CITES AND CBD IMPLEMENTATION IN INDIA:

COMPLEMENTARITIES, CURRENT IMPLEMENTATION STATUS AND FUTURE CHALLENGES





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"He is closest to God who harms no living creature."

Bhagavad Gita

Abstract

India is one of the 17 megadiverse countries of the world. With only 2.4% of the world's land surface, it harbours about 8% of the known global biodiversity. This rich biodiversity is due to the existing diverse ecological habitats: forests, grasslands, wetlands, coastal and marine and desert. Similar to other developing countries, India faces the challenge of developing at a rapid pace while maintaining its unique biodiversity and natural resources on which more than a billion people depend for their basic needs. Furthermore, India, in this last decade, has achieved impressive economic development and growth, which are impacting in many different ways on its biodiversity resources. These changes sometimes are negative to the survival of many species and habitats, and, consequently, merit critical analysis. Such analysis should be undertaken in light of the international instruments available to assist India in using sustainably its rich and unique biodiversity.

This international framework of multi-lateral instruments refers to the many multilateral environmental agreements (MEAs) ratified by most countries. These MEAs aim to preserve environmental health, natural resources and the rich biodiversity of the world. The Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on the Conservation of Migratory Species of Wild Animals (CMS), Convention on Wetlands of International Importance (Ramsar Convention), International Convention for the Regulation of Whaling (ICRW), etc. are some of the major agreements with global implications and impact on both national and global conservation regimes.

CITES and the CBD are two major international agreements on which the future conservation and sustainable use of biodiversity depends on and draws guidance from. While these two biodiversity related agreements have independent origins, development history, scope and modalities, they address in their respective capacities the conservation of biological resources and, consequently, share common areas of work and responsibility. This overlap, both at the objective and implementation stages, suggests potential synergies and possible joint implementation for addressing regional and country-specific biodiversity conservation strategies. In light of the above, this thesis identifies possible synergies between the CBD and CITES in the context of implementation in India to assist efforts aiming to develop more coherent policies to address the loss and unsustainable use of biodiversity. This thesis also analyses the current implementation status of CBD and CITES and the challenges of biodiversity conservation in India, with particular reference to CBD and CITES.

Resumen

La India es uno de los 17 países megadiversos del mundo. Con tan solo un 2,4% de la superficie terrestre del mundo, alberga alrededor de un 8% de la biodiversidad global conocida. Esta abundancia se debe a la variedad de sus diversos hábitats ecológicos: bosques, praderas, humedales, zonas costeras y marinas, y desiertos. Como otros países en vías de desarrollo, la India se enfrenta al desafío de conjugar un rápido desarrollo y conservar sus recursos naturales y su biodiversidad única, de la que dependen más de un billón de personas para cubrir sus necesidades básicas. El impresionante ritmo de crecimiento económico que ha caracterizado la estrategia de desarrollo de la India en la última década está afectando esta biodiversidad, generalmente de forma negativa en lo que respecta a la supervivencia de numerosas especies y sus hábitats, y por lo tanto merece un análisis crítico que se enmarcará, en este trabajo, en el contexto de los instrumentos internacionales que existen para ayudar a la India a utilizar de forma sostenible su abundante biodiversidad.

El referente internacional son los múltiples Convenios Multilaterales Medioambientales que ha acordado la inmensa mayoría de países a nivel mundial con el objetivo de preservar la salud medioambiental, los recursos naturales, y la rica biodiversidad del mundo. El Convenio de Diversidad Biológica (CDB), el Convenio sobre Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres (CITES), el Convenio sobre la Conservación de Especies Migratorias (CSM), el Convenio Relativo a los Humedales de Importancia Internacional (el Convenio Ramsar), el Convenio Internacional para la Regulación de la Caza de las Ballenas, etc., son algunos de los principales acuerdos con una implicación e impacto globales en regímenes nacionales y globales de conservación.

Los convenios CITES y el CBD son dos de los principales acuerdos internacionales de los que depende la conservación futura y el uso sostenible de la biodiversidad. Aunque independientes en su origen, historia, ámbito, y alcance, ambos se ocupan de conservar la viabilidad de los sistemas biológicos del planeta y sus especies, y por lo tanto comparten campos comunes. El solapamiento de estos acuerdos relacionados con la biodiversidad, tanto en la fase de implementación como en sus metas y objetivos, proporciona un ámbito de sinergias potenciales y una posible implementación conjunta que puede mejorar los resultados de políticas de conservación de la biodiversidad. Esta tesis también analiza la actual situación de la implementación de ambos convenios y los retos que tiene la India para conservar sus recursos biológicos en el contexto de estos dos instrumentos.

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(While the rest of this thesis represents mainly intellectual work, this section comes straight from my heart…)

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LIST OF ABBREVIATIONS AND ACRONYMS

ABS	:	Access and Benefit Sharing
ACP	:	African-Caribbean-Pacific
AICOPTAX	:	All India Coordinated Project on Capacity Building in Taxonomy
AIP	:	Anchor Investment Projects
AMA	:	Assistant Management Authority
BLG	:	Liaison Group of the Biodiversity-related Conventions
BMC	:	Biodiversity Management Committee
BSI	:	Botanical Survey of India
CAWT	:	Coalition Against Wildlife Trafficking
CBD	:	Convention on Biological Diversity
CCA	:	Community Conserved Area
CITES	:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CITES-MA	:	CITES Management Authority
CITES-SA	:	CITES Scientific Authority
CMFRI	:	Central Marine Fisheries Research Institute
CMS	:	Convention on the Conservation of Migratory Species of Wild Animals
CoP	:	Conference of Parties
CPR	:	Common Property Resources
CS	:	Conservation and Survey
DCF	:	Deputy Conservator of Forests
DGFT	:	Director General of Foreign Trade
EMG	:	Environment Management Group of the United Nations
EPO	:	European Patent Office

EXIM	:	Export Import
FAO	:	Food and Agriculture Organisation
GDP	:	Gross Domestic Product
GEF	:	Global Environment Facility
GMO	:	Genetically Modified Organism
GTF	:	Global Tiger Forum
IBA	:	Important Bird Area
ICRW	:	International Convention for the Regulation of Whaling
IFGTB	:	Institute of Forest Genetics and Tree Breeding
IFS	:	Indian Forest Service
IPO	:	International Patent Office
ITC (HS)	:	International Trade Classification (Harmonizing system)
ITPGRFA	:	International Treaty on Plant Genetic Resources for Food and Agriculture
ITTO	:	International Tropical Timber Organisation
IUCN	:	International Union for Conservation of Nature and Natural Resources
JFM	:	Joint Forest Management
JIU	:	Joint Inspection Unit
LaCONES	:	Laboratory for Conservation of Species
MAB	:	Man and Biosphere (programme of the UNESCO)
MDG	:	Millennium Development Goal
MEA	:	Multilateral Environmental Agreement
MoEF	:	Ministry of Environment and Forests
MoU	:	Memorandum of Understanding
NBA	:	National Biodiversity Authority
NBPGR	:	National Bureau of Plant Genetic Resources

NBSAP	:	National Biodiversity Strategy and Action Plan
NBWL	:	National Board for Wildlife
NDF	:	Non-Detriment Finding
NGO	:	Non-Governmental Organisation
NTCA	:	National Tiger Conservation Authority
PA	:	Protected Area
PCR	:	Polymerase Chain Reaction
PIC	:	Prior Informed Consent
PPP	:	Purchasing Power Parity
RFLP	:	Restriction Fragment Length Polymorphism
SBB	:	State Biodiversity Board
TKDL	:	Traditional Knowledge Digital Library
TRAFFIC	:	The Wildlife Trade Monitoring Network
UN	:	United Nations
UNCHE	:	United Nations Conference on the Human Environment
UNEP	:	United Nations Environment Programme
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
UNFF	:	United Nations Forum on Forests
USPTO	:	US Patent and Trademark Office
UT	:	Union Territory
WCCB	:	Wildlife Crime Control Bureau
WEO	:	World Environment Organization
WHC	:	World Heritage Committee
WII	:	Wildlife Institute of India
WPA	:	Wildlife Protection Act
ZSI	:	Zoological Survey of India

Chapter 1

INTRODUCTION

1.1 India in Brief

The governance and management of a country's natural and biological resources is deeply integrated with and influenced by political, social, cultural and economic factors that impact on overall development. In this context, therefore, it is worthwhile to briefly survey the evolution and development of modern India, including discussion on its geography and rich and unique biodiversity.

India is one of the oldest civilizations in the world with a huge variety of landscapes, cultural heritage, languages, ethnicity and natural heritage. India's history and culture is dynamic and goes back to the beginning of human civilization. The history of India is defined by the constant integration of migrating cultures and people from various parts of the world. Evidence suggest that the use of iron, copper and other metals was widely prevalent in the Indian sub-continent at an early period. By the end of the fourth millennium BC, India had emerged as a region of highly developed civilization. In ancient times, people from all over the world were keen to come to India. This led to a series of foreign migrations and invasions, including those of Aryans from Central Europe, Persians, Iranians, Parsis, Moghuls etc. India faced a multiplicity of colonial invasions later in the last millennium including those of the French, Dutch, Portuguese and finally the British. The latter established colonies on the Indian subcontinent and ruled for nearly 200 years. British rule in India ended in 1947 after a struggle for freedom spanning a century.

India has seen rapid socio-economic progress since Independence. The country has become self-sufficient in agricultural production and is now one of the world's top industrialised countries, and a leading member of a group of emerging economies called the BRICS: Brazil, Russia, India, China and South Africa, all of which are rich in biodiversity resources. Recently, India has joined other countries in space exploration. As the seventh largest country in the world, India stands apart from the rest of Asia, marked off as it is by mountains and the sea, which make the country a distinct geographical entity.

Politically, India is a sovereign, secular and democratic republic formed by a union of States and Union Territories (UTs). India has a parliamentary system of

government. The President is the constitutional head of the country and is assisted by a Council of Ministers which represents the democratically elected representatives of the people and is led by the Prime Minister of India. Legislative power is vested in the government and the two chambers of the Parliament of India viz. the Lok Sabha of elected representatives of the people (Lower House) and the Rajya Sabha of elected representatives of States and UTs (Upper House). The Prime Minister holds the functional power of the governmental system of the country. In the States, the Governor, as the representative of the President, is the Head of Government. The government system in the States closely resembles that of the Union. The Chief Minister holds the political power in the State. Elections for Union and State Government take place within a multi-party system. The judiciary in India is independent of the executive and the legislature, the highest national court being the Hon'ble Supreme Court of India with various High Courts and lower courts set up to form a hierarchy of the judicial system. There are 28 States and 7 UTs in the country. From the largest to the smallest, each State/UT of India has its unique demography, history and culture, dress, festivals and language.

The Indian economy is a mixed one with elements of capitalism and socialism in a unique blend. Various sectors of the government including 'Forests and Wildlife' with other public services sectors are owned by Government or its subsidiaries. The Indian economy is the world's ninth largest economy by nominal GDP and fourth largest economy by purchasing power parity (PPP). Economic reforms in 1991 by the Indian Government led India into a phase of economic liberalization to make it one of the fastest growing economies in the world. However, while India is undergoing a rapid phase of development, it continues to face the challenges of poverty, illiteracy, corruption, healthcare, etc., like other developing countries. India is a nuclear power with the third-largest army in the world.

1.2 The Geography of India

India is the seventh largest country of the world with the second largest human population. Its surface area of 3,287,263 square kilometres is characterised by a variety of landscape, biological, anthropological and physical features. The country lies to the north of the equator between 8°4' and 37°6' latitude north and 68°7' and 97°25' longitude east. India measures 3,214 km (1,997 mi) from north to south and 2,993 km (1,860 mi) from east to west. It has a land frontier of

15,200 km (9,445 mi) and a coastline of 7,517 km (4,671 mi). Within these extremes, India has a diversity of geographical features which give rise to a variety of ecosystems and species. The country is bordered on to the southwest by the Arabian Sea, on the southeast by the Bay of Bengal, and on the south by the Indian Ocean. India is surrounded to the south by the island states of Maldives, Sri Lanka and Indonesia. The northern frontiers of India are defined mainly by the majestic Himalayas, where the country's political boundaries with China, Bhutan, and Nepal lie. It shares its western border with Pakistan on the plains of Punjab and the Thar Desert.

India can be divided into six physiographic regions. These are the Himalayan Mountains, Northern Plains, Great Indian Desert, Peninsular Plateau, Coastal Plains and Islands. There are twelve major rivers which cut across the plains of India in diverse directions. These rivers have a total catchment area exceeding 2,528,000 km^2. All major rivers of India originate from one of the three main watersheds viz. the Himalaya and the Karakoram ranges, the Vindhya and Satpura range in central India and the Sahyadri or Western Ghats in western India.

India is endowed with a rich variety of wetland ecosystems from the cold arid features of the Ladakh region in Jammu and Kashmir to wet humid features found in peninsular India. The mangrove area in India covers a total of 4,461 km^2, constituting 7% of the world's total mangrove area. Climate across India ranges from equatorial in the far south to alpine in the upper Himalayas. Based on the Köppen system, India has six major climatic subtypes, ranging from arid desert in the west, alpine tundra and glaciers in the north, and humid tropical regions supporting rainforests in the southwest and the island territories. The country experiences four seasons: winter (January–February), summer (March–May), a monsoon (rainy) season (June–September) and a post-monsoon period (October–December). The seasons vary in intensity and duration from one region to another. Temperatures can exceed 40°C (104°F) during the daytime in summer. The rain-bearing monsoon clouds are attracted to the low-pressure system created by the Thar Desert. Winter in peninsula India witnesses mild to warm days and cool nights. As we proceed north, the temperature decreases. The highest temperature recorded in India was 50.6°C (123.1°F) in Rajasthan in 1955. The lowest recorded was -45°C (-49 °F) in Kashmir.

Figure 1. Political Map of India

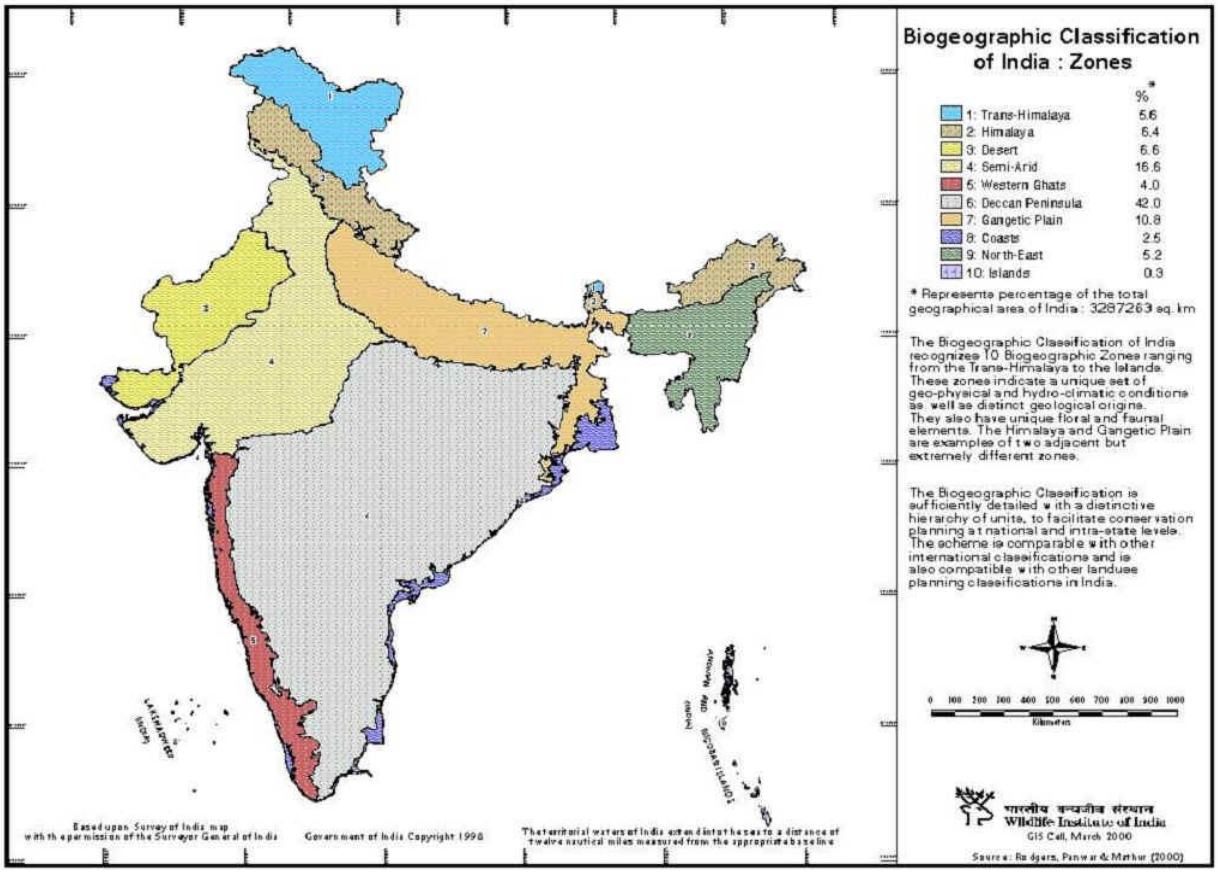
(Source: www.tcindia.com via www.google.com)

The Himalayan mountain range extending from west to east acts as a barrier to the frigid katabatic winds flowing down from Central Asia. The Tropic of Cancer passes through the middle of India, giving tropical characteristics to the central and southern landscapes and ecosystems.

1.3 Biodiversity profile of India

India is one of the 17 "megadiverse" countries of the world and contains in its geographical boundaries a diversity of ecosystems and ecological habitats such as forests, grasslands, mountains, wetlands, mangroves, deserts and marine ecosystems. India is home to the world's largest wild tiger population and has a unique variety of globally important endangered species such as the Asiatic lion, Asian Elephant, one-horned Rhinoceros, Ganges River dolphin, snow leopard, Kashmir stag, dugong, gharial, Great Indian bustard, lion-tailed macaque etc. Around 45,000 plant species (including fungi and lower plants) and more than 85,000 animal species have been described, including around 2,500 fish species, 240 amphibian species, 460 reptile species, 1,232 bird species and 397 mammal species. In terms of endemicity, 4950 species of flowering plants, 16,214 insects, 110 amphibians, 214 reptiles, 69 birds and 38 mammals are endemic to the country (Source: www.cbd.int, Country Profile-India).

Figure 2: Biogeographic Zones of India



(Source: www.wii.gov.in)

The biodiversity of India can be broadly explained in another way on the basis of Bio-geographical zonation of the country. There are ten biogeographic zones in India which have been further divided into 26 Biotic Provinces. The biogeographic zones in India are Trans-Himalaya, Himalaya, Indian Desert, Semi-arid, Western Ghats, Deccan Peninsula, Gangetic Plains, Northeast India, Islands and Coasts.

According to Vavilov's theory of the centres of origin of cultivated plants, the Indian centre (comprising of two sub-centres Indo-Burma and Siam-Malaya-Java) is recognised as one of the eight centres of the origin and diversity of crop plants, having more than 300 wild ancestors/relatives of cultivated plants.

1.4 Forest Resources

India has a rich forest resources base. As per the State of Forest Report 2011, published by the Forest Survey of India, the country has 78.29 million ha of forest and tree cover, which is 23.81% of the geographical area of India. A net increase in the 'Very Dense Forests' and 'Moderate Dense Forests' has been reported compared to the previous assessment in 2009 (assessment of Indian forests are carried out biennially by the Forest Survey of India). However, some decrease in the 'Open Forests' category of forest has been reported due to the harvesting of plantations and shifting cultivation in some parts of India. 15 states have registered an aggregate increase of 500 sq km. The total growing stock of India's forests and trees outside forests is estimated as 6047.15 million cu m. The total carbon stock in the country's forests is estimated to be 6663 million tonnes. The annual production of wood from forests is estimated to be 3.175 million cu m and fuelwood from forests estimated to be 1.23 million cu m. The total fodder consuming livestock dependent partially or completely on forest is 38.49%.

With regard to the diversity of forests in India, the widely adopted classification system of Champion and Seth (1968) classifies Indian forests into 16 forest types subdivided into 46 subgroups and 221 subgroup types. The 16 forest type groups have been placed in 5 major groups as below:

1. **Tropical Forests:** Wet Evergreen, Semi Evergreen, Moist Deciduous, Littoral and Swamp, Dry Deciduous , Tropical Thorn, Dry Evergreen
2. **Montane Sub-tropical:** Broadleaved, Pine, Dry Evergreen

3. **Montane Temperate:** Montane Wet Temperate, Himalayan Moist Temperate, Himalayan Dry Temperate
4. **Sub-Alpine**: Sub-Alpine
5. **Alpine**: Moist Alpine, Dry Alpine

Of the above mentioned forest type groups, Tropical Dry Deciduous Forests are largest type with 38% of all the forest area and Himalayan Dry Temperate Forests are the smallest group with only 0.2% of the overall forest area of the country.

1.5 Wildlife Conservation in India

The National Board for Wildlife (NBWL), which is chaired by the Prime Minister of India provides for policy framework for wildlife conservation in the country. The National Wildlife Action Plan (2002-2016) was adopted in 2002, and emphasizes public participation and also seeks their support for wildlife conservation. India's conservation planning is based on the philosophy of identifying and protecting representative wild habitats across all ecosystems. The power of the States and the Centre in the federal system of India are defined by the constitution of India and the legislative powers are divided into three lists. Various subjects for legislative domains of States and Centre such as police, railways, banking, land revenue, education, etc., can be found in the three lists in Constitution of India viz the 'Union list', the 'State list' and the 'Concurrent list'. The Constitution of India includes the subject of 'forests and wildlife' in the 'Concurrent list'. The Federal Ministry acts as a guiding torch dealing with the policies and planning on wildlife conservation, while the provincial Forest Departments are vested with the responsibility of the implementation of national policies and plans.

1.5.1 Protected Areas Network in India

As per information collected from the Wildlife Institute of India, Dehradun, a network of 668 Protected Areas (PAs) has been established in India, extending over 1,61,221.57 sq. kms. (4.90% of the total geographical area), comprising 102 National Parks, 515 Wildlife Sanctuaries, 47 Conservation Reserves and 4 Community Reserves. 39 Tiger Reserves and 28 Elephant Reserves have also been designated for species specific management of tiger and elephant habitats. The UNESCO has designated 5 Protected Areas as World Heritage Sites. There are also

18 Biosphere Reserves and several Reserved Forests, which are part of the most strictly protected forests outside the Protected Areas. India also has areas declared as a part of the Important Bird Area (IBA) Network. There are 465 Important Bird Areas in India. As the ecosystems and species do not recognise political borders, the concept of Trans-boundary Protected Areas has been initiated for the coordinated conservation of ecological units and corridors with bilateral and/or multilateral cooperation between the neighbouring nations. There are 4 categories of Protected Areas: National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves.

The Protected Areas in India are not distributed uniformly across the states or across the biogeographical zones of the country. Some states and zones are relatively well covered, others very poorly covered.

1.5.2 Legal Framework for Wildlife and Biodiversity Management

India has enacted various legislations for the management of the wildlife and biodiversity resources of the country. Some of these important legislations are the Indian Forest Act, 1927, the Wild Life (Protection) Act of 1972, the Biological Diversity Act of 2002 and Biological Diversity Rules of 2004, the Fisheries Act of 1897, The Patents Act of 1970, the Protection of Plant Varieties and Farmers' Rights (PPVFR) Act of 2001, the Prevention of Cruelty to Animals Act of 1960, the Foreign Trade (Development and Regulation) Act of 1992, the Environment (Protection) Act of 1986, the Forest (Conservation) Act of 1980, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act of 2006, the Destructive Insects and Pests Act of 1914, the Ozone Depleting Substances (Regulation and Control) Rules of 2000, among others. Moreover, there are various policy and planning instruments which guide the environmental efforts in the country such as the National Environment Policy 2006, National Wildlife Action Plan (2002-2016), the National Biodiversity Action Plan (2008), the Ganga River Action Plan, the National Action Plan for Climate Change, among others.

1.5.3 Environment protection from Indian Constitution Perspective

In the Constitution of India, the State's responsibility with regard to environmental protection has been laid down under Article 48-A of the Constitution, which reads as follows:

"The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country".

Environmental protection is a fundamental duty of every citizen of this country under Article 51-A (g) of the Constitution of India which reads as follows:

"It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures."

Under the federal setup of the Indian political system, 'Forests' and 'Protection of wild animals and birds' is classified in the 'Concurrent list' of the Constitution of India, whereby the primary responsibility of the implementation of the forest and wildlife law rests with the provincial governments. As conferred by Article 246(2) of the Constitution of India, the Union and the States of India have jurisdiction on entries contained in the 'Concurrent list'. In the event of a conflict, the Union enjoys primacy over States in that its legislation in the Union and the concurrent list prevail over State legislations. Also, the Parliament has residuary powers to legislate on any matter not covered in the three Lists (Article 248).

The enforcement of wildlife laws is through the Forest and Wildlife Departments of the States/UTs Governments and the State Police with the association of Customs Department at ports. India has a strong legislation in the form of the Wildlife (Protection) Act, 1972. It lays down procedure for the declaration of various categories of Protected Areas including tiger reserves and zoos and provides for legal remedies for any violation. The Wildlife (Protection) Act of 1972 classifies wildlife under different schedules and penalties. Many important megafauna such as tigers, lions, leopards, elephants, rhinoceros, etc., are classified under Schedule-I of the Act, thereby according them the highest level of protection.

The Government of India has enacted the Biological Diversity Act of 2002 in response to the Convention on Biological Diversity. This Act is to "provide for conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto" (The Biological Diversity Act, 2002). As per the provision of the Act, certain areas, which are rich in biodiversity and encompass unique and representative ecosystems, are identified

and designated as biosphere reserves to facilitate their conservation. All restrictions applicable to Protected Areas such as National Parks and Wildlife Sanctuaries are also applicable to these reserves.

1.6 Multilateral Environmental Agreements (MEAs)

As human society progressed from a nomadic species to one living primarily in urban centres, coupled with increasing material wealth and population growth, it has increased use of natural resources, with the demand growing rapidly over the last few centuries. Such growth has been most marked in the last and current centuries. This growing demand is aggravated further by unprecedented human population growth, especially in the post world-war phase of the last century, thereby creating a tremendous pressure on the natural resources of earth. In the past, it was believed that the earth's ecosystems could provide the unlimited resources required by a growing human population. But soon it was realised by human society that the natural resources consumption pattern by human society is unsustainable and there was growing concern during the latter part of last century to limit the consumption to more sustainable levels. As the natural ecosystems of the world do not follow political boundaries, it was necessary for systems of international regulations and management to be established for different aspects of the common environment. This was followed by negotiations and the adoption of a series of international agreements which aim to save the natural environment and its resources.

A multilateral environmental agreement (MEA) is a legally binding agreement between three or more states relating to an environmental aspect. As the United Nations is the strongest post-war platform for the global human society to share its concerns, it convened important conferences and meetings that gave rise to most of these MEAs. However, not all MEAs originate from the United Nations, e.g., CITES, among others.

1.6.1 The Stockholm Conference of 1972

The species '*Homo sapiens'* has evidently been part of the various ecosystems of earth for millions of years of its existence and only in the last decades the species has caused almost irreparable harm to the environment. Arguably, many cultures lived and continue to live in harmony with the environment. However, it was

at the United Nations Conference on the Human Environment (Stockholm, 1972) that the international community met for the first time to consider global environment and development needs.

Although international environmental treaties originated at the end of the 19th century, the vast majority of existing MEAs have been adopted since the 1972 United Nations Conference on the Human Environment, often referred to as the Stockholm Conference (UNCHE). This Conference was a watershed event in international environmental negotiations and acted as an important catalyst event that helped launch the last 30 years of increasingly intensive international environmental negotiations and agreements. The Stockholm Conference also gave birth to the United Nations Environment Programme (UNEP), an Environment Fund, Action Plan and the Stockholm Declaration. Adopted by all 113 States present at the Conference, the Declaration was the first universal document of importance on environmental matters. It placed environmental issues visibly on the international political agenda. Its 26 Principles give prominence to a number of concepts that later found their place in various MEAs, namely:

- Interest of present and future generations (Principle 1)
- Renewable versus non-renewable resources (Principles 2 to 5)
- Ecosystems (Principles 2 and 6)
- Serious or irreversible damage (Principle 6)
- Economic and social development (Principle 8)
- Transfer of financial and technological assistance to developing countries as well as the need for capacity building (Principles 9 and 12)
- Integration of development and the environment (Principles 13 and 14)
- Need for international cooperation (Principles 24 and 25)

The famous Principle 21 of the Stockholm Declaration[1] was later reaffirmed at the 1992 Rio Conference as Principle 2[2].

[1] Principle 21 of the Stockholm Declaration: *States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.*

[2] Principle 2 of the Rio Declaration on Environment and Development: *States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.*

1.6.2 The Rio Conference of 1992

The United Nations goals of environmental protection, conservation and economic development evolved into the concept of sustainable development through the work of the World Commission on Environment and Development (WCED) and its 1987 report entitled "Our Common Future" (Brundtland Report). In this report, the concept of sustainable development was defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs."* At the United Nations Conference on Environment and Development (UNCED) held in Rio in 1992, this concept gained broad international support as the key element to consider in developing international environmental policy.

The Rio Conference was attended by thousands of participants, including 176 States. The important results of the Conference were as follows:

- Adoption of the *United Nations Framework Convention on Climate Change* (UNFCCC)
- Adoption of *Convention on Biological Diversity* (CBD)
- Decision to negotiate the United Nations *Convention to Combat Desertification (UNCCD)*
- Action plan known as Agenda 21
- Decision to establish the United Nations Commission on Sustainable Development (UNCSD)
- Rio Declaration on Environment and Development composed of 27 Principles

While many of these Principles deal with issues previously discussed in the Stockholm Declaration, the Rio Declaration highlighted the concept of sustainable development and a number of other important issues and facilitated future environmental negotiations, such as common but differentiated responsibilities, precautionary principle, polluter pays principle, environmental impact assessment, among others. Since the Earth Summit at Rio, international environmental law regime has developed in tandem with domestic law to elaborate and give different aspects of sustainable development a more specific and concrete form.

1.6.3 World Summit on Sustainable Development, 2002

In December 2000, the United Nations General Assembly adopted a Resolution (Resolution 55/199), in which a 10-year review of the Rio Earth Summit in 2002 was decided. The purpose of the review was to track progress made since Rio and to take future steps to move global action on sustainable development.

As a result, the World Summit on Sustainable Development was convened in Johannesburg, South Africa, in 2002. It focused on implementing sustainable development and poverty alleviation as its central themes. It resulted in the adoption of a Political Declaration that, in paragraph 5, clearly reaffirms the three pillars of sustainable development: economic development, social development and environmental protection. States also adopted the Johannesburg Plan of Implementation that sets priorities and targets in a number of areas of concern.

1.6.4 Biodiversity related Multilateral Environmental Agreements

Every international environmental agreement affects conservation and use of biodiversity in direct or indirect ways. However, there are currently six major biodiversity related multilateral Conventions that govern the international biodiversity regime directly and explicitly. These Conventions include the Convention on Wetlands of International Importance (Ramsar Convention) Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO-WHC), Convention on the Conservation of Migratory Species of Wild Animals (CMS), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Biological Diversity (CBD) and International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Among these, CBD and CITES are two main MEAs that significantly guide and direct overall national biodiversity governance and management policies for conservation and the sustainable use of biological resources for meeting the needs of the people at national levels as well as for a unified global biodiversity conservation and use regime. The CBD also acts as the framework Convention for a number of separate protocols, including the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety and the Nagoya Protocol on

Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.

1.6.5 CBD

Human economic, ethical and social development is associated with the biological resources of the planet earth. Although this underlying fact has been recognised in various human civilizations across the world, there is a growing recognition in the modern world that biological diversity is a global asset of tremendous value to present and future generations, especially by the political and scientific communities. This growing recognition has developed simultaneously with, and has been influenced directly and greatly by, the growing threat to species and ecosystems in the post-industrialised world. The species extinction rate has increased substantially and is caused mainly by human activities and rapid land use changes. In order to address this growing global perception and environmental concerns, the United Nations Environment Programme (UNEP) convened the *Ad Hoc* Working Group of Experts on Biological Diversity in November 1988 to discuss the requirement for an international agreement on biological diversity. In May 1989, the *Ad Hoc* Working Group of Technical and Legal Experts was established to prepare an international legally binding instrument for the conservation and sustainable use of biological diversity across the globe.

The proceedings of the *Ad Hoc* Working Group led to the Nairobi Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity (CBD) on 22nd May 1992. The Convention was opened for signature on 5th June 1992 at the United Nations Conference on Environment and Development (Earth Summit) at Rio de Janeiro. It remained open for signature by various countries until 4th June 1993 and received 168 signatures. This global biodiversity convention entered into force for global implementation on 29th December 1993.

The CBD was a culmination point to the global community's growing concerns regarding sustainable development and represents a landmark step of humanity in the conservation of biological diversity at global level, the sustainable use of its components, and the fair and equitable sharing of benefits from the use of genetic resources.

1.6.6 CITES

The global concerns regarding the impacts of natural resource exploitation by international trade in species found in the wild was first expressed at the 7th General Assembly of the International Union for Conservation of Nature and Natural Resources (IUCN) held in Warsaw, Poland, in 1960. The delegates to the meeting urged world Governments to tackle the problems associated with the growing and often unregulated international trade in wildlife. However, such regulations were not uniform and Governments were not aware of the regulations existing in other countries. To solve this problem, the 8th IUCN General Assembly in 1963, which was held in Nairobi, Kenya, called for the creation of an international convention to regulate the export, import and transit of rare or threatened wild species and their products. The formal drafts of a convention to regulate trade in certain wild species were sent by IUCN to all members of the United Nations in 1967, 1969 and 1971. At the 10th IUCN General Assembly, held in New Delhi, India, in 1969, a proposed list of species to be covered by the convention was prepared. By 1971 several revisions to the draft text had occurred, with input from various Governments and non-governmental organisations (NGOs).

The United Nations Conference on the Human Environment adopted its Action Plan for the Human Environment. This plan included Recommendation 99.3 that proposed *"a plenipotentiary conference be convened as soon as possible, under appropriate governmental or intergovernmental auspices, to prepare and adopt a convention on export, import and transit of certain species of wild animals and plants"*. A further revision of the draft convention was put forward by the United States of America, which formed the basis for discussion at the Plenipotentiary Conference to Conclude an International Convention on Trade in Certain Species of Wildlife. This conference was hosted by the United States of America in Washington, D.C. from 12th February to 2nd March 1973. Representatives from 80 countries attended the conference while 8 countries and 6 international organizations attended as observers. The delegates agreed on the final text of the Convention and the creation of three species lists (Appendices I, II and III) and a permit model (Appendix IV). Switzerland offered to act as the Depositary Government for the Convention.

On 3rd March 1973, 21 countries signed the Convention. After 10 ratifications, the Convention entered into force on 1st July 1975. The Convention established the Conference of the Parties (CoP) as the decision making body which was responsible for making decisions and periodically amending the Convention and its Appendices. The Convention has three permanent committees: the Standing Committee, the Plants Committee and the Animals Committee to take decisions and make recommendations in the delegated areas.

The various MEAs try to deal with issues that negatively affect the global environment. Many times these MEAs, though distinct in their mandates and in the areas of respective responsibilities, complement each other in many ways in addressing global environmental problems. An effort for finding the synergies and complementarities in these contemporary MEAs may be very useful for better implementation in a world with fewer resources. The two major biodiversity related conventions, the CBD and CITES, have many common goals and possible synergies which may be analysed for better implementation, especially in a fast developing country such as India with multiple pressures on its biological resources. In fact, there have been various efforts by individual Conventions as well as by bringing together various biodiversity related Conventions at platforms such as the 'Biodiversity Liaison Group' to find inherent synergies as well as developing potential cooperation among these naturally related Conventions. The six biodiversity-related conventions currently represented in the Liaison Group of the Biodiversity-related Conventions (BLG) are CBD, CITES, CMS, the Ramsar Convention on Wetlands and the Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

The Biodiversity Liaison Group was established under Decision VII/26 (paragraphs 1 and 2) of the CBD. It aims to enhance coherence and cooperation in implementation among the six biodiversity conventions. It meets annually to explore opportunities for synergistic activities and increased coordination, and to exchange information.

There are other mechanisms for cooperation such as the Environment Management Group of the United Nations (EMG). The membership of the EMG is composed of the specialised agencies, programmes and organs of the United Nations including the secretariats of the Multilateral Environmental Agreements. It is

currently chaired by the Executive Director of United Nations Environment Programme (UNEP) and supported by a secretariat provided by UNEP based in Geneva Switzerland[3].

Moreover, several MEAs have established joint work programmes or Memoranda of Understanding with each other to facilitate cooperation and implement joint activities where needed and where appropriate. The CITES Secretariat, for example, makes such MoUs publicly available through its website[4].

In light of the above, this thesis attempts to analyse possible and existing synergies among the biodiversity conventions and review the current state of implementation, including challenges for the CBD and CITES in India.

[3] More information on the EMG is available at the United Nations EMG website: http://www.unemg.org/

[4] See: http://www.cites.org/eng/disc/coop.php

Chapter 2

OBJECTIVES

The objectives of the present research work are as follows:

- To analyse the complementarities between two biodiversity related MEAs, the CBD and the CITES with special focus on India.
- To find the possible synergies between two Conventions for more effective implementation in India.
- To analyse the current implementation status of the two Conventions in India.
- To analyse the challenges for the successful implementation of the two Conventions.

Chapter 3

MATERIALS AND METHODS

This study involved the survey of available literature from the national reports, existing documents and information available through the Indian government system, information available on the websites of various multilateral environmental agreements, interviews with relevant authorities and academic experts working for the implementation of these biodiversity conventions in India as well as other digital information. An effort was also made to discuss linkages and common implementation strategies with other biodiversity related international agreements such as the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Ramsar Convention, among others. This approach may offer a more holistic understanding of issues related to synergies and cooperation among the MEAs and the implications for India.

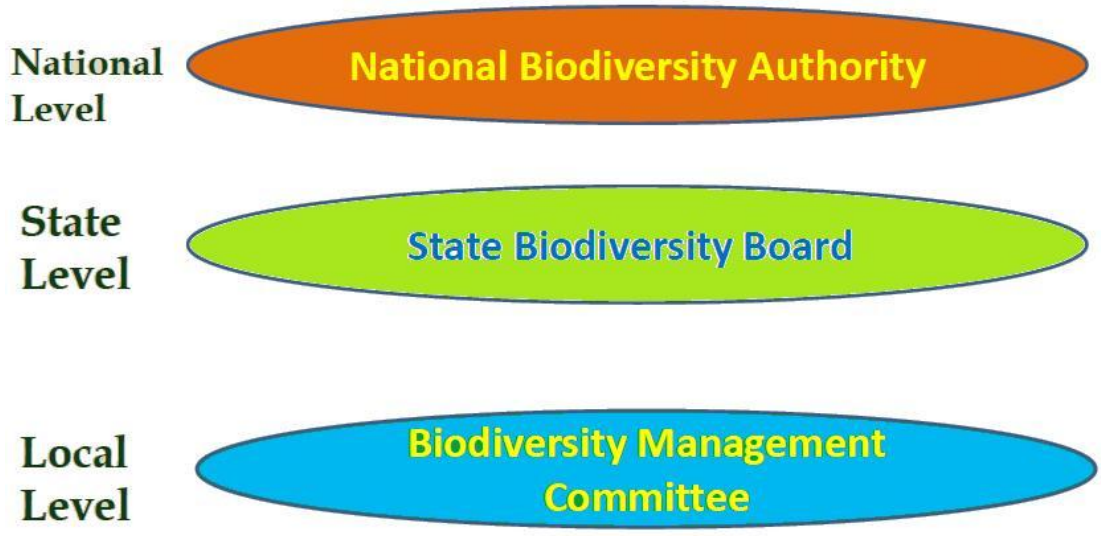
Chapter 4

RESULTS AND DISCUSSION

4.1 Current CBD Implementation Scenario in India

Conservation of biological diversity has been integral to the environmental policies and various related legislations of India in the post independence era. However, in support of efforts towards institutionalizing the CBD in the national legal framework, India enacted the Biological Diversity Act in 2002 which aims at giving effect to the provisions of the CBD and adapting it to India's national needs and circumstances. This unique landmark legislation makes India one of the few countries to have enacted such legislation. The Biological Diversity Act provides for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the use of biological resources in consonance with the objectives of the CBD. A country-wide institutional set up has been established for implementation of the Biological Diversity Act. At the national level, a National Biodiversity Authority (NBA) has been established by the Government of India with State Biodiversity Boards (SBBs) at state level which provide guidance and technical support to Biodiversity Management Committees (BMC) at local level. A total of 25 State Biodiversity Boards and over 32000 Biodiversity Management Committees have been established to date in India.

Figure 3 : Implementation of CBD in India by 3-tiered institutional structure



4.1.1 National Biodiversity Strategy and Action Plan (NBSAP)

Article 6 of the CBD calls upon the Parties to develop their national biodiversity strategies and action and formulate the country specific plans to achieve biodiversity conservation as envisaged by the CBD. National Biodiversity Strategies and Action Plans (NBSAPs) are the main instruments for implementing the Convention at the national level by various Parties. The Convention requires the Parties to prepare a national biodiversity strategy (or equivalent instrument) and to ensure that this strategy is mainstreamed into the planning and activities of all those sectors whose activities can have an impact (positive and negative) on biodiversity. As per the latest information, 173 countries have developed NBSAPs for implementing CBD.

The Union Ministry of Environment and Forests (MoEF) of the Government of India, which is the nodal agency for implementing CBD in India, developed a strategy for biodiversity conservation at macro-level in 1999 and enabled enactment of the Biological Diversity Act' 2002, followed by the formulation of Biodiversity Rules in 2004. The process of the NBSAP preparation in India was carried out involving wide consultations and planning with participation of various stakeholders across the country, including an externally aided project on 'National Biodiversity Strategy and Action Plan' (NBSAP). Under the NBSAP project, 33 state level, 10 eco-region level, 18 local level, and 13 thematic action plans were prepared.

4.1.2 Salient features of NBSAP of India

The objectives of the NBSAP are based largely on cardinal principles already set in the National Environment Policy (2006) of India. The most important of these underlying principles is that human beings are at the centre of sustainable development concerns. The other important principles include the right to development, equity, decentralization, integration and preventive action.

The NBSAP of India defines following objectives:

- Strengthening and integration of *in situ*, on-farm and *ex situ* conservation
- Augmentation of the natural resource base and its sustainable utilization
- Ensuring inter and intra-generational equity
- Regulation of introduction of invasive alien species and their management

- Assessment of vulnerability, and adaptation to climate change and desertification
- Integration of biodiversity concerns in economic and social development
- Pollution impacts
- Development and integration of biodiversity databases
- Strengthening implementation of policy, legislative, and administrative measures for biodiversity conservation and management
- Building of national capacities for biodiversity conservation and the appropriate use of new technologies
- Valuation of goods and services provided by biodiversity and the use of economic instruments in decision making processes
- International cooperation

The action points given in the NBSAP of India are as follows:

- Strengthening and integration of in situ, on-farm and ex situ conservation
- Augmentation of natural resource base and its sustainable utilization: Ensuring inter and intra-generational equity
- Regulation of the introduction of invasive alien species and their management
- Assessment of vulnerability and adaptation to climate change, and desertification
- Integration of biodiversity concerns in economic and social development
- Pollution impacts
- Development and integration of biodiversity databases
- Strengthening implementation of policy, legislative, and administrative measures for biodiversity conservation and management
- Building of national capacities for biodiversity conservation and the appropriate use of new technologies
- Valuation of goods and services provided by biodiversity and the use of economic instruments in decision making processes
- International cooperation

Bearing in mind that the subject of biodiversity conservation is cross-sectoral in nature, the NBSAP of India accepts the fact that the implementation of biodiversity conservation activities would heavily depend on the coordinated efforts of diverse stakeholders, including various concerned Central Ministries/Departments, State

Governments, local institutions, research institutions, various government and non-government organizations, and general public at large. Also, as many of the activities envisioned in the NBSAP are ongoing under various state sponsored policies and programmes the efforts for mainstreaming them under the ambit of existing schemes and programmes by the Central and State governments, with other public and private stakeholders for securing the optimum utilization of available infrastructure and funding sources. A tabulated matrix for the implementation of the key activities of NBSAP, indicating the implementing agencies and time frame for each of these activities has been detailed in the NBSAP.

4.1.3 Measures Taken for Achieving 2010 Targets and Implications for Implementing the CBD Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets

In India, strategies for the conservation of biodiversity and ecosystems mainly consist of providing special legal or policy status protection to certain identified biodiversity rich areas. As mentioned earlier, India has established the network of 668 Protected Areas for focused wildlife and biodiversity conservation. 'Project Tiger', launched in 1973 by Government of India, now incorporates 39 tiger reserves in 17 tiger range states of India. Under 'Project Elephant', which was launched in 1992, 28 elephant reserves have been declared so far for species specific elephant conservation initiatives. Similarly, the mangrove conservation programme of 1987 has identified 35 mangrove areas for intensive mangrove conservation and management. The Government of India has also established a network of 18 Biosphere Reserves under the Man and Biosphere (MAB) programme of the UNESCO. Thus, a mosaic of different biodiversity rich conservation focus areas have been recognised by the Government of India and suitable conservation initiatives have been under implementation as mandated by the respective establishment principles.

The National Bureau of Plant Genetic Resources (NBPGR), New Delhi, is the responsible agency for documenting the varieties of crop plants in the country. Community-based forestry programmes such as Joint Forest Management (JFM) have been initiated in the early 1990s for meeting the basic forest products and forest dependent livelihood needs of local people. Currently, over 100,000 JFM committees are co-managing over 20 million hectare of forests with local communities, which is about one third of the total forest cover in the country. India

has developed a Traditional Knowledge Digital Library (TKDL), a computerised database of information available in published texts of various Indian systems of medicine. So far, over 200 thousand formulations of Indian medicine systems such as Ayurveda, Siddha, Unani and Yoga have been documented in the TKDL on 34 million pages of information. About 2,000 patents related to the Indian System of Medicine are granted every year in the US Patent and Trademark Office (USPTO), the European Patent Office (EPO) and other overseas Patent Offices (Ministry of Environment and Forests, India). Also, it has been envisaged in the National Environment Policy of India to formulate a system for Prior Informed Consent (PIC) and Fair and Equitable Benefit Sharing of biological resources their traditional knowledge to enable the local communities for deriving economic benefits from providing access.

The Government of India has revised the National Wildlife Action Plan (2002-16) for addressing contemporary wildlife challenges and issues. The National Tiger Conservation Authority (NTCA) has been set up to manage the Tiger Reserves in the country and address tiger conservation issues. The Wildlife Crime Control Bureau (WCCB) was established in 2007 to address the issues of illegal trade in wildlife and its derivatives. The reintroduction of some threatened species such as pitcher plant and one-horned rhinoceros into their natural habitats has been initiated. The initiation of a taxonomy capacity building project (All India Coordinated Project on Capacity Building in Taxonomy or AICOPTAX), the establishment of a Laboratory for Conservation of Species (LaCONES), assistance to botanical gardens and zoological parks, ranching of threatened marine species, gene banks for plants, animals, fish and agriculturally important organisms, a Honey Bee Network to protect and encourage customary use, participatory management of degraded forest areas with the help of NGOs, local level institutions and government sponsored programmes, phytosanitory and quarantine measures for checking the spread of invasive species, and the National Action Plan for Climate Change (2008) for addressing climate change issues are some other initiatives by Government of India to meet the past 2010 targets of CBD.

These initiatives will be very useful in new efforts to meet the CBD Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Target. This context of possible activities takes new prominence given that CBD Decision X/2 on the Strategic Plan for Biodiversity 2011-2020 recognizes that the Plan: *represents a*

useful flexible framework that is relevant to all biodiversity-related conventions[5]. Moreover, the new Strategic Plan also: *invites relevant agreements to consider appropriate contributions to the collaborative implementation of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Targets*[6].

4.1.4 Protected Areas

The National Environmental Policy (2006) of India envisages the formulation of an innovative strategy for the increasing of forest and tree cover from the 2003 level of 23.69 percent of the country's land area, to 33 percent in 2012, through the afforestation of degraded forest land, wastelands, and tree cover on private or revenue lands. The review of the Wildlife Protected Area Network document brought out by the Wildlife Institute of India recommends bringing the total area under the Protected Area network to a total of 1,88,764 sq km or 5.74 % of the country's geographical area with 870 PAs (Source: www.envfor.nic.in). The country is progressing well in this direction and has so far established a network of 668 PAs spread over 4.90% of the country's geographical area.

4.1.5 Initiatives in Access and Benefit Sharing

India has enacted various legislations enabling the access and benefit sharing of the country's biological resources. The Biological Diversity Act of 2002 aims to regulate access to biological resources and associated traditional knowledge so as to ensure the equitable sharing of benefits arising out of their use, as envisaged in related provisions of the CBD. Another related legislation is the Plant Varieties Protection and Farmers' Rights Act (PVPFRA)' 2001 and the PVPFR Rules' 2003 which deal primarily with the protection of plant breeders' rights over the new varieties developed by them and the entitlement of farmers to register new varieties. It also provides to save, breed, use, exchange, share or sell the plant varieties which the plant breeders have developed, improved and maintained over the generations. India has the Patent Act of 1970 take care of the patent issues. In the background of the various earlier patent related legislations of India dating back to the first such

[5] CBD X/2.Strategic Plan for Biodiversity 2011-2020 (http://www.cbd.int/decision/cop/?id=12268).

[6] Ibid, http://www.cbd.int/decision/cop/?id=12268

legislation in 1856, the Patents Act of 1970 was passed by the Indian Parliament, which was subsequently amended in 1999, 2002 and 2005.

4.1.6 Initiatives for Article 8(j): Traditional Knowledge, Innovations and Practices

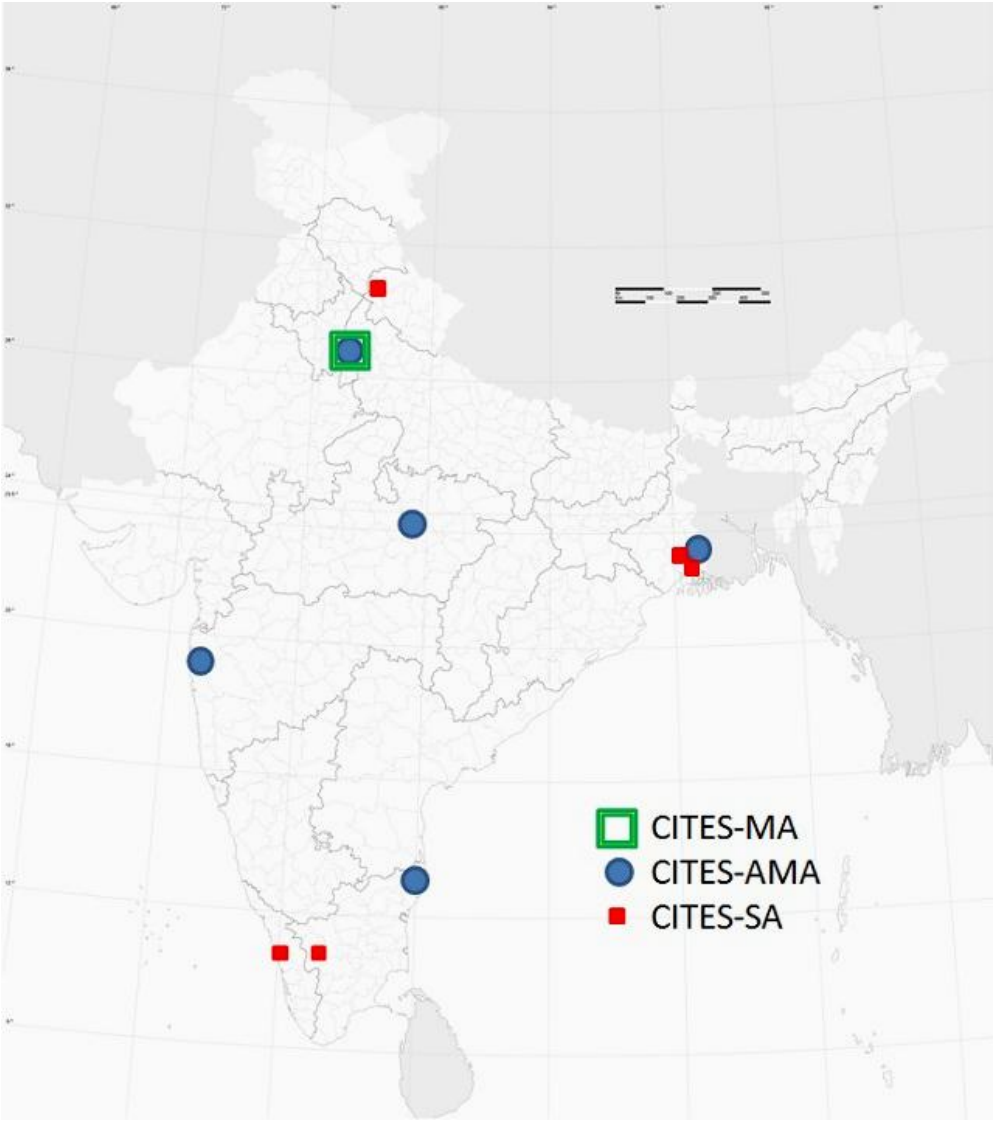
India is rich in the traditional knowledge of biological resources and their uses. Traditional knowledge related to biological resources is found in both coded (texts of Indian systems of medicine) or non-coded systems (word of mouth traditionally passed from generation to generation). In the background of the various bio-piracy cases such as Turmeric (*Curcuma longa*) and Neem (*Azadirachta indica*), the project TKDL (Traditional Knowledge Digital Library) was initiated in 2001 by the Government of India. The TKDL provides information on traditional knowledge existing in the country and on languages and format understandable by patent examiners at International Patent Offices (IPOs), so as to prevent the granting of incorrect patents. TKDL thus acts as a bridge between the traditional knowledge in local languages and the patent examiners at IPOs.

India signed the Nagoya Protocol on Access and Benefit Sharing (ABS) in May 2011, which was adopted on 29th October 2010 in Nagoya, Japan. The new Protocol brings its share of responsibility to all Parties, including India. The access and benefit sharing mechanism to be established under the Nagoya Protocol will be important to the conservation and sustainable use of biodiversity of India and especially to the various stakeholders, most importantly the local communities living in and around the forests of India.

4.2 Current CITES Implementation Scenario in India

India joined CITES by ratification on 20th July 1976, thereby becoming the 25th to join the Convention. CITES came into force in India on 18th October 1976. The entry into the Convention dovetailed with the establishment of an institutional structure in India by the Government of India. India has established nationally multi-tier institutional structures for the implementation of CITES. The Director of Wildlife Preservation, Government of India has been designated responsibility as the Management Authority for CITES (CITES-MA) in India.

Figure 4 : Map of CITES offices in India



The CITES-MA of India is assisted by the Assistant Management Authorities (AMAs), which are the Regional Deputy Directors of Wildlife Crime Control Bureau (WCCB) at its five regional offices. The regional offices of WCCB are located at Mumbai (Western Region), New Delhi (Northern Region), Kolkata (Eastern Region), Chennai (Southern Region) and Jabalpur (Central Region) with each regional office headed by the Regional Deputy Director, who are also the Assistant Management Authorities for CITES, assisting CITES MA of India in implementation of the Convention. The WCCB of India has also established sub-regional offices at Cochin (South), Guwahati (East) and Amritsar (North), together with five border units at Moreh, Nathula, Motihari, Ramananthapuram, and Gorakhpur for assisting the

regional offices to check the illegal trade in wildlife. The Additional Director, WCCB, New Delhi is the Nodal Agency for the Enforcement Authority for CITES in India.

In addition, Government of India has also appointed five Scientific Authorities which assist the CITES MA on scientific aspects of CITES listed species and as mandated under the provisions of CITES for the Scientific Authority. These Scientific Authorities for India are as follows:

1. The Director, Zoological Survey of India (ZSI), Kolkata
2. The Director, Botanical Survey of India (BSI), Kolkata
3. The Director, Central Marine Fisheries Research Institute (CMFRI), Cochin
4. The Director, Wildlife Institute of India (WII), Dehradun
5. The Director, Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore

While matters relating to CITES and animals are dealt with by the WII, ZSI and CMFRI (especially marine resources), BSI and IFGTB are responsible for plants and CITES. These institutions, while carrying out their regular functions of research, education, etc., for which they have been originally established by Government of India, also carry out the CITES related tasks.

The Assistant Management Authorities of CITES (the Regional Offices of the WCCB) regulate wildlife trade and maintain the records of wildlife trade across borders, working closely with airports and seaports. These offices are also mandated to issue CITES Export, Import, Re-export permits and certificates under the review of the CITES MA of India. The Assistant Management Authorities in India receive the applications for international trade in CITES listed species from various companies, individuals and agencies. After the careful examination of the necessary documents and obtaining permission from CITES MA and relevant CITES SA of India, AMAs issue the CITES permits as and when required. The WCCB also publishes the CITES Annual Reports for submission to CITES which includes the trade related data of CITES listed species across Indian borders with other relevant information.

International trade in all wildlife species of India, including the species covered under CITES in particular, is regulated collectively through the provisions of the Wild Life (Protection) Act of 1972, Export–Import Policy (EXIM Policy) under the Foreign Trade (Development and Regulation) Act of 1992 and Customs Act of 1962. As mentioned earlier, the Wildlife (Protection) Act of 1972 is the main legal

instrument used for managing the wildlife of India. It has been amended from time to time to accommodate the needs of wildlife conservation in the country. The species accorded protection under the Act are listed in six schedules of the Act. The hunting of wild animals is prohibited under Sec. 9 of the Act. No person is allowed to hunt any wild animal specified in Schedule I, II, III and IV except as provided under different sections of the Act. The Schedule VI of the Act lists the six plants of Indian origin which are also included in various CITES appendices. Trade in scheduled animals and their products/derivatives covered under Schedule I and Part II of Schedule II are prohibited under the Act. The export or import of wild animals and their parts and products is, however, allowed for the purpose of scientific research and the exchange of animals between zoos and is subject to licensing by the Director General of Foreign Trade (DGFT) under the Ministry of Commerce and Industry, Government of India.

As per EXIM Policy (Foreign Trade Policy) of India, the import and export of wild animals and plants are governed through International Trade Classification (Harmonizing system) {ITC (HS)} codes, an eight digit code which is subject to Wildlife (Protection) Act of 1972 and to CITES. Under the EXIM policy of India, an application for the granting of a licence for export and import of animals and plants in the wild (or the cultivated/captive-bred specimens thereof) is made in the manner set down in form ANF 2B of the Handbook of Procedures Vol. 1. This is then submitted to the Director General of Foreign Trade (DGFT) along with the recommendation of the Chief Wildlife Warden of the concerned State/UT of India. The EXIM policy of India is standardised and Harmonised with CITES and the Wildlife (Protection) Act of 1972. All trade in CITES species listed in Appendix I, Appendix II and Appendix III is subject to the 'No Objection Certificate' issued by the CITES Management Authority or the Assistant Management Authorities of CITES in India. Furthermore, for trade in species listed in Appendix II, a positive NDF (Non-Detriment Findings) from the Scientific Management Authority of CITES is essential, as required by the CITES provision.

According to EXIM policy, trade in all the animals and plants listed in the six 'schedules' of the Wildlife (Protection) Act of 1972 is prohibited. The Ministry of Environment and Forests in consultation with the Ministry of Commence and Industries regularly updates the EXIM policy through 'Notifications and Circulars'. All the relevant resolutions and decisions taken by the Animal Committee, the Plant

Committee and Conferences of Parties of CITES are also incorporated in the EXIM Policy, as and when necessary.

The EXIM Policy of India under the Foreign Trade (Development and Regulation) Act of 1992 prescribes the guidelines to be followed for export and import for India, including international trade in the wildlife and wildlife products specifying the products which are prohibited, restricted or permitted for import or export across national borders. It also contains the conditions (which include compliance with CITES) governing the import and export of permissible species of wildlife and wildlife products. The policy formulated by the Ministry of Commerce and Industry of the Government of India is decided in consultation with the Management Authority for CITES in India for matters related to the wild fauna and flora of India and the policy is enforced through the Customs Act' 1962 of India. The Ministry of Commerce vide Notification No. 2(Re-98)/1997-2002 dated 13th April, 1998 (**Annex 3**) has prohibited the export of plants, plant portions and their derivatives and extracts obtained from the wild of a number of plant taxa. This notification lists 29 prohibited plant taxa at present.

The import and export of wild animals and plants is permitted in India only through the Customs points at Mumbai, Cochin, Amritsar, Kolkata, Delhi, Chennai and Tuticorin. The export/import of the wildlife products is subject to compliance with the provisions of CITES and the consignments are inspected by the Regional Deputy Directors of WCCB at the Customs points.

As per Section 3(3) of the Foreign Trade (Development and Regulation) Act' 1992, all goods (including wildlife products) to which any Order under sub-section (2) applies shall be deemed to be goods that cannot be imported or exported under section 11 of the Customs Act of 1962 and all the provisions of that Act shall have effect accordingly. Therefore, all cases of violation of the EXIM Policy (including CITES violations) are considered an offence under the Indian Customs Act of 1962 and are dealt with as per the provisions of the same.

Another important aspect of trade in biological materials across Indian borders is the quarantine measures. The Livestock Importation Act of 1898 regulates, restricts or prohibits the import into India of any livestock which may be infected or contagious. The Government of India considers poultry, parrots, pigeons, canaries and finches to be livestock in this Act. The Foreign Trade (Development and

Regulations) Act of 1992 also empowers the Government of India to regulate the import and export of birds and other animals in order to control the contagious diseases. The Ministry of Agriculture of Government of India has appointed Animal Quarantine officers at Delhi, Mumbai Chennai and Kolkata to verify the health of animals at the time of export and import; and they issue Quarantine Clearance Certificates. For regulation of diseases spread through plant materials, Destructive Insects and Pests Act of 1914 and the related notifications under i.e. the Plant Quarantine (Regulation of Import into India) Order of 2003 provide the necessary legal instruments to the enforcement authorities. A phytosanitary Certificate from the country of origin is required to import plant materials into India. The imported plant materials are inspected at the port of entry by the Plant Quarantine Officer. The necessary provisions for the regulation of Genetically Modified Organisms (GMOs) and transgenics have also been included in the Act.

The Ministry of Environment and Forests, Government of India has recently taken many significant steps towards the strengthening of CITES implementation such as organizing many training workshops on CITES, conceptualizing a training course on CITES, NDF study on CITES listed species, starting a CITES Cell at central level to look after CITES related issues etc.

4.3 Synergies/Complementarities between CITES and the CBD

As a general practice, each MEA to which India is signatory is perceived as an international obligation to be managed by its own set of institutional framework and guiding principles. This practice reflects the international framework of these MEAs, where various MEAs have different characters, issues and strategies. However, there is growing support for the opinion that various biodiversity related MEAs have inherent synergies and scope for common implementation .This development opens the way to more synergistic implementation at the national level. India can be a good example for efforts in this direction due to its rich biodiversity, vast array of stakeholders, multiplicity of signed biodiversity MEAs and many other factors.

CITES is an operational treaty focusing on the species listed in three appendices while the CBD is a framework treaty having protocols for national implementation pertaining to biodiversity conservation, sustainable use and equitable benefit sharing. While CITES draws its significance from regulating international trade in listed 'species', the CBD is broader in its dimensions by covering

ecosystems, species and genetic resources. The difference of scope is partly reflected in the manpower and budget in the two Conventions. CITES is managed internationally by the CITES Secretariat with a small staff and an annual budget of about USD 5 million. On the other hand, the CBD has almost double the human resources and annual budget with the support of the Global Environment Facility (GEF). The CBD also has slightly more Parties compared to CITES, despite being a comparatively much newer Convention. In fact, the CBD has almost global membership.

While CITES is a proactive instrument mandating the Parties to certain provisions of the same, CBD is a deliberative treaty encouraging and directing the Parties to certain biodiversity conservation goals in a more holistic way. Nevertheless, the two Conventions have definite and underlying inherent synergies. Both the Conventions aim at the conservation of species and biological resources and the ecosystems containing them in their own ways.

A workshop on promoting CITES/CBD cooperation and synergy was held at the International Academy for Nature Conservation at the Isle of Vilm, Germany in April 2004. This workshop identified various areas of potential synergy such as Sustainable Use, Global Strategy for Plant Conservation, Ecosystem Approach, Invasive Alien Species, Access and Benefit Sharing, coordination of the CBD with the conservation of CITES-listed species, taxonomy, labelling, licensing etc. The workshop also suggested that at the national level there should be more interaction, collaboration, information sharing, review of decisions between national focal points, closer relationships between CITES and CBD staff, cooperation for capacity building at national level, National Biodiversity Strategies and Action Plans recognizing the overlaps between the concepts of non-detriment and sustainable use and incorporating wildlife trade policy into their strategies, review of legislation and policies etc.

In India, there are two independent and exclusive institutional frameworks established for the implementation of the two conventions. The differences of CBD and CITES implementation in India are given in following table:

	CBD	CITES
Responsible Agency	Conservation and Survey Division, Ministry of Environment and Forests	Wildlife Division, Ministry of Environment and Forests
Authorities	National Biodiversity Authority	Additional Director General (Wildlife) and Director, Wildlife Preservation (CITES MA) with five AMAs, five Scientific Authorities, WCCB (Enforcement Authority)
Legislation	Biodiversity Act of 2002	No dedicated national legislation, implemented through the provisions of the WPA of 1972, FTDR Act of 1992 and Customs Act of 1962.
Plan	National Biodiversity Strategy and Action Plan	NA[7]
Hierarchy	NBA, 25 State Biodiversity Boards, over 32000 Biodiversity Management Committees	CITES MA, 5 AMAs, 5 CITES SAs
Structure and hierarchy	Hierarchy in consonance with the federal structure of India	Hierarchy centralised and AMAs regionally placed with AMA responsible for many states under its jurisdiction.
Involvement of local people	Strong local involvement through BMCs and People Biodiversity Registers	Centralised regulation of trade in listed species, local involvement weak
Species listing	No species specific provisions or lists	Trade in listed species of CITES (supported by the listed species in schedules of the WPA of 1972) regulated.
Focus of biodiversity management	Focus on the internal management conservation of bioresources with access and benefit sharing	Focus on international trade and its regulation
Species covered	~8.7 million (Mora et al, 2011) ~135000 species described for India.	~34000 listed species (India has 1092 CITES listed species)

[7] It is worth noting that CBD Decision X/2 urges Parties to: *Review, and as appropriate update and revise, their national biodiversity strategies and action plans, in line with the Strategic Plan*. Given that the new CBD Strategic Plan can be used as a framework for other biodiversity conventions, arguably there is much potential for greater synergies when updating NBSAPs.

4.4 Synergies with other Biodiversity MEAs

At present, there are more than 500 active agreements/MoUs to which India is signatory[8]. Of these, India is a Party to 20 major multilateral global MEAs. In the area of biodiversity conservation, India is Party to the following major biodiversity related MEAs:

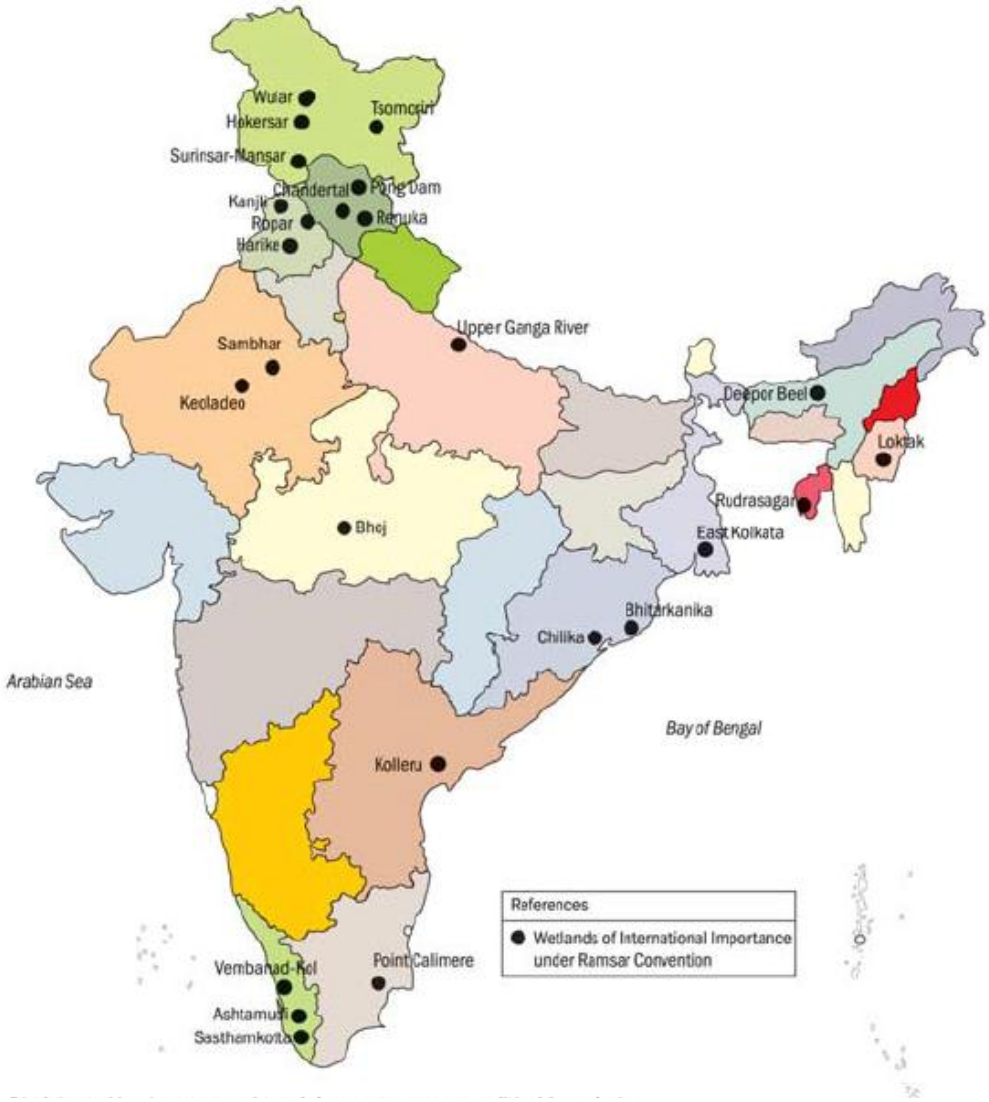
- CITES (Convention on International Trade in Endangered Species Fauna and Flora)
- CBD (Convention on Biological Diversity)
- CMS (Convention on the Conservation of Migratory Species)
- Ramsar Convention on Wetlands
- Convention on Regulation of Whaling and International Whaling Commission
- UNESCO-World Heritage Convention
- International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

Other important international organisations, non-governmental organizations and initiatives for the preservation of wildlife and control of illegal wildlife trade with India as a member are the IUCN (International Union for Conservation of Nature and Natural Resources), the GTF (Global Tiger Forum), the TRAFFIC (The Wildlife Trade Monitoring Network), the CAWT (Coalition Against Wildlife Trafficking), the ITTO (International Tropical Timber Organisation) and the UNFF (United Nations Forum on Forests).

The Government of India recognizes these biodiversity MEAs in more or less exclusively, separate from each other in terms of implementation modalities and obligations. Different offices of the Union Government of India deal with these MEAs at central level. The Wildlife Division of the Ministry of Environment and Forests, Government of India, takes care of CITES, the International Whaling Commission, the CMS and the UNESCO-WHC. The Conservation and Survey Division-I (CS-I) deals with the Ramsar Convention on Wetlands and Conservation and Survey Division-III (CS-III) handles tasks related to the CBD (both offices are located at the Ministry of Environment and Forests, Government of India).

[8] Source: www.moef.gov.in

Figure 5: Ramsar sites (wetlands) in India



(Source: National Biodiversity Action Plan, 2010)

As per the results of the Nordic Symposium on "Synergies in the biodiversity cluster" held in Helsinki, Finland in 2010, it is the Parties to MEAs that must take responsibility for enhancing synergies among those agreements with support from the secretariats of various MEAs. The potential of increasing efficiency by the reallocation of resources to facilitate national implementation is likely to provide cost-benefits in the long term.

Although these biodiversity MEAs in India complement each other and as mentioned elsewhere have inherent synergies, the efforts for consciously synergizing

them at the various levels is by and large lacking. The various offices generally work in an isolated fashion, unless they are required to work on common issues. The issue of synergy gets more diversified at regional and local levels due to the multiplicity of stakeholders, State policies and various local factors. Field forest officers are often entrusted to take care of the issues at local level. Therefore, there is a need for more active efforts for the streamlining of the various biodiversity conservation measures (as envisioned in various biodiversity MEAs) by the Government of India and the Governments of the States/Union Territories.

4.5 Future challenges

4.5.1 CITES

Arguably, species and other biological resources around the world are facing multiple challenges in recent times. This is leading to the decrease in populations of many species in the wild as well as extinction. It is also a fact that various species face the challenges of environmental pressures and many species become extinct due to evolutionary forces acting on the species continuously. This is known as the background rate of extinction of species. However, it has been estimated that anthropogenic forces have accelerated this background rate of the extinction of species in the last century. Scientists generally agree that the Earth is facing a biodiversity crisis, losing species 100 to 1,000 times faster than the normal background rate of extinction, which results in the sixth period of mass extinction in Earth's history (Carsten Rahbek & Robert K. Colwel, 2011).

There are many factors that are the cause of this unprecedented rise in extinction rates. We know that the human population on earth has increased exponentially in the last century and has recently reached the 7 billion mark recently. This very large human population requires adequate food, land, minerals, water and other natural resources for its sustenance and growth requirements. These demands on the earth's ecosystem by human beings are invariably in competition with the other species in various ecosystems across the world and more often than not, species other than the human species are losing this one-sided battle. An ironical natural selection favouring the human species is pushing other species to the verge of extinction in various terrestrial and marine ecosystems of the globe. CITES is one of the most important human efforts to help these species that

are on the verge of extinction or threatened by international trade to maintain their wild populations at sustainable levels. A dynamic set of challenges is being faced by CITES species, some of which are briefly explained below:

Scarce Land Resources for Wild Species: As human beings have spread across the globe, they cleared natural ecosystems for multiple uses such as agriculture, industries, cities and towns, etc. For example, it is estimated that nearly 4 billion hectares of forest cover the earth's surface, which is about 30 per cent of the total land area at present. It is estimated that global forest cover has been reduced by the human activity by approximately 40 per cent since agriculture began 11,000 years ago (Earth Policy Institute, 2006). Approximately three fourths of this forest loss has occurred in the last two centuries to use this land to farms and to meet the demand for fuel. The situation in other natural ecosystems tell similar stories. Every species requires a niche space in the ecosystem where it exists. In such a situation with the decrease in the extent of the natural ecosystems, habitats for the species existing in these natural ecosystems are fast decreasing, leading to a reduction in their natural populations.

In India, forests are about 23.81 percent of the geographical area (State of Forest Report, 2011). These forest resources, which are natural habitats for the majority of its wildlife resources, are subject to pressures of mining, infrastructure development, agriculture etc. Therefore, maintenance and improvement of the existing forest cover and its biodiversity (and not only in forests) is a challenge to reckon with.

Habitat Degradation: Besides the shrinkage in natural habitats of wild species, the degradation in the quality of the remaining habitats is another important factor challenging the survival of these species. The natural ecosystems provide native human communities with various important resources for their daily needs and also resources for industrial demands such as fuelwood, minor forest produce, small timber, fisheries, fodder etc. Many a times, though they may be intact in extent, these natural ecosystems degrade to alarming levels rendered unable to sustain the species therein. The loss in the quality and health of the ecosystem affects the population of the various species. Therefore, habitat degradation is another important challenge for the species in the wild, including CITES listed species.

Illegal Wildlife Trade: Human beings have found various uses of the various species existing on earth. Fur from animals, medicines from plants, ivory for crafts, even various wildlife products such as rhino horns and tiger bones used in traditional medicines are some examples. These multiple uses have caused the source taxa to be traded across the world, both nationally and internationally. When growing demands and unsustainable harvests for these wildlife products bring the source taxa to the brink of extinction, instruments such as wildlife protection legislations and international efforts such as CITES try to prevent the extinction of these species and maintain their sustainable populations by regulation of trade. However, these measures often have incremental effects on the prices of these commodities which leads to the increased profitability of wildlife trade in protected species. A substantial part of the trade in wildlife is illegal fuelled by high demands and fewer legal supplies of these products. High profitability in wildlife trade often leads to an increase in organised crime and wildlife syndicates which are very difficult to handle, even for governments. An example is the tiger in India. Its cross border demands for skin, bone and other products has increasingly challenged the governments of its range countries including India to develop protection measures and fight organised wildlife criminals. The situation is similar for other species such as rhinoceroses, red sanders, snow leopard etc.

Genetic bottlenecks: Conservation measures by different countries often focus on the maintenance of a species to sustainable levels, often unintentionally in unscientific ways. A critical aspect of the species biodiversity conservation is the genetic diversity of the taxa and their preservation to evolve along genetic lines in nature. Species are often conserved in Protected Areas, which are more often than not, areas geographically separated from neighbouring natural habitats by vast stretches of agricultural and other non-natural-habitat land uses, leading to genetic isolation of species populations in a Protected Area. Though, over decades, there seems to be no or little effect on the population of wild species in these areas due to the natural resilience of evolved species, genetic isolation results in detrimental effects on the species as a whole over a long period of time. Isolated populations often derive from the same genetic stock, which leads to the bottleneck phenomenon and a genetic deterioration of the populations. This increases the genetic load on these populations in a long run and causes a decrease in the fitness of the individuals remaining in the population. These isolated populations often fall prey to diseases, low adaptability to the environment and decrease in life span and fertility of the

individuals. A contemporary example is the Asiatic lion (*Panthera leo persica*). At present, this subspecies is found naturally in the Gir Protected Area system of a western state of India called Gujarat. The subspecies has survived with around 411 individuals which descended from the small stock of individuals at the turn of the last century. The decrease in genetic adaptability, the loss of immunity and the occurrence of various diseases have been reported in individuals of this subspecies in some studies.

Global Economic Progress: Economic progress across the world in the post industrialization phase, especially after the post world war peace time, has caused the growth in purchasing power in a large part of the human population. This has led to the creation of a new powerful group of people in all countries who are ready to spend a portion of their income on various luxury items, often derived from wildlife such as fur coats, trophies, luxury items made from reptile skins, etc. The rise in the purchasing powers of people in developing and developed countries, especially in globalization phase, is causing an increase in the prices of wildlife articles and creating huge pressures on the remaining wildlife resources. This is evident in the case of India where wildlife is facing demand pressures from across the border in neighbouring Asian countries and elsewhere.

Development Priorities in Developing countries: Developing countries located in the tropical and subtropical parts of the earth harbour rich biodiversity, forests and species resources. But in the race to develop economically, largely and emulation of the developed countries' development model, is often proving to be destructive to the conservation and sustainable use of biodiversity in these countries. Governments of these countries are following the path of indiscriminate development often ignoring the entailing biodiversity and habitat loss in these bio-rich countries. Major development projects such as mining, dams, infrastructures, etc are causing the unprecedented destruction of the habitats of the unique species these countries contain and degrading them further through pollution, overpopulation, the over-exploitation of natural resources, and a lack of stringent protection measures. It has been observed that wildlife and forest preservation is often a lower priority in national development plans compared to other sectors such as industry, agriculture, infrastructures, etc. In such circumstances, the conservation of biodiversity and species management often takes a backseat and needs to be prioritised by different countries, including India.

Strengthening Species Identification Protocols: In India and across the world, implementation of CITES is to some extent challenged by the lack of user friendly, time saving and effective identification protocols. Species products and derivatives such as extracts, processed skin products, medical formulations, etc are sometimes difficult to identify due to a lack of specific identification features and taxonomic expertise, and the similarity of the characters within larger taxonomic groups. Sometimes, this is further compounded by the volume of international trade in CITES species, due to which it becomes practically impossible to deploy the few available taxonomic experts and use scientific technologies on short notice. The perishability of some wildlife articles and products thereof such as plant extracts, live specimens, meat, unprocessed skins, etc., further complicates the process. With such a scenario, the development of quick, cheap and reliable identification tools is generally understood to be urgently needed. The refinement and development in the use of friendly and cost effective genetic technologies such as molecular markers, PCR, RFLP etc. may be of great assistance in tackling these issues. The development of country specific identification guides for enforcement authorities may be another solution to the problem. The Wildlife Crime Control Bureau of India has produced the identification manuals for Red Sanders, Tiger Parts, Amphibians, Molluscs, Reptiles and Shark species traded from India. However, improvements in these identification guides and the publication of similar manuals for other taxonomic groups are needed. Capacity building measures for the increased use of these manuals at exit and entry points at ports by customs and CITES authorities would help greatly the accurate identification of wildlife articles and products. Coordination among the enforcement authorities, scientific institutions, laboratories and local level scientific expertise will be required in the coming years for improved implementation of CITES in India and other countries.

Strengthening the Legal and Policy Framework: Wildlife and natural biological resources are challenged by the lack of synergy in the policy and legal framework of India. As mentioned earlier, the environmental topics in India are being dealt with in different legislations and policies which have been mostly developed in isolation. For example, the Biodiversity Act of 2002 deals with the CBD and its implementation in India, the Wildlife (Protection) Act of 1972 focuses on the protection of Indian wildlife, the Water Act of 1974 deals with water issues, the Air Act of 1981 deals specifically with Air, the Customs Act of 1962 deals with the customs issues of all exports/imports, and so on. As a result, there is a lack of

synergised policies and legislation to address the biodiversity conservation holistically.

The situation is not all negative, however. For instance, the Indian Wildlife (Protection) Act of 1972 is undergoing an amendment process in which the provisions of CITES are proposed to be incorporated, giving it improved legal sanctity in India. This will strengthen CITES implementation in India in the future. However, more such synergizing efforts across the various pieces of environmental legislation and policies will be needed in the future to tackle growing environmental and biodiversity conservation concerns and issues.

Capacity Building: Public awareness on the biodiversity related conventions is by and large lacking at a regional and local levels. Awareness is also lacking with regard to national governance. More often than not, the Conventions are managed in a centralised manner with little or no involvement of the local institutions of the government hierarchy or the general public. Even if local and regional manpower is used for the implementation of the Conventions, in-depth technical know-how and the scientific capacity of effective ground level efforts for achieving the underlying objectives of these agreements are lacking in many cases. A large gap with regard to capacity building exists in India, particularly for the effective implementation of CITES. There is urgency that authorities become aware of these challenges and act accordingly.

It is worth noting that India has taken several initiatives in recent years at national level to build capacity for improved CITES implementation in India. India has been actively participating in the Capacity Building Programmes of CITES. Some of the important measures undertaken recently are as follows:

- A delegation from India attended the 'Regional Capacity Building Workshop of CITES' held at Makati City, Philippines on 15th -17th June 2010.
- Participants from India attended the CITES workshop at Kathmandu, Nepal on 9th -11th January 2011 on 'Non-Detriment Findings and the Review of Significant Trade for Plant species'.
- As a follow up action after the CITES Capacity Building workshop held at Makati City, Philippines, a CITES Capacity building Workshop was organised by CITES-MA at the Wildlife Institute of India, Dehradun on 20th-21st December 2010 on 'Strengthening CITES implementation capacity to ensure

sustainable wildlife management and non-detrimental trade in India' with partial financial support from the CITES Secretariat. The participants were from various scientific institutions and organisations.

- A regional workshop was conducted by CITES-MA and two CITES Scientific Authorities of India viz. the Wildlife institute of India and the Institute of Forest Genetics and Tree Breeding in Tirupati, Andhra Pradesh, India on 26th–27th February 2011 for NDF study of Red Sanders (*Pterocarpus santalinus*).
- The Ministry of Environment and Forests, Government of India, is providing financial and technical assistance to the Institute of Forest Genetics and Tree Breeding, Coimbatore which is a CITES Scientific Authority on flora matters in India for the various training programmes, publications for publicity of CITES and other capacity building initiatives.
- The participation of officers from the Ministry of Environment and Forests at the CITES Masters Course of the University of Andalusia. India also hopes that more personnel from this country can attend this course so that knowledge of CITES management is increased and effectively implemented.
- CITES MA of India is contemplating more capacity building initiatives such as a short course at the Wildlife Institute of India on CITES for forest and customs officers, and the police.

The above initiatives are positive signs, but a lot more needs to be done so that the conservation concerns of CITES listed species and other threatened species in India are addressed efficiently.

4.5.2 CBD

The CBD shares many challenges with CITES including issues related to sustainable use, indigenous and local communities, bushmeat, invasive alien species, perverse incentives, the need for capacity building, the need for synergizing the legal and policy framework, among others. However, many other challenges are posing threats to global biodiversity as a whole.

In the Indian context, with a population of 1.2 billion and a growing middle class consumer base, the need for food, fibre, wood and other natural resources is causing huge pressure on the natural ecosystems. Habitat loss and habitat degradation are the main challenges being faced by its unique biodiversity. Moreover, common property resources (CPRs) such as village forests, pasture lands

and grasslands which often serve as buffers to the natural forests and harbour a rich biodiversity, are being encroached upon by the people in ever increasing competition for land. This is giving rise to human-wildlife conflicts, and harming habitat and threatening the survival of species. It is also observed that many Community Conserved Areas (CCAs) such as sacred groves, wetlands, lakes, grazing grounds for wildlife, etc. are being subjected to increasing human pressures and being degraded to unsustainable levels, leading to the loss of important ecosystem resources and services that provide biodiversity of these areas and livelihoods of indigenous and local communities.

Decreasing Genetic diversity: The degradation of the genetic diversity of wild and domesticated species is a major threat and challenge to the conservation of biodiversity on earth. The wild relatives of the crops plants and domesticated animals are increasingly subject to degradation and ultimately extinction. This proves detrimental to the species in long run and the domestic lot of species tends to be derived from the same genetic stock repeatedly, which leads to the loss of hybrid vigour and many genetic advantages such as disease resistance, adaptability to the varying environmental conditions, etc. Many countries such as India have taken the initiative for the establishment of Gene Banks for various species. However, the loss in cultivation and resultant pause in the evolutionary processes make the situation prone to natural corrections in the long term.

Invasive Alien Species: Invasive alien species (IAS) are one of the major challenges faced by the native flora and fauna of many countries, including India. The spread of the human populations and the cross border transfer of biological material whether intentional or unintentional is playing havoc more than ever in history. India is facing many such invasions leading to the loss of habitats for native species. Some of the popular examples in India are *Lantana camara, Parthenium hysterophorus, Prosopis juliflora, Ageratum conyzoides,* etc. These invasive species are causing huge habitat losses to native plant communities and reduction in habitat resources for the various faunal species, which leads to a disturbance of pristine ecosystem processes in various parts of the nation. There have been numerous such examples throughout the world. Managing these invasive species, particularly within

the context of Article VIII, paragraph (h), of the CBD[9], in order to reduce their impacts on native species is a big challenge for biodiversity conservation.

Adverse Impact of Developmental Projects: India, being a developing country, is undertaking development to meet the needs of its large population. Developmental projects such as mines, hydropower, infrastructure, etc., require land and other natural resources, displacing rural populations and large biodiversity habitats. India is also facing these development pressures as in the post-independence era after 1947, when the nation felt the need for rapid economic development, many large scale and small scale developmental initiatives. Dams, roads, mines, etc. were started. This led to a major transformation of the landscape, often at the cost of forests and other natural ecosystems. The trend is still continuing, which poses challenges to the conservation and sustainable use of biodiversity, and demands a careful and thoughtful re-evaluation on how to better meet India's developmental goals.

Biopiracy: Biopiracy is the situation in which the indigenous knowledge of the people is exploited for commercial gains by individuals, companies or other countries without appropriate compensation to these indigenous communities. Developing countries such as India have faced biopiracy challenges in the past and this is one of the main challenges that need to be tackled squarely by the governments. India has faced many such cases of Biopiracy. Some famous cases are the Neem patent case, the Basmati case, the Turmeric case, among others. India's rich biodiversity and fabulous storehouse of indigenous knowledge on the uses of various biological resources has been tapped by national and international stakeholders. India has taken the unique initiative of documenting its traditional knowledge in the form of a digital library using information technology tools. The Traditional Knowledge Digital Library (TKDL) is an Indian digital repository of traditional knowledge, especially on medicinal plants and their formulations thereof which are used in Indian medicine systems such as Ayurveda, Yoga, Unani, etc. The objective of this library is to protect the ancient and traditional knowledge of the country from exploitation through bio-piracy by providing proof of its existence traditionally in India, by documenting it and storing it as per international patent classification systems. More such initiatives are needed in countries such as India

[9] CBD Article VIII, In-situ Conservation, paragraph (h) states: *Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.*

where rich biodiversity with the multiple uses may be subject to biopiracy in an increasingly globalised world.

Bridging Capacity Gaps: There is a pressing need for capacity building, especially in a country such as India where approximately one third of its population lacks access to education. Moreover, the country is primarily rural depending on agriculture. The values of biodiversity, their potential uses and increasingly international importance must be presented to a far greater audience, so as to enable India to develop the human resources required to tackle both current and future challenges threatening biodiversity. Even governmental departments such as administration, police, customs, scientific community, etc. needs to be made aware and sensitised to current issues related to biodiversity so that global biodiversity conservation concerns are effectively tackled at the grassroots level and in a holistic manner. Only when all stakeholders including local and indigenous communities, scientists, administrators, politicians, and other groups have access to training and assume requisite responsibilities, the prime objectives of biodiversity conservation, its sustainable use and equitable benefit sharing will be operationalised in India.

Pressure on Protected Areas: India has established a network of 668 Protected Areas (PAs) which cover about 4.9 percent of the country's geographical area. These PAs are facing a variety of challenges such as poaching, lack of manpower, habitat degradation, human-animal conflict, gaps in scientific management, etc. These protected areas are the main reservoirs of biodiversity and wildlife. Therefore, they need to be given particular attention by the government and international conservation community if the biodiversity of India is to be maintained. Necessary strengthening measures for the protection of these important biodiversity areas are important and more such areas should be created either afresh or by bringing under their ambit biodiversity rich areas such as Important Bird Areas, Ramsar wetlands, etc.

Pollution: Pollution is a pressing challenge being faced by India in its efforts to conserve and sustainably use biodiversity. Indiscriminate urban development, industrial growth and unfriendly environment use practices are causing unprecedented damage to the natural ecosystems. Environmental pollutants are often released into the ambient environment which leads to the accumulation of these pollutants at various trophic levels of food pyramids and abiotic components of

the various ecosystems, thereby affecting the overall health of the ecosystems and the wild species inhabiting them.

Bridging Gaps in the Biodiversity Information Base: In India, about 70% of the country's surface area has been surveyed and some 45,500 species of plants and 91,000 species of animals have been described. However, it is estimated that about 4,00,000 more species may exist in India which need to be recorded and described (India's National Biodiversity Strategy and Action Plan, 2008). This huge information gap is facing challenges due to a lack of skilled manpower, infrastructure etc. There is a great need to developing taxonomic expertise and carry out species specific conservation biology studies in the country to enable focused conservation strategies to take shape.

Genetic Engineering Challenges: Genetic manipulation tools that have been developed by modern scientists and geneticists and have transformed the science focusing biodiversity from a passive to an active science. Scientists are able to create new genotypes with favourable features in various crops, domestic animals and other organisms used by humans. Although it opens new horizons of use of biodiversity for the benefit of mankind, it involves threats and a price to pay which we cannot estimate at this stage. India has also allowed many recombinant products and genetically modified crops such as Bt-cotton which have had a mixed reception from the various stakeholders in India. Their effects on native biodiversity have yet to be quantified and studied in-depth. There is a need to review of the existing mechanisms and protocols for using these genetically modified biological products and their biosafety levels so that native biodiversity is not adversely affected in the short and long term.

In this regard, India ratified the Cartagena Protocol on Biosafety on 11 September 2003. It also signed the Nagoya – Kuala Lumpur Supplementary Protocol to the Cartagena Protocol on Biosafety on 11 October 2011.

4.5.3 Challenges common to the CBD and CITES

The Need for Synergies among Biodiversity MEAs: It has been observed that the current framework of international environmental governance is challenged by institutional fragmentation and specialization. The need for a holistic approach to environmental issues and sustainable development has been generally felt. The

various biodiversity Conventions have evolved at different times for addressing the specific issues of international biodiversity challenges and concerns. These conventions, while addressing their specific biodiversity conservation aspects, often fail to provide broad based solutions and holistic approaches to biodiversity conservation and sustainable use. Also, various conventions have varied memberships and differing underlying principles, to be tackled and implemented by the member countries in different ways. In such a scenario, the need for developing synergies and common implementation protocols has been felt across the biodiversity conventions.

These concerns have been reflected in the establishment of various Memoranda of Understanding (MoUs), Joint Working Groups, Joint Work Plans, etc. among the MEAs. The CITES Strategic Vision: 2008-2013 also identifies a key component as Goal 3: *"Contribute to significantly reducing the rate of biodiversity loss by ensuring that CITES and other multilateral instruments and processes are coherent and mutually supportive".* The CITES Resolution Conf. 10.4 (Rev. CoP14) on Cooperation and synergy with the Convention on Biological Diversity also suggests that *"Parties, as appropriate to their national circumstances and to encourage synergy, take measures to achieve coordination and reduce duplication of activities between their national authorities for each Convention"*. Additionally, it calls upon Parties to *"explore opportunities for obtaining funding through the Global Environment Facility for relevant projects, including multilateral projects, which fulfill the eligibility criteria and guidance provided by the Conference of the Parties to the Convention on Biological Diversity to the Global Environment Facility"*.

The 10th meeting of the Conference of the Parties to the CBD, held in Nagoya, Japan, adopted a decision on a Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets (UNEP/CBD/COP/DEC/X/2) in which it recognizes that the Strategic Plan for Biodiversity 2011-2020 represents a useful flexible framework that is relevant to all biodiversity-related conventions. Also, a number of the 20 Aichi Biodiversity Targets, such as incentives for the conservation and sustainable use of biodiversity (target 3), sustainable harvests of fish, invertebrate stocks and aquatic plants by applying ecosystem based approaches (target 6), the prevention of the extinction of known threatened species (target 12), etc. are closely related to objectives of the CITES Strategic Vision: 2008-2013.

In September 2000, world leaders came together at the United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, making national commitments to a global partnership to reduce extreme poverty and define a set of time-bound targets, known as the Millennium Development Goals (MDGs), which are to be achieved by 2015. The seventh MDG on ensuring environmental sustainability, especially Target 7.B of reducing biodiversity loss, thus achieving by 2010 a significant reduction in the rate of loss is relevant to all biodiversity MEAs. Therefore, there are ample opportunities and directions in the frameworks of United Nations and various biodiversity MEAs to devise the areas of synergies and common action. However, this needs the support of national governments as well as the international community.

To illustrate the above, and from a bottom-up viewpoint, it may be useful to take the example of a migratory waterfowl species whose survival in the wild is being threatened. If it is assumed that this species is listed in an Appendix under CMS and under CITES, is the focus of a plan under the CBD, and its natural habitat are in Ramsar sites, a holistic approach to the conservation and sustainable use of this species arguably offers the best opportunities for success. In such situations or otherwise, a common implementation protocol to combine the objectives of international biodiversity MEAs, as well as national conservation frameworks could be devised for more effective results.

Various options for the reform of international environmental governance have been suggested in recent years such as the upgrading of the UNEP to create a more substantive authority to review progress towards improving the world environmental situation, creating a new World Environment Organization (WEO) and strengthening the existing institutional framework (JIU Report of UN, 2008). Such reforms have been suggested for promoting and enforcing:

- Common legally binding principles such as the law of treaties to reconcile substantive differences and contradictions among MEAs;
- A system-wide strategic planning framework for the management and coordination of environmental activities; and
- A set of common guidelines for the provision and use of administrative, financial and technical support services to enhance synergies between United Nations system agencies and MEAs, as well as among MEAs.

As observed in the Nordic Symposium on "Synergies in the biodiversity cluster" held in Helsinki, Finland in 2010, the efforts of synergizing the functioning of biodiversity MEAs should be carefully and democratically managed. Otherwise the issue may become politicised and discrepancies may be created in the process. There were suggestions on making a coherent 'biodiversity cluster' of major biodiversity MEAs such as the CBD and its Cartagena Protocol on Biosafety and Nagoya Protocol, the Ramsar Convention, the CITES, the CMS, the UNESCO-WHC, the ICRW, etc. If these efforts are kept under consideration, care should be taken to keep the size of the cluster to manageable limits while taking into account practical limitations, including the secretariats of different MEAs being hosted by different organizations and geographically dispersed. For example, the manageable biodiversity cluster may consist of the CBD, CMS, the Ramsar Convention, CITES, UNESCO-WHC and the ITPGRFA.

It was observed in the symposium that identifying and addressing national needs with a view to enhancing the implementation of multilateral environmental agreements by Parties should be at the core of any process to enhance cooperation, coordination and synergies. It was suggested that national governments should coordinate their own activities in order to develop coherent positions for negotiations and decision-making which take place under multilateral environmental agreements. Without a coordinated approach to enhancing synergies there is a risk of competing initiatives and inefficient duplicative solutions.

At the same time, there is a risk of creating synergistic gaps where areas of cooperation and coordination are not addressed at all. A government-driven umbrella initiative for synergies could bring together and improve current initiatives and identify many unexplored areas for synergies step-by-step. Various areas for joint action proposed in the symposium are harmonization of reporting, the streamlining of meeting agendas, joint information management and awareness-raising, capacity building, compliance, funding and review mechanisms.

It is envisaged that enhanced cooperation and coordination at an international level could yield benefits at a national level through joint capacity-building activities, national biodiversity strategy action plans relevant to all biodiversity MEAs, cooperation among national focal points for different MEAs, the establishment of cross-sectoral joint national committees and the effective mainstreaming of biodiversity into relevant sectors and policies. The efforts of integrating activities

relevant to the biodiversity MEAs into national development strategies could be made through United Nations development work under organizations such as the UNDP and the FAO with their country offices. In addition, the United Nations Delivering as One (DAO) pilot programme could help integrating capacity building into national development strategies. Similar efforts have been recently undertaken by the UNDP-India by starting projects which try to mainstream the MEAs, Government policies, industrial concerns and community concerns in various programme states of UNDP India (project profiles can be seen at http://www.undp.org.in/whatwedo/environment_and_energy).

Furthermore, a common multilateral fund for the financial support of biodiversity MEAs may be a viable solution. The need for country-specific reviews of the implementation of biodiversity MEAs and the establishment of a mechanism for evaluating the national implementation of such agreements is felt. Such reviews may be synergised with the MEA specific reviews such as that under the new CBD Strategic Plan.

Climate Change: Climate change due to anthropogenic activities in the post-industrialization history of human civilization is potentially a threat and challenge to the surviving species across the globe. As predictions suggest, climate change is going to significantly change the extent and qualities of natural terrestrial and marine ecosystems. This will cause a change in the quality of these ecosystems and perturb the various functions and natural processes, causing new pressures and long term disturbance to the species in wild. This newly added global factor, combined with other existing threats, poses a dynamic set of challenge to CITES listed species and global biodiversity alike. Species will be subject to migration with the change in the boundaries of ecosystems. Other climate change caused effects such as increased climatic extremes, the modification of phenological cycles, changes in the nutrients cycling and a rise in sea levels, etc. will push species to new survival limits. While some species will be able to adapt to these changes, others will perish in this new climate change regime.

Better International Cooperation: The success of any international MEA depends on cooperation and effective national implementation by the member countries. It can be seen that CITES has at present 175 Parties. 23 countries such as Iraq, Tajikistan, Angola, Andorra, etc. have yet to join the Convention. Similarly, The CBD counts on 193 Parties. In such a scenario, the implementation of these MEAs of

global importance becomes difficult. However, since the CBD has the largest membership, perhaps a model where other conventions could be integrated into a CBD-like framework, resembling somewhat the relationship of the CBD protocols to the main Convention.

Finally, the various Party countries have conflicting interests in the MEAs which need the continuous redress mechanism to be established. Improvements in international coordination for biodiversity matters and more regular meetings of the Parties may solve the issue to some extent.

Ecosystem Approach to Biodiversity Conservation: It is often the case that biodiversity conservation initiatives adopt narrow specific approaches and fail to address the holistic concerns of overall ecosystem functions and sustainability. This leads to imbalances in the ecosystem functioning that may affect the long term sustainability of the changes in ecosystems. The Millennium Ecosystem Assessment, 2005, which is a synthesis by over 1000 of the world's leading biological scientists, categorizes the ecosystem services and goods provided by the ecosystems of the world under four broad categories of supporting, provisioning, regulating, and cultural services. The assessment concluded that human activity is having a significant and escalating impact on the biodiversity of world ecosystems, reducing their capacities and resilience. The assessment measures 24 ecosystem services and concludes that only four have shown improvement over the last 50 years, fifteen are in serious decline, and five are in a stable state overall, but under threat in some parts of the world. While planning for the biodiversity conservation initiatives, including framing the MEAs, due care needs to be taken to incorporate the various dimensions, including ecosystem services, so as to meeting sustainability concerns.

The economic valuation of ecosystem services is an interesting and important support mechanism for making a case for biodiversity conservation, especially when economic development is challenging the biodiversity in various countries of the world. India has begun the process of valuating its natural capital and ecosystem services. TEEB (The Economics of Ecosystems and Biodiversity) is a study established by the G8 and developing country environment ministers that studies the economics of biodiversity loss. TEEB aims to connect decision-makers in the fields of policy, environment conservation and business and lead them to sustainable development goals. Such studies should be carried out on a large scale so that

decision makers are provided with the economic logics of biodiversity conservation, besides its original ecosystem and life support functions.

4.6 Way Forward

There can be many ways of synergizing the efforts being made by the various biodiversity related MEAs at a global and national level. Some of them may be as follows:

4.6.1 Global level

- **A Framework Biodiversity MEA encompassing the smaller MEAs:** Combining biodiversity MEAs into one overarching framework biodiversity convention which would be flexible enough to incorporate any future biodiversity conservation concerns may offer a viable solution with regard to the need for synergies. Though it may sound as very ambitious idea and would demand much thinking and consultations, if at all accepted by the respective membership, this proposal has its own set of merits. It would directly address the need for increased synergies across the various biodiversity MEAs. The operational costs of implementing multiple MEAs may drop substantially, although some argue otherwise. It may enhance the effectiveness of biodiversity conservation initiatives and simplify their implementation at ground level. It would also reduce the complexities of financial sourcing for international biodiversity conservation programmes and projects and monitoring, and would possibly increase the effectiveness of funds spent on such initiatives. It would streamline the negotiation processes at an international level. Furthermore, one of the major benefits of establishing a framework biodiversity convention encompassing the other biodiversity MEAs would be felt at the country level, particularly with regard to implementation of biodiversity goals. For example, in a country such as India, it is often observed that the local government system and the people as a whole are confused and find it hard to solve varied problems of biodiversity conservation. This becomes increasingly complex when the more important national legal and policy environmental imperatives create a complex picture, which is often unclear and hard to implement.

A more coherent system would help greatly to define the targets and concerted strategies to meet them rather than piece meal solutions to larger more widespread problems. As a framework biodiversity convention, the CBD may provide a template or umbrella function for such possible convergence efforts due to its larger relevance and broader objectives.

- **Common guidelines for country specific actions:** Another way of addressing concerns related to the need for increased synergies is to devise a common set of country specific guidelines for concerted local action. This would require much discussions and efforts at an international platform. However, the success of such efforts would greatly depend on the national efforts of the various countries, as the implementation of biodiversity efforts is ultimately the responsibilities of the national governments.

4.6.2 National Level (India)

Although there have been many efforts at an international level to visualise and effect synergies across the various biodiversity MEAs, such efforts are largely lacking at a country specific level. Though we may attribute this largely to a lack of clarity at international level about actionable points, the possibilities of finding the synergies can still be explored simultaneously by various national governments and people. Taking the example of India, the following may constitute the guidelines for such efforts:

- **Centralised system for managing international biodiversity obligations:** At present, there are different departments, offices with separate mandates which have been given the responsibilities of different environmental MEAs. Even when the different biodiversity MEAs are administrated by the same offices, efforts for finding synergies are largely lacking and the focus is mainly on compliance with the decisions taken by the various committees/Conferences of Parties (CoPs), rather than finding common implementation strategies. A centralised office/committee with cross departmental representation may be of much help in improving the efficiency of the implementation of various biodiversity MEAs at a country level. Similar systems may be established at state and local levels in the institutional hierarchy.

- **Biodiversity managers at a local level:** A possible solution to ensure the effective implementation and monitoring of biodiversity conservation initiatives is to appoint biodiversity managers at a local level. Currently, within the Indian Government system the Forest Department is mainly responsible for managing the biological resources of the country. The Forest Department is generally divided into Wildlife Departments and Territorial Departments at a district level with the Deputy Conservator of Forests (DCF), Wildlife, taking care of the wildlife and biodiversity issues in the district, while territorial departments take care of subjects such as silviculture, forest protection, forest working plan etc. However, the focus of the wildlife departments is mainly on the National Parks, Wildlife Sanctuaries and other Protected Areas in its jurisdiction, often ignoring the biodiversity outside Protected Areas, more so for the species not listed in Wildlife (Protection) Act of India. The Biodiversity Management Committees (BMCs), envisaged under the Biodiversity Act of India have been entrusted with similar tasks, but focus only on the provisions of the CBD. Moreover, as the BMCs are relatively new biodiversity management entities, their role and effectiveness are subject to scrutiny and review. Therefore, there is a need for the unification of biodiversity management at a local level to encompass the national and international obligations of biodiversity and wildlife conservation.

- **Common laws for biodiversity/species management:** As mentioned earlier, the unified system for biodiversity management is a pressing need. This would be possible only if such efforts are initiated by policy makers and common laws and policies are devised for biodiversity and species management at various levels of governance. Besides national laws in force at present, applicable to the whole of India, the various States/Union Territories Governments have formulated the forest and wildlife protection laws and policies which are applicable within the respective boundaries of States/Union Territories. The efforts for the unification of biodiversity management regimes will need to consider the incorporation of the merits of these local level legislations so that the effectiveness of the acts/policies is enhanced.

- **The development of biodiversity expertise within the Government system:** It has been observed that Indian Forest Service Officers have been given positions responsible for the management and implementation of

biodiversity related conventions for very short period of their tenure in the services. For example, the IFS officers deployed in the Wildlife Division (managing CITES, the CMS, UNESCO-WHC, the Protected Areas programme of the CBD) of the Ministry of Environment and Forests of Indian Government, hold the positions for varying periods up to a maximum of 5 years. After completing their service, they return to their State/Union Territories cadre according to the norms of the Department of Personnel and Training of the Indian Government (the department which manages the officers of Indian Government). Therefore, in such a short time span of no more than 5 years, it becomes difficult to develop expertise and contribute to the success of these biodiversity MEAs in the long run. In such a scenario, the long term deployment of officers and appointments of dedicated staff for the management of the biodiversity MEAs and national biodiversity management imperatives is a very crucial reform, which should be contemplated by the Government of India.

Chapter 5

CONCLUSION

Mankind is facing some of the most pressing challenges in history with regard to its survival. These challenges are not the results of wars, diseases or famines, but have their origins in the ever growing degradation and unsustainable use of environmental and biological resources. The ecosystems and biodiversity of the globe are facing unprecedented pressures owing to a number of different inter-related factors caused by Mankind. Indeed, mankind, with its abilities and intelligence to change its surroundings for its immediate benefit, is changing the face of the earth in a major way. These changes have been more apparent and large scale during the post-industrialization phase of human civilization. Various countries have developed at a different pace, with the western world in the last 2 or 3 centuries leading the way. However, there has been a paradigm shift in recent decades from 'development' to 'sustainable development'. The debate between the concepts of development and sustainable development is ongoing, particularly in light of perverse incentives. However, sustainable development and biodiversity conservation are growing in prominence and attention with regard to discussions related to the need for more effective international environmental governance.

Developing countries, which are the reservoirs of the majority of biodiversity resources, are finding themselves at a very crucial juncture of civilization. On the one hand, they have to develop at a rapid and substantial pace to alleviate poverty and achieve industrial growth to meet the demands of their populations, while on the other hand, they have to conserve and use sustainably their biological and environmental resources, which are crucial for overall growth and sustainability, not only for their own citizens but to all humanity across the globe. India is one such developing country with currently 1.2 billion people, one of the fastest growing economies in the world with tremendous natural wealth. The natural resources of India, like those of other resource rich developing countries, are facing unprecedented challenges of economic development, habitat change, and environmental degradation among others. There is a continuous conflict of interests between various stakeholders of Indian society. The Government of this largest democracy in the world is witnessing some of the biggest political challenges on this scenario. However, India is committed to the sustainable development process

together with the conservation of its natural resources and the country is making every possible effort in this direction.

India has proven its commitment towards biodiversity conservation and sustainable use goals by enacting various legislations and formulating various policies for biodiversity and environment conservation. These instruments are being effectively implemented by the Union Government with the State/Union Territory Governments and the various stakeholders, including the general public. As argued throughout this thesis, various biodiversity MEAs have been incorporated, as appropriate, to the national legislative and policy framework. An example is the development of legislation developed exclusively to facilitate implementation of the CBD. The implementation of national and international biodiversity obligations is satisfactory in India, especially in a scenario of conflicting conservation and economic development. Various laws, policies and programmes sponsored by Indian Government and efforts undertaken by other stakeholders are helping the effective implementation of these biodiversity MEAs in India.

As suggested in this work, there are possible synergies among the various biodiversity MEAs at global and national levels. However, there is scope for further streamlining and synergizing these efforts at a legislative, administrative and political level. This would help greatly to achieve national and global biodiversity conservation goals. Implementation of the CBD and CITES in India is facing several challenges related to the reduction of genetic diversity, invasive alien species, development projects, biopiracy, illegal wildlife trade, biopiracy, capacity building, climate change, etc. The Government and other stakeholders should join forces to achieve positive changes in addressing these challenges so that India is able to achieve its development goals while preserving its biological resources.

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Annex I

State/UT-wise details of the Protected Area Network of India

Sl.No.	State/UT	No. of National Parks	No. of Wildlife Sanctuaries	No. of Conservation Reserves	No. of Community Reserves
1	Andhra Pradesh	6	21	0	0
2	Arunachal Pradesh	2	11	0	0
3	Assam	5	18	0	0
4	Bihar	1	12	0	0
5	Chhatisgarh	3	11	0	0
6	Goa	1	6	0	0
7	Gujarat	4	23	1	0
8	Haryana	2	8	2	0
9	Himachal Pradesh	5	32	0	0
10	Jammu &Kashmir	4	15	34	0
11	Jharkhand	1	11	0	0
12	Karnataka	5	22	2	1
13	Kerala	6	16	0	1
14	Madhya Pradesh	9	25	0	0
15	Maharashtra	6	35	1	0
16	Manipur	1	1	0	0
17	Meghalaya	2	3	0	0
18	Mizoram	2	8	0	0
19	Nagaland	1	3	0	0
20	Orissa	2	18	0	0
21	Punjab	0	12	1	2
22	Rajasthan	5	25	3	0
23	Sikkim	1	7	0	0
24	Tamil Nadu	5	21	1	0
25	Tripura	2	4	0	0
26	Uttar Pradesh	1	23	0	0
27	Uttaranchal	6	6	2	0
28	West Bengal	5	15	0	0
29	A&N Islands	9	96	0	0
30	Chandigarh	0	2	0	0
31	Dadar & Nagar Haweli	0	1	0	0
32	Lakshadweep	0	1	0	0
33	Daman & Diu	0	1	0	0
34	Delhi	0	1	0	0
35	Pondicherry	0	1	0	0
	TOTAL	**102**	**515**	**47**	**4**

Annex II

Tiger Reserves in India with year of creation and area

Sl. No.	Year of Creation	Name of Tiger Reserve	State	Area of Core/ Critical Tiger Habitat (Sq. Kms.)
1	1973-74	Bandipur	Karnataka	872.24
2	1973-74	Corbett	Uttarakhand	821.99
3	1973-74	Kanha	Madhya Pradesh	917.43
4	1973-74	Manas	Assam	840.04
5	1973-74	Melghat	Maharashtra	1500.49
6	1973-74	Palamau	Jharkhand	414.08
7	1973-74	Ranthambhore	Rajasthan	1113.36
8	1973-74	Similipal	Orissa	1194.74
9	1973-74	Sunderbans	West Bengal	1699.62
10	1978-79	Periyar	Kerala	881.00
11	1978-79	Sariska	Rajasthan	681.11
12	1982-83	Buxa	West Bengal	390.58
13	1982-83	Indravati	Chhattisgarh	1258.37
14	1982-83	Nagarjunsagar	Andhra Pradesh	2527.00
15	1982.83	Namdapha	Arunachal Pradesh	1807.82
16	1987-88	Dudhwa	Uttar Pradesh	1093.79*
17	1988-89	Kalakad-Mundanthurai	Tamil Nadu	895.00
18	1989-90	Valmiki	Bihar	840.00*
19	1992-93	Pench	Madhya Pradesh	411.33
20	1993-94	Tadoba Andheri	Maharashtra	625.82
21	1993-94	Bandhavgarh	Madhya Pradesh	716.90
22	1994-95	Panna	Madhya Pradesh	576.13
23	1994-95	Dampa	Mizoram	500.00
24	1998-99	Bhadra	Karnataka	492.46
25	1998-99	Pench	Maharashtra	257.26
26	1999-2000	Pakke	Arunachal Pradesh	683.45
27	1999-2000	Nameri	Assam	200.00
28	1999-2000	Satpura	Madhya Pradesh	1339.26
29	2008-09	Anamalai	Tamil Nadu	958.00
30	2008-09	Udanti-Sitanadi	Chhattisgarh	851.09
31	2008-09	Satkosia	Orissa	523.61
32	2008-09	Kaziranga	Assam	625.58
33	2008-09	Achanakmar	Chhattisgarh	626.19
34	2008-09	Dandeli-Anshi	Karnataka	814.88
35	2008-09	Sanjay-Dubri	Madhya Pradesh	831.25*
36	2008-09	Mudumalai	Tamil Nadu	321.00
37	2008-09	Nagarhole	Karnataka	643.35
38	2008-09	Parambikulam	Kerala	390.89
39	2009-10	Sahyadri	Maharashtra	Notification Awaited
Total				**32137.14**

*Not yet notified

Annex III

DGFT Notification containing the Negative List of Plants Species for Export

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To Be Published In The Gazette Of India Extraordinary
Part II Section 3, Sub-Section (II)
Government Of India
Ministry Of Commerce

Notification No. 2(Re-98)/1997-2002
New Delhi, Dated The 13th April, 1998

S.O. (E): Attention is invited to Schedule 2 Appendix 1 of the book titled "ITC(HS) Classifications of Export and Import Items 1997-2002" specifying the terms and conditions for export of items indicated therein. Attention is also invited to Schedule 2 Appendix 2 of the book titled "ITC (HS) Classifications of Export and Import Items 1997-2002" relating to export of plants, plant portions and their derivatives and extracts obtained from the wild.

2. In exercise of the powers conferred under Section 5 of the Foreign Trade Development & Regulation Act, 1992 (No. 22 of 1992) read with Paragraph 4.1 of the Export and Import Policy 1997-2002, the Central Government hereby makes the following amendment in Schedule 2 Appendix 1 and Schedule 2 Appendix 2 of the book titled "ITC(HS) Classifications of Export and Import Items 1997-2002":-

3. The entries appearing at following Serial Numbers of Schedule 2 Appendix 1 of the book titled "ITC(HS) Classifications of Export and Import Items 1997-2002" shall be amended as under:-

a. The entry appearing at Sl. No. 3 relating to Black Pepper (Asta
b. Quality MG-1) shall be deleted;
c. The word "DGFT" appearing in condition No. (i) against the entry at Sl. No. 6 relating to Cotton Yarn shall be amended to read as "Government";
d. The condition No. (ii) against the entry at Sl. No. 12 (i) & (ii) relating to wheat and wheat products and grain and flour of Barley, Maize, Bajra, Ragi and Jower (excluding Hybrid Jower grown as Kharif crop) shall be deleted;
e. The condition against the entry at Sl. No. 21 relating to Samples shall be amended to read as:

"Samples of goods including those in Parts II & III of the Negative List of Exports and this Appendix, except items at Sl. No. 1,2,17&19 of this Appendix and items at Sl. No. 2,5,24, 28,30&31 of Part II of the Negative List of Exports, may be exported without a licence if the value of the samples so exported, taken together does not exceed US$ 2000 (two thousand) in any licensing year. However export of physician samples not for sale/free samples of medicines or pharmaceutical formulations by a firm, whether accompanying the commercial quantity or being exported separately, shall be permitted upto 1% of their export of medicines/pharmaceutical formulations in the preceding licensing year. DGFT shall be the licensing authority in this behalf".

- The condition No. (i) against the entry at Sl. No. 30 relating to export of Tea to Russia under the Rupee Debt Repayment Mechanism shall be deleted; and
- The entry at Sl. No. 33 relating to Sandalwood Oil shall be amended to read as under:

"Sandalwood Oil Quantitative ceilings may be notified by the Director General of Foreign Trade from time to time".

4. The Schedule 2 Appendix 2 of the book titled "ITC(HS) Classifications of Export and Items 1997-2002" relating to export of plants, plant portions and their derivatives and extracts obtained from the wild shall be amended as under:-

"The export of Plants, Plant portions and their derivatives and extracts obtained from the wild as under is prohibited:-

1. Beddomes cycad (Cycas beddomei).
2. Blue vanda (Vanda coerulea).
3. Saussurea costus.
4. Ladies slipper orchid (Paphiopedilium species).
5. Pitcher plant (Nepenthes khasiana).
6. Red vanda (Renanthera imschootiana).
7. Rauvolifia serpentina (Sarpagandha).
8. Ceropegia species.
9. Frerea indica (Shindal Mankundi).
10. Podophyllum hexandurm (emodi)(Indian Podophyllum).
11. Cyatheaceae species (Tree Ferns).
12. Cycadacea species (Cycads).
13. Dioscorea deltoidea (Elephant's foot).
14. Euphorbia species (Euphorbias).
15. Orchidaceae species (Orchids).
16. Pterocarpus santalinus (Redsanders).
17. Taxus Wallichiana (Common Yew or Birmi leaves).
18. Aquilaria malaccensis (Agarwood).
19. Aconitum species.
20. Coptis teeta.
21. Coscinium fenestrum (Calumba wood).
22. Dactylorhiza hatagirea.
23. Gentiana kurroo (Kuru, Kutki).
24. Gnetum species.
25. Kampheria Galenga.
26. Nardostachys grandiflora.
27. Panax pseudoginseng.
28. Picrorhiza kurrooa.
29. Swertia chirata (Charayatah).

(ii) Plant and Plant portions, derivatives and extracts (including value added herbal formulations) of the cultivated varieties of the above species (excluding Sl. No. 16) will be allowed for export subject to production of a Certificate of Cultivation from the Regional Deputy Director (Wildlife), or Chief Conservator of Forests or Divisional Forest Officers of the State concerned from where these plants and plant portions have been procured. However in respect of the cultivated varieties of the species as covered by Appendix 1 (Sl. No. 1 to 6 of Paragraph 2 above) and Appendix 2 (Sl. No. 7 to 18 of Paragraph 2 above) of CITES, a CITES Permit for export will also be required.

(iii) The value added herbal formulations made out of imported species of plants and plant portions as specified in Paragraph 2 above will be allowed freely without any restriction subject to furnishing of an affidavit to the Customs authorities at the time of export that only the imported plant species as above have been used for the manufacture of value added herbal formulation being exported. In the event of affidavit proving to be false, on the basis of random sample tests, action would be initiated against the firm under the Foreign Trade (Development & Regulation) Act, 1992.

(iv) Exports allowed only through the ports of Mumbai, Calcutta, Cochin, Delhi, Chennai, Tuticorin and Amritsar.

5. This issues in public interest

(N.L. LAKHANPAL)
DIRECTOR GENERAL OF FOREIGN TRADE

Copy to all concerned;

By orders etc;

(ASHUTOSH MISHRA)
DY. DIRECTOR GENERAL OF FOREIGN TRADE
FOR DIRECTOR GENERAL OF FOREIGN TRADE

(Issued from F. No. 23/1/97-PC.III)

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