

Block

3

SOCIO-ECONOMIC DIMENSIONS

UNIT 9**Climate Justice****5****UNIT 10****Social Movements and Global Civil Society****15****UNIT 11****Climate Change and Gender****35**

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BLOCK 3 SOCIO-ECONOMIC DIMENSIONS

Equity and climate justice form an integral part of climate change discourse. Climate justice emerged as a response to the challenges due to climate change. Developed countries should understand their historic responsibility for the past emissions with certain binding cuts on carbon emissions and also by giving assistance in technology and funds to the developing countries. The civil society actors and social movements' work together by mobilizing people for common agenda. At the individual level, people too aspire to reduce their carbon emissions by leading a low-carbon or carbon free lifestyle. Further, gender mainstreaming is essential for the implementation of adaptation and mitigation strategies. This block consists of three units.

Unit 9 “Climate Justice” deals with the the concept of equity and its correlation with climate change. Further, the inter-linkages between climate displacement and climate justice and the conflict between developed and developing countries are highlighted.

Unit 10 “Social Movements and Global Civil Society” discusses the way social movements' and key civil society actors organise themselves in setting agenda, making negotiations, and creating emotional response in public sphere to combat climate change.

Unit 11 “Climate change and Gender” deals with social dimensions of gender; how gender is constructed in the society; gender identity and inequity in the society; climate change and gender inequity; vulnerability of women and children to climate change; and the reasons for women's vulnerability to climate change. The unit also analyses the gender implications due to adoption of gender-blind approach in the climate change policy.

Objectives

After studying this block, you should be able to:

- explain the concept of equity and its correlation with climate change;
- recognize the role of social movements in understanding the complexities around climate change;
- highlight the role of global civil society in climate action.
- explain the nature of gender inequality in climate change;
- analyse the impact of climate change on women and children; and
- elucidate the strategies to address issues in climate change.

We hope that after studying this block, you will acquire an understanding of the socio-economic dimensions of climate change

Wishing you success in this endeavour!



UNIT 9 CLIMATE JUSTICE

Structure

- 9.1 Introduction
- 9.2 Objectives
- 9.3 Defining Equity
 - 9.3.1 Relationship between Equity and Climate Change
- 9.4 Division between the Rich and Poor Countries
- 9.5 Climate Displacement
 - 9.5.1 Climate Refugees
 - 9.5.2 Climate Justice
- 9.6 Threat to Low Lands and Small Islands
- 9.7 The Conflict and Contrast between Developed and Developing Nations.
- 9.8 Fossil Fuel, Sustaining Development and Developing/Developed Countries
- 9.9 Let Us Sum Up
- 9.10 Keywords
- 9.11 Suggested Further Reading/References
- 9.12 Answers to Check Your Progress

9.1 INTRODUCTION

The term climate change denotes the transition in the weather patterns. It stands for the changes that are happening in the weather patterns in a gradual as well as drastic fashion. It affects a specific geographical location and the planet as a whole. Policy makers who work in the field of environment related aspects explore the changing dimensions of the climate change. There are different dimensions to climate change. It is argued that climate change is made by the misuse of the environment by human beings. In other words, it is man-made in nature. It is defined as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”. This definition is given by United Nations Framework Convention on Climate Change. It is also used as part of the discussions on global warming.

It is important to understand the causes related to climate change. Those aspects that determine climate change are called climate forcing. They are broadly classified as changes in the Earth’s orbits, transitions in greenhouse gas, mountain buildings, continental drift, and differences in the solar radiation and so on. At the same time, climate change feed backs increase and reduce the beginning moments of forcing. For instance, oceans and ice caps react to climate forcing due to their large mass. In other words, climate system reacts to external forcings in a longer period too. We have to understand the role of tectonic plates related to the climate change. For example, the motion of tectonic plates creates changes in the land and ocean. It influences world scale and local forms of atmospheric

ocean circulation and climate. In this unit, we would be discussing the concept of equity and its correlation with climate change. Further, we would be discussing climate displacement and climate justice; and the conflict between developed and developing countries.

9.2 OBJECTIVES

After studying this unit, you should be able to:

- explain the concept of equity and its correlation with climate change;
- discuss climate displacement; and
- explain the conflict and contrast between developed and developing countries.

9.3 DEFINING EQUITY

The category of equity is contested. It has acquired different connotations due to the shifts of nations from sovereignty to that of governance. Thus, the proliferation of transnational as well as national agencies of philanthropy has contributed to the nuanced understanding of the category of equity. Equity in the context of climate change demands responsibility to future generations. It shares the premise that problematize the issues which are related to the climate change has to be tackled for the future generations.

9.3.1 Relationship Between Equity and Climate Change

Equity has an international dimension related to the climate change. It is linked to international equity. It emerges as a response to the challenges that is emerged through the climate change. The sense and awareness about that impact results in the international equity related to climate change. This recognition related to equity shows the gargantuan appetite of the developed countries for the natural sources. Developed countries exploited the immense potential of energy from coal, oil and gas. Paradoxically, they did not realized its disastrous consequence of their actions on the climate and Earth. It also affected the people from the poor countries. It has a contemporary dimension too. For instance, the contemporary gap that exist between industrialized and developing world in the context of carbon dioxide emissions from fuel burning creates a major problem in the case of climate change. It demands certain important moral positions to the developed countries. It is linked to the actions that are to be taken to reduce the carbon emission of these developed countries. Thus, it reduces the persistence of the damage that is caused through their emission. At the same time, it demands the deployment of the wealth and skills of the developed countries to create new vistas of sustainable energy sources for the developing countries. It also reflects on the compensation for the damage. This is one of the key factors that is emphasized in the International Framework Convention on Climate Change. The objective is to attain the stabilization of greenhouse gases and to avoid its dangerous interference with the climate change system. Whereas the adaptation of ecosystem is natural in nature. It also takes safeguards for the sustainable economic development and food production. Developed countries are privileged and advanced in the case of the benefits and therefore they should be the first to take action. Rat race of human beings for their material obsessions

and the coexisting withering of the spiritual values push them to the irreconcilable destruction of their life worlds.

UNDP in its recent Human Development Report opined that “millions of world’s poorest people are already being forced to cope with impacts of climate change. But increased exposure to drought, to more intense storms, to floods and environmental stress is holding back the efforts of the world’s poor to build a better life for themselves and their children”. Thus, climate change is linked to equity. It challenges the protected rights such as right to health, right to choose one’s own residence, right to livelihood and so on. Climate change also force people to remain with low levels of resource consumption.

Intra-generational equity plays a vital role in the history of climate change discourse. Principle 5 of Rio Declaration provides importance to intra-generational equity. It deals with the ways to decrease differences in the life standards. It also addresses about the needs of the majority of the world’s population. The main concern of this form of equity is to balance equity between developed and developing countries. This equity thus is related to these two group of countries right to control resources. It also advocates their efforts or control pollution. It also demands liability for compensation for breaching and so on.

On the other hand, “common but differentiated responsibilities” that is part of the Principle 7 of Rio Declaration notes that the states have common responsibilities in the protection of environment. It has also responsibilities related to the promotion of sustainable development. Countries have to engage with each other in the case of responsibilities due to diverse social, economic and ecological conditions. It is also applicable to the treaties and other legal instruments of developed countries.

9.4 DIVISION BETWEEN THE RICH AND POOR COUNTRIES

Kyoto protocol and Paris Agreement speak about curbing climate change which is the product of human induced activity. Industrialized developed countries and developing countries have their own ways of deploying fuels, natural resources, coal in the energy generation. These sheer activities for profit maximization and geo-power pollute the environment with large quantities of carbon dioxide. The enforcement of protocols leads to loss of jobs in developing and developed countries. This is one of the crisis which has major impact in the field of international politics. It is argued that industrialized countries are using legally binding emissions limitations and reduction commitments. It is contended that the creation of carbon free or neutral technologies will take time and it is difficult to operationalize in an economic scale.

9.5 CLIMATE DISPLACEMENT

The displacement of the population which is determined by the environmental disasters, natural hazards such as floods, storms and droughts can be broadly classified into this category of climate displacement. It is linked to the risks that are developed through the negative impacts of climate change. Poor countries such as Haiti and Pakistan undergo major forms of climate displacement. Majority of the people are prone to these forms of displacements due to the drastic

changes in the environment and climate. 36,000 million people have forced to leave their habitats due to climate change in the year 2008.

9.5.1 Climate Refugees

Climate refugees are those people who have to leave their habitats, immediately or in the near future, because of sudden or gradual alterations in their natural environment related to at least one of the three impacts of climate change: sea level rise, extreme weather events, and drought and water scarcity. The term climate refugees is considered as the category that comes under the umbrella term environmental refugees. El-Hinnawi described environmental refugees as people who have been forced to leave their traditional habitat, temporarily and permanently, because of a marked environmental disruption (natural and/triggered by people) that jeopardized their existence and/or seriously affected the quality of their life.

9.5.2 Climate Justice

Way back, the UNDP dedicated the 2007/8 edition of its flagship Human Development Report (HDR) publication to global climate change emphasized on issues of equity and climate change. It is argued that climate change 'raises profoundly important questions about social justice, equity and human rights across countries and generations' (UNDP, 2007: 22). They pointed out that significance of the very large "carbon debt" related to rich countries. It is contended that the 'repayment of that debt and recognition of human development imperatives demand that rich countries cut emissions more deeply and support low-carbon transitions in the developing world' (UNDP, 2007: 50)

It is argued that there should be a meaningful collaboration of moral imperative of climate change with to that of practical economic logic. There should be also 'burden sharing proposals of moral compromise'. Biermann calls this discourse as negotiated justice settlement (Biermann 1999). It is asserted that countries that possess distant proposed criteria for the measurement of atmospheric clean-up responsibilities which are structured on the basis of particularistic notions of justice and inequality complicate the North-South consensus on the level of single fairness principle. Therefore, it is asserted that consensus on climate change demands 'hybrid justice' solution that addresses the diverse belief of different actors.

It is contended that The Pew Centre for Global Climate Change has a new category of hybrid proposal that foregrounds responsibility founded on past and present emissions, carbon intensity, and competence of the countries to pay per capita GDP and so on. It also distinguishes the world in to that of "must act now", "could act now" and "should act now but differently". Indeed, this classification assigns the responsibility related to the climate change in a different manner (Claussen and McNeilly, 1998).

The Climate Action Network International has introduced different suggestions to tackle the complex climate change. It situates the wealthy countries that directs a 'Kyoto track' of engagements in the reduction of total emissions, adapting poor countries that is founded on the notion of decarbonization and so on. It is opined that there are also emphasis on per capita proposals that gives information about allowance factors, like geography, climate, supply of energy and domestic economic structure and 'national circumstances' (Gupta and Bhandari, 1999; Ybema et al., 2000; Torvanger and Godal, 2004).

The emergence of ‘Greenhouse Development Rights’ framework developed by Eco Equity with the support and inputs from Heinrich Boll Foundation, Christian Aid and Stockholm Environment Institute describe the actions for the post-2012 commitment period. They contend that countries that abound with ‘global middle class’ income of US\$9000 per capita should be required to obey binding limits up to a particular level. Those who are above should bear the responsibility of rapid emissions reductions and payments. They should also provide help to those countries who are below to improve social and economic status. At the same time, those countries above should confine itself to the less carbon intensive way of development. Creation of the funds by the wealthy countries in the reduction of emissions are deployed as charity to poor countries. It helps those poor countries to design climate friendly discourses. The representation of developing countries in carbon trading’s schemes such as CDM (Clean Development Mechanism), REDD (Reducing Emissions from Deforestation and Land Degradation in Developing Countries) and so on too determine the future of carbon bound climate change contentions.

9.6 THREAT TO LOW LANDS AND SMALL ISLANDS

Lowland is defined as the broad expanse of land with a general low level. It denotes the landward portion of the upward slope from the oceanic depths to continental highlands. It also denotes to a region of depression in the interior of a mountain region, to a plane of denudation, or to any region contrast to a highland. Lowland forestation affects the climate change. Paddy cultivations that happen in the lowlands of India are facing the threat of climate change. Drought also affects the crop productivity in the rainfed lowlands. Coastal lowlands are prone to natural disasters. It occurs in the coastal lowlands due to many reasons. For instance, it is argued that communities in New Zealand are going to face natural disasters. Coastal low lands and small islands in US are also vulnerable to natural disasters. Storm surge is one of the causes of the hurricane. Tsunamis also emerge due to the rupture in the ocean floor.

Small islands are located in the tropics and subtropics. It is part of the ocean regions of pacific, Indian, Atlantic and Caribbean and Mediterranean Sea. They are not homogenous group. The salient features are small physical size, limited natural resource, bounded by oceans, sensitive to external shocks, high population, poor infrastructure, unskilled stratifications and so on. Therefore, they are more prone to the different impacts of climate change. In case of small islands, sea level rise will become a threat to the human populations. There is increase in the temperature too. This changes leads to warming. It is predicted that there will be thermal stress in the forthcoming years.

9.7 THE CONFLICT AND CONTRAST BETWEEN DEVELOPED AND DEVELOPING NATIONS

The debates that emerge between the developing countries and developed countries related to climate change show the nature of consensus and conflict that exist between these two diverse, unequal countries. Global climate change is one of the realm in which ecologically unequal exchange exists. It is contended that participation in international trade increases emissions in poorer countries, but reduces them in wealthier countries (Heil and Selden, 2001; Roberts and

Parks, 2007). Machado et al. (2001) and Muradian et al. (2002) contend that 'service-exporting' OECD countries, which have specializations in fields such as banking, tourism, advertising, sales, product design, procurement and distribution are involved in the net importing of carbon intensive goods that belong to developing countries. Paradoxically, those countries that signify low level-carbon life styles are interpreted as equally part of the factors that complicate the coeval climate change. It is contended as the offshoring of their energy intensive products to developing countries. Thus, it is stated that the ecological debt of the wealthier nations or the remuneration they are paying for their responsibility in the environmental degradation are very much part of the field of global climate change politics.

The category of ecological debt is salient to explore the vicissitudes of the politics based on climate change. It shows the ideological nuances that structure the directions of the climate change politics. This concept emerged during the intellectual debates that happened among the scholars from the south during their collective at African nation of Benon in 2001. This category is synonymous to the idea of ecologically unequal exchange idea. This category of ecological debt is coined by the Spanish economist Joan Martinez Alier and the Ecuadorian environmental group Acción Ecológica. According to them, wealthy nations are responsible for creating a debt through the exploitation of the rare materials and ecosystems of the poor nations. They theorized that the debt is linked to the history of the exploitation of non-western natural resources. They also debunked the anarchic use of environmental space for dumping waste. In other words, it refers to expropriation of global atmospheric resources.

9.8 FOSSIL FUEL, SUSTAINING DEVELOPMENT AND DEVELOPING/ DEVELOPED COUNTRIES

Fossil fuels are the non-renewable energy sources. It becomes economically impracticable due to its non-renewable character. Therefore, the hike in the price decides the consumption of it. Presence of fossil fuels is linked to the scientific exploration of the crust of earth. It is composed of the deposits of once dead living organism. It takes time to gain its organic form. Fossil fuels are abound with carbon and hydrogen bonds. However, the proven energy reserves, real reserves and so on are contested. Proven reserves of the fossil fuels is not critical to the cost of extraction. It is also associated with the accessibility of fossil deposits. At the same time, the factors such as the level of sulphur and other pollutants in the oil and the coal, transportation costs, risky locations are part of this process.

Fossil fuels are deployed for the energy provision. There are three types of fossil fuels. They are classified as coal, oil and natural gas. Coal is a solid fossil fuel. It is formed through the decay of land vegetation. This process takes big span of time. Coal evolves as the result of solidification of the layers and constant heat. Thus, deposits change into coal. It is available than the other two fossil fuels. It is extracted in mines. Coal is considered as the most available and burned fossil fuel. This fuel was widely used during the industrial revolution. Still, it is one of the dominant form of fuel. China is the foremost in the construction of coal power plants. It is estimated that the proven reserves of coal are 909 billion tonnes. It can sustain the coeval production for 155 years.

Developing countries deploy coal because oil and natural gases are beyond their financial capabilities. They cannot afford it. China and India are the major consumers of coal for their energy provision.

Oil is a liquid fossil fuel. It is formed from the marine microorganisms deposited on the sea floor. The deposits of these organisms after millions of years result in rock and sediments. Oil thus get trapped in those small spaces. It is extracted through drilling process. It is a very common fossil fuel. Crude oil that comprise of diverse organic compounds are converted into products through refining. It is deployed in roofs, roads, jets and so on. However, the availability of oil is not so common. Power and conflict is linked to the oil resources. It was visible in the gulf war of 1991.

Natural gas is a gaseous fossil fuel. It is adaptable and plentiful in nature. It is created through the remains of marine organisms. It is clean than the coal and oil. It is also described as a new type of energy resource. Coal was popular than the natural gas in earlier times. But, it is widely used in the developed countries. There is a tension regarding the supply of the natural gas among the people in the developing societies. It consists of methane. It is compressed in small volumes at larger spaces in earth. It is dragged to the surface level by drilling. Scientific community is anticipating a major shortage of the natural gas.

World is facing a major crisis related to fossil fuels. It takes ages to develop in a proper fashion. For instance, sinks and sources of fossil fuels are shrinking in every respect. Sources are the abysmal earth layers. Sinks are the air and water that appropriates fossil fuel waste products.

Conflicts based on environmental issues are very much part of our life. It is connected with the burning fossil fuels. It is visible in the greenhouse gas question, air pollution, acidification, damage to land surface, problems to ground level ozone, air pollution and so on. At the same time, these environmental issues are associated with the dynamics of the release of the pollutants. These pollutants are very much inherent in the natural structures of fossil fuels. Sulphur and nitrogen are the examples.

The use of the cleaner fossil fuel is important to have a sustainable development in the developed and developing countries. It reduces air pollution and greenhouse gas emissions. Natural gas is available and it is one of the remarkable aspect of the global energy markets. It produced lesser greenhouse gases. The cleaner fossil fuel technologies are unique in two ways. They are efficient in every respect. At the same time, it is less expensive. There is a commercial production of these technologies. But the production as well as implementation part of these technologies are challenging. Therefore, it will take time for such technologies to compete with industrial markets. But, there is a difference between the use of such technologies among the developed and developing countries. Developed countries are privileged in their economic cum political locations. On the other hand, developing countries suffer the unskilled conditions, lack of infrastructure, equipment and so on. Thus, it demands a dialogue between developed and developing countries in the case of capacity building and technology transfer. Research on fossil fuel plays a vital part in the economic development, environmental change and social welfare. The rat race for profit maximization and lack of efficiency is controlled through the interventions of government in the developed and developing countries. Such interventions are important in budgetary transfers, tax exemptions, price regulations and so on.

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Subsidies related to fossil fuel has a different impact. It is negative in a sense that it distort the market and create adverse impact in the case of higher greenhouse emissions, imposition of high costs on government budgets, reduction of incentives for energy efficiency and alternative energy sources. There are positive aspects related to fossil fuel subsidies. It reduces pressure in the rural areas through saving the fire wood. It also improves the indoor air quality through its reduction on the use of biomass.

Check Your Progress 1

Note: 1) Use the space given below for your answers.

2) Check your answers with those given at the end of this unit.

1. Discuss the relationship between equity and climate change and its impact upon rich and poor countries.

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.....
.....

2. What is climate displacement? How it is affecting the human life?

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.....

9.9 LET US SUM UP

In this unit, we have learned about the different dimensions of the climate change and its relation to equity. The unit discusses the conflicts and consensus that exist among the developing and developed countries in the case of climate change. Thus, it refers to the national and international contestations on the discourse of the climate change. At the same time, climate displacement and its impact in the climate justice is very much part of this learning process. The issues of developing and developed countries related to the greenhouse gases emissions and fossil fuel emissions are also engaged to create an understanding about its impact on the global climate change discourse. Thus, this unit maps the transitions and paradigm shifts that occur in the milieu of global climate change and equity.

9.10 KEYWORDS

Environmental Migration : Environmental migration refers to human migration where environmental risks or environmental change plays a significant role in influencing the migration decision and destination. All migration decisions are multi-causal, and hence it is not meaningful to describe any migrant flow as being solely for environmental reasons.

9.11 SUGGESTED FURTHER READING/ REFERENCES

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Web Links

<http://www.ipcc.ch/report/ar5/wg1/>

<http://www.ipcc.ch/report/ar5/wg2/>

<http://www.ipcc.ch/report/ar5/wg3/>

<http://www.ipcc.ch/report/ar5/syr/>

<https://www.globalchange.gov/climate-change/glossary>

9.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- Equity has an international dimension related to the climate change. It is linked to international equity. It emerges as a response to the challenges that is emerged through the climate change. The sense and awareness about

Socio-economic Dimensions

that impact results in the international equity related to climate change. This recognition related to equity shows the gargantuan appetite of the developed countries for the natural resources. Developed countries exploited the immense potentials of energy from coal, oil and gas. Paradoxically, they did not realized the disastrous consequence of their actions on the climate and Earth. It also affected the people from the poor countries. It demands certain important moral positions to the developed countries. It is linked to the actions that are to be taken to reduce the carbon emission of these developed countries. Thus, it reduces the persistence of the damage that is caused through their emission. At the same time, it demands the deployment of the wealth and skills of the developed countries to create new vistas of sustainable energy sources for the developing countries. It also reflects on the compensation for the damage.

2. The displacement of the population which is determined by the environmental disasters, natural hazards such as floods, storms and droughts can be broadly classified in to this category of climate displacement. It is linked to the risks that are developed through the negative impacts of climate change. Poor countries such as Haiti and Pakistan undergo major forms of climate displacement. Majority of the people are prone to these forms of displacements due to the drastic changes in the environment and climate.

UNIT 10 SOCIAL MOVEMENTS AND GLOBAL CIVIL SOCIETY

Structure

- 10.1 Introduction
- 10.2 Objectives
- 10.3 Perspectives on Climate Justice
 - 10.3.1 Academic Literature and Research Report
 - 10.3.2 The Development Paradox
 - 10.3.3 Ecological Debt and the Global South
- 10.4 Climate Justice for All
- 10.5 Climate Justice: Role of Social Movements
 - 10.5.1 Understanding Social Movements
 - 10.5.2 Divestment Movement
 - 10.5.3 Food Sovereignty
- 10.6 Climate Justice: Role of Global Civil Society
 - 10.6.1 Human Rights Protection
 - 10.6.1.1 Environmental Non-Governmental Organization (ENGO): Friends of the Earth International
 - 10.6.2 Voice of the Vulnerable
 - 10.6.2.1 Charity Organisation: Jubilee Debt Campaign
 - 10.6.3 Advocacy Role for Gender-responsiveness
 - 10.6.3.1 Mary Robinson Foundation – Climate Justice
 - 10.6.4 Humanitarian Organisation
 - 10.6.4.1 Right to Access to Resources: Cooperative for Assistance and Relief Everywhere (CARE)
 - 10.6.5 Transnational Network
 - 10.6.5.1 Access to Climate Data: International Union for Conservation of Nature (IUCN)
- 10.7 Let Us Sum Up
- 10.8 Keywords
- 10.9 Suggested Further Reading/References
- 10.10 Answers to Check Your Progress

10.1 INTRODUCTION

Ever since the term ‘climate change’ has become a relevant topic for discussion in international and national forums, there has been a proliferation of multiple stakeholders getting on board to protect communities and future generations. Specifically, a wide range of civil society members operating outside the purview of state and market have become more prominent in influencing the climate discourses and actions at all levels of governments and in shaping citizen activism. Indeed, the emergence of civil society came as a voluntary response to the institutional limitations of the national governments and international agencies. The intensity of climate risks remains uncertain that it is expressed in the global

environmental consciousness through *transnational networks* and social movements. To illustrate, Greta Thunberg, the 16 year old climate activist from Sweden, urges global leaders “*to act as if our house is on fire*” (The Guardian, 2019). With the growing concern about climate crises, the need of the hour is to understand and encourage *sustainable attitude and behaviour*.

In this unit, we shall explore the way social movements’ and key civil society actors organise themselves in setting agenda, making negotiations, and creating emotional response in public sphere to combat climate change.

10.2 OBJECTIVES

After studying this unit, you should be able to:

- infer the perspectives on climate justice;
- recognize the role of social movements in understanding the complexities around climate change; and
- highlight the role of global civil society in climate action.

10.3 PERSPECTIVES ON CLIMATE JUSTICE

The term ‘climate justice’ has gained much significance in the recent years due to the advocacy of various social movements. The meaning of climate justice is diverse and generally speaks for the basic human rights of the poor and vulnerable as it challenges their access to clean water, food, and energy. The climate justice as a global phenomenon has had evolved through various discourses, narratives, manifestos, and citizen activism that was initiated against the rich and industrialized nations. Let us understand the major influential factors that could be related with the lineage of climate justice in the ensuing paragraphs.

10.3.1 Academic Literature and Research Report

In a study titled ‘Climate Justice Baseline’ (MRF-CJ, 2013), Mary Robinson Foundation traces the history of climate justice in a book titled “*In fairness to future generations: International law, common patrimony, and intergenerational equity*” (1989) written by Edith Brown Weiss and widely used by an indigenous activist Tom Goldtooth in 1995. The term climate justice became popular with the movements of environmental justice that originated in United States (US) in the 1980s. The movements focused on ‘frontline communities’, such as, the poor, vulnerable, and indigenous communities and their effort to legally confront environmental racism and illegal dumping of industrial waste (Building Bridges Collective, 2010). In fact, the forerunners of environmental justice movements in US came out with a report on the impact of toxic waste of giant oil corporations on the developing countries of Central America, South America, and Africa.

The impact was not just related to the safety and health of refinery labourers but also reported pollution of land, air and water of the neighbourhoods for several decades. The report ‘Greenhouse Gangsters vs. Climate Justice’ was published by a NGO called CorpWatch in 1999. The report attributed that the petroleum industry as the primary source of emitting carbon dioxide extensively into the atmosphere (Bruno, et.al., 1999). The primary source of carbon emissions include exploring to extraction of oil wealth, transportation,

refining, and distribution. Further, 122 global oil corporations was found to be responsible for emitting 80 percent of the global carbon dioxide (Carbon dioxide accounts for the highest percentage of greenhouse gases. A major contributing factor was the privatization of national oil companies when the government stakes were bought by business groups. The report cited Daniel Yergin's remarks about the Government to Business (G2B) transaction as: the "*greatest sale in the history of the world.*" In subsequent paragraphs, climate injustice shall be understood in the context of development paradox and ecological debt and its snowball effect on the global climate change.

10.3.2 The Development Paradox

Historically, debates on development discourse revolve around the conflict between the nations of the Global South (poor countries from Asia, Africa, and Latin America) and the Global North (rich countries from North America and Europe). In fact, classical dependency theorist Andre Gunder Frank lamented that the contemporary deprivation of the Global South as a historical outcome of capitalist economy and continuance of the colonial behaviour of the Global North (Frank, 1972). In the 160 year old world history, that is, between the decades 1850-2011, the historical carbon emissions by the European Union and USA alone accounts for 62 percent of the total emissions which is unprecedented than the net average of the other countries (www.cgdev.org). In fact, the significance of dependency theory is relevant in the context of climate crises wherein the poor and vulnerable have been projected to bear the brunt of climate change.

Owing to the melting of the polar regions which results in gradual increase in sea levels, climate experts warns that the island nations of Maldives, Tuvalu, Vanuatu and several others are geographically vulnerable and may go uninhabitable in the next 50 to 100 years as the rising levels are considered above the global average. For example, the government of Tuvalu reports that since 1993, the sea level has been constantly rising about 5mm a year which is alarmingly larger than the global average (The Guardian, 2019). Anderson (2013) examines the *development paradox* as: "*those who contributed least to greenhouse gas emissions will be most affected by climate change*".

It is to be understood that either the shrinking of ice sheets or melting of glaciers would result in rising sea levels which eventually increases the vulnerabilities of the coastal communities. Especially, in the developing countries of Asia, extreme events continue to unfold in several forms, such as, rising sea levels, heat waves, droughts, storms, severe floods that damages property and homes. To illustrate, in India, Bangladesh, and Nepal, torrential rains have triggered landslides and flooding killing more than 1,000 people and affecting 41 million people (Bryan, 2018).

From the above discussions, it can be inferred that those who have contributed less in GHG emission are more prone to climate risk given their geographical, economic, and social conditions. As the adverse impacts of climate change are not uniformly distributed, the climate scientists and activists call this phenomenon as climate injustice. It refers to the over exploitation of the natural wealth of poor countries by the rich countries in terms of food, oil, and wood. In order to promote fair use of resources and protect the people rights in the present as well as in future, several environmental deliberations have been explored.

10.3.3 Ecological Debt and the Global South

One of the environmental deliberations which stirred the Global North was the ‘ecological debt’. According to Accion Ecologica (2003) it is “*the debt accumulated by northern industrial countries towards third world countries on account of resource plundering and use of environmental space to deposit wastes*”. The term ‘ecological debt’ refers to the over consumption of natural resources and adoption of development projects that compromise on people’s livelihood and sustainability. Let us understand ‘ecological debt’ through the following example.

Case Example

The example discusses about the devastating effect of a developmental project in Bangladesh which was undertaken by the World Bank and Asian Development Bank in the 1980s. Historically, the mangrove forests covered an area of about 8,510 hectares in 1903. Nearly 1,600 hectares were preserved by the native forest dwellers between the decades 1926 – 1975 with an estimated value of \$200,000 to \$900,000 per hectare (Swapan, 2009).

With the objective to cover potential markets in United States of America (USA) and Europe, the shrimp culture project was implemented in one of the largest mangrove forests as part of the *Structural Adjustment Programme (SAP)*. The India Environment Portal reported that at least 42,000 tons were exported to USA and Europe with an annual turnover of \$534 million. However, the project became a nightmare to the entire ecosystem because of salinization of water, deforestation, unequal share of costs, and saltwater intrusion. For instance, the existing vegetation, crops, fish and livestock were extensively damaged because of shrimp cultivation (The India Environment Portal). With increasing extreme weather events, the traditional communities became unsafe and uncertain about their future. Swapan (2009) records that “*there was huge social, economic and ecological injustice for the communities of Bangladesh*” by the shareholders of the project who primarily belonged to the Global North.

Alarmingly, the developing countries continue to face the wrath of climate change in different forms, such as, shifting seasons, increased frequencies of cyclones, drought, warming temperatures, changing precipitation, change in hydrological cycle, etc. Nevertheless, the countries of the Global North are not spared as several research studies indicate the effects of climate change on a large scale. This will be discussed in the subsequent section.

10.4 CLIMATE JUSTICE FOR ALL

In 2003, the European heat wave claimed nearly 30,000 lives with as much as 14,000 lives only in France. Besides, the heat wave caused vanishing of Alpine glaciers up to 10 percent, followed by rock slides and related casualties. Further, forest fires and dry weather deteriorated the fodder and grain production which eventually affected the local economy of livestock farmers (Encyclopaedia Britannica).

In the northern hemisphere, permafrost, a key component of cryosphere that occupies a quarter of Earth’s surface has started degrading due to the global climate change. Various studies indicate that the detrimental changes in permafrost vis-à-vis thawing and warming may affect the local ecological balance, vegetation,

energy exchange, hydrology including extreme weather events (Anisimov and Reneva, 2006). Wang et.al (2019) reports that in Vorkuta region of Russia, a permafrost layer melted completely up to 10-15 m between 1975 and 2005.

From the above mentioned examples, it can be noted that the climate hazards are not just affecting the poor countries as we have witnessed the effects of climate change even in the Global North.

Climate hazards unfold worldwide irrespective of the Global South or the Global North, yet, the poor nations and vulnerable communities who are at high risk owing to their geographical location, demographic, and socio-economic status. Indeed, the existing vulnerabilities and inequalities of poor nations' only get aggravated with climate crises. Climate vulnerabilities on planet Earth has had been warned by the international scientific community by documenting critical data periodically. Nevertheless, the alarming facts seldom reach the general public on a wider context. To illustrate, John Tyndall (1820-1893), was the first scientist to identify the 'natural greenhouse effect' as early as 1860 and held that a minor change in the atmospheric composition could lead to climate variations (Peake and Smith, 2003).

Even though the science behind greenhouse effect was published by Tyndall in 1860s, the information was not accessible to the public. Subsequently, the scientists of the nineteenth and twentieth centuries warned about the Earth getting warmer through their publications; yet, they could not connect with the communities. The adverse effects of the Global North eventually culminated in citizen activism. In the Global North, informed citizens who were environmentally active could establish connections with the public by convening mass social campaigns and in identifying potential areas of people's participation. With strong networks of informed citizenry, new avenues for educating citizens with respect to climate justice started emerging in the Global North. With the advent of Information and Communication Technology (ICT), the civil society of the Global North could establish connections with the Global South to create transnational networks and alliances.

With the objective to promote sustainable communities irrespective of Global South/North, intense initiatives and interventions have been taken up at the global level through social movements' and civil society organizations'. In part, this has been intended to create a sustainable response both at the individual and institutional levels. This will be discussed in section 10.5.

Check Your Progress 1

- Note:** a) Use the space given below for your answers.
b) Check your answers with those given at the end of the unit.

1. What do you understand by the term 'Ecological Debt'?

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2. Explain the development paradox with a suitable example.

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3. Briefly describe the context of ‘Climate Justice’.

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10.5 CLIMATE JUSTICE: ROLE OF SOCIAL MOVEMENTS

10.5.1 Understanding Social Movements

The emergence of social movements came as a response to the deprivation of basic human rights of the poor and vulnerable. In the past, the social movements were anti-colonial but in the present era, it is collectively organised to fight against neo-liberal tendencies. Historically, the popular social movements include, Civil Disobedience Movement (India), US Civil Rights Movement, and the Feminist Movement of Europe, etc. The strength of these social movements was the coalition among the stakeholders who were conscientious in making sustainable change.

Rucht (2004) discusses that *“a social movement exists to the extent that the following qualities are co-present: In structural terms, social movements are networks of groups and/or organizations; regarding their aims, they are attempts to fundamentally change society (including power structures and basic values) or to resist such changes”*. The social movements can be formal or informal in nature; and the structure can be top-down or bottom-up. Another aspect is the social movement could scale up as transnational network or may get fragmented. The social movements are less institutionalised and gain momentum until they succeed in the agenda. The success ratio of social movement depends on how well it is socially cohesive and organised. Developmentally, the challenges of the citizen/community are either related to uncertain livelihood or access to clean water, air, soil, or any other area of concern. In participation context, it may be depriving an individual from being fully functional, such as, right to work, right to vote, right to question, and right to education, etc.

In this line of logic, environmental movements in developing countries, such as, the Green Belt Movement (Kenya), the Chipko Movement (India), and the Rubber Tappers Movement (Brazil) focused on environment protection against oppressive forces and sustainable use of natural assets for community survival. It can be understood that the birth of a social movement could be triggered by an individual or a group of individuals’ effort to mobilise the affected people to voice out their grievances and demands.

Della and Diani (2006) points out that social movements are multi-dimensional in nature and involves complex actors that are composed of multiple stakeholders

and different strategies. In the recent years, social movements widen their presence through awareness campaigns, online campaigns, citizen activists, etc. and are skilled at mobilising people. Social movements are heterogeneous and are both formal and informal. Formally, social movements make their transnational presence through campaign managers, country coordinators, volunteers, interns, media partners, community leaders, etc. Informally, it reaches the concerned stakeholders through virtual platforms. In this regard, the success of the social movement is dependent on the nature of participants, sustaining and creating networks with state and non-state actors, transparent interactions, and community impact. On the whole, the social movements are heterogeneous and involves constant interaction with the policy process. Let us understand how climate justice was taken up on a global scale in the ensuing paragraph.

Framing of 'climate justice' as a global phenomenon was activated at the first Climate Justice Summit held in Hague, 2000. According to Beer (2014), the summit was sponsored by environmental organisations to coincide with the sixth session of the United Nations Framework Convention on Climate Change (UNFCCC) as an alternative to the official deliberations that was simultaneously taking place at UNFCCC (Whitehead, 2014). Following this, in 2002, a coalition of environment groups met at the Earth Summit in Bali to release a set of principles that aimed at "putting a human side" on climate change (International Climate Justice Network, 2002). One of the deliberations was regarding the adverse impact caused by industrialised governments and fossil fuel industries for creating environmental liability in developing countries and thus aimed "*to build an international movement of all peoples for Climate Justice*". It was a strong representation against the environmental liability which denied basic human rights in terms of accessibility to clean water, food, health, and energy.

In the ensuing paragraphs, we shall discuss about social movements through the lens of climate justice vis-à-vis Divestment Movement and La Via Campesina.

10.5.2 Divestment Movement

The global economy is heavily dependent on investments in fossil fuel industry, and a sudden withdrawal of stakes could aggravate the current inequalities of developing countries which thrives on it. There have been several reports indicating that the fossil fuel reserves are to be left untouched in order to prevent and mitigate the ill effects of climate change. To illustrate, a 1097 mile pipeline which was established in 1961 in Alberta Tar Sands, Canada, has contaminated the soil by toxic metals and has threatened the biosphere of the world's largest boreal forest (Hahn, 2018). It has been reported that the extraction of a single gallon of oil from Alberta Tar Sands could emit 15 percent more carbon dioxide.

As a sustainable strategy, the fossil fuel divestment movement calls for withdrawing investments from fossil fuel industry. 350.org is a global social movement started in the year 2008 with the intention to gather public attention on climate change. They operate through transnational network of activists, students, and people from all walks of life and emphasises on grassroots mobilisation. It started widening across 50 US universities by 2012 by advocating for investments in clean energy. To illustrate, 'Go Fossil Free' campaign initiated in 2012 asked the institutional heads to freeze further investments in fossil fuel companies and related shares within five years (Go Fossil Free, 2018). The divestment campaigns has spread its wings across several universities in the

developed countries (Bergman, 2018) that in 2013, 350.org published a reinvestment guide for university campaigners and requests universities to reinvest 5 percent of their endowment allocated for climate solutions. McKibben, the co-founder of 350.org has commented in his book 'Global Warming's Terrifying New Math' that the fossil fuel industry are to be painted as the villain of climate change. Such narratives are bound to create activism among the citizens that climate change can be tackled through such institutional arrangements.

One of the divestment tools which can technically fix institutions from investing in fossil fuel companies is the intelligible use of fiduciary duty. The term fiduciary duty means the obligation of investment manager towards investors for securing maximum return on their investment (Bergman, 2018). In 2017, the UK government made announcements to introduce new investment regulations that would combat climate change. To illustrate, the London Pension Fund Authority, an independent organisation, holds only 2 percent of its entire holdings in fossil fuel companies which is 6 percent lower than the market benchmark and the investment portfolio has shown increasing investments in renewable energy sector (Report-Mayor of London, 2018).

10.5.3 Food Sovereignty

According to the Food and Agricultural Organisation (FAO, 2006) the livestock farming industry alone emits 35 - 40 percent of the global GHG emissions (FAO, 2006). Primarily, corporate food companies make profit through Genetically Modified (GM) foods only at the cost of peasants' food sovereignty. Food sovereignty is related to the rights of the farmers to produce and cultivate crops who has complete control over what to produce and how to produce. For example, the use of chemical fertilisers in a fertile soil can take away the organic ingredients of the soil and in course of time, the soil becomes unfit for cultivation. In 2018, during the Food and Agricultural Organisation's Second International Symposium on Agro-ecology held in Italy, the representatives of small-scale food producers and several others came forward to reaffirm that "*agro-ecology is a way of life of our peoples, in harmony with the language of Nature*" (Heinrich Boll Foundation, 2018). The small-scale farmers expressed the need to restore their social and cultural rights on food production and to revitalise their local markets by de-linking from the value chain. Under the Climate Smart Agriculture Program in Teso region of Uganda, the government research institutes provided cassava seeds to the small farmers, however, it did not give any positive yields. A farmer reported that climate justice in terms of food security is: "*one needs to regain control of seed: select it, manage it, maintain it and improve it using participatory plant breeding methods. This would allow farmers to be able to plant it again and again*" (Heinrich Boll Foundation, 2018).

In this regard, La Via Campesina (LVC), an international social movement of peasants, landless people, rural women and youth, indigenous people, and several groups was formed with an intention to take action against corporate food markets. As an alternative to agribusiness that eyes on big consumer markets, LVC uses the term 'agroecology', which justifies the rights of peasants' and small-scale food systems. LVC believes in collective action approach. It has been able to mobilise people in the past through national and international platforms.

In Indonesia, with the intention to develop an eco-friendly project through REDD+ (Reducing Emissions from Deforestation and Forest Degradation),

96,000 hectares of land were privatised to a corporate for 100 year lease. This was done at the cost of livelihood of local communities as there was violation of right to access. As part of taking action, the Indonesian Peasant Union involved in long-term resistance against power and in 2010, LVC and the Human Rights Council represented the community issues at international platforms. In effect, social movements' campaign for safeguarding indigenous people's rights. In the ensuing section, let us discuss about the role of the global civil society actors in fostering climate justice.

Check Your Progress 2

Note: a) Use the space given below for your answers.

b) Check your answers with those given at the end of the unit.

1. Explain the relevance of social movements in climate justice.

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2. What is the rationale behind divestment campaign?

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3. Justify the need for food sovereignty in climate justice with an example.

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10.6 CLIMATE JUSTICE: ROLE OF GLOBAL CIVIL SOCIETY

The civil society comprises of many kinds of entities, such as, NGOs, humanitarian organisation, charity organisation, faith based organisation, academic and scientific community, transnational networks, women's groups, trade union bodies, youth networks and similar non-state entities. In this section, let us understand the various global civil society actors who have been involved in co-creating sustainable generation. With the advent of Social Media Technologies (SMTs), networking and convergence add meaning to the efforts, as it include online campaign and petition, climate activism, interactive maps, and *geo-citizen* database, etc. Each climate justice related initiative or intervention is at multi-scalar level, that is, it includes land, water, air, and life of the entire ecosystem, therefore, the government also looks for multi-stakeholder involvement in policy process. In this section, empirical evidences have been provided with reference to climate related issues and the essential interventions undertaken by various civil society actors.

10.6.1 Human Rights Protection

In the context of unjust consumption of fossil fuels that compromises on human functioning, Caney (2008) puts forth the foundation of people's rights as the: (i) *right not to suffer from dangerous climate change; and (ii) right to healthy environment.*

10.6.1.1 Environmental Non-Governmental Organization (ENGO): Friends of the Earth International

In the past few years, climate litigation has become a recent phenomenon and environmental NGOs have been working together to ensure climate justice. One of the recent climate litigations is the People versus Shell Case. In 2019, Royal Dutch Shell, a transnational company received summons from Friends of the Earth, Netherlands on its unlawful business model that poses a direct violation of the Paris Agreement, 2015. The notice was a legal and moral obligation for causing extensive damage from Nigeria to Netherlands in terms of oil spills, gas flaring, water contamination, and destruction. Despite the company's adherence to international agreements on human rights, such as, United Nations Guiding Principles on Business and Human Rights and the Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, the company continue to violate human rights vis-à-vis right to life and right to family life. Also, it was accused on several grounds, such as, Shell's prior knowledge about fossil fuel effects on climate variation, misleading the public and raising suspicion about climate change (Friends of the Earth International, 2019). Friends of the Earth, an Environmental Non-Governmental Organization (ENGO) and other ENGOs has spearheaded this climate litigation along with 17, 200 co-claimants. Roger Cox, the lawyer representing the climate case believes that winning would prevent future climate harm (Real World Radio, 2019).

10.6.2 Voice of the Vulnerable

Let us discuss in this section, the concept of debt justice. The emergence of debt justice came as a resistance to the negative outcomes of slavery, colonialism, neo-liberalism, and struggles against domination that was caused by the Global North. The countries of the Global South have been economically crippled due to the loans for reconstruction that was provided by the countries of the Global North and international agencies. The debt problem is a pull factor in many of the developing countries that are institutionally inadequate to solve poverty and unemployment. Adding injustice to the spiralling debt is the climate vulnerabilities that restrict the capacity of the developing country to respond effectively. For instance, Bangladesh received World Bank loans to build cyclone shelters, however, the civil society questions the morality behind the provision of climate loans. As part of bilateral debt during the period 2010-12, every \$1 incurred as climate loan was paid back to over \$3 by Bangladesh (Wright and Fenton, 2014).

10.6.2.1 Charity Organisation: Jubilee Debt Campaign

One of the significant developments that has helped to foster debt justice is the Jubilee Debt Campaign which was founded in the year 1996 as a registered charity based in UK (Jubilee Debt Website). In 1998, with the intention to cancel debts for developing countries, the 'Jubilee Debt Campaign' mobilised

at least 70,000 people to form a human chain around the city of Birmingham (UK). It handed over a petition to the G8 countries with 24 million signatures supporting the initiative of cancelling the debts. Globally, during the period 2000-2015, nearly \$130 billion of debt was cancelled for developing countries due to the efforts of Jubilee campaign.

In December 2018, the Campaign reported that nearly 80 percent of the 29 Small Island Developing States have been struck by climate induced disasters despite the fact that it accounts for just 0.2 percent of the global carbon emissions (Suffee, 2018). As a response to climate change disasters, the Jubilee Debt Campaign made a global appeal to the Secretary of State for International Development to provide a permanent debt relief scheme for the affected nations. It is to be noted that the repayment of loans and interests would put the developing country in an elevated debt risk and lead to slashing of budgets for public welfare programmes.

10.6.3 Advocacy Role for Gender-responsiveness

One of the primary responsibilities of civil society in climate justice is to involve in advocacy of the poor, vulnerable, and marginalised. The gender dimension of development in general and climate justice in particular has important implications for women empowerment. With the climate risks that are anticipated to put women under more injustice situations, the need of the hour is to improve their capacities toward climate resilience and adaptation.

10.6.3.1 Mary Robinson Foundation – Climate Justice

Mary Robinson Foundation – Climate Justice works to seek empowerment of the deprived sections through partnerships and shared engagement. The prime concern of the Foundation is to empower women from climate risks. As part of the UN Climate Summit, New York, a Women Leaders' Forum titled "Leaders' Forum on Women Leading the Way: Raising Ambition for Climate Action" was convened in 2014. It was hosted by UN Women's Executive Director and Mary Robinson Foundation – Climate Justice in 2014 for an inclusive and participative dialogue with women leaders across 54 nations, such as, grassroots and indigenous, young women, academics, former heads of state and government, policy makers, heads of civil society, international and private sector organisations to discuss robust climate action that is good for the planet and good for people (MRF-CJ, 2014). A Mugal indigenous woman reflected her grievances as: "*People on the front lines of climate change don't have access to resources and don't have a voice*".

The keywords discussed in the forum was related to gender sensitive climate action, women's empowerment, participation, accountability, equity and leadership. On the whole, the deliberation was to listen to their voices and priorities in line with climate justice. In a policy brief on *Women's Participation – An Enabler of Climate Justice* (2015), the Foundation refers gender dimension of climate change as "*double injustice*" and puts forth the following recommendations (MRF-CJ, 2015):

- Increase the participation of women in climate actions at all levels;
- Understand the context in relation to women's ability to participate;
- Shift the emphasis from women's representation to meaningful participation in climate actions;

Socio-economic Dimensions

- Invest in training and capacity building to enable meaningful participation; and
- Document the good work that is going on to enable women's participation.

10.6.4 Humanitarian Organisation

Humanitarian organisations started emerging during the Second World War period to provide food, health, shelter, and other amenities to the affected population. Post-war, the organisation redefined its agenda to foster food security, disaster relief, rescue, and rehabilitation efforts. One of the humanitarian organisations which imbibes rights based approach as its core principle is Cooperative for Assistance and Relief Everywhere (CARE). Let us discuss one of its prime areas of concern in Niger.

10.6.4.1 Right to Access to Resources: Cooperative for Assistance and Relief Everywhere (CARE)

Niger is one of the most climate vulnerable country in the world in terms of drought, desertification, and food insecurity. Primarily, Niger women are responsible for food and nutrition security, however, existing gender inequalities deprived them from accessing land and other resources. To illustrate a social deprivation situation, widows were prohibited from using land which resulted in denial of livelihood opportunities, high malnutrition rates and increased infant mortality (MRF-CJ, 2015).

In 2010, CARE Niger, a humanitarian organisation used their rights based approach to facilitate the deprived women to access and inherit land. Knowing their rights, women started improving their resilient capacity to scale up. To illustrate, a woman from Maradi region (Niger) was able to inherit her share of land by claiming her right to inheritance of her father's property. It was reported that the land has been put to use for cultivation. It was reported that the initiatives of CARE has been backed by Niger's legal system and thus the organisation could work with 3000 women in 30 municipalities in 2015, who had been deprived of their basic human rights (MRF-CJ, 2015). Women's participate in local affairs by negotiating for fair use of communal lands that are rich in wild foods and medicinal plants.

10.6.5 Transnational Network

Government collaborate with civil society actors and vice versa to form a transnational network that has its presence in all areas related to climate change. The reason behind collaboration of government with business and civil society is the complexities involved in ensuring fairness and climate justice. Secondly, government in contemporary period moves beyond provision of services, rather it is expected to facilitate openness and transparency in decision making.

One of the major challenges of climate governance is access to information regarding climate risks and vulnerabilities. According to a Report titled '*The Economic Case for Climate Action in the United States*', in the past ten years, the extreme weather events coupled with the health impact caused by burning of fossil fuels has left a deep dent on the US economy with \$240 billion per annum (Universal Ecological Fund, 2017). Such data help the policy makers to design climate adaptation and mitigation policies. Several

civil society actors have taken keen interest to explore and share vital climate data to the public.

10.6.5.1 Access to Climate Data: International Union for Conservation of Nature (IUCN)

With the objective to engage the general public in keeping track of climate change effects on the natural world heritage sites, International Union for Conservation of Nature (IUCN) shares critical climate data, such as, reports, assessments, interactive maps, timeline data, and similar facts and figures through their web portals. IUCN is a global network of stakeholders which encompasses governments, civil society organizations, academic institutes, scientific community, and alike.

With the aim to empower world heritage conservation, IUCN has published an assessment of the natural world heritage sites in Outlook 1 (2014) and Outlook 2 (2017) within a range of conservation outlook, namely, 'good', 'good with some concerns', 'significant concern', and 'critical' status. The assessment was made in terms of Values, Threats, Management, and Protection. To illustrate, the global World Heritage Outlook (2017) reports 20 percent of sites with a 'good' conservation outlook; 44 percent of sites has a conservation outlook of 'good with some concerns'; 29 percent with 'significant concern'; and 7 percent of the sites in 'critical' status (Osipova, E. et.al, 2017). According to the IUCN World Heritage Outlook 1 and Outlook 2, 62 natural world heritage sites were declared to be under high threat in 2017 (Osipova, E. et.al, 2017) as compared to 35 natural world heritage sites in 2014 (IUCN, 2017).

By making assessments, it enable the concerned government to take necessary action towards management and protection of the natural setting. Secondly, sharing critical data to the wider public help to mobilize people for collective action through public or digital campaigns by the environment actors. To illustrate, the Conoe National Park in Ivory Coast, known for poaching and illegal activities showed signs of recovery in a span of three years from 'critical' status in 2014 to 'significant concern' status in 2017. In fact, the report on vulnerability of the park led to assistance and funding from international community and in mobilizing communities for wildlife protection and conservation.

Check Your Progress 3

Note: a) Use the space given below for your answers.

b) Check your answers with those given at the end of the unit.

1. Explain climate litigation with an example.

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2. Gender dimension of climate change could ensure climate justice-Comment.

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3. Briefly explain the right to access to resource with an appropriate example.

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10.7 LET US SUM UP

The link between human activities and climate vulnerabilities are at multi-scalar level which could be witnessed through desertification, deforestation, sea level rise, reduced freshwater availability, loss of forest quality, degradation of woodlands, cyclones, coral bleaching, coastal erosion, spread of tropical diseases, and impacts on food security. From the perspective of power, the issue demonstrated the failure of neo-liberal agenda in failing to include the frontline communities in setting the agenda. With the ever increasing environmental problems that are rooted in the denial of basic rights, the international community which include the state and non-state actors have agreed upon common frameworks and subsequent actions. In this regard, non-state actors, from global to local, through social movements’ and global civil society have initiated efforts to explore sustainable alternatives for increased citizen participation.

The civil society actors and social movements’ work together by mobilizing people for common agenda. At the individual level, people too contribute to reduce their carbon emissions by leading a low-carbon or carbon free lifestyle. In one instance, with the objective to reassure his grandchildren on safe and sustainable future, Chris Hockley, a grandfather from Wareham (England) launched a social media campaign on “100 days of grandparents for climate action” (BBC, 2019). Greta Thunberg of Sweden has spearheaded the climate movement with the aspiration to live in a sustainable world. Following her, millions of school students across the world has expressed their anguish and anxiety of climate change. Therefore, the need of the hour is to work cohesively without any personal or institutional prejudices and act towards saving the Earth from further injustices.

10.8 KEYWORDS

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| Citizen Activism | : | It refers to the social norms, organisations, and practices which facilitate greater citizen involvement in public policies and decisions. |
| Environmental Consciousness | : | It refers to an awareness of environmental issues and the propensity of individuals to engage in pro-environmental behaviours. |
| Geo-citizen | : | It is an online platform to generate and discuss ideas to enhance one’s surroundings. It enables the citizen to digitally participate and establish networks. |
| Structural Adjustment Programme (SAP) | : | It consist of loans provided by the International Monetary Fund (IMF) and the World Bank (WB) to countries that experienced economic crises. |

- Sustainable Attitude and Behaviour** : It encompasses an individuals' efficient use of energy, water, food, and the way one recycle or reuse the resources. It mainly includes the eco-friendly practices of an individual, such as, low carbon lifestyle, use of renewable energy, and sustainable disposal of waste.
- Transnational Networks** : It includes the relevant actors who works on a common agenda, shared values, and intense exchanges of information, from global to local and vice versa.

10.9 SUGGESTED FURTHER READING/ REFERENCES

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10.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Your answer should include the following points:
 - (i) It is the debt accumulated by the industrial countries towards developing countries.
 - (ii) It refers to the over-consumption of resources.
 - (iii) It compromised on people's livelihood and sustainability.
- 2) Your answer should include the following points:
 - (i) It emphasises that those who contributed least to greenhouse gas emissions as the most affected by climate change.
 - (ii) It criticises capitalism as a continuation of the colonial behaviour.
 - (iii) The climate vulnerabilities are ever increasing among the countries of the Global South.

- 3) Your answer should include the following points:
- (i) The term climate justice gained significance due to violation of basic human rights.
 - (ii) It challenges their access to clean water, food, and energy.
 - (iii) It aims to bridge social inequalities.

Check Your Progress 2

- 1) Your answer should include the following points:
- (i) Social movements' working for climate justice has the potential to fundamentally change society.
 - (ii) The environmental movements has indeed proved the capacity of the social movements' to question people in power.
 - (iii) The first Climate Justice summit was successful in giving a human side of the climate change.
- 2) Your answer should include the following points:
- (i) Divestment movement fight for denial of basic human rights.
 - (ii) It calls the government to withdraw investments from fossil fuel companies.
 - (iii) In UK, the Mayor of London explained the need for divestment and encouraged the towns and cities for investing in renewable energy.
- 3) Your answer should include the following points:
- (i) It is related to the rights of farmers.
 - (ii) The farmer has been denied to life a harmonious life with the nature because of agri-business.
 - (iii) A farmer who has the ability to control the seed will be able to improve on the quality of seeds.

Check Your Progress 3

- 1) Your answer should include the following points:
- (i) Climate litigation seek to foster climate justice.
 - (ii) It refers to the misappropriation of natural resources by the fossil fuel industry.
 - (iii) The People versus Shell case was spearheaded by the Friends of the Earth along with key stakeholders.
- 2) Your answer should include the following points:
- (i) The concept believes that climate justice cannot be achieved without gender justice.
 - (ii) The key words include women's participation, accountability, equity, and leadership.

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- (iii) Gender justice could be realised through meaningful participation of women in local as well as global affairs.
- 3) Your answer should include the following points:
- (i) Social deprivation occurs in developing countries.
 - (ii) It challenges the access to food and nutrition security.
 - (iii) CARE applied the rights based approach to legally empower women on their rights.



UNIT 11 CLIMATE CHANGE AND GENDER

Structure

- 11.1 Introduction
- 11.2 Objectives
- 11.3 Social Dimensions of Gender
- 11.4 Climate Change and Gender Inequality
 - 11.4.1 Climate Change Related Gender Inequality in Different Sectors
- 11.5 Gender and Climate Change Dialogue
- 11.6 Gender Dimension in Adaptation and Mitigation
- 11.7 Vulnerability of Children to Climate Change Threats
- 11.8 Why Women Carry more Burdens of Climate Change Threats than Men?
- 11.9 Role of Women in Climate Change
- 11.10 Strategies to Address Gender Issues in Climate Change
- 11.11 Let Us Sum Up
- 11.12 Keywords
- 11.13 Suggested Further Reading/References
- 11.14 Answers to Check Your Progress

11.1 INTRODUCTION

Climate change will create an adverse impact on vulnerable. Women are vulnerable due to many reasons like unequal access to resources, lack of land ownership, lack of access to health care, education, information and majority of the women are poor. They are more susceptible to climate change. At the same time, women can contribute to cope with climate change because they are visibly and invisibly contributing to the society as a care giver, organizer, educator, innovator, etc. Incorporating gender dimensions into the climate change policies is crucial and need of an hour. Several researches confirmed and acknowledged that climate change will affect the poorest region and vulnerable groups severely. It is also known that majority of world's women are poor and they are vulnerable due to the social construction of gender. But they are adopting the coping and survival strategy in the changing environmental conditions. The climate change dialogue started from 1970s onwards does not include gender aspect into it. Only the recent researches highlighted the relevance of gender in climate change issues. This unit deals with social dimensions of gender; how gender is constructed in the society; gender identity and inequity in the society; climate change and gender inequity; vulnerability of women and children to climate change; and the reasons for women's vulnerability to climate change than men. This unit also analyses the gender implications due to adoption of gender-blind approach in the climate change policy. Let us start with social dimensions of gender.

11.2 OBJECTIVES

After studying this unit, you should be able to:

- define the social dimensions of gender;
- explain the nature of gender inequality in climate change;
- analyse the impact of climate change on women and children; and
- elucidate the strategies to address issues in climate change.

11.3 SOCIAL DIMENSIONS OF GENDER

Understanding of social construction of gender starts with explaining two concepts i.e., “gender” and “sex”. These two concepts have different meanings. Gender refers to differences, hierarchies, rankings which exist between two sexes. Gender explains cultural construction of various roles that are played by women and men in the society. Further, gender analyses the aspect of shaping women’s behaviour according to the normative order of the society. Gender as a conceptual tool is used to analyse the structural inequality that exists between women and men as it reflected in various aspects of life such as household, labour market, education and political institutions. Thus gender can be defined as socially constructed and expected differences between men and women. Sex on the other hand refers to the biological differences between female and male. Gender roles are socially constructed and defined activities for men and women. Such roles can change over a time and vary according to geographical location and social context. Gender constructions operate both at micro- and macro-level which is embedded in the institutional arrangements of the society. The social construction of gender shaped the society and it is dominated by the interest of particular group or class in the society. Based on culture, norms, ideologies and values, society justifies construction of gender roles. All institutions in the society internalise two concepts such as socialization and gender roles. This process starts once when child is born. Mother or primary care taker responds to child on sex categorization of child.

Gender equality is essential. Gender equality refers to a condition where in both men and women possess equal access to socially valued goods, opportunities, and resources as well. When gender inequality exists, then the women are at loss with respect to the role in decision making, and access to socio-economic resources. It can be stated that women empowerment can lead to gender equality. Further, gender equality brings in changes for both men and women.

11.4 CLIMATE CHANGE AND GENDER INEQUALITY

This section deals with gender inequality in the climate change discourse. Studies have shown that managing, accessing and utilizing natural resources are based on gender roles. Women are closer to the natural resources and environment even though they do not have control over them. The issue of property and ownership made men to have control over the resources. But climate change have affected women’s livelihood which are dependent on the environment and nature. Even though they know the coping strategy, their ideas and knowledge are often ignored and not taken into consideration. So, International agencies

and Governments which are preparing adaptation strategies and mitigation measures should have gender sensitive planning process and should involve both men and women. Under representation of women in climate change policy related making bodies resulted in the formulation of policies that concentrate on male economy and male livelihoods and completely ignore women's need and necessity which are more environment friendly.

Lack of gender disaggregated data related to the carbon dioxide production and its impact is a serious concern. According to a study conducted by Finucane et.al 2002, women are sensitive to risk perception and they recognize climate change as a serious problem than men. Studies also confirmed that men depend on technical solution for climate change and women emphasis life style change and reduced energy consumption. While the whole world is looking for technical solution, women's thrust for life style change is again ignored.

11.4.1 Climate Change Related Gender Inequality in Different Sectors

Climate change affects sectors which are traditionally associated with women like agriculture, fishing, etc. For example, impact of climate change on fishing results sea-level rise, entry of saline water into fresh water system, low production of fishing and these will affect women's livelihood. Secondly, extreme and sudden changes in the weather result the loss of women's lives. For example, lack of women's ability to swim or run due to the sudden increase in tide, storm, and flood can take away their life. In the agricultural sector, low production and harvesting will lead to food insecurity. Water scarcity increases the burden on women to search for water. Natural disaster make the land inundated and damage infrastructure and force people to migrate in large number to other areas especially urban areas. Climate change with regard to health brings more diseases like vector borne and other contagious diseases. Women again held responsibility of taking care of the ailing family members. Women ended up in doing more stereotyping gender roles and bearing more burden than usual.

11.5 GENDER AND CLIMATE CHANGE DIALOGUE

United Nations is actively involved in pursuing gender equality in its policies and programmes and its member countries policies and programmes. According to gender mainstreaming policy of UN in 1997, UN and its member countries committed to incorporate gender aspect in their entire endeavour. But this process started in UN earlier itself. In 1992 the UN Conference on Environment and Development produced Agenda 21 which recognized women as one of nine major groups whose active participation is essential to sustainable development. Sustainable development is prerequisite for the advance of women. UN and its member states agreed to implement gender mainstreaming strategy in Beijing Platform for Action 1995. Millennium Development Goals (MDGs) also recognized gender equality as one of the development goals and gender is incorporated in all other goals also. Sustainable Development Goal 5 categorically calls for gender equality which is construed as an essential foundation for a sustainable world. Gender has been designated as a cross cutting theme for work of the commission on sustainable development 2002-2017. UN Conference on Environment and Development (1992) led to the formation of United Nations Framework on the Convention on Climate change. Since then

the climate change convention is held regularly but it failed to incorporate gender aspects into the climate change dialogue.

The Intergovernmental Panel on Climate Change way back in its 2007 assessment report confirmed that “the impacts of climate change will vary depending on gender, age and class with poor most likely to suffer. Because of gender inequalities, women and girls are vulnerable and they are very poor. Women are responsible for household food production and family health”. Due to the adverse impact of climate change the household food production and family health are affected. Being a caretaker of the family, this increases women’s burden doubling.

Check Your Progress 1

- Note:** 1) Use the space given below for your answers.
2) Check your answers with those given at the end of this unit.

1. Distinguish between sex and gender.

.....
.....
.....

2. Give one example to understand how climate change can impact women’s life.

.....
.....
.....

11.6 GENDER DIMENSION IN ADAPTATION AND MITIGATION

Adaptation and mitigation are the two important strategies evolved at international and national level to address climate change. In this section we will discuss the gender dimensions of adaptation and mitigation.

Adaptation

The fundamental goal of adaptation strategies is the reduction of the vulnerabilities to climate induced change in order to protect and enhance the livelihoods of poor people. Experience shows that vulnerability is differentiated by gender. Adaptation to climate change or indeed climate variability is dependent on issues such as wealth, technological power, access to information, all of which are major problem areas for women. However, women can be key agents of adaptation and mitigation to climate change. Their responsibilities in households, communities and as stewards of natural resources position them well to develop strategies for adapting to changing environmental realities (UNFPA and WEDO, 2009).

Mitigation

Women also have a role deriving from their own strength. Women are engaged in a number of activities such as brick-making, charcoal-making, waste

management and agro-processing where energy efficiency can lead to CO₂ mitigation and their role in mitigation in these areas can be vital. The development of Clean Development Mechanisms (CDM), through carbon sequestration from afforestation and reforestation can also be done by poor rural women (Jyoti Parikh 2007). Women in urban areas can implement energy efficiency programmes at the household level lighting, the use of appliances, etc., while women in rural areas may be encouraged to use biomass and biogas (for fuel generation), and switch to solar energy. Poor women, without access to modern energy fuels are faced with problems relating to indoor air pollution and bear huge health burdens as a result, there is a high incidence of bronchitis, asthma and other health problems. While women should not be denied the use of fossil fuels like LPG or Kerosene, yet at the same time appropriate technologies that take into account the specific socio-economic realities of different rural areas, reduce women's workload, free-up time and enable them to pursue income generating activities.

11.7 VULNERABILITY OF CHILDREN TO CLIMATE CHANGE THREATS

From the above discussion, it is clear that women are affected by climate change. In this section, you will learn how children are also affected by climate change both directly and indirectly.

- Children are easily affected by climate change related disaster and their lives are under threat.
- Children are prone to diseases induced by climate change.
- Food scarcity will increase the rate of under-nourished children which will lead to stunted growth, wasted growth and hence country lack healthy citizens.
- Climate change induced displacement will affect children's education, freedom and ultimately will lead to loss of childhood. This will also increase forced child labour.
- The rate of child development index will come down.

Box 11.1: According to British Red Cross Relief Web

- Women and children are 14 times more likely to die than men during natural disaster.
- The 1991 cyclone in Bangladesh killed one lakh forty thousand people. The mortality rate of women over forty was 31%.
- More than 70 % of the dead from the 2004 Asian Tsunami were women and children.
- Hurricane Katrina which struck New Orleans, USA in 2005 affected more African-American women who are already poor and marginalized.
- The cyclone Nargis which hit Myanmar in 2008 affected 87 % of unmarried women and 100 of married women. They also lost their main sources of livelihood.

11.8 WHY WOMEN CARRY MORE BURDENS OF CLIMATE CHANGE THREATS THAN MEN?

Gender is one of the numerous important socio-cultural dimension included in climate change vulnerability assessment but it is rarely incorporated in adaptation research and planning. Due to climate change, drought is a common phenomenon. Untimely and insufficient rainfall in the monsoon dependent area for agriculture, food security becomes catastrophic. Poor farmer's vulnerability to drought leads to starvation, loss of health, etc. To ensure the food security, small farmers migrate as labourers leading to the family burden as well as finding livelihoods for women at the migrated places is difficult. Increasing temperature due to climate change combined with increasing pollution, decline of soil fertility and decreasing genetic diversity of varieties of crops lead to the reduction in crop production.

Changes in climate have different impacts on men and women and these differences are linked to their gender roles. The result is that increase in emotional stress or anxiety was highly ranked issue for men more so than women is somewhat surprising as women are typically considered to be nurturers and care givers and would thus be expected to be more likely than men to report an increase in emotional stress. The increase in emotional stress among men was likely due to the pressure to mobilize loans. The climate change also led to the scarcity of water which brings socio-cultural changes in India which added more burdens on women. For example traditional washer community no longer is responsible for washing clothes resulted in increased household work for women.

According to the study carried out by FAO titled "Farmers in a Changing Climate. Does Gender matter?" in Andhra Pradesh, India found that majority of farmers due to climate change turned to wage labourers for income in construction work. As compared to men, 70 % of women undertook wage labour as a coping strategy in response to crop loss which could be indicative of women's role as farmers being less socially determined in terms of roles and expectation than men's. Women supplementing family's income through wage labour migrate to cities for income as a construction worker. In the construction work, they work in a hazardous condition including exploitation of labourers from labour contractors. Employment of women and children in waste collection without providing proper living condition is also apparent in many metropolitan cities in India. Migration also affected the family stability and brings change in the demography which leads to the deterioration of natural resources. Climate change affects the income of the farmers which in turn affect the food security of the family. In that case, women eat less which will affect their health. In the process, children also affected. Gender based distribution of food is traditional coping strategy. Due to lack of decision making power among women, the availability of food in farmers' house depends upon men's decision viz. how much to store and how much to sell – but women are responsible for ensuring food supplies among family members. Table 11.1 shows the direct and indirect impact of climate change on women.

Table 11.1 : Direct and Indirect Impacts of Climate Change on Women

Issue	Impacts of Climate Change	Direct and Indirect Impacts on Women
Natural resources: Food, water, fuel and land	<ul style="list-style-type: none"> ● Drought and/or flooding from temperature changes and erratic weather. ● Decreased soil fertility. ● Decreased crop yields or crop failure. ● Resource scarcity. ● Shortage of clean, potable water. 	<ul style="list-style-type: none"> ● Increased household work burden and time spent on gathering water, food and fuel such as firewood (sometimes leading to lower school enrolment rates, decreased literacy rates, or early marriage). ● Increased hunger and calorie reduction for women. ● Exposure to contaminated water sources. ● In regions with restricted land rights, women potentially forced off/without access to fertile land. ● Loss of traditional land tenure.
Natural disasters	<ul style="list-style-type: none"> ● Warming oceans. ● Changing weather patterns/seasons ● Erratic and more intense weather events. 	<ul style="list-style-type: none"> ● Lack of access to education/information about weather. ● Restricted ability to respond (e.g., women often unable to leave house without male companion) ● Lack of survival skills regularly taught to boys, such as swimming or tree climbing. ● Women regularly excluded from disaster recovery decision-making.

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Health	<ul style="list-style-type: none"> ● Increase in infectious, water-borne or vector-borne diseases, e.g., malaria, due to increased temperatures and intensified storms. ● Heat-related illness. ● Malnutrition. ● Increased air pollution, allergies and asthma. ● Mental disorders such as anxiety and depression. 	<ul style="list-style-type: none"> ● Pregnant and lactating women, along with the very young and very old, are most vulnerable to health threats. ● Increased lack of health-care services, immunizations, family planning, and reproductive health care in disaster zones. ● Potential increase in maternal and infant mortality rates due to lack of care. ● Lack of services and hygienic supplies in relief shelters for pregnant, lactating or menstruating women.
Population growth	<ul style="list-style-type: none"> ● Growth expected in areas at risk to severe climatic changes and where people rely on natural resources for survival. 	<ul style="list-style-type: none"> ● Competition for increasingly scarce government and natural resources. ● Most vulnerable populations (e.g., women) continue to be under threat. ● High fertility rates impact women's health.
Urbanization	<ul style="list-style-type: none"> ● Rural-to-urban migration increases due to environmental degradation, reduced productivity and conflict over resources. ● Informal shelters and communities expand. 	<ul style="list-style-type: none"> ● Settlements—sometimes informal—may be unhealthy and dangerous, lack water and sanitation and be built on vulnerable land. ● Urban formal markets tend to benefit men. ● Poor urban women lack health services. ● Urban poverty projected to increase.
Migration and displacement	<ul style="list-style-type: none"> ● Disaster events can lead to displacement, temporary and permanent, internal and international 	<ul style="list-style-type: none"> ● Women comprise at least half of world migrant populations, but their needs are not prioritized in migration policies.

	<ul style="list-style-type: none"> • Environmental degradation and competition for resources prompts women and men to move. • Forced migration due to regional vulnerability possible. 	<ul style="list-style-type: none"> • Women often lack resources to move, but post-disaster may lack resources to cope at home. • Forced migration could exacerbate women's vulnerability and lack of access to resources and livelihood options.
Household composition	<ul style="list-style-type: none"> • Loss of/change in family composition due to migration/displacement and/or fatalities from natural disasters. 	<ul style="list-style-type: none"> • Rise in female-headed households (FHH). • Limited resources for FHH in recovery/insurance programmes or funds that prioritize access for men. • Lack of land rights jeopardizing women's food and livelihood security. • Gendered divisions of labour reinforced. • Decreased numbers of women in some households due to female disaster mortality.
Conflict and violence	<ul style="list-style-type: none"> • Competition over limited resources can trigger conflict or displacement. • Shortages in regular rainfall and overall scarcity of natural resources can increase civil war by 50 per cent. • Increased anxiety and distress over livelihood insecurity. 	<ul style="list-style-type: none"> • Conflict amplifies existing gender inequalities. • While men are more likely to be killed or injured in fighting, women suffer greatly from other consequences of conflict, such as rape, violence, anxiety and depression. • Higher levels of violence in the home and in post-disaster relief shelters.

Conflict and violence

- Competition over resources can trigger conflict or displacement.
- Shortages in regular rainfall and overall scarcity of natural resources can increase civil war by 50 per cent.
- Increased anxiety and distress over livelihood insecurity.
- Conflict and gender inequality are more likely to result in women being injured in fighting and suffering greatly from other consequences of conflict, such as rape, violence, anxiety and depression.
- Higher levels of violence in the home and in post-disaster relief shelters.

(Source: UNFPA and WEDO, 2009; <https://www.refworld.org/pdfid/4adc31192.pdf>)

Check Your Progress 2

Note: 1) Use the space given below for your answers.
2) Check your answers with those given at the end of this unit.

1. How natural disasters affect women directly and indirectly?

.....
.....
.....

11.9 ROLE OF WOMEN IN CLIMATE CHANGE

Women being the nurturer, have an important role in protecting the nature as well. In the present context of climate change, their role becomes more significant. ~~Women will be safe by adapting the following:~~ Women will be safeguarded from the impact of climate change by adopting the following:

1. Energy Efficiency

Access to non-polluting sources that does not damage women’s health should have an important part in climate adaptation programmes.

Box 11.2: Women Leading the Way

In Mali, where 90 per cent of energy comes from burning wood and charcoal, rural women have developed sustainable alternatives to the wood trade. Cutting trees for fuel has contributed to widespread deforestation and desertification, and subsequent soil erosion and erratic flooding further impacts agriculture and infrastructure. To reduce dependence on wood, the Sinsibere Project has been educating women about alternative livelihood activities and engaging them in micro-lending programmes, literacy and mathematics training. Since the project’s implementation in 2001, 80 per cent of the women have stopped or significantly reduced wood usage. The women have taught their families about preserving the environment, and their increased income allows them to send their children to school.

Source: www.malifolkecenter.org/

2. Renewable Energy

Empowering women to convert them from user of energy to producer of energy through self-help groups, micro enterprises making women entrepreneurs.

Box 11.3: Women as Managers of the Environment

In Pintadas, a district in the poorest region of Brazil, people rely primarily on agriculture for their livelihoods. Yet, with no dependable irrigation system and a scarcity of water, tackling poverty is a challenge. To address these problems, a collaborative partnership of organizations developed a small-scale irrigation project piloted by the SouthSouthNorth network. The project was designed to help women and men work together to learn better

water management and irrigation techniques harnessing solar power. Through the Association of Women of Pintadas, a woman was selected to spearhead the initiative, changing the face of decision-making. Today, women are empowered by the technical know-how to manage and adapt new agricultural systems. Both women and men in Pintadas are better able to deal with climate change and drought, while food security, water management and income generation have improved.

Source: www.pintadas-solar.org

3. Recycling and Waste Management

Within households and outside, women have an opportunity to act as an important agent in resource conservation. Self-help group women also can set up profitable recycling company from municipal solid waste management. Women in rural areas can have some new energy sources as gas from waste. Women from urban areas can contribute recycling waste at home as they are most of the times in charge of home cooking and housekeeping. Capacity building demonstration can increase replication and impact.

4. Clean Development Mechanism (CDM) projects

CDM is not a panacea for solving either climate problems or gender inclusion but it can offer alternative approach of integrating gender issues into climate change.

5. Early Warning System

Early warning system should be installed in all the locations of disaster prone area, so that women can act themselves timely. Technical supports and guidance can be given to women in this regard. Women, fishermen and farmers can be trained to understand the early warning messages.

6. Risk and Insurance

Crop insurance and other insurance for farmers, fishermen can address their need. Women should be given special assistance in this regard.

11.10 STRATEGIES TO ADDRESS GENDER ISSUES IN CLIMATE CHANGE

By studying the following section, you will be able to list some of the strategies to address gender issues in climate change.

1. Research

Collecting gender segregated data and analysis are the most important to fill the existing gap to understand the relationship between gender and climate change. Studies could also be taken on climate change in relation to women's resilience and coping strategy and their ownership and control of resources. There are number of local strategies documented to understand women's coping strategies. This local efforts and strategies can be linked with national polices to reduce poverty and increase food security.

2. Policies and Political Support

Gender mainstreaming ensures to address gender issues in all policies and programmes. Gender related data has to be made available to the policy

makers to integrate gender into the climate change policy. This can be done through policy advocacy, cross sectoral coalition building. National institutions must understand the link between the sustainable management of natural resources, food security and poverty reduction as an efficient way of providing the rural population to respond to climate change processes. Capacity building to rural development institutions and extension staffs to understand women's needs alongside men's in the areas of energy, water, agriculture and disaster management through gender sensitive participatory approach. Equal access to and control over natural resources is also important.

Box 11.4: A success story

According to the International Centre for Integrated Mountain Development ICIMOD (2006), the majority of rural mountain people do not have regular sources of cash income. Climate change coupled with market forces is reducing women's ability to diversify their income. However, there are some successful projects that show it is possible to improve mountain people income and being sustainable at the same time. ICIMOD and its partners have been implementing the Himalayan Honeybee Management Project as a means to diversify incomes in rural mountain areas and maintain essential pollination services. The project has resulted in measurable socio-economic, environmental, and ecological benefits. Another direct benefit is pollination services provided by the bees to horticultural plants especially in China's Sichuan province and India's Himachal Pradesh. This project has helped Himalayan women to increase their incomes. ICIMOD (2006) has also implemented the Medicinal and Aromatic Plants Programme in Asia (MAPPA), which develops and promotes methods, strategies, technologies and other sustainable solutions for conserving, growing, and using medicinal and aromatic herbs-based niche products. The programme directly helps to raise incomes of mountain people while also assisting the conservation of rare, endangered, and threatened medicinal plants. MAPPA has set up networks – including community groups and national level stakeholders – for helping farmers to build supply value chains to link them with markets.

3. Broaden the Movement

Women have to create a movement to address the gender issues in climate change and they have to host regular women caucus and they have to disseminate the information. Creating coordination among different women's groups all over the world will also be fruitful. Women have to hold global meeting to develop a strategy and discuss the latest research from gender perspective in climate change negotiations.

Box 11.5: Women against Environmental Destruction

The Dasholi Gram Samaj Mandal women-led environmental movement in India, which began as a protest against deforestation, has been successfully protecting and managing the environment for 32 years. Many village women depend on the local forest for essential needs like water, fodder and firewood, all of which are threatened by climate change and natural disasters. Establishing that natural resource conservation was a matter for community concern, the women involved men as partners. The women's initiative

resulted in reduced damage from floods and landslides, extensive reforestation and less drudgery for the women. The movement has also challenged government policies and traditional assumptions about gender roles, as women effectively demonstrate their leadership abilities and improve the sustainability of their environment.

Source: <https://www.refworld.org/pdfid/4adc31192.pdf>

Box 11.6: Women's Movement in Kenya

The Noble prize committee acknowledged the green belt movement's ecological work and awarded the Noble prize for Wangari Maathai in 2004. The Norwegian Noble committee stated that peace on earth depends on our ability to secure our living environment. Maathai stands at front of the fight to promote ecologically viable, social, economic and cultural development in Kenya and in Africa. She has taken a holistic approach to sustainable development that embraces democracy, human rights and women's rights in particular. In Kenya by the late 1980s, starvation and malnutrition has become endemic. Farmers focus on export cash crops meant removing land, water and labour from locally defined farming. It also meant more deforestation, agro chemical inputs, soil combating tractors, land clearances and depletion and pollution of water systems. Kenya's chronic hunger problem deeply intervened with ecological crisis. As chronic hunger and climate change competed to devastate East Africa in 1990s, farmers acted to defend and extend local food production and marketing by strengthening women's groups focus on farming and local food trade. Farm women's efforts were strengthened by the activities of greenbelt movement. When women planted trees they also strengthened their claims to the land. The green belt benches renewed women's group power that power healed the eroded, combated and chemically damaged soil. Tree planting and associated activities were adopted by hundreds of women's groups many of which continued to engage in other types of activities such as collective savings groups, meeting women, shared work on each other's farms and collective care for women's common resources. The green belt movement engaged hundreds of thousands of rural Kenyan women in expanding and defending their rights to control and protect land by the new millennium. They have planted some twenty million trees. As Kenyan women engage in reforestation, they shift agriculture practice towards indigenous, bio-diverse and mixed farming system. Women's reforestation practices and subsistence food production demonstrate an ecological positive agriculture capable of reversing local climate change and serving the needs of all. (Leigh Brown Hill, 2009).

1. Information and sensitization

UNFCCC negotiations should be disseminated to all stakeholders to involve everyone and bring gender concerns in the climate change as a movement.

2. Creating a Coordinating Body

In south, many organizations are specialized in particular areas like energy, water, agriculture and bio-diversity. But these organizations' existing knowledge and work was not integrated. Establishing link and strengthening gender perspective in all organizational activity is necessary. All organizations

should create coordinating body to address gender issues in climate change to the government and international bodies.

11.11 LET US SUM UP

It is clear that gender differences are prevailing in the climate change dialogue, adaptation and mitigation strategies. This has to be rectified and we should recognize that women are more vulnerable to climate change driven scenarios and addressing their needs and providing capacity building and enhancing their participation in climate change dialogue are important. Climate change is a long-term issue so we have to focus on short, medium and long-term measures. Gender consideration has to be integrated in local, national and international climate actions in the areas of adaptation, mitigation etc. National and international governments should ensure the budget allocation for climate change projects with gender perspective.

11.12 KEYWORDS

Disadvantaged Populations : Sectors of a society that are marginalized, often because of low socioeconomic status, low income, lack of access to basic services such as health or education, lack of power, race, gender, religion, or poor access to communication technologies.

11.13 SUGGESTED FURTHER READING/ REFERENCES

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Web Links

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<https://www.globalchange.gov/climate-change/glossary>

11.14 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. Sex is the biological differences between a man and a woman. Gender is socially and culturally constructed and expected difference between men and women.
2. The impact of climate change will vary depending on gender, age and class with poor most likely to suffer. Because of gender inequalities, women and girls are vulnerable and they are very poor. Women are responsible for household food production and family health. Due to the adverse impact of climate change, the household food production and family health are affected. Being a caretaker of the family, this increases women's burden doubling.

Check Your Progress 2

- Women are regularly excluded from disaster recovery decision-making.
- Lack of access to education/information about weather.
- Restricted ability to respond (e.g., women often unable to leave house without male companion).
- Lack of survival skills regularly taught to boys, such as swimming or tree climbing.