UNIT 5 CONCEPTS OF GLOBAL COMMONS AND CLIMATE CHANGE*

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5.0 OBJECTIVES

After reading this Unit, you should be able to:

- Explain the concept of global commons;
- Examine the concept of climate change as a global problem of commons; and
- Describe the issues with regard to global governance of climate change.

5.1 INTRODUCTION

Rapid economic growth all over the world has led to massive extraction of the natural resources found in the global commons. In many cases, the extraction has been higher than their natural capacity to replenish, leading to its fast depletion. Therefore, there is an urgent need to conserve global commons. International community has felt the urgency of conserving those resources for the well-being of not only the present generations but also for the sustainability of future generations.

Historically, access to most of the resources found within the domains of global commons was difficult. Moreover, those resources were not scarce. Therefore, global commons were safe from human encroachment. However, in the recent past, on one hand there has been tremendous advancement of science and technology; and on the other, demand for resources has also increased manifold. This has led to increase in various activities such as fisheries, scientific research, laying of submarine cables etc. (UN, 2013).

Increased *anthropogenic activities* and excessive emission of *Greenhouse Gases* have resulted in climate change, which is considered to be one of the most serious threats to the world at present. Climate change is often said to be the most

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prominent problem of global commons. *Two* of the most relevant questions related to climate change are: a) who will take the major responsibility to control the situation, and b) how to manage this global problem.

Due to the special characteristic features of global commons, one or few nations cannot govern or ensure its sustainable use. Worldwide cooperation is needed for this purpose. Therefore, presently, global commons are the focus of international interest, particularly from the perspective of global governance. This Unit discusses some of these issues. It goes into the issues of climate change in detail. It explains the concept of global commons and elaborates why climate change is a global problem of commons and deals with global governance of commons. The Unit explains these two concepts that dominate the relevant legal discourse, and examines the debates around them, from the perspective of developed vis-à-vis developing countries. It concludes with a discussion on the design principles for sustainable governance of commons. Since the future of the world is dependent on the joint use of the global commons, its governance is becoming increasingly relevant for achieving sustainable development.

5.1 CONCEPT OF GLOBAL COMMONS

'Global Commons' is an aspect of a more generic concept of 'Commons' in the particular context of resources. Therefore, to understand the concept of global commons, it is first necessary to understand the concept of commons. Let us now see what the term 'Commons' means:

i) Commons

Susan J. Buck (1998) in her book "The Global Commons: An Introduction" has explained commons in the context of resources, through *two* different approaches:

a) Two attributes of resources: exclusion and subtractability; and

b) Concepts of resources, resource domains, and property rights.

Two Attributes of Resources: Exclusion and Subtractability

Exclusion is the possibility of excluding others from using any resource. For example, it is quite easy to exclude people from using a personal swimming pool, but it is difficult to exclude people from the common pond in the village or a lake in the city. Subtractability is the extent to which use of the resource by one diminishes the amount left for the others. For example, the food in your lunch-box on a particular day is highly subtractable. It means if someone else grabs that, you will not be able to eat it.

Common pool resources are those which are high in subtractability, but low in exclusion. For example, resources found in the village forest are common pool resources. Every villager is entitled to collect fruits (or even other resources) to a limited amount, therefore exclusion is low. But once some fruits are collected by one villager, those fruits are no longer available for other villagers, i.e., those are highly subtractable.Therefore, in this case, village forest is the 'Commons'.

Resources, Resource Domains, Property Rights

Resource is something which is used to meet the needs of any living being. Natural resources are those directly extracted from the nature for use, e.g., air, water, wood, natural gas and oil, iron, coal and others. Resources are located in fixed spatial dimensions, which is known as resource domains, e.g., fish is found in the ocean resource domain. 'Commons' are simply the resource domains where common pool resources are found. 'Commons' can be small, e.g., the village pond for fishing, or substantially large like the oceans or the solar system.

ii) Global Commons

Common pool resources are also known as common property resources. The term property, in case of resources, is a bundle of rights, such as rights of access, exclusion, extraction, or sale of the captured resource.

Property rights may be held by individuals, groups of individuals such as communities, or even nations.The very large commons that do not fall within the jurisdiction of any one country are known as international commons or global commons. However, there is a slight difference between international commons and global commons. International commons are resource domains shared by more than one nation, such as the Mediterranean Sea (shared by different countries such as Spain, France, Italy, Greece, Turkey, Syria, Israel, Egypt, Malta and many others). Global commons, on the other hand, are resource domains to which all nations have legal access, such as the outer space. Therefore, according to Buck (*Op.cit.*), the distinction between the two is important, especially because international commons are exclusionary (for some countries),while global commons are not. Traditionally, global commons have been defined as parts of the planet, which fall outside the national jurisdiction of any country and to which all nations have access.

Historically, common pool resources have been extracted by governments and individuals as rapidly as possible. Only *four* global commons have remained exceptions to this trend, mainly because of difficulty in accessing them. Moreover, value of the resources they contain has not been enough to justify the effort of acquiring them. These are the following:

i) High seas/ the oceans

ii) Antarctica

iii) The atmosphere

iv) The space

However, in the recent years, there has been a tremendous advancement of science and technology, and demand for resources have increased manifold. In this changing context, concern for restoring these global commons is becoming increasingly important. Mercator Research Institute on Global Commons and Climate Change, Berlin, defines global commons as 'natural resources, which require global cooperation for their sustainable use, such as the atmosphere, land and forests'. In fact, some scholars define global commons much more broadly, including education, science, information, and peace. However, international law identifies only the above mentioned *four* types of commons as global commons (UN, 2013).

5.2 CLIMATE CHANGE: A GLOBAL PROBLEM OF COMMONS

Climate change is one of the most serious environmental risks to the world at present. The main reason behind this threat is the excessive emission of Greenhouse Gases by different countries. According to technical definition of United Nations Framework Convention on Climate Change (UNFCCC, 1992),'climate change refers to 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'.In simple words, climate change refers to a long-term (more than 30 years) trend of weather pattern.

Climate change is often claimed to be a global problem of commons for the following reasons:

- Atmospheric sink for Greenhouse Gases can be understood as a common pool resource just like a fishery. Although, fisheries can be easily understood as commons (which provide fish as the resource), the atmosphere is a global common in as lightly different manner. The resource which, is found in the atmosphere is clean air. Although it is not extracted, it does become contaminated as pollutants are added.
- It is difficult or almost impossible to exclude anyone or any nation from the access to the atmospheric or clean air absorptive capacity.
- The atmosphere, as a sink service, is subtractable, because one unit used by one user is not available to others. If carbon emissions are viewed as using up of the carbon absorption capacity of the air, then one country's emissions reduce the absorptive capacity available to other countries.

Presently, there are excessive emissions of Greenhouse Gases in the atmosphere by different countries. It has gone beyond the natural sink capacity of the atmosphere, which is causing climate change. International community acknowledges the urgent need of conserving global commons, e.g., the atmosphere. But there are differences regarding the regulation. We will discuss these aspects in the next Section.

Check Your Progress 1

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

ii) Check your answers with those given at the end of the Unit.

1. Explain the meaning of 'global commons'.

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2. Why is climate change a problem of global commons?

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5.3 TRAGEDY OF COMMONS AND COMMON HERITAGE OF MANKIND

'The tragedy of the commons' and 'the common heritage of mankind' are the two popular concepts that dominate the legal discourse on governing global commons (Ranganathan, 2016). Although both the concepts point out towards sharing and preservation of common resources, there are some differences.Let us explain the *two* concepts, and discuss the debates around them:

Tragedy of the Commons (ToC)

According to biologist Garrett Hardin (1968), human beings are descendants of thieves, which is the reason for over-exploitation of commons. According to him, uncontrolled shared resource is often overexploited because of the interest of individual users to maximize their short-term use. Hardin has explained the case of destruction of common pastures, as herdsmen have increased the cattle grazed on those. He also provided the example of pollution, where the rational man finds that his share of the cost of emissions into the commons is much less than the cost of purifying it. The incentive behind this act is free riding problem or shifting costs to others. But as a result, this behaviour adds to a larger cost of pollution.

To overcome this tragedy, Hardin (*Ibid.*) has suggested that commons should be enclosed and entry should be restricted. He suggested to either privatize the resource so that it is in the best interest of the owner to take account of long-term effects, or to have top-down government rules that limit resource use. According to him, access could be based on a first-come first basis, auctioning, lottery or wealth. Acknowledging the fact that all these choices have their own limitations, Hardin advocated that even then a decision has to be made to restrict access to the commons.

Common Heritage of Mankind (CHM)

The 'common heritage of mankind', articulated by diplomat Arvid Padro (1967) reflects the idea that natural resources belong to all of us, not only for the present generation, but even our future generations. Therefore, we can neither be denied rights nor the responsibilities in using natural resources. Padro adopted a different view of the tragedy, particularly in the context of international commons. He was concerned about the enclosure of the seabed (Mediterranean Sea particularly) by technologically advanced States. His fear was that rich countries, who have resources to spend on oceanographic research, can exploit oil, gas and minerals from the common seabed. Poor countries which also have right to this common seabed will suffer as a result.

To avoid these outcomes, Padro (*Ibid*.) has suggested the establishment of a 'treaty regime' by the United Nations General Assembly. Such a regime could ensure peaceful and orderly exploitation of the seabed, on the principle that it is the common heritage of mankind and, thus, should be used in the interests of all, especially the developing States.

Debates around ToC and CHM

Although both the concepts share the concern about preservation of common resources, there are noticeable differences, particularly with respect to the role of developed vis-à-vis developing countries in conserving global commons.

- ToC is alleged to be taking a discriminatory and prejudiced stance in favour of the developed countries. Citing the example of English commons, Hardin (*Op.cit*.) has suggested that those should be enclosed and entry should be restricted. However, according to Ranganathan (2016), the illustration was false and English commons had been successfully managed by their commoners over long periods. In fact, many empirical researchers have given ample examples of successful common management across the world. Even in India, similar argument is provided for tribal people efficiently managing their common forests.

- Another criticism of Hardin's suggestion of restricted entry and access emerged in the background of existing inequality in the world.Gupta (2019) has argued that rich countries and rich people will invest in and manipulate the access to commons. The poor will suffer. The actual tragedy will be inequality in the access to, and utility from the commons.

- Apart from inequality of access, impact of degradation of global commons is also linked to social justice. Historically, developed countries have followed energy-intensive growth path leading to more emissions of Greenhouse Gases and climate change. At the same time, developed countries possess the capability to avoid negative impacts of climate change. But on the other hand, developing countries, particularly the least developed countries, who have contributed very little to climate change, are highly vulnerable to the adverse impact (Paavola, 2012).

In the light of this criticism, developing nations have supported the Common-Heritage Approach to global and international commons. In 1992, the 'common concern of mankind' has been adopted as an alternative to, but not substitute for 'common heritage', in the preamble of the UNFCCC (Taylor, 2017).Global governance regime under the umbrella of the UN has also been advocated to ensure preservation of global commons for future generations in order to achieve sustainable development goals. The question remains, what will be an ideal global governance of climate change? Let us discuss this in our next Section.

5.4 GLOBAL GOVERNANCE OF CLIMATE CHANGE

Regarding global governance of climate change, although the atmosphere meets the two criteria of global common-pool resource in its function as a sink for carbon dioxide or $CO_2$and other Greenhouse Gases, it was not governed as 'Commons' in the beginning of the twenty first century (Gupta, 2019). It was an

unregulated 'no man's land', which was freely accessible and appropriated by everyone in most regions of the world, with the exception of the European Union (EU) and few other countries that have started to price carbon emissions.

Later on, it was realised that efficient governance of the atmosphere requires global cooperation and coordination of climate policies of different nations. But nations face a strong *collective action problem*. This is because everybody can benefit from the abatement of one party without contributing to the associated cost of abatement, while the cost is borne by the abating State alone. There are *two* aspects, which make governance of climate change difficult:

i) Global commons (the atmosphere in the particular context) are outside national jurisdiction of any country.

ii) Sometimes conservation of global commons and sustainable use of resources (found within), conflict with national sovereignty and regulation. For example, in some countries, there might be plenty of fossil fuel in the ground, but the disposal space for the $CO_{2,}$ arising out of its use, is limited global common namely atmosphere.

Thus, we find governance of climate change is a complex issue, which requires global cooperation for a sustainable future. In this context, the contribution of Nobel Laureate Elinor Ostrom is extremely significant. Let us discuss this in some detail.

Institutional Analysis and Development Framework for Governance of Commons

The term 'global governance' is defined by Finkelstein (1995) as 'governing, without sovereign authority, relationships that transcend national boundaries... doing internationally what governments do at home.' This definition of global governance makes it clear that it is closely linked with the study of public administration.

In her book 'Governing the Commons' (1990), Elinor Ostrom has addressed the questions regarding whether and how the common-pool resources should be managed so that both excessive consumption and administrative problems could be avoided. She presented number of success stories of managing common pool resources (each located within a single country) to understand how they were governed in reality.

The success stories revealed that both public and private players played an instrumental role in successful management of commons. Interventions of external political regimes were helpful in a few cases only. Moreover, in many cases it even impacted negatively. Ostrom thus challenged the convictions of many policy analysts that the problems of commons can only be solved by external authorities by imposing private property rights or centralised regulation.

Consequently, Elinor Ostrom has developed a framework called Institutional Analysis and Development (IAD) to summarise the lessons of successful and unsuccessful efforts in managing small-scale common pool resources. The framework has identified ***eight*** design principles for sustainable small-scale common pool resource regimes:

i) There must be clearly defined boundaries for the user pool (appropriators) and the resource domain.

ii) Appropriation rules must be compatible with local conditions and with provision rules (which regulate user inputs for resource maintenance). Appropriation rules and provision rules together are called operational rules.

iii) Collective choice arrangements ensure that the resource users participate in setting appropriation and provision rules.

iv) Monitoring is done by the appropriators or by their agents.

v) Graduated sanctions are applied to appropriators who violate operational rules.

vi) Conflict resolution mechanisms are readily available, low cost, and legitimate.

vii) Rights to organise regimes are recognised by external authorities.

viii) For common pool regimes that are part of larger systems,nested enterprises aggregate institutions within local, regional, and national jurisdictions.

According to Buck (*Op.cit.*), IAD framework has become a key to the analysis of management or governance of global commons. Although all eight of the design principles are applicable to the analysis of global commons, five of them are particularly relevant:i) clearly defined boundaries, ii) compatibility of operational rules and local conditions, iii) monitoring, iv) graduated sanctions; and v) nested enterprises.

However, while Elinor Ostrom (*Op.cit.*) made great progress towards understanding the management of local common pool resources, she herself suggested that there was a need for more research into the governance of global commons in order to face the global challenge of climate change. Ostrom (2009) has outlined several principles for designing such a policy:

- All reductions in Greenhouse Gas emissions are beneficial, and there is no single solution;
- Seemingly small actions can have significant consequences;
- Programmes must be sensitive to context;
- Trust is a critical resource;
- All policies have multiple effects; and
- Real policies work at more than one level, and we learn by doing.

Since the future of the world is dependent on the joint use of the global commons, its governance is becoming increasingly relevant for achieving sustainable development.

Check Your Progress 2

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

ii) Check your answers with those given at the end of the Unit.

1. Explain the two popular concepts that dominate the legal discourse on governing global commons.

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2. Why is governance of climate change difficult?

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3. List the eight design principles of IAD framework given by Elinor Ostrom.

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5.6 CONCLUSION

Historically, lack of access to global commons kept them safe from human encroachment. However, technological development and rapid economic growth across the world, led to unsustainable use of natural resources found in the global commons. This resulted in an urgent need to conserve the same. Climate change is often said to be the most prominent consequence of misuse of the global commons. However, one or few nations cannot restore the situation; rather worldwide cooperation is required. Therefore, global governance of commons is of major international interest. This Unit has thrown light on that.

This Unit has explained the relevant concepts and elaborated why climate change is often cited as a global problem of commons. It has examined the debates over the two popular notions that dominate the relevant legal discourse, from the perspective of developed vis-à-vis developing countries. It also highlighted the relevant contributions of Nobel Laureate Elinor Ostrom in providing the design principles for sustainable governance of commons in general, and climate change in particular.

This Unit has helped us to understand the fact as to why the third dimension of sustainable development, namely environmental sustainability, is characterised by weak global governance regime. Although, the UN Conference on Sustainable Development, held in Rio de Janeiro in June 2012, did conceive a coherent global governance framework; however, its success would require a partnership at the global level between all countries, multilateral organisations, civil society and

other stakeholders. This Unit has tried to weave many knowledge frameworks into the broader debate on sustainable development.

5.7 GLOSSARY

Anthropogenic: The term anthropogenic designates impacts resulting from human activity. Some human activities cause damage to the environment either directly or indirectly, e.g., pollution, overconsumption, overexploitation, deforestation etc.

Atmospheric Sink: In the evolution of atmospheric processes, the atmosphere is called a sink. The sink is the dominant pathway by which gases are removed from the present atmosphere. The biological processes that tend to remove gases from atmosphere are called sinks.

Collective Action Problem: It is basically a social dilemma or a situation, where all individuals would be better off cooperating but fail to do so because of conflicting interests between individuals, which discourage joint action.

Greenhouse Gases: Gases that absorb and emit radiant energy within the thermal infrared range. These gases are carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydroflurocarbons, perflurocarbons etc.

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5.9 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1. Your answer should include the following points:

- Commons are simply the resource domains, where common pool resources are found.
- Common pool resources are those which are high in subtractability, but low in exclusion.
- Subtractability is the extent to which use of the resource by one diminishes the amount left for others.
- Exclusion is the possibility of excluding others from using any resource.
- Commons can be small, e.g., the village pond for fishing, or significantly large like the high seas or the solar system.

2. Your answer should include the following points:

- Property in case of resources is a bundle of rights, such as rights of access, exclusion, extraction, or sale of the captured resource.
- Property rights may be held by individuals, groups of individuals such as communities, or even by nations. The very large commons that do not fall within the jurisdiction of any one country are termed international commons or global commons.
- International commons are resource domains shared by more than one nation, but global commons, on the other hand, are resource domains to which all nations have legal access.

3. Your answer should include the following points:

- Atmospheric sink for Greenhouse Gases can be understood as a common pool resource, which is high in subtractability but low in exclusion.
- It is difficult or almost impossible to exclude anyone or any nation from access to the atmospheric absorptive/sink capacity.
- The resource which is found in the atmosphere is clean air. Although it is not extracted, it does become scarce as pollutants are added.

Check Your Progress 2

1. Your answer should include the following points:

- The Tragedy of the Commons (ToC) and the Common Heritage of Mankind (CHM).

- According to ToC, the rational man finds that his share of the cost of his emissions into the commons is much less than the cost of purifying it. But, this behaviour, as an outcome, adds to a larger cost of pollution.
- To overcome this problem, ToC suggests that commons should be enclosed and entry should be restricted.
- According to CHM, natural resources belong to all of us, not only for this present generation, but even our future generations.
- Rich countries that have resources can exploit commons, which might cause suffering of the poor countries, which also have right to those commons.
- To avoid this problem, CHM suggests establishment of a 'treaty regime' to protect interests of all.

2. Your answer should include the following points:

- ToC is alleged for taking a discriminatory and prejudiced stance in favour of the developed countries. Restricting access to English commons as suggested by ToC has been criticised.
- Hardin's suggestion of restricted entry and access was challenged in the background of existing inequality in the world.
- Impact of degradation of global commons is also linked to social justice.
- Developing countries are pushing for CHM under the umbrella of UN.
- Global commons (atmosphere in this particular context) are outside national jurisdiction of any country.
- Sometimes conservation of global commons and sustainable use of resources (found within), conflict with national sovereignty and regulation. For example, in some countries there might be plenty of fossil fuel in the ground, but the disposal space for the CO_2 arising out of its use is a limited global common namely atmosphere.

3. Your answer should include the following points:

- There must be clearly defined boundaries for the user pool (appropriators) and the resource domain.
- Appropriation rules must be compatible with local conditions and with provision rules (which regulate user inputs for resource maintenance). Appropriation rules and provision rules together are called operational rules.
- Collective choice arrangements ensure that the resource users participate in setting appropriation and provision rules.
- Monitoring is done by the appropriators or by their agents.
- Graduated sanctions are applied to appropriators who violate operational rules.
- Conflict resolution mechanisms are readily available, low cost, and legitimate.

- Rights to organise regimes are recognised by external authorities.
- For common pool regimes that are part of larger systems, nested enterprises aggregate institutions within local, regional, and national jurisdictions.
- All reductions in Greenhouse Gas emissions are beneficial, and there is no single solution.
- Seemingly small actions can have significant consequences.
- Programmes must be sensitive to context.
- Trust is a critical resource.
- All policies have multiple effects.
- Real policies work at more than one level, and we learn by doing.