
UNIT 8 COLONIALISM AND ENVIRONMENT – GREEN IMPERIALISM

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8.0 OBJECTIVES

This Unit should make you able to critically understand:

- Social and ecological impacts of European and American imperial expansion;
- Complex relationship between modern botany and imperial expansion for massive appropriation of natural resources;
- Global geographical perspective as basic canvas to write histories of human-nature interactions; and
- Historical perspective to policy decisions on contemporary strategies of natural resource management and sustainable development.

8.1 INTRODUCTION

This Unit will elaborate on relationship between ecological transformations and imperial power in past 500 years of global history. Imperialism in modern context can be defined as political and military domination imposed by advanced capitalist countries over backward countries for economic and political advantages. For a historian of modern societies, the term ‘imperialism’ refers to deep impact of unequal relationship on cultures and ecologies of colonies. Central focus of European colonizers in Asia, Africa, Australia and Latin America was to extract natural resources to feed European cities. Consequently, European domination radically transformed biosphere and livelihood patterns of colonized societies. European planters, miners and entrepreneurs invested their

capital in colonies to generate maximum profit. They transformed fertile soil, dense forests, mineral, animals and plants as commodities to be sold in European markets. Large-scale transformation of natural environment had tremendous social impacts:

- 1) impoverishment of indigenous peasantry,
- 2) remarkable increase in number of landless poor,
- 3) long-distance migration of workers to find new livelihood, and
- 4) transoceanic slave trade.

The term ‘ecological imperialism’ or ‘green imperialism’ provides critical perspective on how human-made environmental transformations reproduce social differences including class, gender, caste, ethnicity and nationality. German scientist Ernst Haeckel first used the term ‘ecology’ (oecologie) in 1866 to refer to “science of relations of living organisms to external world, their habitat, customs, energies, parasites etc.”. The subject ‘ecology’ helps us to understand complex relationship between living beings and their surrounding environment. From 1970s environmental historians began to consider climate, topography, animals, insects, soil and vegetation as crucial factors in shaping society and economy. This was a major departure from excessive focus on political events as key factors in shaping history.

Understanding complex history of ecological imperialism is crucial when the world is entering a phase of intensified contests over natural resources – water bodies, forests, hills, mineral resources and fertile soil. In contemporary context capitalist countries dominate natural resources of the world exclusively for their benefits. Unequal distribution of natural wealth reproduces social inequalities based on class, nationality, ethnicity and gender. Thus, providing a historical perspective on ecological imperialism is important to develop a critical perspective on contemporary society, especially when we face climate change as a major issue.

8.2 ECOLOGICAL IMPERIALISM: UNDERSTANDING THE CONCEPT

The term ‘ecological imperialism’ help historians to explain social and economic impact of converting natural riches of colonies as commodities and raw material for metropolitan industries. American environmental historian Alfred Crosby introduced the term ‘ecological imperialism’ to refer to successful European colonization of temperate regions such as North America, South America, New Zealand and Australia. According to Crosby, success of European colonial expansion which started around 1500 CE has a strong ecological aspect. He observed, “European emigrants and their descendants are all over the place which requires explanations.” (Crosby: 1986, p. 2). White European settlers carried plants and animals to temperate zones thousands of miles away from Europe to make new regions suitable for European farmers and settle down. Crosby

developed the term ‘Columbian exchange’ to describe large-scale transfer of flora and fauna from Europe to New World (Crosby: 1972). The term referred to ecological impact of geographical expeditions conducted by Christopher Columbus and other early modern European mariners and naturalists in reshaping biosphere of the world for benefit of rich European countries. He argued that European invaders could successfully develop their colonies in temperate world by implanting European plants, animals, pathogens and weeds. Crosby considered large-scale transformation of ecology and society of New World to develop colonies for White Europeans to reproduce their European homeland – Neo-Europe.

Crosby observed that the impact of European colonial expansion was noticeably different in ecological experiences in Old World and New World (Crosby: 1986). He argued that impact of European colonialism in New World regions like Canada, Australia and New Zealand was primarily ecological by making significant changes in the complex of diseases, plants and animals and resultant destruction of indigenous socio-ecological life. On the other hand, Europeans failed to make Neo-Europe in Asia and Africa because of high population density and power of centralized states. However, Europeans could successfully develop political dominance to exploit indigenous knowledge and commercialize rich landscapes.

At the same time, historians have critiqued Crosby’s approach of considering ecological imperialism as a watershed in history of environment. For instance, Richard Grove, the environmental historian of early modern world, pointed out, “the hypothesis of a purely destructive environmental imperialism constituting a complete break with pre-colonial past does not stand up well at all.” (Grove: 1993, p. 320). Grove developed the term ‘Green Imperialism’ to refer to Asian and African context of European colonial expansion. Instead of considering ecological imperialism as one-sided process of imposing European plants, animals and knowledge Grove considered imperialism as two-way process of interactions and exchange. By analyzing early colonial development of imperial botanical garden and growth of Botany as a modern scientific discipline Grove argued that indigenous knowledge influenced European idea of nature (Grove: 1995). For instance, Grove observed that Alexander von Humboldt, the famous 18th century European botanist and explorer, studies Indian indigenous botanical knowledge.

Environmental historians of South Asia have published several important studies in past four decades to explain the concept of green imperialism. They examined how colonialism devastated forest economies, pastoral economies, irrigation techniques, patterns of shifting cultivation, hydraulic environments and fisheries of colonized regions. It is important to notice that ecological transformation of colonies was in tandem with industrialization of production in metropolitan regions. Large-scale monocropping of cash crops, capitalist extraction of mineral resources and massive development of railway infrastructure in colonies enabled European capitalists to supply raw materials, food and energy sources to metropolitan industries. Colonial entrepreneurs and planters modified colonial

landscapes as sugar, indigo, cotton, rubber and tea plantations and mines. Colonial project of commercializing natural resources led to massive extinction of endemic species of plants and animals. Large-scale monocropping of marketable crops like cotton, tea, sugar and hemp led to extinction of plants and animals and heavy loss of biosphere. Traditional livelihood resources of farmers, pastoralists and fishers based on a thousand varieties of plants and animals and lost their livelihood resources. The dispossessed people were either enslaved or had to work in precarious environment of plantations. Transformation in ecosystem also led to spread of epidemics such as cholera and malaria. Environmental historians use the term 'ecological imperialism' to evaluate totality of social and ecological experiences of European domination.

8.3 EUROPEAN COLONIALISM AND EARLY MODERN WORLD

European colonial expansion to Asia, Australia and America initiated by great European sailors in 15th century was a turning point in history of capitalism and modern imperialism. In 1487 Bartolomeu Dias ventured a long sail to southern tip of Africa, opening possibilities to enter Indian Ocean. Christopher Columbus travelled west and touched West Indies in 1492. Vasco da Gama started his voyage from Lisbon to Asia and reached ancient port town of Calicut in Kerala in 1498. Magellan reached Philippines in search of spices. These visits produced enormous body of knowledge about sea routes, winds and opportunities to accumulate wealth.

European visitors to New Zealand or New England and Australia in 15th and 16th centuries found natural goods that were scarce in Europe. After initial phase of confining to coastal belt, ships from Europe started transporting farmers to New World to expand cultivation of wheat and other food crops. For them natural riches of New World they discovered were marketable commodities. White settlers considered indigenous people as potential cheap labourers. European intelligentsia supported white settlers' view by considering indigenous people as people without history. By middle of 16th century mercantile companies supported by Portuguese, Dutch and British governments established their trading posts along coasts of Indian Ocean, Atlantic and Pacific.

Illustration of Arrival of Vasco Da Gama at Calicut in 1498. National Library of Portugal. Source: Wikimedia Commons
(https://commons.wikimedia.org/wiki/File:A_chegada_de_Vasco_da_Gama_a_Calicut_em_1498.jpg).

Consequently, European expansion to these continents in early modern period (1500s to 1800s) was largest imperial expansion in human history. Massive emigration of European settlers with their plants and animals to colonies has been most radical moment in human-made transformation in biosphere since Neolithic agricultural revolution. European expansion began to redraw map of the world considerably by annexing subcontinents and islands located thousands of miles

away as colonies. Portuguese, Italian, Spanish and other European farmers and low-ranked nobles sailed to new world with hope to become richer by investing in agriculture, mining and trade.

Before expansion of European colonies societies never engaged in domestication of any specific species of plants or animals in concentrated numbers. European settler-farmers started practicing monocropping of commercially valuable food crops. They preferred to grow plants with market value. Commercialization of agriculture made other plants and animals unnecessary and removable. For instance, white settlers found rabbits and fast-growing indigenous vegetation as obstacle for their cultivation. They started eliminating these obstacles such as weeds and rabbits. They considered plants that were not commercially valuable as 'weeds' and engaged in eliminating them. Moreover, "[t]he European colonists were livestock people, as their ancestors had been for millennia." (Crosby: 1986, p. 172). Therefore, colonists found "wilderness" as opposite to civilization.

European settlers carried their domesticated animals to colonies. Thus, they introduced new world to horses, cattle, pigs, goats, sheep, asses, chicken, cats. Columbus carried cattle from Canaries to Espanola in 1493 since settlers depended largely on cattle for milk, meat, fiber and leather. They carried pig to colonies because of its remarkable ability to convert large amount of food into proteins and carbohydrate for human consumption. As a result, colonies like Australia became chief centres to export meat producers in the world. At the same time plants and animals carried by colonists were carriers of a number of microscopic organisms to New World. This introduced colonies to issues of pox, measles, green-sickness and malaria. Major change in ecosystem and extinction of indigenous species made local societies prone to these epidemic diseases. Crosby provided example of rapid spread of honeybee from Iberia to other colonies and its major role in changing ecosystem survived by other insects. Transformation of physical environment had major impact in shaping people's relationship to nature. Colonists perceived the land they 'discovered' merely as commodities. They cleared impenetrable forests to export timber and cultivate food crops. Massive process of deforestation for commercial cultivation of crops like sugar increased the problem of topsoil erosion, flood and famine as well as gradual reduction in rainfall. However, for centuries European ships regularly carried wheat, sugar and timber in large quantities from colonies to England, France, Italy and other mainland European cities.

Expansion of cultivation by white settlers transformed population of New World. Slave traders exported indigenous people from Africa as slaves to colonial sugar and cotton plantations. For instance, population of Madeira – an archipelago comprising four islands off northwest coast of Africa – increased from 800 people in 1455 to 20,000 or more at end of the century (Crosby: 1986, p. 77). European plantation elites employed uprooted African people in highly hostile environments of plantations to convert food crop fields and forests into sugar plantations. Annual sugar output in Madeira increased from 80 tons to over 1,000 tons between 1456 and 1494 (Moore: 2000, p. 416). Madeiran population started

depending on imported food crops for their daily survival. Crosby has elaborated the process of ecological imperialism in Madeiran context:

As soon as Europeans conquered a given island in the Canaries, they set about transforming it in accordance with their plans to become wealthy. They sold off the orchil to the European market, and as much grain, vegetables, timber, skins, and tallow and as many Guanches as could find buyers. They “Europeanized” their island, importing species of Old World plants and animals that were already doing well in Mediterranean lands. Several of the more important of these species – dogs, goats, pigs, and probably sheep, barely, peas, and probably wheat – were already present. The Europeans added cattle, asses, camel, rabbits, pigeons, chickens, partridges, and ducks, as well as grapevines, melons, pears, apples, and, most important of all, sugar (Crosby: 1986, pp. 94-95).

History of plant and animal transfer is a complex historical process. Crosby argued that European white settlers could establish their farms in Australia, New Zealand, South Africa and Argentina because of careful process of species transfer. They made these regions into Neo-Europes by replacing indigenous plants and animals with commercially preferred varieties. He examined global scale migration of cultigens like maize, potato, bean and manioc. List of flora and fauna circulated globally included:

- 1) rice,
- 2) wheat,
- 3) oat,
- 4) barely,
- 5) cattle,
- 6) sheep,
- 7) chicken, and
- 8) horse.

By tracing global circulation of plants and animals Crosby argued that European settlers’ interventions in biospheres of New World transformed social and economic relationships of colonies. White settlers developed a new world where indigenous population had no rights of a citizen-farmer. New flora and fauna implanted by European colonizers replaced thousands of local species. For instance, colonial planters eliminated wild hogs and elephants since they destroyed cultivated plants. Moreover, white settlers considered hunting as favourite leisure time activity. Planters also engaged in massive deforestation for firewood requirements. Massive deforestation eventually led to large-scale erosion of fertile topsoil. Rich topsoil from hill slopes and plains silted rivers and lakes and, thus, affected underwater ecosystem. This connected and geographically extended process of ecological transformation had major impact on the economy based on local ecological specificities.

Map showing early 18th century (c. 1719) European idea of the world. Explorers and mercantile companies perceived Indian Ocean and Pacific regions as rich landscapes to accumulate raw material and markets to expand mercantile activities.

Source: Wikimedia Commons

(https://commons.wikimedia.org/wiki/File:Moll_-_A_new_and_correct_map_of_the_whole_World.png).

From 18th century industrialized countries of western Europe began to colonize geographically distant regions for massive production of raw material, sources of energy and food crops. This was a response to industrial revolution that began in England. Technology-based factory production required uninterrupted supply of woods, coal and raw materials. Colonies were potential sources to extract forests, develop mines and large agrobusiness to produce raw material. European plantation and entrepreneurial elites gained subsidies and land-grants from local rulers to tap natural resources and transformed them as commodities for mass consumption. European planters began to establish large plantations to produce sugar, cotton, hump, teak, rubber and coffee in Indian Ocean and Atlantic regions. Consequently, European plantation capital transformed face of the world by reshaping mountains, valleys, rivers, coasts and ocean as resource bases. Capitalist societies perceived colonized regions as spaces to produce commodities cheaper for metropolitan industries. Plantation agriculture or large-scale monocropping of commercial crops massively shifted natural resources of colonies as commodities and wealth of capitalist countries. For instance, Sidney W. Mintz in his well-known work on sugar plantations has elaborated how European and American planters made sugar a global commodity by enslaving indigenous population and colonizing natural resources (Mintz: 1985).

In last 600 years around 60 million Europeans have migrated around the world to engage in trade or settle down majorly as farmers, agricultural or industrial workers and miners. Population in Australia and New Zealand is dominated by descendants of European emigrants. In 19th and 20th centuries over 50 million Europeans migrated to colonies that were far from their homeland in search of cultivable land and to engage in trade activities. Consequently, it is possible to argue that there is no region in the world directly or indirectly unaffected by European imperial expansion. Corey Ross, a well-known environmental historian, observed, “[a]t the heart of European imperialism was an attempt to transform forests, savannahs, rivers, coastal plains and deserts into productive and legible spaces, all of which brought hefty environmental consequences: deforestation, erosion, siltation, pollution, disease and habitat destruction.” (Ross: 2017, p. 3).

It is also important to notice that environmental historians have problematized Crosby’s ecological imperialism theory and point out that migration of biota was not one-sided process. For instance, William Beinart and Karen Middleton argued, “[e]ven in the period from 1500-1900 plant transfers may have been

more evenly balanced than Crosby suggests.” (Beinart and Middleton: 2004, p. 4). They considered plant-transfer theory developed by Crosby asymmetrical and Eurocentric and consider actions and decisions of powerful European nations as prime mover in world history. Moreover, they criticised Crosby’s approach of considering European plants as powerful colonizers. Environmental historian Jonah H. Peretti considered ‘ecological imperialism’ proposed by Crosby as a problematic concept. He argued that ‘native’ and ‘natural’ as given conditions go against in a world shaped by millions of years’ long history of species migration (Peretti: 1998).

8.4 EMERGENCE OF BOTANY AS AN IMPERIAL SCIENCE

It was not just political powers and skilled soldiers alone but scientists who played key role in establishing superiority of European imperial powers over colonies. Since 16th century European imperial expansion had depended heavily on development of scientific knowledge. Modern European idea of gaining mastery over nature was central to emergence of botany as important discipline. From 15th century scientists began to specialize in fields of agriculture, forestry, natural resource extraction and conservation. Traveller-scientists like German explorer and naturalist Alexander Von Humboldt (1769-1859) started identifying, classifying and collecting plants as part of their great imperial expeditions. European national governments promoted expedition of natural scientists to Latin America and Asia to identify species with commercial potential, acclimatize them in new surroundings and breed them to increase yields. Humboldt made valuable contribution in field of ecology by studying and classifying plant species found in Spanish colonies in Central and South America. Similarly, Hortus Malabaricus (Garden of Malabar) – an illustrated epic treatise conceived by Dutch Governor of Malabar Hendrik van Rheede – documented medicinal properties of flora in southwest India (Kerala) and was published in Amsterdam between 1678 and 1693 in 12 volumes of about 500 pages each. Considering several such sources it is possible to argue that 14th and 15th centuries was the time of great revival of botany as a scientific discipline after Babylonian civilization and Graeco-Roman antiquity.

European explorers and naturalists facilitated growth of Botany as a modern discipline. Imperial Botany promoted by European mercantile states played key role in worldwide transfer of plants

Illustration from Hortus Malabaricus (Garden of Malabar), an epic treatise dealing with medicinal properties of flora in Malabar coast. Source: <https://publicdomainreview.org/collection/hortus-malabaricus-1678-1693>.

such as:

- 1) cinnamon,

- 2) cloves,
- 3) coffee,
- 4) maize,
- 5) nutmeg,
- 6) pepper,
- 7) rubber,
- 8) sugar,
- 9) cocoa,
- 10) tea, and
- 11) tobacco.

Modern discipline of Botany helped cultivators to develop better farming methods to support production of commodities that were scarce in Europe. Developments in agricultural sciences promoted monocropping of crops such as indigo, coffee, tea, sugar cane, banana and rice for sale. White settlers produced these crops in large quantities to export to Europe. Inflow of cheap commodities from colonies started promoting a new lifestyle in Europe. Elites and urban middle-class Europeans made imported meat, sugar, coffee, tea, banana, spices and vegetables a part of their daily diet. However, commercial production of crops for an external market began to replace traditional farming methods and indigenous agricultural knowledge. Scientific inventions made “green revolutions” in colonies possible by massively privatizing and commodifying hills, valleys, pastures, fertile slopes and water bodies. Moreover, development of scientific knowledge included systematic appropriation, destruction or elimination of indigenous farming knowledge and its commercial applications. White supremacist domination with support of colonial states dispossessed indigenous people from their land and resources. They were forced to work as plantation coolie labourers in colonial plantations.

Colonial states were instrumental in developing botany as an important discipline by promoting establishment of botanical gardens. In Great Britain ruling elites promoted foundation of botanical gardens at Oxford, Chelsea and Edinburgh to experiment with cultivation of medicinal plants. Kew garden in London was an important botanical research and experiment space before introduction of modern botanical research laboratories.

Shaft of Great Palm-Stove-Royal Botanical Garden, Kew, London. Source: Wikimedia commons
(https://commons.wikimedia.org/wiki/File:Shaft_of_the_Great_Palm-Stove,_Kew_Gardens.jpg).

William Turner (1510-1568), father of English Botany, experimented in Kew with development of plants. It facilitated scientific research to find plants to meet commercial requirements like pharmaceuticals and fibers. Historian Lucile Brockway's *Science and Colonial Expansion* (1979) examined how British garden networks developed and transferred commercially valuable plants to different parts of the world to promote their cultivation. Brockway elaborates three case studies of plant transfer – cinchona (a source to produce quinine to cure malaria), rubber and sisal – to show interconnection between emergence of Botany and the development of capitalism. He argued, "Botanical gardens have contributed much to colonial expansion of the West through active participation in transfer of protected plants and their scientific development as plantation crops for tropical colonies of mother country. Cinchona, rubber and sisal are prime examples." (Brockway: 1979).

Imperial botanical networks developed scientific methods to improve various plants through species selection, new methods of cultivation and hybridisation. They engaged in acclimatising plants with commercial value to various ecosystems. For instance, production of a cheap source for quinine from cinchona plantations in south Asia and other colonised regions allowed white migrants to Africa to resist malaria. Botanical knowledge helped agricultural entrepreneurs to successfully transfer rubber and cinchona – plants indigenous to Brazil – to Asia. Rubber seed carried from Brazil became an important plantation crop in Malaya. Rubber played a crucial role in industrial production and motorisation of road transport. Similarly, colonial planters and botanists experimented coffee, cinchona and tea in various colonies to explore possibilities for commercial cultivation.

Environmental historian Richard Grove located the process of ecological imperialism as a complex process of infusion of indigenous knowledge by imperial botanists. He revised the Eurocentric idea of spread of European plants, animals and knowledge to colonies. By specially focusing on tropical experiences of European natural scientists he argued that early modern geographical expeditions and botanical researches radically transformed European idea of nature. Botanists began to classify plants of global basis and led to development of fields of natural history and pharmacology. Portuguese and Dutch botanists were pioneers in the field of developing botanical gardens. They linked medical and botanical knowledge of Asian, West African, Caribbean and Brazilian regions (Grove: 1996, p. 121).

8.5 SOUTH ASIAN CONTEXT

Environmental historians of South Asia have examined the impact of European colonialism in rapidly reshaping natural environment and its social and economic consequences (For instance, see Arnold and Guha (Eds.): 1995). Historical studies on colonialism and environment in South Asia are directly connected to growing concerns about ecological degradation, species extinction and climate crisis. Historians of South Asia from 1970s started giving attention to various tribal and peasant movements to protect land and environment and to popular

movements against large dams. For instance, Chipko movement, the women and peasants-led movement to protect trees of Himalayas in 1970s, influenced historical thinking and writing in India (see Guha: 1989, Shiva: 1989). Influenced by Crosby's 'Ecological Imperialism' Madhav Gadgil and Ramachandra Guha, two prominent historians of South Asian environment, revised history of colonialism (Gadgil and Guha, 1992) that was largely based on political developments. They developed Crosby's concept of "within reach but beyond grasp" to analyze history of environmental transformations in South Asia.

Unlike temperate regions identified by Crosby as Neo-Europes due to its climate similarities with Europe, regions like South Asia, Korea and Japan had dense population, ancient traditions and strong state institutions. Crosby noticed that imperialists could not transform arid tropics as Neo-Europe to facilitate larger settlements of European farmers. He observed, "Like Europeans these Indians, Indonesians, Malaysians and so on planted and consumed small grains (especially rice which had not arrived in Europe until Renaissance), depended on approximately same animals (though in much smaller numbers per human being) and struggled to maintain health against same pathogens and parasites, plus several venomous species unknown in Europe." (Crosby: 1986, p.136). Gadgil and Guha argued, "In India Europeans could not create Neo-Europe by destroying indigenous populations and their natural resource base but they did intervene and radically alter existing food-production systems and their ecological basis" (Guha and Gadgil: 1992, p. 103). However, political dominance helped European colonisers to make unprecedented intervention in transforming natural riches and common property resources of India into wealth of European industrial cities. European planters produced sugar, tea, spices, cotton and indigo at the cost of fertile soil and small peasantry.

British East India Company (EIC) with its political dominance until mid-19th century took interest in trading than in developing plantations in hinterland. It promoted cultivation of Opium in Bengal to export to China to exchange for tea. However, by middle of 19th century imperial botany departments, especially Saharanpore (now Saharanpur) Botanic Garden, recommended that foothills of Himalayas were suitable for tea cultivation. After defeating China in Opium War (1839-1842) EIC engaged in great transfer of tea from China to India, especially to Himalayan foothills, Assam, Sylhet and Sahyadri. For instance, Robert Fortune, a great plant collector, carried 2000 tea plants and 17,000 tea seeds from China to start tea cultivation in India. Planters brought Chinese experts to India to establish tea plantations in India. Indian tea plantations supplied increasing demand for tea from English factories and households. European planters dominated expansion of tea plantations, privatised hills and water bodies and dispossessed tribal cultivators, alpine pastoralists and marginal peasantry. After dismantling Indian indigenous industries EIC and later, European ruling and plantation elites promoted production of raw material-indigo, cotton and hemp for metropolitan industries. Foothills of Himalayas, Assam valley, Sylhet and Western Ghats were converted into massive tea plantations. Fertile plains were converted into cotton, indigo and sugar plantations. Chota Nagpur forest regions

were converted into mines. Small and marginal farmers, fisherfolk, tribal population, pastoralists lost their community-owned common property resources like forests, pastures and water bodies.

Technological and economic changes introduced by European colonisers in second half of 19th century had far-reaching impact on establishing their ecological dominance. European ruling and industrial elite-controlled introduction of submarine cable, opening of Suez Canal in 1869, European steam ship company-monopolised expansion of steamships in Indian Ocean subsequently provided infrastructure for massive appropriation and export of natural resources from India to European metropolitan cities (Headrick: 1981). Use of technology also played crucial role in allowing colonial powers to transform social and physical spaces by developing big cities, plantations, railway networks and road and canal systems. Universalisation of use of coal and, later, petroleum as a source of energy for industrial production, transport and lighting played crucial role in transforming relationship between man and nature. Dominant social groups established their technological dominance over nature to convert resources as marketable commodities. Mechanisation of ploughing controlled by European planters and engineering firms resulted in massive clearance of forests and hill slopes for cash crop cultivation. Invention of refrigerator car in late 19th century allowed industrialisation of meat production for intercontinental transport. Integration of storage and transport in larger refrigerator ships commercialised livestock raising. This was an outcome of so-called “second industrial revolution” in Europe or large-scale mechanisation of factory production. Demand to ensure constant supply of raw materials to metropolitan factories required new overseas regions to produce:

- 1) textiles,
- 2) minerals,
- 3) coal, and
- 4) food crops.

European ruling and plantation elites-controlled commercialisation of agriculture to feed metropolitan industrial demand for food, raw material and energy had tremendous social and economic impacts. Colonial planters had no sympathy for peasant production based on community-based management of water bodies and pastures. They tended to privatise common property resources to enhance production of ‘cash crops’ like:

- 1) spices,
- 2) cotton,
- 3) sugar cane,
- 4) and hemp.

Colonial state imposed taxes on agricultural land and took over grazing lands and irrigation ponds. Colonial forest policy promoted replacing of mixed forest with single-species and commercially valuable trees such as:

- 1) teak,
- 2) sal, and
- 3) deodar.

They encouraged export-oriented monocropping of trees in name of forest conservation. Colonial forest conservators blamed livelihood activities of tribal cultivators and alpine pastoralists responsible for forest destruction (For instance, see E. P Stebbing: 1921). Colonial state introduced a series of forest acts and administrative reforms to control forest resources in India. This was to meet heavy demand from Europe to provide wood as crucial material to develop industrial infrastructures like railways, factories, furniture and carts to package materials. Community-managed livelihood resources started depending on colonial planters and industrialists for their everyday survival.

8.6 CONTEMPORARY HISTORY OF ECOLOGICAL IMPERIALISM

End of formal colonial rules after Second World War did not end imperial domination of capitalist countries over rest of the world. Well-known geographer David Harvey used the term ‘new imperialism’ to refer to post-Second World War condition of global capitalism. British empire came to an end after Second World War. However, industrial capital continued to dominate the world. Metropolitan capitalists, especially from United States, started gaining dominance and control over natural resources and labour-power of much of former colonies. It established control over production and distribution of petroleum: the main source of energy for industrial production. Military might of United States became supreme after end of Cold War in early 1990s. In addition to this, American ruling and industrial elites dominated international banking and trade institutions such as World Trade Organisation and International Monetary Fund (also known as Bretton Woods Institutions). Metropolitan capitalist control over international trade and tariff regulations was a way to help massive extraction of natural resources from former colonies.

American dominated international agribusiness massively expands its control over natural resources to meet the condition of man-made scarcity of food and sources of energy (Tucker: 2000). Environmental historian Richard Tucker’s *Insatiable Appetite* argues that American demand for food crops and energy resources had a devastating impact on Latin American environment. United Fruit Company – the United States-based multinational food crop producing enterprise – made several Latin American regions its private empire. Peter Chapman’s *Banana: How the United Fruit Company Shaped the World* explains how it made a ‘banana republic’ by converting rich soil, water bodies and indigenous people

as well as governments of Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama as infrastructures to produce banana.

Massive clearance of forest for monocropping of banana in Ecuador eliminated 2500 endemic plant and animal species and cleared 25,000 square kilometres of forests and food crop fields (Richard Tucker: 2000). Moreover, large tracts of forests were converted as pastures to produce milk, meat and leather products. From 1960s American demand for cheap hamburger beef triggered deforestation in Central America. These developments were at the cost of ecosystem and by making indigenous people a cheap source of manual labour to work in plantations. Local government supported American corporate enterprises of sugar, banana and rubber cultivation by providing them railway infrastructures and granting land for a throw-away price. Tucker argued that US imperialism in Latin America was not limited to strategic domination but primarily based on ecological exploitation. American insatiable appetite played major role in transforming wide spectrum tropical ecosystem of Latin America into commodities.

Capitalist appropriation of agricultural fields and natural resources for benefit of multi-national companies was not confined to Latin American regions. Multinational companies and indigenous elites began to grab rural land all over the world to develop plantations, mineral extraction industries, biofuel production and provide leisure infrastructures for urban population. Capitalist accumulation of land was usually achieved by claiming that the land cultivated by small peasantry or occupied by pastoralists are under-used. Industrialists usually aim to grab fertile land to increase productivity. Contemporary context of ecological imperialism resulted in severe inequalities of income and wealth. Corey Ross observed, “the world has been witnessing a process of ecological imperialism in which powerful countries and organizations have tapped huge resource subsidies in other parts of the world as a means of overcoming ecological limits that their own territories place on economic growth and commercial activity.” (Ross: 2017, p. 2). Industrialised countries use their political and military power to transform global ecology to meet their food, energy and raw material requirements. Petroleum replaced other locally available sources of energy. Control over natural resources has become a shaping factor in global diplomacy in 21st century.

Check Your Progress Exercise

1) How did European colonialism and imperialism harm and damage ecological conditions of their colonies?

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2) Fill in the blanks:

- a) Richard Grove used the term _____ to refer to Asian and African context of European colonial expansion.
- b) Alfred Crosby called large-scale transformation of ecology & society of New World to develop colonies for Europeans to reproduce their European homeland as _____.
- c) William Turner, father of British Botany, in _____ at _____ experimented with development of plants.
- d) _____ was the women & peasant led movement to protect Himalayan trees from felling.
- e) East India Company promoted cultivation of _____ in _____ to export to _____ to exchange for tea.
- f) Colonial forest policy in India promoted replacing of mixed forest with single species and commercially viable trees like _____, _____ and _____.
- g) Our colonial rulers tried to privatise common property resources to enhance production of cash crops such as _____, _____, _____ and _____.
- h) American multinational food crop producing enterprise called _____ made several Latin American regions its private empire.
- i) From 1960s American demand for cheap _____ triggered deforestation in _____.

8.7 SUMMARY

This Unit elaborated the relationship between imperialism and ecology in a long-term historical perspective. Central focus of historical writings on imperialism has been economic and political dominance established by one country over geographically distant regions or countries. We have argued that dominant political history-based periodization is insufficient to understand history of environment and resultant changes in social and economic life. Similarly, considering nation-state as primary geographical scale to write history is also a limiting factor to write socio-ecological history of colonialism.

In a seminal intervention in field of 'ecological imperialism' environmental historians Alfred Crosby and Richard Grove transformed the nature of historical studies on imperial past of former colonies in Asia, Africa and Latin America. They argued that the 500 years long history of western domination of the world was not just political and military domination but systematic expansion of ecological dominance. Imperial botanists, European settler-farmers and

plantation entrepreneurs played crucial role in transforming ecological specificities of colonies to commodify their natural resources. Massive transfer of natural riches of colonies to European and US metropolis resulted in massive ecological destruction, changes in livelihood patterns, spread of epidemic diseases, species extinction and dispossession and elimination of indigenous population.

The concept of ecological imperialism will give a historical perspective to understand and assess current climate crisis and its potential social outcomes. Environmental activists and scientists argued that limitless appropriation of natural resources for industrial production gradually contributed to acceleration of global warming, ocean acidification, air pollution and desertification of fertile landscapes. Government policies and programmes for a sustainable and environmentally friendly future require in-depth knowledge of social issues arising out of ecological degradation. Developing a historical perspective on access and use of nature will help government and policymakers develop a critical perspective on issues of social inequalities. Ecological imperialism in contemporary context provides a critical perspective to understand alienation and dispossession of people from their land and livelihoods.

8.8 KEY WORDS

Imperial Botany: Wealth of Britain's empire was largely based on plants: from cotton and timber, spices, dyes and indigo. Voyages into its colonies were partly concerned with mapping vital natural resources and discovering new ones. For example, as a traveler and later as Director of Kew Botanical Garden, London, William Hooker relied on a wide network of plant collectors to provide him with more specimens from Britain's many colonies. This process or phenomenon can be summed up as Imperial Botany.

Neo-Europe: Concept for widespread European colonization of geographically distinct areas across the world, behaviours that settlers displayed and ecological changes they initiated.

Plant-transfer: Transfer of trace elements of flora within the soil. It is an element flow from nonliving to living compartments of biosphere. It is historically defined and elucidated more specifically in the context of European imperialism.

8.9 ANSWERS TO CHECK YOUR PROGRESS EXERCISE

1) See Section 8.3

2) a) Green Imperialism; b) Neo-Europe; c) Kew Botanical Garden, London; d) Chipko movement; e) opium, Bengal, China; f) teak, sal, deodar; g) spices, cotton, sugarcane, hemp; h) United Fruit Company; i) hamburger beef, Central America

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