

ADVOCACY PAPER

Climate Vulnerability and Local Climate Action Plans

A Case of Gaya District in Bihar, India



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Local Climate Action Plans

A Case of Gaya District in Bihar, India

This Advocacy Paper has been developed by Gorakhpur Environmental Action Group with the support and inputs from National Institute of Disaster Management (NIDM), Govt of India and UNICEF, Bihar. We sincerely appreciate the collaboration of NIDM in bringing out this important Advocacy Paper using the case study of district Gaya, Bihar on developing local climate action plans for different development sectors.

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Edition: 2023

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Citation:

Citation: Gupta, A.K., Madan, A., Singh, B.K., and Wajih, S. (2023). ADVOCACY PAPER; Climate Vulnerability and Local Climate Action Plans A Case of Gaya District in Bihar.

Acknowledgement:

Gorakhpur Environmental Action Group (GEAG) is grateful to UNICEF, Bihar for the financial support in developing this publication. In particular, we would like to thank Mr. Banku Bihari Sarkar, Program Officer – Risk and Resilience for extending his support and guidance from time to time, which has resulted in the development of this important Advocacy Paper. We are very thankful to Prof Anil Gupta, HoD ECDRM, National Institute of Disaster Management, Ministry of Home Affairs, Govt of India in jointly conceptualising and developing this paper.

Disclaimer:

The study is based on various published, unpublished literature, reports, documents and web-resources and data collected through primary survey. It includes a range of information based on case study and experiences from Gaya district of Bihar. This Advocacy paper partly or fully can be freely referred, cited, translated and reproduced for any academic or non-commercial purpose, with appropriate citation of authors, editors and publishers.

Published by:

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Abbreviations

UNFCCC	:	United Nations Framework Convention on Climate Change
SDG	:	Sustainable Development Goal
MDGs	:	Millennial Development Goals
WASH	:	Water, Sanitation and Hygiene
SWOT Analysis	:	Strength, Weakness, Opportunities, and Threats Analysis
DRR	:	Disaster Risk Reduction
IEC	:	Information, Education and Communication
ORS	:	Oral Rehydration Solutions
THR	:	Take Home Ration
MCP card	:	Mother Child Protection Card
ASHA	:	Accredited Social Health Activist
AWW	:	Anganwadi Worker
DPO	:	District Project Officer
CDPO	:	Child Development Project Officer
ANC	:	Antenatal Care
CHC	:	Community Health Centers
PHC	:	Primary Health Care
SOP	:	Standard Operation Procedure
CSOs	:	Civil Society Organizations
CBOs	:	Community Based Organizations
KVK	:	Krishi Vigyan Kendra
MGNREGA	:	Mahatma Gandhi National Rural Employment Guarantee Act

Foreword

The paper discusses the impact of climate change on various sectors such as health, agriculture, water resources, education, and child welfare and development and emphasizes the disproportionate impact of climate change on marginalized communities and the need for inclusive plans. It also highlights the need for proactive measures to mitigate the adverse effects of climate change and increase resilience. This paper provides insights into the impact of climate change on a specific district in Bihar, India, and proposes measures to mitigate its consequences. It helps in understanding the effects of climate change on a local level and to learn about evidence-based planning and practical interventions to address climate change. Further, it will assist policymakers, government officials, and other stakeholders to create a comprehensive and context-specific policy response for designing mitigation, raising thresholds, and adaptation programs. It encourages greater public awareness of continuing changes in weather events in Bihar and other similar regions. Overall, this document can be a valuable resource for anyone interested in climate change and its impact on local communities.

The Gaya district in Bihar has been used as a case study to develop local level climate action plans with clear roles and responsibilities for different sectors/stakeholders. The paper suggests that local adaptation options are best suited to the local context and needs of the community members. Such measures are primarily guided by local priorities, such as the need for assistance in certain areas in combating floods while others in coping with heat waves. Local plans demonstrate efficient preparedness and response mechanisms with clearly defined roles and responsibilities to reduce the likely impact of climate change and provide opportunities for localized solutions. The paper also suggests that marginalized communities can be included in climate action plans by identifying problems that are being faced by the particular group of the community such as SC/ST, women, children, and old people and proposes solutions to address their concerns arising out of climate-induced disturbances. The paper emphasizes the need to work in accordance with the ethos of climate justice.

I am happy to unveil this policy paper "Climate Vulnerability and Local Climate Action Plans - A Case of Gaya District in Bihar" developed on the action research carried out by the Gorakhpur Environment Action Group (GEAG) with the support of UNICEF.

The paper examines the impact of climate change on sectors like health, agriculture, water resources, education, and child welfare, emphasizing its disproportionate effect on marginalized communities and advocating for inclusive plans. Proactive measures are proposed to mitigate climate change's adverse effects and increase resilience. Focusing on a district in Bihar, India, the paper suggests strategies to address climate change

consequences at a local level using evidence-based planning.

I wish great success and hope this publication would be useful to a wide range of stakeholders from academic, research, policy and practice for knowledge sharing, experience and further dissemination.

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Preface

Impacts of climate change, coupled with anthropogenic, ecological, and developmental changes, have significantly aggravated the occurrences and impacts of disasters on people, infrastructure, and resources. To effectively mitigate risks and manage disasters, past disaster data plays a crucial role in risk assessment and prioritizing focus areas for effective strategies. Over time, various strategic interventions, starting from the UN-IDNDR during the 1990s, have had national and local implications in terms of institutional, legal, and policy planning. These interventions have been instrumental in assessing and addressing the factors of risk and vulnerability.

Recognizing the significance of national and local development programs and schemes across various sectors, such as water and sanitation, urban and rural development, agriculture, health, and forestry, this paper highlights their potential as vital pathways for mainstreaming disaster risk reduction and climate resilience. Organizations like GIZ in India have emphasized the promotion of climatic resilience through a combination of policy and ground actions, with NIDM partnering in some of these interventions to draw valuable policy and capacity building lessons.

This paper provides crucial insights into the challenges faced by vulnerable communities in Gaya District, Bihar, and highlights the urgent need for local level climate action plans to address these challenges. The paper delves into the profound

impact of climate change on various sectors, including health, agriculture, water resources, education, and child welfare and development. It emphasizes the disproportionate effects of climate change on marginalized communities and underscores the importance of inclusive planning.

This document not only sheds light on the adverse consequences of climate change but also underscores the necessity of proactive measures to mitigate these effects and enhance resilience. It offers valuable insights into the impact of climate change on a specific district in Bihar, India, and proposes measures to address its consequences effectively. By focusing on the local level, this paper provides a deeper understanding of the localized impacts of climate change and presents evidence-based planning and practical interventions to tackle these challenges.

This document serves as a comprehensive and informative resource for anyone interested in understanding the impact of climate change on local communities. It provides guidance on evidence-based planning, practical interventions, and the development of inclusive and context-specific climate action plans. We encourage readers to explore the valuable insights presented in this document and utilize them to inform their decision-making processes. Together, we can work towards a more resilient and sustainable future for all.

Executive Summary

Climate change is expected to have significant impacts on the environment, socioeconomic sectors, human health, agriculture, water resources, education, and child welfare and development. Changes in the rainfall pattern are likely to cause severe water shortages, flooding, and soil erosion. Alterations in crop growing seasons will affect food security, while changes in the distribution of disease vectors will increase the number of people at risk of contracting diseases. Temperature increases could significantly raise vulnerability rates, and an increase in severe events will impact people's health, lives, environment, and economy.

In India, there is a high likelihood that climate change will increase the frequency and intensity of climate-related natural hazards, including in Bihar, which is susceptible to hydro-meteorological disasters such as droughts and floods. However, the state's vulnerability to the effects of climate change may be exacerbated by a lack of state-level climate change models and/or vulnerability studies and low community awareness. Despite these challenges, this advocacy brief suggests that Bihar is committed to promoting social, financial, and economic inclusion and encouraging all sectors to identify opportunities for inclusion and explore the viability of mainstreaming under its development agenda.

This paper's primary objective is to provide a model for other districts and sectors to develop climate action plans at the local level. The document outlines clear roles and responsibilities for different stakeholders and processes to minimize the localized impact of climate change through proactive approaches and preparedness to respond. The insights from this advocacy paper can be directly applied to better and more effective evidence-based policymaking at the local, sub-regional, and provincial levels. The paper aims to enable the government to create a governing team that will oversee the development of the plan and encourage greater public awareness of continuing changes in weather events in Bihar and other similar regions. The stakeholders involved can benefit from the inclusive plans that have benefited Gaya by developing a comprehensive and context-specific policy response for designing mitigation, raising thresholds, and adaptation programs.

1 Background

1.1. Climate Risks, Growing Vulnerabilities and Climate Change Adaptation

The term "climate change" is used to characterize climatic changes brought on by increases in the earth's average temperature due to human activity. Sea level rise, irregular rainfall, and extreme weather are some of climate change's current and potential effects, leading to disasters. Although, climate change is a global phenomenon, the impact of it is felt more at the local scale. It includes growing vulnerabilities as a result of an increase in floods, droughts, or severe rainstorms, heat waves due to temporal and precipitation related changes. Additionally, it not only degrades the quality of the air and water, it also aids in the spread of some diseases, and modifies the frequency or severity of extreme weather events. Indirect consequences of climate change, directly impacting humans and environment, include threat to livelihoods from floods and forest fires and health risks due to increase in frequency and intensity of heat extremes, displacement and destruction of native species and an increase in hunger and water crises, particularly in developing countries.

With the given impact of climate change at the local level, a variety of risks and vulnerabilities are emerging. Some develop slowly such as shifts in temperature, precipitation causing droughts or losses in farming and agriculture, climate induced displacement/migration, while others occur more quickly such as tropical storms and floods. People who live near coastlines, floodplains, or places that

frequently experience severe storms are more susceptible to extreme weather. Poverty and low awareness levels may make it more difficult for individuals to plan for or react to extreme events. These people are therefore, likely to be more affected by climate-related risks as it significantly impacts their welfare and security of means of subsistence (Leavy, 2009).

Regardless, the past and present experiences of climate variability and extreme events provide essential lessons for increasing resilience and lowering vulnerability for future climate-related negative impacts (UNFCCC), especially at the local level. The actions that mitigate the adverse effects of climate change while seizing potential new possibilities are referred to as climate change adaptation. Adaptation can be proactive, occurring before the effects of climate change are noticed, or reactive, occurring in response to those effects. It entails modifying laws and practices because of seen or anticipated climatic changes.

The local adaptation options are best fitted to the local context and needs of the community members. Such measures are primarily guided by local priorities, such as the need for assistance in certain areas in combating floods while others in coping with heat waves. Local plans demonstrate efficient preparedness and response mechanisms with clearly defined roles and responsibilities to reduce the likely impact of climate change and provide opportunities for localised solutions. Climate adaptation ultimately aims to address larger disparities since people who

are poor and marginalized are disproportionately impacted by climate change. If not, access to food, water, and land will continue to be unequal (McCarthy, 2021).

1.2. Understanding Impact of Climate Risks and Vulnerabilities



Health

The scientific community agrees that climate change is real, primarily caused by humans, and will have substantial, varied effects on human health (Field and others 2014). Attribution is difficult because the connections between climate change and health consequences are sometimes indirect and complicated. Stress from climate change increases the vulnerability of humans, ecosystems, and geographic areas. Changes in ozone concentration, particulate matter, and aeroallergen concentrations, as well as the quantity and pattern of morbidity and mortality resulting from extreme weather and climatic events, can all be influenced by changes in weather patterns (Smith and others, 2014). Additionally, it might modify the geographic distribution, seasonality, and occurrence of various infectious diseases in some areas. Undernutrition may be impacted by changes in water availability and agricultural output. (Lloyd, Kovats, and Chalabi 2011). The overall balance will harm health and well-being, especially in low- and lower-middle-income nations that bear a heavier burden of climate-sensitive health outcomes, even while climate change is anticipated to improve favourable health outcomes in some locations (Smith and others 2014). People with limited mobility or cognitive abilities, children, pregnant women, people with chronic medical illnesses, and people from low socioeconomic backgrounds are more likely to have adverse health effects during extreme events (Balbus and Malina, 2009). The social determinants of health also impact vulnerability. These factors include transportation options, social capability, availability of money, access to and quality of education, and social norms and culture (Education Development Trust).



Education

The continuation of a child's education is impacted by disasters. This affects not only the educational institutions but also the students being educated,

the educators providing the education, and the student's parents. District Gaya is suffering from the drought. Droughts are occurring more frequently, impacting children's families' ability to support their children's education and well-being. Data analysis and community discussions in various districts' blocks have shown that disasters impact the three elements of education enrolment, attendance, and dropout rate even though many other factors, like poverty, parental involvement in school (particularly concerning girls), children's health and nutrition, etc., also have an impact on these parameters. However, carefully examining these elements reveals that disasters are one of the underlying causes. The following are climate-related elements that affect children's enrolment, attendance, and dropout rates: Heat waves and other temperature-based severe events; more rainfall in a shorter amount of time; conditions of fog in winter and a spike in excessive heat and humidity in summer (UNICEF, 2018).



WASH

Around 771 million people live in areas without access to clean water. Droughts, floods, saltwater contamination, poor service management, lax governance, and environmental deterioration are to blame for this denial of their fundamental human right. Due to the speeding up and amplifying effects of these factors brought on by climate change, weather patterns become more unpredictable, and the frequency and intensity of extreme weather events and natural disasters rise. Sewage system flooding that occurs more frequently contaminates the environment and neighbouring water sources. Severe droughts drive people to use increasingly less hygienic sources of drinking water. (WaterAid). There is also a greater possibility of other negative health impacts. For instance, increasing sea levels in Bangladesh increase groundwater salinity, which affects coastal residents' risk of high blood pressure and heart disease. The effects of climate change disproportionately impact women and girls since they are frequently in charge of domestic duties, water collecting, and caring for family members. But they are also crucial to finding answers. Women and girls are spearheading the effort to address the climate catastrophe, doing anything from repairing faucets and pumps to collaborating with neighbourhood organizations on water monitoring or management (WaterAid).

1.3. Call of SDGs: Safe, Sustainable and Resilient

The Millennium Development Goals (MDGs) served as a model for Sustainable Development Goals (SDGs). Globally, access to water has dramatically improved because of MDG Goal 7, which aimed to ensure environmental sustainability and solve issues with access to water and sanitation services. Nearly 2 billion (39%) of the 5.0 billion people (68%) who have access to at least a basic sanitation service also have access to safe sanitation services. In addition, 154 nations had attained at least a basic level of sanitation by 2015. (JMP, 2017).

Children from disadvantaged sections of society, including street children, orphans, and people with disabilities, are vulnerable to situations like illness, poor access to water and sanitation, insufficient education, and child labour and safety concerns. Climate change and disaster make these issues worse particularly for children due to their physical and psychosocial vulnerability, dependence on caregivers/parents and disruption of services essential for their overall development.

It is detrimental to children's health, well-being, and development to keep them exposed to climatic stresses and extremes (see Right to Life, Article 21 of the Indian Constitution), as well as to their ability to contribute to local and national development as future citizens. Despite dedicated programs on sanitation, there are still some people practising open defecation. Considerable portion is from cities and towns' impoverished dwellers of urban fringes, peripheries, urban villages, slums, and those living beneath bridges, flyovers, trees, and in temporary camps, making slums and similar areas (where most of the city's poor people inhabit). Inclusive, equal, integrative, and green demands fresh communitarian narratives (TU, 2017).

Goal 6 of the SDGs, "Ensure access to water and sanitation for all," which rests on six other Goals, is crucial for urban-poor children (TU, 2017). The other goals are:

- ◆ Poverty eradication (SDG 1),
- ◆ Ending hunger through improved nutrition (SDG 2),
- ◆ Ensuring healthy lives and promoting well-being (SDG 3),
- ◆ Education (SDG 4), gender equality (SDG 5), and
- ◆ Inclusive cities (SDG 11)

However, it is intriguingly pertinent to consider the vulnerability and resilience of urban poor children using methodologies based on the "second paradigm shift in disaster risk reduction", Paris Climate Agreement, and Sendai Framework for DRR (201530), which combine to promote and leverage green growth prospects more specifically for urban resilience, are at the centre of the new global policy regime (Gupta, 2017).

1.4. Importance of Climate Action Plans

A multi-sectoral approach is used in the National Action Plan for Disaster Risk Management, a national level policy that addresses all stages of disaster risk management. These sectors include the public sector, finance, trade and commerce, tourism, agriculture, transportation, communications, water, energy, and the environment. The Action Plan's overarching goal is to increase catastrophe resilience through sustainable development, good governance, and best practices in disaster risk management. Climate change adaptation, mitigation, and catastrophe risk management are integrated across sectors to ensure sustainability. To improve resilience, catastrophe risk management has become more widely known. With the help of such plans, all people will have better access to information on catastrophe risk reduction.

Likewise, district planning is the process of developing a comprehensive plan for the local government sector in a district while considering the natural, human, and financial resources available and considering the sectoral activities and schemes assigned to the district level and below, as well as those carried out by the local government at the district level. The district's line department representatives' information is used to develop the district plan. Thus, the District Plan addresses the issues, necessary solutions, and monetary requirements for the district's development.

The main goal of district planning is to create an integrated, collaborative development plan for the district that:

1. Ensure that resources available locally and through various programs are used more effectively to meet the district's overall development goals.
2. Ensure improved service delivery and effective use of all resources, including financial ones.
3. Use a SWOT analysis to pinpoint each sector's problems, crucial elements, opportunities, and difficulties.

4. Examine the distribution and pattern of use of natural human and financial resources and propose a strategy that considers the populace's needs.
5. Identify problems and propose solutions for the district's development of SC/ST and women.
6. Create the District Plan manual to ensure efficient district-level program delivery (UNICEF, 2018).

Due to the long time lines and lack of knowledge regarding the effects, there are cognitive gaps in district-level climate action planning that make it difficult for decision-makers to perceive the issue or the scale of a viable solution. The coordination and communication amongst the line departments are hampered by the lack of understanding of the intersectionality of the issue and its potential solutions. The internal gap in district climate planning and implementation is that the cities tend to fail to outline specific strategies that will assist them achieve their objectives. They often do not provide specifics regarding the standards, monitoring, and reporting standards. The second gap is regional: Individual districts frequently lack the resources, expertise, and programmes necessary for such climate change planning and processes (Kane, 2022).

With this given background, the climate action plans must be mainstreamed at the district levels to create an integrated, collaborative development plan for the district that:

1. Ensure that resources available locally and through various programs are used more effectively to meet the district's overall development goals.
2. Ensure improved service delivery and effective use of all resources, including financial ones for climate change adaptation and mitigation.

3. Use a SWOT analysis to highlight the challenges faced by each sector and come up with the crucial elements, opportunities to address the climate induced concerns and promote collaborative climate governance.
4. Examine the distribution and pattern of use of natural human and financial resources and propose a strategy that considers the need of local population and come up with climate adaptation strategy accordingly.
5. Identify problems that are being faced by the particularly marginalized groups of the community such as SC/ST, women, children and old people and propose solutions to address their concerns arising out of climate induced disturbances (UNICEF, 2018).
6. Work in accordance with the ethos of climate justice (UNICEF) .

2 Objectives and Methodology

2.1. Purpose of the Action Plans

Cities, towns, and villages worldwide are acting to confront and lessen the effects of climate change on their communities, both now and in the future. One of the main ways that the government officials are discussing these problems is through their climate action plans. In these plans, jurisdictions are given specific instructions on reducing greenhouse gas emissions, reducing climate change's effects, and dealing with environmental justice issues in their localities. They also act as a road map for the future and, most importantly, assist the nations in achieving significant sustainability objectives. The purpose of action plans is:

1. To establish methods for coordination between all the departments for department specific climate action plan and strategies.
2. To take prompt action by the concerned authority so as to prevent irreplaceable loss of life and damage to valuable property after any climate-related calamity.
3. To supply or help with development programmes of the country.
4. To promote collaboration across departments & organizations and inspire confidence in them as well as the affected population to deal with potential crises arising out of changing climate and related events.
5. To effectively manage any climate emergency.
6. Carefully plan out the strategies and action plans in consultation with various pertinent stakeholders.
7. To develop policies for cooperation among the various participating organizations and to coordinate the department's personnel's climate action plans (DM Action Plan).

2.2. Roadmap to Advocacy

The local-to-global-to-local advocacy measures to contribute to the global movement for climate action include:

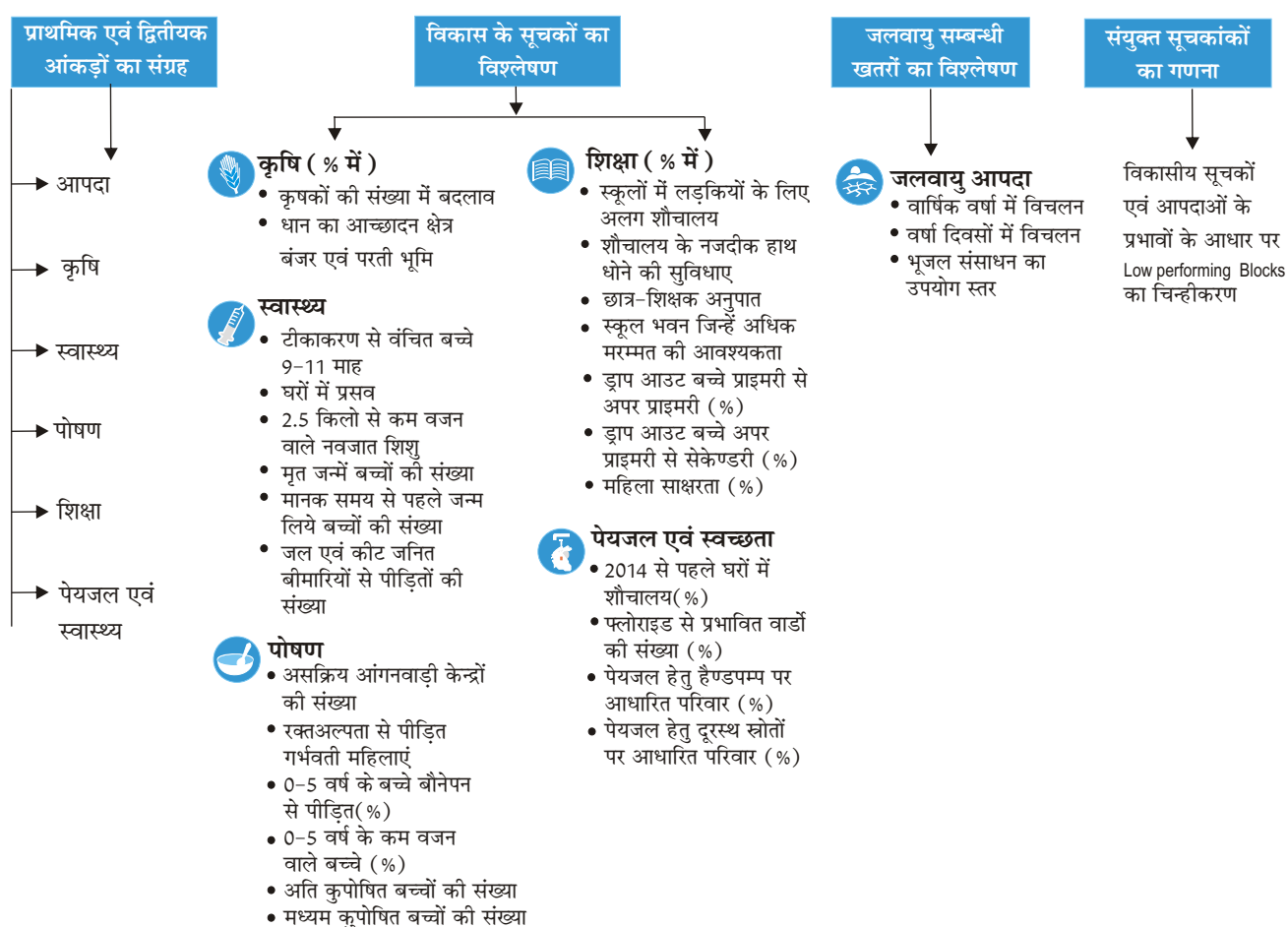
- ◆ Supporting gender-equitable responses to climate change, especially those that empower women and girls and have gender-transformative results.
- ◆ Outlining the connections between policy decisions and climate change action in the global north and south.
- ◆ Considering climate change in all areas, from long-term development to humanitarian aid.
- ◆ Producing data from real-world experience to inform program development, policy analysis, and advocacy efforts on climate change on a national and worldwide scale.
- ◆ Increasing the ability of regional groups in the Global South to carry out the aforementioned.
- ◆ Collaborating with other networks and organizations (CARE).

2.3. Methods adopted and data sources

Data Collection and Analysis: The analysis of secondary and primary data forms the foundation of this paper. Comprehensive information on many indicators was gathered from the district's primary departments. These numbers were collected from various historical periods to understand the trends of change in different components of development. Understanding the degrees of susceptibility and risk in the context of disaster at the block level of the district, their underlying causes, and steps to mitigate their consequences are the key goals of this data analysis.

The approach above has resulted in binding turbines' levels of susceptibility and risk based on various factors, including natural hazards, agriculture, education, health, drinking water, sanitation, and nutrition at the block level. Data analysis and the Composite Index of risk were used to rank the various blocks in the district. In addition to quantitative analysis, qualitative approaches have also been used to comprehend the district's risk assessments. Under this, a thorough discussion was done using participatory methods with the communities in the nine blocks (UNICEF, 2018).

Figure 1 : List of Indicators (Source: Gaya Risk Profile' UNICEF, 2018)



Risk Sensitive Departmental Action Plan Preparation Process

The risk sensitive departmental action plan was prepared as per the following procedure for all the sectors namely, Health, Agriculture, Drinking water and sanitation, Education and Child protection & development -

- ♦ In 2018, in collaboration with UNICEF and the district administration, a block wise analysis of the effects of climate change and the fragility arising out of it was done in the Gaya district.

- ♦ On July 22, 2019, under the chairmanship of the district magistrate, a review meeting was organised for the officials of all the departments on the true climate change and its effects.
- ♦ District administration and UNICEF organised a one-day workshop in Bodhgaya on 12th October 2019, in which emphasis was laid on all the departments to prepare their clear strategy and action plan to deal with the challenges of climate change.

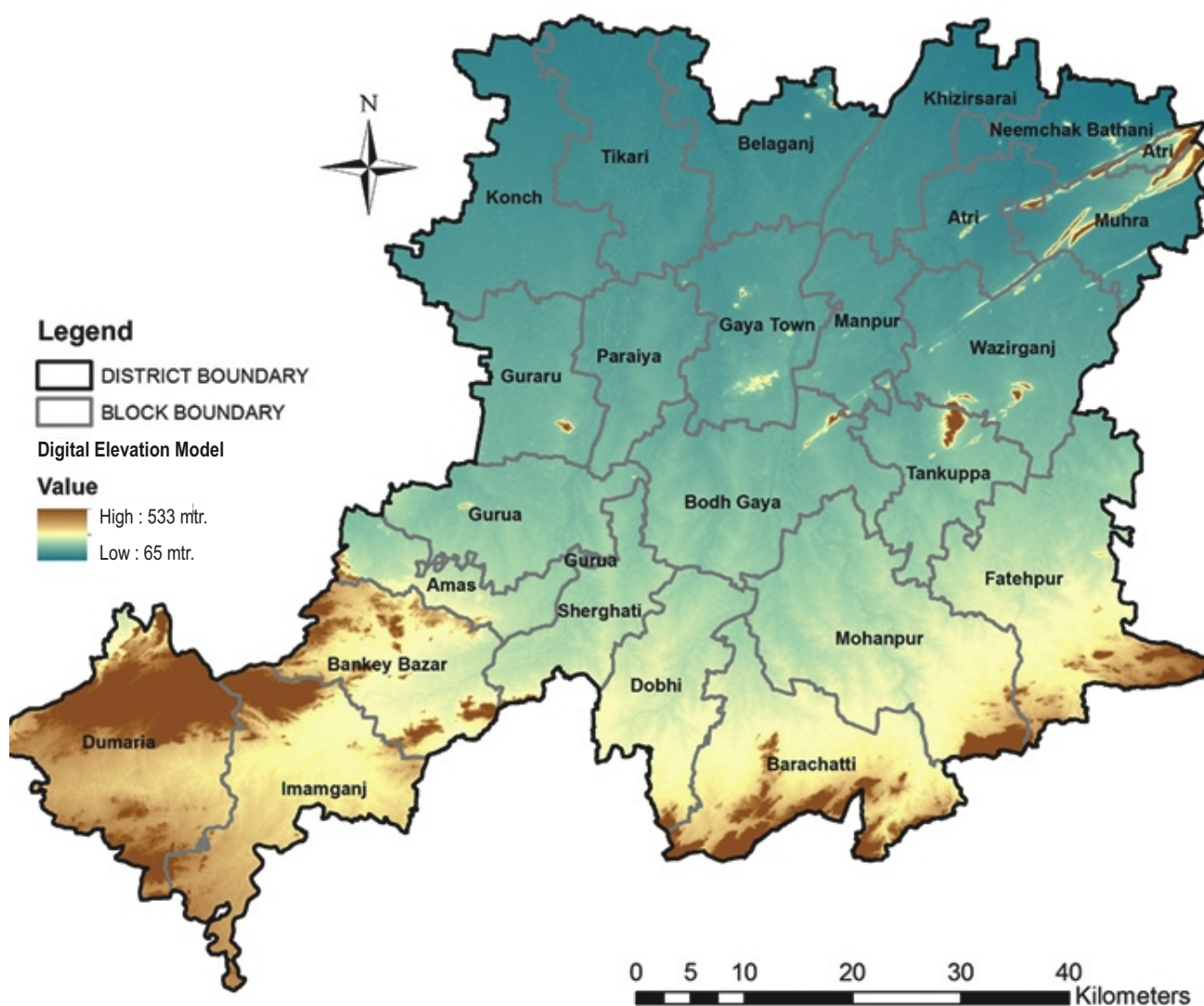
- ◆ In November-December 2019, after discussing with the district and block level officials of the departments, the sector-wise action plans were prepared to come up with the strategy to deal with the effects of climate change.

2.4 Overview of the Gaya district Disaster Risk Profile

Gaya is in a region of the state that is highly prone to drought. According to the Disaster Management Department of the government of Bihar's review of data relating to drought from 1964 to 2018, the district has experienced drought 16 times in the past 54 years, or once every four years on average.

Drought has been more prevalent in recent years (2011-2018). The 2013 drought was the worst of all the droughts. Aside from drought, other natural and man-made tragedies, such as fire, storm, and road accidents, have become more common. Following conversations with locals, the Bihar Disaster Risk Reduction Roadmap categorizes different catastrophes that have occurred there into the following groups: Disasters caused by climate change include erratic precipitation, droughts, floods, heatwaves, cold waves, thunderstorms, hailstorms, and soil erosion. Gaya is also prone to other events such as fires, car accidents, stampedes, epidemics such as malaria, diarrhoea, animal infections, and crop diseases.

Map 1 : Map of Gaya



3

Case Studies and Lessons Learnt



3.1. Health

3.1.1. Preface

Geographically, the Gaya district is close to the Tropic of Cancer, which naturally experiences more heat and cold than other locations. However, due to climate change, changes linked to temperature, rainfall, and humidity are visible in the district. The minimum and maximum temperatures in the district have increased in all seasons, according to the meteorological department's statistics. Although the district's annual rainfall has decreased, its pattern has changed. The health of children, the elderly, and women has been directly impacted by this weather change.

Due to issues including child malnutrition, women's low levels of knowledge and awareness, and a lack of health-related infrastructure, the district is already in a critical state. Furthermore, health-related illnesses are being impacted even more by physical variables brought on by climate change, such as heat waves and loo, maximum summer temperatures above 45 degrees Celsius, a rise in humidity, significant rainfall in a short period of time, etc.

3.1.2. Climate Change: Challenges of Health Department

- ◆ According to an assessment of maximum temperature data from 2011 to 2019, the extreme temperature events in Gaya (where the district records the temperature of more than 40 degree Celsius) has increased.

- ◆ The shift in temperature has affected the moisture content in air, making it more conducive for mosquitoes and other insects to thrive.
- ◆ Due to climate change, the possibility of an outbreak of water borne diseases and insect borne diseases such as malaria, dengue, fluorosis, typhoid fever, diarrhoea (in children from the month of Jan and Feb itself) and other respiratory diseases have increased.
- ◆ Additionally, it has been observed that in Gaya, the diseases become active only during winter and spring seasons. While in other districts of Bihar, the diseases become active after the monsoon season only.
- ◆ The frequency of heat stroke has increased due to the summer's extreme heat, affecting weak and Marist children the most.

3.1.3. Strategies and Action Points: Health

With the implementation of this action plan, the people of the district can be saved from disastrous consequences and incidents of climate change. Apart from this, the planning department is responsible for adequately implementing mitigation works file coordinating, taking feedback and evaluating the activities. Therefore, it will provide a clear outline for adequate implementation of mitigation activities. The responsibility of its implementation is with the health department, but the department will also have to coordinate with the other departments to carry out the tasks effectively.



Specific Strategy 1 for Health: Adopting prevention measures for health-related diseases and other effects arising from climate change and establishing inter-departmental coordination.

1. Health Department, and meteorological department should develop a warning system in coordination with each other to give information on changes in temperature and take preventive measures accordingly.
2. Arrangements to be made in all primary health centres/referral hospitals/Sadar hospitals/sub-divisional hospitals/ medical colleges for people suffering from the loo (with special wards and care for children, elderly and pregnant woman). For this, an adequate quantity of ORS packets, IV fluid and rice-saving drugs in health centres and hospitals should be available for the treatment. Enough drinking water should also be ensured.
3. There should be arrangements for uninterrupted power supply, freezers, vaccine carriers, ointments, medicines, test kits, halogen/bleaching powder/haija kalra medicines
4. To deal with extreme climatic events, the district hospital needs to plan on constituting a disaster management team. For this, arrange a mobile medical team so the unit can be sent to the affected places.
5. Thermal testing should be followed in all primary health and community centres.
6. PHC/CHC located in waterlogging/flood-prone areas should have doctors' nurses, and other staff during emergencies for 24 hours.
7. According to the situation, identify areas of diseases or epidemics in monsoon or post-monsoon season issue instructions to the health centres in the vicinity to be alert about it.

Integrated Strategy 1 for Health: Capacity building/implementing training programs for medical officers and personnel

1. To overcome the drinking water crisis caused by climate change, fishing employees must be motivated to conserve water at their centres.
2. Organize regular training programs on practice of documenting causes of death-on-death certificates and effects of climate change (hot winds/heat stroke, insect and water-borne diseases, and their testing) on human health for fishing employees associated with health facilities and provide IEC material to them.

Integrated Strategy 2 for Health: Disseminating awareness messages to the community

1. Develop a communication strategy (awareness campaign, street play, IEC material through posters/pamphlets, local media such as newspapers, radio, television) for local rural health facilities to spread awareness, with the help of doctors, paramedical staff, and field staff, on heat stroke, pests, and water-infected diseases.
2. Issue regular health advisories through SMS to make the public aware of the precautions that need to be taken to prevent heat stroke.

Integrated Strategy 3 for Health: Regular follow-up and monitoring

1. Regularly conduct and supervise medical officers at CHC and PHC devils and give proper advice to the office bearers committee to be present there from time to time.
2. In government hospitals (districts and blocks) - collect and manage data related to areas and patients affected by infectious diseases (heat stroke, water-borne diseases, malaria, filaria, dengue) and share with the concerned department.



3.2. Agriculture

3.2.1. Preface

Disasters brought on by climate change, such as floods, late monsoons, temperature increases, drought conditions, and fires, are making it difficult for farmers and the agricultural industry to make a living. South Bihar's Gaya district is a significant one. 67% of Gaya's population depends on agriculture for a living. However, people are becoming disinterested in agriculture because of the decline in average rainfall and associated high frequency of drought-like conditions, as well as the lowering of groundwater levels, growing market dependence, an increase in the number of families, and the small size of agricultural farm holdings. Due to fluctuating rainfall patterns and a lack of irrigation facilities, agricultural lands are abandoned annually. According to data, 13.8% of the district's land has been turned into fallow and barren land because of the drought. Consequently, the topic of climate change is crucial for the advancement of agricultural development and secure planning.

3.2.2. Climate Change: Challenges of Agriculture Department

- ◆ The maximum and lowest temperatures are rising. As a result, the annual rainfall has

decreased by 21.53% from 1990 to 2018.

- ◆ Climate change has reduced the district's average annual rainfall from 1148 mm to 900.87 mm. The agriculture department's difficulties are growing because of this change in precipitation.
- ◆ The district has experienced drought 16 times in the last 54 years, which has led to a drop in agricultural output. The most severe impact is on rice output.
- ◆ Due to the destruction of agriculture, people are migrating out of the district to find an alternate source for sustaining their livelihood.

3.2.3. Strategies and Action Points: Agriculture

Through the implementation of this action plan, agriculture and farmers can be safeguarded from the results and events of climate change. In addition, this action plan will provide a clear framework for proper implementation, coordination, and evaluation of response activities by the Department of Agriculture. The responsibility of implementing this action plan lies with the Agricultural Department; to perform tasks effectively, the department must coordinate with other departments.

Box 2 : Strategy for Agriculture



Specific Strategy 1 for Agriculture: Adopt measures to prevent agriculture-related challenges arising from climate change and establish inter-departmental coordination.

1. To deal with natural calamities like drought, fire, and frost, the department should coordinate with District Disaster Management and determine the nodal point in the department.
2. Collecting data on daily rainfall at the block level and issue warnings regarding drought conditions in coordination with the meteorological department. Instruct the concerned farmers and departmental officials to prepare a contingency action plan according to the situation.
3. Make proper arrangements for giving loans and grants for seeds (short duration seeds), fertilizers and other agricultural tools to the people/ families affected by drought. Also, arrange to transfer the stored seeds and equipment to safe places (cold storage) in case of drought.
4. The department should try to upgrade the irrigation system (drip irrigation, sprinkle irrigation and fencing), rainwater harvesting system (manage water through check dams or stone structures on natural channels), soil conservation (through polythene mulchin) and other water, land, and productivity management measures (contour cultivation, trenching, terracing, ridge and furrow planting and irrigation, repairing of Ahar, Pynes and Ponds) in according to the local needs.
5. KVK /Agriculture Universities should be supported in coordination with scientific research centres to promote less water-intensive crops. Similarly, percolation tracts to be built in light-textured soils to recharge groundwater and supplement irrigation.
6. Motivate the employees, stakeholder officials and committees working at the panchayat level to re-strengthen the grain bank, seed bank etc.
7. If there is no moisture in the field, do one irrigation before sowing of rabi crop so that its germination is not a problem. Sow seeds with a zero-tillage machine, so the soil moisture is not lost.
8. Department areas affected by district fire should be identified. They must prioritize their prevention, mitigation, and preparedness activities.
9. Sources of water at the village level are to be marked. Ensure water filling in water storage resources like wells and ponds around the village before summer in coordination with irrigation department.

Integrated Strategy 2 for Agriculture: Capacity building training programs

1. Departmental officials and personnel to get grant trainings and study material.
2. The capacity of the farmers for disaster risk analysis and disaster harvesting techniques is to be built using advisors at the gram panchayat level.

Integrated Strategy 3 for Agriculture: To spread awareness messages among the community about the agrarian crisis arising due to climate change

1. Wide publicity in the bulletin, newspapers and other media related to weather forecast, indicators/trends of drought before the drought by the district, subdivision block panchayat, and village-level stakeholders.
2. Encourage the farmers to use the measures incorporated in the contingency crop plan (crop insurance). The awareness campaign for the same and other development work must be regularly conducted via pamphlets, posters, calendars, hoardings, wall paintings, and newspaper, radio, and television programmes are used to disseminate research and development work through publications and messages.
3. Build the capacity of the community, CSOs, and other CBOs to learn about climate risk and disseminate information.

Integrated Strategy 4 for Agriculture: regular monitoring and evaluation

1. Make sure to assess the status of buildings (seed godowns, agricultural defence centres) and other resources developed by the department from district to subdivision, block, panchayat and village level at regular intervals for storage of agricultural produce.
2. Provide loans to Kisan credit card holders and diesel subsidy of drought-prone areas for sowing the upcoming crop.
3. After the end of the drought in the state and district, the task force meetings should introspect the actions taken by various departments and agencies during the drought.
4. Drought mitigation in agriculture (crop diversification), along with road map and measures of Group C districts in the DRR road map, should be included.



3.3. Drinking water and Sanitation

3.3.1. Preface

With the changing nature of climate change, maintaining the supply of drinking water and maintaining cleanliness is a significant concern. Cleanliness is impossible without water availability, and both elements complement one another. Unfortunately, drinking water and sanitation problems are worsening in the Gaya district because of the drop in average annual rainfall and indiscriminate groundwater use in recent years. In this scenario, the government would face a challenging challenge in preventing water and insect-borne diseases, improving public health, especially children's, and achieving the Swachh Bharat Mission's goal.

3.3.2. Climate Change: Emerging challenges related to drinking water and sanitation

- ◆ The more and more droughts have negatively impacted the level of groundwater. The department's data indicates that the subterranean water level is decreasing throughout the district's blocks.
- ◆ The modest hand pumps begin to dry up before summer because the groundwater level has dropped by 10 to 20 feet during the past six years (February-March).
- ◆ 20% of the families in the district must travel far from home in the summer to gather drinking water. The most impacted groups by this effort are women, girls, and young children because it is their obligation to collect water and that of their young children.
- ◆ The drought in Gaya is making it difficult for the district administration to meet its goals for building toilets and maintaining it as open defecation free.

3.3.2. Strategies and Action Points: Drinking water and sanitation

An effective strategy and action plan is being given here to deal with the challenges of drinking water and sanitation due to climate change. By implementing this action plan, challenges related to drinking water and sanitation can be faced due to various consequences of climate change. In addition, it will

provide a clear framework for proper implementation, coordination, and evaluation of response activities by the planning department. Its implementation is the responsibility of the Public Health Engineering Department, Panchayati Raj Institutions, local urban bodies and District Water and Sanitation Committee, but the department will also have to coordinate with other departments to conduct the work effectively.

Box 3 : Strategy for Drinking Water and Sanitation



Specific Strategy 1 for Drinking water and sanitation: Establishing departmental coordination on the challenges and effects of climate change related to drinking water and sanitation.

1. Observe and update the contingency plan according to a standard operating procedure to deal with the drinking water crisis. Identify water supply plants and tube wells and arrange funds. Water supply should be done through tankers. If there is a shortage of tankers, arrange for water supply through tanks. In coordination with the transport department, vehicles to be arranged as per the requirement so that water supply works can be done quickly. In case of non-availability of electricity, make arrangements for DG sets to lift water from water supply plants and tube wells
2. Identify and repair non-functional hand pumps and water supply systems, especially in water crisis areas, as soon as possible.
3. Identify traditional water sources and plan for their geotagging, cleaning deepening etc., as per the requirement.
4. Formation of teams of gang men under the department at the block level and determine the working areas of the team. If there is a shortage of permanent gang men, arrange for gang men on a contract or outsourcing basis.
5. The toilets and the drinking water pipeline constructed in all the houses should be suitable for senior citizens with disabilities under the "7 Nischay" implemented by the state government.
6. During the fire, coordinate with the fire brigade and ensure the arrangement of water.
7. Collaborating with the standing committee, village health, nutrition and sanitation committee and social organizations, including the works related to drinking water and sanitation management at the gram panchayat level in the gram panchayat disaster management plan.

Integrated Strategy 1 for Drinking water and sanitation: Implementing a capacity-building training programme for departmental officials and personnel

1. To provide training and organize cleanliness promotion activities (related study material) for Panchayati Raj Institutions, Urban development department, social institutions and block level departmental officers and employees on safe drinking water and sanitation, water conservation for example, rainwater harvesting and soak pits
2. Training the panchayats on preparing an action plan for the arrangement of drinking water in villages should be done.
3. Training to be given to service providers and technicians on the norms, guidelines and standard operating procedure for providing services to drinking water and sanitation During natural calamities like drought.

Integrated Strategy 2 for Drinking water and sanitation: Spreading awareness messages among the community about drinking water and sanitation crisis arising out of climate change

1. Organizing events in the community on cleanliness, sanitation, saving water, groundwater recharge, rainwater harvesting and making structures in their home for the same, through IEC awareness materials (on dos and don'ts of drinking water and sanitation during drought or infectious epidemics)
2. Motivate sarpanches and panchayat secretaries to play an active leadership role in achieving the objectives of Sujal and Swachh Gaon Yojana.
3. Prepare IEC awareness materials on Jal Jeevan Hariyali mission and disseminate them among the community.
4. Implement a cleanliness plan in all the schools.

Integrated strategy 3 for Drinking water and sanitation: Regular monitoring, continuous monitoring, and evaluation

1. Establish a control room inside the department for effective monitoring and regularly assess water shortage/ground water level fluctuations in rural and urban areas.
2. During water crisis, the complaints received in the control unit should be heard and followed up immediately.
3. Before the summer begins, the engineers and officials of the public health and engineering department should regularly supervise and be present there on time.
4. Assess the district's drinking water and sanitation facilities per the safety indices given in the DRR road map. The quality of the drinking water to be ensured through regular testing



3.4. Education

3.4.1. Preface

The tragedies that result from climate change harm both life and property. It has a significant impact on children's education and continuity. Locally, it has been observed that in the context of the changing character of disasters, not only children are affected, but also teachers' interest in the institutions and schools that provide education, as well as the indifference of parents of most of the children towards education. Due to numerous natural calamities like drought, the southern Bihar state region of Gaya district has experienced delayed development. Children in the district between the ages of 5 and 14 are growing up too soon due to untimely family responsibilities brought on by drought-induced poverty. Children who belong in school are compelled to work on farms, brick kilns, and in other places.

3.4.2. Challenges of the Education Department

- ◆ Temperature variations (besides, financial condition of the household, health, and nutrition of child etc.) impact students' attendance, enrolment, and dropout rates at school.
- ◆ Climate-related issues impact schools' facilities (electricity, water, restrooms, drinking water, and midday meals etc.) and how well students are taught. due to the lack of facilities.

3.4.2. Strategies and Action Plan: Education

With the implementation of this action plan, school children will be saved from various incidents of climate change. In addition, it will provide a clear framework for proper implementation, coordination and evaluation of response activities by the planning department. The responsibility of its working is that of the education department, but to conduct the work effectively, the department will have to coordinate with other departments.

Box 4 : Strategy for Education



Specific Strategy 1 for Education: Challenges of school operations arising out of climate change and adopting measures to prevent other effects and establishing interdepartmental coordination

1. Necessary changes to the in-door timings of classes for schools and colleges in the summer/winter season should be made in coordination with the meteorological department, in view of the issued warnings regarding heatwave conditions.
2. Keep arrangements for drinking water, water supply through handpumps and ORS in schools and exam centres and electricity supply in primary schools in coordination with the energy department.
3. Propose to the district administration to make separate toilets for boys and girls to maintain the presence of children in schools during summer and rainy days.
4. All the school actors should ensure rainwater conservation on the roof of the school building and construction of sorkha using fund/ composite grant/MNREGA.
5. Headmasters of all schools in the district should report any kind of repair to be done in their school to their block education officer. In addition, follow guidelines of the Chief Minister's school safety to keep the school premises safe from the risks-both structural and non-structural - arising out of extreme events of rain and other natural calamities.

Integrated Strategy 2 for Education: Implement capacity building or training programme for teachers, school management committee members, education department officials and students

1. Understand and develop the school community's capacity (children, teachers, parents) to identify risks and plan measures to reduce their adverse effects on climate change.
2. Develop a culture of disaster management in children by including a school safety programme in the normal teaching process. In all the district schools, teachers should be provided with separate awareness module materials on climate change and temperature-related extreme events to distribute those materials to the children in the classes.
3. To conduct a mock drill at the district level, a workshop/training camp should be organized as per SOPs. All relevant nodules in this teacher/education officer/block education officer/district education officers etc must join.

Integrated Strategy 3 for Education: Disseminating awareness messages to public/children/school management committee members

1. Under the Chief Minister's school safety programme in all the district's schools, ensure that the implementation of the safe Saturday programme is annual table-wise.
2. Issue instructions to female teachers at all schools to increase awareness about cleanliness Prepare IEC material for measures/do's and don'ts on climate change/hot winds/heat strokes/water, and heat-borne diseases. Drawing competitions for children on various themes of climate change to be organized, conduct mass campaigns on heat stroke, planting trees, water conservation, cleanliness, fire prevention and first aid through pamphlets/posters campaigning at the local level.
3. Local media such as radio, telephone, and SMS on mobile to issue advisories to the parents regarding the prevention of heat stroke, water conservation and cleanliness. A copy of the standard operating procedure (SOP) for fire and evacuation should be available in all schools.

Integrated Strategy 4 for Education: Regular monitoring, continuous monitoring, and evaluation

1. District education officer/block officer should give instructions for maximum participation of children and ensure to participate in the rehearsal of the safe Saturday programme from time to time. The teacher in each school will act as the nodal officer (disaster management) to ensure the process of the mock drills in each school.
2. All the block education officers of the district should make a list of dilapidated schools by identifying them through rapid visual screening in their designated area and close to the district administration for construction/renovation of the school building.
3. The headmaster should prepare a list of migrant families from among the children enrolled in the school every year and the block education officers will review the dropout from the principals of different schools of the block through the child register. He/she shall also review the facilities available & climate risk sensitive action plan in the school and rate them on the scale of 1-5.
4. The migrant families should be sensitized on education through the team constituted by the school management committee.



3.5. Child Protection and Development

3.5.1. Preface

The intensity of climate-related disasters has changed because of climate change and ecological issues. This transformation has directly influenced people's agricultural businesses, food availability, and nutritional status, particularly for women and children. Children are not receiving a balanced meal due to untimely rains, diminishing rainfall, and rising temperatures in the districts, which directly impacts rural residents' quality of life and crop loss. Due to these disasters, many children in places without access to clean, safe drinking water and health facilities become victims of infectious diseases. Occasionally, children with weak immune systems pass away.

3.5.2. Climate Change: Challenges related to Child Nutrition and Child Development check

- ♦ The district's repeated droughts and drought-like circumstances are to blame for the pervasive malnutrition among children and women. They have inadequately balanced diet and a lack of information.
- ♦ Frequent droughts or unexpected rains harm people's crops, threatening food security for the families of the poor farmers in the area.
- ♦ Children in the district between the ages of 0 and 5 do not have adequate nutritional status. 52.9% of waste in the district have dwarfism, 25.6% of children in the district have wasted, and 53.1% of children are underweight, according to the national family health survey report (2015-16).
- ♦ The child's development in the womb is improper due to an unbalanced diet and too much heat in pregnant mothers.

- ♦ If the hand pumps put in Anganwadi centres during the summertime dry up, the children at the centre's midday meal may not be served on time.
- ♦ The children's bodies' metabolism is impacted by the high temperature, making it harder for them to absorb nutrition.

3.5.3 Strategies and Action Points: Child Protection and Development

An effective strategy and action plan is being given here to deal with malnutrition-related

problems due to climate change and ecological challenges. With the implementation of this action plan, a result of various consequences and incidents of climate change, children and women can be saved from disability and other diseases due to malnutrition. In addition, this plan will provide a clear framework for properly implementing, coordinating, and evaluating response activities by the integrated child development project department. Still, the department will have to coordinate with other departments to carry out the tasks effectively.

Box 5 : Strategy for Child Protection and Development



Specific Strategy 1 for Child protection and development: Preventive measures and inter-departmental coordination to address the nutritional challenges posed by climate change

1. To safeguard children and pregnant and lactating women in the blocks affected by drought, the programs being run in Anganwadi centres should be implemented effectively.
2. Promote nutritional supplements, additional nutrition for children and affordable, nutritious recipes based on local food sources. Get the water resources disinfected regularly in all Anganwadi centres.
3. The Take Home Ration (THR) card should be made for THR beneficiaries like the MCP card.
4. District Project Officer (DPO) health coordinates with the department and cooperates with the health department in an emergency so that nutrition, health, and maternity services are given.
5. Soak near the hand pump in all Anganwadi centres and rooftop rainwater harvesting structures in departmental buildings.
6. Make proper arrangements for safe drinking water, iron parts, medicines, electricity connection, and life-saving solutions like ORS at all Anganwadi centres.

Integrated Strategy 2 for Child protection and development: Capacity building training program implemented for departmental officials and personal

1. Regular capacity building of all the officials and Anganwadi sevika, ASHA workers to be done on the child development program, latest heat and water borne diseases, nutritional values of local food and promotion of home gardens. A package handbook and IEC material to be prepared and distributed
2. Giving training to Anganwadi workers/sahayika before summer and preparing package handbook.

Integrated Strategy 3 for Child protection and development: Awareness messages to the masses

1. Anganwadi workers sahayika, in collaboration with the voluntary organization should regularly run community level awareness campaign on nutrition and protection against dehydration, heat stroke, hand washing and hygiene practices especially for children, pregnant women, and lactating mothers. Similarly,
2. Nutrition-related promotion-distribute THR in THR bags.

Integrated Strategy 4 for Child protection and development: Monitoring anti evaluation

1. DPP and CPO should be regularly followed up to get effective and positive results.
2. Migration in case of drought for homeless women should be short with registration and ANC services.
3. After natural calamities like floods or drought in an area, the project and the Child Development Project Officer (CDPO) should quickly assess the damage and send a detailed report to the higher officials.
4. All the Anganwadi workers of the district keep updating the list of malnourished children and pregnant women of their respective nutritional areas so that priority can be given to their safety or in case of emergency.
5. Anganwadi centres in the project areas should remain open for at least 300 days. Anganwadi workers should visit their area regularly. Women supervisor should aim for field visits to 2 centres every day in their monthly work plan so that 25 visits in a month is assured.

4 Localizing Resilience Agenda

4.1. Enabling Policy Architecture and Inclusive Plans : Localizing Resilience Agenda

The Government of India has unveiled the "Strategy for New India @ 75," which is in line with the SDGs and seeks to advance India toward a US\$ 5 trillion economy by 2024 in acknowledgement of these and other problems and to strengthen the policy ecosystem further. Although, as the Hon'ble Prime Minister Shri Narendra Modi mentioned in his speech at the United Nations Sustainable Development Summit in September 2015, "Much of India's development strategy is mirrored in the Sustainable Development Goals," the goals largely reflect India's development agenda. Our country's ambitions are ambitious and well-intentioned; the globe and our lovely planet will significantly benefit from the sustainable development of one-sixth of humanity.

Additionally, the government is equally committed to and focused on developing and implementing some large-scale programmes that close significant gaps in achieving the core SDGs. For example, Bharat-Pradhan Ayushman Mantri The Jan Arogya Yojana (PMJAY) provides 500 million Indians with annual health protection coverage of almost \$7,100 USD most remarkable government health protection programme in the history of the globe. In addition, India plans to eradicate tuberculosis by 2025, five years before the worldwide target of 2030 (with the poor being more at risk). These programmes will significantly reduce inequality, as nearly 60 million

Indians live below the poverty line due to out-of-pocket medical expenses. In addition, the government started the Poshan Abhiyan, a National Nutrition Mission for women and children, to end malnutrition by 2022. The programme acknowledges the relationship between nutrition and other factors like water, sanitation, cleanliness, mother's education, and poverty. It ensures that all the services are provided to a home to reduce undernutrition nationwide.

Additionally, India has often emphasized the need for climate justice, which entails implementing effective measures to shield the underprivileged from the effects of climate change. To abolish malnutrition by 2022, the government launched the Poshan Abhiyan, a National Nutrition Mission for women and children. The programme strives to ensure that each home receives all of the aforementioned services to lower undernutrition across the country. It recognizes the relationship between nutrition and other issues, including water, sanitation, cleanliness, mothers' education, and poverty. India has also often emphasized the need for climate justice, which means taking meaningful steps to protect the weak from the effects of climate change (NITI Aayog, 2019).

Additionally, a programme called "Transformation of Aspirational District" has been implemented in 112 districts to improve service delivery throughout the lagging regions and is closely related to the accomplishment of several SDGs to reduce intra-regional disparities. The Pradhan Mantri Jan Dhan

Yojana (PMJDY), the largest financial inclusion programme in the world, is another notable instance of a cross-cutting project. Through Direct Benefit Transfers, the government has paid out a total of USD 110 billion to over 250 million beneficiaries by utilizing PMJDY, Aadhaar (a biometric identity system), and mobile technology (DBT).

This has greatly increased the effectiveness of government programmes. Given its disproportionate share of the burden of global development, it is generally acknowledged that India will play a key role in determining the success or failure of the SDGs. Given its federal governance structure, where most of the functions that have an impact on the SDGs fall under the purview of the sub-national/state governments, it is clear that the commitment of the Government of India to achieving the Sustainable Development Goals can be realized if actions at the national level are complemented by initiatives of the State governments and the Union Territories (UTs). Furthermore, it is essential that States participate in and contribute to the pursuit of the SDGs due to its emphasis on equality, inclusion, justice, and the fundamental concept of "Leave No One Behind." The SDGs are global, but their realization will depend on the States, cities, districts, and villages that make them up. Therefore, state governments are key players in implementing Agenda 2030 and are primarily responsible for accomplishing the SDGs (NITI Aayog, 2019).

5 Strategic Lessons and Recommendations

Lessons Learnt

1. The SDGs are closely related, status assessments cannot be made in isolation, and action plans do not necessarily need to be clearly defined.
2. The working groups and committees formed among various government departments at the State and district levels during the preparation of the Vision document successfully promoted convergence.
3. The State government has used the "whole-of-government" approach to visioning to develop inter-departmental procedures that will successfully direct the implementation phase.
4. There has been discussion about the interactions between the SDGs, including the trade-offs (negative) and spin-offs (co-benefits). This entails a better understanding of how the SDGs are interrelated or how achieving one SDG (such as SDG 6 on clean water and sanitation) might positively impact another SDG (such as SDG 7 on good health and well-being).
5. Decision-making based on data has been encouraged. A real-time analysis and rationalization of the current data ecosystem with the ecosystem on various threats and their effects has been done.
6. It is widely acknowledged that governments cannot finance these objectives on their own, hence it is essential to utilize all domestic, international, public, and private resources.
7. Scaling up development projects and accomplishing development goals will depend on mobilizing private sector money in addition to existing state and multilateral development finance. To address the nation's development needs, there is a significant opportunity to mobilize corporate social responsibility funds and private contributions.
8. Vigorously pushing sub-national governments to adopt, implement, and monitor the SDGs to increase the focus on this goal. The States have developed their plans for educating communities, CSOs, and elected officials at the state, district, and local levels. However, each group requires its unique communication tactics. Therefore, the media is crucial for raising awareness of Agenda 2030 and its needs.
9. The district administration is crucial in reviewing and approving local government plans. Therefore, it becomes crucial that the district administration is informed of the SDGs. Several States have either created district-level structures (District SDG Cell) under the direction of the District Collector for the purpose or have entrusted the responsibility of coordinating SDG implementation to the District Planning Committees, a constitutional body for district-level planning and monitoring of programmes.
10. Various State governments have prioritized the creation of tools for capacity building and educational resources. The following categories apply to capacity-building programmes in the States and districts: Consultations on mapping departments and schemes on SDGs and associated targets; Orientation and training on SDG indicators, data collection and monitoring framework; Workshops on SDG-oriented budgeting, linking outcome-b with SDGs (NITI Aayog, 2019).

6

District and Local Level Climate Action Plan

Process Framework

To fulfil the goals of the 2030 Agenda, it is necessary to "localize" those goals and targets, as well as to identify the mechanisms of implementation, use indicators to track progress, and raise awareness of subnational contexts by advocating. The concept of "localization" refers to how local and sub-national governments may assist in achieving the SDGs through bottom-up initiatives and how the SDGs can serve as a framework for local development policies. These involve inclusive planning, execution, and evaluation. The climate action being one of the SDGs is an ongoing process taking place in 3 phases

Goals are within the mandate of State governments and local governments. Localization of climate action plans (SDGs) is the responsibility of all three levels of government.

Phase 1: Identification of institutions and assignment of specific mandates and actions to deliver on the SDGs. The responsibility for coordinating the SDGs among central ministries and state governments, as well as for tracking their progress, has been given to NITI Aayog, the Planning Commission's successor; the Ministry of Statistics and Programme Implementation (MoSPI), on the other hand, is in charge of creating the National Indicator Framework (NIF), which will be used to track the SDGs; and the Central/Federal Ministries, whose programmes are aligned with the SDGs and their targets. The ministries also provide information for the National Indicator Framework

(NIF); The Comptroller and Audit General of India is the Supreme Audit Institution of India and oversees performing an audit to determine how well India is equipped to accomplish the SDGs. At the central level, there is the Finance Commission of India, responsible for reviewing the state finances of the union and making necessary recommendations on the devolution of taxes between the central and state. The training institutions at the national level are majorly responsible for designing tools and programmes to build the officials' capacity. At the state level, the office of the state's chief secretary is responsible for overseeing the work being done on SDG. Although, the planning department is responsible for implementing SDGs, the directorate of economics and statistics acts as a focal point for all the sector-wise line ministries and training institutions. The line departments are responsible for formulating, implementing and monitoring the schemes and programmes that contribute to the achievement of SDGs. At the district level, and the local levels, the elected Panchayati Raj Institutions' representatives and frontline employees, district administration, and urban local bodies, are essential for SDG action (NITI Aayog, 2019).

Phase 2: Raising awareness and advocating for the implementation of the action plans

To meet the goals outlined in Agenda 2030, it is essential to increase the knowledge of the action plan among all stakeholders. It supports behavioural change, which is crucial for equitable and sustainable growth, effective localization and better ownership. The Indian government has launched a variety of

activities to educate its allies about the same, including fostering shared understanding among the federal and state government authorities to encourage ownership of the Agenda 2030.

Assigning goals and targets to the Ministries to adopt a 'whole-of-government' approach made it easier to show how government initiatives help implement the action plan and highlighted any gaps. Therefore, all line ministries must be given the duty of meeting specified targets and the need to contribute to achieving specific results for each of the goals. The "whole-of-government" approach to sustainable development is evident in this. Developing composite metrics to support action plans to gauge sub-national governments' progress toward individual goals and a composite metric for all aspects of development. Developing a Framework for National Indicators to Track the SDGs - Line ministries and States will be given access to the proposed indicators for their feedback and observations. Regional consultations will be organized to communicate the proposed indicator framework with States and solicit feedback, followed by a public consultation (NITI Aayog, 2019).

Phase 3: Bringing in the UTs, the State governments, and the Ministries; while national-level actions aid in defining the localization's scope, subnational-level interventions are crucial because these governments drive the process. Several initiatives are currently underway to achieve a variety of goals, including a) identifying the line Ministries in charge of particular SDG targets and Goals; b) comprehending SDGs in local contexts; c) defining indicators and metrics and setting up monitoring mechanisms; d) establishing the policy and strategy framework; e) organizing the implementation system, and f) carrying out Goal-oriented monitoring and review.

Concentrating on specific objectives by line Ministries: The line ministries and other participating ministries that oversee each intervention must be identified during the mapping effort. These ministries identified methods for coordinating their plans with the action plans, SDGs, and pertinent monitoring metrics. One must first grasp the climate action plans in their local contexts to comprehend the implementation tactics used in various schemes and programmes. A more thorough examination of programme strategies and implementation designs at the sub-national (States and Union Territories)

level would be made possible by regional consultations with representatives of local governments, community-based organizations, civil society organizations, and other stakeholders. Indicators and metrics are being adjusted by selecting data sources based on multi-layered and iterative engagements with Central Ministries, State governments, and UT administrations. To accomplish the action plans, the policy framework in States and UTs encourages States to conduct their visioning exercises. States are also recommended to designate a nodal department for State level coordination and map current government programmes with the action plans to identify gaps. Organizing the Implementation System: The nodal departments for coordinating the action plan implementation process have been formally recognized by all States. SDGs, climate action cells, or centres can be developed to organize and professionalize the effort and systematically build competence. Coordination groups can also be formed to direct programme implementation around specific themes or goals systematically. Conducting periodic reviews: Organizing periodic interviews is essential to evaluate the sub-national levels' developed systems. States and other line departments could learn from and with one another through these (NITI Aayog, 2019).

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Glossary of Terms

Adaptation: The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Adaptive Capacity: Adaptive capacity is “The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Climate Change: The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use”.

Disaster: A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Climate Disasters: Climatic disasters are defined as events caused by long-lived/meso to macro scale processes in the spectrum from intra-seasonal to multidecadal climate variability. Such events are

further classified as: Extreme Temperature; Drought; Wildfire. Extreme Temperature events are heat waves, cold waves, and extreme winter conditions.

Cyclones: A tropical cyclone is a rotational low-pressure system in tropics when the central pressure falls by 5 to 6 hPa from the surrounding and maximum sustained wind speed reaches 34 knots (about 62 kmph). It is a vast violent whirl of 150 to 800 km, spiraling around a centre and progressing along the surface of the sea at a rate of 300 to 500 km a day.

Heat Waves: A continuous spell of abnormally hot weather. Heat wave need not be considered till the maximum temperature of a station reaches at least 40° C for Plains and at least 30° C for Hilly regions.

Flood: A great flow of water, especially, a body of water rise in, swelling and overflowing land usually thus covered. Generally, flood occurs due to heavy rainfall in the catchment area but some time it occurs due to upstream discharge/ dam failure.

Drought: According to India Meteorological Department, drought over an area is defined as a situation when the seasonal rainfall received over the area is less than 75% of its long-term average value. It is further classified as “moderate drought” if the rainfall deficit is between 26- 50% and “severe drought” when the deficit exceeds 50% of the normal.

Disaster Management: The systematic process of using administrative directives, organizations, and

operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster Risk Reduction: The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. (Gupta, 2021)

Exposure: People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Risk: The combination of the probability of an event and its negative consequences.

Mitigation: The lessening or limitation of the adverse impacts of hazards and related disasters. (Gupta, 2021)

Resilience: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Vulnerability: The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Response: The provision of emergency services and public assistance during or immediately after a disaster to save lives, reduce health impacts, ensure public safety, and meet the basic subsistence needs of the people affected.

United Nations Framework Convention on Climate Change: The United Nations Framework Convention on Climate Change (UNFCCC) established an international environmental treaty to combat "dangerous human interference with the climate system", in part by stabilizing greenhouse gas concentrations in the atmosphere.^[1] It was signed by 154 states at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro from 3 to 14 June 1992.

Jal Jeevan Hariyali Mission: Under this scheme, the farmers of the state will be able to build ponds to get subsidy by the state government. The objective is to promote tree/ sapling plantation. Under this scheme, a subsidy of Rs 75500 will be provided to the farmers of Bihar for the construction of ponds, pokhras and irrigation of fields.

Sujal and Swachh Gaon Yojana: These interventions are of three types: (i) safe and secure drinking water supply and management; (ii) ODF Plus: ODF -S and SLWM and (iii) cross cutting interventions like convergence, IEC, action planning, etc. These interventions together will help transform villages into Sujal and Swachh Gaon

MGNREGA: Mahatma Gandhi National Rural Employment Guarantee Act 2005 or MGNREGA is an Indian labour law and social security measure that aims to guarantee the 'right to work'. It aims to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to at least one member of every household whose adult members volunteer to do unskilled manual work.

Chief Minister School Safety Programme: 'School Safety' has been defined as the creation of safe environments for children starting from their homes to their schools and back. This includes safety from large-scale 'natural' hazards of geological/ climatic origin, humanmade risks, pandemics, violence as well as more frequent and smaller-scale fires, transportation and other related emergencies, and environmental threats that can adversely affect the lives of children. The objective of the programme is to Build capacity, knowledge and awareness of school community (children, teachers and their parents) to identify and address risks/ hazards. 2. Integrate disaster management in education so as to create a culture of disaster management. 3. Making school premises a safe place from all hazards through Structural and Non-structural measures. 4. To develop Bihar a resilient state through children as change agent.

Take Home Ration: THR programme provides supplementary food products to children aged 6 to 36 months, and to pregnant and lactating women, for use in their homes. (Niti Aayog; 24)

Mother and Child Protection Card: The MCP card helps in timely identification, referral and management of complications during pregnancy,

childbirth and post-natal period. The card also serves as a tool for providing complete immunization to infants and children, early and exclusive breast feeding, complementary feeding and monitoring their growth.

Paris Climate Agreement: The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016.

Its overarching goal is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”

Sendai Framework for Disaster Risk Reduction: The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) was the first major agreement of the post-2015 development agenda and provides Member States with concrete actions to protect development gains from the risk of disaster. It has four priority areas 1. Understanding disaster risk; 2. Strengthening disaster risk governance to manage disaster risk; 3. Investing in disaster risk reduction for resilience and 4. Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

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