



Gender-Based Approach to Climate Change Adaptation

A advocacy paper from Lombok Island, West Nusa Tenggara, Indonesia

Collaboration research by IPB University, PI AREA, and Islamic Relief

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APBD	Anggaran Pendapatan dan Belanja Daerah/Regional Revenue and Expenditure Budget
APBN	Anggaran Pendapatan dan Belanja Negara/State Budget
APE	Anugerah Parahita Ekapraya
APKM	Akses (Access), Partisipasi (Participation), Kontrol (Control), Manfaat (Benefit)
ARG	Anggaran Responsif Gender/Gender-responsive Budget
BAPPENAS	Badan Perencanaan Pembangunan Nasional/National Development Planning Agency
BKF	Badan Kebijakan Fiskal/ Fiscal Policy Agency
BLT	Bantuan Langsung Tunai/Cash Direct Transfer
BPfA	The Beijing Declaration and Platform for Action
BPS	Badan Pusat Statistik/Central Bureau of Statistics
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CRC	Convention on the Right of the Child
DAS	Daerah Aliran Sungai/Watershed
DESBUMI	Desa Peduli Buruh Migran/Migrant Workers Care Village
DIBI	Indonesian Disaster Data and Information
FGD	Focus Group Discussion
GAP	Gender Analysis Pathway
GCF	Green Climate Fund
GDI/IPG	Gender Development Index/Indeks Pembangunan Gender
GDP	Gross Domestic Product
GEI/IDG	Gender Empowerment Index/Indeks Pemberdayaan Gender
GESI	Gender Equality and Social Inclusion
GPS	Gender Budget Statement
GRDP	Gross Regional Domestic Product
HDI/IPM	Human Development Index/Indeks Pembangunan Manusia
IPCC	Intergovernmental Panel on Climate Change
K/L / M/I	Kementerian/Lembaga /Ministry/institution
KII	Key Informant Interview
KLHK/MoEF	Kementerian Lingkungan Hidup dan Kehutanan/Ministry of Environment and Forestry
KPPPA/ MoWECP	Kementerian Pemberdayaan Perempuan dan Perlindungan Anak/Ministry of Women Empowerment and Child Protection
KRISNA	Kolaborasi Perencanaan dan Informasi Kinerja Anggaran/Work Plan Collaboration and Budget Performance Information
LTS/LCCR	Long-Term Strategy on Low Carbon and Climate Resilient Development
NDC	Nationally Determined Contribution
NTB	Nusa Tenggara Barat/West Nusa Tenggara
OPD	Organisasi Perangkat Daerah/Regional Apparatus Organisation
ORMAS	Organisasi Masyarakat/Community Organisation
PKK	Pemberdayaan Kesejahteraan Keluarga/ Family Welfare Empowerment
PPRG	Perencanaan dan Penganggaran Responsif Gender/Gender-responsive Planning and Budgeting
ProKlim	Program Kampung Iklim/Climate Village Programme
PUG	Pengarusutamaan Gender/Gender Mainstreaming
RCP	Representative Concentration Pathway
RKA-KL	Rencana Kerja dan Anggaran Kementerian Negara/Lembaga/Work Plans and Budget of Ministries and institutions
RPJMN	Rencana Pembangunan Jangka Menengah Nasional/National Mid-Term Development Plan
SDGs	Sustainable Development Goals
SIDIK	Sistem Informasi Data Indeks Kerentanan/Information System and Vulnerability Index Data
SLR	Sea Level Rise
SST	Sea Surface Temperature
SWS	Satuan Wilayah Sungai/River Basin Unit
WASH	Water, Sanitation, and Hygiene

FOREWORD

"The servants of the Lord of Mercy are those who walk gently upon the earth..." (Quran 25:63).

Climate change poses a significant risk for communities across the globe, particularly in regions vulnerable to the impacts of climate change. As efforts to limit global warming to 1.5 degrees above pre-industrial levels continue, there remains an urgent need to adapt to inevitable changes to the climate caused by historic emissions. Adaptation to these risks means asking questions of inclusion and agency: to what extent are communities affected by climate change involved in the design of climate adaptation policies; how are adaptation policies facilitated on the ground; and why does this matter? In other words, climate change adaptation inherently carries questions of who matters, who decides, and who benefits – with the answers dictating the extent to which climate change adaptation policies are able to respond to the needs of the most vulnerable.

Accordingly, climate adaptation should be gender-neutral and should also account for gendered vulnerabilities that risk leaving women and girls behind. This is apparent, for instance, in the tsunami disaster of 2004 in the North Aceh province of Indonesia, in which 77% of the 377 fatalities were women. While men were able to flee to safety, women stayed behind to save children which slowed their flight. Moreover, women were unable to swim or climb trees which significantly lowered their chances of survival and escape. Pre-existing disparities and inequalities in Indonesia meant that women and girls were far more vulnerable than men.

Even in the aftermath of disaster events, research shows that women are less likely to recover than men, as women are frequently subject to conditions which deprive them of their rights, resources, and agency. Indeed, women in Indonesia have a lower life expectancy than men, have a lower per capita income and, according to the National Land Agency of Indonesia, own only 24.2 percent of Indonesian land. Women are also often excluded from decision making processes and policy mechanisms due to social biases and barriers to education for women. As a result, women and girls are often the most impacted *and* least able to adapt to or recover from the impacts of climate change.

However, if utilised correctly, climate adaptation can also provide significant opportunities to change existing societal norms and harmful traditions. For instance, women's positions in society may shift as women increasingly take up employment outside of the home due to climate-related changes to household income. Women with access to employment can open bank accounts, apply for aid and grants, and are more likely to be able to escape abusive conditions. Without comprehensive regulation and support however, what actually emerges is that women experience further disadvantages. Women often receive lower wages compared to their male colleagues, their burdens double due to an increase of responsibilities in and outside of the home, and there is an increased risk of being subjected to abuse and exploitation in the workplace.

It is critical, that we act now, not only to ensure that women and girls are not left behind by climate change adaptation, **but that they are empowered and enabled to become decision-makers and agents of change within their households and communities.** Such transformative change is only possible if we view gender and women's empowerment as a necessary component of any social, environmental, or economic policy, rather than as a separate objective that stands independently to other socio-political issues. It is crucial that we create holistic and integrated climate change adaptation policies which embed and prioritise women's rights, access and resources, and which also allows a societal shift in attitudes towards women. This requires significant effort and investment, both nationally and internationally, and also calls for wealthier nations to honour their commitments towards climate change finance mechanisms.

Shahin Ashraf

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SUMMARY

1. Research background

Indonesia is severely affected by global climate change. Alongside impacts to health and wellbeing, climate change directly and indirectly contributes to economic downturn and slow development in the region, not only at the national level but also in many rural provinces. As one of the larger islands in Indonesia, Lombok is at high risk from the impacts of climate change. Lombok is projected to face increasingly severe threats to crop yields caused by the increase in air temperature and changes in rainy season patterns: this will lead to disruption of plant metabolisms and increase the frequency of plant related diseases and pests due to more humid conditions. A decrease in crop yields also provides further threats to farmers' livelihoods and also has a severe effect on food security, potentially leading to significant economic decline. The impact of climate change is also felt strongly in coastal areas, where it has damaging effects on high-value economic sectors such as sea transportation, fisheries, trade, and tourism.

To address impacts on Lombok and minimise future effects of climate change, it is critical that action is taken now to adapt and build resilience, particularly for vulnerable groups such as women and girls who face additional barriers to climate change adaptation. Considering the increasingly tangible impacts of climate change, a comprehensive study was conducted by Islamic Relief alongside IPB University to assess the extent to which women and girls are vulnerable to climate change disasters, and the factors which hinder their adaptation, on the island of Lombok. This results from this study will aim to increase the capacity of communities capable of adapting to climate change; and also improve the mainstreaming of gender issues in development planning on a local, national and global scale.

2. Approach and methodology

The study was conducted from April 2022 to November 2022 with a quantitative and descriptive quality approach. Data and information was collected from literature reviews, field surveys, in-depth interviews, focus group discussions (FGDs), and consultations with stakeholders. Field surveys were conducted in three ways; household surveys (with categories of respondents including married men and women, boys, and girls); in-depth interviews (with categories including unmarried/single female respondents and persons with disabilities); and key informant interviews (KII) and FGDs (with the category of respondents including regional apparatus organisations (OPDs) and community organisations (CSOs)). Each category of respondents were taken to represent the characteristics of coastal, highland, and urban areas on Lombok. The total number of respondents from field surveys was 311, spread across the island.

3. Impacts and role of vulnerable groups in climate change

According to the International Panel on Climate Change (IPCC) (2022), the impact of climate change will be distributed differently among regions, generations, social classes, income groups, occupations, and genders. Due to climate change exacerbating pre-existing conditions of inequality and vulnerability, it has been identified that climate change can more negatively impact the lives of vulnerable groups, such as women and girls (UNICEF, 2011). The impacts of climate change felt by women in this study included financial loss, and physical and psychological health impacts. Nearly all women included in this study felt the health-related impacts of climate change, while over 50 per cent reported a reduction in income and 40 per cent reported difficulty in covering their financial needs.

The impact of climate change on children, is felt primarily in terms of health impacts such as, an increased frequency of conditions like the flu or coughs and loss of education. According to this study, over 60 per cent of children reported they had been forced to miss school because of disasters, floods, and heavy rain. Moreover, girls reported feeling a heightened risk of having to drop out, as household income declined due to climate change and parents struggled to afford tuition fees. For persons with disabilities (PWDs), the most strongly felt impacts of climate change relate to health, and include increased frequency of diarrhoea, pain, lethargy, headache, abdominal pain, and the flu. PWDs also experience physical and financial challenges due to climate change, such as loss of income as natural resources become more scarce and less accessible.

4. Adaptation for vulnerable groups

Adaptive roles

Women play a wide range of roles domestically, socially, and economically which can help better facilitate adaptation and environmentally favourable outcomes. These include conserving water, disseminating information, seeking employment for additional income, and disaster preparation. However, there is a socio-cultural assumption among most indigenous communities in Indonesia that women must carry out domestic duties first, before taking part in additional roles outside of the home. This restricts the roles and spaces women can operate in when it comes to climate change adaptation. Similarly, children have the potential to participate and assist with preparedness and disaster risk reduction: including risk awareness, threat identification, rescue training and disaster management. This potential is underutilised however, children must be given the space and support to participate meaningfully in climate change adaptation.

For PWDs, there is no specific role in their community because they are not involved in climate change issues of activities. Most of the respondents with disabilities felt that they had not been prioritised by the village community they reside in. Efforts that have been made in the face of climate change are still limited to: (a) asking families for help; (b) staying indoors and maintaining stamina; and (c) helping clean the house. The existence of physical limitations and inaccessibility of spaces for PWDs makes it difficult for them to get information about the issue of climate change. Disability groups require attention, especially in terms of: (a) information and socialisation; (b) technical assistance for capacity building; and (c) social assistance.

Challenges to adaptation

For women, the factors which undercut their capacity to adapt can be categorised into educational, financial, cultural and institutional barriers. Put simply, women generally have a poorer educational background than men, have less access to financial resources, are more restricted from participating in adaptive activities due to socio-cultural norms, and have less institutional support. Statistically, there is a difference in the variety and intensity of adaptation activities available to men and women, with intensity of activity carried out by men in the high category and women in the low category. Moreover, women are less likely to participate in decision-making outside of the home, with only 37.5 per cent of unmarried women involved in decision making in their community.

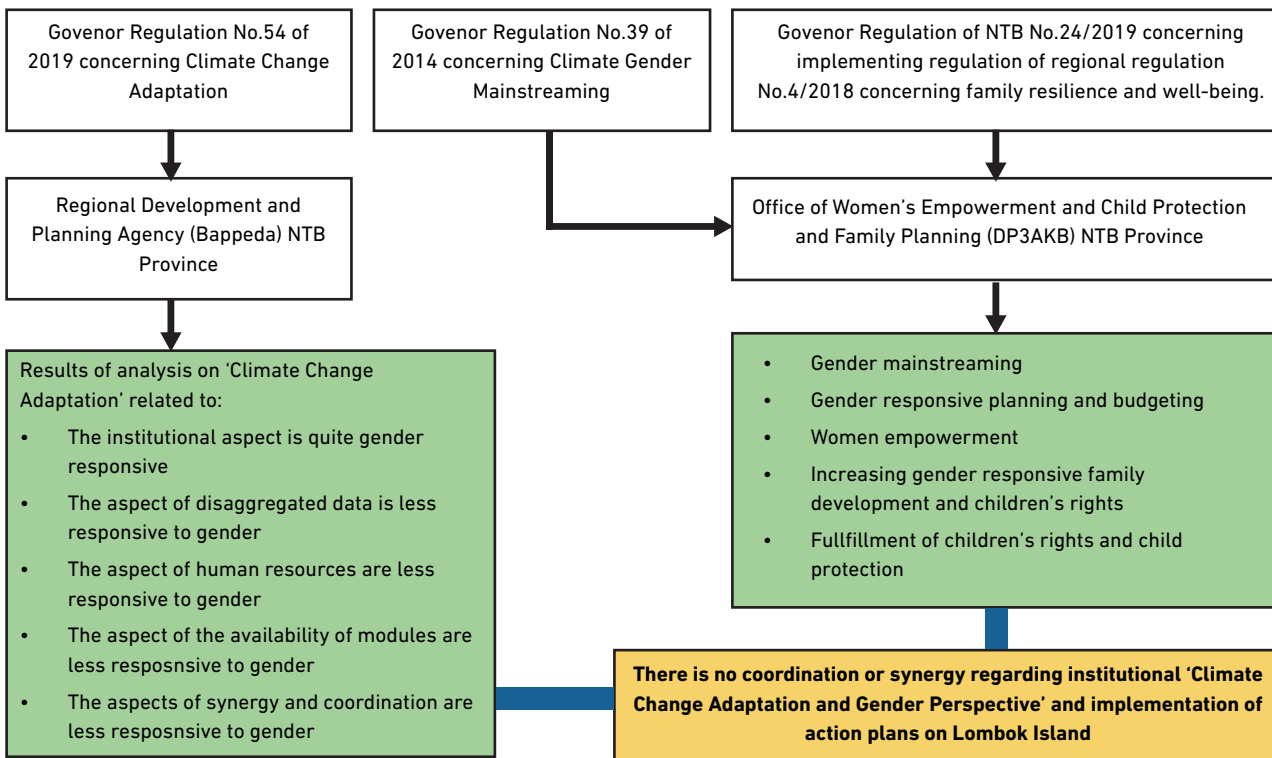
For children, the lack of relevant platforms for climate change awareness and adaptation constitutes a significant barrier, restricting the participation of children in climate actions. Although 78 per cent of child respondents claimed to have heard/known about/studied climate change information, 42.7 per cent, - the majority of whom were girls - still have limitations in accessing to information due to unfavourable social environments, economic conditions, and gender norms which lead to girls missing out on education. Based on the survey results, boys' participation in climate adaptation forums/communities is still slightly higher (16.67 per cent) than girls' (11.27 per cent).

Finally, PWDs' experience barriers include poor education, lack of income, social exclusion, and limited access to decision-making. The research shows that just over 14 per cent of PWDs were aware of climate change.

5. Gender-based climate change adaptation governance on Lombok

In the context of the West Nusa Tenggara (NTB) provincial area, initiatives have emerged to help communities adapt to climate change by pursuing development policies that are responsive to the negative impacts of climate change. The Governor's Decree Number 219 of 2007 dictates the establishment of a task force for Mainstreaming Aspects of Climate Change in West Nusa Tenggara Province for fiscal year 2007. Policies related to gender mainstreaming in development activities and planning have also been regulated in the

Governor Regulation No. 39 of 2014. The agency responsible for climate change issues in the NTB region is the Environment and Forestry Service, while the one responsible for gender issues is the Office of Women's Empowerment and Child Protection and Family Planning. Although there are already policies and institutions related to climate change and gender, collaboration between these two organisations has not been optimal. Based on the results of consultations and discussions with various stakeholders, actions to address the issue of climate change and gender on Lombok are still implemented separately. The results of the governance analysis of gender-based climate change adaptation on Lombok is illustrated as follows:



In relation to the funding budget, based on the results of the FGD, a gender-responsive budget (ARG) has been put in place in NTB, but has been experiencing problem in the implementation stage. This condition demonstrates the need to accelerate budget marking for climate change and gender-combined themes. Therefore, concrete steps to improve the implementation of gender-responsive climate change budgeting on the island of Lombok in accordance with the challenges need to be taken.

6. Recommendations

Based on the main findings of this research paper, Islamic Relief presents the following recommendations, which can be found in further detail in the conclusions and recommendations section.

For the international community:

Acknowledge that the impacts of climate change are not gender-neutral and address this through affirmative ways of working with women's groups.

Build agreement or consensus among policymakers and experts to identify, analyse, and implement gender mainstreaming opportunities.

Ensure gender mainstreaming of climate policy by encouraging civic spaces to amplify the voices of women and other vulnerable groups.

Develop multi-stakeholder partnerships and joint works to establish and operate the dedicated gender-responsive agenda items of the United Nations Framework Convention on Climate Change (UNFCCC) as concrete measures in promoting women's leadership.

Increase awareness and information dissemination globally on gender-related issues on climate change, especially under situations due to the adverse impact of climate-induced natural disasters.

Prepare global strategies on gender-based climate adaptation and resilience by promoting various locally-shaped solutions and adopting multi-stakeholder participatory approaches that prioritise the needs of the most vulnerable.

Develop a global framework on climate adaptation and resilience which integrates the goals and agendas of other international frameworks and agreements (such as the Sendai Framework for disaster risk reductions, and Sustainable Development Goals) and which addresses women's needs in priority actions by considering religious and socio-cultural aspects in their approach.

Provide inclusive climate finance mechanisms to vulnerable countries under The Paris Agreements which focus on gender and social inclusion.

For the Government of Indonesia:

Develop or formulate integrated derivative regulation of climate adaptation-related national policies with concern for implementing gender-responsive actions on prioritised sectors which are backed by both vertical and horizontal coordination as well as data sharing mechanisms among ministries/institutions.

Establish fiscal transfer incentives for sub-national governments that have planned and implemented gender-responsive climate change adaptation or climate-resilient development policies.

Recognise participatory tools as a method of climate vulnerability and capacity assessment to complement scientific climate data and information.

Ensure the existence of national policies in order to provide inclusive economic opportunities to vulnerable people, especially women and other marginalised groups (such as PWDs).

Strengthen institutional structures regarding climate change adaptation to monitor and evaluate the implementation of inclusive climate-related policies focused on gender-responsiveness both at national and sub-national levels.

Enhance rural women's adaptive capacity by regulating to protection of their sources of livelihood under local agro-ecological conditions as well as providing adequate infrastructure.

Develop inclusive early warning systems for climate-induced natural hazards to be acceptable and accessible to local communities, especially women and other marginalised groups.

Initiate climate fundraising in the framework of the public-private partnership in order to enhance public participation to finance proponent activities of climate adaptation and resilience actions.

Adopt a climate change financing framework to integrate gender mainstreaming in annual national planning and budgeting and develop a formal mechanism to tap into the available climate financing from international sources to reduce the burden on the national exchequer or minimise low-capacity fiscal problems.

1. INTRODUCTION

1.1 BACKGROUND

According to the 2022 IPCC report, most of Southeast Asia is projected to experience increasingly frequent temperature extremes and intense rainfall, leading to a wide range of negative impacts which threaten the safety and wellbeing of people living in the region. This impact is already being felt in Indonesia, where the national economy has begun deteriorating due to the direct and indirect effects of climate change. It is projected that this deterioration will continue as the impacts of climate change worsen, constituting a threat to fulfilling the basic needs of Indonesia's citizens (KLHK, 2020a).

Such impacts are also observed on a local scale. Lombok Island has already seen a reduction in crop yields due to increases in air temperature and rainfall, and changes in the rainy season pattern (Budianto et al., 2014), both due to disruption of plant metabolism and external factors such as the explosion of diseases and plant pests resulting from more humid conditions. The decline in crop production, projected to deteriorate further over time, not only threatens farmers' incomes and livelihoods, but has significant impacts on overall food security and the economy of Indonesia (KLHK, 2020b). Likewise, climate change also endangers the viability of coastal areas, which have high economic value because many economic activities such as sea transportation, fisheries, trade, and tourism centred along the coast (KLHK, 2020b). Mataram, the NTB provincial capital, is highly vulnerable to floods and drought. There, a rise in sea level may cause flooding, and the critical condition of the forest area may cause drought, both of which in turn reduce the availability of clean water and lead to water-borne disease (KLHK, 2020b). Rising sea surface temperatures can also cause changes in fish migration paths, coral bleaching, and damage to mangrove and seagrass ecosystems, which then affect fishermen's livelihood and food security (KLHK, 2020b).

To address the impact that climate change is already having in the region, and ensure that future risks are minimised, it is critical that Indonesia is able to adapt and build resilience. Climate scientists now recognise that even with global implementation of mitigation measures, greenhouse gas emissions already released will lead to a 1-1.5 degree increase in the global mean surface level temperature. Therefore, while mitigation is crucial to prevent further damage and disaster, there have already been changes to the global climate which cannot be reversed. However, this does not mean that the impact of climate change will be felt equally across the world – research shows that similar climate events in two or more places can lead to drastically different outcomes depending

on the level of preparedness and agility of the impacted areas. Accordingly, it is critical that risks are managed through climate change adaptation, i.e. the process of adjustment to the actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities (IPCC 2022), and the building of resilience against climate change impacts, particularly amongst vulnerable communities.

In doing so, it is important to recognise that different groups and actors experience different barriers to adaptation which undercut their capacity to adapt. Due to climate change exacerbating pre-existing conditions of inequality and vulnerability, it has been identified that vulnerable groups, such as women and girls, experience increased vulnerability as well as additional barriers to climate change adaptation (UNICEF, 2011). Women's capacity to adapt is often restricted due to their limited role in the household and within society. Limited access to resources, exclusion from policy and decision-making institutions and processes; as well as cultural gender norms, perceptions, and power relations, all tend to disadvantage women and girls. For example, women and girls are often discouraged from learning lifesaving strategies and skills, such as climbing and swimming, putting them at a distinct disadvantage during floods. These dynamics undermine the capacity of women and girls to build resilience against climate change, and few programmes include or focus on them for adaptation.

This is particularly significant as the inclusion of women and girls within adaptive activity is not only necessary for their own survival, but also contributes to the adaptation of the whole community as women hold critical knowledge, experience, agency, and unique roles both inside and outside of the household. To ensure successful adaptation, therefore, women, girls, and other vulnerable groups must be given the space, investment, and opportunity to participate and take leadership positions within climate change action. The first step towards this goal is to identify, analyse, and address the barriers that vulnerable groups experience.

Accordingly, considering that Lombok is vulnerable to climate change, research is needed to assess the extent to which women and girls in Lombok are vulnerable to climate change disasters and the extent to which they experience barriers to adaptation. This will be useful for increasing community capacity in adapting to climate change and increasing mainstreaming of gender issues in development planning.

1.2 OBJECTIVES

The overall objectives of the research are

- To measure the capacity of women and girls to adapt to climate change and the barriers which undercut this capacity
- To identify the process of mainstreaming gender issues in climate change adaptation
- To identify gender-based best practices in accordance with the results of evaluations and lessons learned during the project.

1.3 METHODOLOGY

In general, this research uses a qualitative and quantitative approach to achieve its stated objectives. Data and information were collected through literature and document search activities, available secondary data, area location maps, and field surveys including discussions with stakeholders (Fig. 1.3). The field surveys were carried out in three ways, household surveys (with categories of respondents including married men and women, boys, and girls), in-depth interviews (with respondent categories including unmarried or single women and persons with disabilities), and KII and FGD (with the categories of respondents including OPDs and Community Organisations (ORMAs)) Each category of respondents is taken to represent the characteristics of coastal, highlands, and urban areas on Lombok, thus representing all districts and cities. In total, 311 respondents living across nine villages were surveyed. Statistical tests were conducted to analyse the potential differences in impacts and roles between target respondent groups, such as regression tests and correlation tests.

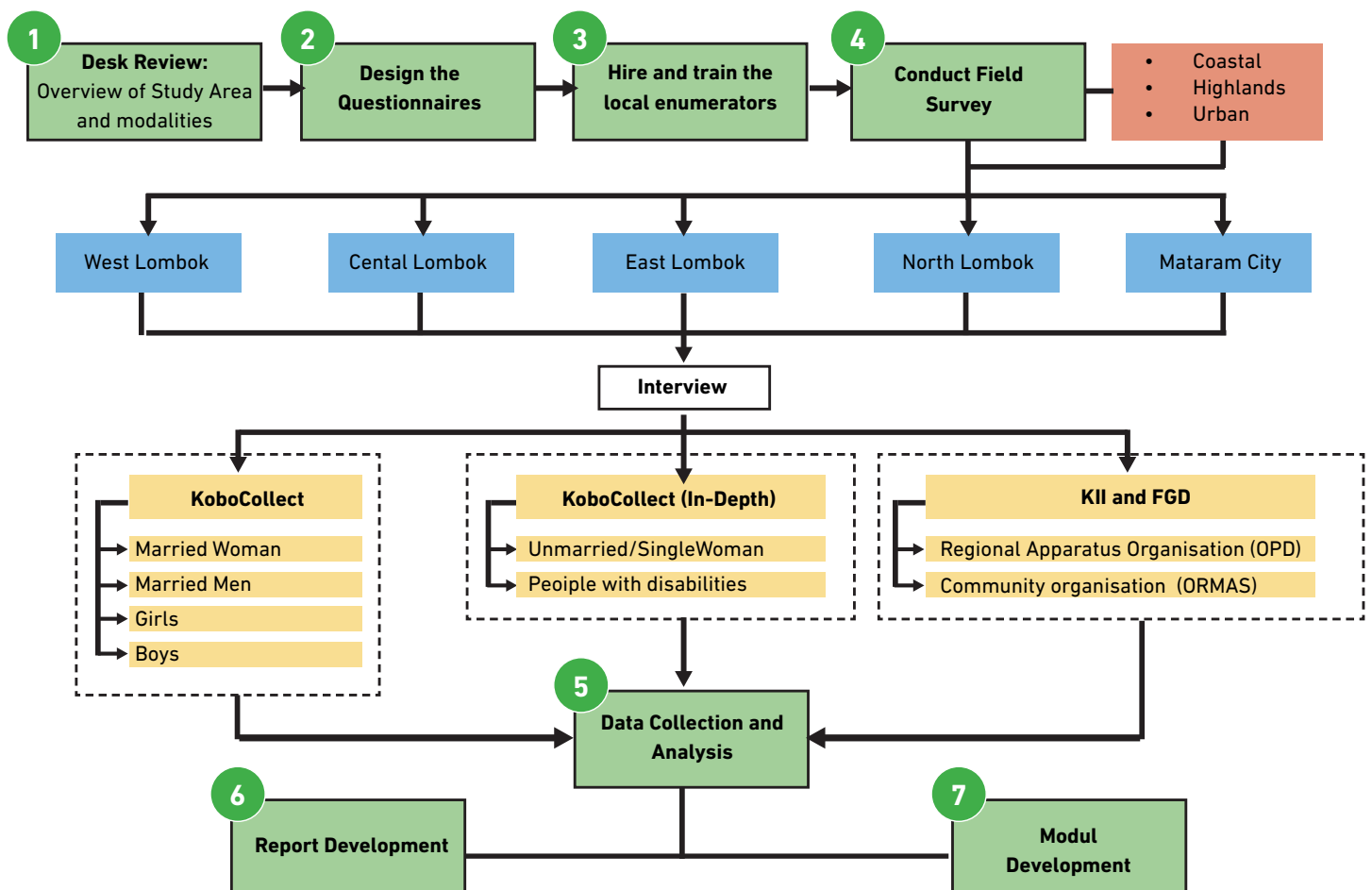


Fig. 1.3 The flow process of data collection on Lombok

1.4 RESEARCH AREA CONTEXT

Lombok is the second-largest island, after Sumbawa Island, in the Province of West Nusa Tenggara (NTB). Its area is 4,738,70 km² or 23.51 per cent of the total land area of NTB Province, with a coastline of 486 km (KKP, 2018). Surrounding Lombok are approximately 332 smaller islands. Lombok consists of one city (Mataram City, which is the capital of NTB province)

and four regencies¹ (Central Lombok, North Lombok, East Lombok, and West Lombok). Lombok's location contributes to a combination of climate, physiography, geology, and natural resources that are unique to the island. To identify the features of the communities on Lombok, a field survey of several representative communities for each district and city (nine villages- **Fig. 1.1**) was conducted. It was expected to represent the overall characteristics of the people in these districts and cities.

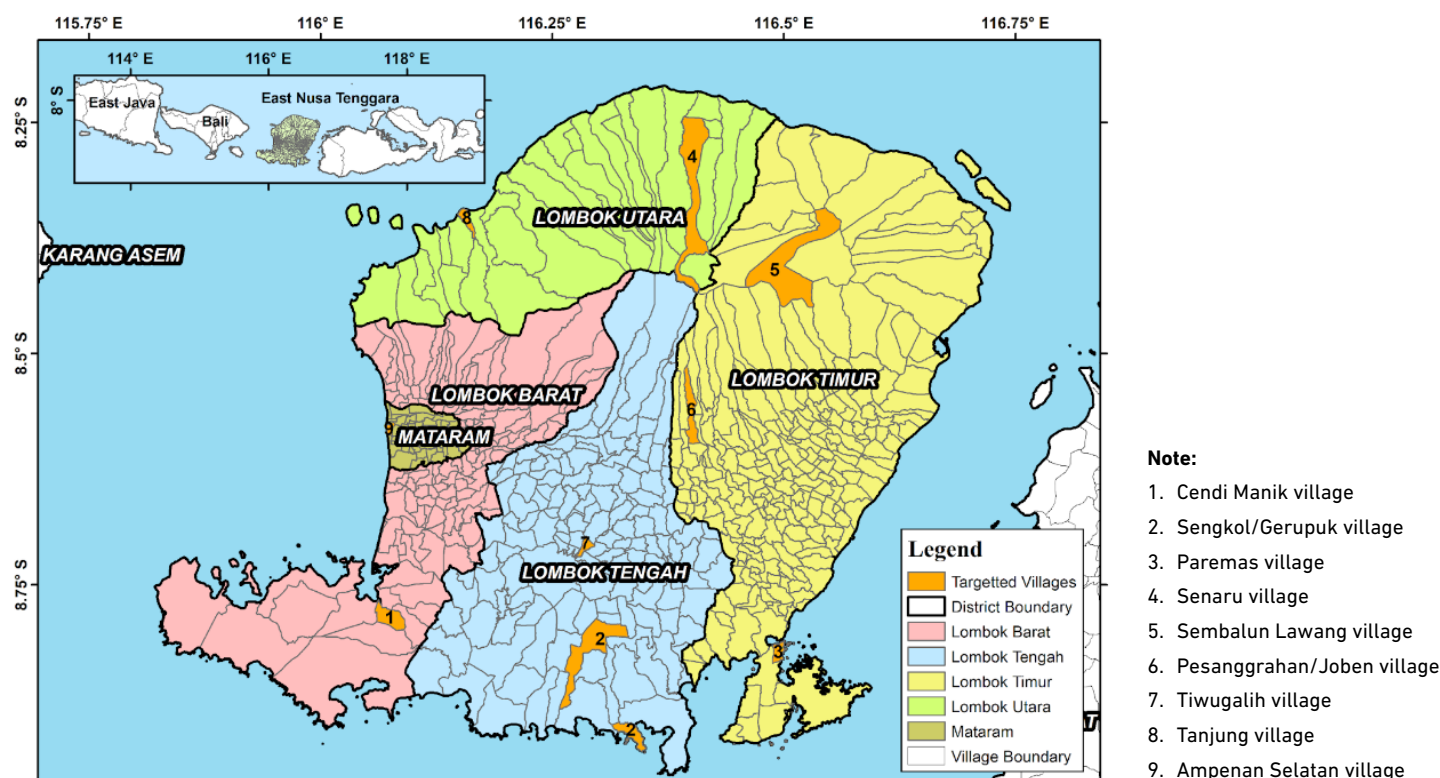


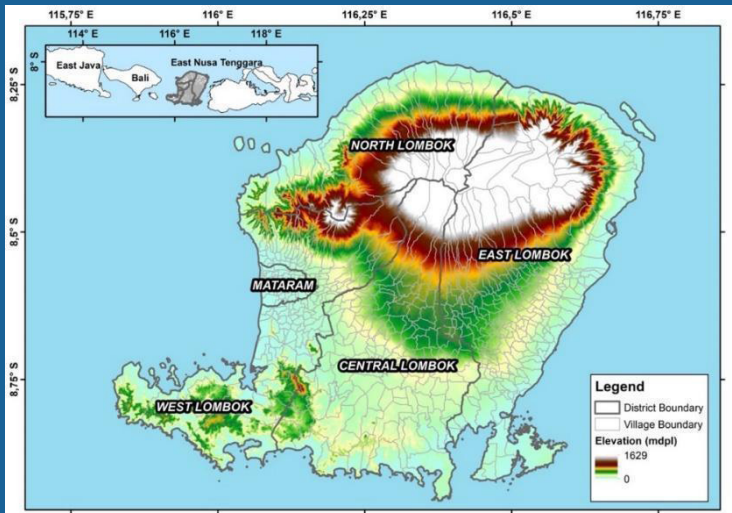
Fig. 1.1 Map of the research area sampling

The population of Lombok is up to 3.8 million people as of 2021 (Sex ratio 99.7 per cent), with an average density of 938 people per km. Lombok has 65 per cent of the total population of NTB. Unequal population distribution between Lombok and Sumbawa, has contributed to the emergence of problems of decreasing environmental quality such as the availability of water sources, forest and land damage, land conversion, ecological pollution, river silting. The poverty rate on Lombok is also higher than on Sumbawa. The main economic focus in Lombok is on the agricultural, fisheries, and tourism sectors. Although Lombok's GDP continued increasing throughout 2010-2019 (before decreasing again in 2020 due to the Covid-19 pandemic), this increase has been unable to lift the whole community out of poverty.

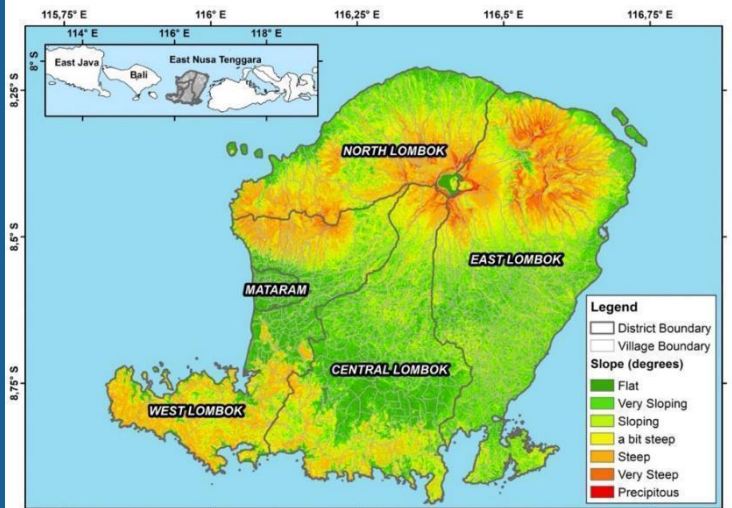
Geographically, Lombok has coastal, mountainous, and urban areas. Areas that have significant marble deposits are scattered in the northern part where Mount Rinjani is located. The research area is mostly dominated by mixed agricultural dryland, dryland forests and rice fields in the lower areas. Rice fields are found in Central and East Lombok. The availability of water in the research area can depend on the topography, rainfall, and watersheds that pass through it. The Lombok watershed and the Sumbawa watershed are divided into 18 sub-units of the river and watershed, based on the Decree of the Governor of NTB No.147 of 1999. The Lombok Watershed Unit (SWS) consists of four SWS, including: Dodokan, Menanga, Putih, and Jelateng.

¹ A 'regency' in Indonesia is defined as 'Kabupaten'- a category of territory under a province which is equivalent to a 'city'. Generally, regencies in Indonesia are larger in area but lower in population than cities

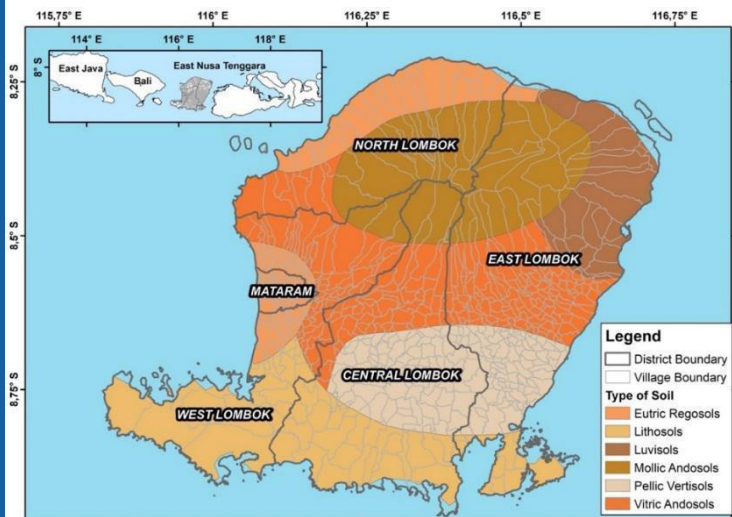
a.



b.



c.



d.

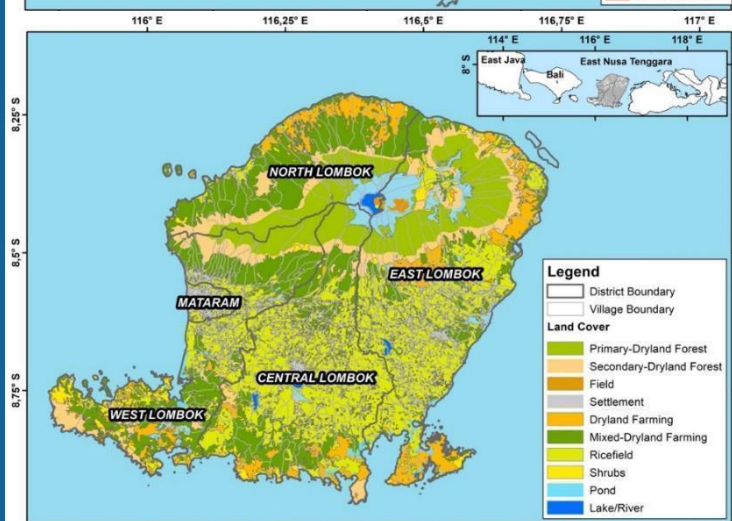


Fig. 1.2 Map of (a) elevation; (b) land slope; (c) soil type; (d) land cover

2. CLIMATE CHANGE AND VULNERABLE GROUPS

2.1 CLIMATE CONDITIONS AND ITS IMPACT IN RESEARCH AREA

Recent Climatic Conditions

Lombok has a tropical climate with a dry season and an average temperature of 26-28°C. The hottest month is April, when the maximum temperature can reach 33°C. Usually, January is the coldest month, with minimum temperatures going down to 17°C. According to WorldClim data for the 1991-2020 period (Fig. 2.1a), the hottest areas are urban areas such as Mataram, and the coastal area. Meanwhile, the coldest area is around Mount Rinjani.

Monsoon rain patterns have a large influence on Lombok. The rainy season usually begins in September, with the number of rainy days constituting around 170-190 per year. The rainy season varies from seven to 10 months, while the dry season lasts from two to five months (Sipayung et al., 2019). According to WorldClim data for the 1991-2020 period (Fig. 2.1b), the annual rainfall on Lombok ranges from 1.100-2.800 mm per year. The highland area around Mount Rinjani has higher rainfall, while the coastal areas of East Lombok have lower rainfall.

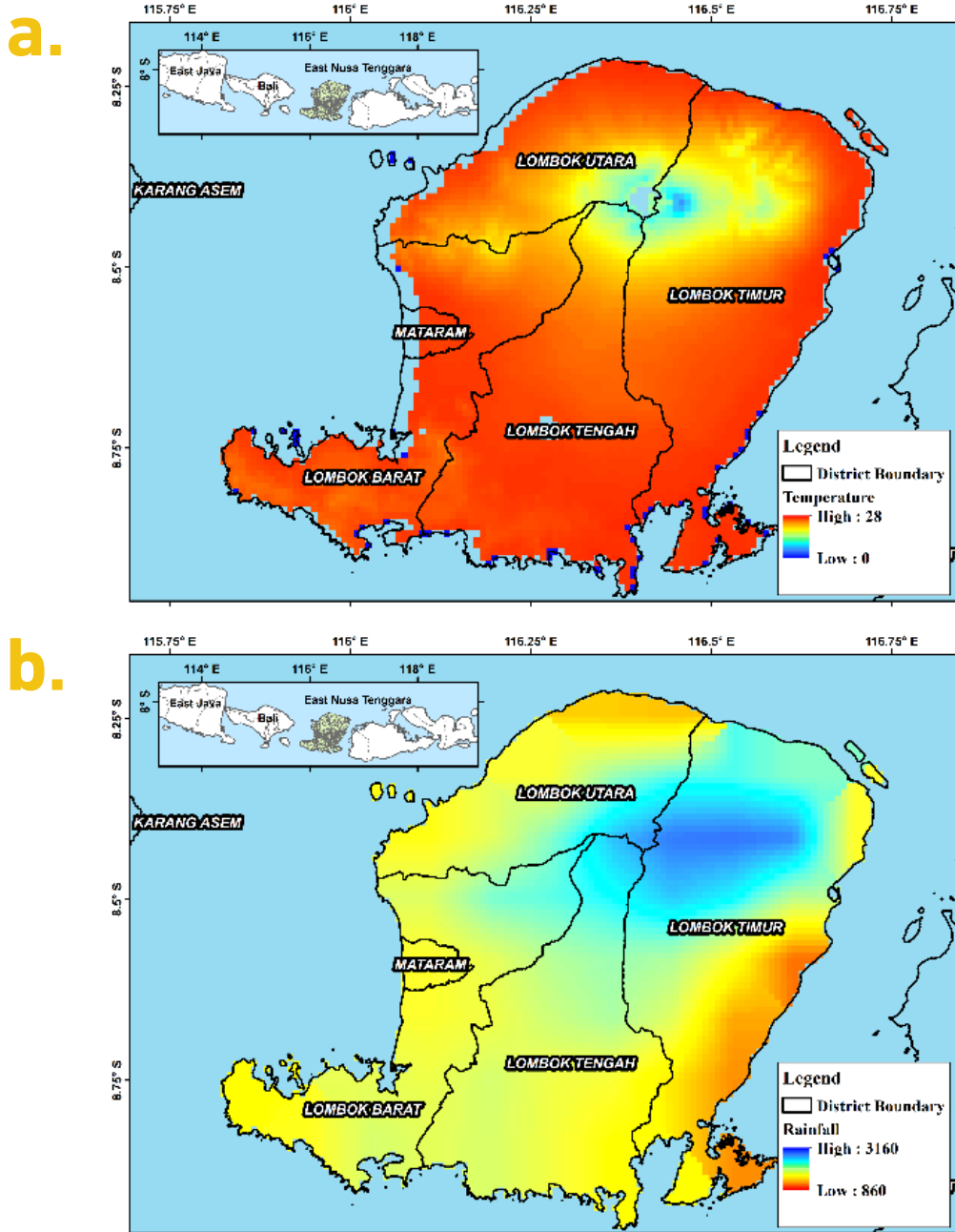


Fig. 2.1 Distribution of annual average air temperature (a) and annual rainfall (b) in Lombok Island for the period 1991-2020. Source: WordClim Data

Future climate projection

Climate projection

Based on historical data from 1992 to 2012, the temperature on Lombok has increased by around 0.2°C-1.6°C during that decade. An increase of 0.5-1°C in temperature is projected to continue periodically every 10 years until 2029 (Sipayung et al., 2019). The impact of climate change can also be seen in the distribution of the projected average air temperature for the period 2021-2050 (Fig. 2.2a), where the area with lower air temperature around Mount Rinjani appears to have decreased slightly compared to the average annual air temperature for the period of 1991-2020.

Similarly, there has been a pattern of increasing rainfall by 5.39 per cent in the 1983-2012 period, based on rain data collected from 22 observation

stations (Budianto et al., 2014). The climate change scenario Representative Concentration Pathway (RCP) 4.5 projects a decrease in rainfall of around 37.2 mm in the months of December to February (DJF). Meanwhile, in the June to August (JJA) season, rainfall is projected to increase by about 4.53 mm². According to WorldClim projection data for the 2021-2050 period (Fig. 2.2b), it is predicted that the area around Mount Rinjani, which usually has high annual rainfall, is getting wetter, while the coastal area of East Lombok, which has low annual rainfall, is getting drier. This shows that people living on the coast of East Lombok will be at risk of experiencing the effects of climate change in the form of drought, while urban areas and the area around Mount Rinjani will be at risk of experiencing the impacts of climate change in the form of floods and landslides.

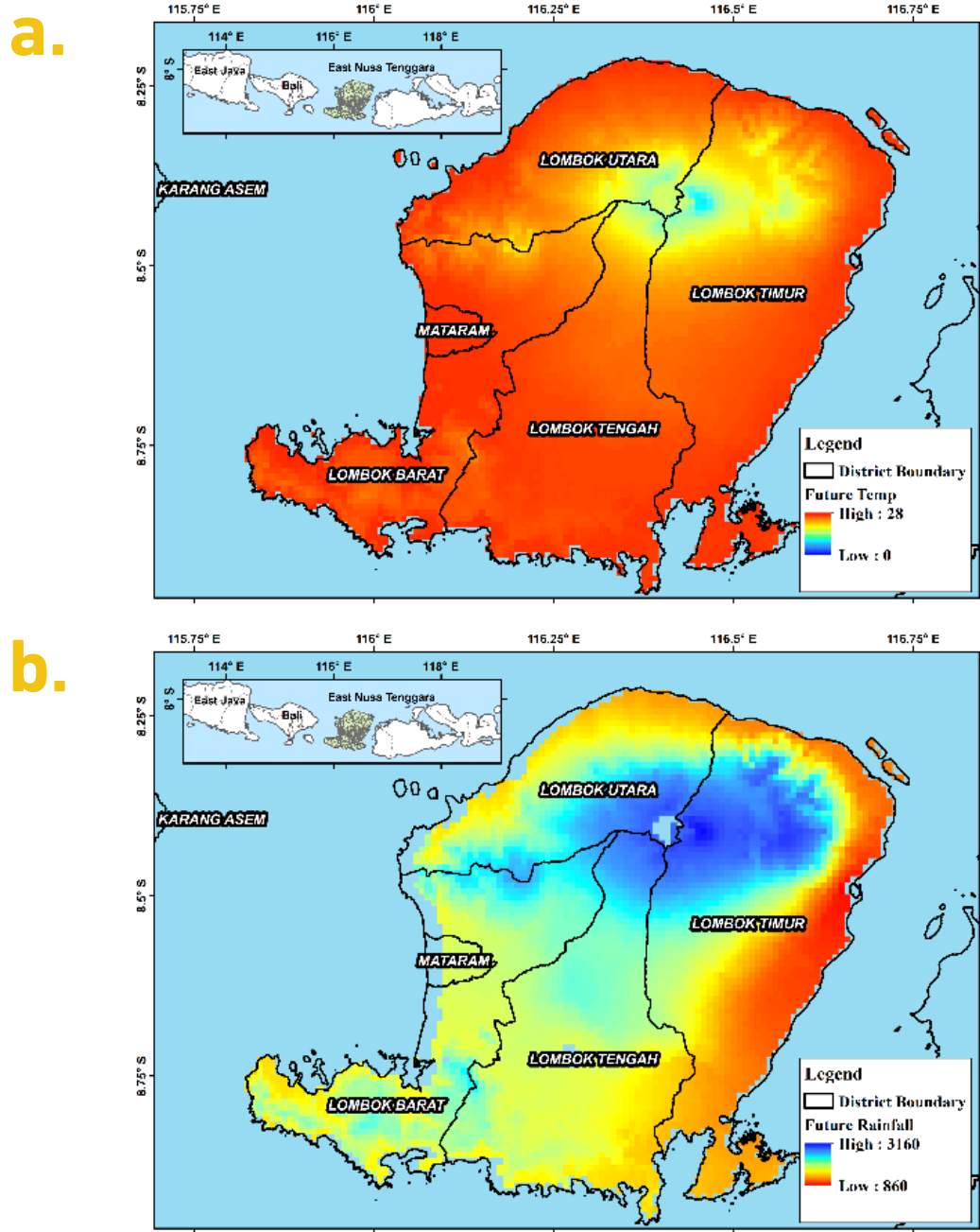


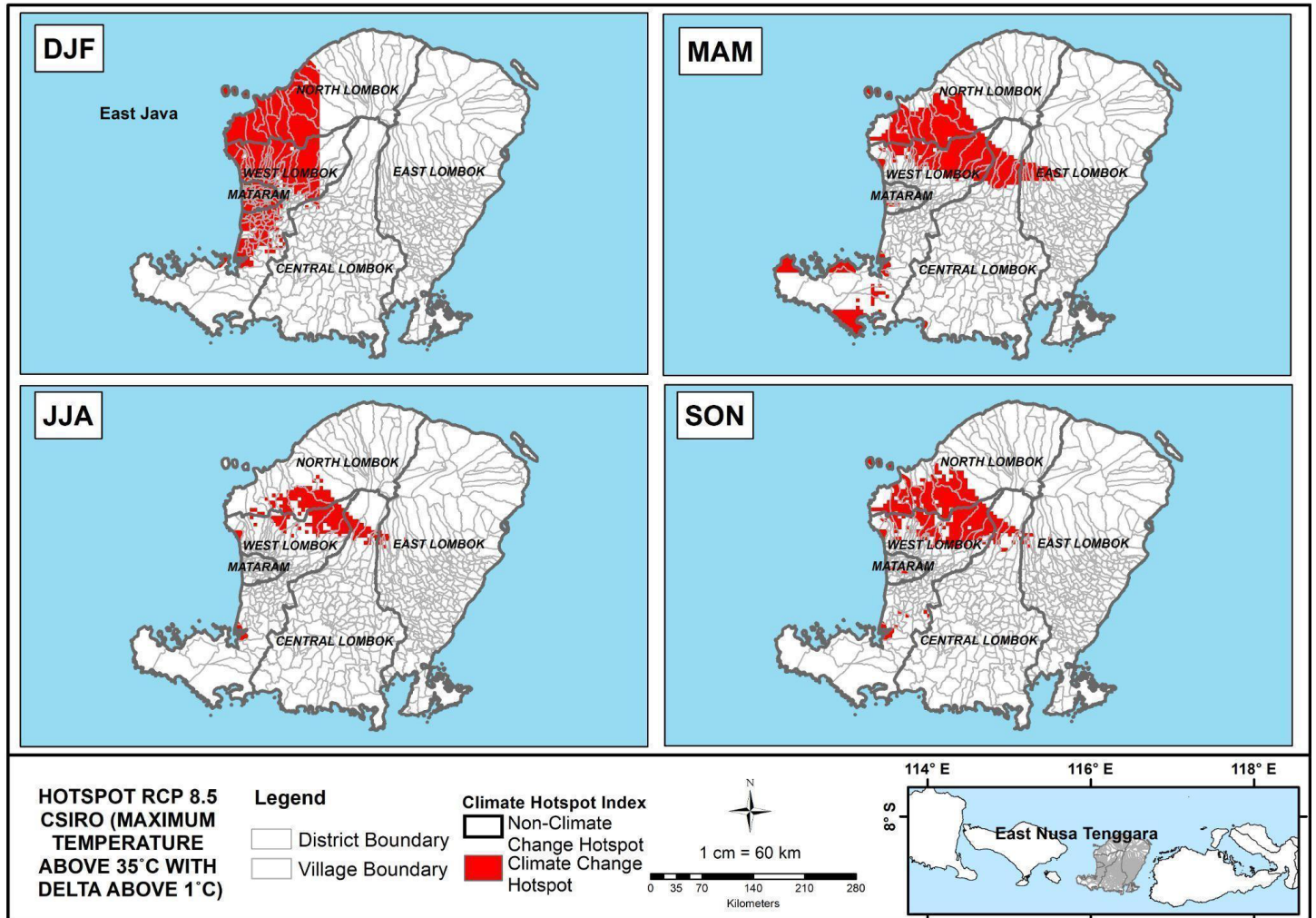
Fig. 2.2 Distribution of projected annual average air temperature (a) and annual rainfall (b) on Lombok for the period 2021-2050. Source: WordClim Data

Climate change hotspots

Climate change hotspots are areas characterised by high vulnerability and responsiveness to climate change. Considering the target of reducing global temperature increase to well below 2°C above preindustrial levels, Lombok’s climate change hotspots refer to regions which have the potential to experience an increase in temperature of 1°C, 1.5°C, and 2°C from baseline conditions: leading the air temperature in the future to exceed 35°C. The air temperature of 35°C was chosen as the threshold at which point there is an impact on food, water, and ecosystems due to climate change, and the health of living things is disrupted.

The output of the model by pioneering Commonwealth Scientific and Industrial Research Organisation

(CSIRO) shows more climate change hotspots than the Model for Interdisciplinary Research on Climate (MIROC). The map of climate change hotspots shows that areas with a maximum temperature above 35°C in the future will mostly be located in the northern part of West Lombok, western part of North Lombok, and Mataram. Most of the climate change hotspots are seen at an increase in temperature of 1°C. Based on the business as usual (RCP 8.5) high emission scenario, the majority of climate change hotspots will occur during the December, January, February (DJF) and March, April, May (MAM) months in the northern part of West Lombok, the western part of North Lombok, and Mataram (Fig. 2.3). Based on the moderate emission scenario (RCP 4.5), there will be fewer climate change hotspots in the same areas and months compared to the high emission scenario.



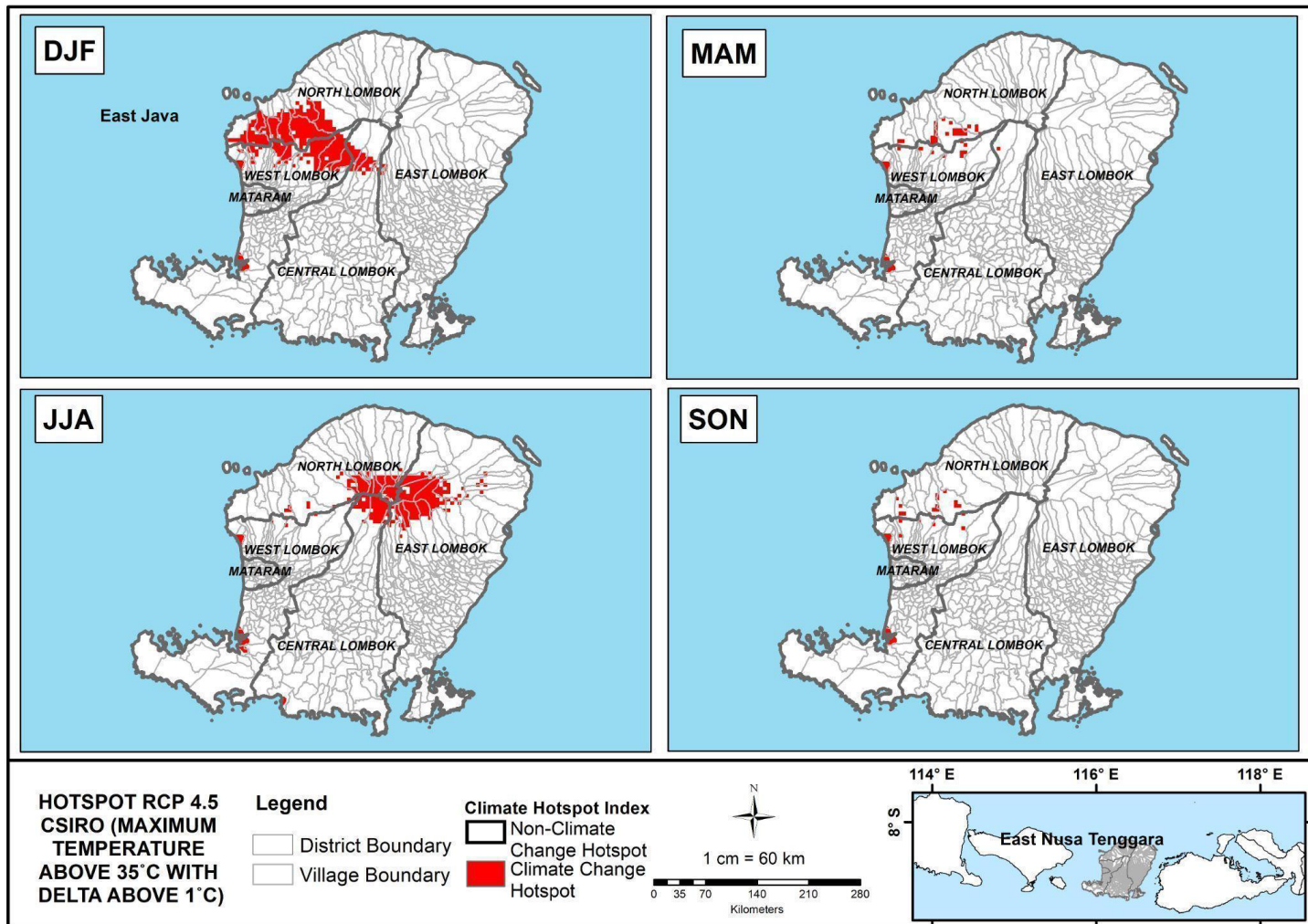
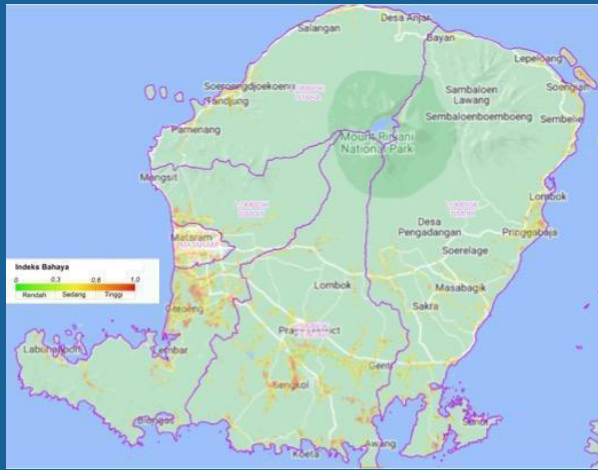
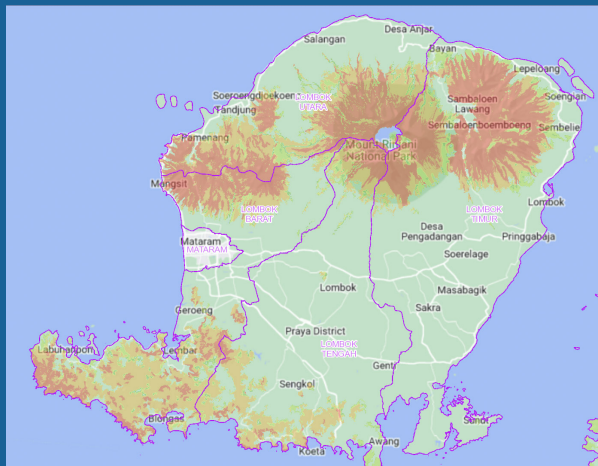


Fig. 2.3 Distribution of climate change hotspot using CSIRO model for RCP 8.5 (top) and for RCP 4.5 (bottom) on Lombok for the period 2021-2050. Source: NASA Data

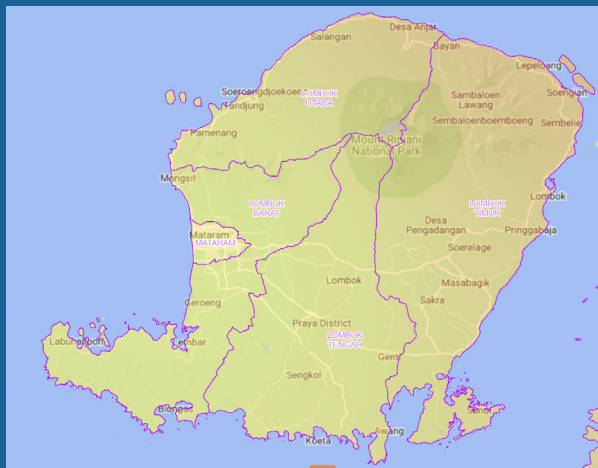
a.



b.



c.



d.

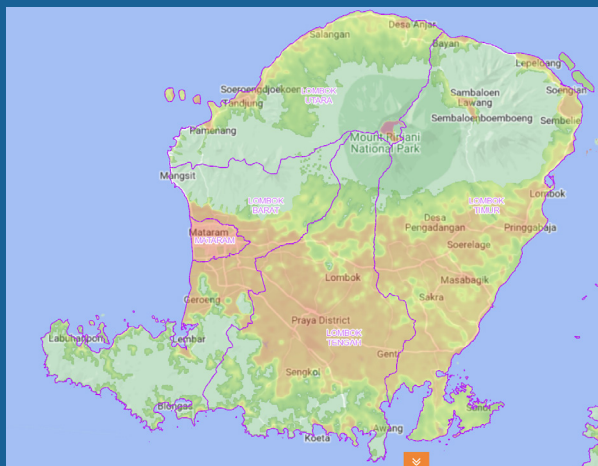


Fig. 2.4 Flood hazard index (a), landslide hazard index (b), drought hazard index (c), and strong wind hazard index (d) in the research sites. Source: INARISK BNPB (2021)

Climate change impacts on risks and important sectors

Generally, Lombok carries ‘medium’ to ‘high’ risk with regards to climate-related hazards (Fig. 2.4). The flood hazard index is ‘High’ in the downstream area of Mataram, West Lombok, and East Lombok. At the same time, the erosion and strong wind hazard index has a fairly large risk area in Lombok. The risk of drought events also needs attention, with a ‘medium to high’ hazard index over Lombok.

Based on BNPB historical information for the period 2010–2021, disaster events in Lombok were dominated by floods (98 events) and strong wind (73 events) (Fig. 2.5). The disasters experienced during this time caused a significant level of damage and as a consequence, there were high numbers of victims (for instance, more than 5,000 people – including women and children – were affected by floods as recently as March 2022) (BNPB, 2022).

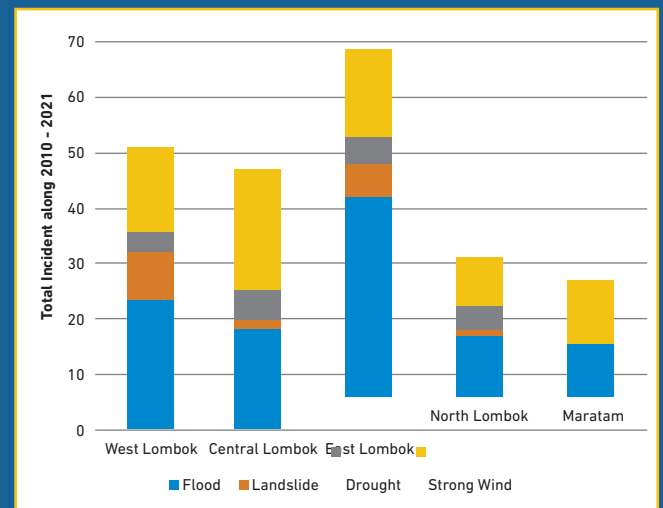
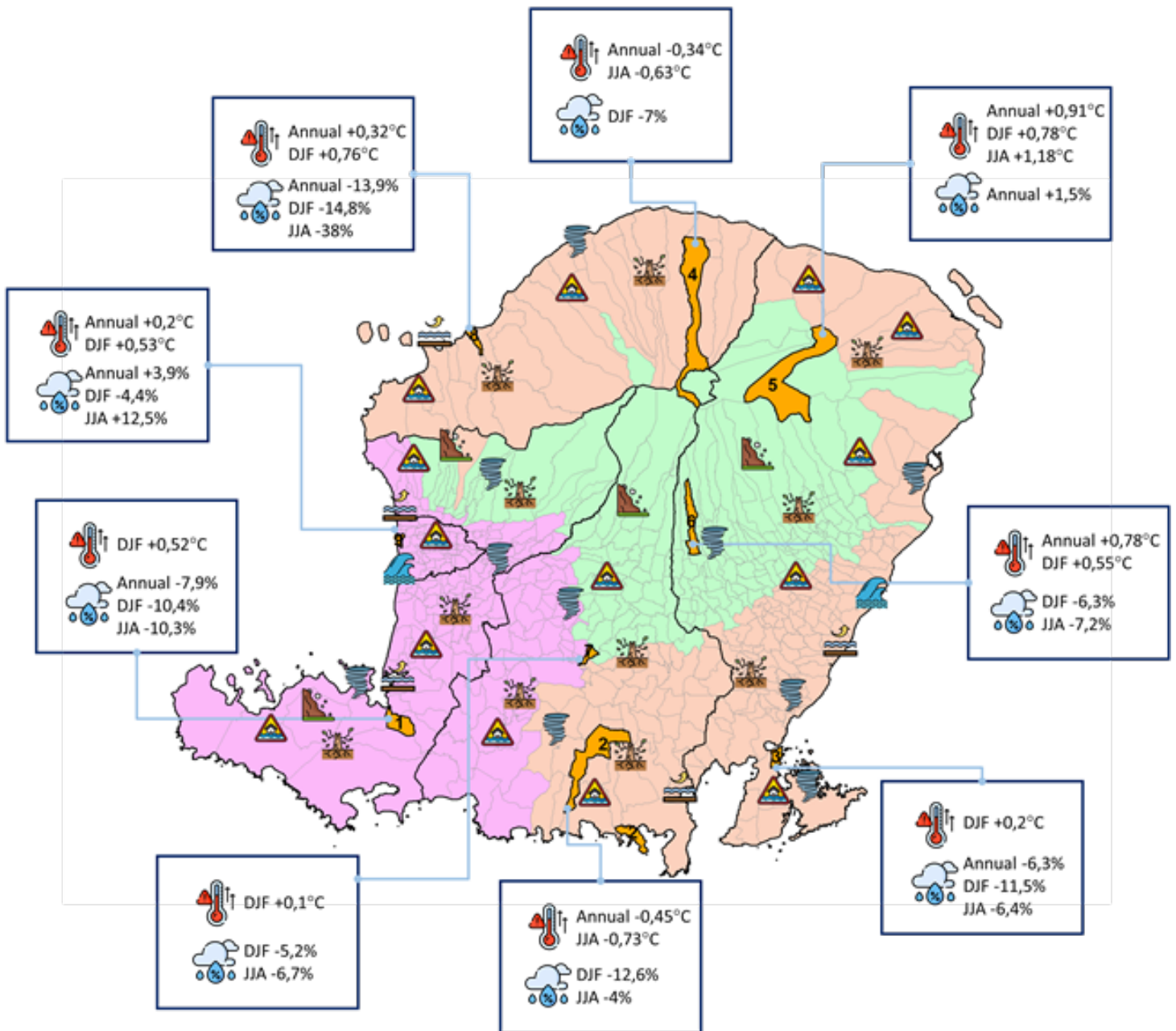


Fig. 2.5 Hydrometeorological disaster event along 2010–2021 in Lombok. Source: DIBI BNPB (2021)

Disasters that occur due to the impact of climate change can reduce the quality of the environment, reduce water availability, impact health, and cause danger to climate-sensitive and important sectors such as agriculture, and marine and coastal ecosystems. This impact can also cause a domino effect on other sectors in a way that indirectly impacts the socio-economic life of the population (KLHK, 2020b). The historical temperature changes and the impact of climate-related disasters on many regions in Lombok is illustrated in Fig. 2.6. Projected changes in temperature and rainfall will have further disastrous impacts if not immediately addressed with appropriate climate action.



Legends

- Targeted Villages
- District/City Boundary

- Temperature Change
- Rainfall Change
- Strong Wind
- Tsunami
- Flood
- Drought
- Abrasion
- Landslide
- Environmental Quality
- Malaria and DBD
- Agricultural Production
- Fisheries Production
- Water Quality and Availability

Koppen Classification

Cs	Am	As
West Lombok ↑ (Temperature) ↓ (Rainfall) ↓ (Agriculture) ↓ (Water) ↓ (Environment)	North Lombok ↑ (Temperature) ↓ (Rainfall) ↓ (Agriculture) ↓ (Water) ↓ (Environment)	
Mataram ↑ (Temperature) ↓ (Rainfall) ↓ (Agriculture) ↓ (Water) ↓ (Environment)	East Lombok ↑ (Temperature) ↓ (Rainfall) ↓ (Agriculture) ↓ (Water) ↓ (Environment)	
Central Lombok ↓ (Agriculture) ↓ (Water)		

Fig. 2.6 Historical climate-related disasters and their impact, and future projection of delta changes in temperature and precipitation of Lombok per region. Source: adapted and modified from many sources, KLHK (2020a), BNPB (2022), KLHK (2010a), KLHK (2010b), Kemenkes (2021)

Food and agriculture

NTB is one of the main rice-producing provinces in Indonesia, with the majority being produced on Lombok. Lombok's agricultural sector is a sub-sector of the regional economy that still plays a major role in the Gross Regional Domestic Product (GRDP). Agricultural development on the island not only aims to accommodate rural workers and reduce the rate of urbanisation, but also to boost farmers' income through increasing the added value of agricultural products (KLHK, 2010a). Prior to 1980, Lombok was an insecure food area because it suffered crop failure nearly every year during the 1960s and 1970s due to low rainfall and a short rainy season (KLHK, 2010a). Since the 1979/1980 planting season, however, the rice farming system has been changed from the lowland rice system (*rancah*) to "the Gogorancah" system, resulting in increased productivity.

Nevertheless, several agricultural areas in Lombok are still threatened with crop failure due to changes in rain patterns, particularly the rainfed rice land which relies on steady rainfall. Crop failure can occur due to failure at planting and failure at harvest. Failure at planting usually occurs due to drought, while failure at harvesting usually occurs due to a lack of rainfall when rice is in the primordial phase and/or high rainfall accompanied by strong winds in the primordial phase and during pollination (KLHK, 2010a). Areas that are particularly vulnerable and at high risk of failure at planting include agricultural parts of North Lombok while areas vulnerable and at high risk of failure at harvesting include Central Lombok (KLHK, 2010a). Based on data from the Central Bureau of Statistics (BPS), farmers in Lombok are mostly men, while women are mostly housewives. Crop failure has a significant impact on the social and economic vulnerability of farmer families who depend on agriculture for their livelihoods, including the wives and children of farmers.

"Salt farmers in Central Lombok Regency, West Nusa Tenggara Province experienced a decrease in rainfall yields that occurred during the 2022 dry season. Salt farmers only rely on sunlight, so when it rains, salt production decreases. In 2022, crop yields have decreased by around 1,000 tons compared to 2021."

~ M. Kamrin, Head of the Department of Marine Affairs and Fisheries of Central Lombok

Water availability

On Lombok, the water that is usually used by the community comes from rainwater, surface water (rivers, ponds, dams), and ground water. The combination of the increase in surface temperature and changes in rainfall patterns due to climate change constitutes a strong threat to water availability, as springs and reservoirs dry up, and gives rise to the possibility of flooding and drought. Water quality is also reduced due to contamination of ground water and surface water due to poor sanitation and waste management (KLHK, 2010b).

According to a World Wide Fund for Nature Inc. (WWF) study of four key basins (2009), groundwater and surface water reserves on Lombok are projected to experience a major decline by 2030. The study estimates that water reserves could fall by up to 5 billion m³, which is equivalent to more than three times the amount needed to meet current demand (WWF Indonesia, 2009). Projections of decadal climate change from 2021-2100 also show a decrease in water availability (measured by total runoff) on Lombok, a maximum of 208 mm per year until 2050, and a maximum of 287 mm per year until 2100 (KLHK, 2010b). Alongside decreased rainfall and higher evaporation, this problem is also exacerbated by an increasing population, increasing water-intensive agriculture and tourism, water pollution, and poor water and waste management. As can be seen in Fig. 2.6, all regions are affected and would experience problems in the water sector.

Access to clean water is still difficult in some remote rural areas (Nainggolan & Kristanto, 2013). This is a challenge for women and girls in rural areas, especially in eastern Indonesia. Women and girls in these areas are usually tasked with finding and bringing water home to cover their daily needs, particularly as they carry out household domestic activities, which means they have to walk long distances, sometimes passing through difficult and dangerous roads (Nainggolan & Kristanto, 2013). The diminishing quality and quantity of water resources will potentially cause women and girls to have to walk further to find water (as can be seen in the example of East Sekotong during the clean water crisis), potentially exposing themselves to more danger.

Health

The impact of climate change on the health sector is usually identified by an increase in the frequency of diseases and new types of diseases, due to changes in environmental conditions in certain areas. Based on Balitbangkes data from 2017 to 2020, the Province of NTB, including Lombok, had the highest incidence of diarrhoea compared to other provinces in Indonesia (>2.500 incidents/100.000 population), both during the rainy and dry seasons (Kemenkes, 2021). This is related to the climatic conditions of NTB which has a high average temperature, moderate air humidity. These conditions are exacerbated by factors such as poor quality and availability of clean water due to droughts and floods.

In addition, vector-borne diseases such as dengue and malaria are still a fairly high health risk in Lombok (Dinas Kesehatan NTB, 2022). Studies conducted on health vulnerability due to climate change show that **high vulnerability to malaria and dengue in all districts/cities is caused by the impacts of climate change** (Adi, 2014). This is because the average optimum temperature for mosquito breeding under normal circumstances is at a temperature of 25-27°C with a lifecycle of 12 days. Due to the increase in air temperature, however, the optimum temperature changes to 32-35°C which accelerates the mosquito's metabolism, leading mosquitoes to mature quickly, and shortening their lifecycle to seven days. Consequently, breeding increases and mosquitoes become smaller and more agile, resulting in a faster and wider spread of disease (Adi, 2014).

Based on malaria cases data from Satu Data NTB between 2019 to early 2022, the districts that have the highest number of dengue cases each year are West Lombok Regency, Mataram, and East Lombok Regency. West Lombok in particular has been included as one of the top priority locations for climate resilience in the health sector for dengue fever cases in the Climate Resilience Development document. In terms of gender, men are more affected by dengue fever than women. This can happen because dengue fever is strongly influenced by mobility and population density, as well as community behaviour (Dinas Kesehatan NTB, 2022). Men tend to undertake more outdoor activity so that their exposure to mosquitos and unsafe environmental conditions is very high, while women are mostly at home where risk of exposure is lower.

Marine and coastal ecosystems

Based on conservative estimates, a study by WWF predicts that Lombok will lose up to 1,500 m² of its coastal area by 2030 due to a rise in sea levels. This will lead to population displacement and changes in the coastal ecosystem. According to another study, which examines the danger of extreme weather events triggered by rising sea surface temperatures and higher frequencies of El Nino and La Nina, it is projected that up to 43,000 people in Lombok will be at risk of losing their homes by 2030. Moreover, higher sea temperatures will put coral reefs at risk of bleaching (WWF Indonesia, 2009) which, along with ocean acidification, will damage coastal ecosystems and resources and cause fish migration (MoEF, 2021).

Such changes have already begun to occur in the province. For example, in the last 20 years, almost 70 per cent of the coastal ecology in the coastal area of Jerowaru has been impacted by greater abrasion and degradation of mangroves due to an increase in extreme weather conditions and rising sea level (Novianti et al., 2016). This problem is further exacerbated by the construction of passenger and fishing ports, which has led to changes in wave currents and coastal abrasion. These threats greatly affect fishermen's livelihoods, as damage to marine and coastal ecology causes fish catches to decrease, while the weather above sea level threatens the safety of fishermen (Novianti et al., 2016). This in turn can have an impact on the social and economic vulnerability of fishermen's families, including the wives and children of fishermen, considering that the condition of fishing communities is generally characterised by poverty, socio-cultural conservatism, and the low quality of human resources (Novianti et al., 2016).

2.2 PROFILE OF VULNERABLE GROUPS IN RESEARCH AREA

The survey in this report was conducted with 301 community respondents, consisting of married men and women, unmarried women, boys, girls, and PWDs. Most of the respondents lived in East Lombok because the topography of the East Lombok Regency represented three geographical characteristics of the island (coastal, highland, and urban). The survey results show that most women are not in the workforce and are living as housewives (55.7 per cent). The main income for women who are in the workforce comes from entrepreneurship (non-agricultural) (12.9 per cent) and agriculture (11.4 per cent). Generally, men on Lombok have a higher educational background than women. The child respondents are between 12 and 18 years old² and most of them are high school students. We also interviewed seven PWDs, including three women and four men. The types of disability of the seven respondents were visual impairment (14.3 per cent), speech disorder (14.3 per cent), learning disability (14.3 per cent), physical disabilities (42.9 per cent). Most of the PWDs do not work in the public sector, but one respondent owns a home business while another works in the manufacturing of prosthetic limbs.

2.3 IMPACT OF CLIMATE CHANGE ON VULNERABLE GROUPS

The effects of hazardous weather events, driven by rising temperatures and precipitation changes due to climate change, are not always borne equally by different social groups and individuals. Due to disparities in mobility, resources, and skills, women and other marginalised groups experience increased vulnerability and exposure to the impacts of the climate change in comparison to non-marginalised groups. These impacts are explored in the subsections below.

Women

Women and men have different needs, capacities, and social roles in society, resulting in different climate-related impacts that further exacerbate gender inequality to women's disadvantage. Women are often disproportionately impacted by climate change and the disaster events it produces. Some examples of inequalities experienced by women based on the impacts of climate change on the sector are shown in the table below.

Table 2.1. Examples of climate change impacts on women in several sectors

Impact of climate change	Example of impacts on women
Harvest failure	Increased difficulties in maintaining roles as main nutrition providers in the traditional household, loss of jobs in agricultural sector
Energy scarcity	Increased labour involving in collecting fuel for cooking and housekeeping to fulfil a traditionally ascribed gender-based role
Clean water shortages	Lack of access to safe drinking water, adequate sanitation and hygiene facilities is particularly dangerous for the health of pregnant women and their babies
Scarcity of natural resources	Increased poverty in communities that rely on natural resources often leads to discrimination against women in education and increased the risk of becoming a victim of early and forced marriage
Natural disasters	Higher burden and safety risks during and after natural disasters due to traditional subordinate position in society
Increased incidence of diseases	Increased burden as women are often the main caregiver for children, the elderly, and the sick
Displacement	Increased risk of sexual violence and femicide due to lack of adequate shelter
Conflict	Threat of wartime sexual violence - which may include rape and sexual slavery - partially intended to humiliate the opposing side

In Lombok, climate change has mostly been felt in the last five years in the form of an unexpected rain pattern accompanied by high rainfall intensity, which have caused flooding, and an increase in air temperature. Based on the survey results, most of the respondents felt the impact of climate change in the low-level category. The primary impacts felt by women were reported to be financial, physical, and psychological.

² The targeted children of this research are 15 - 18 y.o, because they are considered to be of sufficient age to be able to answer the questions asked.

Financial Impact

Women felt a decrease in income and increase in workload as climate change threatened livelihoods.

Table 2.2. below indicates that over half of the women in the survey reported reduced income, and 41 per cent reported difficulty in financing their needs because of climate change. This is partially because the impact of changing weather patterns in Lombok is particularly felt in sectors traditionally associated with women, such as agriculture, resulting in a significant loss of income for women. Similarly, rising sea levels and the consequent impact on the ecosystem have a detrimental effect on the livelihoods of fishermen and their households. When facing increasingly limited natural resources, women from poor fishing households often bear heavier burdens than men (Latifa & Fitranita, 2016). Women also recover more slowly than men from economic losses such as property damage and the loss of livelihood (Athen, 2009), as they have less access to key resources like land and capital. This lack of access also works as a push factor for women to become migrant workers in the aftermath of livelihood loss or disaster events. Becoming a migrant worker leaves women vulnerable to a multitude of threats to their safety and wellbeing including the possibility of exploitation and abuse.

Moreover, climate change also increases work burdens for many women, for example, by forcing them to walk longer distances for clean water, which leaves them less time to earn income, get an education, or provide care to their families (Ajani et al., 2013). Where women join the workforce to compensate for the reduction in household income, they are faced with increased burden as they are still expected to undertake the bulk of domestic work.

Physical Impact

Climate change also has a negative impact on the physical wellbeing of women. Extreme weather conditions and natural disasters due to climate change increase exposure to infectious diseases, including cholera, HIV and AIDS (Klasen & Lamanna, 2008).

Almost all women in Lombok have reported an increase in the likelihood of getting sick as a result of climate change. Women in Lombok reported an increase in fatigue, diseases and infections (e.g., fever and flu), a decrease in immunity, and also difficulty breathing. In terms of the quality of life and chronic disease, 49.4 per cent of married women answered that (physical) pain has often prevented them from doing activities as needed – though the extent of the role climate change has played in this cannot be evidenced.

TRIPLE WHAMMY FOR WOMEN

Yulastri Mulani is a 30-year-old from Dompu who begun planting corn on her land after her eye disability prevented her from continuing work as a labourer. Now, this too is no longer an option as she has had to pawn off her land to pay for her eye medication.

“I don’t have other choices,” she tells us, “I had to sell the land because I really need money for the tumour in my eyes. I cannot sleep because my eye is so sore. I also cannot work because my health is deteriorating.”

With Yulastri not being able to work, the family struggles to afford daily needs: “We don’t have any money at all. I rely on my husband to buy our daily needs but he doesn’t have daily income, he only does occasional repair jobs or driving. He puts effort into looking for a job but it is difficult and sometimes he does not receive the money he worked for.”

“I tend to fight with my husband when I ask him to give money for groceries. Sometimes he gets angry and hits me. He also forbade me to go out to buy the medicine I need for my eyes.”

To support the household, Yulastri asks her 17-year-old daughter to work: “She does not go to school because she has to take care of us and also because we cannot afford her transport or her uniform. She works as a labourer in farming and gets paid \$5. She gives this money to her little sister and me. If there is no work available, she stays at home to take care of me and the other children. Some other children in my neighbourhood also experience this problem as they do not have the money to pay the school.”

Do you feel the specific impact of climate change and disaster events like the one below?		Married women (n=70)			
		No/None	Yes		
		n	%	n	%
1.	Easier to get sick	3	4.3	67	95.7
2.	Reduced income	34	48.6	36	51.4
3.	Difficulty financing various needs	41	58.6	29	41.4
4.	Lack of access to clean water and agriculture	53	75.7	17	24.3
5.	Frequent conflicts in the family	67	95.7	3	4.3
6.	Difficulty performing daily worship	70	100	0	0
7.	Feeling exhausted due to the absence or vagueness of the division of duties in the family	68	97.1	2	2.9

Table 2.2 The impact of climate change on married women

Psychological impact

Nearly all unmarried women reported feeling the psychological impacts of climate change. These could include feeling uncomfortable, worried, or afraid that floods will enter the house, feeling insecure and wanting to move, bad moods, and anxiety because of unpredictable weather changes (Fig. 2.7)

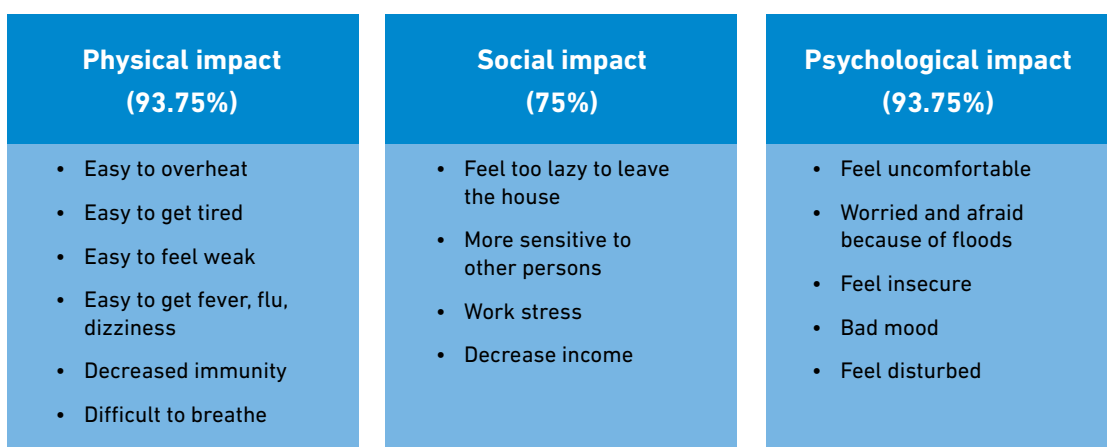


Fig. 2.7 The impact of climate change on unmarried women (Total number of people surveyed =16)

Children (especially girls)

Children are believed to be more vulnerable to climate and environmental shocks than adults for several reasons (UNICEF, 2021). For instance, during gradual chronic systemic crises – i.e., weather-related shocks to agricultural production (Li et al., 2021) – families are divided, and one parent must find work to make up for losses. As a result, children suffer from psychological and social implications of separation from parents and loss of family members (UN, 2021). Girls in particular face an increased risk of violence and exploitation, including sexual abuse,

physical abuse, and trafficking (Plan International, 2019). The decreasing resources during these situations can create increased tension and conflict within families or communities which further impact the wellbeing of children.

In Lombok, it was found that there were two major impacts of climate change on the wellbeing of children, and especially girls, physical/health impacts and loss of education.

Physical Health

Floods significantly increase the rates of mortality and morbidity due to malnutrition in children (Mohsin et al., 2017), while heat waves can result in a lower birth weight (Deschênes et al., 2009). Children are also still physically developing, which puts them more at risk of death than adults as they are more easily affected by toxic substances, such as lead and other forms of pollution, as well as viruses and bacteria that cause disease. Children are also at an increased risk of injury due to lack of water, sanitation, and food security. Moreover, as climate change impacts crop production and threatens livelihoods, research shows that **girls are more likely than boys to be provided with less food during times of food scarcity**, making them increasingly susceptible to malnutrition and diseases. (Plan International, 2019; Thomas, 2020; UN, 2021).

In the context of Lombok, survey results shows that climate change has had an impact on children's health, marked by several symptoms. The most common symptoms experienced by children were (Fig. 2.10): an increased likelihood of getting flu and coughs (90.1 per cent), feeling overheated more easily (55.7 per cent) or feeling cold more easily (34.3 per cent). Previous research stated that in developing countries, over 99 per cent of deaths are already attributable to climate-related changes, and children make up over 80 per cent of those deaths due to malaria and diarrhoea (Sharma et al., 2016). However, in contrast to Sharma's findings, diarrhoea (12.2 per cent) and malaria (6.1 per cent) were rarely felt by children in Lombok according to this research.

Climate change impacts on children's health

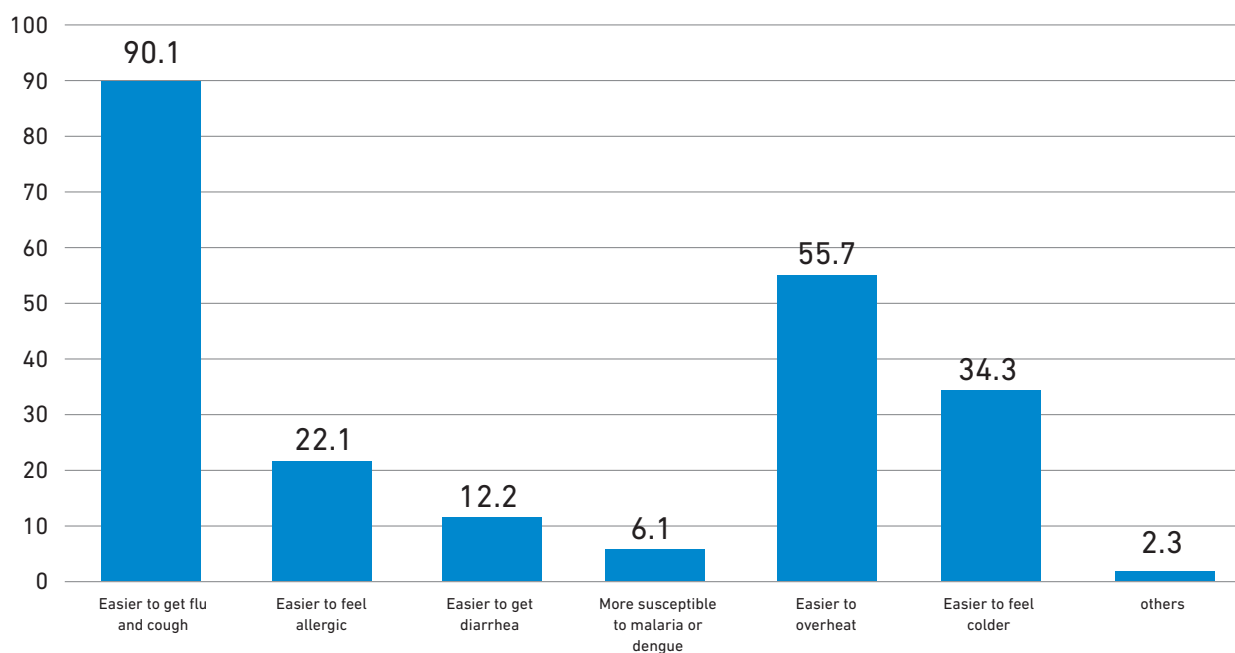


Fig. 2.10 Climate change impacts on children's health

Loss of education

It is well noted in research that children face a loss of education during sudden disasters from being unable to attend school. Similarly, during chronic crises, children miss school if they are too weak to attend or if the household can no longer afford to send a child to school. In this case, girls are often the first to drop out of school to help their families by doing household activities or looking after siblings. This is because there is a cultural conception among some indigenous people of Indonesia that girls are largely responsible for house chores. As a result, many parents are likely to take their daughters out of school in order to save money and have them assist in running the household. Even in instances where girls are not taken out of school, they may still face a cut to their time in school as they are given extra responsibilities in the household and with care duties, particularly during disasters. Such chores may include walking significant distances to collect clean water when tube wells are flooded, and caring for those who are ill or injured (Center for Disaster Philanthropy; Martin, 2010).

In Lombok, more than half of the children (63.6 per cent) report that they have been forced to not go to school (Fig. 2.12) because of disasters and extreme weather events, such as earthquakes, floods, and heavy rain. This is reported the most by children (38.5 per cent) who live in mountain areas. Children also report that they have had to work to meet the needs of their families because of disaster events, including 14.08 per cent of girls and 13.33 per cent of boys. According to this research, 35.1 per cent of adults also reported that marrying earlier (under 18) due to climate change and disaster was more like to affect girls than boys.

In terms of the children’s perceptions, the study found that girls stated they feel more at risk than boys at not being able being able to attend school (47.89 per cent) and of becoming separated from their family members (32.39 per cent) because of disasters. Meanwhile, boys reported that they feel more at risk of having to work to support their families’ needs (25 per cent) than girls (22.54 per cent).

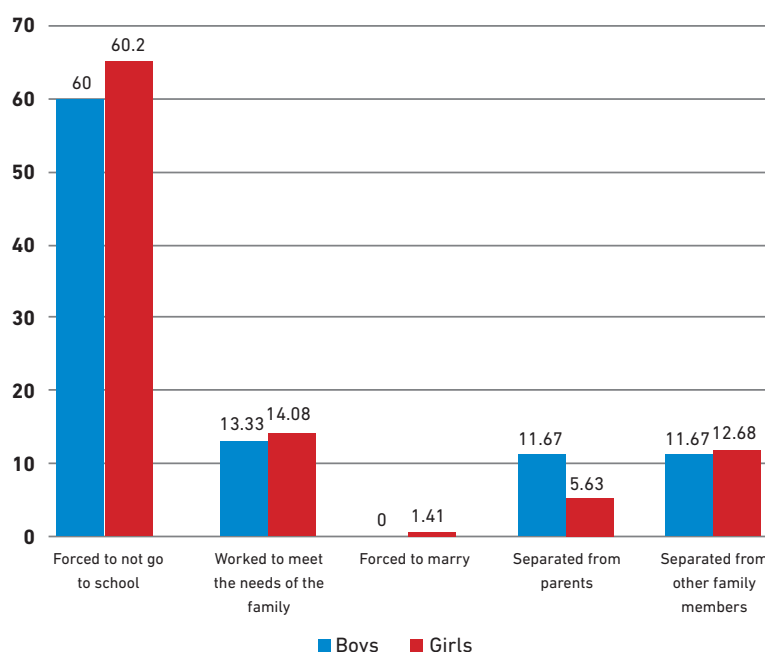


Fig. 2.12 Climate change impacts on children’s lives

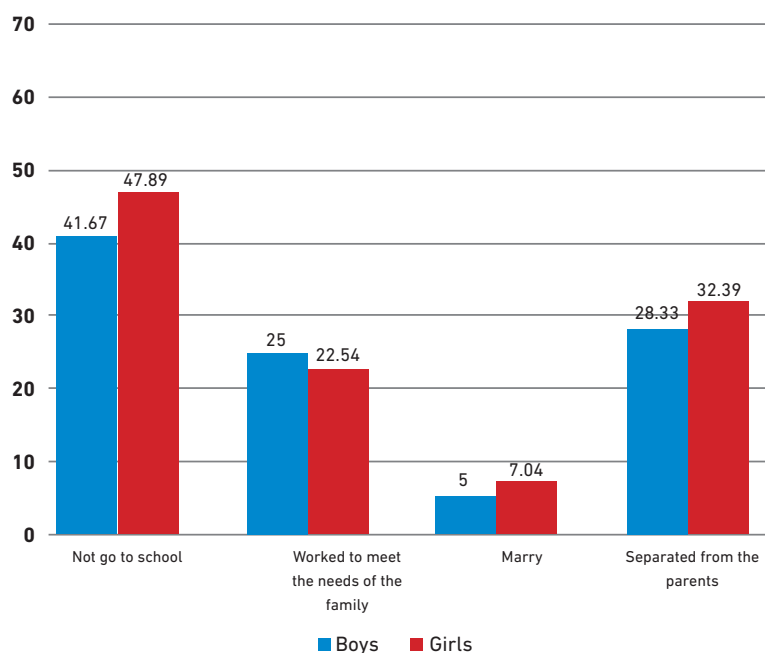


Fig. 2.13 Children’s perception of climate change risks based on gender

LIVELIHOOD OPTIONS LIMITED FOR PWDs

Changing sea patterns, erratic rainfall and extreme weather events are having severe impacts on the farming sector in Lombok, with devastating consequences for those whose livelihoods rely on the farming sector. As rain and weather patterns become more erratic, salt farmers who rely on the dry season to harvest their salt are being forced to restart the salt making process several times a month, leading to significant losses in income.

For vulnerable groups, such as PWDs, the situation is even more dire as climate change limits livelihood options. Nursanah, 43, lives in Repok Bembek village with his wife and six-year-old child. Although his family is traditionally engaged in salt farming, Nursanah is unable to follow in this line of work due to his disability. To make ends meet, his wife works in a tobacco farm as a day labourer, while Nursanah collects scallops from coastal areas and sells them at a market for additional income.

With the changing climate and unsustainable farming practices, however, this is becoming increasingly unviable for Nursanah: "Lately the sea levels near the mangrove area have been going up and sometimes the tide does not retreat, and I am not able to collect scallops to sell at the market. When that happens, I usually just go back home and try to collect them the next day. Also, the mangroves have been cut down by the community, so they can turn the area into a shrimp farm. So, I am now forced walk a much longer distance in order to fish for scallops near the mangrove area which is very difficult for me because of my disability."

The health of Nursanah and his family has been worsened by the impact of climate change, further impacting their ability to earn a living: "Everyone in my family is getting sick more easily, we usually get the flu whenever the weather changes. I have also noticed that I have an allergic reaction to the rainwater. I have a rash whenever it rains heavily, so I usually stay at home when that happens."

"For me, what would be very helpful is to protect the mangroves because it's been destroyed by the community and I rely on it because that's the natural habitat for the scallops I harvest for my income."

PWDs

PWDs are similarly impacted by the occurrence of climate change-related weather events such as floods, rising temperatures, strong winds, and erratic weather. PWDs are often more vulnerable to these impacts due to a number of factors including inaccessibility of information or education, physical illnesses and limitations, an increased likelihood of living in poverty – all of which make it more difficult to recover from negative impacts of climate change. According to [the study](#), PWDs report feeling negative health impacts such as: increased susceptibility to illness, increased lethargy and fatigue, and feeling more chills. Some of the diseases that are felt by PWDs due to climate change include diarrhoea, cough, headaches, stomachache, stiffness in legs and hands, and flu. Outside of the health impacts engendered by climate change, PWDs also experience further obstacles, including physical limitations (e.g. being unable to go outside as often due to increased temperatures) and difficulties in earning an income.

YOUTH FACING PRECARIOUS FUTURES

In East Lombok, as erratic weather patterns impact the livelihoods of farming communities, the younger generation is experiencing anxiety for the future. Farizatul is a 23-year-old student from Padan Wangi whose father participates in Islamic Relief's community-based 'climate school'. "I am witnessing and feeling that the weather is becoming more erratic," she tells us, "These past five years, the rains or heat waves are more frequent, more extreme, and longer. This has caused crop failure which has impacted my family's income."

"We often discuss climate change issues with our peers. Our discussions are mostly around the erratic weather pattern and its impact on our parents' farming. We feel worried because we know that the tobacco can only grow in the dry season, but in recent years that has always been disrupted by the rain."

Girls and women like Farizatul also face challenges completing their education due to these changes: "As my parent's income is impacted by climate change, they struggle to pay my education fees. Furthermore, flooding during the rainy season prevents me from physically accessing school. I also catch colds and the flu more frequently – around twice a month – which causes me to miss school."

In adapting to climate change, Farizatul hopes that young people are given a more active role in their communities: "As a young person I hope I can get more involved in conducting awareness sessions, supporting ongoing government or NGO programmes and participating in policy development. I hope that the government or any organisations can facilitate the establishment of youth forums which can accommodate all the voices of young people. Through this forum, we can discuss any current issues in communities including climate change and young people can participate and support all ongoing programs. We want to be able to contribute to [solving] farming problems experienced by parents."

3. ADAPTATION

3.1 ADAPTIVE ROLES OF VULNERABLE GROUPS

Women

Despite them being marginalised within disaster risk reduction strategies and decision-making processes, there is evidence that greater inclusion of women in decision-making processes at the community level may lead to more environmentally favourable outcomes (Prowse et al., 2009). Women have vast local knowledge, particularly because of their consistent contact with natural resources and high dependence on natural reserves (Adeniji, 2011). For instance, as part of their daily routine women are responsible for water collection, storage and ensuring the availability of safe drinking water for the family (Ajani et al., 2013). Consequently, women often have unique mechanisms for conserving water, which are of utmost importance during disasters.

In addition, women have local knowledge regarding the functions of medicinal plants that can be used in an emergency. For example, PKI leaves and Lian leaves can be used to relieve stomach pain and diarrhea when it is difficult to access medicine in emergency situations. Moreover, based on the survey results, almost all women can access mobile phones. These mobile phones are used to find information and interact on social media, as well as gather information related to mitigation and adaptation to deal with climate change. This shows that women are able to use technology for the purpose of dissemination of information or socialisation related to climate change.

Outside of their domestic roles, women are also increasingly taking on work as farmers and labourers (including heavy manual work as sand pickers) to support their households as climate change negatively affects catches, harvest production, and threatens livelihoods. In other words, women are taking on new roles to adapt to climate change and showing their flexibility and resilience despite being more exposed to the effects of climate change than men. Indeed, the results of the LIPI KDP study, alongside other empirical evidence, show that women are capable of being 'agents of change' even in the face of marginalisation (Latifa & Fitranita, 2016).

Based on research results, the most common activities undertaken by married women as an effort to respond to changes in environmental conditions due to climate change include planting trees and other plants in the yards of the home, turning off lights when not in use, and turning off taps when not in use (Table 2.4). The most common activities undertaken by unmarried women include providing information to family members, cleaning the house, and engaging with WASH (water, sanitation and hygiene) systems. The results of this research also showed that 31.25 per cent of unmarried woman stated that there were obstacles to carrying out their role in dealing with climate change, including:

1. **a lack of preparation for and organisation during disaster events;**
2. **overburdening of women with domestic and reproductive labour,**
3. **community leaders not believing the information provided.**

Women also have a significant role to play in disaster risk reduction before, during, and after disaster events. **During pre-disaster conditions**, efforts to transfer knowledge about disaster preparedness to children, families, and the community are considered more effective if carried out by women, especially mothers (Suratman, 2019). Women are also able to anticipate food and medicine shortages during disaster by optimising the function of yards for vegetables, fruit, and medicinal plants. **During the disaster**, women play a role in providing updated information, directing family members to stay together until they are evacuated, and making temporary beds if necessary. Finally, **after disaster events**, women play an important role in recovery efforts. This is because women are able to perform domestic roles (using shared kitchens, caring for and calming family members) during a disaster as well as public roles (such as earning a living) after a disaster to ensure that their family survives in terms of economic, social, and psychological aspects (Latifa & Fitranita, 2013; Hafida, 2019).

Question aspects	Woman		n	%		
	No (0)				Yes (1)	
	n	%			n	%
Planting trees, and other plants, in yards of homes	21	30	49	70		
Collecting water from wells and/or water sources	52	74,3	18	25,7		
Turning off lights when not in use	16	22,9	54	77,1		
Turning off taps when not in use	18	25,7	52	74,3		
Building or helping to create green areas such as parks or gardens	52	74,3	18	25,7		
Choosing to walk or bike to nearby places	47	67,1	23	32,9		
Not littering	24	34,3	46	65,7		
Recycling reusable items	61	87,1	9	12,9		
Seeking livelihood diversification	67	95,7	3	4,3		
Growing drought-tolerant plants	62	88,6	8	11,4		
Facilitating crop rotation	68	97,1	2	2,9		
Creating household emergency response plan	67	95,7	3	4,3		

Table 2.4 Married women's activities as an effort to respond to changes in environmental conditions due to climate change and disasters

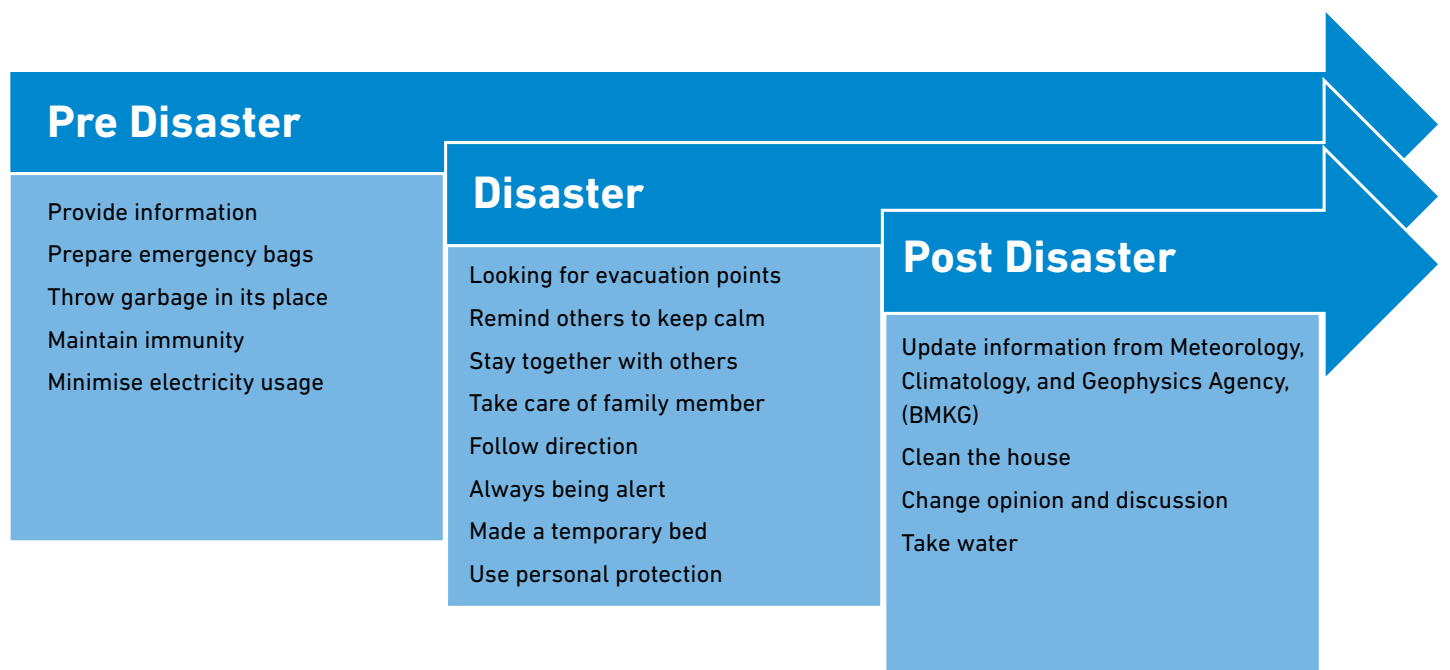


Fig. 2.9 The climate change adaptation of unmarried women (Total number of people surveyed =16)

Case study:

Climate school to increase farmers' adaptive capacity and encourage the role of women



Islamic Relief, in partnership with KONSEPSI (Consortiums for Study and Development of Participation), has implemented several projects to help communities adapt to the impacts of climate change in Indonesia, including a 'climate school' where farmers can access useful climate related information that equips them to better determine timing and choice of commodities. Rokyal, a 39-year-old mother of four, is a farmer from Pandanwangi village who has participated in the climate school.

"My husband and I work together in planting tobacco and tending to our rice field. To meet our household's daily needs, I also work as a farm labourer. My husband also works as a construction labourer, but this depends on the availability of work. If we work every day, the salary is just enough to cover our daily needs. If we earn more than normal, we can use that extra money to pay our children's school fees.

"Pest attacks and heavy rain are two of the biggest challenges that affect our productivity levels. Heavy rain damages and sinks the seed for the tobacco plant, and the humidity of the rainfall impacts harvesting. Insects such as grasshoppers and butterflies

attack the paddy (flooded field used for growing certain kinds of crops) and lead to poor growth. In 2022 our crop production levels decreased because of heavy rainfall. Under normal conditions without pest attacks, we can get 1 tonne and 5 quintals, but I only got 13 quintals (1300 kg) this year. I was not able to sell any because it was just enough for our daily consumption. I sometimes talk with my neighbour: 'How can we pay our debt if this heavy rain continues and our tobacco plant cannot grow well?'

"Since I joined the climate school, however, I have received a lot of new knowledge. I know how to measure [seeds], prepare the land, and receive information from the BMKG about weather forecasts and climate. Before attending the climate school, I did not know how to cultivate well. Then in climate school, they taught us how to do it, so our paddy plant grows tall and upright. I have more crops now because I have learned a lot of cultivating knowledge in climate school. I also got real experience of the cultivating process. Before attending climate school, I used mapan 05 paddy seeds variety, now I use the inpari 32 paddy seed variety, which is more pest resistant. As a result, our crops slightly increased because we were taught how to take care of our plants."

Rokyal now shares this new knowledge through neighbourhood and community networks: "If a heatwave happens, we give advice on how to handle it in good way, the way we learned at school. We tell [our neighbours] this is how to measure, this is how to find diseases in agricultural land. We tell them how to measure like we have been taught at school. That's how we invite them to have same experiences and increase their knowledge."

Rokyal,
Rice farmer

Children (especially girls)

Children are often only seen as a vulnerable group that must be protected. They are rarely included in consultation processes, such as discussion documents or calls for submissions. As the next generation, however, all children must be seen and trained as agents of change who can actively participate in climate change action. That is, they must be viewed as active subjects that can act, not objects to be acted upon. The involvement and participation of children is also one of the rights of children that must be fulfilled as mandated in the Convention on the Rights of Children (CRC). Children need to be provided with skills-based learning to adapt and survive the impacts of climate change. In this regard, teachers have a significant role in addressing climate mitigation, adaptation, and climate-resilience activities in schools and to encourage children to become part of the solution to climate change.

Children's roles in climate-related disaster management can be seen in a variety of preparedness activities, including hazard and threat identification, drills, evacuation planning, home adjustments, rescue training, and risk communication. In risk communication, children can help to care for others, gather and distribute resources, engage in peer counselling, planning and reconstruction projects, and assist with childcare and household responsibilities (Peek, 2008). The involvement of children in disaster management can also be used to educate children as peer educators for disaster-risk and climate-change awareness and education. Informed children can influence friends and families to reduce disaster risks at home and school. As rightsholders and activists, children can hold governments and authorities to account in protecting their future from the harm climate-induced hazards can cause (UNDRR, 2020).

PWDs

Some 85.7% of PWDof PWD respondents reported efforts and adaptive measures to deal with climate change, including asking for family help, staying at home and maintaining stamina, cleaning the environment, engaging in efforts of reforestation, seeking help from others, wearing a jacket and blanket when cold and planting flowers in yards. In this research, all respondents answered that they did not join organisations related to climate change.

3.2 BARRIERS TO ADAPTATION

Women

According to the gender-responsive climate budgeting handbook by the Ministry of Environment, Forest and Climate Change (MoEF) and the Ministry of Environment, Forest and Climate Change (MoWECP) (2021), women and men have different capacities to adapt to the impacts of climate change.

The gender aspects in climate change adaptation, as per the climate budgeting handbook, can be seen based on the objectives as follows.

CCA target	Challenges to action
Economic resilience	Men and women's different levels of access to, and participation and control of economic activities directly affect their ability to fulfil nutritional needs, use of energy for the household, and participation in decision-making
Livelihood resilience	Many facilities, policies, and infrastructure are gender blind i.e. they overlook and cannot accommodate different gender experiences
Environment services resilience	Gender roles affect individual control over tenurial rights to land and forest management, thus leading to differing levels of participation in the maintenance of ecosystem and resource utilisation
Special areas resilience	Gender neutral urban planning overlooks different gender needs: Traditional domestic gender roles often lead to women to be more susceptible to climate change in coastal areas due to a lack of means of production
Supporting systems	Unequal gender involvement in the implementation of Indonesia Climate Change Adaptation Plan (RAN-API) system components, such as research and development, and monitoring and evaluation, as well as capacity building for decision-makers lead to climate change action that is not gender responsive

Table 4.1 Gender aspects in climate change adaptation action

In Lombok, the research identified four primary barriers that restrict women's capacity to adapt: educational barriers, financial barriers, cultural barriers and institutional barriers. These are as follows:

Educational barriers

Women in Lombok generally have a lower educational background than men, with a majority of women not having completed high school. According to the survey, over 55 per cent of women are housewives and only 23 per cent have completed senior high school, whereas over fifty per cent of men have completed a degree of senior high school level or above. There are two primary reasons for the subordination of school education for women in Lombok: economic reasons (i.e. the community does not have the funds to continue their children's schooling) and socio-cultural reasons (i.e. the values held by the community that women's education is insignificant since they will end up working solely in the domestic sphere regardless of their qualifications). According to Basariah (2013), women's lack of access to education is also influenced by stigma towards girls and young women who are in high school but not yet married, and so risk being labelled as 'spinsters'. The consequence of these barriers to education is that women lag behind men in terms of access to information, jobs, and resources that are necessary to adapt to the worsening impacts of climate change.

Interestingly, climate change also exacerbates the problem of access to education – as girls face an increased likelihood of being taken out of school in the event of climate change disasters – which, in turn, further decreases the adaptive capacity for women and girls.

Financial barriers

Financial challenges that women face due to the impact of climate change not only constitute a threat against women's wellbeing, but also reduce their capacity to adapt. Women feel a decrease in income severely as climate change has significant impact on women-dominated sectors like agriculture. Moreover, women face more exclusion from the labour market and have less access to key resources such as land. According to the research, married men have more assets in the form of land and farmland (46.7% land ownership for men while only 31.4% for women) and have more money saved than married women (17.3% for men while 8.6% for women). Where women take on additional work to support their households, the income increases, but their burdens also increase as they work both in the domestic and non-domestic sphere – which also means that they are able to work less hours than men and earn less money.

According to the results of the survey, the majority of female respondents answered that what they needed most to cope with and adapt to climate change were financial or capital assistance, work or income-generating activities (Table 2.3).

Choose the 3 things you think women need most in the face of climate change and disaster?	Married women (n=70)	
	n	%
1. Financial or capital assistance	51	72.9
2. Jobs or activities to increase income	36	51.4
3. Food	33	47.1
4. Education	27	38.6
5. Family togetherness	19	27.1
6. Health advice and treatment	15	21.4
7. Access to sanitation	14	20
8. Security	11	15.7
9. Information	4	5.7
10. First aid	3	4.3
11. Electricity	2	2.9
12. Risk mitigation	1	1.4
13. Public service	1	1.4
14. Risk non mitigation	1	1.4
15. Psychosocial support	1	1.4
16. Legal status	0	0

Table 2.3 The needs of married women in dealing with climate change and disasters

DEBT CYCLES CONTRIBUTING TO DEFORESTATION

Suriati is a 60-year-old corn farmer from Mangge Nae Village, which has suffered prolonged drought, water shortages, and warmer temperatures due to the changing climate. After her husband was killed by a falling tree during clearing for corn planting, Suriati has become the sole breadwinner for her five children. As a mother, Suriati must work to support the household both economically and domestically.

“Every day, I work as a labourer in people’s farms from 7am to 5pm. I also plant corn on my land. There are three stages to corn plantation: clearing the land, spraying the bushes to maximise clearance, and then starting to plant. It is exhausting, but I don’t have any other choice because my husband passed away. I must fulfill my family’s daily needs, particularly for my children. Thanks to extreme fatigue, I have health problems now.”

Suriati is cognizant of the environmental consequences of clearing land for corn farming: “I’m extremely scared of landslides and floods as the result of the clearance and the fertiliser we use. I have to run fast when there are floods. I really hope that people stop contributing to deforestation because landslides are so scary.”

However, choices are limited because corn plantation yields the highest income and local communities are trapped in debt bondage: “The corn seed that I planted is in debt. If I can’t return the money, they will force me to pay the interest. The increasing weather temperatures also mean that corn plants are full of pests. If the plants are affected by the pests, the quality of the corn will reduce and the corn might even totally die. If this happens, I can’t pay my debt to the debt collector.”

Recognising the harm clearing does to the environment, Suriati hopes for better options for the future: “Because I do understand the negative impact of deforestation, I wish I could cultivate my land for rice only. I really want people to replant the trees or just cultivate the land for planting any local fruit.”

Cultural norms

Socio-cultural norms around gender also pose numerous challenges to the ability of women and girls to adapt. This manifests firstly in the disparity between practical skills that women and girls are able to access in comparison to men and boys. Harmful gender norms, alongside disparities in access to education and the economy as discussed above, mean that women and girls largely occupy a domestic role while men work outside the home. This provides men and boys with more and different opportunities to respond and adapt to disasters and emergencies (Kemenkeu, 2021). Consequently, women and girls face barriers to learning crucial adaptation mechanisms and skills, including life-saving skills like swimming, running, and climbing (Kemenkeu, 2021).

Furthermore, research also shows that customs and norms create differences in the variety and intensity of climate adaptation activities for men and women, with the intensity of the actual activities carried out by adult men in the high category and the intensity of the actual activities of women in the low category. In other words, cultural norms dictate that women’s existing roles focus more on internal and domestic family responsibilities (such as taking care of family members and cleaning the house), whereas men have wider external roles such as being invited to and attending rukun tetangga and rukun warga dusun meetings (community or village meetings) more frequently and seeking assistance to adapt to climate change. In this regard, women are less able and discouraged to engage in community adaptation activities compared to men, as their roles are traditionally understood to be primarily domestic.

Similarly, women are also less likely to have a say in decision-making in climate change adaptation. Research result shows that only 37.5 per cent of unmarried women were involved in decision making in the community, all of whom were women with high school or college level education and women who were employed. Although statistical results found that there were no significant differences in access, participation, control, and benefits between men and women in climate adaptation actions on a conceptual level, it was found that men had more decision-making power than women in practice because of existing disparities in access to education, financial resources, employment and social status.

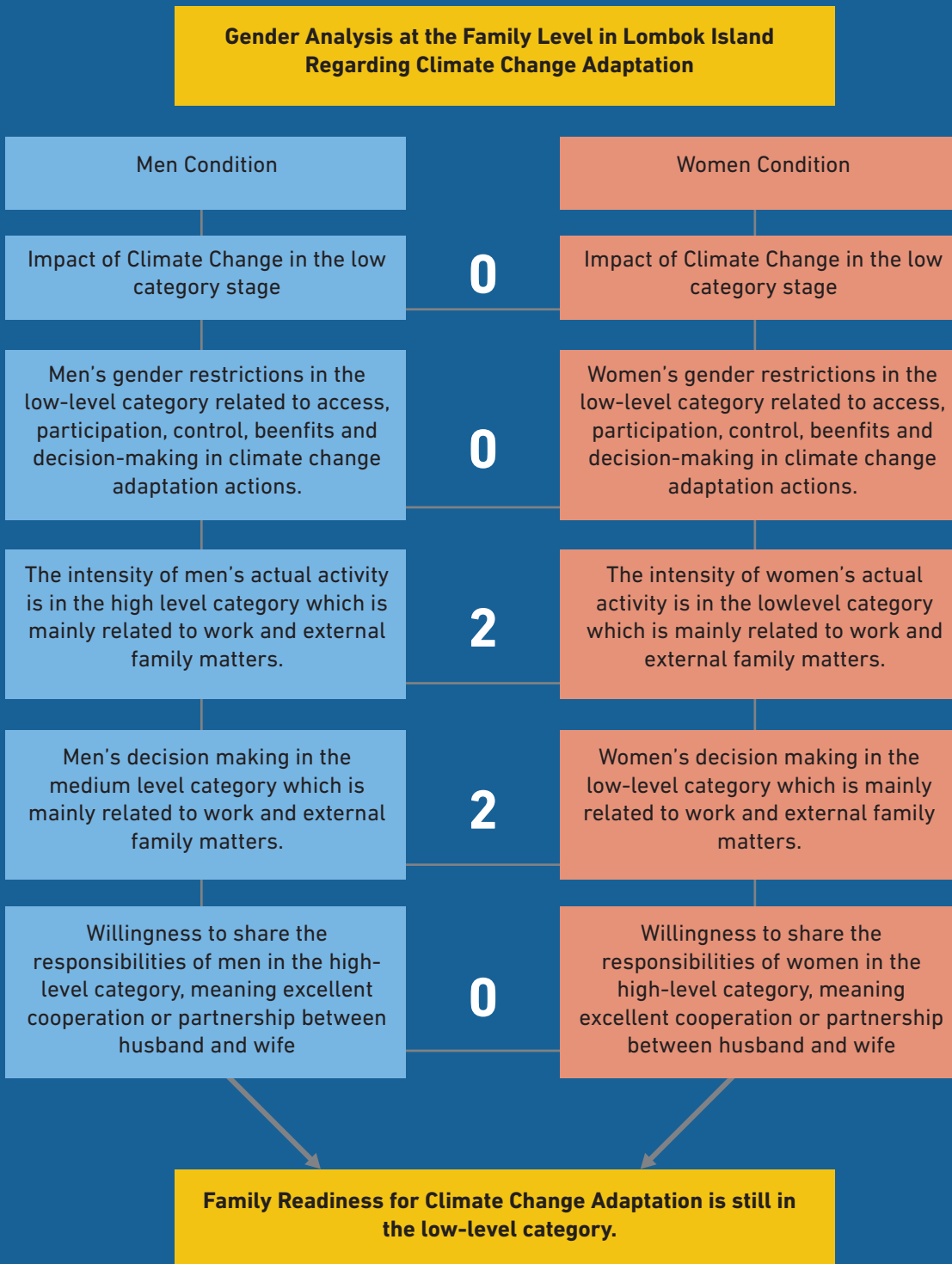


Fig. 4.1 Recapitulation of gender analysis results at the family level on Lombok (extracted from Family Survey Analysis, June 2022)

Notes:

Description of gender gap analysis from quantitative data survey results:

0= There is no gender gap between men and women in other words there is gender equality

1= There is a gender gap where men lag behind women

2= There is a gender gap where women lag behind men

Merarik - Elopement culture in the Sasak Tribe

Over 80 per cent of Lombok's population are ethnically Sasak. In Sasak customs, there is a tradition called 'Merarik' or elopement which refers to removing or 'kidnapping' a girl from the 'power' of her parents before the religious and cultural marriage ceremonies are carried out. A man will be considered more authoritative if he dares to take risks by kidnapping the woman he wants to marry. The act is a symbol of the masculinity that is expected to exist in every Sasak man. Unfortunately, this Merarik tradition also leads to the kidnapping and forced marriage of young girls. Traditionally, if a girl who has been taken away is forced to marry, it is difficult to refuse, which means girls are married and forced to give up their education. Accordingly, this practice violates at least two of the rights of young girls, namely the right to freely marry a partner of their choice and the right to obtain and complete education.

Institutional Barriers

Climate change adaptation is a short-term challenge that must be prepared for by local and central governments through appropriate, comprehensive, and holistic policies. Based on this research, we know that **there is a deficiency of integrated policies that combine the implementation of preparation and education on climate change adaptation and that are gender-responsive on Lombok** in particular, and throughout NTB and Indonesia in general. Although some institutional measures have been taken to address gender within climate change adaptation, there exists a lack of synchronisation of climate change adaptation policies at the provincial level which have not yet been adopted for implementation at the district or city level in the form of mayoral regulations or regent regulations. It also remains a challenge to socialise gender-sensitive climate change adaptation to the community and change harmful notions and norms that prevent adaptation. Moreover, dissemination of information on local policies and good practices of gender mainstreaming in climate change adaptation is still limited.

Children (especially girls)

Due to their status as a vulnerable group, the fulfilment of children's rights and needs must be a top priority during climate change and disasters. Based on The Convention on the Rights of the Child (1992), there are four main pillars of children's rights that are in the best interest of the child, including the right to survival, the right to development, the right to protection, and the right to participation. Efforts to fulfil children's rights in climate change adaptation actions can be carried out using a child-centred approach. According to the Office of the Children's Commissioner (2015), a child-centred approach means keeping the child in focus when making decisions about their lives and working in partnership with them and their families.

According to the results of the study, however, the participation of children in Lombok around climate adaptation actions is still very low (Fig. 2.16) due to a **lack of platforms for decision-making and climate change adaptation, as well as lack of awareness around adaptation**. More than half of the children surveyed stated that there is no such forum or community in their community (65.6 per cent), and that they did not know whether such forums or communities even existed (22.9 per cent). In terms of the gender divide, the proportion of boys participating in forums (16.67%) was found higher than girls (11.27%).

Children participation in associations (forum or communities) of climate action

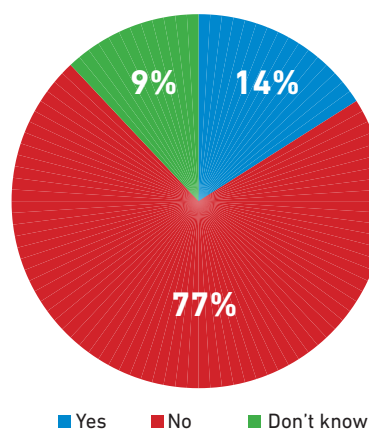


Fig. 2.16 Child participation in associations (forum or communities) of climate action

Additionally, the research found that around seven out of 10 children (77.9 per cent) in Lombok had heard of, knew of or studied climate change (Fig. 2.14). A higher proportion of boys reported that they had knowledge about climate change (78.33 per cent) compared to girls (77.46 per cent). Based on the survey, children in Lombok received information about the threat of climate change from their teachers (67.9 per cent), parents (41.2 per cent), and other sources (48.9 per cent), such as social media, television, the internet, and BMKG.

Have you ever hear/know/study about climate change?

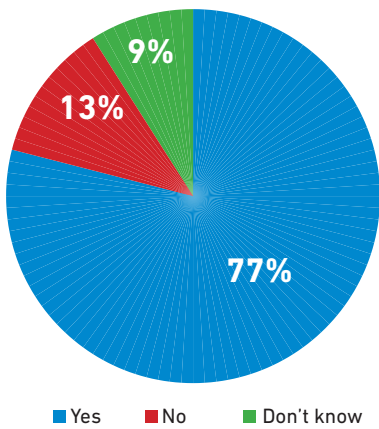
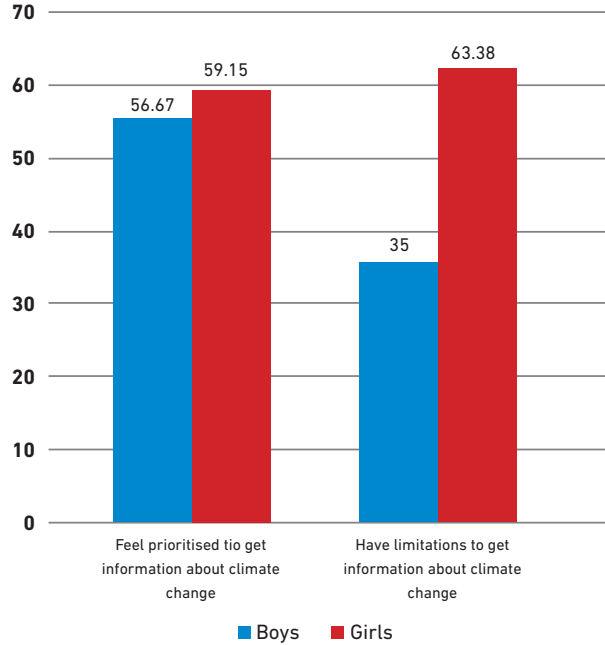


Fig. 2.14 Children's knowledge about climate change

Most of the children (57.3 per cent) reported that they did not have limitations on getting information about climate change (Fig. 2.15), but **girls reported a higher level of limitation in accessing information on climate change than boys** (Fig 2.15) as they were the first to leave school in case of disaster events and were more frequently asked to assist with household tasks than boys, which led to missing more learning hours. The primary source of learning about climate in Lombok is through teachers in schools, meaning girls are less able and less likely to access this information. Limitations on information were also found to arise from a social environment that is not aware of climate change (60.3 per cent), family education level (38.2 per cent), and family economic conditions (38.2 per cent).



Girls were also found to be less engaged than boys in developing water and sanitation systems in response to the effects of climate change (including providing water for household needs and livelihoods), resulting in an increased susceptibility to flu and other diseases which also has a knock-on effect on girls' ability to attend school. Finally, girls were also found to be less likely than boys to be included in decision-making around climate change adaptation.

PWDs

PWDs are severely restricted from participating in climate change adaptation as they face a number of concerns including poor education, lack of income, social exclusion, and limited access to decision-making bodies. They also experience barriers to finding information about climate change adaptation. **Based on the research, only 14.3 per cent of PWDs were aware of climate change.**

Institutionally, PWDs suffer exclusion from climate adaptation policies. OPDs do not yet have a written and signed policy for PWDs related to climate change adaptation in Lombok. These results indicate that PWDs have not received special attention from the government.

4. CLIMATE CHANGE AND GENDER MAINSTREAMING

4.1 POLICY AND INSTITUTIONAL FRAMEWORK

The inequalities faced by women and girls have long been a concern throughout the world, as seen in The Universal Declaration of Human Rights by the United Nations General Assembly in 1948 which states that men and women have equal rights. In 1979, the United Nations General Assembly adopted the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW Convention), which became the legal basis for women's rights. To accelerate the implementation of CEDAW, women's rights were re-declared in the IV World Conference on Women in Beijing in 1995 by UNWomen (The Beijing Declaration and Platform for Action/BPfA). The BPfA conference mentioned gender mainstreaming as the main global strategy in promoting gender equality, considering that the main issue in gender issues is inequality between women and men. The Group of Specialists on Mainstreaming (EG-S-MS, 1998) agreed that **“Gender mainstreaming is the (re)organisation, improvement, development, and evaluation of policy processes so that a gender equality perspective is incorporated in all policies at all levels and all stages, by the actors normally involved in policy-making”**. Thus, gender mainstreaming can be regarded as a strategy to obtain policies that have a gender perspective, especially for areas that are concerned with inequality between men and women in climate change.

Regarding climate change, the issue of gender equality has become one of the major concerns, in accordance with the principle of 'No one left behind'. This can be seen in the Paris Agreement of 2016, ratified by the Government of Indonesia through Law no. 16/2016, which states: “Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, PWDs, and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity”. Accordingly, the implementation of gender mainstreaming in climate change should not be limited to efforts to eliminate the gap between men and women but should also increase the social inclusion of other marginalised groups and overcome the gaps in gender equality indicators (access, participation, control, and development benefits) for children, the elderly, PWDs,

indigenous peoples, and other relevant groups. This will support the improvement of community resilience, particularly in vulnerable groups, so that the targets for climate change adaptation and mitigation can be achieved effectively and efficiently (KLHK, 2020a).

In achieving these goals, it is hoped that gender mainstreaming can create partnerships, not conflict. Therefore, a transformative approach is needed to drive fundamental change at all levels of society and in all sectors in a sustainable manner. Society must lead to transformative change where broader gender relations and power structures are addressed through collective action to ensure that policies are inclusive of everyone regardless of gender, ethnicity, ability, and other vulnerabilities. A gender-transformative approach needs to be based on a strong gender analysis and understanding of the local context (CIWA, 2021).

GESI Approach

The Gender Equality and Social Inclusion (GESI) twin-track approach refers to a method used to advance the rights of marginalised populations or vulnerable groups. The GESI twin-track approach includes **GESI Mainstreaming** (ensuring GESI is an integral part of planning, preparation, implementation, monitoring, evaluation, and reporting in all outcome areas); and **GESI-targeted initiatives** (addressing specific inequalities, identifying and testing promising strategies for replication, or informing future programme development). The core perspective of GESI mainstreaming is equality, while the core perspective of GESI-targeted initiatives is women's empowerment or the empowerment of vulnerable groups. Climate change affects women, men, girls, and boys differently and disproportionately, the GESI aspect must be considered in climate action including climate change mitigation and adaptation so that the effectiveness and efficiency of both increases.

The main challenge of gender mainstreaming is the difficulty of providing equal opportunities for both men and women to be able to participate, control, and benefit from all sectors. Based on the technical guidelines for the preparation of the Gender Analysis Pathway (GAP) and Gender Budget Statement (GBS), inequalities between women and men in APKM are described as follows:

Inequalities	Description
Access (A)	Inequalities related to opportunities to utilise resources, including: (1) natural resources (2) human resources (3) financial resources and (4) availability of government services
Participation (P)	Limitations for a certain group related to the knowledge, attitude, practice of a person, group, or community in development activities, including planning, implementation, monitoring, and evaluation activities
Control (K)	Limited ability of a person and/or a certain community to make decisions to do or carry out an action not to do something
Benefit (M)	Differences in the benefits received from the results of development, that are felt directly or indirectly by the community

Table 3.2 Inequalities between women and men in APKM

Relevant policies, regulations, and laws in Indonesia

Indonesia has already taken steps to create policy and programmes dedicated to gender equality and mainstreaming, including through the adoption of CEDAW Convention through Law number 7 of 1984, adoption of the BPfA since its declaration in 1995, and the Presidential Instruction No. 9/2000 on gender mainstreaming.

The Nationally Determined Contributions (NDC) stated that in implementing policy it is crucial to map gender issues (gender participation, gender equity, and gender balance) in climate change across all development sectors. Enhancing the role of women in development and strengthening women’s capacity and leadership in climate change response has already been initiated and will be continued as part of the NDC implementation and development of Long-Term Strategy for Low Carbon and Climate Resilience (LTS-LCCR). Recognising the importance of the role of women in development, the Indonesian government will continue to target four main issues, education, health, employment, and violence prevention.

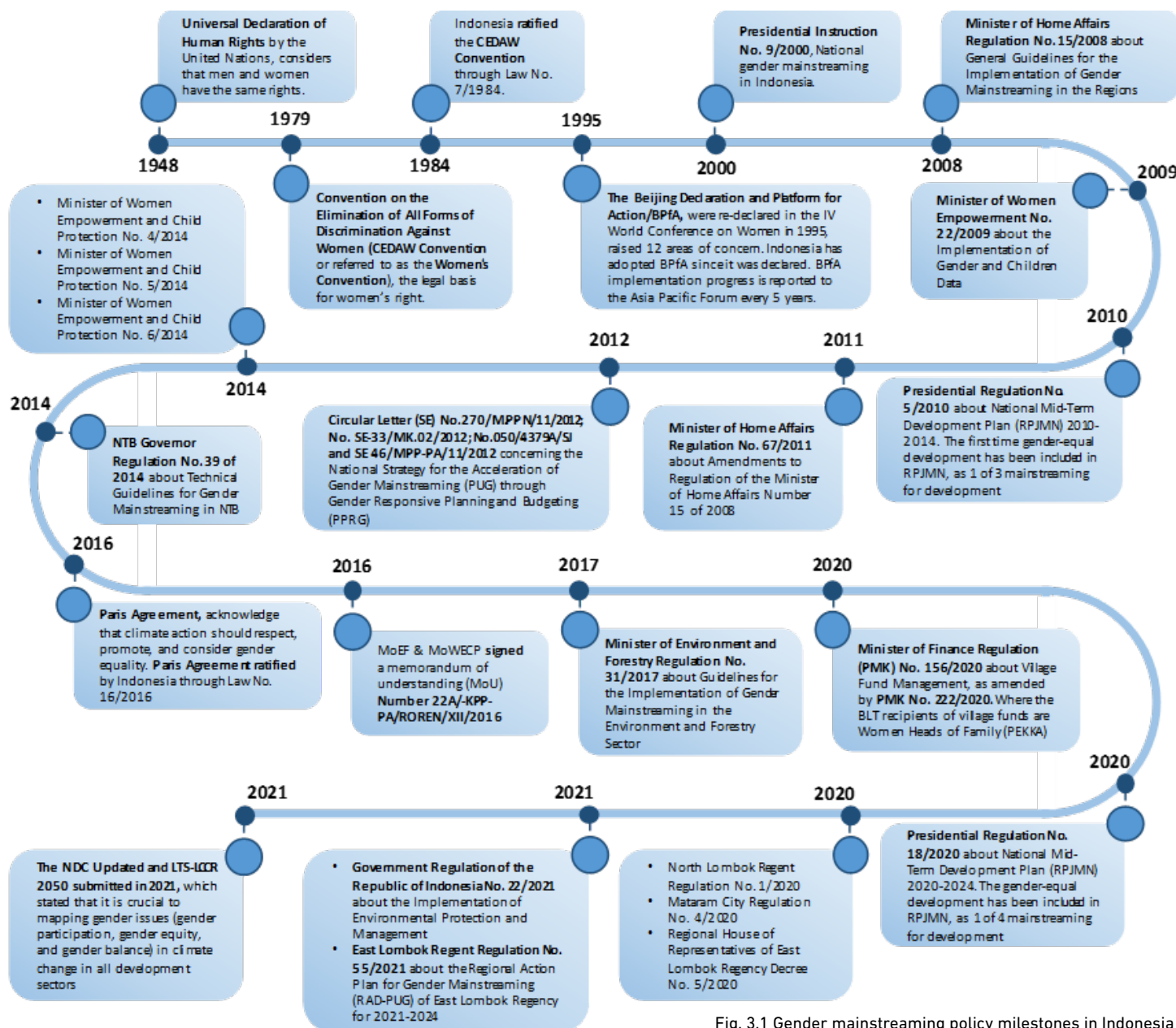


Fig. 3.1 Gender mainstreaming policy milestones in Indonesia

4.2 GENDER MAINSTREAMING GOVERNANCE IN CLIMATE CHANGE ACTION IN LOMBOK

The application of gender mainstreaming in climate change requires clear governance and organisation and refers to the duties, functions, and responsibilities of each stakeholder (KemenPPPA, 2015). As mandated in Presidential Instruction No. 9/2000, all government agencies at the national and regional levels are required to mainstream gender into the planning, implementation, monitoring and evaluation of all policies and programmes. Every ministry and institution at the central and regional levels can form or develop a working group for gender mainstreaming, especially in climate change adaptation. The results of the GESI study for Regional Action Plan for Climate Change Adaptation (RAD API) NTB show that activities related to the agriculture, water resources, coastal and marine and health position women as the recipients of significant impacts due to climate change (Bappeda Provinsi NTB, 2020). From the FGD with community representatives and regional OPDs, it is also known that in each OPD there is already a working group that manages and ensures gender inclusion in every programme to be carried out.

In the context of West Nusa Tenggara, an initiative has emerged to adapt to climate change by pursuing development policies that are responsive to the negative impacts of climate change, i.e. through Governor’s Decree No. 219 of 2007 concerning the Establishment of a Task Force for Mainstreaming Aspects of Climate Change in the Province of West Nusa Tenggara for Fiscal Year 2007. The East Lombok district also has a Climate Change Adaptation Working Group, which was ratified through the East Lombok Regent Decree No. 188.45/95/PD/2020. The NTB RAD API is currently being evaluated and will be developed into RAD-PRKBI (Low Carbon and Climate Resilient Development). From this evaluation, it is hoped that there will be efforts to better incorporate the roles of gender and vulnerable groups into adaptation actions.

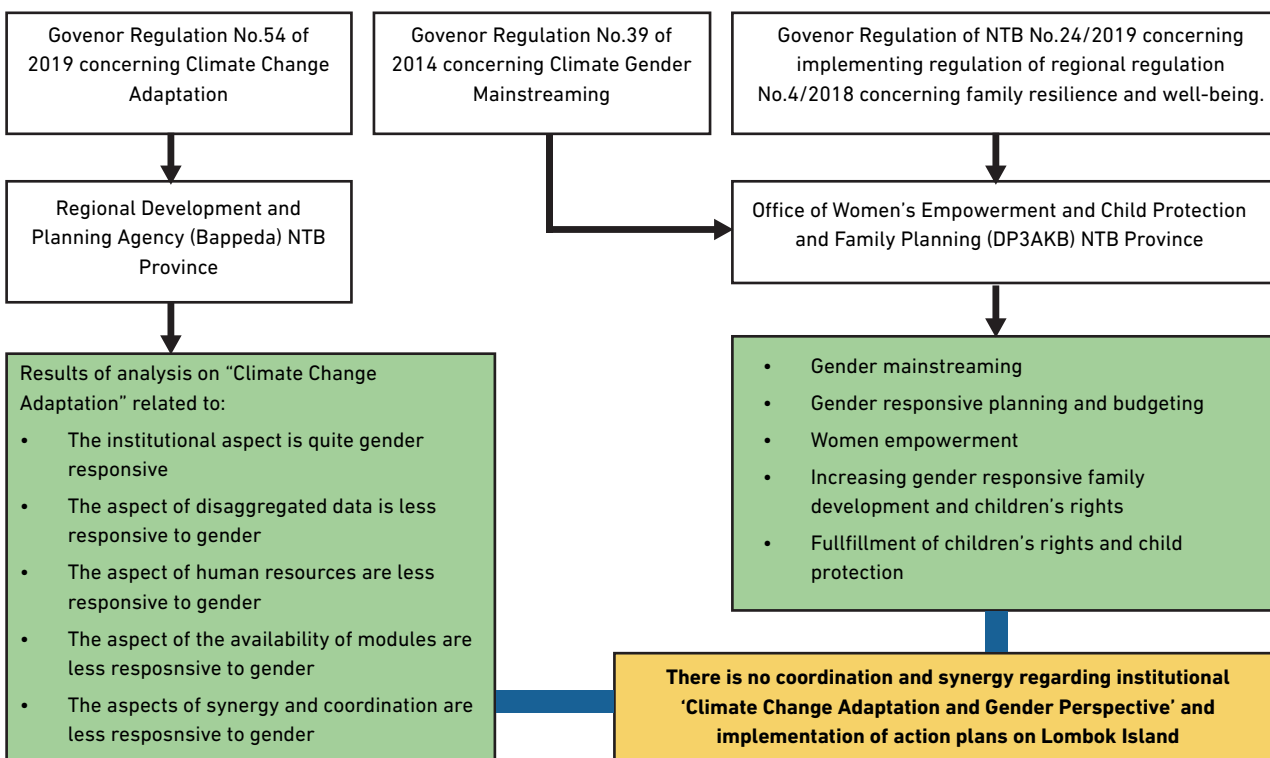


Fig. 3.2 Recapitulation of gender analysis results at the policy level in Lombok (Extracted from FGD Analysis, June 2022)

According to Environment and Forestry Regulation No. 31/2017, a gender-responsive climate change strategic plan can be viewed from four aspects: 1) referring to the legal basis for gender mainstreaming 2) the existence of sex-disaggregated data and gender issues 3) the existence of gender mainstreaming programs and activities and 4) the existence of gender indicators that have targets. Based on these criteria, the results of research on agencies dealing with climate change adaptation in Lombok can be described as follows:

1. Institutional aspect

The institutional aspect can be said to be quite gender responsive. This is shown by the results of the research which found that most of the agencies have engaged in gender responsive activities including:

Handling programmes and activities related to gender affairs and/or climate change adaptation.

Planning for climate change adaptation programmes/ activities with a gender perspective.

Considering the problem of gender gaps and women's groups in a balanced way.

Making preventive efforts by holding for the community in the form of counselling, socialisation, advocacy, or social campaigns.

Carrying out promotive efforts by strengthening coordination and synergy with work networks between units in the area under the authority of an OPD and community institutions.

Carrying out a monitoring and evaluation system for climate actions.

2. Disaggregated data aspect

Aspects of disaggregated data can be said to be less responsive to gender. The research found that the data owners (agencies) only sort the data by sex on some socio-economic aspects of the household. There is no data aggregation in aspects such as the role and fulfilment of the needs of each gender. Agencies do not widely own data on the protection of children's rights disaggregated by sex, gender data related to climate change, gender data on climate change adaptation, or women's data related to climate change adaptation.

3. Human resources aspect

Aspects of human resources can be said to be less responsive to gender. Officers who manage climate change adaptation programmes or activities have experience participating in gender, climate change, and child protection training and understand gender-responsive planning. Meanwhile, only a small proportion of human resources staff have received an undergraduate education related to the field of family and children, have expertise certified by scientific associations, have expressed concern for gender equality and the quality of child development, understand gender-responsive budgeting, are able to analyse gender gap issues and find the root causes of the gender gap, or express concern for gender equality.

4. Aspects of module availability

Aspects of module availability can be said to be less gender responsive. This is indicated by the results of research which found that almost all offices answered IEC requests regarding the impact of and adaptation to climate change, but only a few explained gender equalities and the development and fulfilment of children's rights.

5. Aspects of synergy and coordination

Aspects of synergy and coordination can be said to not yet be gender responsive. This is shown by the research which found that almost all agencies and institutions that have 'climate change adaptation with a gender perspective' programmes or activities in districts and cities can network and partner with other institutions such as higher education through Thematic Real Work Lectures (KKN-T), Family Welfare Development (PKK), and Dharma Wanita. Meanwhile, only a few have partnered with professional institutions, religious institutions and figures, women's organisations, business groups, and the media.

CALL FOR A HOLISTIC AND INTEGRATED APPROACH

Adhi* is a 51-year-old forestry worker at BKPH, Environmental Health, Environment, and Forestry Office in NTB. He explains the work that provincial departments do around issues of deforestation and farming.

“Empowering the economy and creating employment for the community is our main responsibility. My daily work focuses on empowering forest farmer groups, which consists of farmers from rural communities who work to support their families. Following the regulations from the central government which encourage the formation of farmers’ groups in financially disadvantaged areas, we have currently formed 80 partnership farmer groups.”

“We also aim to carry out reforestation and encourage the rehabilitation of land that has been cleared or land that has been opened. At the beginning of my career 30 years ago, the forest in Dompus was still extremely dense, reflecting that the environment was protected. However, over time, the population of Dompus has kept increasing day by day while the employment opportunities have decreased. This means that communities have been forced to enter the forest area and do farming, such as planting corn, for their livelihoods. This has led to deforestation. Our goal is to restore the forest by planting fruit trees in order to support the economy and to achieve employment targets.”

Although regulations are in place on a provincial level, conflicting deforestation policies and general incongruence between the local, provincial, and national governments create confusion for local farmers. For instance, while the provincial forestry tells communities to plant fruit trees to prevent further deforestation, farmers continue to focus on planting corn because corn plantation is encouraged under a national programme.

“There could be better integration and coherence of policies and action plans amongst different levels of government. This problem also causes issues relating to the budget. Budgets at the regional and provincial levels must be in sync, meaning that there must be assistance so that we can carry out prevention together because the apparatus is at the regional level while the forestry service is at the provincial level.”

Through his forestry work, Adhi hopes to create further partnerships with community farmer groups and empower local farming communities to access more sustainable forms of employment and livelihood, such as planting fruit trees.

*name changed to protect anonymity

4.3 FUNDING AND BUDGETARY CHALLENGES TO GENDER MAINSTREAMING

Adequate funding is critical to ensuring that gender mainstreaming can be implemented. Yet, the study shows that the funding aspect of gender mainstreaming in Indonesia's climate plans is not particularly gender-responsive. This is indicated by the results of the research which found that the budget resources for climate change adaptation from a gender perspective were obtained from the Regional Revenue and Expenditure Budget (APBD), but not many agencies received budgetary resources from the Indonesia's State Revenue and Expenditure Budget (APBN), Corporate Social Responsibility (CSR), and village budgets. Based on the survey result, the assistance received by men and women respondents is also limited. This means that only a small proportion of respondents received assistance or incentives. The forms of assistance received include necessities and assistance by Family Hope Program (PKH). The results of the different tests state that there is no significant difference in the assistance received by men and women to deal with the impacts of climate change. There is also a lack of assistance for PWDs, with some of them having never received social assistance.

This is in part due to a **lack of the funds that Indonesia needs to deal with the impacts of climate change.**

Climate change has caused widespread damage and economic losses worth billions of dollars globally. The government of Indonesia recognises that adaptation to the impacts of climate change requires investment support from the public and private sectors. However, Indonesia's State Revenue and Expenditure Budget (APBN) can only finance around 21.3 per cent of total investment needs. Together with other sources of financing, international climate finance can help bridge the financing gap. According to the Governor's Decree of West Nusa Tenggara No. 219 of 2007, the provision of a mechanism for financing climate change adaptation efforts is charged to the post of the Regional Environmental Impact Control Agency of NTB and other sources that are legally binding in the Regional Revenue and Expenditure Budget (APBD) Province of NTB.

One of the most promising potential sources of international climate finance is the Green Climate Fund (GCF). Access to this funding source requires the fulfilment of several safeguards, including safeguards that may not be familiar to the project proponents. In Indonesia, the Fiscal Policy Agency (BKF) of the Ministry of Finance – as the National Designated Authority of the Green Climate Fund (NDA GCF) – acts as the main focal point for all GCF activities in Indonesia. The role of the NDA GCF includes ensuring country ownership and applying a country-driven approach to proposed projects as well as the project's alignment with the country's strategies and regulations. The GCF's policies on GESI are very much in line with the commitments and legal framework of the Government

of Indonesia. This alignment promotes the transition to the implementation phase of the 2030 Agenda for Sustainable Development and the Paris Agreement, under which gender equality, women's empowerment and social inclusion continue to influence, shape and direct collective efforts on climate change and human development, adhering to the principle of 'no one left behind'.

In addition to increasing the budget for climate change adaptation, Indonesia also needs to prioritise gender mainstreaming in budget marking mechanisms.

Although Indonesia already has policy commitments concerning gender mainstreaming and climate change budget, these commitments are running separately and independently, and have not been integrated into a holistic policy of planning and budgeting. This is because the implementation of policies and mechanisms is not yet optimal due to various factors (BKF, 2020) including:

1. Ministries and institutions that play a role in promoting Gender Responsive Planning and Budgeting (PPRG) have not played their role optimally.
2. There is still poor coordination between ministries dealing with gender mainstreaming and climate change adaptation
3. There are still many ministries and institutions that have not marked Gender Responsive Budgets/(ARG)
4. Indicators in determining Anugerah Parahita Ekapraya (a reward system for the implementation of Gender Responsive development and planning) are not yet synchronised with a gender responsive budget planning mechanism.
5. There is no reward system that motivates ministries and institutions to carry out tagging on the combined theme of climate change budget and gender responsive budget.

On a regional scale, based on the results of the FGD, a Gender Responsive Budget (ARG) is already in practice in NTB, with the aim of focusing on national or regional priorities (e.g. climate change budget), community service (e.g. the socialisation of climate change adaptation), and the institutionalisation of gender mainstreaming or National Strategy for the Acceleration of Gender Mainstreaming (PUG) (including capacity building, gender advocacy, research, outreach, dissemination, networking, human resources, and collection of disaggregated data). However, these commitments struggle to be translated from policy into material implementation. Moreover, since the ARG does not contain additional funds or a separate budget for women, nor does it aim to be a special programme for women's empowerment, there remains a gap to fulfil these functions.

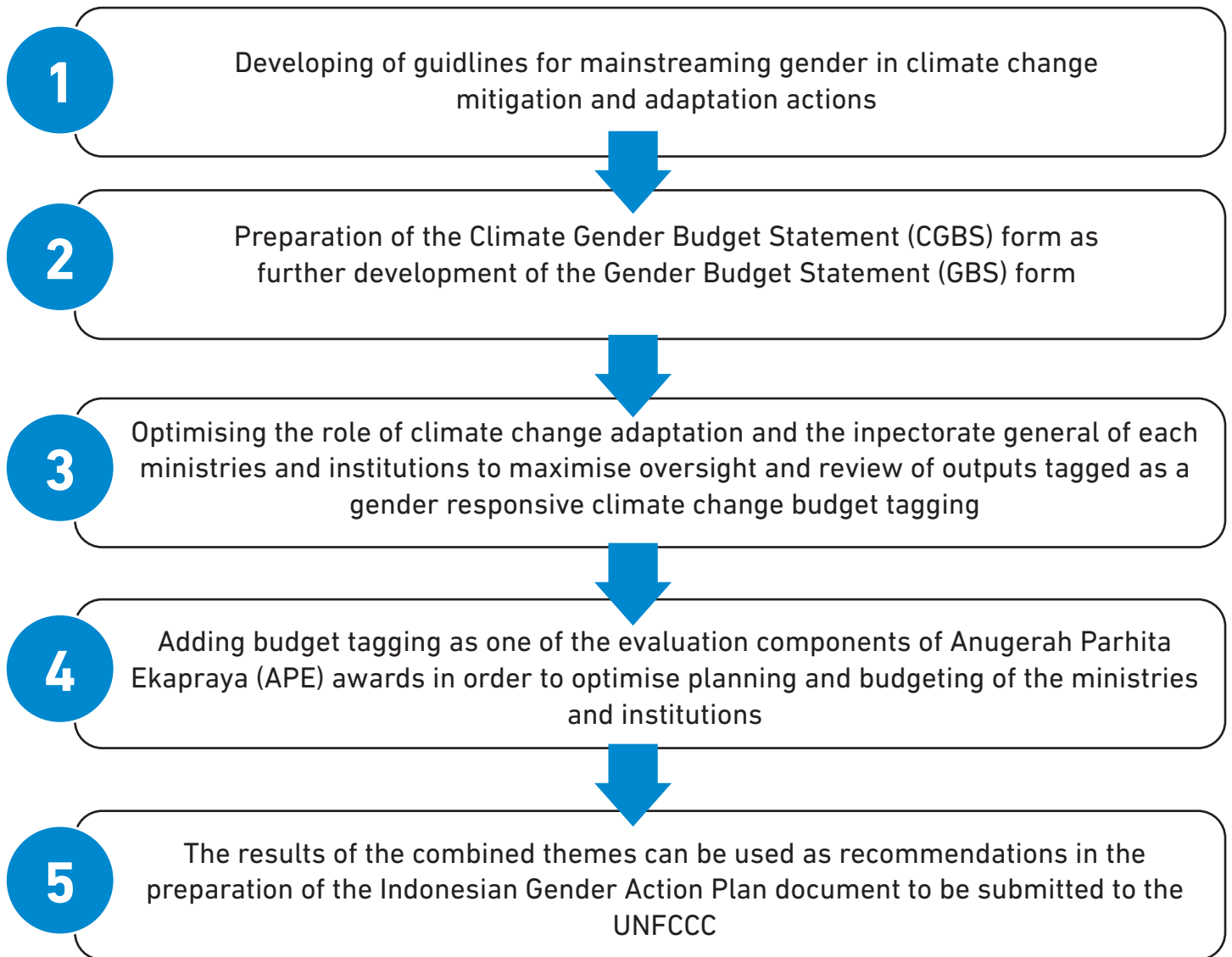


Fig. 3.3. Efforts to improve the implementation of gender responsive climate change budgeting in Lombok according to the challenges

BUDGET RESTRICTIONS IN THE WAY OF PREVENTING LOGGING

Bima and Dompu are two of the poorest regions in NTB, where many communities are forced to move up into the mountains to plant maize in order to sustain a living. To plant the maize, farmers must first cut down any trees in the area through logging, leading to rapid deforestation. According to the Forestry Agency, around 250,000 hectares of land in NTB are currently barren due to logging around forestry and unsustainable farming practices. Continuation of these trends will likely have a long-term impact on the livelihoods of communities in Bima and Dompu, who depend on the forest for their source of livelihoods.

Mutakun is a member of representatives in the Dompu district who heads a commission to address social and

environmental issues within the district. He explains: "There are programmes that the government is trying to implement to address root causes of the logging by giving communities an alternative source of livelihoods. In early 2022, for instance, the government started giving support to small scale farmers. The Forest Agency also gives support to subsidise fruit seeding in order to give communities a different source of income. Unfortunately, there are only a few governmental programmes like these due to budget restrictions. The district budget is about 1.2 billion IDR (£67,000) and a large portion of this amount goes towards administrative expenses and salaries, leaving about 30% for actual programme with only a small fraction of this is for deforestation and the rest for building infrastructure within the district. Currently, only 10 out of 81 villages in the district are supported through these programmes."

5. LESSONS LEARNED: GENDER-BASED COMMUNITY'S BEST PRACTICE AND INNOVATIVE ACTION

This research has found that there is a significant need for financial support and skills development for employment to address the impacts of climate change on women and to ensure adaptation. Some of the best practices include mentoring and assistance through Women Farmers Groups (KWT) (Wahana Visi, 2021), and assistance to support women's economic and social activities (Ditjen PPI KLHK, 2020). In addition, the role of the Drive Team for Family Empowerment and Welfare (TP PKK) is also critical in strengthening adaptive capacity, particularly due to the ability of TP PKK to engage every stakeholder at every level, including villages. Unfortunately, based on the results of the focus groups, it was found that the TP PKK at the village level has only played a supporting role in adaptation so far, not a stakeholder role.

In the children's group, the primary lesson learned has been that the community and social environment play an important role in supporting children's, and particularly girls' participation in dealing with climate change on Lombok. Girls are more at risk from impacts of climate change than boys, as girls are faced with a less supportive social environment which does not prioritise their engagement with adaptation and access to education or information. There is a pressing need to create transformative change within communities which ensures that children, and especially girls, are given access to information, education, and decision-making.

Finally, with regards to PWDs, it has been identified that PWDs are very dependent on the people around them when facing the dangers of climate change. There are several obstacles which prevent successful adaptation for PWDs, such as physical limitations and delays in getting information. There is not yet a specific policy from the government for PWDs in dealing with climate change. In addition, several facilities are still needed to support PWDs in dealing with climate change, such as wheelchairs and special evacuation routes when facing disasters.

The specific lessons learned from each group of research focus are detailed below this sub-section.

Women

The best practices relating to women's adaptation, which correspond to specific vulnerabilities and challenges that women face, are as follows:

Education and information

Programmes that have been carried out in Lombok to increase the knowledge capacity of women include Montong Betok Village Women Schools, which offer women entrepreneurship training programmes (DPEAP2KB NTB, 2021), and KAPAL Perempuan's Women's Schools, which empower women at the grassroots by focusing on the poor populations in rural, urban, coastal and remote islands. Various implementation processes on climate change adaptation action plans in districts/cities also take place in East Lombok, including Islamic Relief's 'Climate Field School' which facilitates research and enables climate change adaptation by introducing new climate-adaptive techniques, skills, and technologies to local populations. While these are important initiatives, however, there remains a need for further programmes to increase the capacity of women by providing education (formal or informal), especially in the context of increasing knowledge related to climate change adaptation. Such programmes can be facilitated in coordination with the government and communities in Lombok.

Financial

Based on previous studies, there are a few programmes and activities which have been implemented to increase women's income, particularly through the pottery (Vibriyanti, 2016) and gedongan (silk) weaving industries (Rohmi & Mahagangga, 2020). Most women in Banyumulek village work as pottery craftswomen, a skill that has been passed down through generations (Khanifah, 2012). This promotes women's economic resilience, particularly for widows and women who also undertake the bulk of domestic work. Similarly, the gedogan weaving craft business in Pringgsaela Tourism Village, East Lombok Regency allows women to become more independent and economic independence gives women more freedom to make their own decisions. As a result, the Sentosa Sasak Tenun Group was established with the aim of preserving the gedogan weaving craft, as well as creating a forum for craftsmen to apply and develop their knowledge and skills in weaving activities. The government has also issued a programme for women farmers' groups which work to increase the capacity of women farmers to adapt through various trainings (Nurhairah, 2019). Such initiatives not only alleviate the economic difficulties of households but can result in changes in the societal role of women.

Health

One of the programmes carried out to deal with the health effects of climate change is called 'Aksara Tani'. It invites women to maximise the yard of their homes. The yard is optimised by planting vegetables, fruits, and medicinal plants. Based on the experience of the earthquake in 2018, which constituted the strongest earthquake in Lombok in recorded history, people can be confused about how to get food during disasters so it is important to optimise the yard so that it can potentially be used as part of a disaster response.

Apart from the previously mentioned programmes, the research has not found a programme that is specifically designed to physically prepare women against the impacts of climate change. Most importantly, there is still a need for a first aid programme to be carried out to prepare women and girls for disaster situations, where they may be more likely to be injured as they often lack specific skills like climbing and swimming.

Children (especially girls)

In facing the threat of climate change in the future, children need to adapt to the circumstances around them with the support of various parties. Based on UNICEF (2021), there are four forms of adaptation: Water, Sanitation, and Hygiene (WASH) services, education, health and nutrition services, and social protection and reducing poverty. These have not been adequately addressed in Lombok. With regards to social protection, the United Nations Population Fund (UNFPA) and Ministry for Women's Empowerment and Child Protection (MOWECP) held a programme in 2019 regarding the community-based prevention of gender-based violence (GBV) and harmful practices in Teniga and Tanjung villages in North Lombok District. The programme involved men and boys in the elimination of GBV and harmful practices such as early and forced marriage, and was attended by hundreds of people, including young people, who participated in the training, discussions, community projects, and initiatives. The most significant achievement of the programme was the establishment of the Child Village Forum which also promotes zero tolerance of violence against women and girls in their families and the village (Indonesia UNFPA, 2022).

PWDs

All respondents answered that PWDs were not involved in climate change issues in Lombok. Although there are public forums like Nusantara Posyantek communication forum, supervised by the Ministry of Village, PWDs still feel that there is no special forum related to climate change adaptation. Moreover, there is no written and signed policy for PWDs related to climate change adaptation in Lombok. These results indicate that PWDs have not received special attention from the government.

6. CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

South Asia is particularly vulnerable to the impacts of climate change due to its unique geographic location, make-up, and level of development. As these impacts worsen, communities in rural areas such as Lombok, Indonesia face increasingly precarious futures with severe threats to food security, water availability, health, and livelihoods.

This carries consequences for vulnerable groups since climate change amplifies and exacerbates pre-existing inequalities and disparities within communities. For instance, women feel disproportionate financial impact due to the damage on local sectors caused by increasing temperatures and changes in precipitation patterns, as women own fewer resources and have less access to education. They also feel the physical and psychological impacts of climate change as the deterioration of household income leads women to take on additional work and double their burden inside and outside the home. Children, moreover, largely experience concerning health impacts as well as the potential loss of education, which particularly threatens girls who face an increased risk of being taken out of school to assist in housework as families become unable or unwilling to finance their education. Similarly, PWDs experience a heightened susceptibility to illness alongside significant physical and financial limitations engendered by environmental degradation.

To develop resilience against these impacts, it is critical that vulnerable groups are prioritised within climate change adaptation. Incorporating the voices and needs of vulnerable groups into climate action will not only protect them from experiencing disproportionate harm, but also facilitate better adaptation for the community as a whole. Indeed, women and children play critical roles within their households and communities which enable climate change adaptation. Women, for instance, have wider knowledge of medicinal plants and water collection due to the requirements of their housework, and display resilience in cases of livelihood loss. Likewise, children carry the potential of engaging in a variety of preparedness and risk reduction activities which help facilitate adaptation and minimise disaster risk.

This adaptive capacity, however, is undercut by barriers that restrict the ability of vulnerable groups to adapt to climate change. For women, this research finds that the most notable barriers to adaptation are educational, financial, cultural, and institutional, i.e. women in Lombok have less education than men, less access to land and resources, less access to

the public sphere, and less institutional support – resulting in weakened capacity to adapt to climate change and heightened vulnerability to its impacts. More concretely, the research finds that **women lag behind men in terms of intensity of adaptation activity as well as decision-making around climate change adaptation.** For children, the most critical issue remains the absence of platforms for decision-making on climate change which prevents them from participating in community adaptation. Girls experience more limitations to gaining information than boys and feel an increased threat of losing out on education due to disasters. The research also finds that PWDs experience exclusion from information and decision-making mechanisms around climate change adaptation, as well as a lack of income and poor education which act as barriers to adaptation.

Gender mainstreaming is one tool that can be used to ensure that the vulnerabilities of women and girls are addressed at an institutional level. Gender mainstreaming enables women and girls to enjoy equal access to; participation in; control of; and to benefit from climate change adaptation. There have already been steps taken toward this in Indonesia, particularly in the province of West Nusa Tenggara. There nevertheless remain **gaps in governance, including with regards for synergy and coordination between agencies, as well as funding and budget marking mechanisms.** The research finds that although policy frameworks exist individually for climate change and for gender mainstreaming, they essentially function as two distinct and separate systems.

As disaster events and climate related impacts become increasingly frequent, it is becoming more urgent than ever to take action to build resilience against climate change. Indonesia has the world's fourth-largest child population, and around half of the overall population is under 30 years old. Without immediate and sustained action, young Indonesians are facing an increasingly precarious future, with dwindling economic prospects and serious threats to safety and wellbeing. Both long-term impacts to economic sectors and acute disaster events engendered by climate change put the youth of Indonesia at great risk. To protect current and future generations from experiencing the worst impacts of climate change, it is crucial that holistic and coordinated climate adaptation plans which prioritise vulnerable groups are implemented now.

6.2 RECOMMENDATIONS

Based on the main findings gathered from collaboration research conducted in Lombok, West Nusa Tenggara, Indonesia, we provide policy recommendations to **address and manage climate processes** as well as **implement adaptation and resilience measures to climate events** at international, national, and sub-national levels.

For the international community

1. Acknowledge that the impacts of climate change are not gender-neutral and tend to affect men and women disproportionately due to differences in knowledge, skills, and experience among the two groups, as well as gender inequality in political, economic, and sociocultural norms. Therefore, the differences in vulnerability between men and women must constitute global concerns to be addressed and managed by affirmative ways of working with women's groups.
2. Build consensus among policymakers, scientists and within academia on how to identify and analyse various opportunity and constraint factors for gender mainstreaming and its implementation in climate policies or actions through research and development.
3. Ensure practices of gender mainstreaming framework in cycles of climate change-related-policy-making (planning, budgeting and financing, implementing, monitoring, and evaluating) by encouraging the amplification of the voices of women and other vulnerable groups in civic spaces.
4. Develop multi-stakeholder partnerships and joint works to establish and implement the dedicated gender-responsive agenda items of the United Nations Framework Convention on Climate Change (UNFCCC) as concrete measures which promote women's leadership by encouraging and supporting them to take up decision-making roles in climate adaptation and climate justice.
5. Increase joint analysis and expand sharing of information or experiences among parties on a global level to provide a wider outlook and address gender-related issues on climate change, especially under situations of adverse impact of climate-induced natural disasters.
6. Prepare global strategies on gender-based climate adaptation and resilience by promoting various locally-shaped solutions and adopting multi-stakeholder participatory approaches in order to ensure the needs of the most vulnerable groups – especially women - are defined

and fulfilled in accordance with right-based principles.

7. Develop a global framework on climate adaptation and resilience which integrates the goals and agendas of other international frameworks and agreements (such as the Sendai Framework for disaster risk reductions, and Sustainable Development Goals) and which addresses women's needs in priority actions by considering religious and socio-cultural aspects in their approach.
8. Provide inclusive climate finance mechanisms to vulnerable countries under The Paris Agreements which focus on gender and social inclusion and which ensure that marginalised groups are able to claim their right to access the required resources for anticipating, adapting to, coping with, and recovering from the negative impacts of climate change.

For the Government of Indonesia

1. Develop integrated, holistic regulation of climate adaptation-related national policies (such as climate resilience development policy 2020-2045 issued by the National Development Planning Agency and Climate Change Adaptation as led by the Ministry of Environment and Forestry) to implement gender-responsive actions on prioritised sectors backed by both vertical and horizontal coordination as well as data sharing mechanisms among ministries and institutions.
2. Encourage relevant ministries (especially the Ministry of Home Affairs and Ministry of Finance) to arrange rewards for sub-national governments that have planned and implemented gender-responsive climate change adaptation or climate-resilient development policies through special fiscal transfer incentives.
3. Recognise participatory tools as a method of climate vulnerability and capacity assessment that complements scientific climate data in order to formulate climate resilience or adaptation policies or strategies both at national and sub-national levels.
4. Ensure the existence of national policies in order to provide inclusive economic opportunities to vulnerable people - especially women - and other marginalised groups through interventions on alternative skills development, climate-smart agriculture measures, and support for rural small and medium-sized enterprises.

5. Strengthen institutional structures regarding climate adaptation and resilience to monitor and evaluate the implementation of inclusive and gender-responsive climate-related policies both at national and sub-national levels.
6. Enhance rural women's adaptive capacity by regulating the protection of their sources of livelihood under local agroecological conditions, along with providing adequate infrastructure, including better access to roads, communication, transport, health, education, housing, sanitation, electricity, and clean drinking water facilities.
7. Develop inclusive early warning systems on climate-induced natural hazards which are acceptable and accessible to local communities, especially women, and other marginalised groups (such as PWDs).
8. Initiate climate fundraising in the form of public-private partnerships in order to enhance public participation in financing proponent activities of climate adaptation and resilience actions. These activities may include conducting scientific research to identify challenges and constraint factors, applying participatory environmental assessments, and designing programs to raise community awareness to climate change impacts.
9. Adopt a climate change financing framework to integrate gender mainstreaming in annual national planning and budgeting on climate adaptation and resilience. In this context, the national government must develop a formal mechanism to tap into the available climate finance from international sources to reduce the burden on the national exchequer or minimise low-capacity fiscal problems.

Recommendations from the local community

As Islamic Relief, we also asked the local community in Lombok what they felt they needed most. Below are their responses.

1. Children often miss school due to lack of transport during floods, as well as lack of money for school supplies. Families need financial support to afford transport and uniforms for children attending school.
2. Cultural biases and stigmas play a part in preventing girls' education. Implementation of 12-year compulsory education, alongside community awareness and effective socialisation of information, can help reduce this problem.
3. Harmful cultural norms also prevent women from gaining important adaptive skills, as girls and boys are treated differently from a young age. To overcome this issue, we need community awareness on the importance of girls' education and adaptation, as well as financial support for local organisations and women's rights advocates on the ground.
4. There is a high rate of maternal mortality and infant mortality due to young pregnancy. To address this problem, we need increased rates of general education and specific education on reproduction and gender equality to be implemented into school curriculum.
5. Farmers rely on maladaptive methods of farming such as clearing as they cannot afford alternatives. There is a need for financial support for farmers to buy climate-adaptive products such as sustainable feed and water-resistant cages for lobsters.
6. Many farmers experience debt problems as they rely on lenders with high-interest rates, which restrict their income and limit their livelihood options. Financial support in the form of low-interest or no-interest loans could be provided for farmers to get out of debt.
7. PWDs face a double challenge as their disability also affects their livelihood. There is a need to provide treatment costs to PWDs where possible so that they can regain access to employment.



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