UNIT 14 ENVIRONMENT

Structure

14.1 INTRODUCTION

It is important to understand Australia's concern with environment in the context of the international community's recent concern and sensitivity to the ecological impact of economic development. These issues are becoming critical in relations between states and Australia's foreign environmental policy is coming under increasing pressure. The demands on Australia's skills to deal with environmental issues affecting its interests is much greater than in the past. To understand Australian environment and related issues, it is important to study the geographical and geo-morphological development of Australian landmass. Occupying an entire continent of some 7.6 million square kilometres, Australia is the sixth largest country in the world. Australia has a very unique ecology due to its geographical position between Antarctica and Asia. About 96 million years ago the Australasian plate (comprising Australia, New Zealand and islands in the Pacific) had broken off from the Antarctic and moved towars the equator, thus escaping the ice-age cooling effect which South America went through. This is what explains the different species of flora and fauna of Australia which are survivors of the pre-ice age and did not undergo any mutation.

This unit explains the importance of Australia's bio-diversity and examines the kinds of environmental movements and campaigns in Australia and the legislations passed by the Australian Government to manage and protect its environment.

Australia is the least forested country in the world after Antarctica. Only about 21 per cent of its land area is forest area. The *National Forest Inventory of Australia* defines as "an area dominated by trees having usually a single stem and a mature or potentially mature height exceeding two metres and with existing or potential crown cover of overstorey about equal to or greater than 20 per cent." This covers even seedlings in plantation forests! Due to its dry and arid environment, forest fires are very common.

Australia's National Forest Inventory has classified forests into nine types: Acacia, Callitris, Casuarina, Eucalypt, Mangrove, Milaleuca, Rainforest, Plantation, and other forests (minor forest types which are too small to map)

Australia is one of the most diverse countries on the planet and so remains rich in its variegated but unexplored biodiversity wealth. Its ocean territory is the world's third largest, spanning three oceans and covering around 12 million square kilometres. Nearly seven million square kilometres or 91 per cent of Australia is covered by vegetation.

It is home to many animals not found anywhere else in the world like Marsupials such as Kangaroos and Koalas. Marsupials colonised the land mass before it was cut off by the sea from the rest of the ancient continent of Gondwanaland, and so they developed in a region relatively free of predators. Koalas, kangaroos, possums, wallabies and wombats are all marsupials. Animal families such as Macropods, Monotremes, and Cassowaries are endemic to Australia. It is home to more than one million species of plants and animals, many of which are found nowhere else in the world. About 85 per cent of flowering plants, 84 per cent of mammals, more than 45 per cent of birds, and 89 per cent of inshore, freshwater fish are unique to Australia. At least 2700 non-native (introduced) plants have established populations in Australia. Sixty eight per cent of these introduced plants are considered a problem for natural ecosystems. (Ministry of Environment Report, Australia)

Off the northeast coast of Australia is the Great Barrier Reef, which is over 1,200 miles of coral. It has developed over the last million years, and is now the largest living structure in the world. It is home to many sharks and thousands of different types of tropical fish. Australia's marine environment is home to 4 000 fish species, 500 coral species in the northern reefs alone, 50 types of marine mammal and a wide range of seabirds. It is estimated that as many as 80 per cent of marine species found in Southern Australian waters occur nowhere else.

Australia's rich biodiversity has survived despite ice age cooling because as has been stated earlier, ice age cooling on this sub-continent was much less than the rest of the world as it moved towards the equator; there was no much competition in terms of survival of the species of flora and fauna because of its relative isolation from the other continents and also because of the richness of soil nutrients which led to 'innovative co-evolution'.

14.2 OBJECTIVES

After studying this unit, you shall be able to:

- analyse the Australia's environmental policy and concern for the protection of environmental and ecological impact of economic development;
- comprehend the geographical and geo-morphological aspects of Australia's landmass, Australia's bio-diversity, environmental movements and legislative measures taken by the Australian Government to protect its environment;
- understand the provisions of the Environmental protection and biodiversity Conservation Act, 1999 which came into cooperation in 2000. The Act has provided for the establishment of an improved framework for maintaining wetlands in the form of Australian Ramsar Management principles;
- analyse steps taken by Australia to manage its problems relating to energy conservation, and renewable energy resources;
- highlight Australia's measures to protect its Biodiversity, as massive destruction of biodiversity has taken place including the most immediate threat biodiversity such as 'salination of land', commercial uses of unique animals of Australia; and
- discuss Australian Environmental Movements in the different regions of Australia.

14.3 ENVIRONMENTAL LEGISLATION IN AUSTRALIA

Australian government has manifested awareness to the dangers that it faces in environmental protection activities. Issues related to plant protection, invasive species to urban air quality, pollution and climate change have all been dealt with in a knowledgeable manner. In a globalizing world it is important to have a competitive edge in industrial production and so it is within Australia's national interest to use nature's resources in an environmentally sound and sustainable manner.

There is now a better understanding of the impact on environment caused by pressures of population growth, industrial development, technological change and rising standards of living in richer countries and poverty in developing countries. These pressures raise fundamental questions about sustainability of much human activity. There has been a switch from environment being a separate issue to it being incorporated into a wide range of international activity. Internationally, it has meant that virtually all international organizations like United Nations and WTO are dealing with environment instead of only specific or specialized institutions.

14.3.1 Australia's Commitment to Global Environmental Initiatives

Australia is party to several international environmental initiatives and has ratified many of them, such as International Convention on Regulation of Whaling. 1946, Washington, Convention on Protection of World Cultural and Natural Heritage, 1972, Paris, Convention on the Conservation of Antarctic Living Marine Resources, 1980, Canberra, Convention on Biological Diversity, 1992, Rio de Janeiro, and United Nations Convention on Climate Change, 1992, New York.

Australia enacted the Environment Protection and Biodiversity Conservation Act in 1999 in accordance with the Biodiversity Convention of 1992 at Rio. The legislation attempts to coordinate National, State and Territory measures to protect the environment, providing for Commonwealth leadership, while still respecting State and Territory authority. Australia also agreed to limit its greenhouse gas emissions to 8 per cent above 1990 levels by 2008-2012 in accordance with Kyoto (Japan) agreement of 1997. Some States like that of New South Wales have gone ahead to pass local legislation requiring retailers to cut emissions to 5 per cent below 1990 levels by 2007. Australia has also been instrumental in bringing down an initially intractable United States to conclude a U.S.-Australia Bilateral Climate Agreement in March 2002 to jointly investigate ways to achieve the two countries' Kyoto greenhouse gas emissions goals.

14.3.2 Environmental Protection and Biodiversity Conservation Act, 1999

The *Environment Protection and Biodiversity Conservation Act, 1999* which came into force in July 2000 has been an important landmark in the history of Australian environment. It not only established a legislative framework that allows the Commonwealth to manage environmental protection through an assessment and approvals process but also formalised the onerous task of species and site listing, recovery and management planning.

The EPBC Act provides for:

- identification and listing of Threatened Species and Threatened Ecological Communities;
- development of Recovery Plans for listed species and ecological communities;
- recognition of Key Threatening Processes; and where appropriate
- reducing these processes through Threat Abatement Plans.
- allows for the development of a Register of Critical Habitat.
- provisions for the public nomination of species and ecological communities for listing.
- Nominations are assessed by the Threatened Species Scientific Committee.

This Act has a significant impact on matters of National Environmental Significance (NES). Most of such matters would now be required to undergo an assessment and approvals process. Such issues include Ramsar wetlands and The Australian Ramsar Management Principles (ARMPs) have been developed under regulations to help guide the management of Ramsar wetlands. Migratory species listed under international treaties such as the Australian agreements with Japan (JAMBA) and China (CAMBA) and the Bonn Convention would now be protected and the protection would be monitored. State Governments have their own Environmental legislation and information can be found through their homepages listed.

Permits are required under the EPBC Act for:

- certain activities in Commonwealth reserves
- activities that affect listed species or communities in Commonwealth areas
- cetaceans in Commonwealth waters and outside Australian waters
- the import and export of wildlife
- activities involving protected species in the Territories of Christmas Island, Cocos (Keeling) Islands and Coral Sea Islands

14.3.3 Biodiversity Conservation Provisions

Under its biodiversity conservation provisions, the Act establishes an improved framework for managing Ramsar wetlands in the form of the *Australian Ramsar management principles.* These principles are intended to promote national standards of management, planning, environmental impact assessment, community involvement, and monitoring, for all of Australia's Ramsar wetlands in a way that is consistent with Australia's obligations under the Ramsar Convention.

The EPBC Act requires the Commonwealth Environment Minister to prepare a written management plan for Ramsar wetlands that are entirely within Commonwealth areas. For Ramsar wetlands that are wholly or partly within in a State or Territory, the Commonwealth must use its best endeavours to prepare and implement a management plan in cooperation with the State or Territory.

14.3.4 Action Plans and Conservation Overviews

Action plans and conservation overviews are major documents that have been produced by the Department since the commencement of the Endangered Species Program in 1989.

These are strategic documents undertaken by scientists to review the status of a defined group of related organisms (e.g. birds, fish). They review the conservation status of major Australian taxonomic groups against IUCN categories, identify threats and recommend actions to minimise those threats. Action plans assist government and non-government organisations to establish national priorities for environmental conservation programmes.

14.3.5 Hazardous Waste Act, 1996

It regulates the export and import of hazardous waste to ensure that hazardous waste is disposed of safely so that human beings and the environment, both within and outside Australia, are protected from the harmful effects of the waste.

The original Act of 1989 only controlled movements of wastes that lacked financial value, usually destined for final disposal operations (for example, by incineration or landfill). In 1996, the Act was amended to include wastes that possess financial value, usually destined for recycling and recovery operations. These amendments enabled Australia to meet all of its obligations under the Basel Convention.The Act requires that a permit be obtained before hazardous waste is exported from Australia or imported into Australia.Waste brokers are particularly kept under the surveillance of this Act.

14.3.6 Environment and Heritage Legislation Act, 2003

The Federal Parliament passed new heritage legislation in September 2003 which identifies, conserves and protects places of national heritage significance, provides for the identification and management of Commonwealth heritage places, and establishes an independent expert body to advise the Minister on the listing and protection of heritage places. This legislation is comprised of three Acts; Environment and Heritage Legislation Act, 2003, Australian Heritage Council Act 2003 and Australian Heritage Council (Consequential and Transitional Provisions) Act, 2003. The first Act brings about amendments and modifications to the EPBCAct and establishes a new heritage regime for Australia. It also helps listing of heritage sites. The second Act replaces the Australian Heritage Commission and sets in the structure and procedures for Australian Heritage Council. The third Act provides for a smooth transition from an old heritage regime to a new one.

14.3.7 Ozone Protection and Synthetic Greenhouse Gas Management Act, 1989

This Act controls the manufacture, import and export of all ozone depleting substances (ODS) and their synthetic greenhouse gas (SGG) replacements. It also grants the Commonwealth the power to create a system in accordance with national requirements to control green house gas emissions.

14.3.8 Renewable Energy (Electricity) Act, 2000

The mandatory renewable energy target (MRET) as undertaken under the Kyoto obligations is implemented through Renewable Energy (Electricity) Act 2000 and Renewable Energy (Electricity) (Charge) Act 2000.The legislation establishes the framework for the MRET including renewable energy targets, which must be achieved over the period 2001 to 2020, liability requirements, and outlines eligibility requirements for renewable energy sources and power stations. In December 2005, these regulations have been further modified and amended to classify objectives and priorities of this legislation.

14.3.9 Environment Protection (Sea Dumping) Act, 1981

This Act takes into account all aspects of sea dumping or all forms of waste disposal in sea of Australia. This is regulated through the International convention called London Dumping Convention of 1972 which prohibits all forms of waste disposal and marine pollution.This convention has been amended in 1980 and 1993 for the protection of marine life from dumping and incineration. Australian commitment to this international convention is manifested in Environment Protection (Sea Dumping) Act, 1981, Environment Protection (Sea Dumping) Regulations and Sea Installations Act, 1987.

14.4 MANAGING INTERNAL ENVIRONMENTAL PRIORITIES

14.4.1 Energy Conservation

Coal comprised approximately 44 per cent of total primary energy consumption, followed by oil (35 per cent) and natural gas (17 per cent). Coal combustion is a major source of both local pollution and greenhouse gases. For example, coal combustion is responsible for about 50 per cent of Australia's carbon emissions. Emissions of carbon dioxide and other greenhouse gases are somewhat regionalized in Australia. Queensland is home to the country's worst greenhouse gas polluters. Between 1990 and 1995, energy-related greenhouse gases increased 23.4 per cent in Queensland, compared to the national average of 11.8 per cent. In September 2001, the government announced the Queensland Renewable Energy Pumping Scheme (REPS), which offers rebates to investors in Queensland's renewable energy sector for necessary equipment. The program is expected to have a significant impact on the state's solar power industry. On the other hand, Tasmania is the only state or territory where energy requirements are met almost entirely by hydroelectric power, a non-greenhouse gas emitting energy source. Australian coal mines have started using methane-powered gas turbines to reprocess waste coal and to provide up to 100 MW of electricity per mining site to area homes. This is slated to improve the efficiency of coal mines by more than 55 per cent, and also capture methane, a greenhouse gas.

Australia ranks ninth among countries of the Organization for Economic Cooperation and Development (OECD) for per capita energy consumption. It ranks third among OECD countries for per capita energy-related carbon emissions. In 2000, Australians consumed 255 million Btu per person, compared to 425 million Btu per person in Canada and 351 million Btu per person in the United States. Yet, Australians emit relatively more carbon per capita annually than many other OECD countries due to the fact that it is a coal dependent economy. Thus it has a threateningly high carbon emission rate which was the third highest (16.95 metric tons per person) after Luxembourg and the United States (emitting 17.2 metric tons and 20.5 metric tons respectively). However if statistics included total greenhouse gas emissions, as opposed to only energy-related emissions, then Australia would have the highest per capita carbon emissions in the developed world.

14.4.2 Conversion to Renewable Energy Resources

Considering the high pollution rate due to a coal dependent economy promotion of 'Renewable energy' is often a viable alternative in remote areas of Australia, such as parts of Tasmania, Western Australia and the Northern Territory, that do not have access to the main electricity grids. Australian government started a 'Renewable Remote Power Generation Program' and 'Photovoltaic Rebate Program' in July 2000, for providing high subsidies and financial support for conversion to renewable energy resources and technologies of generator sets and photo-voltaic systems.

Since agriculture contributes up to 22 per cent of total greenhouse gas emissions government is becoming aware of the utilization of biomass as an alternative to chemical fertilizers. This could not only could provide a use for many agricultural wastes, but also could encourage tree plantings which would help provide relief for areas experiencing erosion.

Wind energy is a very important renewable resource since Australia has a long coastline and a terrain which suits installation of windmills. Thus Australian Wind Energy Association has pledged to increase the country's wind power generating capacity from 72 MW in 2001, to 5,000 MW by 2010. In July 2001, Pacific Hydro Ltd. opened Australia's largest wind farm in Codrington, Victoria. Renewable energy currently provides about 5 per cent of Australia's electricity generation, with further increases depending partially on pending legislation that would require electricity suppliers to source an additional 2 per cent of their electricity from renewable energy by 2010.

The Alternative Fuel Conversion Program of Australian government will provide up to a 50 per cent grant to companies willing to convert specified portions of their fleet from gasoline fueled vehicles to vehicles operating on compressed natural gas (CNG) or liquefied petroleum gas (LPG). The target is to convert commercial vehicles to alternative fuels by 2015. Government has also planned a $900-million measure to facilitate a greener Australia in the 21st Century. Yet several important environmentally sound fuel supply programmes

are pending such as North West Shelf expansion, Gorgon gasfield development, Bayu Undan, PNG Gas Pipeline, Methanex's Syngas facility in Darwin and Duke Energy's Bass Strait Pipeline due to Australian government's lack of consensus on taxation and environmental issues.

14.4.3 Biodiversity Protection

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 is one of the most radical attempts since the 1970s to protect biodiversity in Australia. This Act lays down commitment of Commonwealth leadership on environmentally sustainable development along with States.

Some of the major and immediate threats to biodiversity in Australia is a loss of habitat or destruction of ecological niche for most plant and animal varieties. Australia's State of Environment Report discusses the following losses that have occurred in the last two hundred years;

- 75 per cent of rainforests and nearly 50 per cent of all forests;
- over 60 per cent of coastal wetlands in southern and eastern Australia;
- nearly 90 per cent of temperate woodlands and mallee;
- more than 99 per cent of south-eastern Australia's temperate lowland grasslands;
- over 83 per cent of Tasmania's lowland grasslands and grassy woodlands;
- about 95 per cent of brigalow scrub that originally grew in Queensland;
- over 90 per cent of Victoria's grasslands.

The most immediate threat to biodiversity presently is 'Salination' of land. Salination is the build-up of salt within the soil. Salination could devastate up to 12 million hectares of land during the coming century and already costs the country at least $500 million a year in Victoria alone.

Second major threat comes from commercial uses of unique animals of Australia. Even though Australia has been harvesting some of its rare animals for commercial purposes to control their overpopulation and overcrowding yet there is a fear of the market overtaking the need for their conservation. For example possums were killed for furs to be sold in international markets especially in China and other neighboring Asian countries. In 1970s more than two to four lakh possums were killed for fur. When the fur market went down in 1990s the number of possums killed also came down to 30,000 and later in 1996 to 10,000.

About three million kangaroos are harvested each year in the wild by professional marksmen, and the harvest is closely monitored every year by wildlife agencies in each State. The number of license tags issued is based on 15 – 20 per cent of the current regional population. The international Union for the Conservation of Nature (IUCN) recognises the conservation benefits that can be gained through sustainable commercial use of wildlife.

Crocodile farming in Australia is situated in the warmer sub-tropical/tropical regions from Rockhampton in Queensland through the Northern Territory and down to Fremantle in Western Australia. It is possible to rear crocodiles to harvest size under controlled environmental conditions almost anywhere in Australia.

14.5 ENVIRONMENTAL AGENCIES IN AUSTRALIA

14.5.1 Department of the Environment and Heritage

The Department of the Environment and Heritage (DEH) is the main national agency to focus on issues of environment. It is headed by an Environment Minister and its major role is to advise and administer environmental laws and regulations including environmental heritage. It also represents the government in international environmental agreements.

DEH also has a major role in Ministerial councils, forums and committees.

14.5.2 Ministerial Councils

Ministerial Councils facilitate consultation and cooperation between governments, develop policy jointly, and take joint action to resolve issues which arise between governments in the Australian Federation. Some of the important Ministerial Councils are as follows:

- Environment Protection and Heritage Council (EPHC)
- Ministerial Council on Energy (MCE)
- National Environment Protection Council (NEPC)
- Natural Resource Management Ministerial Council (NRMMC)
- Primary Industries Ministerial Council

Australia and New Zealand jointly operated a conservation council between 1991 to 2001 which was called the Australian and New Zealand Environment Conservation Council. After 2001 this was replaced by EPHC and NRMMC.

14.5.3 Ministerial Forums

Ministerial forums are generally coordinating and integrating bodies for environmental programme implementations. These forums are area specific such as Fossil Mammal sites, Rainforest reserves, Frase Island, Great Barrier Reef, Lake Eyre Basin, Macquarie Island, Murray Darling Basin and Tasmanian Wilderness etc.

14.5.4 Local Level Environmental Agencies

Throughout Australia, environment and heritage issues are also managed by other levels of government in states and local levels. Much of the work under these agencies fall under Local Agenda 21 (LA21) constituted to implement sustainable development at local levels committed by the Australian government during the UNCED Meet at Rio in 1992 under Agenda 21.

Chapter 28 of Agenda 21 identifies local authorities as the sphere of governance closest to people and thus most suitable for implementing policies of sustainable development. In 1997 when Asia-Pacific Cooperation (APEC) Ministers for Sustainable Development planned to double local councils by 2003, Australian government decided to launch its LA21 Programme.

Besides this, a National Local Leaders in Sustainability Forum (LLISF) was established in 1999 with support from DEH Australia. The Forum provides leadership on local sustainability issues, facilitates communication and partnerships and monitors progress in local sustainability. Development of a local sustainability assessment framework emerged as one of the key recommendations of this Forum.

14.5.5 Threatened Species Scientific Committee

This Committee is established under the Environment Protection and Biodiversity Act, 1999. Its main task is to advise the Minister of Environment and Heritage, update list of threatened species and draw out recovery plans for the country's environmental regeneration. It also helps in drawing conservation plans and data to assist conservation agreements.

14.6 AUSTRALIAN ENVIRONMENTAL MOVEMENTS

14.6.1 Significant Movements Sites

A study of environmental movement in Australia should begin from a study on the location of these movements in certain regions which represent ecologically fragile life support systems for both animal and plant life. Starting from Western Australia near Sterling ranges and South West Forests is a hotbed of environmental

campaigns. Uranium Mining in the uppermost northern tip of Northern Territory near Darwin, the long coastal stretch of Daintree wet tropics facing the great barrier reef in Queensland, Blue Mountains and Mt. Colong near Sydney in New South Wales, East-Gippsland Forests and Little Desert National Park in Victoria, near Flinders Chase National Park in South Australia and lastly the South West Tasmanian region around Gordon river and Lake Pedder in Tasmania. It would be interesting to look into these ecological hotbeds of Australian environmental movements in the map of Australia.

There are a few issues that emerge out of these regional spread of environmental movements:

Firstly, these movements are a form of social protest. Indigenous people are usually more environment sensitive as compared to industrialized societies but 'without an element of contestation they do not constitute movement protest activity'. (Hutton, Drew, & Connors, Libby, 1999:6, Cambridge University Press).Yet their joining the progressive movements has strengthened the environmental movement in particular zones.

Secondly, environmental movements in Australia have grown with women's movement which kept 'domination at the heart of the emancipatory project and its activists as missionaries.' To quote a sentiment expressed in early environmentalist writings of Dudley Le Souef of Australian Ornithologists Union in 1907, 'The wild birds do not belong to us to treat as we like'. Early environmental movements were largely supported by women such as Elizabeth Gould, Jessy Hussey, Caroline Atkinson and Ellis Rowan.

Third, early environmental movements were conservation driven and were largely reformists such as the nineteenth century Melbourne conservationists, or Victoria's national Park protests were movements without 'institutional order'(Sandra Bardwell (1974) National Parks in Victoria 1866-1956 "For all the people for all the time" Phd Thesis, Department of Geography, Monash University). Even Verity Burgmann's study (*Power and Protest: Movements for Change in Australian Society*, Allen and Unwin, Sydney, 1993, pp.187-188) points out their lack of 'ability in social transformation'.

Fourth, there has been an element of social justice at the heart of every movement to raise a moral critique of the State policies. Thus as early as 1871 one can find the idea of inter-generational equity in the works of Ferdinand von Miller when he raises an emotional defence of native forests.

Fifth, regional dottings for environmental movements of Australia are only a reflection of what was happening in the rest of Australian colonies. Every colony sustained a Royal Society (RS) or a Natural History Society (NHS) for scientific conservation programmes. Western Australia's Natural History Society was formed under William Robinson in 1891. South Australian Society under A.F.Robin with their intensified efforts claimed a flora and fauna reserve between Pinjarra and North Dandalup and Bannister River in 1894. Timber cutting was banned from here in 1898. In 1910 John Hay from NHS in Western Australia campaigned for a reserved area in Sterling Ranges. Queensland RS was established in 1883 and it reactivated campaigns for Queensland national parks and when one of the local pastoralist J.T.Bell became Minister for lands he got a legislation passed for National Parks and State forests. However it was Romeo Lahey's several years of consistent campaigning that Lamington National Park was declared in 1915 in McPhersons. RS of New South Wales was instrumental in bringing about Bird Protection Act in the State. RS of Tasmania campaigned for a large number of reserves and Russell Falls near Mount Field became one of the most popular of campaigns in 1885. Victoria's RS campaigned for Wilson's Promontory as a National Park, Alfred National Park and Sperm Whale Head National Park under the leadership of Baldwin Spencer. RS of South Australia emerged as one of the most consistent campaigners of environmental conservation issues and with great effort got Baldwin National Park gazetted.

Sixth, Australian environmental movement also contained soil and water conservation issues, land use and irrigation policies involving dams and river catchments. However, in the early stages this was a weak incorporation in environmental campaigning.

14.6.2 Environmental Movements of 1990s

In the globalizing decade of 1990s environmental movements in Australia began with a strong environmental agenda for challenging the dominant developmental paradigm. It took part in the ecologically sustainable

development (ESD) process with the government after 1990 election. This period saw that Labor Government acceded to most of the Green demands which made the elite uncomfortable in Australia. The Climate Change Conference at Kyoto and the balancing of rapid economic growth along with environmental requirements also led to a downturn in the movement. Some issues which dominated the movements are the following;

14.6.3 Energy Efficiency

At the peak of the controversy on inefficient use of energy before the U.N. Intergovernmental Panel on Climate Change Greens Senator Bob Brown criticized Howard Government for its hypocritical and deceptive pleas as instead of reducing greenhouse gases it has only sidelined the issue through its transport and urban planning policies. In Perth, Brisbane, Melbourne and Queensland people's groups were fighting against Freeway extensions and energy efficient transport options.

14.6.4 Mining and Wilderness Areas

Initially environmental movements focused upon mining areas in small regions such as mineral sand and Uranium mining. These campaigns were very bitter when they involved wilderness areas such as Kakadu & Fraser Islands.Australian Conservation Foundation published a major report entitled '*Mining and Ecologically Sustainable Development*' in 1994 which provided protection to aboriginal rights and environmental regulations of such mining processes. Environmental Campaigners also raised bogey against irresponsible companies such as BHP at Ok Tedi in Papua and New Guinea, and some major mining projects such as MIM's Lead Zinc mine at Mc Arthur river and Earnst Henry Zinc Project near Cloncurry Queensland. This was also the time when Criminal Justice Court in Australian States became more vigilant to protect mining companies consistent and powerful lobbying to enter forest areas.

14.6.5 Genetic Engineering

This campaign has a hard core leader in Australia Bob Phelps coordinator of Gen-Ethics Network yet it is ironical how the industry and Trans national genetic engineering companies overtook the environmental campaigners in Australia. After the election of 1990, an enquiry into the genetic engineering by the House of Representatives Standing Committee on Industry, Technology and Commerce suggested a national legal framework for its implementation. The Federal Government did not accept one of its recommendations on community participation and also kept it outside the Commonwealth Environmental Protection Agency. A new agency called Genetic Manipulation Authority was created under the Ministry of Industry, Technology and Regional Development. This area of environmental distress was strongly and cleverly pulled outside environmental campaigners.

14.6.6 Biodiversity Campaigns

One of the most powerful outcomes of the campaigns of 1980s was the 'World Heritage areas'. In 1990s these came under severe threats. Keating government hesitatingly slowed work on them but the conservative Howard government stalled most of them after 1996. Thus Campaigns focused on listing Blue Mountains, Lake Eyre basin, Tarkine in Tasmania and Cape York in Queensland. Australian Conservation Foundation and The Wilderness Society along with Aboriginal Groups chalked out issues such as ownership of land, impact of dislocation on aboriginal people, compensation and claims under Native title legislation for working out a more sustainable forest use policy.

14.7 SUMMARY

Australian environment is unique and a home to world's rare species of Marsupials, Macropods and Monotremes. This uniqueness of Australian fauna and flora is due to its location in the Australasian region. **Australasia** is a term variably used to describe a region comprising of Australia, New Zealand and neighbouring islands of the Pacific. It is the oldest region of the world it is rich in biodiversity but its soils and seas are

among the most nutrient poor and unproductive in the world. Only six per cent of the Australian landmass is arable. One third of the continent produces almost no run-off at all and Australia's rainfall and stream-flow are the most variable in the world. The Native Australians, or Aborigines, have lived in Australia for at least 40,000 years. The backbone of Australia is the Great Dividing Range. It stretches for more than 4,000 km from Cape York in the far north, to Victoria and Tasmania in the south. The mountains in the north contain many rainforests fed by high rainfall and wide rivers. The southern end of the range lies in the cool temperate zone having low mountain ranges. The highest mountain, Mt Kosciusko, is a meagre 2,330 meters. More than three-quarters of Australia is arid, harsh and inhospitable wilderness. There are six major deserts – the Great Sandy, the Gibson, the Great Victorian, the Tanami, the Simpson and Sturt's Stony Desert.

Australia is one of the most diverse countries on the planet and so remains rich in its variegated but unexplored biodiversity wealth. Nearly seven million square kilometres or 91 per cent of Australia is covered by vegetation. Its ocean territory is the world's third largest, spanning three oceans and covering around 12 million square kilometres. Some of the strongest Whale saving expeditions have begun from Australia.

Australia ranks ninth among countries of the Organization for Economic Cooperation and Development (OECD) for per capita energy consumption. It ranks third among OECD countries for per capita energy-related carbon emissions. In 2000, Australians consumed 255 million Btu per person, compared to 425 million Btu per person in Canada and 351 million Btu per person in the United States. Yet, Australians emit relatively more carbon per capita annually than many other OECD countries due to the fact that it is a coal dependent economy. Thus it has a threateningly high carbon emission rate which was the third highest (16.95 metric tons per person) after Luxembourg and the United States (emitting 17.2 metric tons and 20.5 metric tons respectively).

Australia is party to several international environmental initiatives and has ratified many of them. The *Environment Protection and Biodiversity Conservation Act, 1999* which came into force in July 2000 has been an important landmark in the history of Australian environment. It not only established a legislative framework that allows the Commonwealth to manage environmental protection through an assessment and approvals process but also formalised the onerous task of species and site listing, recovery and management planning.

Australian environmental movements have worked in collaboration with Australian Conservation Foundation, The Wilderness Society and aboriginal groups. While they started in the early 20th century as reformists and promoters of reserves led by Natural Heritage and Royal societies in every State, yet the movement became more belligerent as the Green Party and Greenpeace started influencing political parties and demanded participation in every environmental deliberation at the national and international level. While they could retain the right of community participation in other environmental bodies they were kept out of Genetic Engineering decisions which were pushed under the Ministry of Industry, Technology and Commerce rather than the Environmental Agency of the Commonwealth.

14.8 EXERCISES

1) What are the different types of forests in Australia and how are they managed?

2) What makes Australia one of the most unique countries in terms of its biodiversity?

3) How is Australia protecting its environment? What steps have been taken by the government to do so?

4) Write a short note on the steps taken by the Australian government towards energy conservation.

5) What are the threats to biodiversity in Australia?

6) Give a brief account of the national agencies that focus on issues of environment.

7) What are the different kinds of movements that have supported environment conservation in Australia?

14.9 SUGGESTED READINGS

Environment Australia, (1996) 'State of the Environment - Australia', CSIRO Publishing, Melbourne.

Environment Australia, (2003) 'State of the Environment - Australia', CSIRO Publishing, Melbourne.

Australia State of Forest Report 2003 at http//www.brs.gov.au/stateeoftheforests

Johnson, Christopher, (2005) ANTHROPOLOGY: The Remaking of Australia's Ecology,*Science* 8 July .

Hutton, Drew, & Connors, Libby, (1999) *A History of Australian Environmental Movement,* Cambridge University Press, Melbourne.

Bardwell, Sandra (1974) National Parks in Victoria 1866-1956 "For all the people for all the time" Phd Thesis, Department of Geography, Monash University.

Burgmann, Verity (1993) *Power and Protest: Movements for Change in Australian Society,* Allen and Unwin, Sydney.

Esty, D. (1994), *Greening the GATT: Trade, Environment and the Future*, Washington: Institute for International Economics.

Lipschutz, R. and K. Conca (1993), *The State and Social Power in Global Environmental Politics*, New York: Columbia University Press.