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Improving Environment

18.1 Introduction

When we talk of environment we mean all aspects of our surroundings that may directly or indirectly influence its ecology. Some of these may be:

- Pollution : as caused by:
 - Discharge of human wastes
 - Disposal of household wastes
 - Discharge of industrial wastes
 - Emission of toxic gases by industries and transport
 - Discharge of pooja ashes, flowers, incense, deities and remains of dead bodies into rivers by Hindu devotees
- Global warming : as caused by:
 - Over population
 - Over urbanisation, leading to deforestation
 - Over utilisation of forests
 - Paddy cultivation, animal dung
 - Fertilizers (we are a paddy growing country and use nitrogenous fertilizers emitting NO_2)
 - Biomass burning
 - Industrial gases (mostly CFC) used for fire fighting, refrigeration and air-conditioning
 - Emission of toxic gases such as CO_2 and NO_2 emitted by industries and road transport (by belching out smoke) and thermal power generation that burn fossil fuel (coal, petroleum, gas)
- Some measures that can improve environment:
 - Afforestation
 - Cleansing of rivers, ponds and canals

- Treatment of sewage before discharging them into rivers, canals, ponds or the sea
- Treatment of effluent wastes from industries before discharging them into drains or releasing them into atmosphere
- Recycling of household wastes
- Control over voraciously rising population
- Education and discipline in all spheres and walks of life to keep environment clean. **We can go in for bio-museums and environmental parks to educate our people to reduce pollution and keep environment clean.**

Once we are tuned to certain disciplines and the environment starts improving, the rest will become a routine as people will automatically take care of small matters and adopt to methods that will cause the least pollution.

- Improve tourism as tourism and environment are complementary to each other and care for one will also mean care for the other. Tourism will generally include:
 - Overall cleanliness of cities, towns and villages
 - Beautification of the whole nation
 - Restoration and cleaning of old monuments, culture and art works
 - Reforestation and restoration of hill areas.
 - Developing new sites and landscapes
 - Developing coastlines

18.2 Forest cover

Over urbanisation and lack of means of living lead to felling of trees for land and wood. Because of this our forests cover is slowly and gradually shrinking which is a serious matter. Large hydro-electric projects (river valley projects) also consume large forest areas and a lot of it becomes marshy. In 1999, the forest cover as determined through satellite by Forest Survey of India was 6.89 lac km², that in 2001 became 6.755 lac km² registering a reduction of 13,500 km² (1.96% of forest area). This reduction in just 2 years is indeed alarming. It may look small by percentage, but drop by drop empties the pitcher. The drop may become a trickle and when it would become a full stream one may not know. Nevertheless 13,500 km² itself is a large area. Unless we are able to protect our present we cannot protect our future. Forests are the largest source providing ecological balance and a safe environment. Growing

of forests is therefore a crucial discipline that each country must practise, to ensure a future safe from pollution and depletion of ozone layer. The three successive hurricanes in USA in 2005 (Katrina, Rita and Wilma), torrential rains and consequent flooding almost during the same period in India (UP, Gujarat, Maharastra, Karnataka, Tamil Nadu and Andhra Pradesh) and similar occurrences in other parts of the world resulting in large scale loss of lives and property may also be largely attributed to the rising ecological imbalances and global warming.

In the following pages we have tried to discuss causes of depletion and means to protect and grow our forests.

(i) Statistical data

Usable land area = 31.66 lac km² (section 4.1)

Forests in 1999 = 6.89 lac km² and in 2001 6.755 lac km² (21.33% of usable land area) of which,

Dense forests (crown density >40%) = only 4.17 lac km² (13.17% of usable land area indicating over utilisation and denuding of forests)

Note

To have a healthy environment and maintain good ecological balance a forest cover of about 33% is considered essential. We would also like to target at this figure but under the present land occupancy pattern (Table 11.3) it looks improbable unless the environmentalists and scientists can suggest better means to achieve the same under the present conditions. China's revolution on this front is remarkable and we can follow their methods and even seek their assistance.

What we grow we must utilise. This will require felling of trees, cutting of logs, plucking of flowers and fruits, extracting of oil and collecting innumerable varieties of jungle products. It will call for their processing, packaging and transportation etc. All this must be borne in mind when developing forests.

(ii) A glimpse of how China has done:

Land Area = 96 lac km²

Forests (\cong 1997) = 11.5 lac km²

(12% of land area, it is already raised to 16.55% by 2001 (IFFN (International Forest Fire News, Geneva), No. 26, Jan 2002, p.9)

Staff = 22 lac

Wood = 90,000 lac cum

Forest roads	= 90,000 km
Forest railways	= 13,000 km
Waterways for transporting wood	= 57,000 km

- To check on fire, watch-towers are installed at suitable locations.
- Enormous numbers of fire tenders and lac of kms of fire fighting line.
- Communication lines

They have everything mechanised. In such large-scale operations manual handling may not be feasible.

18.3 Benefits of forests

These provide us (as in 1994) :

- Fuel, approximately 2200 lac tonnes
- Fodder and grass, approximately 2500 lac tonnes
- Wood for buildings , approximately 120 lac cum (negligible compared to China)

[Total income from forests in 1999-2000 was a paltry Rs 1770 cr which is much less than the expenditure (Chapter 4). That means the benefit of forest is not reaching the people. This resource is also being consumed by the government only in maintaining the forests and paying the staff besides, unscrupulous activities and large scale corruption.]

- Water recycling and conservation
- Soil conservation
- Recycling of dead animals and trees
- Conservation of atmospheric gases (CO₂) and controlling pollution.
- Food for wild life and place for their habitation
- Source of income for the local tribes and rural folks.
- Help in maintaining ecological balance

Wherever jungles are destroyed or used up, the water level in the vicinity has receded considerably. Fallow lands are neither able to retain water nor give it time to seep through the soil. Jungles help retain the rain water, replenish it and recycle it. We must therefore, make the forest covers dense and increase their area and crown to replenish more than what we extract, for recycling and increasing their capacity. The

recommended practice is to grow plants more than 100% than what we extract in deforestation to enrich the forests. This also calls for their meticulous monitoring so that what we plant must actually grow.

18.4 Stopping degeneration of forests

We are not able to retain our forests because of their gradual degeneration as a consequence of :

- Over urbanisation (land acquisition)
- Making and widening of roads, railway tracks
- Excessive removal of wood and felling of trees
- Excessive grazing by livestock.
- Unscientific cultivation / reforestation
- Making dams
- Over utilisation by the rural poor and the local tribes for their livelihood in the absence of development and other means of living. In 2002 government of Andhra Pradesh ordered eviction of local tribes from the forest lands leaving them with no means of livelihood. The afflicted people resorted to agitation. Forests were their only means of living.

All this calls for optimum utilisation of land, strict control over population, improving the economic condition of the country and providing alternative means of living and employment opportunities to the people. Moreover we must emphasise and practise afforestation.

18.5 Controlling pollution

- *Our* purpose is not to tell you that large depletion of ozone protective layer may one day allow the sun rays to affect the human body. Neither that there is alarming level of CO, CO₂ or N₂ in the atmosphere, or that today's children are already asthmatic. Neither that deforestation may add more to such environmental sickening and depletion of ground water table that it may one day make water scarce for human needs. All these are established facts and the more aware of us know their catastrophic consequences. **We shall only discuss how the situation can be remedied and a healthy environment rebuilt to make our remaining lives and those of future generations healthy and safe.**
- It is important to identify the reasons and causes that pollute environment and make a place filthy and stinking. Look at our railway network, even this strews human excreta and urine on the

tracks day-in and day-out throughout the country oblivious to what it was doing. Strangely the practice of 19th century when the railway was first introduced and was in its infancy, continues in the 21st century. It is highly uncivilized, uncultured, derogatory and a crude way of disposing human waste through our trains in a civilized society. No wonder our railway stations stink profusely. At a railway platform one can witness the excreta and urine scattered on the railway track. It is ludicrous to wait for a train on our railway stations that are so unhygienic, filthy and stinking. And so also the urinals and toilets at the stations (if they exist). On smaller stations they may not be available at all and one may have to ease in the open or on the track itself. Even our passenger coaches and their toilets stink. Our country is famous for its largest open-air latrines in the world where crores of people ease themselves everyday, even many times a day and in all parts of our country.

- The situation is similar at all public places. Speaking generally, it is not the practice in our country to provide utilities at public places. Even good railway stations, bus stops, shopping centres, tourist spots and other public places lack these facilities. Wherever they exist, they are grossly inadequate, filthy, stinking and become unusable with passage of time. When the newly built toilets of Delhi College of Engineering can stink, the whole country can stink (Section 14.1). One is bewildered at the moment of need. Many a time some of us may have to ease on the heap of market garbage or on the side wall of a house unconcerned of what people may say or the caption on wall scoffing at you. Here we are talking of the cosmopolises of our country and the most posh markets in it.
- The house lady having no other option may throw her household garbage outside her house or in the nearby empty plot, river, pond or canal. We have developed this culture over the years. In fact we have seen and learnt only this. And then we expect someone behave decently is like calling ourselves fools.
- The railways and all public places for that matter, are disseminating a message day in and day out and year in and year out to all human beings in the country that we are free to throw our excreta and garbage wherever we find it easy. And somehow we have been living our lives this way and our country is becoming filthy and stinking day by day. In the 21st century, when the whole world is advancing and we are also opening up our doors and so our country to the affluent world – to show them what? Our filth and stink and

open air latrines? Where will they go to ease themselves? When we have failed to address this basic and simple necessity of life how can we address bigger issues? Our city sewage and filth discharging into the rivers, ponds, canals or lakes is therefore no surprise. Our sacred rivers have to be polluted and stinking and so also the sea shores and the beaches. Ponds and lakes have to dry up and nothing can stop them from drying and destruction. How can our system then address more serious issues like water conservation, perennial floods and droughts? In their hands the situation shall only worsen. Sooner we realise this harsh reality the better.

- Most of our wonderful beaches are not developed, but whatever have been, most of them are now sights of filth and slush and are stinking. Look at Mumbai beaches our pride that they were, are now filthy, stinking and in a state of total despondency. The process is always slow in the beginning and if ignored, can be disastrous. With this rate of deterioration a few years hence, people may even desist visiting such places of great attraction, that provide fun and frolic to the families, their children and the tourists. At this pace even our sprawling oceans shall one day become polluted as our rivers are. After all, everything has an endurance!
- Unfortunately we hardly have someone in our system who can address these problems. Recently we saw some of this in a bureaucrat turned politician Mr Jagmohan (the then Union Minister of Urban Development) who made some efforts. But he too could do so only in Delhi and that too by uprooting thousands of tiny and small entrepreneurs and throwing lacs of workers out of job by his mighty whip (year 2000-2001) (Chapter 22). **It is astonishing that we are incapable of doing anything good without destruction? Like we got independence but at the cost of dissecting the nation and killing millions and making millions refugees (Section 25.2) and the feud lingers on.**

Polluting units are uprooted. But is the pollution controlled? On the other hand the authorised units endure in water logged authorised industrial areas breeding mosquitoes with open drainage system flowing nearby. In many industrial areas there are open-air latrines and people ease themselves on the roadside even in front of these factories. Are they not polluting? Who will define pollution and address it? With the incompetence of our system and dwindling resources, the magnitude of filth and dirt of our country is rising unbound and so is rising the pollution. Occasional cleaning operations are undertaken publicly by some Ministers and

Chief Ministers by clearing garbage themselves and that is covered widely by media showing a large broom in their hands for the public to cheer. But is the garbage cleared?

According to a World Bank study (it is always outsiders who do our job or will be doing in future). Of the total 3119 cities and towns of India only 8 have waste water collection and treatment facilities, 209 have partial facilities and the rest have no facility whatsoever, and discharge their wastes directly into the rivers or ponds. We have almost negligible sewage and other wastes treatment systems in the whole country and wherever they are, they hardly remain functional with passage of time (most of them are only an eye wash simply doing sewage in and sewage out). And imagine over the past 60 years we have no one in our whole polity or bureaucracy who could address this problem and eradicate this evil from our lives rather than playing Nadir Shah or resorting to cheap gimmicks. **Our blue prints have provisions to address all this on permanent basis and for all times to come.**

18.6 Controlling green house effect (global warming)

A green house is a glass or plastic enclosure for sampling and rearing of botanical plants. Its effect is to provide regulated warmth and heat to the plants inside the enclosure. Similar warming up effects are caused by many gases (Table 18.1) polluting the atmosphere and is called green house effect. Warming up of atmosphere is an alarming phenomenon for mankind. Below we discuss briefly its effects for the general awareness of the people.

Table 18.1
Green house gases

(Causes and sources of these gases are noted in Section 18.1)

Gas	Contribution to green house effect %
CO ₂ (carbon dioxide)	50
CH ₄ (methane)	20
CFC (Chloro fluoro carbon)	15
NO ₂ (nitrous oxide)	06
Others	09

▪ Effects :

- The accumulation of these gases allows the sun rays to come in through the atmosphere but prevents them from getting reflected back by the earth. The result is that they absorb the heat of solar

rays, and result in warming up of the atmosphere causing droughts, severe storms and sand dunes. The warming of atmosphere also induces melting of polar ice caps and glaciers¹ and raises the sea level. As per IPCC (UN, Intergovernmental Panel on Climate Change) the sea level has been rising by roughly 60 mm per decade in the last century, that means it has risen by roughly 60 cms in the past 100 years. With the rising global warming this phenomenon shall be more rapid in times ahead. Rise in sea level causes coastal submerging and loss of usable land. One may note with concern that about 40% of the habitation in the whole world is on the coastlines and river banks. According to IPCC's earlier predictions, it may have already submerged, 12-15% of Egypt, 17% of Bangladesh and large areas in Indonesia, Vietnam and US, causing a further contraction of an already shrinking usable land in the face of over urbanisation. Land area is already defined and its boundaries cannot be expanded. Many nations of the world are already finding it difficult to cope up with the ever-shrinking land and its over-utilisation. With passage of time this phenomenon shall further aggravate the situation. The low lying islands particularly, may have to face serious space problems. Land area shrinking may even cut off some parts of the mainland from other parts causing displacement of people and their rehabilitation within the remaining land.

- The global warming also depletes the protective ozone layer in the atmosphere above the earth's surface, allowing the harsh ultraviolet sun rays penetrate the earth's surface. A 10% drop in the stratospheric ozone may cause up to 25% rise in cases of some forms of skin cancer. The greatest cause of ozone destruction is by chemicals like CFC (chlorofluoro-carbon) used as coolant and "halons" used for fire extinguishing and such other chemicals. A control over the use of these chemicals is strongly advocated. The manufacturers and users of these chemicals world over have agreed to phase out the use of these, first by 2005 with HCFC (hydrochlorofluoro-carbons) and then by 2040 with HFC (hydrofluoro-carbons) which is more safe compared to HCFC. HCFC is not environment friendly. For more details refer to UNEP IE/PAC (United Nations Environment Programme, Industry and Environment Programme Centre, USA).

1. "Day After Tomorrow" (2004) a movie by Hollywood has depicted this phenomenon in a very educative manner.

CFC used in refrigeration is highly dangerous for the ozone layer. It is agreed worldwide to stop its use by 2010. Having fallen back on the old practice of using NH_4 (ammonia) etc., it is hoped that the target may be achieved even before 2010, as noted above. Like destruction of nuclear arms, destruction of available stocks of CFC and halons is an arduous task too. There are thousands of tonnes of these chemicals lying with the manufacturers and the users. Some of them are also trading these chemicals unscrupulously.

Despite all this global warming may not stop, as efforts by all countries may fall insufficient to halt this phenomenon, unless we substantially reduce the world's population from the present level (>600 cr), stop further urbanisation of the arable or open lands, stop deforestation and discharging of human wastes into rivers or ponds without treatment, control smoke belching industries, petrol and diesel-run vehicles. Practise energy conservation religiously and use only energy efficient machines and devices to control generation of heat. Even retrofitting the old installations with energy efficient machines and devices (for more details see my Engineering Handbook). But all this is too theoretical and calls for greater discipline and dedication by each country and individual but that is improbable, at least by the under-developed and the developing countries. In our plans *we* will endeavour our utmost to control the causes effecting global warming as much as possible.

18.7 Improving environment

The following measures can improve the environment :

(I) TREATING HUMAN WASTE

- Human waste is a natural phenomenon for all living beings man or animal. It is an irony that under-developed and developing countries particularly are not able to handle this recurring waste in totality. Talking of our country, a bulk of it is left untreated — even undisposed (open-air latrines). Mountains of garbage and seas of sewage are common sights in most of our towns and cities. The untreated waste is usually discharged into open *nullahs* which discharge it into a river or sea. It is the foremost cause of pollution to rivers, ponds, canals or seas. It is partly consumed by the river itself by way of silt and narrowing of banks, while a pond or lake whose water is static has to consume it fully and dries out one day. One can only wonder at the infinite capacity of our rivers and seas

that have been enduring it over the years. While many ponds and lakes have already dried, the rivers look like trickles. The acute water shortage for our daily consumption and its rationing is of little surprise. It is disgusting that we pollute the very same rivers and other water reservoirs that provide us water for sustenance and irrigation. It also damages the flora and particularly the fauna (mostly fish) which is partly destroyed and partly contaminated beyond human consumption. Yet people consume it in their ignorance and under compulsion.

- The sewage can be treated through sewage treatment plants which after treatment can provide irrigable water on the one hand and save our rivers, ponds and seas from filth and pollution on the other, besides providing manure and bio-gas. There is practically no waste. This is known as recycling of waste (sewage). Manure is useful for kitchen gardens, nurseries and city's green belts. The biogas that emanates as a by-product because of fermentation can be used for cooking. Some cities in our country where we have such plants, are feeding hundreds of households with this gas.

To install sewage disposal and treatment plants may appear to be a costly proposition initially but is a must for our own good. It can address many ills of the society and retain the cleanliness of our water reservoirs, rivers and ponds besides keeping the cities also clean. This is for urban areas as rural areas mostly have an open-air system and most rural folks ease themselves in the open. But the **city centres** that we have conceived shall take care of rural wastes also. There shall be no open-air latrines in future.

We have a few sewage plants in the urban areas but they are grossly inadequate to handle the enormous volume of sewage that is generated everyday. There is also a gross lack of maintenance and upkeep of these plants. According to *our* experience and information, many of them are not operational for one reason or the other and some of them are just sewage in and sewage out without doing any treatment. This is one area that will be addressed on priority and all our water reservoirs, rivers, ponds, canals and lakes, even sea shores that are eroded will be cleansed and restored to provide us clean water throughout the year, stop further filthing besides providing a healthy environment and clean place to live.

(II) DISPOSAL OF HOUSEHOLD WASTE

To collect and dispose of this, is also a Herculean task. It calls for a scientific and meticulous handling. We are not in favour of rag picking.

It would be good to make common garbage dumps colonywise where the domestic servants or household folks may drop their garbage. Or the garbage be bagged and kept at the doorstep of the households from where the cycle or *rickshaw* paddling² boys can pick it up and drop it in the dump yards (in affluent societies the corporation closed vans pick it up every morning (or at intervals of a few days depending upon volume of garbage) from each household and dispose it of, away from the habitation). The dumpyards will have proper enclosures and will be emptied every day by the local civic authorities. The garbage shall be sorted out according to its use as noted below. What is not usable shall be burnt or incinerated or used for land fill and the rest shifted to the right places on daily basis for further processing, making fuel pallets, generating electricity, making biogas, compost or manure or whatever. Simple dumping of garbage as a landfill (and that too has a limit) is dangerous as it emits poisonous gases which lead to acid rains and may flow on streets or seep through the soil and contaminate the subsoil and ground water. We sometimes hear from different parts of the country how a whole community of an area has been ailing perennially with some kind of disease as a result of consuming contaminated ground water over the years. It may also putrefy, give out foul smell and become breeding grounds for mosquitoes, flies and rats.

Household wastes contain a large portion of organic wastes that can be recycled for many end uses,

- As manure : \cong 50% of garbage is vegetable peelings and other sundry kitchen wastes. It is good for making compost.
- As cooking gas : Vegetable matter is thrown into a vat (bio-reactor) which generates methane, which can be used for cooking.
- As fuel : Organic waste is dried and compacted and can be used as fuel pallets by urban poor or for power generation (Section 17.2 (v))

The other constituents, paper, plastic and rubble can be sorted out from the garbage before processing and disposed of as required. All this may be a good system for recycling household wastes on daily basis – to use the most and burn the least.

2. This is a crude method to start with, but gradually we will also follow the practices in affluent societies.

(III) DISPOSAL OF BIOMEDICAL (HOSPITAL) WASTE

This too is an important source of pollution and misuse of used syringes, cotton, medicines, instruments and other items by unscrupulous people. Many NGOs are also working on it. Incinerators shall be provided at suitable locations for destroying the medical wastes and disposing the remaining. Training will be imparted to the concerned staff to ensure that this waste is properly disposed of at the source itself.

(IV) DISCHARGE OF INDUSTRIAL WASTE

- We shall endeavour to make use of our industrial wastes like fly ash from thermal power stations and slag from aluminium extraction plants or steel smelters. These wastes can make good substitutes for cement and other construction materials. The details will be worked out by experts in the field supported by rigorous R&D. We shall save space presently occupied as dumping grounds like sludge settling lagoons for ash-slurry discharge and heaps of mountains for slag. This will also help our economy. We are doing so presently also but it is not enough.
- Not much is being done to control industrial pollution. In our plans we will endeavour to religiously treat 100% discharge of effluents from factories before discharging them into drains or releasing them into the atmosphere. This is a discipline that will be inculcated and all possible support provided to the industries to abide by it (uprooting the industries or shifting them to new locations is no solution). New industrial areas will have a common effluent treatment system as far as possible, to treat the effluents of all industries at the source itself to make it easy and economical for all. We must know that treatment of toxic gases and liquids is essential even if the industry is located away from habitation. It is an ignorance that industries away from habitation or cities are permitted to discharge their effluents in air or ground. One may note that pollution is pollution wherever it is and will have green house effect, contribute to global warming and contaminate the subsoil water. All effluents and pollutants therefore must compulsorily be treated right at the source within cities or away from the cities.

(V) CONTROLLING EMISSION OF TOXIC GASES

Lots of efforts are being made to control cities' vehicular pollution. The new passenger vehicles are now attached with Euro-system in the carburettor that neutralises N_2 , CO and CO_2 before they exhaust

into the atmosphere. The buses are gradually getting converted to use CNG. Use of unleaded petrol in passenger cars and use of environment friendly engines in diesel generators (household and commercial), conforming to US/Euro norms are already good moves.

(VI) STOPPING IMMERSION OF DEITIES, POOJA ASHES, DEAD BODIES AND THEIR REMAINS IN RIVERS AND SEAS.

- What we consider as sacred, desecrates our holy rivers and therefore cannot be sacred. Remember we drink river water and cook our food with it. Let this water remain as clean and pure as possible for our own good and a healthy future. **We shall have to stop this practice with the same religious zeal with which we regard and respect our deities. Rivers, canals and ponds provide us water for life. We must venerate them rather than desecrate.**
- We would prefer to shift the cremation grounds away from the river banks to let our sacred rivers flow clean and remain holy. It will call for educating our masses, which would be imparted and inculcated at the school level. When this is practised with true spirit and dedication, the cleansing and desilting of rivers and their development will become easy.

Many of our holy rivers today look like filthy *nullahs*. It is this attitude of disregard and apathy by us for our holy rivers, that the rivers also express their fury through regular floods and droughts and inflict similar curses on the same people who disregard and desecrate them.

- Those who inhabit near the river banks will be dissuaded from throwing their garbage into the river or washing their clothes and utensils in it. If we want their blessings we shall have to keep our holy rivers, ponds, lakes, canals clean, as our sacred duty and as a part of our worship.

If we are able to address the above with zeal and fervour, we shall not only establish a clean and healthy environment for ourselves but also improve our economy tremendously.

(VII) AFFORESTATION

Scientific afforestation can bring people together, infuse in them a fresh ray of hope, provide them with means of living and prosperity and create new employment opportunities. From the available land, land can be earmarked for afforestation and developed up to at least 26% from the present 21.76% as computed in Table 11.3. We can also

develop and beautify hill areas and improve their crown density. Also develop local areas through the villages, roadsides, rivers and canal sides, railway tracks, around the colonies, shopping centres and boundaries of schools, colleges and office premises etc. wherever a tree can be planted with the involvement of the local people. To achieve this following steps will be taken:

- Identifying ideal areas and belts
- Identifying trees for such areas on the basis of local climate, people and their needs (timber, fruit, fuel, greenery or grazing grounds)
- Calling groups of experts to educate and advise on the right types of plants, their care, manure and fertilizers.
- Protecting plants by pest control and insecticides. China resorts to aerial seeding and pesticide spraying on difficult terrains and hill sides
- A tree takes about 5-10 years to blossom and give fruits, until then one may depend on fast vegetation/plantation planted alongside the trees.

All efforts without regular nursing and upkeep are futile. For this, some responsibility, contracting, even some kind of ownership can be considered for the local people. Those who have it on ownership (lease) basis shall be at liberty to grow what they want within the predefined norms. This is what China did about 50 years ago by allotting trees and small areas to local people on ownership basis. The title of plants and trees was transferred to the individual. We can also think on similar lines. One way can be to transfer a tree or an area of plantation at a price to a transferee on some lease terms. Even barren lands/hills can be contracted to them. Some land may be earmarked for grazing meadows. Experts' opinion will be solicited to decide on these issues on long-term basis.

Note

Before starting the plantation work proper town planning would be essential. Widening of roads, shifting or uprooting of trees at a later date will be avoided.

(VIII) OPTIMISING LAND USE

It is absolutely essential to save the precious land of what little remains. For this its optimum utilisation is a must. **The construction of single-storied horizontally sprawling housing colonies or resettlement colonies, many of which inaugurated with great fanfare and gaiety by the ministers of centre and states, is a crime. Those who design and accept such colonies are doing great harm**

to the nation by their ignorance. On the one hand we cry for more open land and green belts while on the other we celebrate their destruction. It is surprising why our architects and town planners have never raised this vital issue. We must give up making small houses and discard our old and archaic civic laws allowing one, two or 2¹/₂ floors and then allowing a few more floors at a price after a few years. This is ridiculous, we have already ruined our cities doing this.

We are also against individual houses. Civic authorities reclaim scarce arable land, turn them into plots and sell these to individuals. It is a criminal waste of precious land. A flat system in a multi-storey building must be acceptable to all, rich or poor (also see Chapter 12). We can take a lesson from Mumbai that has made a better use of its land than other cities.

In our new system all cities or colonies shall be well planned and would call for expert town planners and experienced professionals in the field. **We must go vertical as much as possible depending upon the load bearing capacity of the soil and seismic effects in that area, barring other restrictions, if any, like an aerodrome nearby or security reasons and thus allow enough open land.**

Leaving more open land means optimum utilisation of land. We understand making taller buildings is a costly affair and so is its maintenance and fire fighting system. But for this we cannot destroy our precious land and ecology and ruin our own future. We must accept the challenges and design suitable lifts, cranes and fire fighting systems for high-rises. It is essential also in the face of open market conditions (liberalisation) where nations lacking technology will be left behind. We are a member of Kyoto Protocol and it is mandatory on our part to protect the environment. Unless we discard our archaic traditions of spreading out horizontally we shall have only little space for green pastures, for sports and children to play, better roads and parking area, even open land for rain water seepage to build up ground water table.

(IX) STOPPING STRAY CATTLE

Our cattle will not be allowed to stray on roads or in colonies, left by their poor owners to feed by themselves. This is an inhuman treatment to the speechless creatures that provide us milk. The poor creatures get no attention from the public also though they too yearn for human affection. Look closely they are worse than beggars as they are half fed on garbage of roadsides and waste of households

and are also subject to insult from the house lady besides unceremonious kicks from passers-by. In most cases their owners are poor too and are not able to buy adequate fodder for them. There are only few green lands and fewer grazing grounds where these livestock can be taken for grazing. Nevertheless they are a nuisance and traffic hazard on the roads and a source of additional pollution and filth. Their roaming loose on roads is highly unbecoming any way.

(X) BAN ON COW SLAUGHTER

(Supreme Court order, Oct. 2005)

In a country of stray cattle as noted earlier, it becomes essential to talk briefly on the ban of cow slaughter. Irrespective of religious compulsions or Supreme Court order, it is important to understand the implications and sanctity of such a verdict. The question arises, shall we be in a position to take care of the ageing creature in future when we have grossly failed to do so in the past? So far, we have been unceremoniously leaving the poor ageing creature on roads to die on the roadside garbage or household leftovers and bear all the brunt and insults from the passers-by and the house ladies.

Once again like we have discussed under 'cruelty to animals' our politicians want to ban the slaughter, but they are not concerned about their welfare and rehabilitation. Simply demanding a ban on cow slaughter without assessing its implications is irrational and lacks wisdom. Equally irrational is Supreme Court succumbing to such illogical demands and fanatical pressures. We wish, if not the political parties due to vote bank compulsions, at least the Supreme Court had taken cognisance of the pathetic ground realities and had felt for the poor plight of these speechless creatures left on roads to die a miserable death. Also, in the long run when their number multiplies, can our already crammed roads and colonies accommodate these creatures and provide them food?

We appeal to the people of the land to give thoughtful consideration to these aspects. With this ban without their rehabilitation, medical care and grazing grounds, we shall be heading towards another catastrophe with over population of stray cattle. When we are incapable to take care of our ageing parents, to think that we shall be able to take care of ageing creatures is fooling ourselves and making an already explosive situation worse.

(XI) STOPPING STRAY VEHICLES

Another feature gathering momentum is stray vehicles and transports parked in empty places or on roadsides in absence of proper parking lots. This too is a nuisance and causes traffic hazards. This practice is on the rise particularly in cities. People buy buses and trucks and park them anywhere in the city wherever they find some space. It may be right in front of your house, if it is a wide road or an empty plot.

Buses and trucks are necessities – buses for office goers, school children and general public and trucks for industries, trade and general transportation. To provide parking space for them is essential and this cannot be made possible without a meticulous town planning. It cannot be done in a piecemeal manner. But now it is too late as all cities are already crammed and over built where even proper commutation is a problem. To demolish the whole city and rebuild the same is not possible. The **city centres** that *we* have conceived shall take care of these necessities. The high-rises will enable us to leave enough open land area for green meadows and adequate parking facilities.

18.8 Cruelty to animals (also see Section 20.2)

(I) NATURE'S LIFE CYCLE [part of environment, flora and fauna]

Note

This topic is just for general information of the people in the wake of regular news items on such issues. (Since environment and cruelty to animals are inter-related, this topic is covered in this chapter).

- Let us understand what cruelty really is. Cruelty means torturing someone. But for this we cannot go against the nature neither change its life cycle (flora and fauna). A lion has to hunt other animals to feed himself. One cannot make him eat grass. Similarly, all carnivorous animals hunt smaller animals and the smaller ones hunt still smaller ones and so goes the life cycle. To maintain a balance in the population of animals and birds in this manner is a law of nature and this life cycle we should not disturb.

Population control of animals and birds is equally essential. Their over population may disturb the natural life cycle and erode the resources of a nation or the world. Dependence of human race on such creatures is therefore a natural phenomenon, an order of the

day and cannot be restricted or denied. But cruelty to them is a blot on human behaviour and callousness towards a living creature. It reflects our apathy and such attitudes must be shunned.

In the same context if everybody becomes a vegetarian what we will do with the chickens, livestock, goats, fishes and pigs. We may have to kill them ultimately because they grow rapidly. Human consumption of these is part of a natural life cycle. We cannot call it cruelty to animals neither stop it. Moreover, if all are vegetarians we cannot grow enough food for ourselves and also for these ever increasing creatures, besides creating living space for them.

- Cruelty surely is a mean act against man or animal. When we have a dog as our pet we chain him and take him for a stroll. Is it cruelty? No one loves his pet any less than he loves his children. If he can't do this he better not keep a pet. That speechless creature cannot talk, it is one's tender love and care for him that makes one feel for him and take care of him. Similarly, a juggler who earns his livelihood through the street plays by his pets which can be a monkey, snake or bear is not committing cruelty to animals. The animal for the juggler is his pet as much as a dog for its owner, besides being his bread earner. How can one mistreat his bread earner who for him is more than just a pet? He feeds it according to his means unlike the cattle owner who leaves his cattle stray on roads to search for its own food. If people call it cruelty, then what should they call the milkmen or cattle owners? Moreover a juggler puts up street shows under compulsion for he has no other means of livelihood. We all know he does not earn much doing this. In the hour of crisis also he would feed his pets first as a mother would feed her child.

What would you call a horse pulling a tonga, bullock³ pulling the yoke for ploughing, donkey or mule transporting loads, man pulling man (human *rickshaw*⁴ as in Kolkata), man carrying man on his shoulders or on dandy as we witness in hill resorts or hillside shrines and holy places. For that matter a man pulling a cycle *rickshaw*. In fact, these are all a part of natural living means of poor people in a poor country.

These are all blemishes on a society and reflect at its poor economy. Lack of means of earning and job opportunities lead one to take

3. In many parts of our country even a man pulls his own yoke because he cannot buy bullocks

4. West Bengal government is now (2005) trying to remove them from the streets.

up such low grade jobs. More than any one else, it is the system of governance of our country who is to blame for this and must be answerable for the poor condition of its subjects. But our's is a typical nation where the common man suffers and groans, the system sits complacent and enjoys.

- Cruelty is when we snatch the animal from his master and send him to the zoo where he is half-fed, sometimes with rotten food and has to live in a cage which is seldom cleaned. **It is easy to apprehend a juggler on the street but are we able to protect the lives of the poor speechless creatures who are caged in the various zoos of our country.** Unnatural deaths, killings by the very saviours of these animals, continue unabated and make regular news headlines. The killings of lions and elephants (2000-2001) and their unnatural deaths indeed haunt. These animals in the hands of a circus company, a monkey juggler or a snake charmer are by all counts more dignified and safe. They at least are loved by their masters and in return perform and earn for them. It is another matter that the circus companies' dwindling businesses during these years are falling short to take adequate care of their animals and they are compelled to send them to zoos.

We may wonder why Menkaji⁵ and many others of her kind are so particular of snatching away the monkey from the monkey juggler, for whom the monkey is the lone bread earner or the bear from the bear juggler and snake from the snake charmer. **In their hypocritical attitude they send the animals to a zoo and leave the juggler in a lurch. While the animals may die of cruelty in zoo, the juggler may be begging or dying or eating mango kernels or grass who knows, or taking up to some crime in the absence of a living! Now let the people decide who commits cruelty on whom? Persons like Menkaji are crucifiers in the name of humanity and animal welfare and in fact afflict more cruelty.** And we, living in oblivion and busy in our own affairs have little time to think, care or feel for them. As said before, our system knows only of demolition and destruction and snatching one's bread rather than providing solace to him.

Corollary

In the passing, under similar reference we would like to recall those politicians who are highly concerned about child welfare and visit sites and factories employing child labour. They send the children home and prosecute the employers. What next! The politicians do not know. They only know that a child cannot be employed. But why

5. Menka Gandhi – the then Union Minister for Environment.

not, they never bother to know or create opportunities (schooling) for the child (see also Section 14.1). We are so unmindful that we have become grossly incapable of doing any good on any front or be constructive. Once again, we only know demolition, not construction. The child now aimlessly idles time at home or with other children who too are idle. Earlier, he was a source of income to his parents and siblings, now he is useless and may pick up some unwanted habits.

They may send the animals to zoos but where will they send the human beings doing the jobs of animals!? Seemingly we are immune to cruelty to human beings!

(II) ZOOLOGICAL GARDENS (ZOOS)

- Most of our zoos greet us with a barren and pathetic look. They are living legends of human apathy and utter callousness. Many enclosures are barren with a few lone pairs of animals. Their places of habitation are stinking hell. With no alternative, these speechless creatures are destined to spend their lives as such. The situation becomes worse when it is a herd of animals in one enclosure such as enclosures of deer, zebras, cows and the like, where the poor creatures are forced to live, eat and breathe in their own urine, excreta and filth. The situation becomes pathetic during the rainy season when their cages become dingy with slush, urine and excreta; a hell on earth before our eyes. **This is cruelty to animals.** If you look into the eyes of these creatures, their blank stares will tell you their pathetic tale. Most of them may be starving and dying a slow torturous death. The situation becomes unbearable when on top of it some visitors tease them with small pallets, or poke them with sticks. **The dry summers are yet more harrowing when they pant tongue out and move around in their cages breathlessly without shelter or source of drinking water. More sensitive of us may like to silently cry with them and shed tears on their languishing highly pathetic lives like in concentration camps.** It is futile to blame any individual, the whole country stinks like this and so also most government-owned establishments and undertakings. Everything government is a tale of human apathy, callousness and gross incapability.
- Rotten left-over meals, stale fungus-infested grams and grains lay in trays of the birds, most of them not caring to eat such rotten food. The cages in most zoos are now becoming increasingly empty as the animals and birds keep dying. They may also be sold by their saviours to make a fast buck. It is also reported that zoo authorities sometimes go hunting their own animals for a feast. It is an endless story, to

narrate the state of our state-owned zoos and their cruelty to animals. Animals are not even half-fed as a good chunk of money meant for feeding them goes for feeding their saviours. **To witness cruelty to animals, one must visit our zoos.**

On the contrary, I had an opportunity to visit a few zoos in the western countries. I can only say seeing is believing. They indeed care for their animals like human beings, who are so dear to them. Their agony and pain is the agony and pain of their keepers. They are not animals, they are like their personal pets.

- Talking of tourism, zoos were once attraction for children, and parents would love to take them there on Sundays and holidays. But no such charm is now left at such places. The miserable plight of caged animals can even move the tender hearts and minds of the sensitive children, not to talk of grown-ups. People now shy away from such places. Under these conditions, to expect foreign tourists is like living in a fool's paradise. In fact it is not in our interest also to expose our filth and callousness to them. And God forbid if ever some animal rights activist visits such places he may sue us for cruelty to animals and we may not be able to defend ourselves. We are already fighting against child abuses, it may add a few more cases against us.

In the passing

Many of our zoos don't even have proper toilets for the visitors, what to talk for the animals.