Change (UNFCCC), is to prevent the increase in average global temperature from exceeding 2 degrees Celsius above pre-industrial levels, and to exert extra efforts to limit the increase to 1.5 degrees Celsius.	It is a 15-year voluntary, non-binding agreement that acknowledges the state's primary role in DRR. This responsibility is carrying out in partnership with other stakeholders in relevant and various parties.
	Climate action and disaster risk reduction are cross-cutting issues that are specifically addressed in two of the Sustainable Development Goals. - Goal 13 focusing on combating climate change and its associated consequences. Goal 11 aiming to create inclusive, safe, resilient, and sustainable cities. Climate action also contributes to the achievement of many of the other goals.	Articles 7 and 8 explicitly focus on CCA and DRR: - Article 7.1, contributes to SD by improving adaptive capacity, boosting resilience, and lowering susceptibility to CC. - Article 8.1, on preventing, reducing, and managing the negative impacts caused by CC, such as extreme weather events and gradual changes over time.	Paragraph 13 acknowledges climate change as a cause of catastrophe risk. Highlights the possibility of address DRR in coherent approach.

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Climate Change Adaptation and Disaster Risk Reduction	SDG 13, which targets climate action, encompasses objectives pertaining to DRR, CCA and mitigation, including advancement of resilient infrastructure and communities. Additionally, various other SDGs tackle concerns concerning DRR and CCA, for example SDG 6 concerning water and sanitation, and SDG 11 which addresses sustainable cities and communities.	Highlights the importance of incorporating climate change adaptation and disaster risk reduction into national climate policies and strategies. This encompasses actions like enhancing the ability to adapt, bolstering resilience, and decreasing susceptibility to the effects of CC	The amalgamation of DRR and CCA into national policies and strategies is strongly emphasized. This entails incorporating early warning systems, conducting risk assessments, and integrating disaster risk reduction into development planning.
Role of Development Cooperation	Development cooperation can support countries in achieving Sustainable Development Goals through capacity building, technical assistance, and financial support. For example, international organizations such as the World Bank and UN agencies provide funding and technical support for sustainable development projects in developing countries.	Development cooperation can support countries in implementing their climate policies and strategies through financial and technical support, technology transfer, and capacity building. For example, the Green Climate Fund provides funds for climate projects in developing countries, while the UNFCCC provides technical support and capacity building for climate action.	Development cooperation can support countries in implementing their disaster risk reduction policies and strategies through financial and technical support, capacity building, and knowledge sharing. The UN Office for Disaster Risk Reduction provides technical support and capacity building for disaster risk reduction. International organizations such as the Red Cross provide humanitarian assistance and .support for disaster response.

Source: OECD et al., 2020

The 2030 Agenda recognizes DRR and CCA as critical factors to promote
sustainability and includes specific goals and targets related to these issues. The Paris
Agreement acknowledges the significance of addressing the impacts of CC on

vulnerable populations and the necessity for a coordinated approach to adaptation and mitigation. The CC Sendai Framework emphasizes the importance of integrating disaster risk reduction into national policies, which aligns with the 2030 Agenda's focus on integrated approaches to development.

2.3.5 Institutional arrangements for disaster risk reduction and climate change adaptation

A recognized coordination institution needs political backing and strong leadership to realize the advantages of CCA and DRR coherence. Awareness and capacity development help stakeholders understand the advantages and trade-offs of increased coherence and find standard solutions. CCA and DRR are often carried out at the local or sectoral level. As a result, ministries, and organizations with a presence there may take the lead in promoting coherence. However, this requires human, institutional, and financial resources to coordinate. In other countries, CCA, DRR structures, procedures, and other development initiatives strain capacity. CCA and DRR also complement each other. DRR's history may teach CCA. CCA may use its worldwide climate change profile and resources for DRR (OECD et al., 2020).

OECD et al. (2020) identified institutional coherence pathways such as,

- Provide national ministries and agencies with data and incentives to include CCA and DRR into their portfolios, as well as centrally reporting progress.
- Incorporate CCA and DRR rules into local development strategies by utilizing local ministries and organizations.
- Ministries and agencies should implement existing regulatory measures and provide incentives for CCA and DRR, such as land-use planning and environmental protection.
- Utilize global momentum for CCA policies to draw domestic attention and resources toward DRR and prevention.
- Development of joint national action a combined disaster risk management and climate change adaptation with greenhouse gas reduction.

This will inspire other Pacific Island nations and even beyond. These changes happened without institutional reformation, which is intriguing. Operational and

political authorities backed the united endeavor. On the other hand, the Federated States of Micronesia have carried out their integration activities from a common institutional platform - the Office of Environment and Disaster Management. This is accountable for disaster risk management strategies as well as climate change work programs. Vanuatu is yet another model for merging disaster risk management and climate change adaptation which is gradually integrating policies, institutions, and work programs (Hay et al., 2009).

The case study examples below elaborate on the DRR and CCA institutions and coordination mechanisms.

- **Case study - Uganda**

Droughts, floods, animal and human epidemics, earthquakes, lightning, and landslides are some expected natural hazards which are experiencing by the Republic of Uganda. Among them, landslides are the most frequent natural hazard because of land degradation and heavy rains. According to the statistics presented by CRED 2017, more than 297,000 people were affected, and 257 people have died in the past years. Thus, they focus on the institutional arrangements to mitigate the disaster risk and climate change impacts for their country (UNDRR, 2022a).

The table below summarizes Uganda's DRR and CCA principal institutions and coordination procedures.

Table 2.2: A summary of Uganda's DRR and CCA lead institutions and coordination structures.

	DRR	Office of the Prime Minister (OPM), Directorate of Relief, Disaster Preparedness	It is accountable for evolving policies and guidelines for managing potential disasters and submitting yearly reports to the Cabinet on disaster preparedness and management.
Lead Institutions			DRR also plays a crucial role in establishing connections with

		and Management	intergovernmental organizations, the donor community, the commercial sector, as well as regional and international frameworks. Furthermore, specific responsibilities within these areas are assigned to various organizations, such as the ministries of education, internal affairs, and transportation.
	CCA	Ministry of Water and Environment	The Ministry of Water and Environment, in association with various Ministries, Departments, Agencies (MDAs), and stakeholders, assumes a prominent role in spearheading the carrying out of CC strategy and initiatives.
Coordination Mechanisms	DRR	National DRR Platform	This group comprises the line ministries of the government, the UN, NGOs, and academics. The National Disaster Preparedness and Management Policy (2010) includes several institutional structures with well-defined duties and responsibilities to facilitate effective coordination and integration of DRR into sectors spanning from the national to the community levels. To ensure the efficient coordination and seamless integration of DRR across many sectors, ranging from the national to community levels. National Disaster Preparedness and Management Policy (2010) developed

	CCA	National Climate Change Policy Committee	It is overseeing CCA implementation at the federal level. Information flow on resource allocation and needs for efficient CC action is the responsibility of the National Climate Change Policy Committee.
			several institutional structures outlining specific tasks and responsibilities.

Source: UNDRR, 2022a

- **Case study - Benin**

Benin is frequently experiencing natural hazards such as floods, droughts, storms, and Natural disasters such as floods, droughts, hurricanes, and sea level rise are common in Benin. Consequently, the strategy framework for DRR and CC mitigation has prioritized biological threats. The National Development Plan and the Nationally Determined Contribution, on the other hand, acknowledge excessive heat (UNDRR, 2022b).

They have specifically addressed a set of disaster categories in each of these strategies as follows.

Table 2.3: Disaster categories in each of the strategies

National disaster risk reduction strategy	Technological accidents, Landslides, Forest fires, Epidemics
Low carbon and climate change resilient development strategy	Floods, Droughts, Climate-sensitive disease, Coastal erosion, Strong winds, Sea level rise

Source: Compiled by the author

The table below summarizes Benin's DRR and CCA main institutions and coordination procedures.

Table 2.4: A summary of Benin's DRR and CCA key institutions and coordinating mechanisms

| Lead Institutions | DRR | National Civil Protection Agency (NCPA) / Ministry of the Interior | It is governed by the Interior Ministry. Since it was established in 2012, this organization has incorporated disaster risk reduction into Benin's policies. In 2018, the NCPA also assumed the role of Secretariat for the National Platform for DRR and CCA (decree 2018-062, 2018)

Early warning systems in Benin are managed by the NCPA. |
| | CCA | Directorate-General of the Environment and Climate (DGEC) / Ministry of Living Conditions and Sustainable Development (MLCSD) | This provides a set of guidelines and keeps track of how those guidelines are being followed. These policies cover urban growth, land management, sanitary conditions, the environment, the climate, and ecosystem preservation. |
| Coordination Mechanisms | DRR | National Platform for Disaster Risk Reduction and Climate Change | Main responsibility of this initiative is to safeguard that risk management and disaster preparedness are incorporated into policies, strategies, |

		Adaptation (NP DRR-CCA)	and initiatives aimed at sustainable development and poverty reduction.
	CCA	National Committee on Climate Change (NCCC) / Ministry of Living Conditions and Sustainable Development (MLCSD)	This organization has been dedicated to addressing the difficulties brought by climate change since 2003. It is responsible for the formulation and execution of the Low Carbon and Climate Change Resilient Strategy 2016-2025.

Source : UNDRR, 2022b

- **Case study - Malawi**

A range of natural and biological risks, including earthquakes, landslides, hailstorms, strong winds, and stormy rains, are occurring in Malawi. The most severe effects of weather-related hazards on people's lives and livelihoods, the economy, and physical infrastructure have been caused by droughts and floods (UNDRR, 2022c).

The table below provides a summary of Malawi's DRR and CCA lead institutions and coordination mechanisms.

Table 2.5: A summary of Malawi's principal institutions and coordination processes for DRR and CCA.

Lead Institutions	DRR	Department of Disaster Management Affairs (DoDMA)	This is the overall entity in charge of coordinating all disaster preparation and response operations in Malawi. The Disaster Preparedness and Relief Act (DPR) of 1991 creates the position of Commissioner for Disaster Preparedness and Relief, who also

			serves as the Principal Secretary of DoDMA.
	CCA	Environmental Affairs Department (EAD), Ministry of Forestry and Natural Resources	The Environmental Affairs Department (EAD) is in charge of coordinating and carrying out CCA operations in Malawi. It falls under the jurisdiction of the Ministry of Natural Resources, Environment, and Minerals (MNREM). The Climate Change Section of the EAD normally organizes the efforts on a regular basis.
Coordination Mechanisms	DRR	National Disaster Risk Management Committee (NDRMC) National Disaster Risk Management Technical Committee (NDRM-TC)	The National Disaster Risk Management Committee (NDRMC) is in charge of overseeing the coordination and planning of all disaster risk reduction efforts. It functions as a proponent of disaster risk management, offering advice and technical assistance, while also serving as the coordinating entity for integrating disaster risk management into sustainable development policies, planning, and programmes.
	CCA	National Steering Committee on Climate Change (NSCCC)	The mechanism's goal is to establish a venue for DRR and CCA technical help, as well as a platform for information sharing, planning, and

		National Technical Committee on Climate Change (NTCCC)	monitoring. The Technical Committee shall be responsible for ensuring vertical coordination between committees at the district and national levels.

Source: UNDRR, 2022c

Institutional arrangements for sustainable development, disaster risk reduction, and climate change adaptation in Sri Lanka

In Sri Lanka, institutional arrangements for sustainable development, disaster risk reduction, and climate change adaptation are established at several levels of government and through multiple stakeholders.

Table 2.6: Lead Institutes of relevant policies in Sri Lanka

Field	Document	Lead Institutes
Climate Change Adaptation	The National Climate Change Policy of Sri Lanka (2012)	Ministry of Mahaweli Development and Environment
	National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016 – 2025	Ministry of Mahaweli Development and Environment
	Climate Change Adaptation Strategy for Sri Lanka (2011-2016)	Ministry of Environment and Renewable Energy
Sustainable Development	Sustainable Development Act (2017)	Ministry of National Policies and Economic Affairs
	National Policy and Strategy for Sustainable Development (Draft)	Ministry of National Policies and Economic Affairs
	National Policy on Sustainable Consumption and Protection (2018)	Ministry of Environment and Renewable Energy
Disaster Risk Reduction	Disaster Management Act (2005)	Ministry of Disaster Management
	The Roadmap for Disaster Risk Management (2006-2016)	Ministry of Disaster Management
	National Policy on Disaster Management (2013)	Ministry of Disaster Management

	Sri Lanka National Disaster Management Plan (2013-2017)	Ministry of Disaster Management
Biodiversity	National Biodiversity Strategic Action Plan (2016-2022)	Ministry of Mahaweli Development and Environment
Environment	National Environmental Policy (2003)	Ministry of Mahaweli Development and Environment
Land Degradation	National Action Programme for Combating Land Degradation of Sri Lanka (2014)	Ministry of Mahaweli Development and Environment
Construction	National Policy on Construction	Ministry of Housing and Construction
Policy	Mahinda Chinthana (2006-2016)	President's Office
Physical Planning	National Physical Planning Policy & Plan (2011-2030)	Ministry of Megapolis and Western Development
Housing Policy	National housing policy (2017)	Ministry of Housing and Construction

Source: Compiled by the author

Table 2.6 shows the respective institutes holding responsibilities for relevant policies. These institutes hold the authority to implement these policies. The Cabinet Ministry on Sustainable Development's national SDG implementation strategy for Sri Lanka emphasizes "Inclusive Transformation," and the government has improved inclusive planning, coordinated SDG implementation amongst institutions and stakeholders, and boosted funding commitments (Zoysa et al., 2016). However, institutional capacity and technology are lacking, and the most vulnerable require more information on climate and disaster effects (UNDRR, 2019).

The fact that local authorities are not involved in national-level decision-making is yet another significant difficulty. Many choices concerning local area development, financial allocations for local governments, and human and other resources are made at the national level (Malalgoda et al., 2016).

The current institutional difficulties in Sri Lanka are the multitude of policies, overlapping tasks, and ensuing role confusion, particularly in response stages. Due to a lack of finances, human capability, and technical expertise, municipal policies have proved difficult to execute (UNDRR, 2019).

2.4   Policy landscape for DRR and CCA

The climate and disaster risk of a nation, as well as its political prominence may affect the priority given to establishing policy coherence. DRR institutional frameworks are more developed than CCA in natural hazard-prone countries like the Philippines and Peru. DRR processes and methods guide CCA emphasis (OECD et al., 2020). The political, social, and environmental circumstances of a nation determine the coherence of SDGs, CCA, and DRR approaches.

Reassessing institutional arrangements is needed to align policy processes with CCA and DRR for common aims. Coordination toward coherence requires more resources, abilities, and consideration of developmental stages. This requires strong government backing and coordinating entity leadership. Technical support for development cooperation may help countries to establish coordinating structures in some instances (OECD et al., 2020).

Ghana's ratification of the Paris Agreement means that sub-national assemblies must now come up with ideas for including the goals of the National Democratic Congress in sectoral and local development plans (Ghana, 2017). In the same way, the Philippines' national planning agency is responsible for including DRR and CCA in its development plan's many sectoral policies and strategies. The current medium-term policy of the Philippines says that building resilience is one of the most important ways to achieve equitable growth (OECD et al., 2020).

According to Leitner et al., both CCA and DRR demand that measures be included in several sectors, including but not limited to water, urban planning, transportation, energy, infrastructure, health, and agriculture. Strong leadership and high-level coordination are necessary to provide a common understanding of what coherence in CCA and DRR involves in a given national context. Different stakeholders typically use different terminology for topics such as risk, consequences, vulnerability, and resilience (2018). Achieving a clear understanding of what coherence in CCA and DRR implies in a particular national setting requires strong leadership and coordination at a high level.

In 2018, 748 out of 1634 Cities and Municipalities in the Philippines included CCA and DRR in their Comprehensive Land Use Plans, which is less than fifty percent. (GOV.PH, 2017). Local governments are primarily responsible for implementing CCA and DRR policies, underlining the necessity for good vertical coordination and the exact defining of duties and responsibilities amongst levels of government (OECD et al., 2020). Typically, the implementation of DRR and CCA at the local level is separated from national policy. There is a need for efficient coordination between the national and local stages in order to implement policies coherently.

- **Examples of local actions that promote consistency between CCA and DRR**

To improve coherence in CCA and DRR at the local level, the Philippines and Ghana provide examples (table 4.6) of appropriate strategies (OECD et al., 2020).

Table 2.7: CCA and DRR policy integration of local level in Philippines and Ghana

Country	Policy Integration
Philippines	The Philippines serves as an example of how well DRR and CCA may pool their human resources. The Local Disaster Risk Reduction and Management Councils (LDRRMC) are in response to local preparedness operations, sharing information and educating the public. They might do this by, for instance, posting printed information materials and danger maps in public places. They may achieve this by demonstrating information and risk maps in public. They may include climate considerations in DRR planning in places with significant LDRRMCs. LDRRMCs often advocate for climate change by circulating local sea level rise risk maps at a local level.
Ghana	Local assemblies may employ Ghana's National Development Planning Commission's criteria to include the NDC in their development plans. The checklist requires the local assembly's

	policy creation and execution to include climate measures, while DRR problems may be better incorporated. Adaptation seeks to enhance climate resilience and reduce vulnerability to promote sustainable development in key sectors including agriculture and food security, sustainable management of forest resources, resilient infrastructure and built environment, climate change health, water resources, and gender and vulnerable populations.

Source: OECD et al., 2020

2.4.1 Sustainable development policies

Sustainable development gained political backing with the 2015 UN 2030 Agenda. Notwithstanding its flaws, 17 Sustainable Development Goals, 169 Objectives, and 244 indicators make the sustainability paradigm work. The Sustainable Development Goals (SDGs) aim to improve individual well-being while also ensuring environmental preservation for future generations. They build upon the accomplishments of the Millennium Development Goals (MDGs) by broadening their scope.

The triple-bottom-line sustainability concept is reflected in the SDGs, which include goals for economic development, social inclusion, and sustainable environmental management. The main goal is to cope with the various issues developed and developing countries face. As a result, the objectives and guiding principles for the policy framework have been established from a global viewpoint (Sachs, 2012; Beishem et al., 2015).

OECD global programs manage challenging situations. Its Policy Coherence for Sustainable Development Framework identifies economic, social, and environmental policy trade-offs and synergies. The SDGs build resilient societies, respond to humanitarian crises, and decrease volatility and shocks in even the worst locations. The OECD is helping nations evaluate their resilience programs. OECD helps rising nations utilize domestic resources in other ways. The poorest developing nations will get OECD-monitored ODA. The new OECD TOSSD framework contains various sustainable development resources. Developing nations are adopting the OECD

Framework for Measuring Well-Being and Development, which goes beyond GDP growth, to identify and analyze development challenges. (OECD, 2016).

Figure 2.6 summarizes the principal channels via which areas may promote policy coherence for the implementation of SDGs in order to address some of the linked essential concerns, such as the way of accomplishing SDGs systematically and finding and evaluating coherent implementation techniques

Numerous international organizations and academics have frequently noted that a coordinated and comprehensive set of policies are necessary for the UN 2030 Agenda to be implemented successfully. The establishment of a complete set of policy goals,, as specified SGDs, supported by the recommendation of relevant indicators for evaluating these goals, allows for a systematic assessment of potential synergies and trade-offs. This approach can contribute to the improvement of overall policy coherence.
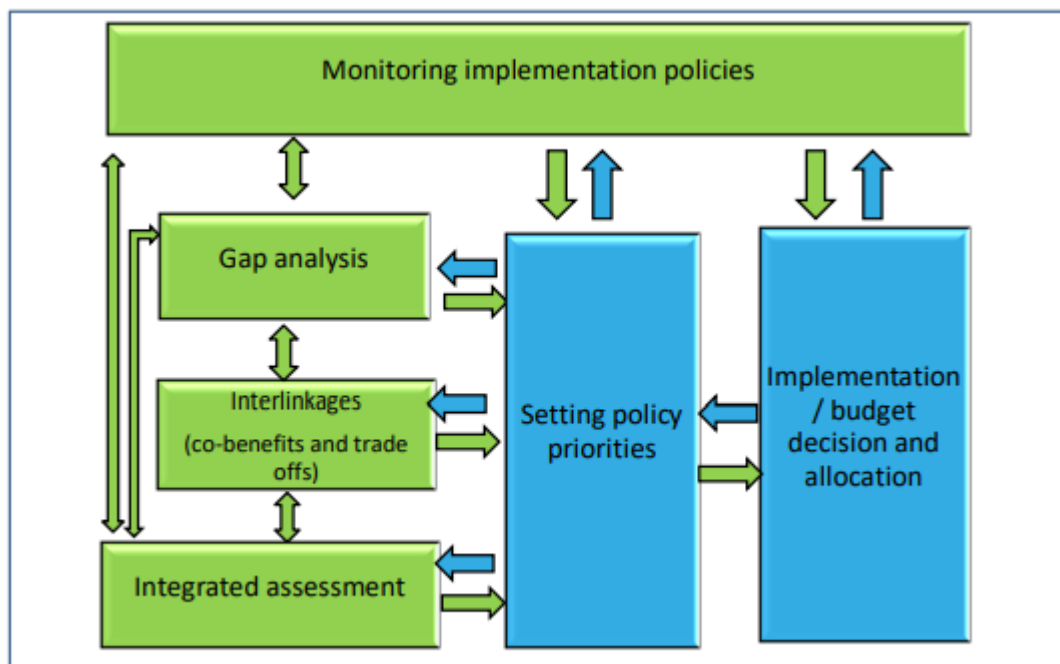

Figure 2.6:   Science-policy interface for policy coherence on SDGs implementation
Source: Miola A., BorchardT S., Neher F., Buscaglia D, 2019

Sustainable development policies in Sri Lanka

The country's commitment to the United Nations Sustainable Development Goals (SDGs) and sustainable development policies in Sri Lanka has been influenced by national development priorities. The government has formulated an extensive policy framework to address to guide sustainable development efforts, focusing on areas such as poverty reduction, education, health, infrastructure, and environmental conservation.

The Sustainable Development Act (2017) is a major policy effort aimed at promoting long-term development in Sri Lanka. The goal of this strategy is to strengthen institutional structures that promote sustainable development and to guarantee that sustainable development concerns are integrated into decision-making processes. The policy establishes a Sustainable Development Council, which is responsible for coordinating sustainable development efforts in the country and for developing and implementing sustainable development policies.

The National Policy and Strategy for Sustainable Development (Draft) was introduced in 2017. This policy outlines Sri Lanka's enduring vision for sustainable development and sets out goals for economic, social, and environmental sustainability. The policy focuses on several key areas: poverty reduction, education, health, infrastructure, and environmental conservation. The significance of stakeholder participation and collaboration in achieving sustainable development is highlighted in the policy.

In 2018, Sri Lanka introduced the National Policy on Sustainable Consumption and Production (SCP) which aims to promote sustainable consumption and production patterns in the country. The policy recognizes that unsustainable consumption and production patterns can negatively impact the environment, public health, and the economy. The policy sets out goals for reducing waste, promoting resource efficiency, and promoting sustainable practices in key sectors such as agriculture and tourism.

The National Environmental Policy, introduced in 2012, provides a comprehensive framework for managing the environment in Sri Lanka. The policy aims to balance economic development with environmental protection and set goals for conservation,

pollution control, and sustainable resource use. The policy recognizes the importance of environmental conservation for the long-term sustainability of the country's economy and society.

Overall, significant progress has been made by Sri Lanka in promoting sustainable development with the different initiatives and the implementation of numerous policies. These policies demonstrate the government's commitment to reaching sustainable development goals, as well as its understanding of the value of stakeholder involvement and the necessity for sustainable practices.

2.4.2 Disaster risk reduction policies

Disaster risk reduction features include lowering exposure to risks, minimizing the vulnerability of persons and assets, adopting responsible land and environmental management, and improving readiness for adverse occurrences (UN, 2009). The Sendai Framework for DRR, which builds on the Hyogo Framework for Action, recognizes the importance of disaster risk reduction measures in attaining sustainable development. Furthermore it emphasizes the need of doing multi-hazard risk assessments, including communities in DRR activities, and incorporating all stages of planning and development.

Technological advancements have also influenced the evolution of DRR strategies. The use of satellite imaging, remote sensing, and geographic information systems (GIS) provide fast and reliable disaster management. DRR strategies have been influenced by the development of early warning systems and technological breakthroughs in disaster response. (Aitsi-Selmi et al., 2016). Decision making process is developed due to technological advancement.

Governments, communities, corporate sector groups, and international organizations must collaborate in order to effectively execute DRR laws. Incorporating disaster risk reduction at all stages of planning and development is essential for achieving SGDs and enhancing disaster resilience.

Disaster risk reduction policies in Sri Lanka

Diverse natural disasters, such as floods, landslides, and droughts are occurred due to various activities in Sri Lanka. As a result, the government has implemented several regulations and legislation to overcome these devastating events.

Sri Lanka implemented the Disaster Management Act (2005) to create a legislative framework for disaster risk reduction and management. The National Disaster Management Centre and the Disaster Management Council were established under this act to oversee disaster management operations. The Act includes provisions for the active participation and inclusion of local communities and civil society in disaster management activities. It also provides a complete framework for disaster preparation, response, and recovery.

The Disaster Risk Management Roadmap (2006-2016) has been instrumental in guiding Sri Lanka's disaster management endeavors. This roadmap offers a comprehensive framework for reducing disaster risks, specifically emphasizing the mitigation of risks at the community level. The road plan includes stages such as the identification of disaster-prone locations, the establishment of early warning systems, and the implementation of disaster risk reduction measures in vital sectors like agriculture, housing, and infrastructure.

The National Policy on Disaster Management (2013) is a significant initiative to mitigate disaster risk. This approach emphasizes effective coordination and collaboration among governmental and private organizations. The policy emphasizes the need for preparedness, response, and recovery. It includes initiatives such as the construction of emergency response systems and the supply of financial and technical assistance to disaster-affected communities.

The Sri Lanka National Disaster Management Plan (2013-2017) is a comprehensive plan that covers actions to be taken before, during, and after disasters. It encompasses a variety of efforts, such as the construction of emergency response teams, the development of early warning systems, and the distribution of humanitarian supplies to disaster-affected communities. Furthermore, the Plan emphasizes the significance

of adopting disaster risk reduction measures such as hazard mapping and the implementation of both structural and non-structural risk reduction initiatives.

Sri Lanka has put in place a number of laws and programmers targeted at reducing the danger of natural disasters. These policies indicate the government's commitment to DRR, as well as importance of the need of stakeholder participation and effective DRR strategies.

2.4.3 Climate change adaptation policies

In order to mitigate the harmful consequences of climate change Several CCA strategies are instigated. These policies may take the shape of infrastructure initiatives, land-use planning, and social safety nets, among others. Because the repercussions of climate change, such as sea-level rise, extreme weather events, and shifting rainfall patterns, have already caused immense devastation to people, ecosystems, and economies throughout the world, the need of adaptation strategies cannot be overstated.

Infrastructure projects are an adaptation policy. Infrastructure such as dams, levees, and sea walls may assist in protecting towns from the effects of sea-level rise and floods. For example, the Netherlands, which is especially susceptible to floods owing to its low-lying topography, has initiated several infrastructure projects, such as the construction of dikes and sea walls (Van der Meer, 2018).

Land-use planning is a second sort of adaptation policy. Controlling land use to mitigate the danger of climate change repercussions is what land-use planning implies. For instance, new structures must be erected on raised foundations to mitigate the danger of floods caused by sea-level rise in some coastal regions of the United States, (Smith, 2018).

Social safety nets are another essential adaptation strategy. Social safety nets give assistance to vulnerable groups impacted by climate change, such as those whose houses have been destroyed by floods or whose livelihoods have been impacted by drought. For instance, Ethiopia has created a program that gives cash transfers to low-

income families impacted by climate change-related effects such as drought (Demeke et al., 2018).

A more concentrated monitoring, reporting, and evaluation (MRE) system is made possible by the detailed description of adaptation policies, including their objectives and goals. Well-defined MRE goals may provide results that illustrate the efficacy and productivity of adaptation policies and practices (EEA, 2020).

Climate change adaptation policies in Sri Lanka

The first policy in place is Sri Lanka's National Climate Change Policy (2012). This policy offers the broad framework for the nation's mitigation and adaptation to climate change where it emphasises the need of reducing greenhouse gas emissions and strengthening people's and ecosystems' resilience to climate change. The strategy outlines the concepts of sustainable development and asks for a multi-stakeholder approach, including the commercial sector, non-governmental groups, and local communities.

The National Adaptation Strategy for Climate Change Impacts in Sri Lanka: 2016–2025 is a significant additional strategy. This Plan highlights the ideas and actions required to adapt the country to the effects of climate change. It offers a comprehensive method to dealing with the repercussions of climate change. The policy calls for a comprehensive and integrated approach to adaptation that considers the needs of vulnerable populations and the requirements of the country's growth.

In addition, Sri Lanka's Climate Change Adaptation Strategy (2011-2016) is an important policy document. This strategy provides a framework for implementing the National Climate Change Policy and the National Adaptation Plan. It highlights the precise techniques and procedures that must be undertaken to increase people's and ecosystems' resilience to climate change. The policy desires for steps to reduce the risk of natural catastrophes, early warning systems, and climate-sensitive agriculture. In addition, it emphasizes the need for capacity building, public education, and monitoring and evaluation of adaptation strategies.

The policies highlight the need for a multi-stakeholder approach in different sectors. Comprehensive and integrated adaptation strategy that considers the country's development demands and the needs of vulnerable populations are intended in policies.

2.5　Summary

Policy coherence refers to how policies and measures across different areas are consistent, complementary, and mutually reinforcing toward achieving common objectives. Policy coherence is essential to ensure that efforts to achieve these objectives are aligned and mutually reinforcing rather than contradictory or conflicting. There are five dimensions of policy coherence in the context of CCA, DRR, and SDGs: vertical coherence, horizontal coherence, temporal coherence, spatial coherence, and equality coherence. These dimensions refer to the alignment of policies and actions across different levels of governance, sectors, time, space, and stakeholders, respectively. There are different types of policy coherence, such as conceptual, institutional, financial, operational and strategic.

Three global processes relevant to policy coherence in the context of CCA, DRR, and SDGs are the Sustainable Development Agenda for 2030, the Paris Climate Change Agreement, and Disaster Risk Reduction framework established by Sendai. These processes provide a mandate for increasing policy coherence between disaster risk reduction and climate change, and have similar objectives in promoting sustainable development.

In order to fulfil sustainable development goals, several entities are in charge of managing climate change adaptation and catastrophe risk reduction. Several policies are instigated under these institutions.

3 METHODOLOGY

3.1 General

The methodology plays a crucial role in any study. It entails completing a literature review in order to carefully pick and establish the best method for the studyThe research approach is purposefully designed to be adaptable and adaptable as the investigation proceeds. This chapter explores into the qualitative research method, including content analysis and semi-structured interviews. It also included data collecting, data sampling, method of data analysis, validity and reliability, and ethical considerations.

3.2 Research design

The conceptualization phase is based on reading existing literature on the study area, reviewing the relevant policy documents, and developing a framework for the analysis. The qualitative research method is used as the method of study.

Qualitative research is a type of research method that focuses on understanding and describing human experiences and behaviors in a holistic and in-depth manner (Creswell, 2018). Unlike quantitative research, which uses numerical data and statistical analysis to identify patterns and relationships, qualitative research uses qualitative data, such as narratives, interviews, and observations, to understand the subjective experiences and perspectives of the people being studied (Denzin & Lincoln, 2011). The social sciences, education, psychology, and health sciences frequently make use of this technique and is rooted in sociology and anthropology's interpretive and naturalistic traditions (Lincoln & Guba, 1985).

One of the critical strengths of qualitative research is its ability to provide rich and detailed data about people's experiences and perspectives. For example, a qualitative study of patient experiences with chronic pain might include in-depth interviews with patients about their experiences of living with chronic pain and observations of their behaviors and interactions with healthcare providers (Creswell, 2018). This type of data can provide valuable insights into the emotional, social, and practical challenges people with chronic pain face. It can inform the development of more effective treatments and support services (Denzin & Lincoln, 2011).

Another strength of qualitative research is its flexibility. It can be adapted to a wide range of research questions and contexts, allowing for the study of a diverse range of phenomena, from large-scale social trends to the experiences of individuals (Creswell, 2018). Furthermore, qualitative research can provide a more nuanced understanding of complex social and cultural phenomena than quantitative research, which may provide only a limited and superficial understanding (Denzin & Lincoln, 1994).

However, qualitative research also has some limitations. One of the main limitations is ensuring the reliability and validity of qualitative data. Unlike quantitative data, which can be analyzed using statistical methods, qualitative data relies on the researcher's interpretation of the data and can be influenced by the researcher's personal biases and perspectives (Creswell, 2018). To address this, qualitative researchers often use various techniques to ensure the data's legitimacy and trustworthiness, such as using multiple data sources, triangulation (the employment of various methodologies to explore the same phenomenon), and detailed and systematic data analysis procedures (Denzin & Lincoln, 2011).

Qualitative research techniques refer to the various methods and approaches used to gather and analyze qualitative data, such as narratives, interviews, and observations (Denzin & Lincoln, 2011).

- In-depth interviews are a widely used qualitative research method involving structured or semi-structured face-to-face or telephone conversations with individuals or groups to gather data about their experiences, beliefs, attitudes, and behaviors (Creswell, 2018).
- Focus groups are a kind of qualitative research technique that includes gathering a small group of people to talk about a particular subject or issue in an unstructured and conversational manner (Creswell, 2018).
- Observational research is a qualitative method that involves observing people's behaviors and interactions in a naturalistic setting (Creswell, 2018).
- Narrative analysis is a qualitative research technique that comprehend the experiences and viewpoints of the persons being researched by examining

narratives that have been either written down or spoken aloud. (Creswell, 2018).

- Case study research: Case study research is a strategy which closely investigate and analyze one case or a limited number of examples in order to acquire a better knowledge of a certain phenomenon (Creswell, 2018).

Even though both quantitative and qualitative research are crucial research techniques, they differ in a number of ways. Quantitative research is often used to study large populations and test hypotheses, and it is typically based on numerical data that is analyzed using statistical methods (Creswell, 2018). On the other hand, qualitative research is often used to study small populations or to gain an in-depth understanding of complex phenomena, and it is typically based on qualitative data that is analyzed using techniques such as content analysis and thematic analysis (Denzin & Lincoln, 2011). Another critical difference between the two methods is that quantitative research is often seen as more objective, while qualitative research is seen as more subjective (Creswell, 2018).

Qualitative research is valuable for understanding and describing human experiences and behaviors. It provides rich and detailed data about people's experiences and perspectives and is flexible enough to be adapted to a wide range of research questions and contexts. While qualitative research has some limitations, including ensuring the reliability and validity of qualitative data, these limitations can be addressed through rigorous research methods and techniques.

3.2.1   Content analysis

Content analysis is one of the many qualitative methods used to analyze text data. The method aims to identify patterns and themes in the content. Moreover, to understand how these patterns and themes are connected to the underlying meaning of the text. An outline of content analysis and its use in qualitative research will be given in this essay.

Content analysis is described as the systematic examination of the content of texts in order to extract meaning and identify patterns and themes (Krippendorff, 2013). The method is used in various research fields, including sociology, psychology, marketing, communication, and media studies. Content analysis is typically used to analyze

written texts such as interviews, newspapers, books, and websites. However, it can also be applied to other forms of data, such as images and audio recordings.

The process of content analysis typically involves the following steps:

1. defining the research question and purpose,
2. selecting the text data to be analyzed,
3. coding the text data,
4. categorizing the coded data into themes and patterns, and
5. interpreting and drawing conclusions from the data (Neuendorf, 2016).

The first step in content analysis is to define the research question and purpose. This helps to determine the analysis's scope and select the appropriate text data for analysis. The second step involves selecting the text data to be analyzed. The text data can be selected based on specific criteria such as date, author, topic, or type of text.

The third step is to code the text data. Coding involves marking specific segments of the text that are relevant to the research question and purpose. The coding can be done manually or using software tools as it allows us to uncover and understand patterns and themes within the text.

The fourth step is to categorize the coded data into themes and patterns. These themes and patterns help to understand the underlying meaning of the text data. The final step is to interpret and draw conclusions from the data. Interpretation of the data involves analyzing the themes and patterns in the research question and purpose context.

Content analysis is a valuable qualitative method for analyzing text data in social sciences. The strategy aids in identifying patterns and themes in the content and comprehending the text's underlying meaning. The content analysis process involves defining the research question and purpose, selecting text data, coding the text data, categorizing the coded data into themes and patterns, and interpreting and drawing conclusions from the data.

3.2.2   Interview method

One of the most commonly used qualitative research methods is in-depth interviews, which involve conducting structured or semi-structured telephone or in-person

conversations with individuals or groups (Creswell, 2018). In-depth interviews involve open-ended inquiries that encourage participants to speak freely and in-depth about what they have experienced (Denzin & Lincoln, 2011). The purpose of in-depth interviews is to comprehend the experiences, perspectives, and behaviors more deeply, of the people being studied. They often involve asking questions specific to the research context and research questions (Creswell, 2018).

In-depth interviews can be conducted in a structured or semi-structured manner, depending on the research context and research question. Structured interviews involve using a pre-determined set of questions that are asked in the same order to all participants. In contrast, semi-structured interviews allow for some flexibility and allow the interviewer to follow up on areas of interest as the interview progresses (Creswell, 2018).

In-depth interviews as a qualitative research approach have various advantages where in-depth interviews enable researchers to gather rich and in-depth data about the experiences and perspectives of the people (Creswell, 2018). By asking open-ended questions and allowing participants to talk freely about their experiences, researchers can gain a deeper and more nuanced understanding of the phenomenon being studied (Denzin & Lincoln, 2011).

Another benefit of in-depth interviews is that they allow researchers to build rapport and establish a relationship of trust with the participants, which can be especially important when studying sensitive or personal topics (Creswell, 2018). Researchers can encourage participants to give more personal and in-depth information about their experiences by developing a trusting connection with them, resulting in a more comprehensive knowledge of the topic being investigated (Denzin & Lincoln, 2011). In-depth interviews are flexible and can be adapted to the research context and research question. Researchers can tailor the questions and format of the interview to suit the specific needs of their research and to gain the most decadent and in-depth data possible (Creswell, 2018).

In-depth interviews are a widely used qualitative research method that allows researchers to obtain a deeper and more nuanced comprehension of the experiences

and perspectives of the people being studied. Whether used in isolation or as part of a larger qualitative research project, in-depth interviews provide rich and in-depth data that can inform and advance our understanding of the research area.
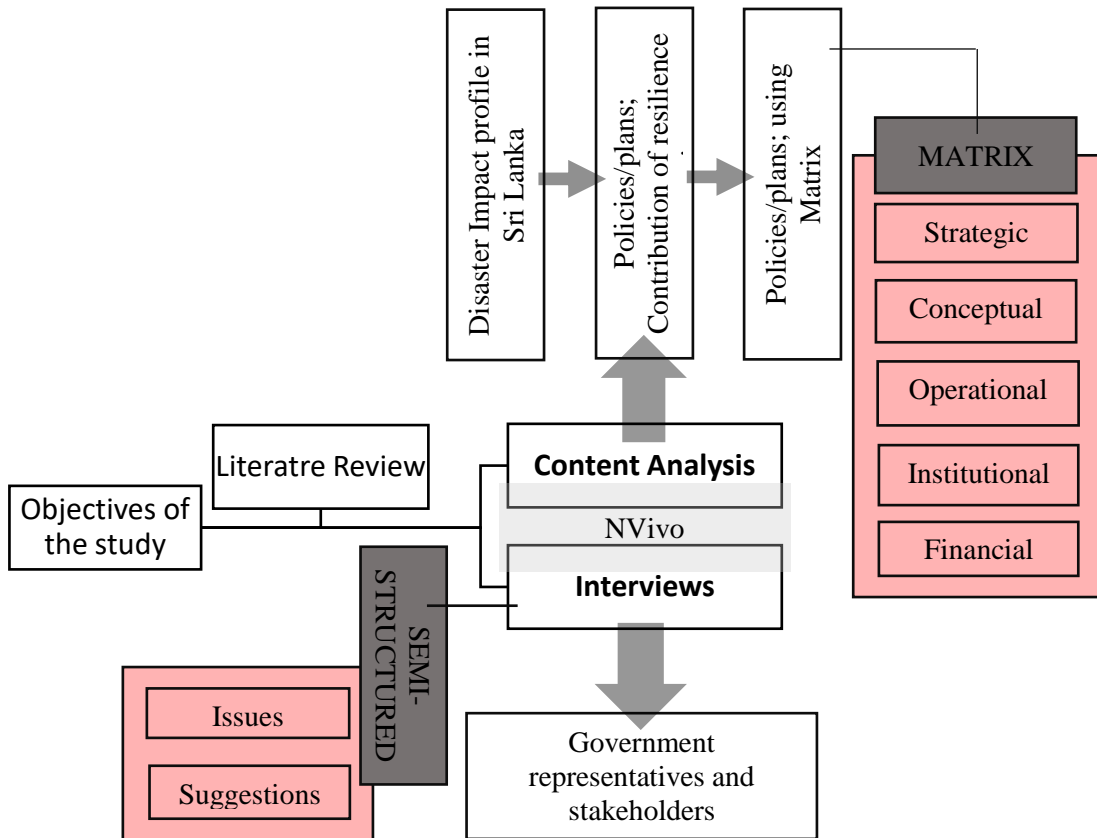
Research method

Figure 3.1: Research design

Source: Compiled by the author

3.3   Part 1; content analysis of Policy documents

To address the interconnected concerns of DRR, CCA, and SD, coordinated actions at all levels are required. Policy documents on CCA, DRR, and SDGs are critical in addressing these concerns in Sri Lanka. Content analysis is a method for analyzing policy documents to understand their key themes, goals, and strategies related to CCA, DRR, and SDGs.

The content analysis method involves several steps, including document selection, data collection, coding, and analysis. The first step in the content analysis method is document selection (Table 3.1), which involves identifying relevant policy documents related to CCA, DRR, and SDGs in Sri Lanka. The policy documents are selected from Sri Lankan government.

The second step in the content analysis method is data collection, which involves collecting and organizing the relevant information from the policy documents. The data collected from the policy documents are analyzed to identify the key themes, goals, and strategies related to CCA, DRR, and SDGs.

The third step in the content analysis method is coding, which involves categorizing the data into meaningful and relevant categories. The coding is done by identifying the key themes, goals, and strategies related to CCA, DRR, and SDGs in the policy documents.

The final step in the content analysis method is analysis, which involves synthesizing the data and drawing conclusions about the key themes, goals, and strategies related to CCA, DRR, and SDGs in Sri Lanka. The analysis of the policy documents revealed the extent to which they are aligned and supportive of sustainable development.

The content analysis method is a valuable tool for analyzing policy documents related to CCA, DRR, and SDGs in Sri Lanka. The findings of the content analysis can provide valuable insights for policymakers and stakeholders in Sri Lanka in addressing the problems brought on by natural disasters and climate change.

Formation of the codes

The first part of the content analysis consists of the contribution of resilience properties or factors in the identified policies relevant to strategic and conceptual coherence, which includes twenty-eight factors.

The second part of the analysis involved using a matrix, which was adapted from UNDRR (2022) and consisted of 15 questions. This matrix was designed to review strategies in detail and used as a coding system under the integration spectrum.

Table 3.1: Matrix to review strategies in legal documents

Strategic	Aligns with both worldwide and regional DRR and CCA instructions and procedures.
	While developing the vision, objectives, and principles, DRR and CCA are taken into account holistically.
	Attempts to combine DRR and CCA across many fields.
Conceptual	The goal is to increase resilience to climate and catastrophe threats.
	Establishes links between disasters and the vulnerabilities linked with climate change.
	To understand their synergies, analyzes the interconnections and differences between Climate CCA and DRR.
Institutional	Outlines mechanisms for coordination to facilitate collaboration between stakeholders and activities related to CCA and DRR
	Identifies the primary agency responsible for leading efforts in DRR and CCA
	Emphasizes the need to coordination at the local level in CCA and DRR practices.
	Through a comprehensive, cross-sectoral strategy, specifies the roles and duties.
	Identifies external entities who help to promote coherence between DRR and CCA efforts
Operational	Includes goals and actions targeted at improving DRR and CCA coherence.
	Specific activities and fields where DRR and CCA are appropriate and useful are identified.
Financial	Provides a budget estimate for combining DRR and CCA operations.
	Advocates for operative funding for DRR and CCA programs.
	Promotes the use of risk insurance schemes to minimize the effects of climate change and other dangers.

Source: Adapted from UNDRR (2022)

3.4 Part 2 Physical interviews

To examine how CCA, DRR, and SGDs are aligned in Sri Lanka, conducting comprehensive interviews with government officials and other stakeholders can offer valuable perspectives on the policy coherence of these matters.

The method of in-depth interviews involves several steps, including participant selection, interview preparation, gathering and analyzing data. Participant selection is the first step in the method of in-depth interviews, which involves identifying the individuals or groups of people to be interviewed. In the context of CCA, DRR, and SDGs in Sri Lanka, government representatives, and stakeholders were selected as participants for the in-depth interviews.

The second step in the method of in-depth interviews is interview preparation, which involves developing a set of questions to guide the interview process. The questions elicit information about the participants' perspectives and experiences related to the policy coherence of CCA, DRR, and SDGs in Sri Lanka.

The third step in the method of in-depth interviews is data collection, which involves conducting the interviews and collecting the data. The interviews are conducted in a structured format, with the participants being asked the same set of questions. The data collected from the in-depth interviews are analyzed to understand the participants' perspectives and experiences related to the policy coherence of CCA, DRR, and SDGs in Sri Lanka.

The final step in the method of in-depth interviews is data analysis, which involves synthesizing the data and drawing conclusions about the policy coherence of CCA, DRR, and SDGs in Sri Lanka. The findings of the in-depth interviews can provide valuable insights for policymakers and stakeholders in Sri Lanka in addressing the problems faced by disasters and climate change.

Formation of the interview question

According to Taherdoost (2016), to conduct a successful and accurate questionnaire survey, two main issues to be considered as related questions needed to be included

and aim the right audience to be contacted for the survey. Interview questions are devised thematically in relation to the study area of knowledge production and dynamically in relation to the interpersonal relationship in the inter (Brinkmann & Kvale, 2015). Questions are adapted to the interviewee's personal experience (Peredaryenko & Krauss, 2013) in the expertise field. The pilot study questionnaire (Annexure A) consists of two main parts to form the research questions.

1. Existing policies
2. Policy Coherence Approaches in SGDs, DRR, and CCA.

The pilot study was carried out to confirm the necessity of the research, identify the research questions and plan (Van Teijlingen & Hundley,2002), and clarify the interview questions.

Pilot Sample: 2 subjects - Government representative and Expertise person

After the pilot study questions are restructured (Annexure B), which consists of two main parts such as,

1. Issues in policies/plans in Sri Lanka with relevance to policy coherence of CCA, DRR, and SGDs in Sri Lanka
2. Suggestions for policy coherence DRR, CCA, and SGDs

3.5 Sampling

Interviews should be carried out until different answers are come across, which is a reminder that frequencies cannot be established with fewer samples but with a variety of answers. Regardless of how the question is phrased, the right response is brought forward with a complete report on how it was resolved (Wolcott, as cited in Baker & Edwards, 2012).

Purposive sampling

Purposive sampling is a non-probabilistic sampling method used in qualitative research to select a specific subset of participants for a study. The purpose of purposive sampling is to gather data from individuals with relevant knowledge, experiences, or perspectives on the topic of interest. In the context of the policy coherence of CCA,

DRR, and SGDs in Sri Lanka, government representatives and stakeholders are chosen for in-depth interviews using purposive sampling.

In qualitative research studies that involve a small sample size, researchers frequently employ purposive sampling. The goal is to gather data from individuals who can provide in-depth information on the topic of interest (Creswell, 2014). In relation to CCA, DRR, and SGDs in Sri Lanka, government representatives and stakeholders are specifically chosen to participate in in-depth interviews since their direct engagement in both the development and execution of policies.

The process of purposive sampling begins with identifying the criteria for selecting participants. Regarding CCA, DRR, and SDGs in Sri Lanka, participants were selected based on their roles in shaping and implementing policies related to these issues. This included representatives from civil society organizations, government agencies and academic institutions with direct experience and knowledge of these issues.

Table 3.2: Selected Interviewees

CCA -2	DRR -2	SDGs- 2	Overall-4
•*Professor in Geography, University of Peradeniya* •*Environment management officer, Climate Change Secretariat Sri Lanka, Ministry of Environment*	•*Director, Disaster Management centre [2]*	•*Sustainable Development Officer, Sustainable Development Council* •*Former Director General, Sri Lanka Sustainable Energy Authority*	•*Additional Secretary (Policy and Admin) |Ministry of Urban Development and Housing* •*Research fellow, Institute of policy studies* •*Scientists, National Building Research Organisation [2]*

Source: Compiled by the author

Once the criteria for selecting participants have been established, the next step is to identify potential participants and obtain their consent to participate in the study. This

is done by contacting government representatives and stakeholders through email, phone, and in-person meetings.

In this context of the policy coherence of CCA, DRR, and SDGs in Sri Lanka, purposive sampling is used to select government representatives and stakeholders (Table 3.2) for in-depth interviews, allowing for a deeper understanding of the policy coherence of these issues in Sri Lanka. Ten samples participated in the interviews.

3.6   Method of data analysis

NVivo is a computer-assisted qualitative data analysis (CAQDA) software used by researchers, analysts, and organizations to support work with qualitative and mixed methods data. It provides a range of tools for coding, categorizing, and organizing qualitative data, such as interviews, surveys, and text sources. The utilization of NVivo software assists in discerning patterns, themes, and connections within data. Both policy documents and interview data undergo analysis using NVivo to facilitate the identification of these elements.

The NVivo coding process involves the following steps:

- Importing data: Import qualitative data into NVivo, such as transcripts of interviews, survey responses, or text documents.
- Coding the data: Assign codes (or labels) to significant parts of your data, such as quotes, paragraphs, or themes. Data can be coded manually or through automated techniques such as auto-coding and text search.
- Organizing codes: Group related codes into nodes and categorize them into a hierarchical structure to help organize and manage coding.
- Analyzing data: Use the coded data to analyze patterns, relationships, and themes. NVivo provides various tools to help analyze data, such as matrix coding, querying, and visualizations.
- Interpreting and reporting results: Presentation of findings and interpretations in a clear and meaningful way, using various reporting features such as tables, charts, and summary reports.

3.7   Validity and Reliability

In the context of NVivo, validity is achieved by ensuring that the software is used to reflect the data being analyzed accurately. It can be achieved through proper training, understanding the software, and ensuring the data has been appropriately imported and coded.

Reliability refers to the consistency and stability of research results. In the context of NVivo, reliability is achieved by using consistent coding procedures, having multiple coders, and using inter-rater reliability measures.

Fusch and Ness (2015) found that NVivo is reliable for qualitative data analysis when used appropriately. The key to achieving reliable results is establishing a clear and consistent coding scheme and ensuring that coders thoroughly understand the data and the research questions. Saldaña (2016) notes that NVivo is a flexible and powerful tool that can be used to analyze various types of qualitative data.

It was found that NVivo was reliable because results were consistent when multiple coders analyzed the data. The validity and reliability of NVivo analysis can be ensured through proper use of the software, consistent coding procedures, and inter-rater reliability measures.

3.8   The Ethical Considerations

According to American Psychological Association, informed consent must be obtained from participants first. Second, confidentiality must be maintained. Third, participants must be protected from harm. Fourth, the principle of beneficrimination must be respected. Finally, the principle of honesty must be upheld (2010). Conducting interview research with government representatives and stakeholders requires careful consideration of ethical principles to ensure that the rights of participants are respected and that the findings are trustworthy.

Failure to acquire informed consent can compromise the ethical integrity of a study and erode the researcher-participant relationship (Willis et al., 2011). In-depth interviews can be a powerful and emotional experience for the participant. Researchers must take care to minimize any potential harm from participation in the study. This can include providing participants with information about available support services,

monitoring their emotional state during the interview, and debriefing them afterward (Sandelowski, 1994). Researchers must be aware of their biases and assumptions and take steps to minimize the potential for exploitation or coercion of the participant. This could involve providing participants the ability to withdraw their participation from the study ensuring that the researcher's personal biases do not impact the research, and maintaining transparency about the research process and results (Flick, 2014).

In-depth interviews raise important ethical considerations that researchers must address to maintain their research's integrity and trustworthiness. By obtaining informed consent, maintaining participant confidentiality, minimizing potential harm to the participant, and addressing power dynamics, researchers can ensure that their research is conducted ethically and responsibly.
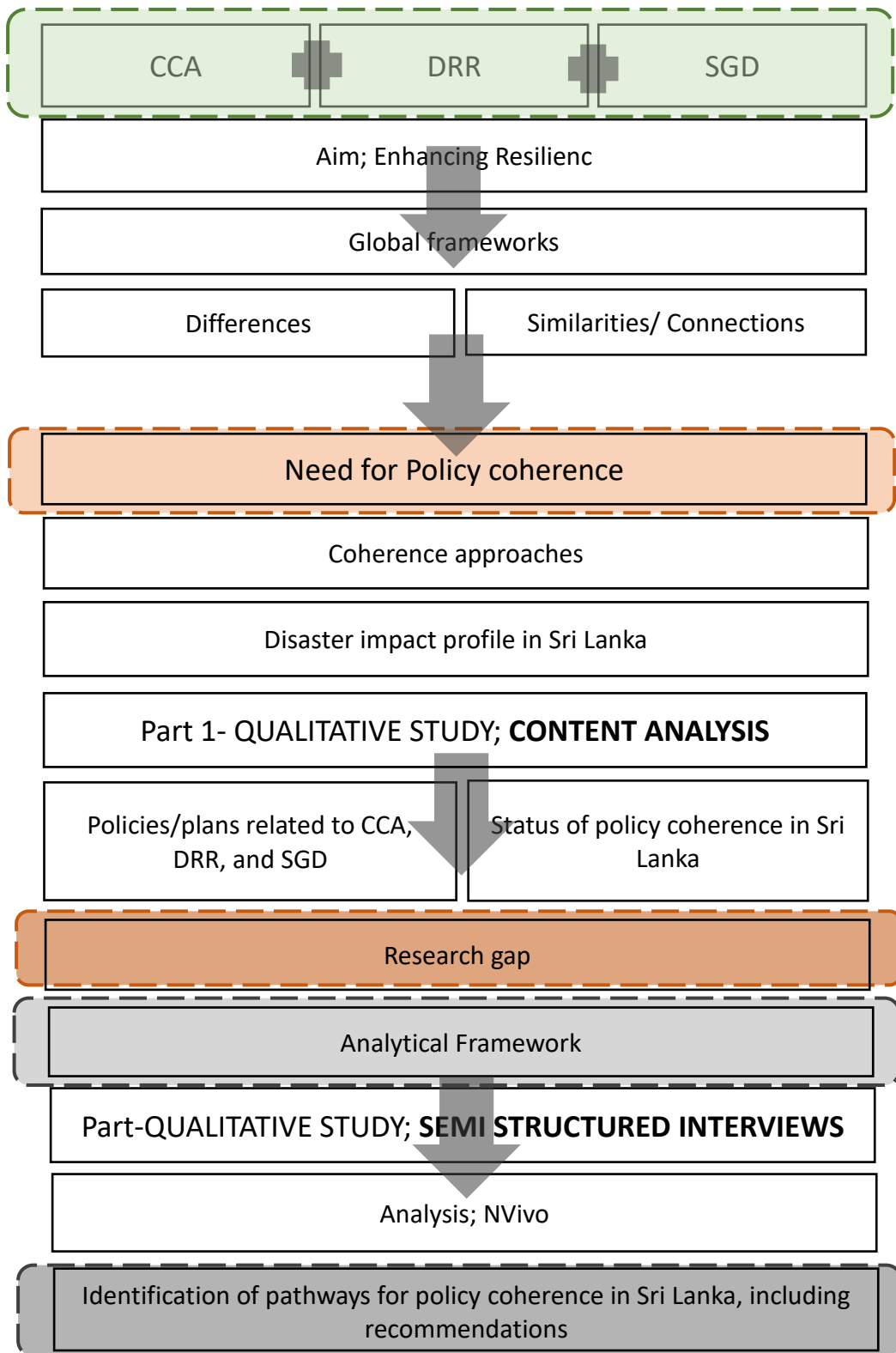
Figure 3.2: Research framework

Source: Compiled by the author

3.9   Summary

The research framework is visually presented in Figure 3.2, showcasing a summary of the study. By conducting content analysis of policy documents and interviews, it is possible to determine the policy coherence level in Sri Lanka. Different policies and how they relate to each other could be identified through a content analysis of policy documents. Interviews with policymakers and stakeholders can provide further insight into the policy coherence approaches and how policy coherence is implemented. It can also help identify areas where policies must be more coherent or align with government objectives.

4 RESULTS

4.1 General

According to the problem description, the primary research goal is to evaluate the coherence of the Sri Lankan context's DRR, CCA, SGDs approaches. The following objectives should be addressed during the research phase while focusing on the overall goal. The first goal is to pinpoint any problems with Sri Lanka's policies regarding DRR, CCA, and SGDs. The second and third goals are identifying the steps to policy coherence in Sri Lanka and making recommendations. The findings of the content analyses of the evaluated policies and survey data are presented in Chapter 4. The chapter's first section discussed the disaster impact profile in Sri Lanka. The Analytical framework: Integration spectrum is illustrated in this chapter. It also shows the findings of content analysis under strategic, conceptual, institutional, operational, and financial coherence. The interviews' findings are also mentioned.

4.2 Disaster impact profile in Sri Lanka

Formation of Sri Lanka's disaster profile was based on data obtained from their historical disaster information system. To align with the Ministry of Disaster Management, a disaster management center was subsequently established. The historical data were collected systematically and used to develop the Des Inventar methodology. According to their districts and divisional secretariat divisions, the data were presented. The chronological, seasonal, and spatial reference of the disaster events has been incorporated into Sri Lanka's disaster event profile. However, the country's total disaster typology is not evenly dispersed. Thus, some disasters, such as floods, can be considered annual events.

Considering the disaster profile, the seasonal distribution shows two peaks representing the two monsoon seasons.

- April to June
- October to December

As mentioned, the spatial distribution of the records is unevenly distributed. It lies between 96-1887 (upper limit) at the district level and 9- 74 (upper limit) at the DS level. Considering the number of people impacted by the disasters, 96% of them are affected by climate-related disasters. Moreover, most of the property damages have been reported due to floods which show 232,236 numbers, whereas extreme wind occurrences have resulted in the most fatalities, 926 in total. A landslide is the most common sort of geographic risk in Sri Lanka. Droughts are also prominent in dry zone areas which are mostly the reason for the agricultural loss. Over the past 400 years, there have been minimal earthquake events recorded.
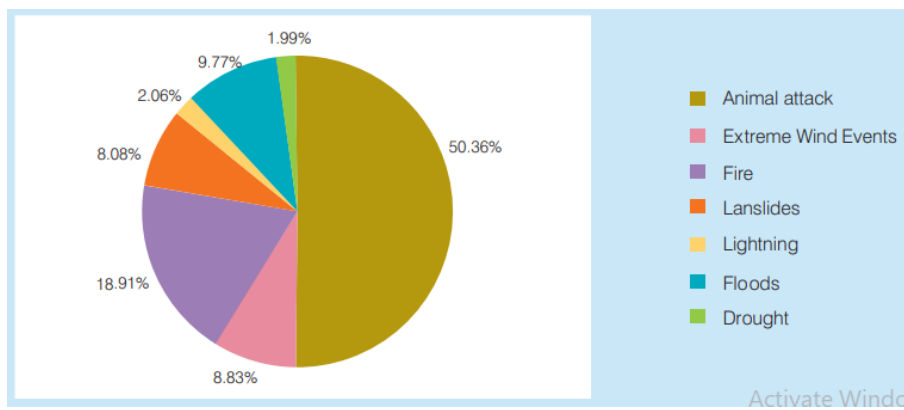
Figure 4.1: Profile of disaster categories (1974 – 2008)

Source: www.desinventar.lk

According to Figure 4.1, Animal attacks are the most reported disaster category, which accounts for more than 50% of the overall disaster categories in Sri Lanka. This is followed by fire (urban and forest fire), flood (urban flood, flash flood, riverine flood, rain), and events with severe wind conditions representing 19%, 10%, and 9%, respectively. The 2004 tsunami, however, was not included in the disaster profile because it is thought to have been a one-off event.

- **People Affected by Disasters**

According to the disaster impact reports, natural disasters have a negative impact on 28 million individuals.
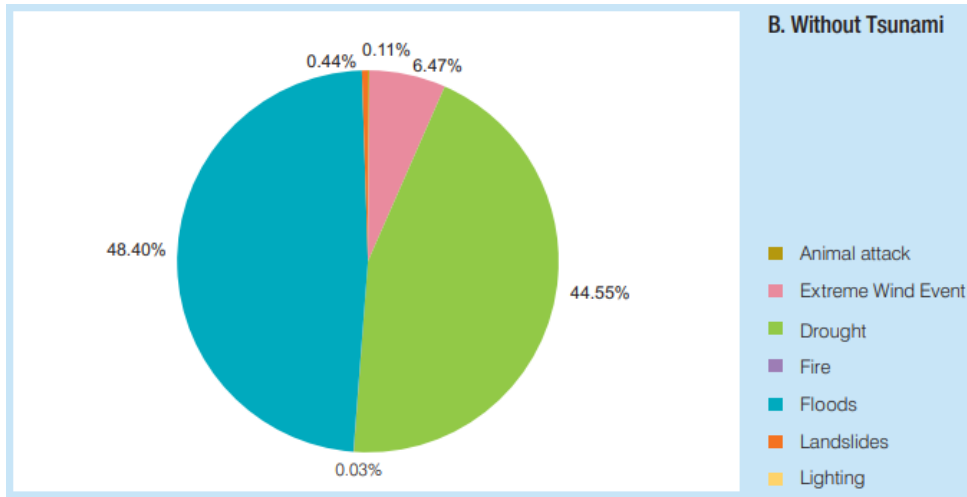
Figure 4.2: People Affected by Different Disaster Categories Without Tsunami: 1974 - 2008

Source: www.desinventar.lk

According to figure 4.2, droughts and floods impact many people, representing 48% and 44% of the total affected, respectively. Extreme wind events also comprise 6.5% of the disaster's victims. The percentage of climatological catastrophes is 96% (without Tsunami). It shows that climate-related disasters are more significant than other sorts of disasters that affect a tiny proportion of the population. Sri Lanka is seen as an agricultural country that is heavily reliant on natural resources. Thus, most individuals directly connect their lives and the environment, with the climate being its most dynamic component.
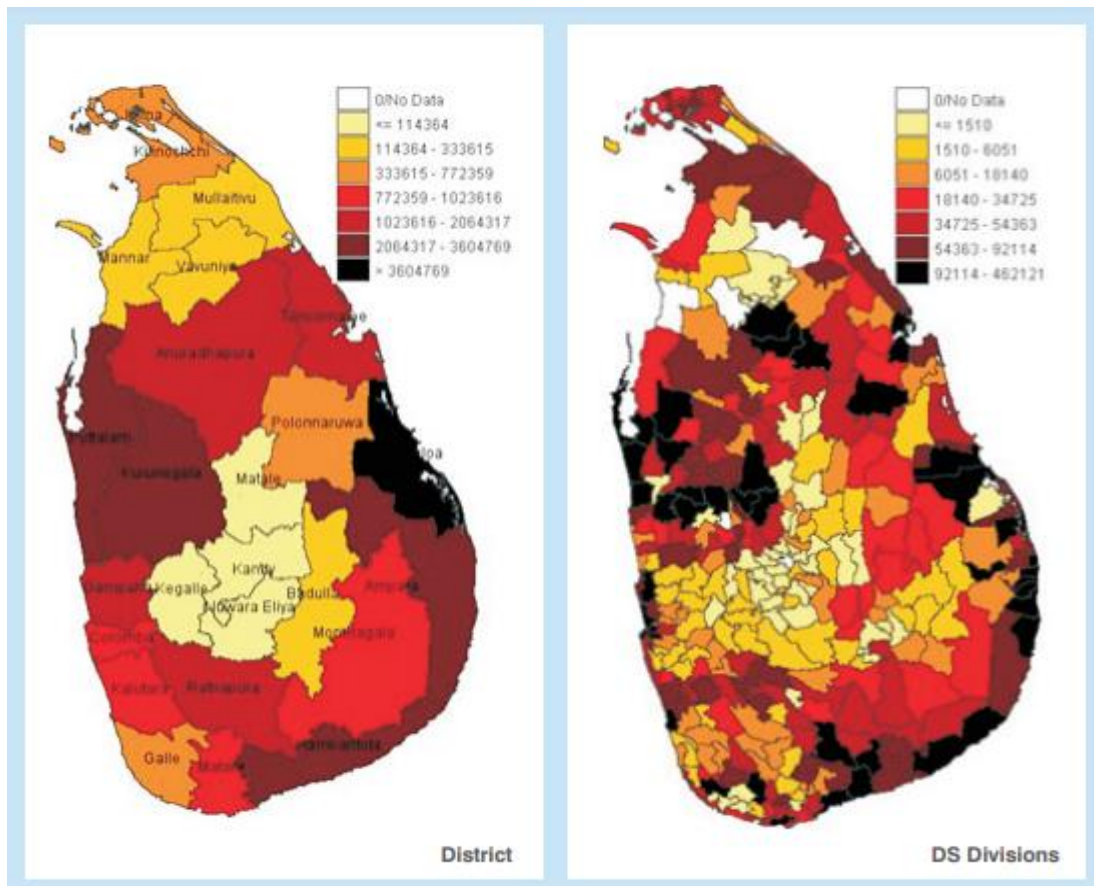
Figure 4.3: Spatial Distribution of People Affected by Different Disaster Categories: 1974 - 2008

Source: www.desinventar.lk

It is also significant to note that disasters have the most impact on people in Batticaloa while having the most negligible impact in Kandy, Matale, Kegalle, and Nuwara Eliya.

- **Loss of Life due to Disasters**

Considering Sri Lanka's historical disaster profile, most deaths were caused by high wind occurrences, wildlife assaults, and landslides, representing 27.16 %, 25.67%, and 23.91 %, respectively. Overall, it accounts for 77% of all fatalities that occurred without Tsunami. When putting Tsunami into the calculation, 90.08% of the share accounts for Tsunamis, whereas comparatively lower percentages for other disaster events. These uneven chronological, seasonal, and spatial distributions of documented fatalities due to disasters can be considered a regular occurrence related to Sri Lanka's weather patterns. Particularly during the nation's monsoon seasons.
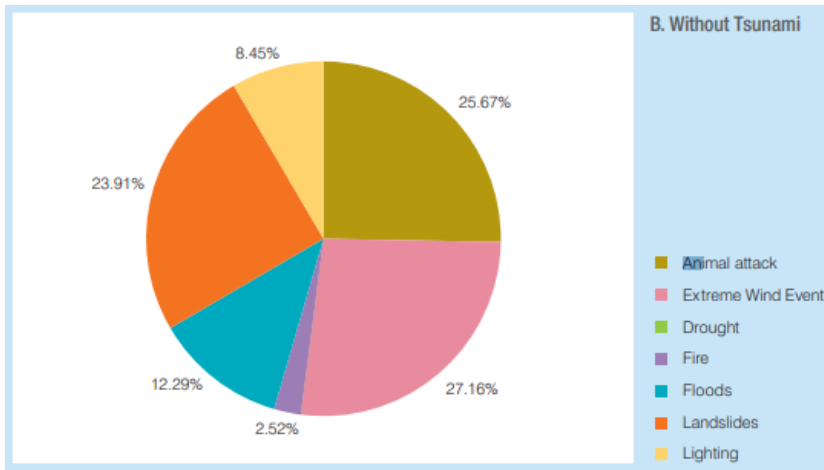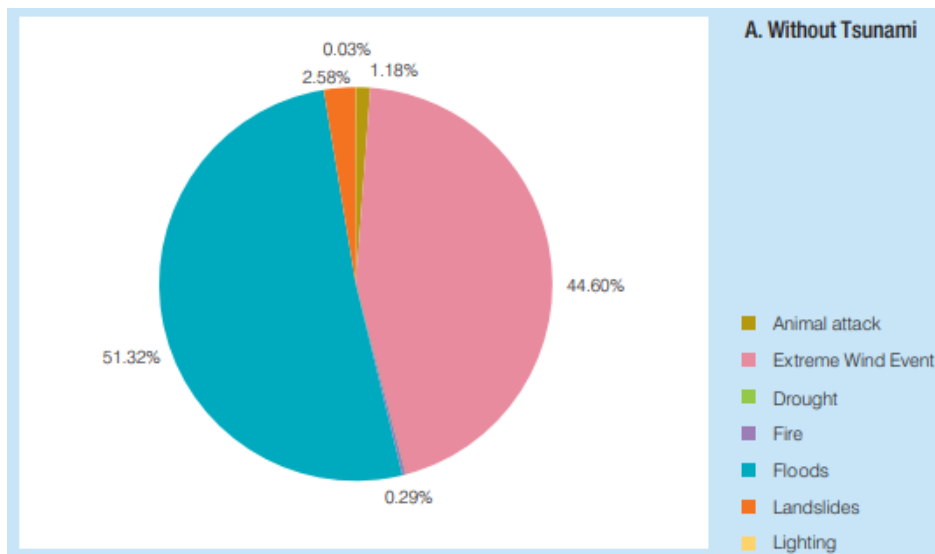
Figure 4.4: Loss of Life in Different Disaster Categories without Tsunami: 1974-2008

Source: www.desinventar.lk

Considering the spatial distribution of deaths, Ampara, Batticoloa, Hambantota, and Galle have seen most deaths caused by natural catastrophes (including tsunamis).
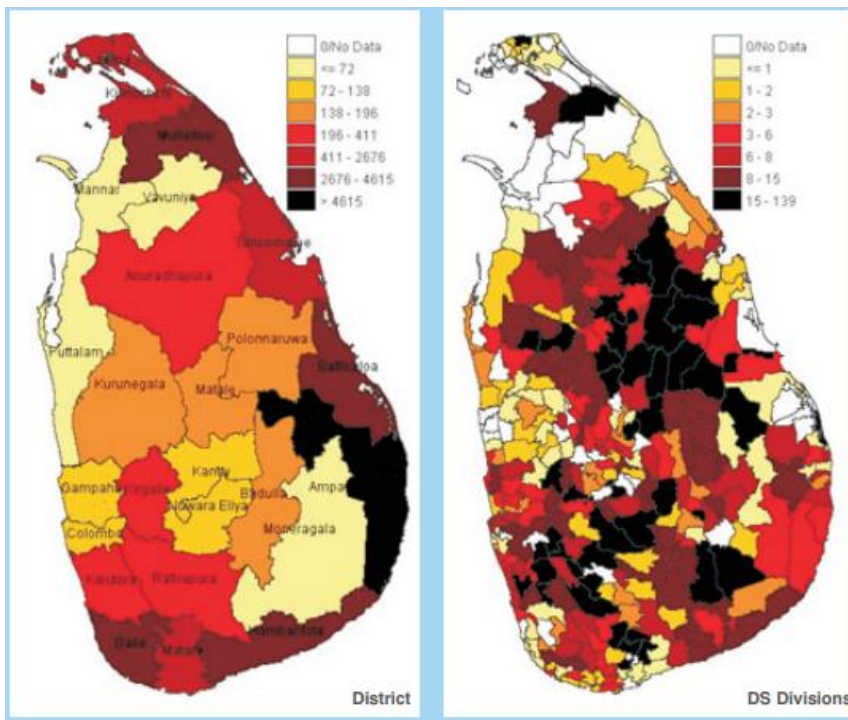
Figure 4.5: Loss of Life Due to Different Disaster Categories without Tsunami: 1974-2008

Source: www.desinventar.lk

- Houses Destroyed and Damaged by Disasters

Floods and high extreme wind events cause almost 95% of the damage to dwellings and property in Sri Lanka, according to the disaster profile. Those two events share 51.32% and 44.06 %, respectively. When considered with Tsunami, it reduces the percentage to 41.63% and 36.18 %, indicating 18.88% of the percentage value for a Tsunami. Landslides and animal attacks are also some other essential disaster types that are causing houses and other properties. Excluding 1978, 2000, and 2004, the overall annual destruction and damage rate seem minimal.

Moreover, between 1978 and 2000, extreme weather events were the leading cause of the destruction of houses. For obvious reasons, the most significant damage to the houses was due to the Tsunami in 2004. Floods are the main reason for house damage in the remaining years. The distribution of seasons seems to follow a cyclical pattern where November, December, January, and May have seen the highest destruction and damage.

Figure 4.6: Loss of Life in Different Disaster Categories without Tsunami: 1974-2008
Source: www.desinventar.lk

According to figure 5.6, Polonnaruwa is the district most negatively impacted, whereas Mannar, Vavuniya, Matale, and Kandy districts have been the least negatively impacted. Furthermore, residences in the DS divisions of the Northern and Eastern

districts have experienced particularly high levels of damage. However, some of the Northern districts' DS divisions have no records of houses damaged by disasters.
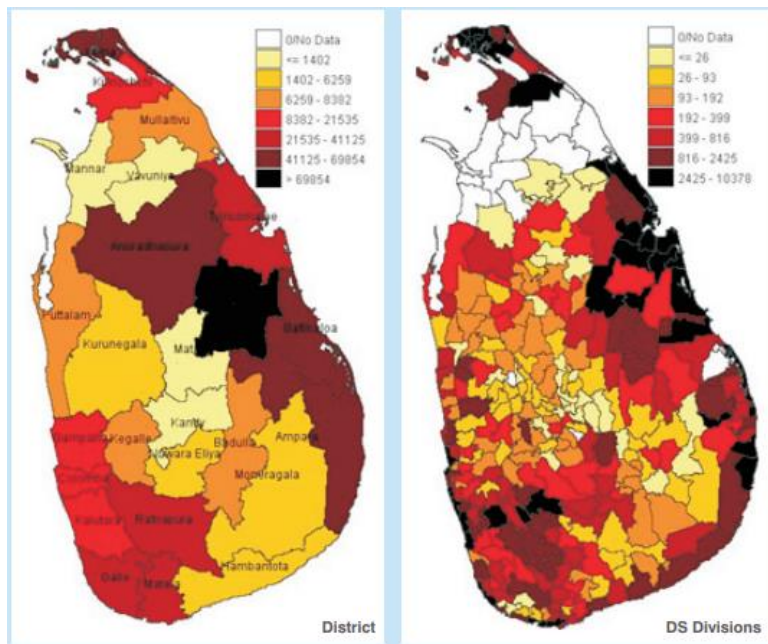
Figure 4.7: Spatial Distribution of Number of Houses Destroyed and Damaged as a Result of Disasters: 1974 to 2008

Source: www.desinventar.lk

- **Losses to Agricultural Crops due to Disasters**

In the past years, crops have been damaged by drought, flood, and Extreme wind events, which share 52.2%, 38.9%, and 4.2% of shares, respectively. The annual time series distribution takes a cyclical pattern which has three peaks in the years 1987, 2001, and 2004. Droughts and floods are the major disasters that cause damage to crops. The seasonal distribution looks to be a two-peak cyclical distribution. Due to drought and flooding, there is a peak in November, December, January, and February. Floods caused by monsoon rains are the primary cause of devastation during this time. Drought is the cause of the other peak, which is visible in August and September.
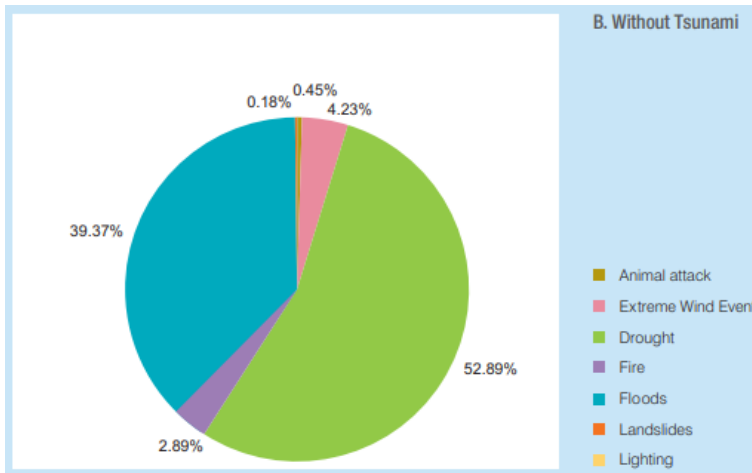
Figure 4.8: Agricultural Losses Due to Disasters (in Hectares) without Tsunami: 1974 - 2008

Source: www.desinventar.lk

The spatial distribution of agricultural damage reveals that the most considerable crop losses occur in Kurunegala and Ampara, whereas it is pretty low in Colombo, Kandy and. This is because of the less significant agricultural sector in these districts than in other districts.
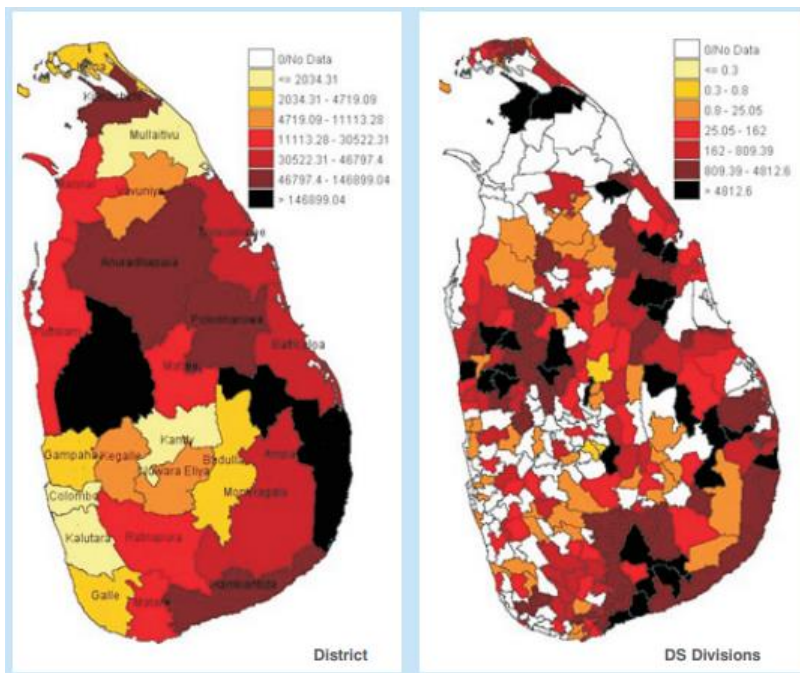
Figure 4.9: Spatial Distribution of Agricultural Loss Due to Disasters (in Hectares) : 1974 - 2008

Source: www.desinventar.lk

4.3 Analytical framework: Integration spectrum

An organized methodology known as an analytical framework is used to study and comprehend complicated issues or problems. An analytical framework would be utilized in policy integration to comprehend how many policies and programs are related to one another and how they help achieve a single aim or target.

A preliminary literature assessment and analysis of pertinent planning documents usually are required for the creation of an analytical framework for policy integration. The framework would then consider the findings of this study and give a clear and thorough picture of where policy integration stands.

The analytical framework would be a valuable tool for policymakers and practitioners to assess the effectiveness of existing policies and plans, identify areas where improvements are needed, and promote a more integrated and coordinated approach to policymaking.
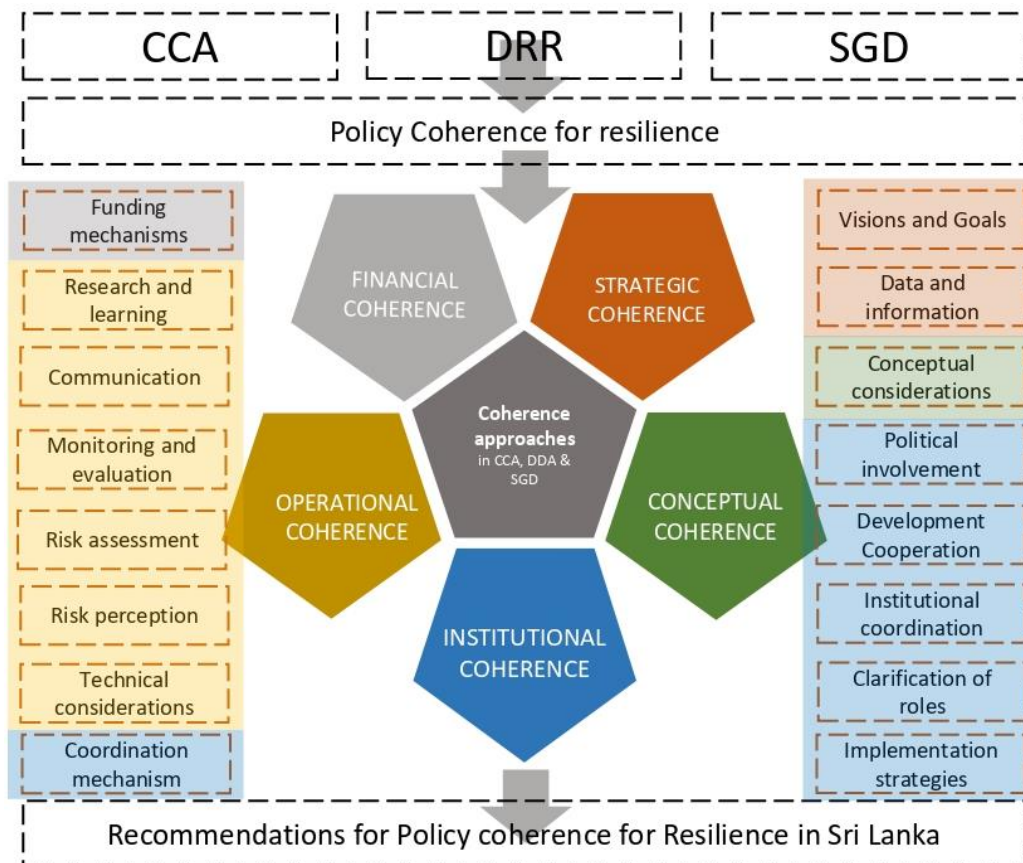
Figure 4.10: Analytical framework for Policy coherence in Sri Lanka

Source: Compiled by the author

Strategic

By adhering to international and regional guidance and processes, the policy ensures that it is consistent with established norms and standards and can benefit from best practices and lessons learned from other regions. Addressing DRR and CCA concurrently in the vision, objectives, and principles, the policy recognizes the interconnection and links between these two areas and ensures equal weight is given to both. Incorporating DRR and CCA simultaneously into other sectors, such as agriculture, health, and infrastructure, can guarantee that these sectors are resilient to the effects of catastrophes and climate change and that their activities support DRR and CCA initiatives as a whole. This can also build support and buy-in for DRR and CCA from other sectors and promote a more integrated and cross-sectoral approach to these issues.

Conceptual

Conceptual coherence relates to efforts to develop climate and catastrophe risk resilience. By emphasizing resilience, the policy acknowledges the need to plan for and manage the consequences of natural catastrophes and climate change and ensure that communities and systems are better equipped to endure these impacts.

It Identifies connections between disaster risks and climate change risks. Through building connections between catastrophes and climate-change threats, the strategy recognizes the interconnectedness of these two domains and the fact that climate change may increase the frequency and intensity of natural disasters.

Further, it examines synergies and distinctions between DRR and CCA. By examining DRR and CCA similarities and contrasts, the policy may identify areas of overlap and possible conflicts between these two domains and guarantee that DRR and CCA are successfully integrated and complementary. This also helps avoid duplication of work and maximize resource use.

Institutional

Institutional coherence discusses strategies for collaboration between CCA and DRR stakeholders and activities. By describing coordination mechanisms, the policy can

ensure that different stakeholders and activities involved in DRR and CCA are working together effectively and that resources and information are being shared efficiently.

It identifies the primary agency responsible for DRR and CCA. With selecting the lead agency, the policy specifies who is accountable for implementing and coordinating DRR and CCA initiatives and may assist in ensuring that leadership and responsibility for these efforts are apparent.

In addition, it relates to the decentralized coordination of DRR and CCA activities. By referring to coordination at the decentralized level, the policy recognizes the importance of involving local communities and authorities in DRR and CCA activities and can help to ensure that these efforts are tailored to local needs and circumstances.

A cross-sectoral approach aids in the identification of the roles and responsibilities of players participating in DRR and CCA. By identifying roles and responsibilities, the policy can ensure that different actors understand what they are expected to do and can help to avoid confusion and duplication of effort. A cross-sectoral plan can ensure that DRR and CCA are integrated and supported by different sectors, such as agriculture, health, and infrastructure.

Further, it identifies external actors who promote DRR and CCA coherence. By identifying external actors, the policy can ensure that there is support for DRR and CCA from outside the country or region and that these efforts only partially rely on internal resources and capacities. It can also help to build partnerships and increase resources for DRR and CCA activities.

Operational

Operational coherence contains aims and actions to enhance coherence between DRR and CCA. By having explicit goals and initiatives to enhance coherence between DRR and CCA, the policy acknowledges the significance of these two sectors working together successfully and helps ensure that DRR and CCA are complementary and integrated.

In addition, it identifies certain activities and industries for which DRR/CCA is applicable. By specifying particular activities and areas for which DRR and CCA are applicable, the policy ensures that DRR and CCA are implemented where they are most required and most likely to have an effect. It also assists with resource prioritization and ensures that DRR and CCA initiatives are targeted and appropriate.

Financial

Financial coherence contains a budget estimate to support collaborative DRR/CCA efforts. By incorporating an estimate of the funding necessary to support DRR and CCA activities, the policy may assist in guaranteeing that sufficient resources are available for the efficient implementation of these activities. It can also ensure that DRR and CCA efforts are adequately funded and can have the desired impact.

In addition, it mentions collaborative financing for DRR and CCA. By referring to joint funding, the policy acknowledges the interdependence of DRR and CCA and recognizes that these efforts are more effective when funded. Joint funding can also reduce duplication of effort and increase efficiency.

Further, it promotes risk insurance programs to prevent climate change and numerous hazard consequences. The strategy emphasizes providing financial protection against the consequences of natural catastrophes and climate change by supporting risk insurance schemes. Risk insurance programs may aid in mitigating the economic effect of these occurrences and bolster the ability of communities and companies to recover. It can also help to increase resilience and reduce the risk of future disasters. (Source: UNDRR, 2022)

4.4 Reviewed policy documents.

This study comprises of review and content analysis of seventeen policy and legal documents.

Table 4.1: Selected policy documents

No	Policy/Plans	Climate Change	Sustainable Development goals	Disaster Risk Reduction
01	The National Climate Change Policy of Sri Lanka (2012)	X	X	X
02	National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016 – 2025	X	X	X
03	National Biodiversity Strategic Action Plan (2016-2022)	X	X	
04	National Environmental Policy (2003)	X		
05	Climate Change Adaptation Strategy for Sri Lanka (2011-2016)	X	X	X
06	Sustainable Development Act (2017)		X	
07	National Policy and Strategy for Sustainable Development (Draft)	X	X	X
08	National Policy on Sustainable Consumption and Protection (2018)	X	X	X
09	National Action Programme for Combating Land Degradation of Sri Lanka (2014)	X	X	X
10	National Policy on Construction		X	X
11	Disaster Management Act (2005)			X
12	The Roadmap for Disaster Risk Management (2006- 2016)			X
13	Mahinda Chinthana (2006- 2016)		X	X
14	National Policy on Disaster Management (2013)	X		X
15	Sri Lanka National Disaster Management Plan (2013-2017)	X		X
16	National Physical Planning Policy & Plan (2011-2030)	X	X	X
17	National housing policy (2017)	X	X	X

Source: Compiled by the author

Table 4.1 provides an overview of the various policies and plans related to CCA, DRR, and SGDs in Sri Lanka. Sri Lanka has several policies and plans to address these issues, and there is a commitment to addressing climate change, sustainable development, and disaster risk reduction. Table 4.2 contains critical features of each policy/plan.

Table 4.2: Key features of selected policy documents

No.	Policy/Plans	Key Feature
01	The National Climate Change Policy of Sri Lanka (2012)	Adaptation and mitigation of climate change In 2012, Sri Lanka embraced the National Climate Change Policy with the purpose of steering the nation's endeavors with the aim to alleviate the effects of climate change. The fundamental goal of the strategy is to provide an extensive strategy to tackling the root causes of climate change and adapting to its consequences. It recognizes climate change's interdependence with development and aims to include climate challenges into the country's development plans and initiatives. This policy focuses on several key areas, including: • Mitigation: Intend to reduce the country's greenhouse gas emissions and promote low-carbon development. • Adaptation: The policy acknowledges the necessity for Sri Lanka to adapt to climate change issues and intends to strengthen the country's ability to withstand these impacts by implementing various measures like DRR and natural resource management. • Capacity building: The policy acknowledges the significance of empowering applicable

		stakeholders in different sectors to effectively tackle challenges posed by climate change.
02	National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016 – 2025	Adaptation and mitigation of climate change. Reduce the vulnerability to climate risks. This is an extensive policy blueprint that details the nation's approach to adjust to the consequences of climate change. Encompassing various divisions like agriculture, health, water resources, coastal zones, and DRR, the plan outlines a set of measures and projects aimed at enhancing Sri Lanka's resilience to CC effects. The following are some of the Plan's key objectives: - Enhancing the resilience of the most susceptible people and sectors to CC effects - Increasing the ability of essential stakeholders to handle CC concerns - Strengthening the institutions and mechanisms responsible for implementing and monitoring adaptation measures - Enhancing the integration of climate change considerations into development planning and decision-making - Improving the availability of information and data on the impacts of climate change and the effectiveness of adaptation measures. The NAP for Climate Change Impacts in Sri Lanka plays a vital role in the country's actions to tackle the complexities brought about by climate change and to

| 03 | National Biodiversity Strategic Action Plan (2016-2022) | Biodiversity conservation and ecosystem management in a sustainable manner.

 The Plan is a comprehensive policy document that outlines Sri Lanka's strategy for conserving and sustainably using its biodiversity. The Plan covers a range of sectors, including forestry, agriculture, tourism, and fisheries. It sets out a series of actions and initiatives to improve conservation and management of Sri Lanka's biodiversity. Some of the key objectives of the Plan include:
Improving the knowledge base on Sri Lanka's biodiversity and the threats it faces Strengthening the institutions and mechanisms responsible for biodiversity conservation and management Refining the engagement of pertinent stakeholders, including communities, in the preservation and management of biodiversity. Enhancing the incorporation of biodiversity considerations into development planning and decision-making processes. Advocating for the sustainable utilization of biodiversity and the ecosystem services it provides. |
| 04 | National Environmental Policy (2003) | Encourage responsible environmental management while striking a stability within economic and social development requirements. |

(The first row continues from the previous page: "construct a stronger and more resilient future for its entire population.")

		This is an all-encompassing policy document that delineates the Sri Lankan government's approach to safeguarding the nation's environment and fostering sustainable development. The policy covers a range of sectors, including forestry, agriculture, water resources, and tourism. It sets out a series of actions and initiatives to improve the management and conservation of the country's natural resources. Some of the key objectives of the policy include: • Improving the knowledge base on Sri Lanka's environment and the threats it faces • Strengthening the institutions and mechanisms responsible for environmental protection and management • Fostering the involvement of pertinent stakeholders, including communities, in environmental preservation and management actions. • Enhancing the incorporation of environmental considerations into development planning and decision-making processes. • Advocating for the sustainable utilization of natural resources and the mitigation of environmental degradation impacts. • The National Environmental Policy is of paramount importance to Sri Lanka's commitment to safeguarding its environment and fostering sustainable development. This policy serves as a structured plan of action, ensuring the responsible management and conservation of the country's natural resources

		for the well-being of both present and future generations.
05	Climate Change Adaptation Strategy for Sri Lanka (2011-2016)	The policy document presented here delineates the approach of the Sri Lankan government in adapting to the impacts of climate change. The strategy encompasses a range of sectors, including agriculture, water resources, coastal zone management, and health. It outlines a set of actions and initiatives aimed at strengthening the resilience of communities and ecosystems against the effects of climate change. The key objectives of this strategy include: • Increasing understanding of the impacts of climate change on Sri Lanka and the communities most at risk. • Strengthening the institutions and mechanisms responsible for implementing measures to adapt to climate change. • Encouraging the participation of relevant stakeholders, including communities, in efforts to adapt to climate change. • Enhancing the integration of considerations for climate change adaptation into development planning and decision-making processes. • Facilitating the development of suitable technologies and practices to adapt to the impacts of climate change.
06	Sustainable Development Act (2017)	This is a legislative enactment in Sri Lanka designed to advance sustainable development within the nation. This Act sets up a legal structure to implement sustainable development policies and strategies. It provides for coordinating activities related to

		sustainable development across different sectors and levels of government. The key provisions of the Act include:
		- It is establishing a National Council for Sustainable Development, which is responsible for coordinating and implementing sustainable development policies and strategies in Sri Lanka. - They require all government agencies and public institutions to integrate sustainable development considerations into their decision-making processes. - It encourages the participation of relevant stakeholders, including communities and the private sector, in sustainable development efforts. - It promotes the integration of sustainable development considerations into education and training programs. - It provides for establishing a National Sustainable Development Fund to support sustainable development projects and initiatives.
07	National Policy and Strategy for Sustainable Development (Draft)	It involves adapting and tailoring the Sustainable Development Goals (SDGs) to the local context and offering guidance for action across all levels of governance.
08	National Policy on Sustainable Consumption and Protection (2018)	Minimize the natural resources, toxic materials, and waste and pollutants generated.

		This is a policy document in Sri Lanka that provides direction for promoting sustainable consumption and production practices within the country. The policy seeks to mitigate the adverse environmental and social effects of consumption and production while encouraging the transition towards a green economy. Some of the primary goals of the policy include:
		• It encourages the adoption of sustainable consumption and production patterns in households, communities, and businesses.
		• It promotes the use of environmentally friendly products and technologies.
		• It supports the development of sustainable production and supply chains.
		• It reduces waste and promotes the efficient use of natural resources.
		• It encourages the transition to a green economy by promoting investment in clean technologies and low-carbon production processes.
		• It improves the information and education available on sustainable consumption and production to promote public awareness and engagement.
09	National Action Programme for Combating Land Degradation of Sri Lanka (2014)	This policy document aimed at tackling the country's land degradation problem. Sri Lanka faces a significant obstacle in the form of land degradation, which has adverse effects on both the nation's natural resources and the people's quality of life. To tackle this issue, the NAP-CLD was developed in adherence to the United Nations Convention to Combat Desertification (UNCCD), providing a systematic

framework for addressing land degradation in Sri Lanka. The primary objectives of the NAP-CLD are as follows:

- Promoting sustainable land management practices to prevent and reverse land degradation.
- Supporting the restoration and rehabilitation of degraded lands.
- Strengthening the ability of communities and ecosystems to withstand the effects of land degradation.
- Promoting the participation of communities, the private sector, and other stakeholders in combating land degradation.
- Providing technical and financial support for the implementation of land degradation activities.
- Improving the monitoring and evaluation of land degradation activities.

10	National Policy on Construction	Encourage sustainable development, reforms, and advancements. Advocate for the adoption of energy-efficient and environmentally friendly technology, building materials, and systems.
11	Disaster Management Act (2005)	This provides a comprehensive framework for disaster management in the country. It was established in 2005 with the aim of bolstering Sri Lanka's capacity to respond efficiently and manage disasters. The Act defines disasters as any event or phenomenon that threatens human life, property, and the environment and establishes a disaster management system designed to be proactive, preventive, and responsive to

		disasters. The key provisions of the DMA include the following:
		- Creation of a National Disaster Management Centre (NDMC) to oversee and coordinate disaster management endeavors in Sri Lanka. - Establishment of District Disaster Management Committees to ensure community involvement in disaster management initiatives. - Formulation of a National Disaster Management Plan that outlines the procedures to be followed during disaster events. - Provision of financial and technical assistance to support disaster management activities. - Establishment of procedures for disaster warning, evacuation, and response. - Promotion of public awareness and education on disaster management.
12	The Roadmap for Disaster Risk Management (2006-2016)	This policy document aims to establish a structured approach for managing disaster risks within the country. This strategic plan was formulated in light of the escalating occurrence and intensity of disasters in Sri Lanka and aimed to provide a comprehensive strategy for mitigating disaster-related risks. The primary objectives of the Roadmap are as follows: - Strengthening disaster risk management institutions and systems in Sri Lanka. • Enhancing the ability of communities and the environment to withstand disasters.

		• Advocating for disaster risk reduction (DRR) as an essential aspect of sustainable development. • Strengthening the capabilities of communities, the private sector, and other stakeholders in disaster risk reduction. • Improving Sri Lanka's preparedness for disaster response and recovery. • Intergrating DRR into all sectors of society, including education, health, and infrastructure development.
13	Mahinda Chinthana (2006- 2016)	This is developed by the Government of Sri Lanka under the leadership of President Mahinda Rajapaksa. The document outlines the government's long-term perspective for the nation's progress and provides guidance for policy formulationover ten years (2006-2016). Mahinda Chinthana covers many issues, including economic development, social development, education, health, disaster management, and environmental protection. The document emphasizes the importance of promoting sustainable development and reducing the risks associated with disasters, focusing on strengthening the resilience of communities and the environment.
14	National Policy on Disaster Management (2013)	This devised by the Government of Sri Lanka, offering a structured framework for disaster management across the country. The policy outlines the government's strategy encompassing DRR,

preparedness, response, and recovery. The Policy pursues various primary goals, including:

- Enhancing the resilience of communities and the environment to withstand disasters.
- Strengthening the resilience of communities and the environment to disasters.
- Improving the capacity of disaster management institutions and systems in Sri Lanka.
- Enhancing the preparedness of Sri Lanka for disaster response and recovery.
- Integrating DRR into all sectors of society, including education, health, and infrastructure development.
- Promoting the involvement of communities, the private sector, and other stakeholders in disaster management activities.
- Enhancing the capabilities of communities, the private sector, and other stakeholders to mitigate disaster risks.

| 15 | Sri Lanka National Disaster Management Plan (2013-2017) | This is a comprehensive guide created by the Sri Lankan government, providing a systematic outline for managing disasters in the country. This plan presents the government's strategy for disaster management, incorporating the various stages of DRR, preparedness, response, and recovery. The key objectives of the Plan include:

- Reducing the adverse effects of disasters on communities, infrastructure, necessary facilities, housing, agricultural resources, and economic and developmental endeavours. |

		• Encouraging the active participation of communities, the private sector, and other relevant parties in disaster management initiatives. • Enhancing the capabilities of communities, the private sector, and other stakeholders to mitigate disaster risks.
16	National Physical Planning Policy & Plan (2011-2030)	This covers a wide range of topics related to physical planning, including land use planning, urban development, regional and infrastructure development, and conservation of natural and cultural resources. The Policy & Plan guides the development of physical plans at the national, regional, and local levels and outlines the roles and responsibilities of different actors involved in physical planning. It also establishes criteria for the allocation of land for different uses, such as housing, agriculture, and industry. It provides guidelines for the development of physical plans that consider the effects of climate change and vulnerabilities to disasters. Further, it offers guidance on environmental protection, reducing susceptibility to natural disasters, developing human settlements, enhancing infrastructure facilities, promoting water resource development, and fostering economic development.
17	National housing policy (2017)	This policy outlines the vision, goals, and principles for the housing sector, including promoting sustainable housing development, providing

		affordable housing options, and improving the quality of housing and living conditions for citizens.
		The policy covers a wide range of topics related to housing, including the development of new housing projects, enhancing the quality of existing housing units and facilitating funding and other assistance for housing development. Furthermore, the policy addresses the influence of climate change on housing and underscores the significance of fortifying housing structures to withstand natural disasters.
		'Shelter for All by the Year 2025". Qualitative and quantitative improvement of housing Development.

Source: Compiled by the author

Sri Lanka's sustainable development policies seek to strike an equilibrium between economic expansion, socioeconomic evolution, and nature conservation. The National Sustainable Development Strategy (NSDS) of the country offers a long-term vision for sustainable development. It establishes objectives for many sectors, including agriculture, energy, and tourism (Ministry of Mahaweli Development and Environment, 2017).

DRR strategies in Sri Lanka seek to mitigate the effects of natural catastrophes to which the nation is particularly exposed. The Disaster Management Act of 2005 established a legal framework for disaster risk reduction and management in Sri Lanka (Government of Sri Lanka, 2005). The country's National Disaster Management Plan outlines strategies to address disaster risks and reduce vulnerabilities (Disaster Management Centre, 2018).

Regarding climate change adaptation policies, Sri Lanka's National Adaptation Plan (NAP) aims to increase the country's resilience to the impacts of climate change. The National Action Plan (NAP) aims to strengthen the country's resilience to the effects of climate change. The NAP outlines steps that will be taken to mitigate climate change

risks in areas such as agriculture, water, and health (Ministry of Mahaweli Development and Environment, 2018).

4.4.1 Strategic and Conceptual coherence

Several resilience properties or factors (Figure 4.11 and Table 4.3) are identified in strategic and conceptual coherence policies. These factors' contribution comprehended the policy documents' strategic and conceptual coherence.

Nodes		
Name	Sources	References
Land management	11	13
Low emission strategies	13	14
Adaptive strategies	11	12
Land use planning	14	15
Urban development	10	13
Development and maintenance of infrastructu	16	14
Climate resilience	19	16
Scientific research	11	15
Hazard preparedness plans	12	19
Safeguard Environment	10	15
Environmentally sound technologies	12	13
Safeguard the cultural and natural heritage	13	13
Air quality	11	16
Waste management	17	14
Green Public spaces	16	13
Resilience to disasters	16	14
Sustainable consumption and production	18	15
Public awareness	12	17
Economic viability and Financing	18	12
Renewable energy	11	15
Preparedness for disasters	18	13
Disaster Risk Reduction	13	15
Disaster Mitigation	10	18
Settlements/ underserved	17	14
Reducing Vulnerabilities	16	13
Monitoring and evaluation	17	15
Recovery and Rehabilitation	16	14
Quality of life	13	17

Figure 4.11: NVivo Node Structure; Characteristics contribution

Source: Compiled by the author

Table 4.3: Contribution of resilience characteristics to Legislation/Policy _ Strategic and Conceptual

No	Characteristic	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
28	Quality of life				X	X											X	X
27	Recovery and Rehabilitation											X		X		X		
26	Monitoring and evaluation	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X
25	Reducing Vulnerabilities											X		X	X	X	X	
24	Settlements/ underserved settlements/ resettlements	X	X	X		X			X		X	X	X	X	X	X		X
23	Disaster Mitigation		X									X	X	X	X	X	X	X
22	Disaster Risk Reduction		X						X			X	X	X	X	X	X	
21	Preparedness for disasters		X									X	X	X	X	X		
20	Renewable energy	X						X			X			X			X	X
19	Economic viability and Financing	X	X	X	X	X		X	X	X			X	X		X		
18	Public awareness	X	X	X	X	X		X	X	X		X	X		X	X		X
17	Sustainable consumption and production	X	X		X	X	X	X	X	X	X					X	X	X
16	Resilience to disasters		X	X	X			X	X					X	X			X
15	Green Public spaces		X											X				X
14	Waste management	X	X					X									X	X
13	Air quality		X					X						X				
12	Safeguard the cultural and natural heritage		X					X						X			X	X
11	Environmentally sound technologies	X			X									X		X		
10	Safeguard Environment		X		X									X				
09	Hazard preparedness plans		X															
08	Scientific research	X	X	X	X	X	X	X			X		X	X			X	X
07	Climate resilience		X	X		X		X	X	X						X	X	
06	Development and maintenance of infrastructure	X	X	X	X								X	X			X	X
05	Urban development.	X	X		X			X						X			X	X
04	Land use planning	X							X				X	X	X	X	X	X
03	Adaptive strategies	X	X			X		X						X				X
02	Low emission strategies	X				X		X	X		X							
01	Land management	X	X					X		X				X				
	Policy No.	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17

Source: Compiled by the author

Various factors (Table 4.3), including land management and land use planning, techniques for reducing emissions, adaptive strategies, urban planning, infrastructure, climate resilience, scientific research, hazard preparedness plans, safeguarding the environment, environmentally sound technologies, safeguarding the cultural and natural heritage, air quality, waste management, green public spaces, resilience to disasters, sustainable consumption and production, public awareness, economic viability and financing, renewable energy, settlements, reducing vulnerabilities, monitoring and evaluation, recovery and rehabilitation, and quality of life, , all contribute significantly to the strategic and conceptual consistency of SD policies, CCA policies, and DRR policies in Sri Lanka.

Land management and land use planning help guarantee the sustainable and responsible use of land and natural resources, whilst low-emission solutions and renewable energy can help reduce greenhouse gas emissions and alleviate the effects of climate change. Adaptation techniques and hazard preparation may assist communities in better preparing for and responding to natural disasters. Infrastructure development can promote economic growth while also being designed and built to resist natural catastrophes.

Safeguarding the environment and cultural and natural heritage can help preserve Sri Lanka's unique ecosystems and cultural heritage while also supporting sustainable tourism development. Waste management and air quality policies can help address environmental pollution and promote public health. Green public spaces can contribute to both physical and mental health benefits for citizens.

Moreover, public awareness and education campaigns can encourage citizens to adopt more sustainable behaviors and practices, and economic viability and financing mechanisms can support the implementation of sustainable development policies. Monitoring and evaluation mechanisms can ensure that policies are implemented effectively and assess their impact over time. Finally, recovery and rehabilitation policies can support communities after natural disasters and help build back better with more sustainable and resilient infrastructure and systems.

A comprehensive and integrated approach to SGDs policies, CAA policies, and DRR policies in Sri Lanka that takes into account all of these elements can assist maintain the country's and its residents' long-term viability and resilience.

Figure 4.12: NVivo Node Structure; Content analysis

Source: Compiled by the author

4.4.2 Institutional, Operational, and Financial coherence

In Nvivo, a hierarchy chart (chart 4.14) is a visual representation that displays the relationships between nodes (Figure 4.12), or categories of data, in a hierarchical structure. The chart typically starts with a top-level node and branches out to lower levels, displaying the nested relationships between the nodes. Nvivo provides tools to create hierarchy charts, such as the "Coding Tree" view or the "Hierarchy" view, and to manipulate and organize the nodes visually and intuitively. These charts can help users understand and explore the relationships between the data and categories and support qualitative data analysis and knowledge discovery.

Policy Coherence in five dimensions; Seventeen policy documents

Legend: ■ Strategic ■ Institutional ■ Financial ■ Conceptual ■ Operational
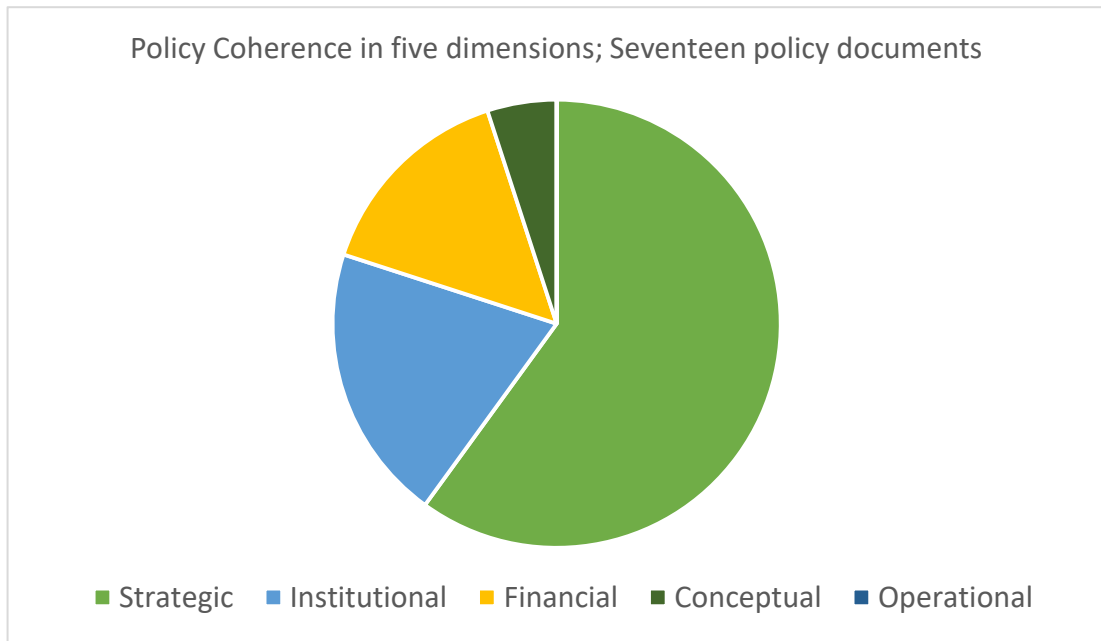
Figure 4.13: Policy Coherence in five dimensions (matrix); Seventeen policy documents

Source: Compiled by the author

As per chart 4.13 strategic dimension of policy coherence has become the most prioritized area among the five dimensions. Adhering to international and national guidance has been considered the most referred area, followed by the opinion of addressing CCA and DRR jointly. The institutional dimension is the second highest referred dimension which has four categories. Coordinating of the DRR and CCA procedures in decentralized level, as well as establishing the lead agency for DRR and CCA, have received relative references. A medium-level assessment identifies external actors who assist in coherence between DRR and CCA. Also, defining coordination mechanisms to facilitate coordination between CCA and DRR stakeholders and activities/defining roles and responsibilities of DRR and CCA roles through a cross-sectoral strategy plan had the slightest mention in the Hierarchy chart.
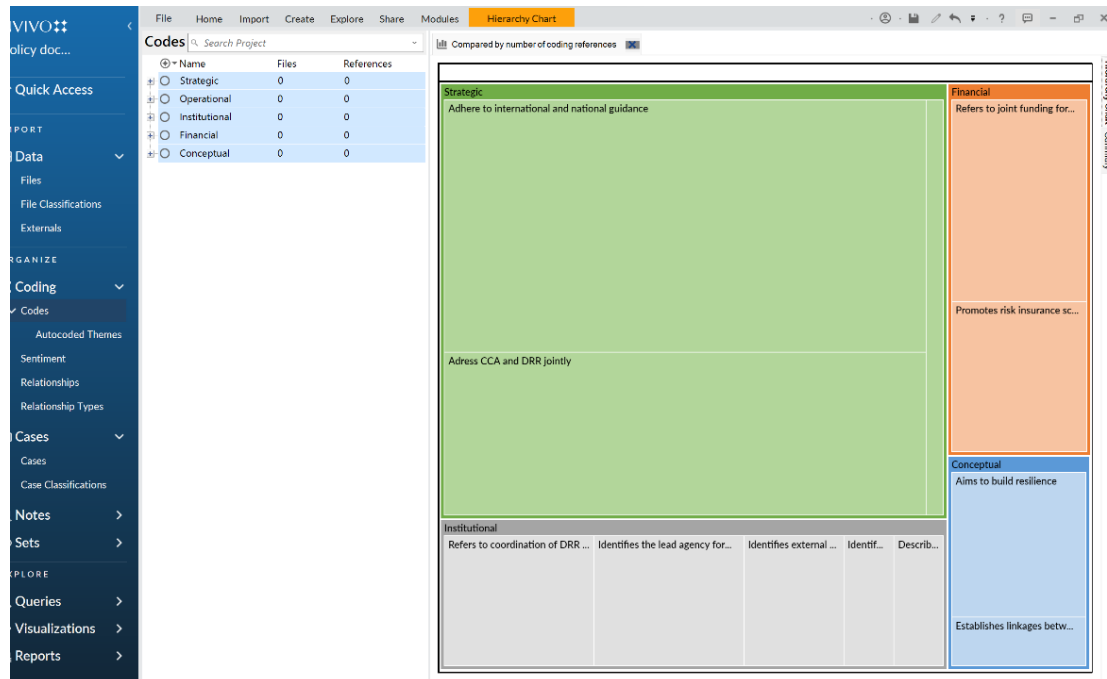
Figure 4.14: Hierarchy chart in NVivo

Source: Compiled by the author

The financial factor has risen to the third position in the chart, with combined financing for DRR and CCA receiving a higher reference than Encouraging risk insurance schemes to mitigate the effects of climate change and numerous risks. Nevertheless, the conceptual dimension of policy coherence has received less attention than the other elements. Seeking to enhance resilience to climate and disaster risks received a higher score than establishing links between disasters and climate-change threats.

Table 4.4: Policy Coherence in CCA, DRR, and SGD in Sri Lanka in seventeen policy documents. Light to dark: Intensity of Integration

Limited Integration	Partial Integration	Substantial Integration
National Biodiversity Strategic Action Plan (2016-2022)	National Environmental Policy (2003)	The National Climate Change Policy of Sri Lanka (2012)
Sustainable Development Act (2017)	National Action Programme for Combating Land Degradation of Sri Lanka (2014)	National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016 – 2025

Mahinda Chinthana (2006-2016)	National Policy on Construction	Climate Change Adaptation Strategy for Sri Lanka (2011-2016)
National Physical Planning Policy & Plan (2011-2030)	Disaster Management Act (2005)	National Policy and Strategy for Sustainable Development (Draft)
	The Roadmap for Disaster Risk Management (2006-2016)	National Policy on Sustainable Consumption and Protection (2018)
		National Policy on Disaster Management (2013)
		Sri Lanka National Disaster Management Plan (2013-2017)
		National housing policy (2017)

Source: Compiled by the author

Figure 4.15 identifies that four policy documents show limited integration, and five documents show partial integration. Only eight policy documents show substantial integration.
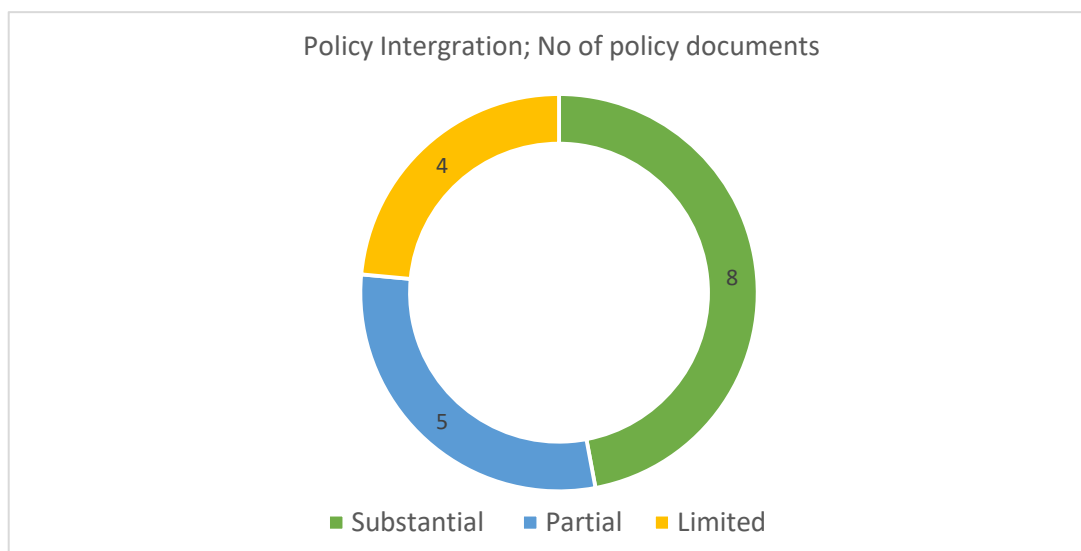
Figure 4.15: Policy Coherence in CCA, DRR, and SGD in Sri Lanka in seventeen policy documents.

Source: Compiled by the author

Below, eight policy documents will be discussed further, comparing the contribution to SDGs, CCA, and DRR since only these eight documents (Figure 4.15) have shown substantial contribution towards policy coherence compared to other nine documents. Further analyzing these eight policy documents (Table 4.5), found that there is no operational coherence of CCA, DRR, and SDG in most of the policy documents. Although there is Strategic and institutional coherence (which is very lightly focused), most of them need to be operational. Financial coherence and conceptual coherence are slightly mentioned, and no pathway or direction is given. There needs to be more policy Coherence of CCA, DRR, and SDGs in Sri Lanka.

Table 4.5: Eight policy documents; substantial contribution towards policy coherence of CCA, DRR, and SGD in Sri Lanka. Light to dark: Intensity of coherence

No.		Strategic	Conceptual	Operational	Institutional	Financial
01	The National Climate Change Policy of Sri Lanka (2012)	■	░		▓	▒
02	National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016 – 2025	■	░		▓	▒
05	Climate Change Adaptation Strategy for Sri Lanka (2011-2016)	■	░		▓	▒
07	National Policy and Strategy for Sustainable Development (Draft)	■	░		▓	▒
08	National Policy on Sustainable Consumption and Protection (2018)	■	░		▓	▒
14	National Policy on Disaster Management (2013)	■	░		▓	▒
15	Sri Lanka National Disaster Management Plan (2013-2017)	■	░		▓	▒
17	National housing policy (2017)	■	░		▓	▒

Source: Compiled by the author

4.5   Part 2; Main study

The qualitative technique comprises semi-structured interviews with ten government representatives and stakeholders in SGDs, DRR, and CAA in Sri Lanka to collect deep and broad expertise knowledge.

4.5.1   Interview findings of Policy Coherence approaches in SGDs, DRR, and CCA in Sri Lanka

The results of the NVivo analysis (figure 4.16) of the semi-structured interviews have identified seven pathways that can help improve sustainable development goals (SGDs), disaster risk reduction (DRR), and climate change adaptation (CCA) efforts.

Figure 4.16: NVivo Node Structure; Interviews

Source: Compiled by the author

1. Enhancing strategic coherence by improving goals to increase the coherence within CCA, DRR, and SDGs: The first pathway is to enhance the strategic coherence of DRR and CCA initiatives. It can be achieved by developing more comprehensive and integrated goals that align with Sustainable Development Goals (SDGs) and other international frameworks.

2. Intensification of Institutional cooperation: The second pathway involves intensifying institutional cooperation and stakeholder management. This can be achieved by building stronger partnerships and collaborations between institutions and stakeholders, including government agencies, NGOs, and local communities.

3. Improve the common monitoring and evaluation: The third pathway identified by the analysis is to improve the common monitoring and evaluation of DRR and CCA efforts. It involves establishing a common framework for monitoring and evaluating the effectiveness of DRR and CCA initiatives. It will help

identify gaps in implementing these initiatives and provide insights into how to improve them.

4. Increase community involvement: The fourth pathway is to increase the involvement of communities in DRR and CCA initiatives. It can be achieved by engaging with local communities and building their capacity to participate in these initiatives. It will assist in guaranteeing that the projects are more relevant to the needs and priorities of local communities, increasing their chances of success.

5. Increase the validity of coordinated framework for improving DRR and CCA risk assessments: The fifth pathway involves increasing the validity of coordinated frameworks to enhance the DRR and CCA risk assessments. It may be accomplished by generating complete and consistent risk assessments that account for various places' particular vulnerabilities and hazards.

6. Improve implementation strategies: The sixth pathway involves improving implementation strategies for DRR and CCA initiatives. It can be achieved by developing more effective and efficient implementation plans considering different regions' unique needs and challenges.

7. Stakeholder management: The seventh pathway involves managing stakeholders to ensure they are effectively engaged in DRR and CCA initiatives. This can be achieved by identifying key stakeholders, building their capacity to participate in these initiatives, and addressing any concerns or challenges they may have.

4.6   Summary

According to the content analysis of seventeen policy documents, it was discovered that most of the existing policies are inspired by international frameworks, and there needs to be adequate coherence of CCA, DRR, and SDG in the policy documents. The analytical framework is based on a preliminary assessment of policy documents and a literature review. The framework reflects the current situation of policy integration which addresses strategic, conceptual, institutional, operational, and financial. As per the analysis of semi-structured interviews of government representatives and practitioners, several pathways were identified for achieving policy coherence in CCA,

DRR, and SDG in Sri Lanka, such as; enhancing the strategic coherence by improving goals to increase the coherence within CCA, DRR, and SDG, increase the validity of coordinated framework for the improvement of DRR and CCA risk assessments, intensification of Institutional cooperation and stakeholder management, Improve the common monitoring and evaluation, establish implementation strategies, and increase the community involvement.

5   DISCUSSION

5.1   General

The analytical discussions generated by the content analyses of the evaluated policies and survey results are presented in Chapter 5. Policy Coherence of CCA, DRR, and SGDs in Sri Lanka is examined. Pathways of Policy Coherence are also being addressed analytically.

The coherent policy approaches of CCA, SDGs, and DRR are identified in the literature review. Issues in Policy Coherence of CCA, DRR, and SGD in Sri Lanka are identified with the content analysis of seventeen policy documents. The content analysis found no operational coherence of CCA, DRR, and SDG in most policy documents. Although there is Strategic and institutional coherence (which is very lightly focused), most of them need to be operational. Financial and conceptual coherence is slightly mentioned, and no pathway or direction is given. There needs to be more policy Coherence of CCA, DRR, and SDGs in Sri Lanka. Eight policy documents will be discussed further, comparing the contribution to SDGs, CCA, and DRR. In order to identify the pathways, eight documents are discussed with the results of semi-structured interviews of government representatives and practitioners.

5.2   Issues in Policy Coherence of CCA, DRR, and SGD in Sri Lanka

National Climate Change Policy of Sri Lanka (2012) and The Climate Change Adaptation Strategy for Sri Lanka (2011-2016) are both excellent examples of the strategic coherence that exist between CCA and DRR initiatives. Both policies attempt to lessen the nation's susceptibility to the effects of climate change by enhancing its resilience and adaptability. The policies clearly guide Sri Lanka's response to climate change by specifying sector-specific objectives and initiatives. There needs to be more consistency in the timeframes and objectives of the policies related to SDGs, CCA, and DRR. It can create confusion and hinder the effective implementation of the policies.

The NAP for Climate Change Impacts in Sri Lanka 2016 – 2025 and the National Policy and Strategy for Sustainable Development (Draft) highlight the conceptual coherence of CCA and DRR strategies. Necessity of coherence approach in national

development planning are emphasized in these policies. However, how these policies are incorporated into overarching national development planning lacks cohesion. It can result in contradictory agendas and impede the fulfillment of the SDGs, CCA, and DRR goals.

The institutional consistency of CCA and DRR initiatives is illustrated by the Sri Lanka NDMP (2013-2017). These policies are intended to strengthen disaster management institutions, improve coordination, and increase the ability of different stakeholders to handle disasters. The National housing policy (2017) also emphasizes the importance of considering disaster risk reduction in housing policies.

The NPSCP (2018) demonstrates operational coherence in CCA and DRR strategies. The necessity of reduction of greenhouse gas emission and improve climate change resistance are highlighted where it promotes sustainable consumption. The policy also emphasizes the need to protect ecosystems and biodiversity, which can provide natural protection against climate change impacts. However, policies lack detail on how they will be implemented or the specific actions taken. It can make assessing the efficacy of programs and tracking progress in their implementation challenging.

All eight policies/plans emphasize the need for financial consistency in CCA and DRR measures. The NAP for Climate Change Impacts in Sri Lanka: 2016–2025, for instance, illustrates the requirement for financial resources to implement adaptation actions, while the National Policy and Strategy for Sustainable Development (Draft) emphasizes the need for innovative financing mechanisms to support sustainable development. The Sri Lanka NDMP (2013-2017) and the NPDM (2013) emphasize financial resources to improve disaster preparation, response, and recovery. However, there remains ambiguity regarding the mobilization and deployment of these resources.

Some of the main issues include derived from the above analysis are:

1. Fragmented approach: Each framework may be implemented in isolation, leading to duplication of efforts, conflicting priorities, and limited impact.
2. Lack of integration: The interlinkages between CCA, DRR, and SDGs may not be fully recognized, resulting in a fragmented approach to development that

does not fully address the complex and interrelated challenges of sustainable development.

3. Inadequate coordination: There may be limited coordination between different levels of government, sectors, and stakeholders, leading to a lack of coherence and consistency in policy implementation.

4. Limited resources: The implementation of these frameworks may be hindered by limited resources, including financial, technical, and human resources, leading to a lack of effective implementation of policies.

5. Lack of monitoring and evaluation: There may be limited monitoring and evaluation of the implementation of these frameworks, making it difficult to assess their effectiveness and track progress toward sustainable development.

6. International frameworks inspire most policies, and local implementations are not focused on.

7. Lack of development cooperation for implementing new ideas, such as ecologically friendly and indigenous solutions for CCA and DRR or climate resilient infrastructure.

8. Inadequacy of the physical infrastructure to address DRR and CCA issues and insubstantial land use management to enhance coordination of DRR and CCA.

9. Limited community participation: While various policies emphasize community engagement in SDGs, CCA, and DRR activities, more concrete measures and objectives are needed to attain this involvement. It is significant considering communities' critical role in disaster risk reduction and adaptation.

The policies demonstrate why CCA and DRR need to be part of national development planning; nevertheless, more concrete actions and objectives are required to accomplish this integration. It is especially important given the complex interlinkages between CC, SD, and DRR.

5.3   Pathways of Policy Coherence in SGDs, DRR, and CCA

Based on the challenges highlighted and the insights gathered through semi-structured interviews with government leaders and stakeholders, there are many avenues for strengthening policy coherence in Sri Lanka within the SDGs, DRR, and CCA frameworks.

Enhancing the strategic coherence by improving goals to increase the coherence within CCA, DRR, and SDGs

There are challenges since an extensive and integrated tactical strategy is required to harmonize policy goals for CCA, DRR, and SGDs. Although various policies recognize the importance of coherence and integration among CCA, DRR, and SDGs, the strategic goals required to achieve such coherence must be more comprehensive and detailed.

The NPDM (2013) strives to decrease disaster risks and vulnerabilities, but it lacks specific strategic goals to link DRR with CCA. Similarly, the NPSSD (Draft) aims to achieve sustainable development but lacks a defined framework for integrating CCA and DRR.

Furthermore, the Climate Change Adaptation Strategy for Sri Lanka (2011-2016) does not explicitly mention how to align CCA, DRR, and SDGs, and the National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016-2025 lacks a clear roadmap to achieve coherence and integration of the policies. These policy gaps suggest a lack of strategic coherence in aligning CCA, DRR, and SDGs in Sri Lanka.

Setting clear and explicit goals for CCA, DRR, and SDGs that are connected with the nation's overarching sustainable development program is critical. It can be achieved by promoting better communication and collaboration between relevant institutions.

Intensification of Institutional cooperation

Institutional cooperation is crucial in achieving policy coherence in CCA, DRR, and SDGs. However, a lack of institutional cooperation in Sri Lanka in these policy areas leads to incoherence in policy implementation.

NPDM of 2013 and NDMP of 2013-2017 focus mainly on disaster response and emergency management. There is little emphasis on incorporating CCA and SDGs in these policies. Similarly, the National Housing Policy of 2017 focuses mainly on providing affordable housing but does not sufficiently consider CCA, DRR, and SDGs in the housing sector.

The lack of institutional cooperation is also evident in the absence of a coordinating body to ensure collaboration between different institutions and stakeholders in achieving policy coherence in CCA, DRR, and SDGs. NAP for Climate Change impacts of 2016-2025 emphasizes necessity of institutional collaboration to take actions for CCA measures. Yet, the policy does not clearly outline concrete measures to improve institutional cooperation and coordination.

Institutional structures for CCA, DRR, and SDGs should be strengthened, focusing on ensuring the smooth functioning of these structures at the local and national levels. It includes creating platforms for inter-agency coordination and communication, developing guidelines for collaborative decision-making, and setting up mechanisms for sharing information and knowledge.

Improve the standard monitoring and evaluation.

In joint monitoring and evaluation, policy coherence ensures that different policies work together efficiently and effectively to achieve a common goal.

The National Climate Change Policy of Sri Lanka (2012)

Significance of monitoring and evaluation are identified in this policy. The policy emphasizes the need for a comprehensive monitoring and evaluation system that should be integrated with other relevant policies and strategies, including DRR and SD. The policy calls for regular monitoring and evaluation of efficiency of policy in terms of its objectives, goals, and targets. It also highlights the need for a reporting mechanism to be put in place to share information on the progress made in implementing the policy.

National Adaptation Plan for Climate Change Impacts in Sri Lanka: 2016 – 2025

The NAP for Climate Change Impacts in Sri Lanka provides a roadmap for addressing CCA in many sectors in Sri Lanka. The NAP. Further it emphasizes including DRR and CCA in development planning and decision-making. It aligns with NDMP (2013-2017), highlighting the necessity of including DRR and CCA in planning. The NAP emphasizes strengthening water resource management and fostering climate-resilient agriculture to improve adaptive capability. It is consistent with the National Water

Policy (2008), which highlights the importance of comprehensive management of water resources, and the National Agricultural Policy (2013), which encourages sustainable agricultural methods.

Climate Change Adaptation Strategy for Sri Lanka (2011-2016)

This strategy offers an extensive structure for dealing with the consequences of CC in diverse sectors. One way to evaluate policy coherence in this document would be to examine how it aligns with other policies that address related issues, such as DRR, water resource management, and coastal zone management.

The strategy emphasizes integrating DRR and CCA into development planning and decision-making. It aligns with the Sri Lanka National Disaster Management Plan (2013-2017), highlighting the necessity of including DRR and CCA in planning. Improve adaptive capability emphasizes enhancing water resource management and coastal zone management. It aligns with the National Water Policy (2008), which highlights the importance of integrated water resource management, and the National Coastal Zone Management Policy and Plan (2018), which encourages sustainable and integrated coastal management.

National Policy and Strategy for Sustainable Development (Draft)

NPSSD provides a framework for promoting sustainable development in Sri Lanka. One way to evaluate policy coherence in this document would be to examine how it aligns with other policies that address related issues, such as environmental protection, poverty reduction, and social equity. The NPSSD recognizes the need to promote environmental protection and conservation as crucial components of sustainable development. It is compatible with the National Environmental Policy (2003), which emphasizes the need for environmentally friendly resource use and management. NPSSD highlights the importance of reducing poverty and promoting social equity to achieve sustainable development. It is consistent with the National Poverty Reduction Strategy (2003), which aims to reduce poverty and promote social inclusion.

National Policy on Sustainable Consumption and Protection (2018)

NPSCP aims to endorse sustainable consumption and production patterns in Sri Lanka. One way to evaluate policy coherence in this document is to examine how it aligns with other policies that address related issues such as waste management, energy efficiency, and biodiversity conservation. The NPSCP emphasizes the importance of reducing waste through the implementation of the "3Rs" (reduce, reuse, recycle) and the development of a circular economy. It is consistent with the National Waste Management Policy (2017), which prioritizes waste reduction and encourages using innovative technologies for waste management.

Furthermore, NPSCP emphasizes increasing energy efficiency and renewable energy to combat CC. It aligns with the National Energy Policy and Strategy (2017), which establishes objectives for increasing the proportion of renewable energy in the country's energy grid and improving energy efficiency.

National Policy on Disaster Management (2013)

NPDM provides a framework for DRR with preparedness and resilience in Sri Lanka. One way to evaluate policy coherence in this document is to examine how it aligns with other policies that address related issues.

The NPDM emphasizes integrating climate change concerns into hazard mitigation management and promoting ecosystem-based methods for vulnerability reduction. It is congruent with the National Climate Change Adaptation Strategy (2011), highlighting importance of integrated DRR and CCA techniques. The NPDM emphasizes incorporating disaster risk reduction into land use planning and infrastructure construction to decrease exposure to risks. It is in keeping with the National Physical Planning Policy and Plan (2011), which establishes long-term land use planning and infrastructure development guidelines.

Sri Lanka National Disaster Management Plan (2013-2017)

NDMP offers a systematic disaster risk mitigation and response framework. One way to evaluate policy coherence in this document is to examine how it aligns with other policies that address related issues such as health, education, and social protection.

The NDMP emphasizes the importance of tackling disaster-related psychological repercussions on impacted populations, susceptible categories such as children, women, and the elderly. It aligns with the National Policy on Mental Health (2005), highlighting the need for comprehensive mental health care for disaster-affected communities. The NDMP emphasizes the necessity of incorporating disaster risk reduction into education and training programs to develop individuals' and communities' ability to prepare for and respond to disasters. It aligns with the National Education Policy (2016), highlighting the importance of catastrophe risk reduction and resilience in the educational system.

National Housing Policy (2017)

NHP aims to provide affordable, decent, and sustainable housing to all Sri Lankans. Examining how this policy corresponds with other policies that address relevant concerns, such as urban planning, land use, and infrastructure development, is one method to assess policy coherence.

The NHP emphasizes necessity of improving access to land and housing for lower-income and disadvantaged groups, including women-headed households and individuals with disabilities. It is consistent with the National Land Policy (2013), which emphasizes ensuring equitable access to land and preventing landlessness. The NHP highlights the importance of incorporating environmental and social sustainability considerations into housing design and construction. It is consistent with the National Policy on Urban Development (2007), which emphasizes the need for sustainable and inclusive urban development that promotes social equity and environmental protection.

Improving the standard monitoring and evaluation in policy coherence in SDGs, CAA, and DRR in Sri Lanka requires a comprehensive and integrated approach that involves developing a coordinated monitoring and evaluation system: This includes developing a uniform system for monitoring and evaluation policy execution relating to CCA, SDGs, and DRR, as well as building procedures for data and information exchange among various government departments, civil society groups, and the commercial sector/private sector.

Increase community involvement

NAP for Climate Change Impacts: 2016-2025 and the CCA Strategy:2011-2016 intend to foster community-based adaptation and local community engagement to manage climate change risks via a variety of initiatives such as raising public awareness and education and assisting in the creation of community-based adaptation plans (Ministry of Environment, 2011).

NPSSD (Draft) recognizes the need to engage communities in the formulation and implementation of sustainable development policies and programs and emphasizes the importance of participatory decision-making processes and the integration of community perspectives in policy development (Ministry of Sustainable Development and Wildlife, n.d.).

NPSCP emphasizes the importance of empowering and engaging communities in sustainable consumption and production practices, including waste reduction, energy conservation, and promoting sustainable lifestyles (Ministry of Mahaweli Development and Environment, 2018).

Communities have an important role in disaster risk mitigation and response, according to the National Policy on Disaster Management (2013). It highlights the significance of community-based disaster management measures, such as building community-based disaster risk reduction strategies and encouraging community engagement in disaster preparedness initiatives (Ministry of Disaster Management, 2013)

NDMP also emphasizes the importance of community involvement in disaster risk reduction and response activities. It includes provisions to enhance plans for community-based disaster risk reduction and strengthen community-level disaster preparedness and response capacity (Ministry of Disaster Management, 2013).

NHP (2017) recognizes the need to engage communities in developing housing policies and programs. It emphasizes the importance of participatory approaches in developing housing plans and promoting community-based solutions to housing challenges (Ministry of Megapolis and Western Development, 2017).

The following approaches might be taken to enhance community participation in policy coherence for CCA, SDGs, and DRR in Sri Lanka,

1. Increase public awareness and participation: Community-level awareness campaigns can be carried out to inform and educate the public on the relevance of policy coherence in CCA, SGDs, and DRR. The community should be encouraged to participate in creating and operating these policies.

2. Strengthen local institutions: The government should strengthen local institutions such as local authorities and community-based organizations, which play a crucial role in community involvement in policy coherence.

3. Cooperation and collaboration among public entities, non-governmental organizations, and community-based organizations can increase community participation in policy coherence. Stakeholders should collaborate to develop and execute policies that represent the community's needs and concerns.

4. Provide capacity-building training: Capacity-building training should be provided to the community to enhance their knowledge and skills on policy coherence and its importance in CCA, SGDs, and DRR. As a result, they will be able to actively engage in the establishment and execution of policies in these areas.

5. Promote transparency and accountability: Transparency and accountability in policymaking can promote community involvement and trust in the government. The government should ensure that the community is informed about policy decisions and their reasons.

6. Historical and traditional expertise and procedures should be included in CCA, SGD, and DRR policymaking. It will aid in developing policies/plans that are socially appropriate and responsive to the community's requirements.

Increase the validity of the coordinated framework for developing DRR and CCA risk assessments.

There is no coordinated framework for developing Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) risk assessment in Sri Lanka for several reasons. The main reason is the lack of coordination and cooperation among relevant stakeholders, including the government sector, private sector, local communities, and

civil society organizations, which leads to fragmentation and duplication of efforts in risk assessment.

The Climate Change Adaptation Strategy for Sri Lanka (2011-2016) acknowledges the need for a coordinated framework for risk assessment. However, it recognizes the lack of a comprehensive institutional mechanism to address the issues. NPSSD (Draft) highlights the importance of coordination among various stakeholders to implement sustainable development measures, including DRR and CCA, but does not provide a clear plan for developing a coordinated framework for risk assessment. NPDM (2013) and NDMP (2013-2017) provides guidelines for disaster management, including risk assessment, but do not specifically address the need for coordination with CCA measures.

Moreover, the lack of technical capacity, inadequate resources, and limited data availability are other significant challenges that hinder the development of a coordinated framework for risk assessment.

Although the reviewed policy documents recognize the importance of a coordinated approach to risk assessment, they lack clear plans and strategies to address the issues.

It is possible to adopt the following steps to strengthen the validity of the integrated framework for development risk assessments in policy coherence in CCA, SDGs, and DRR in Sri Lanka,

1. Integrating DRR and CCA into national planning: Incorporating DRR and CCA into national planning will ensure that policies and strategies are based on accurate risk assessments and that plans represent the country's goals. It can be accomplished by establishing a national forum for disaster risk reduction and climate change adaptation that gathers consultants/stakeholders involved in DRR and CCA to provide a place for debate, information exchange, and coordination.

2. Improving data collection and analysis: Reliable data collection and analysis are critical for developing accurate risk assessments. The government should prioritize collecting and analyzing data on hazards, vulnerabilities, and

exposures and make this data publicly available. This can help create a more comprehensive and up-to-date picture of the risks communities face.

3. Incorporating new technology: Applying new technology, such as remote sensing and geographic information systems, can increase the reliability of identifying risks. These tools can help to identify and map hazards, assess vulnerabilities, and provide information on exposure. This information can be used to develop more accurate and targeted risk assessments.

Improve implementation strategies.

The policy documents in Sri Lanka, which address climate change adaptation (CCA), disaster risk reduction (DRR), and sustainable development goals (SDGs), often lack a coherent implementation strategy. There are several issues related to the implementation of policy coherence within CCA, DRR, and SDGs in these policy documents, including:

The policy documents often do not provide clear implementation plans and guidelines to achieve their objectives. NAP for Climate Change Impacts in Sri Lanka (2016 – 2025) lacks a clear implementation plan, resulting in inadequate action to mitigate climate change effects (Ministry of Mahaweli Development and Environment, 2016).

Another issue is the inadequate budget allocation to implement the policies. It leads to insufficient resources to implement the policies and achieve targets. For instance, due to inadequate budget allocation, NPDM (2013) was ineffective in the execution of the policy (Ministry of Disaster Management, 2013).

There is a need for a coordinated and integrated approach to policy implementation, with clear guidelines, adequate budget allocation, and a vital monitoring and evaluation system to address issues. There is also a need for greater collaboration and coordination among stakeholders to avoid duplication of efforts and waste of resources.

Stakeholder management

NAP for Climate Change Impacts in Sri Lanka: 2016-2025 emphasizes the value of stakeholder engagement and consultation to achieve its goals. The policy intends to include relevant parties, such as the public sector, private sector, commercial sector, academics, and society, in developing and implementing adaptation plans (Ministry of Mahaweli Development and Environment, 2016). For instance, the plan calls for involving local communities in identifying and prioritizing adaptation measures appropriate for their specific contexts.

Similarly, the Climate Change Adaptation Strategy for Sri Lanka (2011-2016) recognizes the importance of stakeholder engagement and participation in ensuring effective implementation. The strategy outlines a participatory approach to adaptation planning involving stakeholders from various sectors and levels, including the public, private, and society (Ministry of Environment and Renewable Energy, 2011). For example, the strategy highlights the need to involve local communities in developing early warning systems and emergency response plans to address the impacts of climate change.

NPSSD (Draft) also emphasizes stakeholder participation as a critical component of its implementation. The policy aims to promote sustainable development in Sri Lanka by addressing social, economic, and environmental issues through a participatory approach that involves all stakeholders (Ministry of Sustainable Development and Wildlife, 2017). For example, the policy outlines the need to involve stakeholders in developing sustainable land use plans and promoting sustainable tourism.

The NPSCP (2018) also recognizes the importance of stakeholder participation in promoting sustainable consumption and production patterns. The policy encourages sustainable consumption by involving stakeholders from different sectors, including government agencies, civil society, and the private sector (Ministry of Mahaweli Development and Environment, 2018). For instance, the policy calls for engaging with the private sector to promote eco-friendly products and services and to encourage sustainable waste management practices.

Stakeholder involvement and participation in disaster risk reduction are also emphasized in the NPDM (2013) and the Sri Lanka NDMP (2013-2017). These policies acknowledge the need to incorporate communities, local governments, and other stakeholders in disaster risk reduction activities to ensure their needs and opinions are considered (Ministry of Disaster Management, 2013). The National Disaster Management Plan urges communities to build community-based disaster risk reduction strategies/plans and encourage disaster preparedness and response.

NHP (2017) highlights the need for stakeholder participation in promoting sustainable and affordable housing. In promoting sustainable housing practices, this policy aims to enhance the engagement of government authorities with private divisions and the community (Ministry of Megapolis and Western Development, 2017). For instance, the policy calls for engaging with the private sector to promote green building practices and to provide affordable housing options for low-income communities.

One of the main issues is the lack of inclusiveness and participation of all stakeholders in the policy development process. It leads to a lack of ownership and support for the policies among stakeholders, which affects implementation of the policies.

To weigh efficiency and practicality of the policies, a mechanism for stakeholder feedback and monitoring of policy implementation is needed. The absence of such a mechanism generates complications in implementing and improving policies.

Moreover, there is a lack of collaboration and coordination among stakeholders across sectors, resulting in duplication of efforts, conflicting priorities, and inefficient use of resources.

For example, NDMP (2013-2017) does not provide a clear stakeholder engagement and feedback framework. It lacks clarification of the responsibilities and tasks of consultants and stakeholders in policy development and execution.

Establishing a more inclusive and participatory policy development process with clear roles and responsibilities for stakeholders is essential. A mechanism for stakeholder feedback and policy implementation monitoring should also be implemented. Additionally, there should be increased collaboration and coordination among

stakeholders across sectors, focusing on identifying synergies and avoiding duplication of efforts.

5.4   Summary

Issues in Policy Coherence of CCA, DRR, and SGD in Sri Lanka were identified with the content analysis of seventeen policy documents. Eight documents are discussed with the results of semi-structured interviews of government representatives and practitioners to identify the pathways.

There are several issues with the coherence of policies in Sri Lanka, including the fragmented approach, lack of integration, inadequate coordination, limited resources, and lack of monitoring and evaluation. International frameworks inspire the policies, and local implementations are not focused, leading to inadequate implementation of policies. The lack of development cooperation for innovative approaches, such as climate-resilient infrastructure and environmentally friendly solutions for CCA and DRR, further aggravates the situation. Another concern is the lack of land use management and responsibility for developing physical infrastructure for disaster risk reduction integration with climate change adaptation. It is found that limited community involvement is most important in implementing policies.

The study also explores pathways for policy coherence, such as enhancing strategic coherence, intensifying institutional cooperation, strengthening monitoring and evaluation, promoting community involvement, increasing the validity of coordinated framework for developing DRR and CCA framework, and improving implementation strategies, and encouraging stakeholder participation.

6 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Sri Lanka has been affected by various environmental disasters, including floods, landslides, droughts, and extreme weather events, which have been linked to climate change. As a result, Sri Lanka has been actively creating policies to build resilience and alleviate the effects of these tragedies. However, there are issues with the coherence of various policies of SDGs, CCA, and DRR which are developed by different authorities, leading to duplication of efforts, conflicting priorities, and limited impact.

Policy coherence is crucial for achieving common objectives in CCA, DRR, and SDGs. It ensures that policies and measures across various areas are consistent, complementary, and mutually reinforcing. The five dimensions of policy coherence - vertical, horizontal, temporal, spatial, and equality coherence - emphasize the alignment of policies across governance levels, sectors, time, space, and stakeholders. To achieve policy coherence, different types of coherence, including conceptual, institutional, financial, operational, and strategic coherence, need to be considered. These types of coherence help ensure that policies are aligned in their conceptual frameworks, supported by appropriate institutions, adequately funded, effectively implemented, and strategically integrated.

The Sustainable Development Agenda for 2030, the Paris Climate Change Agreement, and the Sendai Disaster Risk Reduction framework are three global processes that play a significant role in promoting policy coherence in the context of SDGs, CCA, and DRR. These processes provide a mandate for increasing policy coherence between DRR and CCA and share common objectives in advancing SD.

Multiple institutions are responsible for managing CCA and DRR to achieve the SGDs. These institutions implement various policies and measures to cope with the issues raised by climate change and natural catastrophes while promoting sustainable development. Through these global processes and institutional efforts, alignment of activities, strategies, and policies to address the intersecting concerns of CCA, DRR, and SDGs promotes policy coherence. By working collaboratively and ensuring

coherence among policies and measures, these global processes and institutions contribute to the effective integration and coordination of efforts towards a more resilient and sustainable future.

Content analysis of policy documents and interviews serve as valuable tools for identifying and assessing policy coherence in Sri Lanka. Through content analysis, policymakers can analyze different policies and their interrelations, gaining insights into their coherence and alignment with government objectives. Interviews with policymakers and stakeholders provide further understanding of policy coherence approaches and implementation strategies.

By utilizing these research methods, policymakers can identify areas where policies need to be more coherent and aligned with government objectives. This information is crucial for enhancing policy integration and coordination, ensuring that efforts in CCA, DRR, and SDGs are mutually reinforcing and effectively contribute to the country's goals. Ultimately, the utilization of content analysis and interviews provides a comprehensive understanding of policy coherence in Sri Lanka, enabling policymakers to make informed decisions, improve policy implementation, and strengthen the state's resilience and SD efforts.

An examination of the substance of seventeen policy papers revealed that many existing policies in Sri Lanka are influenced by international frameworks. However, there is a need for greater coherence among CCA, DRR, and SDGs within these policy documents. The analytical framework used in the analysis, which involved a preliminary assessment of policy documents and a literature review, identified strategic, conceptual, institutional, operational, and financial dimensions of policy integration. The content analysis found no operational coherence of CCA, DRR, and SDG in most policy documents. Although there is Strategic and institutional coherence, most are not operational. Financial and conceptual coherence is slightly stated, and no pathway or direction is given. There is an inadequacy of policy Coherence of CCA, DRR, and SDGs in Sri Lanka.

There are several issues with the coherence of policies in Sri Lanka, including the fragmented approach, lack of integration, inadequate coordination, limited resources,

and lack of monitoring and evaluation. International frameworks inspire the policies, and local implementations are not focused, leading to inadequate implementation of policies. The lack of development cooperation for innovative approaches, such as climate-resilient infrastructure and environmentally friendly solutions for CCA and DRR, further aggravates the situation. Another concern is the lack of land use management and responsibility for developing physical infrastructure for disaster risk reduction integration with CCA. Lack of community engagement, which is critical in policy implementation was discovered.

Through semi-structured interviews with government representatives and practitioners, several pathways were identified for achieving policy coherence in CCA, DRR, and SDGs in Sri Lanka. These pathways include enhancing strategic coherence by improving goals to foster coherence within CCA, DRR, and SDGs, strengthening the validity of coordinated frameworks for enhancing DRR and CCA risk assessments, intensifying institutional cooperation and stakeholder management, improving common monitoring and evaluation practices, establishing effective implementation strategies, and increasing community involvement.

It is necessary to improve goals within CCA, DRR, and SDGs policies to improve policy coherence. Clear and explicit goals for CCA, DRR, and SDGs should be established that are connected with the country's broader sustainable development plan. It can be accomplished by encouraging improved communication and coordination across government bodies, such as the Ministry of Environment and Disaster Management Center. Considering the interconnection of CCA, DRR, and SDGs, developing a national plan for disaster risk reduction and climate change adaptation is particularly crucial.

It is essential to improve the coordination of activities and the allocation of resources among the relevant ministries and stakeholders to improve operational coherence. It can be achieved by creating a coordinating body or a mechanism that facilitates communication and coordination among the ministries and stakeholders. It is also essential to ensure that all policies have an adequate budget and are implemented effectively.

It is critical to identify policy financing sources and build a clear financial strategy for policy execution in order to enhance financial coherence. Developing innovative approaches to financing policies, such as public-private partnerships, community financing, and microfinancing, is essential.

It is essential to increase government officials' and stakeholders' capacity to formulate and implement policies that are consistent with CCA, DRR, and SDGs. It can be achieved by providing training and capacity-building programs to relevant institutions.

It is critical to encourage professional and community participation in policy development to strengthen community involvement. It may be accomplished through establishing communication and consultation platforms with the community, such as workshops, conferences, seminars, surveys, public hearings, and consultations.

By implementing these pathways, Sri Lanka can address the gaps and inconsistencies in policy coherence and work towards a more integrated and coordinated approach in tackling climate change, disaster risks, and sustainable development. It is crucial to ensure that goals and frameworks are aligned, institutions collaborate effectively, monitoring and evaluation processes are robust, and communities are actively engaged in policy implementation. These efforts will contribute to enhancing policy coherence and advancing sustainable development in Sri Lanka.

6.2   Recommendation

Based on the findings, several recommendations can be compiled, such as,

1. Combined national plan development for DRR and CCA to accomplish SDGs; A collaborative national strategy for DRR and CCA should be prepared, including the strategies, policies, and activities necessary to accomplish the defined goals and objectives. The strategy should be prepared in consultation with all important DRR and CCA stakeholders in Sri Lanka, including government agencies, non-government organizations, academic institutions, and the corporate sector. The following stages may be performed to build a Joint National Plan for DRR and CCA in Sri Lanka:
    i.   A thorough examination of present policies, plans, and tactics,
    ii. Identification of the priorities and goals for DRR and CCA; and

iii. Development of a joint national plan.

2. Conduct more research: The study identified a need for more policy coherence and difficulties implementing international policies in Sri Lanka. Further research can help identify the root causes of these problems and provide more insights into potential solutions.

3. Increase community and professional involvement: To improve the coherence of policies, it is essential to involve professionals and the community in the policy development process. It can help ensure policies are relevant to local conditions and have greater stakeholder buy-in.

4. Increase capacity building: Capacity building is essential for improving policy coherence. The study can inform capacity-building efforts, such as training programs for government officials and stakeholders, to better integrate CCA, DRR, and SDGs in their policies and practices.

5. Strengthen international collaboration: As a signatory to international agreements, Sri Lanka should strengthen its international collaboration to improve policy coherence. Collaboration with international organizations can help Sri Lanka learn from the experiences of other countries and adopt best practices.

6. Foster multi-sectoral collaboration: Given the cross-cutting nature of CCA, DRR, and SDGs, multi-sectoral collaboration is critical for improving policy coherence. The study can foster greater collaboration between sectors and stakeholders to address these complex challenges.

By implementing these recommendations, the study can help improve policy coherence for resilience in Sri Lanka and contribute to achieving sustainable development goals.

6.3   Future work

A comparative study between Sri Lanka and other countries that have successfully implemented coherent policies between CCA, DRR, and SDGs can provide insights into the best practices Sri Lanka can adopt.

As policies are implemented, monitoring and evaluating development is critical. It can help identify gaps and challenges and provide insights into how policies can be further improved.

Public awareness is essential for achieving sustainable development goals. Future studies can explore how public awareness can be increased and how this can contribute to improving policy coherence between CCA, DRR, and SDGs.

By implementing these future recommendations, the study can have a lasting impact on policy coherence for resilience in Sri Lanka and contribute to achieving sustainable development goals.

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APPENDIX A

Interview Questions for the survey on Policy coherence for Climate and Disaster Resilience in Sri Lanka

1. Affiliation

2. Institute / Department / Office

3. What sector/s you are attached or working with? (if relevant only)

4. Years of experience

5. What are the policies are you familiar with/ do you work on related to CCA, DDR or SGD?

6. What institutes are sponsors of those policies/ or consulted on?

7. Are there any global and regional plans referred or followed? (Paris agreement, Sendai framework for disaster risk reduction, 2030 Agenda, etc.)

8. How they were useful and what are the issues came across following these plans?

9. What are the other issues related to these policies?

10. Which sectors are involved today in the work with CCA, DRR and SGDs? Which sectors should be involved?

11. How can development partners provide governments with more information and analysis that supports translation of national-level coherence commitments to operationalized coherence? What is the process of involvement of the partners?

12. How can the sectors be effectively engaged in the coherent pursuit of the global frameworks?

13. Who should be involved in conducting holistic risk assessments, and holistic CCA, DRR and SGD strategies and plans? (Civil protection expert/ Policy makers/ Spatial planners/ Civil society organizations/ LG/ Climate scientists/ Researchers)?

14. What is required to promote coherence within regular public service delivery as well as public investment projects at the local level?

15. At the national level, how can development partners explore the meaning and broad strategy for coherence in a particular country context?

16. Can development partners increase their own abilities to demonstrate coherence?

17. What are the strategies or Coordination mechanism can be implemented to enhance resilience in policy frameworks in Sri Lanka?

18. What are the practical examples of CCA and DRR measures from Sri Lanka? Who is responsible for those measures? Whose knowledge was needed/is needed for those measures?

19. What are the technical capacities and tools and/or guidelines for implementation of coherence approach?

20. What are the methods currently used for monitoring and evaluation?

21. What are the monitoring and evaluation methods that can be proposed to achieve coherence in DRR, CCA and SGD?

22. What are the suggestions to increase communication between academic researchers and practitioners?

23. What are the strategies can be used to enhance the awareness of the community regarding coherence of DRR, CCA and SGD??

24. What are the suggestions for policy coherence DRR, CCA and SGD? How do you suggest increase coherence approach of policy making?

APPENDIX B

Revised Interview Questions for the survey on Policy coherence for Climate and Disaster Resilience in Sri Lanka

After analyzing 17 policy documents and plans, Some documents have shown some extent of coherence related to Strategic, Conceptual, Operational, Institutional and Financial coherence. These are the Issues in Policy Coherence of CCA, DRR and SGD in Sri Lanka.

- No operational and financial coherence of CCA, DRR and SDG in most of the policy documents are found such as,
- Although there is a Strategic and conceptual coherence (which is very lightly focused) most of them are not operational.
- Financial coherence is slightly mentioned, and no pathway or direction given.
- Inadequacy of policy Coherence of CCA, DRR and SDG.
- Most of the policies are inspired from international frameworks and local implementations are not focused.
- Lack of development co-operation for the use of innovative approaches, such as to environmentally friendly and native solutions for CCA and DRR, or climate resilient infrastructure.
- Lack of control of land uses and responsibility for provision of physical infrastructure for disaster risk reduction integration with climate change adaptation.
- Issues in funding.
- Challenges in Communication of institutions

Based on the existing loopholes of the policies, interviews will be carried out to investigate the pathways to policy coherence approaches.

1. Can you share your thoughts about issues in policies/plans in Sri Lanka with relevance to policy coherence of CCA, DRR and SGD in Sri Lanka?
2. What are the suggestions for policy coherence DRR, CCA and SGD? How do you suggest increase coherence approach of policy making in Sri Lanka (pathways)?

a. How political/government involvement can be developed/increased in policy coherence approach?

b. How can the sectors be effectively engaged in the coherent pursuit of the global frameworks? Which sectors are involved today in the work with CCA and DRR? Which sectors should be involved? How can those sectors work together?

c. At the national level, how can development partners explore the meaning and broad strategy for coherence in a particular country context?

d. Who should be involved in conducting holistic risk assessments, and holistic CCA, DRR and SGD strategies and plans? (Civil protection expert/ Policy makers/ spatial planners/ civil society organizations/ Climate scientists/ Researchers)?

e. Can development partners increase their own abilities to demonstrate coherence?

f. What are the strategies or Coordination mechanism can be implemented to enhance, resilience in policy frameworks in Sri Lanka?

g. What are the technical capacities and tools and/or guidelines for implementation of coherence approach?

h. What are the monitoring and evaluation methods can be proposed to achieve coherence in DRR, CCA and SGD?

i. What are the challenges in communication? (Communication between CCA and DRR communities, Communication between academic community and practitioners or Communication between practitioners and the public)

j. How funding mechanisms can be developed?

3. Under the economic crisis what is the best way to provide a coherence approach in policy for resilience?

APPENDIX C

NVivo Analysis