Lex Terra

News Updates on Environmental Law

"Like music and art, love of nature is a common language that can transcend political or social boundaries."

— *Jimmy Carter*

"Lex Terra is an initiative by the members of Centre for Environmental Law, Advocay and Research(CELAR) of National Law University. Through *Lex Terra,* we are making an effort to put forward the various facets related to Environment from different sources which is published every fortnight among the society so that a community of environmentally conscious people emerge out of the legal and non-legal fraternity.

Each edition of Lex Terra highlights some noteworthy eco-news, both at global as well as national arena. These short articles are extensively prepared by the members and researchers of CELAR and the members of NLUA.

INSIDE THE ISSUE

Edited by: *Sweden Doley , Akanchha Srivastava & Sucheta Ray*

Designed by: *Sucheta Ray*

Photo courtesy: Pushpanjali Medhi

About CELAR

The primary mission of Centre for Environmental Law, Advocacy amd Research (CELAR) of National Law University, Assam is to engage in advocacy and research on public interest environmental issues. For the purpose, it will organize workshops and seminars to educate and develop skills, convene conferences to promote exchange of ideas, conduct training programmes for capacity building in environmental law issues, undertake research on legal concerns and publish periodically, newsletters and journals.

The objectives of the CELAR are as follows:

- To inspire and educate students by providing hand-on advocacy experience and direct exposure to the issues.

- Strengthen access to justice by undertaking high quality multi– disciplinary research on contemporary legal issues pertaining to environment.

- Advocate for reforms in environmental law through scientifically sound legislative proposals.

- Organise training programmes for strengthening the legal capacity building on environmental laws doe civil servants, law enforcement authorities, non-governmental organizations and media personnel.

- Publish periodically journals and newsletters on environmental law.

— **Professor (Dr.) Yugal Kishore, Centre Head, CELAR**

Message from Team *Lex Terra*

Dear Readers,

It is with much joy and anticipation that we present to you the twelfth issue of CELAR's fortnightly newsletter, *Lex Terra.*

We congratulate the team for its continuous and praiseworthy collective efforts.

The team of *Lex Terra* wishes to thank all of those who supported this initiative. We would like to express out gratitude to our respected Vice– Chancellor, Prof. (Dr.) Vijender Kumar for his continuous support and timely inputs. We would like to thank Prof. (Dr.) Yugal Kishore, the Centre Head of CELAR for his help and encouragement. We would like to thank Mr. Chiradeep Basak, Centre Co-ordinator of CELAR, who has been a source of inspiration from the outset, along-side his unrelenting contribution to all phases of the job, from planning, to setting clear goals and appraising the outcome. Lastly, we would also like to extend our gratitude to our faculty advisors, Ms. Shannu Narayan and Mr. Nayan Jyoti Pathak for their ideas and relentless support.

Based on our publication's impact factor as well as some requests and suggestions by academicians from other law schools, we have decided to share our publication with all law schools, administrators along with a pool of eminent environmental activists, researchers and lawyers in India and overseas. Since we are not having triskaidekaphobia, we will also start accepting contributions from all over India from the thirteenth issue onwards. **So if you are willing to be part of this venture, kindly contribute.**

Our issues goes online every 1st and 16th of each month.

Please keep pouring down your support and concern for mother nature.

Thank you

Happy Reading!

INDIA-AFRICA: THE JOURNEY OF TWO DEPENDABLE PARTNERS IN A GREEN MEADOW

Chiradeep Basak
Assistant Professor of Law & Law ,
National Law University, Assam

Agriculture not only gives riches to a nation, but the only riches she can call her own...

- Samuel Johnson

Poetical and prosaic India-Africa linkages burgeoned after Indian independence, particularly under the charismatic leadership of Prime Minister Jawaharlal Nehru. Indian politicians and writers highlight Indian solidarity with African struggles for independence, particularly through Nehruvian moral leadership of the Non-Aligned Movement.

India-Africa partnership is a high watermark in catalysing the socio-economic transformation of over 2 billion people through bilateral development co-operation. Steadily, this bilateral tie nurtured way ahead of mere trade relations and imbibed several other aspects such as education, science- technology, culture, industry and agriculture. This short essay portrays the facade of agriculture, which is one of the major economic sectors in Africa as well as India. According to a report of FICCI, agriculture in Africa accounts for 20% of GDP and employs 60% of total workforce. Hence, agriculture is the vertebral column of Africa. It is the largest contributor to Gross National Income, the biggest source of foreign exchange and main generator of savings and tax revenue. On the other hand, India is also regarded as the global powerhouse of agriculture. But still, it shares a common issue with Africa. Nearly, three quarters of India's families depend upon rural income because 70% of Indian population lives in rural areas. Food security and procurement is one of the major issues in front of India. Albeit, it is the largest producer of milk, pulses, spices and second largest producer of wheat, rice, cotton, farmed fish, tea, sugarcane and vegetables, it finds a big challenge to meet the demands of its escalating population.

The common challenges

Both India and Africa are confronting common problems of poverty, hunger, lack of agricultural productivity/unit land and food insecurity. There is a dire need of mutual cooperation to initiate lucid policy actions to bring positive results. With respect to agriculture, India and Africa has entered into three levels institutional frameworks.

- Establishment at Regional Level;
- Establishment at Pam African Level;
- Establishment at Bilateral Level;
- Establishment at sectoral Level.

At **Regional Level,** following outline has been proposed:

- Farm Science Centres;
- Material Testing Laboratories for Highways;
- Soil, Water and Tissue Testing Laboratories;
- Solar Charging stations;
- Biomass gasifier systems;
- Agricultural Seed Production and demo centres.

At **Pan African Level**, following frameworks has been proposed:

- To establish Food processing cluster;
- To establish cohesive textile cluster;
- To establish Centre for Medium Range Weathering Forecasting;
- To establish India-Africa University for Life and Earth Sciences and Institute of Agriculture and Rural Development.

At **Bilateral Level,** following initiatives have been framed:

FICCI has built an institutional mechanism known as Joint Business Councils (JBCs). This JBCs links with all major African countries to assist and facilitate B2B interaction on a regular basis;

Under this level, JBC facilitates various business promotion and bilateral dialogues to all other forums at other abovementioned levels.

At **Sectoral Level,** following initiatives has been enunciated:

Several Indo-Africa conferences have been organized in association with Ministry of Petroleum and Natural Gas, Govt. of India. In addition, many other agrifood summits has also been organized to address the issues related to water, health, agriculture and many more.

But in spite of several agricultural, food aid funds, schemes and programs, the picture still remains as it is. Although developing countries as a whole per capita agricultural production increased by about 40% between 1980 and 2001, in sub Saharan Africa it fell by about 5%. At present juncture, Africa is under major crisis in the field of agriculture. The productivity is declining and access to food, land and other vital resources for the poor has gone astray. Food crisis has now been accompanied by other concurrent issues like Climate Change, Humanitarian Crisis (Armed Conflicts). Due to Climate Change, there has been a massive fluctuation in the carbon emission in environment. This is a major irony that, the struggling developing countries are suffering for the debacle shaped due to the conducts of the developed countries. In addition, to this the armed conflicts in several states of Africa have raised major concern for the

international political scenario itself. India needs to stand by those states during their crisis by facilitating them with an organizational and political impetus to form a better democracy because most of these states have either weak democracies or no democracies at all. Unfavourable market situations and meagre admission to markets are also chief problems for the African farmers. Another noticeable issue in Africa as well as India is w.r.t gender inequality. A major portion of agricultural activities is carried out by women but they do not enjoy the rights of owning land and cultivate cash crops.

The Way Forward

The second Africa India Forum Summit in Addis Ababa paved a new-fangled facet of Africa-India bilateral relationship. Government of India declared line of credit of US $5 billion for next three years to assist Africa accomplish its goals. In addition, India has also committed a financial support of US $2 million for the African Union Mission.

The existing policies should change its trajectory to a concrete foundation and broaden the horizons of their agricultural sectors. This can be done in following ways:

- By promoting as well as rendering technological know-how and agricultural research;
- By educating, building capacity of the individuals within communities and en-couraging self-sufficiency;
- By creating a milieu for addition of the all vital value chain flowing from agriculture;
- By promoting communal farming;
- By enacting evidence based policy measures;
- By knowledge transfer and adoption of common research priorities for a prospective tomorrow;
- By generating income based support to farmers;
- By attracting young farmers in the sector of agriculture. This can be done by giving them a financial impetus during initial phase;
- By involving the affected farmers under effective small and active farmer schemes. The focus should be on quality rather than quantity;
- By promoting the commodities with the potential of high growth capacity, for example dairy technology, mushroom farming etc.;
- By supporting for a long term food security resolution;
- By improving access to water, land and seeds;
- By involving NGOs to guide the farmers.
- By encouraging and facilitating the farmers to diversify to higher value commodities;
- By encouraging the states to enact, adopt and realize gender equivalent norms and providing women, the right to own land and grow cash crops;
- By aiding, advising and valuing farmer's knowledge before drawing any appropriate measures in the field of policy and agricultural research;
- Instead of small scale regular food aid

programs, India and Africa should come together in association with the communities to recognize an alternative long term programs;

- By including the several farmers' organizations in decision making bodies with respect to agriculture. This will not only help both the states to realize the exact issues but also give a democratic set up in the field of agricultural governance via mutual understanding about the problems with an active participation procedure;

- By assisting Africa with its (India) business acumen in improving the market access for farmers;

- By supporting productivity increasing activities among small farmers to enhance food security;

- By drawing a connection between rehabilitation, relief and development;

- By supporting to set up an institutional and legal framework for food crisis management;

- By humanizing the trade linked abilities, water systems and rural infrastructure;

- By introducing RE projects (Renewable Energy) in barren lands of Africa. Keeping the feasibility factor into account, India should encourage Africa to come up with other forms of energy resources like solar photovoltaic, wind, bio mass etc. India should invest in these renewable environmental friendly sectors. Power is a major necessity and availing that will help Africa to eradicate several agriculture related issues;

- By collaborative agri-based management and technological institutions across borders b/w India and Africa. In India, many agricultural universities have MoU with many foreign universities. Hence, further collaborative strategies have to be framed to attract more bright research oriented minds. Some collaboration is already there, like Benin institute for mathematics, Masuku Technology schools are already on tract;

- By supporting for macroeconomic policies and regional cooperation;

- By assisting Africa to develop roads, seas and other vital transport infrastructure;

- By switching to genetically modifies seeds has been a ground of several debates in India as well as world. Due to lack of lucid scientific evidence to regard or disregard the essence of GMOs, the states should not jump in to a conclusion. Food security is not only the rights that we are concerned about; but Right to healthy food is what both these states should keep in mind. GMOs are nothing but a minting machine for MNCs, who can protect the origin of the seeds lineage by applying Intellectual Property Regimes;

India also needs to review its assistance to these agricultural sectors by taking into consideration the dynamics of rural welfare. This is no exaggeration but a fact that enlisting objectives is an easy task while bringing them in reality is very hard to achieve. There are some drawbacks too.

Excessive food aid also amounts to:

- Long-term dependency and craving;
- Unfavorable blow on local production markets;
- Resale of aids in food and agricultural markets.

Hence, the aids should be for a time frame and ethnically and nutritionally viable. But conceptualizing all roles in points is to unproblematic but a major question also lies within the territory. With a optimistic set up of mind, one cannot deny that India, in itself is suffering from all these problems mentioned in the initial part of this paper. But that doesn't mean; it's static. The whole process of learning, supporting, aiding is shared. Today, we have witnessed many positive results where assistance to Africa in the field of agriculture has provided states like Ghana, Mali, Burkina Faso, an expertise for agricultural welfare. Recently, President of India, Honb'le Pranab Mukherjee has announced an already been allocated 500$ million to set up grant based projects in Africa, which covers a wide array like higher education, vocational training, science, Information Technology, agriculture and Renewable source of energy. But this is a beginning and we have a long journey to cover together like a sturdy and inter-dependable collaborator.

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EU AVIATION EMISSION ENVIRONMENTAL REPORT 2016 — AN ANALYSIS

Sweden Doley,
4th Year

The European Commission has published the first European Aviation Environmental Report, the result of close collaboration between the EC, the European Aviation Safety Agency (EASA), the European Environment Agency (EEA) and EUROCONTROL. It is recognised that Europe's aviation sector brings significant economic and social benefits. The aviation sector brings significant benefits, both directly through the jobs it creates and indirectly through the facilitation of global trade and tourism. However its activities also contribute to climate change, noise and local air quality impacts, and consequently affect the health and quality of life of European citizens. The environmental and health impacts of the aviation sector clearly impose a cost on society as a whole. It is also to be noted that the technological improvement in the aviation sector has not been able to keep up with the demand for air travel leading to overall pressure on the environment by factors like emissions, noise pollution, etc. Therefore, future growth in the European aviation sector is inextricably linked to its environmental sustainability. Hence, the core objective of the European Aviation Environmental Report is to come up with a comprehensive and effective package of measures which are required to continue to

address this challenge in the coming years. The forecast scenarios for the next 20 years show that with the expected increase in air traffic, the environmental challenge will gain in importance. Some of the important findings in the report are–

- There have been an increased in number of flights by 80 percent during the period 1990 to 2014, which is expected to increase by another 45 percent by 2035, thereby increasing the CO_2 emissions.

- There is also an increase in impact on environment over the past 25 years due to the increase in air traffic.

- Emissions and noise exposure in 2014 were around 2005 levels due to technological improvements, fleet renewal and increased air traffic management efficiency.

About 2.5 million people were exposed to noise at 45 major European airports in 2014, which would increase by 15 percent by 2035.

Aircraft noise exposure is typically assessed by looking at the area of noise contours around airports, as well as the number of people within these contours. A noise contour represents the area around an airport in which noise levels exceed a given decibel (dB) threshold. From 2005 to 2014, the number of scheduled flights increased by 3.2 percent, but the number of city pairs with scheduled flights most weeks of the year increased by 29 percent. This growth in the

connectivity of the network, without adding many flights, has been achieved by reducing the number of city pairs which are served very frequently. The increase in the number of city pairs in the network is a high level indicator of the wider geographical coverage and greater dispersion of local impacts such as noise. Under the Environmental Noise Directive, aircraft noise data from 56 out of 91 airports having more than 50,000 movements/year, were reported by EU Member States. These data showed that for these 56 airports 2.4 million people were exposed to noise levels of 55 dB Lden and above in 2012. An analysis was conducted on the remaining 35 European airports having more than 50,000 movements/year and, combined with the reported data, showed that around 5 million people in Europe were exposed to noise above 55 dB Lden that year. The main aircraft engine emission pollutants are carbon dioxide, nitrogen oxide, sulphur oxide, unburned hydrocarbons, carbon monoxide, particulate matter and soot. As per data reported by EU28 and EFTA Members States to the United Nations Framework Convention on Climate Change (UNFCCC), aircraft CO_2 emissions increased from 88 to 156 million tonnes (+77%) between 1990 and 2005. On the other hand, as per data from the IMPACT emissions model, CO_2 emissions increased by 5 percent between 2005 and 2014. This was due to an improvement in fuel efficiency driven by the introduction of new aircraft and improvements in operational practice. However, projections indicate that future technology improvements are unlikely to balance the effect of future traffic growth.

In 2012, aviation represented 13 percent of all EU transport CO_2 emissions, and 3 percent of the total EU CO_2 emissions. It was also estimated that European aviation represented 22 percent of global aviation's CO_2 emissions. In 2010, Member States agreed to work through the International Civil Aviation Organization (ICAO) to achieve a global annual average fuel efficiency improvement of 2 percent, and to stabilise the global net carbon emissions of international aviation at 2020 levels. The 44 Member States of the European Civil Aviation Conference (ECAC), which includes the EU and EFTA Member States, recognise the value of submitting Action Plans on CO_2 emissions reductions to ICAO as an important step towards the achievement of the global collective goals. Depending on available financial resources, Member States have identified a range of specific measures in their action plans to address noise from aviation‑related sources. These adopted plans include operational measures (e.g. optimised flight procedures, airport night-time restrictions) and measures focused on the receiver (e.g. noise insulation of houses).

Aircraft and their engines must meet international standards for noise and pollutant emissions. Over the past decades jet aircraft certified noise levels have generally reduced by

about 4 decibels (dB) per decade. This progress has recently slowed to about 2 dB per decade, and this slower rate of improvement is expected to continue in the future. All jet and heavy propeller-driven aircraft must comply with noise certification requirements. This involves the measurement of noise levels at three different measurement points (approach, lateral and flyover) in order to characterise the aircraft noise performance around an airport.

Emissions reductions are not achieved in the actual combustion phase. This is due to strict fuel specifications which require sustainable alternative aviation fuels to have drop-in characteristics with comparable behaviour to fossil fuel during the fuel combustion phase. Sustainable alternative fuels reduce aviation GHG emissions through savings which are achieved in the production phase of renewable, biological material (feedstock), and in the process of conversion into fuels. Potential emissions savings from using bio fuels may be as large as 80 percent, but depend highly on the feedstock type and the production processes. An additional benefit from the use of alternative fuels could be improved air quality. In order to support the use of alternative fuels in future air transport, the European Commission initiated a study on various areas including economics, policy, sustainability, research and coordination. The report also suggests Europe and other

countries to take adaptation measures to deal with the unavoidable impacts of climate change and their economic, environmental and social costs. There has been already action plans to adapt aviation to climate change among European nations which identifies the risks of climate change in relation to aviation infrastructure. It also sets out a framework and mechanisms for responding to current and future climate impacts on infrastructure.

Source:

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ARE HYBRID CARS A REAL STEP TOWARDS A GREENER ENVIRONMENT?

Irfan Hasieb,
4th Year

Environmental Pollution has become an issue which is demanding the attention of almost every section of people at present. Because of the damage which has been done, people and organisations have taken steps to undo the damage. Vehicular pollution is one of the major contributors of pollution; hence the respective state governments have come up with various steps in order to control the emission levels of the vehicles. The car manufacturing companies came up with the unique concept of 'hybrid' cars which they claim to be environmentally safe as the emission levels of such cars is relatively lower than the conventional cars.

However, a closer study reveals that they also contribute to the existing pollution in their own way. The emission levels of such hybrid cars are no doubt lesser than the conventional cars; but such hybrid cars demand a more complex mechanism which calls for consumption of more energy and resources during the production process. The factories producing such hybrid cars emit more pollutants in the atmosphere than normal car factories. In order to achieve efficiency of hybrid cars, it is necessary that such hybrid cars are of less weight. Companies achieve this by using aluminium in the frame of the car instead of steel. However, the production of aluminium consumes 10 times the energy that is needed to produce steel. Thereby, emitting 10 times the pollution even before a car is used.

The increase in the consumption of more energy and resources during the manufacturing of hybrid cars results in increase in the emission levels and ends up nullifying the benefits of reduced emissions. Also, the manufacturing and disposing process of the batteries that are so vital for the hybrid cars, often deteriorates the environment. Nickel (Ni) is ideally used in the manufacture of hybrid car batteries instead of Lead (Pb). The energy consumption in the production of nickel batteries is higher than the energy required producing lead batteries.

Further, the extraction of nickel used in the batteries and the copper that is required for the wiring; is done through the process of strip mining. Strip mining is done by devouring the surface of the earth of all forms of life, which is in itself a destructive act. Further, such mining also contributes to air pollution in the nearby areas. Another very important factor to be considered is the energy that is required to charge the battery. If the energy is derived out of clean energy sources then it does not pose challenges to the environment, which is not the case in the production of such batteries.

Moreover, many hybrid cars use a normal combustion engine, which means that they do produce some emissions. The electric engine is used mainly at low speeds or when stopped, so while driving at high speeds, the combustion engine ideally takes over; thereby, releasing emissions same as that of a normal car.

So, while hybrid cars which are relatively new and being argued as the solution for a greener environment, many such issues have to be solved in order for this to be true. Notwithstanding the range of hybrid vehicles available in the markets, majority of them lack efficiency, urging us to seek for an alternative mechanism for the addressal of such problems.

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PHOTO COURTESY: *http://livinggreenmag.com/wp-content/uploads/2012/09/hybrid-car.jpg*

VISITING THE DRAFT NATIONAL WILDLIFE ACTION PLAN (2017-2031)

Rashmi Patowary,
5th Year

In 1982, at the XV meeting of the Indian Board for Wildlife, a decision was taken, based on which, the first National Wildlife Action Plan (NWAP) was adopted in 1983. The plan had outlined the strategies and action points for wild-life conservation.   Meanwhile, some problems became more acute and new concerns cropped up which demanded a change in priorities. Thus, the second one began in 2002. The Ministry of Environment, Forest and Climate Change has been implementing the National Wildlife Action Plan (2002-2016). In order to review the implementation of the said Action Plan and to suggest a new Plan of Action for Wildlife Conservation, the Ministry constituted a Committee under the chairmanship of Shri J C Kala, Ex-DGF and Secretary to the Government of India. The aforesaid committee was born from the suggestions made by the members of the National Board for Wild Life and was agreed upon in the 26th Meeting of the Standing Committee held on 31 October 2012. The Committee convened several meetings and drafted the National Wildlife Action Plan (2017-2031).

The draft third National Wildlife Action Plan (NWAP) 2017-2031 unveiled by the environment ministry accords special emphasis to rehabilitation of threatened species of wildlife while conserving their habitats which include inland aquatic, coastal and marine eco-systems. The Draft acknowledges the crucial role of the various ecological processes. The fact that ecosystems are 'Life Support Systems', vital for all beings and to maintain the intricate balance in the nature has been duly given importance in the plan. The document also pays attention to 'preservation of genetic diversity' and 'sustainable utilization of species and ecosystems'. For the conservation of all uncultivated flora and undomesticated fauna (bearing ecological value), the Plan adopts the landscape approach. It has also brought to focus other concerns such as; the alarming erosion of our natural heritage comprising of rivers, forests, grasslands, mountains, coastal areas, deserts and wetland; rising human animal conflict; fragmentation and deterioration of habitats etc. The Plan lists education, innovation, training, extension, conservation awareness and outreach programmes as measures to strengthen people's support for conservation of wildlife. It has also attempted to revamp tourism in wildlife areas.

The various heads contained in the Draft are as follows:

Strengthening and Improving the Protected Area Network

Landscape Level Approach for Wildlife Conservation

Rehabilitation of Threatened Species

iv. Conservation of Inland Aquatic Ecosystems

v. Conservation of Coastal and Marine Ecosystems

vi. Integrating Climate Change in Wildlife Planning

vii. Control of Poaching and Illegal Trade in Wildlife

viii. Wildlife Health

ix. Mitigation of Human-Wildlife Conflicts

x. Management of Tourism in Wildlife Areas

xi. People's Participation in Wildlife Conservation

xii. Conservation Awareness and Outreach

xiii. Development of Human Resources

xiv. Strengthening Research and Monitoring

xv. Improving compliances with Domestic Legislations and International Conventions

xvi. Ensuring Sustained Funding for Wildlife Sector

xvii. Integrating National Wildlife Action Plan with other Sectoral Programmes.

In this issue, the first three heads, namely – Strengthening of Protected Area Network, Landscape Level Approach for Wildlife Conservation and Rehabilitation of Threatened Species will be dealt.

STRENGTHENING OF PROTECTED AREA NETWORK

Recommended Action and Projects

- Periodic review of the status of Protected Areas (PAs) in India.

- Enhancement of the network through inclusion and integration of the high conservation areas (terrestrial, inland water and coastal/marine) into wider landscapes and seascapes.

- Completion of the process of rationalisation and demarcation of boundaries of PAs.

- Preparation of Integrated and Adaptive Management Plans for all the PAs and expedite the process of settlement of rights in the PAs.

- Promote usage of modern tools for monitoring and surveillance of highly sensitive PAs.

- Assessment, monitoring and management of the alien invasive species inside PAs.

- Securing wildlife corridors and improving frontline staff for better monitoring and management of PAs (also involve local communities for the same).

Timeline for the Priority Projects

1	Publication of Periodic Status Report of PA network.	By 2017 and every 5 years thereafter
2	Complete review of the Pas	Completed by 2025 and every 10 years thereafter.
3	Complete legal formalities (including payment of compensation to the right- holders)	Complete by 2019 and every 5 years thereafter
4	Review of the management of the PAs (in collaboration with NGOs and Scientific Institutes) with a view to accommodate genuine needs of the local people.	To start in 2017 and complete by 2019
5	Review of the past cases of relocations of villages from the Pas	To start in 2017 and complete by 2019.
6	Complete the process of determination of forest rights and identification of Critical Wildlife Habitats (CWHs) within PAs	By 2019
7	Conduct a scoping study for establishment of a new category of PAs	Complete by 2020
8	Commission a feasibility study for enhancing the PA network by including terrestrial, inland water and coastal/marine areas of high conservation values and by integrating PAs into wider landscapes and seascapes	Complete by 2019
9	Initiate steps for setting up new PAs and enhancing the coverage of existing PAs	Complete by 2023
10	Identify important wildlife habitats, corridors and sacred groves situated outside the administrative control of the SFDs in collaboration with suitable NGOs and Scientific Institutes and get them notified as Community Reserves	Complete by 2020
11	Identify potential National Parks and Wildlife Sanctuaries for enhancing the network of Tiger Reserves.	Complete by 2022
12	Set up Electronic Eye (E-eye) surveillance in highly sensitive PAs and initiate the use of drone/Unmanned Aerial Vehicle (UAV) technology as an airborne monitoring /warning system.	Complete by 2025
13	Develop a National Policy on Invasive Alien Species and their management	Complete by 2018
14	Issue guidelines for preparing management plans for wildlife corridors.	Guideline to be prepared by 2018 and management plans for wildlife corridors to be prepared by 2021
15	Undertake rationalisation of boundaries of PAs	Complete by 2022
16	Prepare/update Integrated and Adaptive Management Plans for all the PAs	Complete by 2020; and review every 5 years thereafter.

LANDSCAPE LEVEL APPROACH FOR WILDLIFE CONSERVATION

<u>Recommended Action and Projects</u>

- Identification of the present status of all wildlife species in the country.

- Laying special emphasis on species that are endemic or endangered and in need of conservation through special recovery projects.

- Identification and implementation of landscape level conservation projects using flagship species concepts.

- Identification of critical areas outside protected areas for wildlife conservation and initiate projects.

- Undertaking a programme of ex situ captive breeding and rehabilitation in the wild for critically endangered species in accordance with IUCN guidelines, after developing requisite techniques and capabilities in this regard.

- Publication of periodic status papers on various flora and fauna species, which should be translated into local languages.

- Initiation of work on contemporary threats such as climate change (laying focus on ecosystems such as marine, wetland, island, montane and arid zones).

- Securing of the corridors for large mammals such as Elephant and tiger corridors across the country.

- Development of a strategy for managing free ranging domestic animals such as dogs, cats etc. in and around wildlife habitats.

- Development of monitoring protocols for translocation of species.

- Recording the status of the species in illegal trade and reviewing policies and institutional framework

to ensure that illegal trade is minimised.

- Ensuring that all development projects, in key wildlife habitats, do not turn out to be drivers of conflict, in future.

Timeline for the Priority Projects :

1	Establishment of baseline data and regular monitoring of different	2017-18 and then once in every 5
2	Undertake periodic review on conservation status of species using	2017-18 and then once in every 5
3	Undertake field status surveys on threatened and data deficient	2017-19 and then once in every 5
4	Publish a status report on Wildlife of India providing assessment of major wildlife taxa and update every five years	2017-19 and then once in every 5 years
5	Initiate and focus on Species Recovery Projects to recover species	2017-20 and continue
6	Identify species with single populations and translocate to a second home after drawing up the requisite plans.	2017-2022 and to continue
7	Build capacity within the SFD and other practising agencies, organisations for capture and transport of threatened wildlife to safer habits.	2017-2022 and to continue
8	Identify suitable flagship species and develop landscape level action	By 2018
9	To identify and map critical areas that have rich faunal and floral	2017-2022 and to continue
10	Reconcile species identified for recovery with the ones listed for	2017-2022 and to continue
11	Build capacity in enclosure design, animal husbandry, breeding	2017-2022 and to continue
12	Prioritize and initiate time bound conservation breeding projects	2017-2022 and to continue
13	Publish status papers on floral and faunal species periodically with	To begin in 2017 and continue
14	Constitute National and State level Authorities for sustainable management of Mountain, Wetlands and Riverine, Marine and Island, and Arid Zones with state level authorities in each State/UT	2017-2022 and to continue
15	Prioritize key habitats under each of these four priority land-	2017-2022 and to continue
16	Develop and implement the long term conservation plans for	2017-2022 and to continue
17	Develop an appropriate multi-agency strategy to check the popu-	2017-2022 and to continue
18	Develop species-specific translocation and monitoring protocols	2017-2022 and to continue
19	Undertake periodic review of status CITES listed wildlife species	2017-2018 and once in every 5

REHABILITATION OF THREATENED SPECIES

Recommended Action and Projects

- Identification of endangered and critically endangered species of flora and fauna.

- Expedite the implementation of species recovery plans prepared during the NWAP (2002-2016), and preparation such plans for other priority species.

- Developing capacity for ex-situ conservation.

- Preparing a comprehensive plan for conservation of endangered/critically endangered plants.

- Identify critical habitats for threatened species of flora and fauna outside PA network and prepare

their restoration / recovery plans involving local community institutions.

Timeline for the Priority Projects

1	Review and update the list of endangered and critically endan-	To be initiated by 2017 and com-
2	Conduct status survey of Red Listed and other Data Deficient	To be completed by 2021
3	Implement all the species recovery plans prepared during the pre-	To be completed by 2021
4	Prepare and execute species recovery plans for the priority spe-	To be initiated in 2017 and con-
5	Initiate measures for safeguarding genetically pure populations	To be initiated in 2017 and con-
6	Identify suitable alternative homes for species having single iso- lated popula	To be completed by 2021
7	Develop a cadre of trained Wildlife Biologists and Botanists and	To be initiated by 2017 and con-
8	Develop ex-situ conservation facilities for critically endangered species and initiate conservation breeding programmes.	To be initiated by 2017 and ongo- ing
9	Develop a centralized database of available information for identi-	To be completed by 2018
10	Initiate a national programme on inventory and monitoring of threatened habitats and link with conservation of eco-sensitive area programme.	Initiate by 2017 and continue throughout the plan period
11	Establish new MPCAs and MPDAs for the globally threatened	Initiate by 2017 and complete

Sources Referred -

1. Ministry of Environment, Forest and Climate Change (Government of India), Draft National Wildlife Action Plan 2017-2031. Available at:: http://www.indiaenvironmentportal.org.in/files/file/Draft% 20National%20Wildlife%20Action%20Plan%20%282017-2031%29.pdf (accessed on 11 February 2016).

2. Draft National Wildlife Action Plan 2017-2031. Available at: http:// www.indiaenvironmentportal.org.in/content/424760/draft-national-wildlife-action-plan-2017-2031/ (accessed on 11 February 2016).

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