



Green Files

Newsletter on environment audit and sustainable development
International Centre for Environment Audit and Sustainable
Development

This newsletter has been compiled by iCED Jaipur and is meant for circulation amongst IA&AD. This quarterly newsletter highlights issues on environment and sustainable development which can enable audit offices identify areas of audit concern. The newsletter comprises of recent news regarding environment/ sustainable development, critical appraisal of environmental acts in India, snapshots of news about the environment from across the country. It will also feature recent national and international audit reports pertaining to the environment and sustainable development. Our forthcoming issues will also include Supreme Court judgements on environment issues which have an impact on India's environment management and governance structures.

The second issue of Green Files focuses on outcome of a conference on The Economics of Ecosystems and Biodiversity (TEEB) held in April 2012 regarding economic valuation of biodiversity and ecosystems; critical appraisal of the Biological Diversity Act 2002; discussion of environmental problems and environment acts/rules in Karnataka and two recent audit reports, (i) solid waste management by office of Principal Accountant General, Assam (ii) international audit report on climate change, simultaneously carried out by 14 countries across the world. We have also included 'Dehradun Mining Case' which was the first environment case in India and which set the precedent for subsequent judgements on environment issues.

We look forward to your suggestions on how to make Green Files more relevant. Contributions to the newsletter are also welcome. These can be mailed to iced@cag.gov.in.

Contents

- 1) The Economics of Ecosystems and Biodiversity (TEEB) Conference, April 2012
- 2) Environment Case law in India: Dehradun mining case
- 3) Salient features of Biological Diversity Act 2002 and the Biology Diversity Rules 2004
- 4) Environment news snapshots from across India
- 5) State in Focus: Karnataka
- 6) Recent Environment audit report: Assam (Audit Report (Civil) for the Period ended March 2011)
- 7) International environment auditing: Coordinated International Audit on Climate Change—Key implications for Governments and their auditors (November,2010)

1) The Economics of Ecosystems and Biodiversity (TEEB) Conference, April 2012

All over the world there is increasing realization that we have been consuming natural resources at an alarming rate. The history of post-War economic growth

has been one of unsustainable consumption: unsustainable for the planet's ecosystems, for its species diversity and for the human race. By some recent yardsticks of sustainability, our global ecological footprint has doubled over the last 40 years to the

point that, if the whole human population consumed at this rate, we would need 4-5 planet Earths just to keep up, just to sustain us. By and large, the world seems to have disconnected itself from Nature and is struggling to find the "value of Nature."

The Economics of Ecosystems and Biodiversity (TEEB) is a global initiative focused on drawing attention to the economic benefits of biodiversity, highlighting the growing cost of biodiversity loss and ecosystem degradation. It aimed to make a compelling economics case for conservation of ecosystems and biodiversity by evaluating the costs of the loss of biodiversity and to compare them with the costs of effective conservation and sustainable use.

In March 2012, 250 participants gathered in Leipzig, Germany to attend the first TEEB conference. The audience composed of researchers, policy makers, economists and practitioners from over 35 countries and addressed the challenges of mainstreaming the value of nature into policy making. One of the most significant outcomes of the conference was the confirmation that TEEB is now being implemented around the world at regional, national and sub-national levels.

Some of the interesting TEEB studies in India are:

- Right incentives are helping aid conservation of threatened Snow Leopards in Kibber, Himachal Pradesh¹.

¹ Rodricks, S. mainly based on Snow Leopard Trust 2010

- An organic certification mechanism introduced for tea, coffee and vegetables grown in the Nilgiri hills lead to a balance between increasing the income of locals and farmers in Southern India as well as increasing the provisioning capacity of the forest² and saving it from destruction³.
- The use of an integrated watershed management based development approach turned an arid and drought prone village in Maharashtra into irrigated farmland and increased incomes of people living in the village⁴.
- Conserving wetlands through microfinance programs and involving the local people in ecotourism activities helped not only conserve the threatened Ramsar Wetland site in East Kolkata but also led to increase in income of people living on its fringes⁵.

All these cases illustrate considerable scope in mainstreaming the value and economics of nature into policy and decision making beyond the biodiversity sphere, such as financial and economic decision-making and development planning.

2. Environment Case law in India: Dehradun mining case

² ability of the forest to provide products like timber, food, fuel, biodiversity, traditional medicines, fodder etc

³ R. Jordan and M. John (2010)

⁴ S. Singh (2010)

⁵ D. Dey (2010)

One significant fact regarding environmental governance in India has been the role of the courts, especially that of the Supreme Court. In its many judgements since the 1980, the Supreme Court has extended the concept of right to life to include right to clean wholesome environment and has thus led the way for many significant environment legislation and better accountability of the government in environmental matters. The most important procedural innovation for environmental jurisprudence has been the introduction of concept of Public Interest Litigation (PIL). Until the early 1970s, litigation in India was in its rudimentary form as initiation and continuance of litigation was prerogative only of the individual aggrieved party. A complete change in the scenario in the 1980s was marked by attempts to bring wider issues affecting the general public at large within the ambit. The ambit and extent of PIL were expanded in 1980s from the initial prisoner rights concerns, to others like development activities, environment protection etc.

The Court's approach further changed and it ruled that any member of the public having sufficient interest, may be allowed to initiate the legal process in order to assert diffused and meta-individual rights. The Court also has emphasised that any member of the public having sufficient interest may be allowed to initiate the legal process in order to assert diffused and meta-individual rights in environmental problems.

Rural Litigation and Entitlement Kendra v. State of U.P., WP 8209 & 8821 of 1983 (Dehradun quarries case)

This was the first case of its kind in the country involving issues relating to environment and ecological balance and the questions arising for consideration were of grave moment and of significance not only to the people residing in the Mussoorie Hill range forming part of the Himalayas but also in their implications to the welfare of people living in the country. It brought into sharp focus the conflict between development and conservation and served to emphasise the need for reconciling the two in the larger interest of the country.

The case related to mining operations for lime stone quarrying carried out through blasting in and around the hills of Mussoorie in Dehradun. From 1955 to 1985, limestone mining led to escalating environmental problems in the Doon Valley. Severe noise and air pollution emanated from over 100 mine sites throughout the Lesser Himalayas, many of which overlooked the Mussoorie Hills and the northern edge of Dehradun. Quarrying also led to the disruption and destruction of natural limestone aquifers, deforestation, severe erosion, and heavy siltation of water bodies by mineral-rich runoff from denuded hill sides. Farmers complained about livestock killed by falling debris, the damage done to their fields, and the appropriation of their fuel wood, fodder, and water sources by mining interests.

In 1983, the Supreme Court received a letter from the Rural Litigation and Entitlement Kendra, complaining against the environmental degradation. The Court treated the letter as a writ petition under Article 32. The case developed into complex litigation as lessees of more than 100 mines joined the action. The Supreme Court played an important role essentially in conducting a comprehensive environmental review and analysis of the national need for mining operations located in the Dehradun Valley. In addition, the Court provided for funding and administrative oversight of re-forestation of the region. The Supreme Court delivered its judgement in this case which is summarized below:

- The Court prohibited blasting operations in 1983, while it was reviewing whether the mines were being operated in compliance with the safety standards as laid down in the Mines Act of 1952 and other relevant mining regulations. The Court appointed an expert committee (the Bhargava Committee) to assess the mines. In March 1985, upon the recommendation of the Bhargava Committee, the Court ordered that the most dangerous mines and those falling within the Mussoorie City Board limits be denied leases and that their operations cease immediately.
- The Court determined that a group of mines, including a major operation owned by the state of Uttar Pradesh, could remain open because the environmental damage was less clear.
- A second committee (the Bandyopadhyay Committee) was empowered to consider plans submitted by the miners to safeguard the environment and to hear the claims of people adversely affected by the mining. In 1987, after the review of the Bandyopadhyay committee's report, which was based on ecological considerations, the Court concluded that mining in the Valley should cease.
- The court also took into consideration the fact that lime stone quarrying and excavation of the lime stone deposits seemed to affect the perennial water springs and the fact that environmental disturbance had to be weighed in balance against the need of lime stone quarrying for industrial purposes in the country.
- In 1988, the Court concluded that all the mines in Dehradun Valley should remain closed, except three operations. The court also concluded in 1988 that continued mining in the valley violated the Forest Conservation Act. The court went beyond the requirements of the Act to conserve forest merely and issued orders to ensure that the valley be reforested.
- Later the court established a Monitoring committee comprising of the Central, State, and Local officials and two 'public-spirited' citizens to oversee reforestation, mining activities and 'all other aspects necessary to bring about normalcy in the Doon Valley'. The court also provided the Monitoring Committee with funding by ordering that 25 per cent of the gross profit of the remaining mines be deposited in a fund controlled by the committee. Supreme Court of India

followed up its ruling by ordering the commissioning of the Supreme Court Monitoring Committee (SCMC) to oversee the closure, reclamation, and as much as possible, the eventual restoration of the mine sites' original natural state.

- During the course of the litigation, in 1986, Parliament enacted the Environment Protection Act. The mining operators contended that as because the Act provides procedures to deal with the situation at issue, the court should dismiss the case and leave the issue to administrative authorities under the Environment Protection Act. The Court rejected the miners' arguments the ground that the litigation had already commenced and significant orders had been issued by the court before the adoption of the Environment Protection Act.
- After the Courts' ruling, the centre designated the Valley as an ecologically fragile area under the Environment protection Act. In addition, it appointed a Doon Valley Board, under the chairmanship of the Minister for Environment and Forests, which was charged with conserving and restoring degraded areas of the Valley.

This judgement is very significant as it was the first time; an environmental issue was brought before the court by means of a PIL. The courts took the concept of sustainable development into account while delivering this judgement. The judgement also highlighted the fact that the right to wholesome environment as a

fundamental right under Article 21. This judgement set a precedent and many other later cases relied on the principles laid down in this ruling.

Sources: *Supreme court Judgement; Implications of Indian Supreme Court's Innovations for Environmental Jurisprudence -- Geetanjoy Sahu-- Law Environment and Development Journal; The Dehradun Valley Litigation: Case Study by Suchismita Pati.*

3) Biodiversity Act 2002: A critical appraisal

A. Background

Biological diversity or biodiversity includes all organisms, species, and populations; the genetic variation among these; and all their complex assemblages of communities and ecosystems. It also refers to the interrelatedness of genes, species, and ecosystems and their interactions with the environment.

Biodiversity is being threatened by habitat loss and destruction due to human activities like cutting down forests, alterations in ecosystem composition, introduction of exotic (non-native) species, over-exploitation (over-hunting, over-fishing) of species, human-generated pollution and contamination and global climate change.

The Convention on Biological Diversity (CBD) was inspired by the world community's growing commitment to sustainable development. It represented a step forward in the conservation of biological diversity, the sustainable use of its components,

and the fair and equitable sharing of benefits arising from the use of genetic resources.

In pursuance to the Convention on Biological Diversity (CBD), to which it was a signatory, India enacted the Biological Diversity Act in 2002 following a widespread consultative process over a period of eight years. The Biological Diversity Rules were notified thereafter in 2004. The Act gives effect to the provisions of the CBD. It also addresses access to biological resources and associated traditional knowledge to ensure equitable sharing of benefits arising out of their use to the country and its people.

B. Salient features of Bio Diversity Act 2002 and Bio Diversity Rules, 2004

- a. Prohibition on transfer of Indian genetic material outside the country, without specific approval of the Indian Government.
- b. Prohibition on anyone claiming an Intellectual Property Right (IPR), such as a patent, over biodiversity or related knowledge, without the permission of the Indian Government.
- c. Regulation of collection and use of biodiversity by Indian nationals, while exempting local communities from such restrictions.
- d. Measures for sharing the benefits from the use of biodiversity, including the transfer of technology, monetary returns.
- e. Measures to conserve and sustainably use biological resources, including habitat and species protection, environmental impact assessments of

projects, integration of biodiversity into the plans, programmes, and policies of various departments/sectors.

- f. Protection of indigenous or traditional knowledge, through appropriate laws or other measures such as the registration of such knowledge.
- g. Regulation of the use of genetically modified organisms.
- h. Setting up of Biodiversity Management Committees (BMC) at local, village and urban levels, State Biodiversity Boards (SBB) at the state level, and a National Biodiversity Authority (NBA).
- i. Central Government to integrate conservation and the promotion and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies, 'as far as practicable, wherever it deems necessary'.

The provisions of the Biological Diversity Act are to be implemented by 3 functional boards, at the central level by The National Biodiversity Authority (NBA) which was set up in Chennai in 2003. At the state level, State Biodiversity Boards are to be set up and to date, 22 SBBs have been established. At the local level, Biodiversity Management Committees (BMCs) have to be set up. All the BMCs have to prepare Peoples Biodiversity Registers (PBR) which is a database of all biodiversity available in their areas.

C. Critical Appraisal of the Act

- i. Many important regulations are yet to be framed by NBA regarding agrobiodiversity, medicinal plants, soil and microbial diversity, intellectual

property rights (IPRs), biotechnology and bio-safety, traditional and tribal knowledge etc. Thus, these areas remain unregulated.

- ii. The role of the SBBs is limited only to that of receiving intimation from Indian institutions, corporate bodies or individuals who wish to use biological resources and knowledge and guiding and steering processes like documentation of biological diversity. It has no role in monitoring access to biodiversity given under this Act.
- iii. Most SBBs consist of representatives from the government or are government-supported academic institutions. There is also a lack of independent scientists in the SBBs. This will defeat the purpose of setting up SBBs.
- iv. No foreign person can seek access to Indian biological resources and people's knowledge or claim an IPR without the express approval of the NBA. Indian entities need to intimate the concerned SBB for access, unless it is an IPR where the jurisdiction shifts to NBA again. Local communities who are likely to be affected by an approval are to be consulted through their BMCs. However, there is no clear system for detailed assessment of impacts of such access on both the intrinsic value and use value of the resource. There is also no detailing in the law of free prior informed consent of the local communities before approval for access is granted.
- v. The concept of non-commercial benefits, outside the purview of economics, does not find a place in this Act, a point that has been pointed

out by Indigenous communities for a long time

- vi. The local communities and the BMCs have no space to restrict/deny access to resources and knowledge. They can only levy fees for access of resource for commercial purpose but if they have any objections with respect to an approval for access, the only recourse they have under the Act is to appeal before a High Court
- vii. No monitoring of conditions under which access is provided is being done presently
- viii. Of the six duties of the Central Government regarding conservation under Biological Diversity Act, none has been translated into concrete action.
- ix. Creation of PBRs is taking place too slowly and is not really representative or reflection of the whole biodiversity
- x. The intent of the Act is to restrict and regulate the use of biological resources by foreign nationals and entities in particular. However, it seems to have gone farther than intended: restrictions and regulations under Section 3 of the Act fall not only on foreign nationals and entities, but also on Indian entities having any non-Indian participation in their share capital or management.
- xi. Under the Act, any person who intends to register an intellectual property right (IPR) for an invention based on any research or information on a biological resource obtained from India is required to obtain prior approval of the NBA before applying. This provision also applies to those IPR applications that are filed or intended to be filed outside India. Though it is

not clear how this condition will be enforced, such IPRs, if obtained without the approval of the

- xii. Until normally traded commodities are exempted under Section 40, any trade in such commodities without compliance with the provisions of the Act may render the person engaged in such trade liable to prosecution and penalties.
- xiii. The state governments have been vested with the rights to declare bio diversity heritage sites but that should be done only after consultation with the consent and consultation of the affected communities and compensation should be paid for the same from the state bio diversity fund. If this is not followed the bio diversity suffers and also the sites become public parks and the communities that are affected from such decisions lose their lands and heritage.
- xiv. Commercialisation of biodiversity does not empower the community since it gives IPRs to the innovators leaving the communities at the losing end. The Act centralizes property rights either in the hands of the state through sovereign appropriation or in the hands of private inventors through monopoly intellectual property rights

Sources: website of Ministry of Environment and Forests; CAG's Audit report No 17 of 2010-11; Kalpavriksh's paper : 6 years of the Biological Diversity Act in India; Implementation of Biological Diversity Act in India : An Overview with Case Studies, Edited by: Bikash Rath; Legal Sphere, Jodhpur

4. Snapshots: Environment news

Union Minister backs HP claim on green bonus, Leh rail project: The Union Minister of Planning, Science and Technology, Ashwani Kumar, termed Himachal Pradesh's demand for green bonus - payment of environment services - as legitimate and said he would help the state in getting financial benefits for preserving green cover. He stated that Himachal should be compensated for retaining its green cover at the cost of development activities.

Mumbai likely to get agency to protect environment: The civic body of Mumbai has proposed an environment protection agency, in a move that could change the way environment in the city is protected. The proposal, prepared by the Municipal Corporation's environment department, will be sent to the Maharashtra Pollution Control Board, under whose aegis it functions.

Govt offices in Karnataka to go green: All government offices in Karnataka will soon turn green. As part of the process of implementation of the Energy Conservation Building Code (ECBC), all government buildings will be modified to be energy efficient, a government official said.

Sunderbans climate change is flashpoint: The Sunderbans, spreading across Bangladesh and West Bengal, is fast emerging as the climate change flashpoint of the globe. Despite the warning signals of increased frequency of cyclones and tidal floods, the West

Bengal government has drawn up a massive project to expand the Haldia port which will directly impact the western Sunderbans region. Environmentalists already complain against increasing oil spillage from vessels in and around the Mongia Port that are adversely affecting its biodiversity.

Pesticides worsening water contamination: Increasing use of pesticides and herbicides in agriculture is playing havoc with the farming community apart from resulting in increased levels of water contamination. A recent epidemiological study has shown the presence of arsenic, cadmium, chromium and mercury apart from much higher levels of pesticides in the water across Punjab, Haryana, Chhattisgarh and Jharkhand.

Neglected Tawi: The Tawi, the river that gives Jammu its identity, is today a channel to dispose of human waste, and little else. The amount of organic matter in the river is around 12 times the level that may be possible to treat and use for drinking. What is shocking is that nearly all of this muck is poured into the river within Jammu City alone, a stretch not more than 5 km.

Urban air pollution in Indian cities: Accelerating growth in the transport sector, a booming construction industry, and a growing industrial sector are responsible for worsening air pollution in Indian cities. Further uncontrolled growth will lead to more pollution and require large recurring investments to control pollution.

Make policy to control stone crushers:

High court: The Gujarat high court has directed the Gujarat Pollution Control Board (GPCB) to formulate a policy for regulation of quarry business and crushing of stones with observation that the state government cannot control the activity. Acting on a PIL filed by farmers from Sabarkantha district of north Gujarat, a bench of acting Chief Justice Bhaskar Bhattacharya and Justice J B Pardiwala ruled that stone crushers should not be allowed to operate within one kilometre radius from a residential colony.

Mangroves in lake area destroyed: In Kerala, a naturally growing rich mangrove forest along both sides of the railway causeway through the Paravur lake between Mayyanad and Paravur railway stations have been felled. No clear reason has been given for clearing the mangrove forest which stands in a Coastal Regulatory Zone. Railway land in Kerala has rich mangrove coverage in several areas, especially in the northern parts of the State. The Paravur lake area has thick mangrove forests on railway land.

Bombay high court bans mining, tree felling in green zone:

The Bombay high court on Tuesday barred all activity likely to disturb the Sawantwadi-Dodamarg wildlife corridor till the central and state governments take a final decision on the report of Western Ghats Ecology Expert Panel (WGEEP), headed by Madhav Gadgil. The report, which is yet to be publicized by the ministry of environment and forests (MoEF), has

recommended that the Western Ghats be declared an ecologically-sensitive zone (ESZ). It has called for a complete stop to mining leases in the ESZ 1.

Deforestation threatens endangered bird in Nagaland: Deforestation and conversion of land for agriculture has caused habitat loss leading to threat to Blyth's tragopan, an endangered bird, in Nagaland. According to the latest annual report of the forest and wildlife department, large-scale hunting and snaring of this enchanting bird by people for food was also a big threat.

Haryana has highest number of projects violating green norms: Haryana tops the list of 16 States where environment and forest clearance norms are being violated, fully or partially, by projects. In the 2011-12, a total of 86 projects in Haryana reported partial- or non-compliance with stipulated environmental norms. A total of 42 projects in Punjab, 38 in Himachal Pradesh, 37 in Goa and 29 in Tamil Nadu were also reported as not complying or partially complying with green norms, she added.

Parks, sanctuaries on mining no-go list soon: NEW DELHI: A panel set up to review norms for no-go areas that will protect certain areas from commercial activity is likely to recommend mining should be disallowed in all national parks and wildlife sanctuaries in the country. The panel, headed by the Union Environment and Forests secretary, is likely to close the debate over no-go areas as it is not inclined to reassess protected areas in view of existing legal protection provided to national parks and sanctuaries that has

been supplemented by orders of the Supreme Court.

Rampant illegal sand mining on in Chikmagalur district: In Karnataka, if the Bellary district gained notoriety for illegal iron ore mining, Chikmagalur district seems to be following its footsteps for unabated illegal sand mining. Sand mining going on blatantly on the banks of river in Chikmagalur district.

600 lakes in city dry up in 35 years: The Survey of India, compiled in 1975, marked around 1,000 water bodies with unique aquatic flora and fauna in the Hyderabad. In fact, Hyderabad then was called the "City of Lakes". But that was then. When the Hyderabad Development Authority did a count a year ago for the Lake Protection Committee, the officials could list only about 400 lakes in areas within its jurisdiction. Significantly, experts said, the number of water-bodies that have disappeared would be higher, considering jurisdiction of the development authority comprises only four districts. And if the 'disappearance' of about 600 lakes in 35-odd years isn't alarming enough, even water-bodies that still exist have shrunk, with encroachments on the periphery.

Pollution level at IGIA higher than in city areas, says panel: The Delhi Pollution Control Committee (DPCC) has found that the Indira Gandhi Airport (IGI) has much higher level of pollution as compared to the Mandir Marg area in central Delhi and RK Puram in South Delhi. A combination of winter fog and calm weather conditions is leading to

the perpetual haze enveloping the airport in January. Also, because the suspended particulate matter is much higher at the Airport than the city side, the haze is thicker at the airport, especially during the morning hours.

Illegal dumping of construction waste to incur Rs 1,500 fine: Dumping of construction waste at unauthorised places will soon invite a fine of Rs 1,500 in Chandigarh. This was decided during a review meeting of the Malba Bylaws sub-committee held on Wednesday. The committee reviewed the draft of the "Disposal of Construction Material, Malba and Debris, By-laws".

Shimla MC moots green fee for outside vehicles: If you are planning to drive to Shimla after April 1, be prepared to shell out more, as the Shimla Municipal Corporation proposes to levy green fee on vehicles not bearing Himachal Pradesh registration numbers. While four-wheelers will be charged Rs 200 per entry, two-wheelers will be made to pay Rs 100 per entry. The funds generated through this measure will be ploughed back to create new amenities for tourists.

Going green, with a large side order of mercury: Steady release of mercury into the air, soil and water poses a significant health risk. But, it appears, not for policymakers in India. Annually, a large amount of this toxic, complex metal is simply dumped into municipal landfills or released into the air from a "green" source — the millions of fluorescent lamps that are at the forefront of efforts to reduce power demand and carbon emissions

Kharkai river lost in garbage dumped on its banks for a year by Adityapur civic body: In Jamshedpur, garbage from Adityapur has found a new address — the banks of Kharkai, which is one of the major tributaries of Singhbhum's lifeline Subernarekha. Two truckloads of domestic waste, equivalent to 400 cubic feet, are being emptied on the waterfront every day, turning the erstwhile oasis into an eyesore and olfactory challenge.

Turtle eggs hit by sea erosion: A large number of eggs of Olive Ridley turtles were destroyed due to sea erosion in the mouth of Rushikulya river in Odisha's Ganjam district where the endangered sea species nest. "We think around 10 to 20 per cent of eggs were washed away due to the sea erosion," divisional forest officer, Berhampur AK Jena said. Around 1.06 lakh eggs were laid by Olive Ridley sea turtles in the Rushikulya river mouth, one of the nesting sites in the state in February. Very few Olive Ridley turtles had nested in the place, where large scale sea erosion was taking place, DFO said.

Madhya Pradesh: a decade full of tiger deaths and just two convictions? Madhya Pradesh, once famous as the "Tiger State," lost 453 animals over the last decade. The government has brought just two culprits to book. Recently accessed documents reveal only two cases of poaching reached their logical conclusion of conviction during this period, as of March 2012.

India searches for its missing sparrows: Bombay Natural History Society roped in

citizens for online survey: In an effort to document the population and distribution of sparrows and compare it with the situation in the past, nature and conservation organisations across the country have joined efforts with the Bombay Natural History Society (BNHS) to launch an online survey titled "citizen sparrow".

Two Indian cities have been ranked as the most polluted cities in the world: Two Indian cities have been ranked as the most polluted cities in the world, according to the World Health Organization. These cities have at least 10 times the amount of air particles recommended by the WHO - 20 µg/m³. Ludhiana, India is at rank 4 with Annual mean being 251. Ludhiana is a highly industrial city with manufacturing plants that produce everything from textiles to auto parts. Unfortunately, this industry, paired with vehicular pollution, has made Ludhiana one of the most polluted cities in the world. Kanpur is ranked 10 with annual mean being 209: According to the Ministry of Environment and Forest, while vehicles, road dust and domestic cooking contribute to the city's high pollution level, it is the industrial sector that is the main cause.

The rest of the cities, according to rank are: Ahwaz, Iran; Ulan Bator, Mongolia; Sanandaj, Iran; Quetta, Pakistan; Kermanshah, Iran; Peshawar, Pakistan; Gaborone, Botswana and Yasuj, Iran.

5) State in Focus: Karnataka

(i) Major environment issues: Air pollution

Urban air quality has been showing a gradual decline. Suspended particulate matter is very high in the commercial

areas of Bangalore as well as in Hassan and Davanagere. The major source of high suspended particulate matter levels is from combustion of fossil fuels. Other emissions causing concern are carbon monoxide, particulate lead, hydrocarbons and other organic carcinogens.

The most important factor causing indoor air pollution is indoor heating and burning of solid fuel during cooking. 97% of rural and 73% of urban households use biomass fuels. Other causes of indoor air pollution include tobacco smokers and dust mites which lead to many health effects including discomfort, irritation, chronic pathologies, and various cancers.

Air quality monitoring leaves much to be desired in terms of number of pollutants being monitored, selection of monitoring sites and low density of monitoring stations.

(ii) Water availability and quality

Seventy five percent of the cropped area in the State depends on low and uncertain rainfall. The State receives an average rainfall of 1138 mm ranging from 569 mm in the eastern part of the State to 4029 mm in the western part of the State. There has been deficit rainfall in most parts of the State since the past three years, emphasizing the need to focus on activities for harnessing rain water and recharge of ground water. Sixty four percent of the rural habitations and forty seven percent in the urban areas receive less than the State stipulated water supply norm of 55 and 135 litres per capita per day for rural and urban areas, respectively

Discharge of industrial organic pollutants, municipal effluents and sewage into the water bodies, leaching of pesticides and fertilizer into ground water, crop violations, and ineffective watershed management especially in the upstream of command areas have degraded the water resources of the State. As a result, the problems of water logging, salinity and siltation occur especially in the command areas, affecting the quality of ground water and causing health related water-borne diseases. Polluting substances include organic matter, metals, minerals, sediments, leachate, and toxic chemicals.

(iii) Major environment issues: Pesticide residue

One of the main environmental problems is the use of chemical fertilizers and chemical pesticides contaminating soil and water. In Karnataka, though the average use of fertilizers (10-11 kg per hectare) is lower than the national average of 16 kg per hectare, there is an increasing trend in the use of fertilizers from 8.27MT in 1996-97 to 12.94 MT in 2000-01. Maximum fertilizers consumption occurs in paddy and sugarcane growing districts of Belgaum, Bellary, Raichur, Mandya and Davanagere. Use of pesticides, especially insecticides for the crop of cotton, red gram and vegetables while lower than the national average is still a cause for concern. The pesticides, which are not easily biodegradable enter the aquatic fauna herbivores and human body through food and water and accumulates in the human body over a period of time. This

bioaccumulation in the body is a serious health hazard. While specific information on this is still very scanty, yet isolated studies have revealed the presence of pesticides beyond permissible limits especially in vegetables. Fortunately, the ban on DDT and BHC and increased adoption of integrated pest management practices has curtailed the use of some very harmful pesticides. However, the risk of pesticide leachate and its effect on human health remains.

(iv) Major environment issues: Forest and biodiversity

Karnataka's forests unique in their formation and diversity, are not only a source of livelihood to many people, but also act as "carbon sinks". Forest cover is computed as 19.3% of the geographical area of the state. This represents 5.5% of the forest cover of the country. 70.71 % the forest cover is classified as dense forest. Karnataka is ranked fourth in the country in regard to area under tree cover. The per capita forest to tree cover availability is 0.8 hectares. The Western Ghats of Karnataka are listed as one of the 18 mega biodiversity hot spot in the world. This hotspot is home to about 4500 plant species, and the forests of the state are home to 10% of the tiger and 25% of the elephant population of the country. However, to date, our knowledge of many of the biodiversity species is still very limited.

In spite of the initiatives taken, there continues to be loss of forest and biodiversity due to increasing anthropogenic pressures, unsustainable use of resources, inadequate

participatory management, habitat destruction and fragmentation. Introduction of exotic organisms, invasive species such as weeds and insects also pose a serious threat to biodiversity. Open areas in urban ecosystems are also shrinking, so are old irrigation tanks that constitute urban wetlands. Many have drained, others are highly polluted and eutrophicated, resulting in a loss of their biota, including indigenous fish communities and migratory waterfowl.

(v) Primary legislations governing environment management in Karnataka

Forest and wildlife

- Environment (Protection) Act, 1986,
- The Air (Prevention and Control of Pollution) Act 1981,
- The Water (Prevention and Control of Pollution) Act 1974,
- The Biological Diversity Act 2003,
- The Wildlife Protection Act, 1972,
- The Forest Conservation Act, 1980.
- Hazardous Wastes Management and Handling Rules, 1989,
- Municipal Solid Wastes Management Handling Rules, 2000,
- Biomedical Wastes Management and Handling Rules, 1998,
- Batteries (Management & Handling) Rules, 2001.
- A separate notification for the regulating activities in the coastal areas of the country, the Coastal Regulation Zone Notification, 1991

Ecology and Environment

- Environment (Protection) Act, 1986 and the rules framed thereunder

6) Recent Environment audit report: Assam (Audit Report (Civil) for the Period ended March 2011)

Guwahati Municipal Corporation (GMC) is responsible for management of solid waste generated in Guwahati city. Municipal Solid Waste (Management and Handling) Rules 2000 envisaged mandatory setting up of infrastructure facility and servicing of Solid Waste Management (SWM) by 31 December 2003. Consequent upon fixation of the specified dead line for setting up of processing and disposal of waste, GMC proceeded to implement a SWM system in PPP mode through a private developer with approval of the Ministry of Urban Development, Government of India (MoUD). The objective was to improve public health and hygiene through scientific collection, transportation, processing and disposal of Municipal Solid Waste (MSW) with provision for recycling the waste and achieving savings in expenses. However, none of these objectives was achieved.

The project was ill conceived from the very beginning due to inherent defects in processing like selection of technical consultant, preparation of two Detailed Project Reports (DPR), one of which remained unapproved by Government of India, selection of site, selection of private partner (developer), concession agreement etc. The DPR approved by fund sanctioning authority (Ministry of Urban Development) was not adopted. Concession agreement based on DPR-II was signed by the municipal council and

the waste management company. Resultantly, MoUD, GOI stopped funding after initial disbursement. The private developer was selected on single bid. Public interest was not safeguarded while preparing concession agreement. Consequently, the developer was relieved of the responsibility of adhering to the time schedule or maintaining performance standards and continued to be paid inadmissible amount towards user and tipping charges by municipal corporation, which was not covered by Private Public Partnership arrangements for Solid Waste Management .

Further, selection of site for project in wetland was done violating MSW Rules 2000 and Wetland Rules 2010 which existed before the project period. The present system had so far failed to protect the environment and the wetland from leachate contamination.

Power plant stipulated to be set up by July 2010 was not yet started as of November 2011. Instead of 200 TPD capacity compost plant, a meager quantity of five TPD compost was produced on trial basis, putting the future of the project in jeopardy. There were financial irregularities and the user charges/tipping charges paid to the developer were not based on any measurable parameters and therefore non-transparent.

Therefore, the intended objective to reduce expenditure on SWM also could not be achieved. There was no basic improvement in the service provided compared to that which existed before the project period. Thus, the objective of improving health and hygiene through scientific collection and transportation

with provision for recycling was not achieved under PPP arrangement. Lack of proper planning led to non achievement of the objectives of reduction of air, water, environmental and land pollution, improvement of public health, recycling of the waste and achieving savings in expenses. The landfill site shares a common boundary with a national wetland, which has a linkage with world heritage site of 'Deepor Beel' and pollution through seepage endangered the fish and migratory birds in the Wetland. The future of the project itself is in jeopardy as the solid waste dumping site and sanitary land fill area has been established in a national wetland area and is required to be shifted according to Wetland Rules, 2010.

7) Coordinated International Audit on Climate Change—Key Implications for Governments and their Auditors (November 2010)

Introduction

Scientific research suggests that climate change has the potential to affect ecosystems, water resources, food production, human health, infrastructure, and energy systems, among other things. Scientific evidence from around the world suggests that climate change has already affected natural and human environments. Countries around the world have identified climate change as a pressing worldwide issue by adopting the United Nations Framework Convention on Climate Change and its Kyoto Protocol. They are collectively and individually taking actions to limit greenhouse gas emissions and adapt to the current and potential impacts of climate change.

Substantial sums of money have been spent to date and will be spent in future to address this issue.

Supreme audit institutions (SAIs) play a major role in auditing government accounts and operations. They have different mandates but share a common responsibility to provide legislatures and their citizens with the information they need to hold governments accountable for prudent financial management and to varying degrees for compliance with domestic laws and international agreements, policy implementation, and program performance. The work of SAIs is independent, non-political, and fact-based, with the aim of promoting effective management and good governance within government.

A unique cooperative effort to audit climate change programs

Fourteen supreme audit institutions⁶ from six continents for the first time worked cooperatively to design and undertake performance audits of their national governments' implementation of commitments and programs related to the mitigation of and adaptation to climate change.

To support the national audits, the participating SAIs developed a framework audit approach, including potential audit objectives and criteria, and questions that could guide any audit work undertaken. Each SAI designed, carried out, and domestically reported national audits to respond to their country's climate change priorities

and in accordance with their internal practices and standards. This approach has been highly successful in achieving the objective of encouraging and supporting effective national audits of climate change programs.

These audits have covered a variety of topics, including compliance with international commitments related to emission reduction targets, the assessment of risks and vulnerabilities to support adaptation efforts, the coordination and management arrangements across government agencies, the availability of reliable information to support decision making, and the performance of the policy instruments used. The audits have identified the strengths and weaknesses of their respective governments' climate change efforts and have led to some governments making improvements and indicating that noted deficiencies would be addressed. Participating SAIs believe the audits have helped legislators and the public hold governments accountable for the effective and efficient management of public funds spent on mitigation and adaptation.

Highlights of the national audits' findings

Dealing with climate change presents a formidable challenge for countries around the world. Climate change cuts across many economic sectors and levels of society and demands cooperative and coordinated action by governments at all levels, as well as coordination with international institutions, scientific bodies, private industry, non-governmental

⁶ Australia, Austria, Brazil, Canada, Estonia, Finland, Greece, Indonesia, Norway, Poland, Slovenia, South Africa, the United Kingdom and the United States

organizations, communities, and individuals. The audits found a wide variety of efforts underway to address climate change in the countries examined. Common findings resulting from these individual national audits are set out below.

a. Emission reduction targets, objectives, or commitments are generally in place in countries addressed by this report but are not always supported by comprehensive and specific national, regional, or sectoral strategies and plans. Targets, objectives, or actions are not always specified at regional or sectoral levels, which makes it difficult to drive action and to monitor progress. In addition, many audits concluded that the targets in the sector plans and associated goals, where they exist, do not always add up to the national target, objective, or commitment to act. Some audits found that strategies and plans are relatively short term and therefore do not form the basis for achieving sustained success over the long term.

b. Conflicts between programs in other areas and climate change targets, objectives, or actions have impeded effectiveness. Some audits found government programs that conflicted with climate change targets, objectives, or actions. For example, land-use policies that permit urban sprawl can work against efforts to improve energy efficiency; similarly, agriculture policies can undermine efforts to reduce the loss of forests.

c. Work to assess risks from climate change and planning for adaptation is at an early stage despite

long-standing international commitments to plan for adaptation. Robust and comprehensive evidence-based assessments of climate impact risks and vulnerabilities are essential, yet the audits found that many governments have not fully completed the risk management process and started to plan for adaptation to climate change. SAs consider that if a full risk assessment has not been completed but certain vulnerabilities are already known, governments can respond. In addition, governments should consider potential climate change impacts when formulating public policies to reduce the need for more costly steps in the future.

d. Emissions trading and the Clean Development Mechanism, which are important policy tools under the Kyoto Protocol, have not yet driven significant emissions reduction. Many audits have concluded that there are difficulties in designing and implementing emissions trading. The most important difficulty seems to be to limit the number of allowances in the system to deliver a market price high enough to trigger investment that leads to major reductions in emissions. Audits also found that the implementation of the Clean Development Mechanism in some developing countries has been slow and is not yet driving the transfer of technology and funds.

e. Weak management structures impair coordination and alignment among levels of government. The audits identified some lack of coordination

within national governments or ineffective management and governance structures. In most countries, an overall lead agency has been established to manage the government's climate change approach, but in some cases, clear and distinct roles and responsibilities of the numerous national government agencies involved in mitigation and adaptation efforts have not been defined. Mitigation and adaptation require actions at all levels of government and coordination between them. Adaptation in particular requires coordination across different levels of government since many effects of climate change are found at local levels.

f. High quality information on climate change efforts is important but often lacking. The audits found that a lack of reliable and comprehensive data on numerous aspects of climate change hindered the ability of governments to make informed decisions and monitor actions or progress toward targets or longer-term objectives. For example, adaptation requires good information on risk and vulnerability. Several audits identified challenges with the adequacy of information and data to measure the progress of mitigation programs and substantial information gaps that hinder the ability of nations to pursue or enhance their adaptive efforts.

g. Evaluation of key policy choices and instruments was not always in place. The audits identified a variety of policy tools in use to mitigate climate change. These include economic instruments (such as

emissions trading, subsidies, investments, and taxes), legislative instruments (such as acts and regulations), and voluntary agreements. Although governments strive to choose policy tools based on principles of cost effectiveness, policy effectiveness, and efficiency, audits found that such policy choices are rarely based on adequate data and economic modelling, and their potential or actual effects are often unknown.

Source: www.environmental-auditing.org