

E-Q UOTIENT





Education loans
for a better tomorrow.

www.bankofbaroda.com



बैंक ऑफ़ बड़ौदा
Bank of Baroda

India's International Bank



3



32



33



6



9

- 1 Nature's Barricade
- 3 Statutory Warning: Breathing is injurious to health!
- A Necessary Evil ? 5
- 7 When the Girni stopped spinning
- Of sweetness and neglect 9
- 13 Empower tribals or sustain the environment?

CONTENTS



30

- 15 Whose law is it anyway?
- 17 Can you hear me now?
- Mapping the green 19
- 21 Living on the edge
- Find a beach.... if you can 25
- 27 Eco-logical thinking
- 29 Now where will you throw the wrapper?
- The polluting palette 32

CREDITS

ACKNOWLEDGEMENTS:

We would like to thank Jeroo Mulla for being the driving force of our department and Pamela Cheema for guiding us all the way. P. Sainath and Smruti Koppikar gave us their valuable inputs while Gracy Vaz helped us unconditionally. We would also like to thank Mr. Maneck Davar for being so generous as to sponsor our magazine.

Cover Photograph: **Chandrani Bhattacharjee**

Printed by: **Spenta Multimedia**

Artworks by: **Sumanma Wadhwa**

Published by: **Spenta Multimedia**

Directress: Sr. Ramina Coutinho
Head of Department: Jeroo F. Mulla
Course Coordinator: Nirmita Gupta

Visiting Faculty:

T.C. Ajit	Deepa Bhatia
Pamela Cheema	Naresh Fernandes
Ravindra Hazari	Suparna Gupta
Smruti Koppikar	Susannah Malkan
Sandra Merchant	Anita Mandrekar
Monica Merchant	Sonalini Mirchandani
Lata Murugan	Ajay Noronha
Jerry Pinto	Geeta Rao
P. Sainath	Paromita Vohra

Administrative Staff:

Gracy Vaz,
Nilesh Correia

Editors:

Aliya Baptista
Chandrani Bhattacharjee

Assistant Editors:

Tanika Jalan, Rana Sheikh

Editorial:

Anita Aikara	Supriya Bandekar
Richa Chadda	Sanaya Chavda
Cherry Fernandes	Deepika Khatri
Purvi Malhotra	Medha Makhija
Shikha Rahi	Vedika Sud
Shuchi Talati	Rakhee Yadav

Marketing:

Rohini Anand	Ekta Bhatnagar
Prachi Patel	Tasneem Bhavnagarwala
Rai Das	Khushboo Gwalani
Divya Joseph	Manisha Kelkar
Nikita Khanna	Isha Marwaha
Premila Manvi	Supriya Pant
Lily Prathipati	Suravi Pradhan
Pooja Raheja	Prema Rajaram
Namrata Sethia	Riddhi Savla
Preeti Saraf	Vandana Sharma
Diksha Sharma	Shveta Sharma
Anjali Singh	Ava Viccajee

EDITORIAL

*'The falcon cannot hear the falconer
Things fall apart, the centre cannot hold'*

said Yeats, poet, philosopher of the post-war, 20th century. The words seem almost prophetic today, the cry of a crumbling earth.

From afar it's all glaucous. Much like that on grape skin. Trouble is, we cannot peel it away as easily. All the red and green packets of the world could not peep out of this grimy mist of toxic debris. If only we cleaned up our waste, left some spaces devoid of concrete, let the trees be.

Meanwhile, the wheel does not stop spinning.

In this magazine we have tried, through the juxtaposition of facts, opinions from experts and our own inferences, to piece together the bits that drag our wheel askew and begin a crucial process of understanding how interconnected and interdependent the quality of human existence is to the natural world. E - Quotient is an effort to reexamine, redefine and reorient our priorities to the earth.

The past year's work has made each one of us more aware and sensitive, while instilling a sense of responsibility. We would especially like to extend our gratitude to our professors – Smruti Koppikar, P. Sainath, Jeroo F. Mulla and Pamela Cheema for their perpetual, genuine support.

Aliya Baptista
Chandrani Bhattacharjee

NATURE'S BARRICADE

The smell of moist soil wafted through the sultry monsoon air. The rain-drenched countryside was a lush canvas of green. But this wasn't the countryside, and it wasn't June. This was the urban sprawl of Vikhroli, Mumbai, in the middle of October. We were in the midst of shady mangroves. A short walk led us back to the gray, concrete jungle that has replaced the lush mangroves that once dominated the city.

Mangroves grow in intertidal regions i.e. the area between the lowest point of a low tide to the highest point of a high tide. These salt-tolerant species are the only plants that thrive in this region. The roots are spread parallel to the earth forming a network, which help stabilise the coastal landmass against sea erosion. They also help in filtering the silt brought by the river, before flowing into the sea. Mangroves are an extremely biodiverse ecosystem and serve as a habitat for fish, crustaceans, amphibians, microorganisms, insects, reptiles and migratory birds.

The ecological functions of mangrove forests and their value as renewable suppliers of goods and services



WALKING PATHS AT MANGROVES IN VIKHROLI, MUMBAI

are grossly underestimated. Advocate Girish Raut, member of the Mangrove India Society says, "Mangroves are one of the most biodiverse areas in the world. Their biodiversity is comparable to that of the Amazon."

Mangroves act as a buffer against tsunamis and cyclones. They are like a giant air bag that absorbs their impact. Even a coastal wave 30-50 feet high, traveling at 500-800 km/hr, will lose momentum when it crashes into a mangrove cover. Consequently, the damage caused is minimized. "If a tsunami was to hit Mumbai, it would wipe out nearly everything, except for Vikhroli, as it is surrounded by mangrove forests which will protect it," explains Mr. Vivek Kulkarni, environmentalist and member of the Mangroves India Society and the Godrej Mangrove Project.

In recent years, mangrove lands have been exploited for various purposes. The mangrove land in Goregaon, for instance, is being exploited to construct a private 550-acre golf course. The mangroves in Kanjurmarg are being proposed as dumping grounds for garbage. The greatest

destruction of mangroves has been for housing. Mr. Debi Goenka, one of Mumbai's leading environmentalists and a founding member of the Bombay Environment Action Group, pointed out at a seminar conducted by NGO PUKAR on urban issues in December '05, "In 1981, Indira Gandhi declared that all areas 500 meters from the coastline should be free of any kind of development. This declaration was not legally documented. The law was not implemented until 1991 with the CRZ-1 (Coastal Regulation Zone) notification which described the mangroves as 'ecologically sensitive areas' which would hence-

WHY ARE MANGROVES NECESSARY?

- Prevent coastal erosion.
- Provide food to many marine and fresh organisms.
- Hold a diverse eco-system.
- Absorb water and reduce the impact of floods.
- Act as a protective wall against tsunamis and cyclones.

forth be treated as a 'Protected Species'."

Regardless of this, mangroves continued to be treated insensitively. In the early nineties, mangroves existed in areas such as Thane Creek, Mahim, Versova, Gorai and Ghorbander and a few patches in Bandra, Malabar Hill and Colaba as well. Bittu Sehgal, Editor of Sanctuary Asia, has also pointed out in his magazine, a 40% loss of mangroves in Mumbai between 1995 and 2005.

After the CRZ notification (1991) came into effect, the MMRDA (Mumbai Metropolitan Region Development Authority) adopted certain piecemeal strategies to preserve mangrove forests. However, this rich wetland eco-system is on the path to irreversible damage. According to the MMRDA plan for the Bandra- Kurla Complex, 283 hectares of mangrove forests were reclaimed from the inter-tidal zone of Mahim Bay for development.

Mr. Vivek Kulkarni explains, "The Thane Creek was approximately 50 feet deep 100 years ago. Today it is only 13-14 feet deep." This drop in its water-carrying capacity is largely due to the destruction of mangroves for commercial use. The mangrove forests hold on to silt-loads, thereby preventing silting of creeks and rivers,

writer, former Resident Editor of The Times of India in Mumbai, and Chairperson of the International Federation of Environmental Journalists. The repercussions of mass reclamation were not taken into consideration till the July 26, '05 floods last year forced fresh reflection. "The Mahim bay area has been described as the kidney of Mumbai," says Mr. D'Monte. Tributaries of the Mithi river, from the Sanjay Gandhi National Park to Mahim meet in this area carrying sewage, silt, chemicals, metal particles, water, etc. which flows into the sea at Mahim Bay. Through this region a large amount of the city's waste is flushed into the sea.

Mr. Girish Raut explains, "The reclamation of the Mahim Bay for the Worli-Bandra Sealink has led to the destruction of mangroves which helped protect the coastline from erosion. Now that the mangroves have been destroyed, it is being usurped by the aggressive sea and the area reclaimed. Places like Dadar Chowpatty, which is now a narrow 50 feet patch will soon cease to exist if no action is taken."

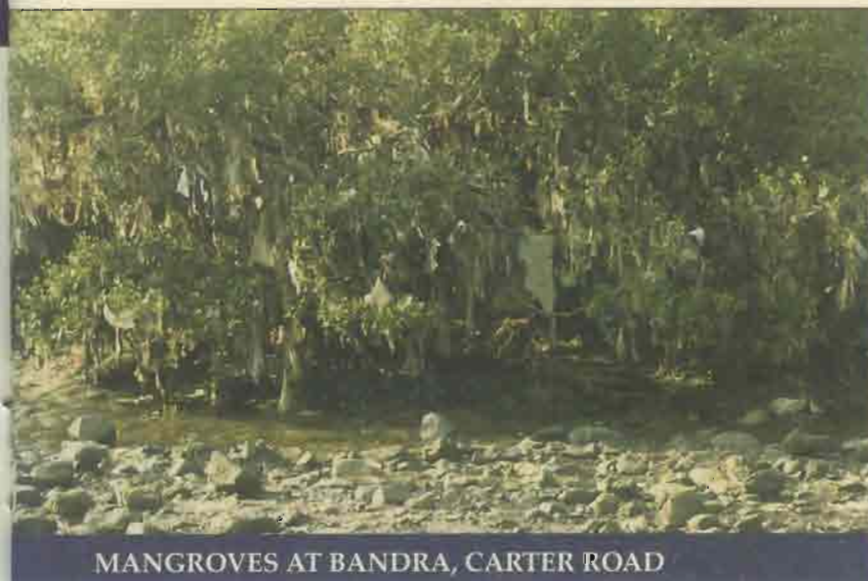
Citizen's initiatives such as the Shivaji Park Dakshita Samiti, Save Versova Forum, Dahanu Environment Protection Committee and the Worli-Bandra Sealink Virodhi Kruti Samiti have been actively fighting for the protection of mangroves in various areas. The Worli Bandra Sea link Virodhi Kruti Samiti had a major agitation in April 2002, when "we put boats under cranes to stop construction," informs Mr. Raut, one of its members. Despite their protests the construction is still in progress.

On October 6, '05, the Mumbai High Court passed an order, after public interest litigation was filed by the Bombay Environment Action Group (BEAG), that mangroves be declared as 'protected forests'. All construction 50 meters around the mangrove land was immediately stopped. It also barred the state and the Bombay Municipal Corporation from developing

any government or privately owned mangrove land.

The 2000 acre Godrej Mangrove Project in Vikhroli has proved to be a success. Mr. Kulkarni, who is a part of the Godrej Mangrove Project, explains that it is as necessary to protect mangroves as it is to regenerate them. He took us to the mangrove forest in Vikroli, to see one of the protected mangrove areas in the city. These forests will soon house a butterfly garden and a wooden walking path across the mangroves. This inclusion will not only help draw people's attention to the mangroves, but also make their visits a visitor friendly experience.

Though individual groups and NGOs have been successful in protecting mangroves by taking up projects such as this one, one must realize that it is only a handful of them that have been successful, whereas the majority is still struggling to protect this species. For their continued growth, protection and regeneration, it is up to the citizens and the government to take on the responsibility of protecting these plants that protect us.



MANGROVES AT BANDRA, CARTER ROAD

which serve as a great back-up for draining out the water from the city. The gradual silting reduces their capacity which leads to an overflow into the land.

"The state is in debt of hundreds and thousands of crores, so they are getting money by reclaiming land and selling it. It's like a cash cow for them," says Darryl D'Monte, environmental

Cherry Fernandes
Khushboo Gwalani
Tanika Jalan

Sources- 'Govt. Must Declare Them Protected Forests- HC freezes building in mangrove zones', Times of India, Mumbai, October 07 2005

NEERI Report, 1994-96

www.csmonitor.com/2005/0110/p07s01-wosc.html

STATUTORY WARNING: BREATHING IS INJURIOUS

Rendezvous Pune: Walk down the sylvan avenues...wait a minute, did we say sylvan? Read on...

Pune has more two wheelers than any other Indian city. Most of the people who ride two wheelers mask themselves with scarves. This is not the latest fashion statement but a necessity in Pune. Why? The answer is simple - it is because of high air pollution levels.

Over the last ten to fifteen years the city has witnessed a drastic change in the weather due to high air pollution levels. Ravindra Kulkarni, who has lived in Pune for the last fifty years says, "Pune has always had beautiful weather and was considered a hill station but things have changed. It has become so hot now that nobody could have imagined it to be so a couple of years back." This is not something that is happening in Pune alone. We can see similar changes all over the world. 'Human activities are contributing to global warming by adding large amounts of heat-trapping gases to the atmosphere. Our use of fossil fuels is the main source of these gases. Every time we



A VEILED SCOOTERIST ON PRABHAT ROAD, PUNE.

drive a car, use electricity from coal-fired power plants, or heat our homes with oil or natural gas, we release carbon dioxide and other heat-trapping gases into the air. Across the globe, other early warning signs include melting glaciers, shifting ranges of plants and animals, and the early onset of spring' states www.ucsusa.org, The Union of Concerned Scientists (UCS) which is a nonprofit partnership of scientists and citizens to achieve practical environmental

ROAD DUST IS THE MOST NOTORIOUS POLLUTANT OF PUNE.

solutions. Vehicles belch out a toxic cocktail of noxious gases like carbon monoxide, sulphur dioxide, oxides of nitrogen, hydrocarbons and other particulate matter. In a city like Pune that has witnessed a massive thirteen-fold rise in the number of vehicles since 1980, this rise has become a cause of concern to its residents.

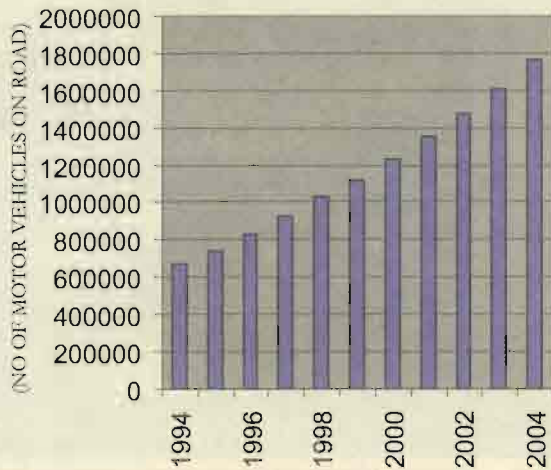
"The problem only multiplies when people don't follow the rules and regulations and they

don't get the pollution checks done for their vehicles," says N.S. Dhapale, traffic constable. He points out "The use of old vehicles causes a lot of pollution too. Vehicles more than fifteen years old have been banned in some other cities in India and Pune is trying to get the same done too." The Pune Municipal Corporation (PMC) has recently started a program called 'Chaka Chak Pune,' which is looking into activities like planting trees to reduce pollution, encouraging people to walk and use cycles for small distances, keeping their surroundings clean and lessening the use of plastic.

Also in the forefront of pollution control is the AQM (Air Quality Management Cell), the environment lab of the PMC. Ajay Ojha, Project Manager, AQM, lists the twenty-one factors responsible for pollution in the city. "Particulate Matter is tiny enough to enter lungs and can compromise one's health," claims Ojha. Road dust is the most notorious pollutant in Pune. According to the AQM's figures, more than half the air pollution can be traced back to road dust and the second biggest culprit is vehicular emission. Other polluting factors are generators,

ERIOUS TO HEALTH!!!

Motor vehicles on Road



commercial cooking (hotels) and street sweeping. PM also acts as a facilitator for secondary reactions. This means that when combined with gases it becomes dreadfully toxic. On this basis AQM will go into developing an urban air pollution control strategy in Pune.

'Nirdhar,' a local NGO working for traffic and pollution control is housed next to a busy intersection. All that one can see is a serpentine row of vehicles moving along the road, concrete ugliness, dehydrated vendors and adding to that, the endless beeping and blaring of horns. Vandana Palande, Trustee and the founder of

Nirdhar, reveals, "We have pollution indicators in twenty-two locations in the city, whose data we get from a daily local Sakal. These are put up to make people aware about the growing pollution levels in the city. The readings shown are the average level of pollution." She tells us about another common practice that adds to air pollution: "To save costs, trucks and the rickshaw drivers use kerosene in their fuel. Although it is cheap, it causes serious health problems."

According to Dr Sundeep Salvi, Director of Chest Research Foundation (CRF), "Diesel emits 1500 times more particles in the air compared to petrol. This implies that the greater the

number of diesel vehicles there are on the road, the more dangerous is the air that we breathe." The Chest Research Foundation conducted a study with 350 traffic and non-traffic policemen and found that the traffic police

THE GREATER THE NUMBER OF DIESEL VEHICLES THERE ARE ON THE ROAD, THE MORE DANGEROUS IS THE AIR THAT WE BREATHE."

have more 'oxidative stress' in their lungs. The CRF conducted a study in Pune's urban slums to verify the effects of commercial cooking. The results showed that people who lived and cooked in the same room had higher chances of contracting lung diseases as compared to those in houses where kitchens are separate.

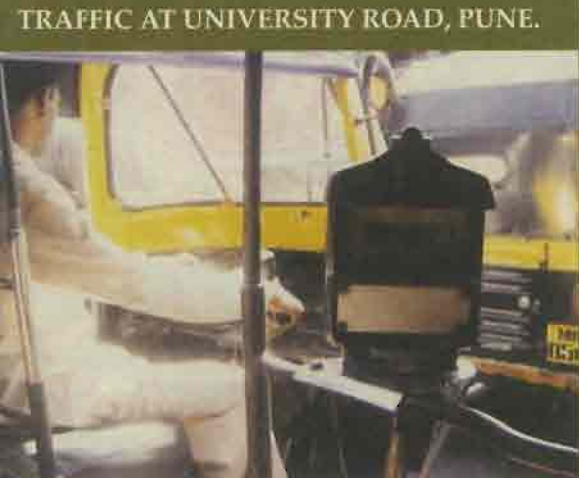
Apart from the usual measures such as minimal use of the clutch and optimal use of the brake, regular check of the carburetor, the use of a catalytic converter (which reduces carbon content in the exhaust), the use of good quality fuel and oil, an efficient public transport system and good infrastructure is what is criti-

cally required, so that the use of personal vehicles is reduced. The government needs to take a serious look at implementing the usage of non-conventional fuels such as compressed natural gas (CNG), ethanol, bio-diesel, solar energy etc. Measures such as levying a minor fee on any private vehicle entering the municipal limits, permitting use of either even numbered/odd numbered vehicles on certain days and making parking expensive may also be considered. Mr. Ojha adds, "We also need to have proper disposal of solid and garden waste and reduction of commercial and agricultural burning. Proper infrastructure is needed to implement these changes."

Pune has been a getaway for residents of other cities and now Puneites need a place to get away from the scorching heat of their own city. Even though Puneites have woken up to the threat posed to them and are taking initiatives to help control the rising air pollution, much more needs to be done to ensure quicker and efficient ways to prevent further marring of a city, which was once a 'hill station'.

Rakhee Yadav
Prema Rajaram

Sources-The Union of Concerned Scientists (UCS) - www.ucsusa.org



TRAFFIC AT UNIVERSITY ROAD, PUNE.

A NECESSARY EVIL?

In 1862, Alexander Parkes in Britain invented a material which was first displayed at the London International Exhibition. It could be transparent and opaque and could be carved into thousands of different shapes. Plastic undoubtedly molded the modern world. By merely looking around, it is obvious that plastic is the most frequently used item in our daily lives. From switches to bottles to cables to electronic gadgets to carry bags, they are all plastic. Little did he know that this immortal object could cause such damage to the environment.

According to the Indian Center for Plastics in the Environment (ICPE), with the increasing population and demand in technology, plastic has proved to be the most cost effective and energy efficient product. It consumes the least amount of energy in production, as compared to metals, glass and jute. The annual consumption of plastic in the world is 130 million tonnes. India today produces and uses 20 times more plastic than it did 50 years ago.

Plastic bags have become an indispensable part of our lives and are the most commonly used form of plastic. Mumbai alone uses eight million plastic bags a day. A National Environmental

Engineering Research Institute (NEERI) study in 2005, for the Brihanmumbai Municipal Corporation (BMC), states that the city produces more than 7000 metric tonnes of municipal solid waste everyday, out of which plastic waste constitutes 0.75% (approx. 43 metric tonnes).

Research studies further reveal that plastic bags degenerate slowly, the period of disintegration varying between 20-1000 years. With time, plastic breaks down into small pieces leaving behind miniscule residues. These bags are non-biodegradable, as the molecular structure is too large for micro-organisms to consume. This peculiar characteristic of plastic results in a serious environment and health threat.

More recent studies have found that plastic bags whether burnt or not, have hazardous effects on air, land and water. When burnt in

inadequate amount of oxygen, plastic bags release poisonous fumes such as dioxins, which cause cancer. In water, plastic chokes fish and thereby kills marine life. On land, it gets entangled around plants and forces its way into the soil, obstructing the water from reaching the roots. In addition, pigments used for colouring plastic add more chemicals to the soil. Even animals that accidentally feed on it from garbage dumps are killed.

Plastic is the apparent culprit for a vast ecological problem. However, plastic per se is not the problem; it is the disposal of plastic waste that endangers the environment. Due to littering habits and inadequate waste management systems, plastic waste disposal continues to be a major problem for civic authorities, especially in a densely populated city like Mumbai.

SEGREGATION OF WASTE ON A MUMBAI STREET





PLASTIC BAGS AT JUHU BEACH

The Deputy Municipal Commissioner for Solid Waste Management, Mr. P.R. Sanglikar, says, "A systematic disposal system is needed where every household starts segregating their waste into separate bins allotted for wet and dry garbage. There is a need to cultivate proper waste disposal values in people." Segregated waste disposal is only one part in the process of eliminating the hazardous effects of plastic. Plastic, once segregated, has then to be recycled.

The problem was highlighted by the 26/7 Mumbai floods, as plastic bags were found clogging the drains. They were then perceived as one of the reasons for the floods. This led to the government's hasty decision of imposing a ban on all plastic bags. On September 13, '05, the BMC issued an initial draft notification. The draft states, 'every trader (including hawker), shopkeeper, wholesaler or retailer or any other person shall discontinue the use of polyethylene (plastic) bags, for packaging, handling, storing, carrying or for any other purpose.'

In 1998, after water logging created havoc in the city, the BMC decided that all plastic carry

bags under 20 microns- the sort the bhajiwalla hands out- were to be banned. The ban failed, the main reason being that shopkeepers preferred plastic bags to paper ones, because a paper bag is five times the price of a plastic bag. Moreover, it takes less space in a shop.

"If plastic bags and packaging are replaced with alternative material such as paper, cloth, jute and metal, it would burden the environment even more as the rate of packaging would go up and cost and volume of waste would double. If the demand for paper bags goes up the demand for paper pulp will rise, resulting in mass deforestation," says Ajay Desai, President of All India

Plastic Manufacturers' Association.

Sangeeta Saraf of Stree Mukti Sangathan, an organization working with rag pickers believes, "In order to carry fruits and vegetables, recycled paper bags and cloth bags should be used but it will not be possible to implement a complete ban on plastics as liquids, food items and heavy weight products are needed to be carried in plastic bags."

Concerning the government's ban on all plas-

tic bags, environmentalist Girish Raut says, "It is impractical to ban all plastic bags as almost all plastics are recyclable. It is only those below 20 microns which create problems." The government has now imposed a ban on the manufacturing of all plastic bags below 50 microns because they cannot be recycled. However, remedial action needs to go beyond waste disposal of plastic bags; and the government must address the issue of recycling in a larger sense.

Bio-degradable plastic (plastic which degrades as a result of the activity of micro organisms such as bacteria, fungi and algae) have been developed in western countries but India cannot afford it because of the prohibitive costs. The only feasible solution lies in minimizing the use of plastic bags by reusing and recycling them. We live on earth- it's time, we as a species realize that our planet has limited resources. Being the only planet in the solar system with life, it is our responsibility to economize. It is not like we can go shopping elsewhere!

MUMBAI ALONE USES EIGHT MILLION PLASTIC BAGS A DAY.

Rohini Anand
Lily Prathipati
Namrata Sethia

Sources- ICPE Newsletter - March, April, May and June 2005 issues.

'Plastic Notification comes packaged with confusion' and 'PVC: the most lethal form of plastic', DNA, Seema Kamdar, September 28, 2005.

'Why this ban could be so much hot air', The Times of India, TOI correspondent, August 16, 2005.

'The History of Plastic' - www.americanplasticscouncil.org/s_apc/sec.asp?CID+310&DID+920

'Plastic Bags', Nasreen Abdulla - www.socialpages.com.pk/110/plastic.asp

WHEN THE GIRNI STOPPED SPINNING



DAWN MILLS, LOWER PAREL

For over a hundred years now, the mills have thrived in Central Mumbai, processing and producing cloth and providing employment for thousands of workers...We are handing over, as it were, part of our heritage that once formed the heart of our city. How do we revitalize this heart so that it re-throbs with new life and energizes the centre of our city again?

-David Cardoz, conservation architect.

The history of the mills can be traced back to the 17th century cotton trade. It was the cotton boom of the 1860s that invited further enterprise in the industry and the number of mills increased from 42 in 1880 to 138 in twenty years. The land was leased to the mill owners at highly subsidised

rates. Because of the cheap labour available the mills were highly profitable ventures. However, after the 1982 strike, the mill owners started declaring the ventures as 'sick'. This was not the sole reason for the decline of the mills. Profits from mills were used to develop other industries, so the mills were not modernised for years and ran into losses. With rising real estate prices, it proved more lucrative for the mill owners to sell their land. The mills amounted to nearly 600 acres of prime land located in the heart of the city, an area almost eight times the size of Nariman point.

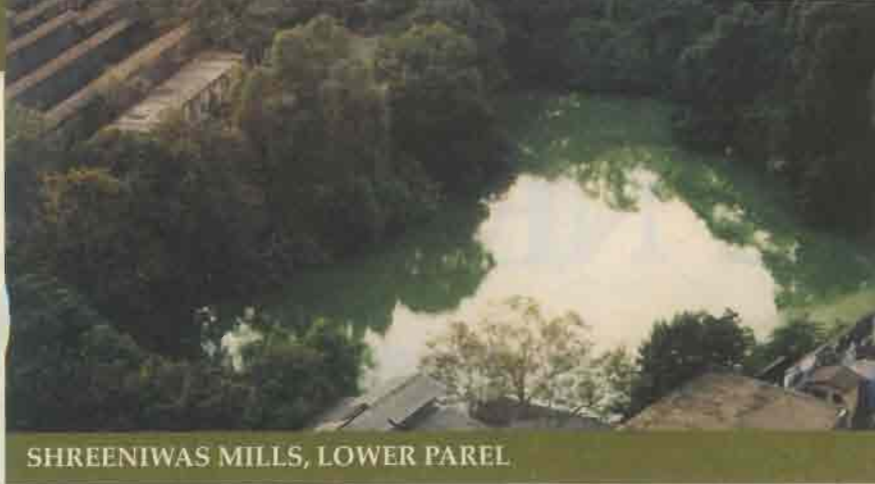
Darryl D'Monte, Chairperson, Forum of Environmental Journalists of India, states in his book, *Ripping the Fabric - The Decline of Mumbai and its Mills*, that the liberalization of the Indian economy in 1991 affected the urban growth of Mumbai. To work towards the growth of the city's financial services sector, the central government relaxed the restrictions on the location of industries- industrial areas could be used for commercial purposes for the first time. Section 58 of the Development Control Rule (DCR 58) was formulated in 1991, which allowed mill owners to carve the entire mill land into three parts.

They could then sell one-third, give one-third to the Municipal Corporation of Greater Mumbai to create open spaces and public amenities, and the remaining one-third to the Maharashtra Housing and Area Development Authority (MHADA), for providing affordable housing to lower income groups and mill workers who lost their jobs after the closure of the mills. In addition the floor space index (FSI) or the ratio of the area of the plot to the area allowed for construction increased threefold above the original 1991 norm.

It is important to note that Sec 58 of D.C Rules was introduced, as the judgment of the Bombay High Court points out, "for the revival of the textile mills and only when such revival was impossible, then for the development of such lands for other non-mill uses."

DCR 58 was not intended for the commercial exploitation of mill lands. In spite of these stipu-

AFTER THE AMENDMENT, OWNERS WOULD GET MORE THAN 85% OF THEIR LAND FOR PRIVATE DEVELOPMENT INSTEAD OF THE INITIAL 37%. GOENKA VEHEMENTLY ARGUED AGAINST THE COMMERCIALISATION OF THE MILL LANDS.



SHREENIWAS MILLS, LOWER PAREL

lations, industrialists and mill owners manipulated the regulation for commercial interest. In June '05, the NTC's Mumbai Textile Mill was sold for a staggering Rs.702 crores to the Delhi-based DLF Group. The sheer disregard for the aim of the regulation, which was integrated development of the mill lands, shows the apathy of the government towards the welfare of the city.

Debi Goenka, member-activist, with the Bombay Environment Action Group (BEAG), strongly supported this point, at a seminar on mill lands at the Indian Merchants Chamber in december '05. Goenka explained how the government used loopholes in the Maharashtra Town and Planning Act, 1966 to amend DCR 58 in 2001. The amendment stated that only land that is vacant, with no built-up structure, should be divided under the one-third formula. Most mill lands hardly have any vacant area. Therefore, the share of land for open spaces and public amenities was reduced from 60% to a mere fraction. After the amendment, owners would get more than 85% of their land for private development instead of the initial 37%. Goenka vehemently argued against the commercialisation of the mill lands saying, "The 200 acres of land allocated for the citizens of Mumbai is the city's last chance for open, green spaces." Any construction on these lands adversely affects the citizens of Mumbai, including the mill workers.

The strength of the mill workers is now estimated at 50,000 - a fifth of their number in the late 70s. They were once an intrinsic part of Mumbai's culture. However, the emerging mall culture has stifled their voices. The plight of the mill workers now depends on the verdict of the Supreme Court. Datta Iswalkar, general secretary of the Girni Kamgar Sangharsh Samiti (GKSS), a union of the textile workers fighting for the rights of the mill workers, states, "There were 2.5 lakh mill workers in Mumbai. Many

THE MILLS AMOUNTED TO NEARLY 600 ACRES OF PRIME LAND LOCATED IN THE HEART OF THE CITY, AN AREA ALMOST EIGHT TIMES THE SIZE OF NARIMAN POINT.

of them have gone back to their villages, some work as hawkers, cobblers, and rickshaw drivers. Approximately 20,000 mill workers have not received their Voluntary Retirement Scheme benefits as yet." Neera Adarkar, architect and co-author of 'One Hundred Years, One Hundred Voices', has been involved with the mill lands issue for the past twenty years. Adarkar is also an active member of the Girni Kamgar Sangharsh Samiti. She explains, "The mill owners began forcing the workers to accept the voluntary retirement

SECTION 58 OF THE DEVELOPMENT CONTROL RULE (DCR 58) WAS FORMULATED WHICH ALLOWED MILL OWNERS TO CARVE THE ENTIRE MILL LAND INTO THREE PARTS.

scheme and the workers were muscled into acceptance."

While mill workers wait and the city continues to gasp for open spaces, the mill lands are being redeveloped as malls, offices and residential complexes serving only certain sections of society. Mihir Thakkar, an independent architect, has designed several offices including Kamala mills at Mumbai. The redeveloped Kamala Citi, now houses several high profile corporate offices, catering to industrialists such as Reliance. When asked about the need for open spaces and public amenities in the city, he indignantly responds, "If the government wants to create open spaces then it should buy the land from the mill owners." What Thakkar fails to realize however, is that the mill lands actually do not belong to the mill owners. They were leased to the owners by the government so that they could provide employment opportunities and generate income. Most of the leases have expired but the

lessees continue to occupy the land, paying a pittance as rent. Data obtained by Right to Information activist, Shailesh Gandhi, shows that the average lease rent paid per square metre was just 3.5paise per year. Simplex mills, for instance, had a 99-year lease, which expired in 1983. The lessees still pay Rs. 48 per year for a 7836 square meter plot in a prime location.

The mill lands are the last ray of hope for any open spaces in Mumbai. The floor space index in Mumbai is among the lowest of any metropolitan city in the world, with 0.03 acres of open space per thousand people. If the land is divided in accordance with the 1991 amendment the city could get the open space it needs in the form of parks and public amenities. While the authorities attempt to make Mumbai a 'world class city', the basic requirement of space for its citizens is being ignored and smothered by the desire for high profits and commercialization. Soon, Adarkar points out, "the mill lands will be turned into islands of opulence and the city will have lost its last chance to breathe."

Deepika Khatri
Medha Makhija
Amrita Puri

OF SWEETNESS AND

Modern cities can be great places to live in. However, in most cases they are overcrowded, filthy, noisy and polluted. Much of the blame for that lies with bad governance and the indifference shown by the residents towards the environment, especially towards their internal rivers. The recent floods in Mumbai and Chennai are a clear indication of the neglect of urban rivers. As the city grows with tall sky-

origin the river looks picturesque, shimmering silently against the hills in the background. There is no sign of man-made devastation here. But as the river flows through the residential and industrial complexes of Powai, Saki Naka, Kalina, Vakola, Kurla and Mahim to meet the Arabian sea, it gets cluttered with garbage and filth. All through its course, the river is home to a number of illegal industrial units and slum-dwellers, who do not hesitate to drain their garbage and untreated sewage into the river.

"The residents of Mumbai are unaware of the natural base on which their city has been built. People even fail to understand the importance of the Mithi river," says Darryl D'Monte, former Resident Editor of The Times of India in Mumbai, and Founder President of the International Federation of Environmental Journalists. "Apart from being the longest river in the city, the

Mithi river is also an important storm water drain for Mumbai."

The Mithi river has always played a vital role in draining rainwater from the city. But, over the years, due to constant encroachments

and diversions, the river can no longer absorb the floodwaters. In such a situation, when there is no outlet for the water to escape into the sea, it stays back and floods the entire city.

Over the years, the river has been encroached upon by over two lakh slum dwellers as well as industrial units that have been set up on the banks of the river. The industries include scrap dealers, lubricant oil mixing businesses, garbage and mechanical workshops which emit harmful

"THE MAIN RIVER WAS FORCED TO TURN 90 DEGREES FOUR TIMES IN RAPID SUCCESSION, AND MADE TO PASS THROUGH A TUNNEL TO MAKE WAY FOR THE SAHAR INTERNATIONAL AIRPORT RUNWAY."



THE MITHI RIVER MADE TO PASS THROUGH THE SAHAR AIRPORT RUNWAY, THE RIVER TAKES A SHARP TURN, A CURVED RIVER WITH GARBAGE PILED ON ONE SIDE

toxins, which deplete the river's dissolved oxygen and threaten its marine life.

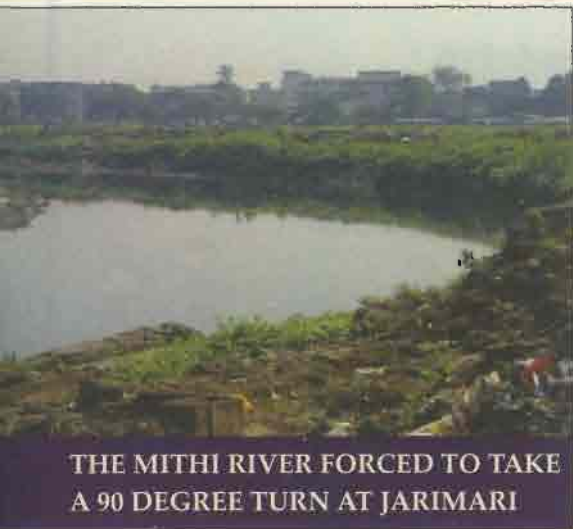
"We have been living here for the past five years," says Rakesh Tiwari, a rickshaw driver who resides in the slums, on the bank of the river, near Aarey milk colony, Goregoan. "There are few public toilets and very little water supply in the area, due to which we are forced to bathe, clean clothes and utensils on the filthy river bank." This was long foreseen. Choosing to settle on the mouth of the river may have seemed to be the best option for the slum-dwellers, but in the long run it has posed a serious problem for the city. The mouth of the river which was 120 ft wide has now been reduced to 40-50 ft due to the encroachments.

THE MOUTH OF THE RIVER WHICH WAS 120 FT WIDE HAS NOW BEEN REDUCED TO 40-50 FT DUE TO THE ENCROACHMENTS.

scrapers, multiplexes and crowded streets, the real life-giving river soon turns into a dirty nullah of sewage and effluents. The Mithi river in Mumbai, is the best example one could find of an urban river that has been neglected by the residents of the city.

With a respectable length of 15 Kms, the Mithi river originates at the Sanjay Gandhi National Park in Borivili. Overflowing waters from the Vihar and Powai lakes and from the ridges, valleys and hills of Borivili come together to form the Mithi river. At its

NEGLECT



THE MITHI RIVER FORCED TO TAKE A 90 DEGREE TURN AT JARIMARI

Girish Raut, an environmentalist, explains that the river has reached a dismal state because government officials have always treated it like a gutter. "The length has been incorrectly measured and is reported as one fourth the actual length in the development plan sheet prepared by the Bombay Municipal Corporation. At Jarimari, the Airport Authorities have extended the Santacruz runway towards the east, due to which the main river was forced to turn 90 degrees four times in rapid succession, and made to pass through a tunnel to make way for the Sahar International Airport runway," says Girish Raut. "By disturbing the natural course of events and redrawing the geography of the Mahim Creek, the link has gradually upset the flow of effluents and floodwaters that drain into the Arabian Sea."

To better explain the tunnel built by the airport authorities at Santacruz, Dr. Hrishikesh Samat, a Geology Professor at St. Xavier's College, Mumbai says, "The tunnel is a concrete structure that has been built on the course of the Mithi river at Santacruz. The purpose is to force the river to pass through the concrete structure, which is nothing but an extension of the runway itself. For the river to deviate from its natural course and enter the tunnel, the Airport authorities have placed cement bags and construction debris which define the path the river is supposed to take. The structure has grills at its entrance,

due to which any garbage stuck to the grills could result in water clogging and cause the river to flood the nearby areas." During the July 26, '05 deluge, this low lying area was among the worst affected.

Amongst the many structures which have been set up on the banks of the Mithi river, the Bandra-Kurla Complex and the International Airport at Sahar are two major developments of the city, which have greatly contributed to blocking the natural course of the river. The National Stock Exchange, a symbol of the country's liberalisation and economic growth along with the MMRDA, the planning authority for Mumbai, have been built on the original course of the Mithi river.

"APART FROM BEING THE LONGEST RIVER IN THE CITY, THE MITHI RIVER IS ALSO AN IMPORTANT STORM WATER DRAIN FOR MUMBAI."

"The MMRDA has even institutionalised a programme called 'channelisation' wherein the Mithi river has been forced to move through an artificial route by creating bunds on both sides of the river," reveals Girish Raut. The 1990-2011 plan for the city, prepared by the MMRDA, fails to include the Mithi river.

"People in Mumbai seem to suffer from ecological illiteracy," says Darryl D'Monte. "We believe we can construct indiscriminately, anywhere, without considering the cataclysmic ecological repercussions of it. The Bandra-Worli sealink project, a multimillion dollar effort to link the western suburbs to the island city of Mumbai, has constricted the mouth of the Mithi river. The river is the city's biggest storm water drain. If you constrict the mouth of this river, how can water escape into the sea?"

In our quest for urban growth, so often we simply fail to take into account nature and its forces that will follow a set pattern whether we choose to work with it or not. The floods in Mumbai on July 26, '05 proved the environmentalists right.

The entire city was crippled and there is no doubt that more of this lies ahead in the years to come. After the deluge, the BMC along with the MMRDA, the Collectorate, the Central Power and Water Research Station at Khadakvasla, Pune and IIT-Mumbai, have undertaken the responsibility of the restoration of the Mithi river.

As the BMC proceeds with its responsibility of restoration of the Mithi river, the citizens of Mumbai cannot

turn a blind eye to the river. If all of us pledge to throw our waste in dustbins rather than throwing it in the river, we can go a long way to restoring the river. "The Mithi river is nature's gift to Mumbai and we must ensure that Mumbai preserves this gift," says Girish Raut, as he removes an old snap of the Mithi river in 1975, from an old dusty file. Amidst the serenity and calm mirrored in the picture lay a river, which was once a life-giving source for the residents of Mumbai.

Anita Aikara
Ava Viccajee

**WITH
BEST COMPLIMENTS
FROM
VALVOLINE CUMMINS LTD**

With Best Compliments :

T. N. Venkatesan,
Filtra Catalyst & Chemicals Ltd
Golden Plaza, 3rd Floor
Opposite Navnit Motors Ltd.
L.B.S. Marg,
Thane (W)-400601

www.filtraindia.com

With Best Compliments

Krishna Shipping & Allied Services

**53-54/A Transport Nagar
National Highway
Gandhidham
Kutch-370201**

Contact-02836223814

SHEENA'S

Mehendi of all types:

- Bridal
- Shaded
- Zardosi
- Arabic
- Coloured Tattoos

Make-up:

- Bridal make-up
- Portfolio make-up
- Bollywood make-up
- Party make-up

Contact:

Sheena Jasuja

Freelance make-up artist

**(Trained by Pandari Jhukar, renowned film and
television make-up artist)**

Contact No.: 98215540564 / 0810-4008564

EMPOWER TRIBALS OR THE ENVIRONMENT?



A TRIBAL SETTLEMENT AT SANJAY GANDHI NATIONAL PARK

Three little girls carrying bundles of twigs, freshly picked off the ground, giggle at us as they are being photographed. One by one they introduce themselves, looking coy and rather amused. "Lakshmi," says the first one looking at the others hesitantly. On cue the other two speak out, "Indu" and "Neetu." We ask, "Do you live in the park?" They nod in agreement and tell us they stay close by. "But we are soon going to be moved out of the park premises into new homes," says Lakshmi, a look of chagrin crossing her face.

The Sanjay Gandhi National Park at Borivli is unique

as it is one of the few sanctuaries within the confines of a city. The recent, much talked about issue of relocation of tribal settlements in the Sanjay Gandhi National Park (SGNP), has created a debate between two distinct blocs: people supporting adivasis and a section of conservationists and environmentalists who believe that forests will be threatened if adivasis like Indu, Neetu and Lakshmi continue to live in them. Ever since the Scheduled tribes Bill (Recognition of Forest rights, 2005), was proposed in January last year, it has met with severe skepticism and criticism by both the blocs. The Bill was promised in the Congress manifesto and in the National Common Minimum Programme (NCMP) of the ruling United Progressive Alliance. The aim of the bill is to give 'a permanent stake to scheduled tribes' living in the forests. Based on the (correct) presumption that the colonial regime had committed a 'historic wrong' in wresting rights of forest ownership from the tribals, the bill wishes to make amends, by now involving them more directly in forest use and forest conservation.

The tribal rights bill has been vigorously opposed by wildlife conserva-

tionists. In their view, it would only put further pressure on the natural forests and on endangered species like the tiger that are on the verge of extinction. They believe animals and human beings - forest dwellers or tribals cannot co-exist.

On the other side, anthropologists and people supporting adivasis dismiss the views of such conservationists as arrogant and elitist, as putting the interests of animals above that of humans. They find these views definitely unhistorical and believe that tigers and tribals have co-existed for centuries in India. At the same time, they do not deny that in some parts of the country tigers now compete for survival. However, they find the tiger's habitat and population has shrunk, a result of the lifestyle of the urban elite and industrial and commercial interests

"WE HAVE BEEN LIVING IN THE SANJAY GANDHI NATIONAL PARK FOR GENERATIONS AND NOW THERE IS TALK OF RELOCATING US. WE DO NOT HARM THE TREES OR THE ANIMALS, THEN WHY REHABILITATE US?"

SUSTAIN

such as large dams, iron ore mines. It is fair to say that in the unfolding of these processes, the tribal has been almost as much a victim as the tiger itself.

Mr. Shripad Kulkarni, Public Relations Officer of the Bombay Natural History Society supports the argument in the context of SGNP. He admits, "In sanctuaries and other protected areas, forest dwellers are using natural resources. They put pressure on these natural resources; however, it is not as much as encroached populations would exert on them. In Sanjay Gandhi National Park (SGNP) the issue is more complex, as inside the park there are not only local adivasis but also many encroached people."

Rehabilitation of tribals in order to protect the forest seems a possible solution for the Conservationists and Environmentalists. Upset with such an opinion, Shobha Tai, an inhabitant of the park says "We have been living in the Sanjay Gandhi National Park for generations and now there is talk of relocating us. We do not harm

the trees or the animals, then why rehabilitate us?" Non-Government Organizations supporting the adivasis strongly feel that they have an unchallengeable right to live in the park because they lived there prior to the park's creation.

Mr. Gavit, a Member of the Legislative Assembly and the Communist Party of India (Marxist), elected from Surguna, refers to the issue of tribals in the 'Protected Areas' in India as a whole. Having been elected from Surguna, a constituency with a huge tribal population in Nasik division, he represents their interests in parliament. He says, "Tribals live far from the protected areas of forests and where there are fewer dangers of animals. They live within the rules of the protected areas and in fact they strengthen [their] protection."

Mr. P N Munde, Conservator and Director of Sanjay Gandhi National Park remarks, "Tribals do not harm the protected areas of SGNP, as they are not allowed to cut trees or kill animals. Many of them are employed in the park itself and are in danger of attacks from wild animals."

Dr. Amita Baviskar, a Delhi based sociologist and researcher on the environment convincingly argues that, in the long run, only a more participatory approach will save the forests and their varied inhabitants. She outlines how conservation needs to move outwards, from saving species towards protecting habitats and biodiversity as a whole. "One way is to turn those who lived in and around national parks into the frontline defenders of the forests and protected areas, rather than seeing them as antagonists. Their knowledge and skills could be used to guide researchers and eco-tourists, rather than poachers. Instead of banning all human use of the forests, the state should encourage the sustainable extraction of non-timber forest produce such as honey, as was in fact being done, very successfully, in some parks in South India.

The Bombay Natural History Society mentions some of the successful examples of the venture that can be environmentally sustainable. "Tribals must be given basic facilities and involved

THE BILL WAS PROMISED IN THE CONGRESS MANIFESTO AND IN THE NATIONAL COMMON MINIMUM PROGRAMME (NCMP) OF THE RULING UNITED PROGRESSIVE ALLIANCE.

in conservation activities. We have made efforts to actualize this at various national parks and sanctuaries, which include Keoladev Ghana National Park and Bird Sanctuary, Rajasthan, the Great Indian Bustard Conservation programme in Maharashtra and Rajasthan, etc.," comments Mr. Shripad Kulkarni.

This is a case of social justice coming into conflict with environmental sustainability. The debate over this issue will continue to intensify till both the blocs consider balanced alternatives that will fulfill the need of being socially and environmentally sustainable.

TRIBALS AT SANJAY GANDHI NATIONAL PARK



Nikita Khanna
Anjali Singh
Vandana Sharma

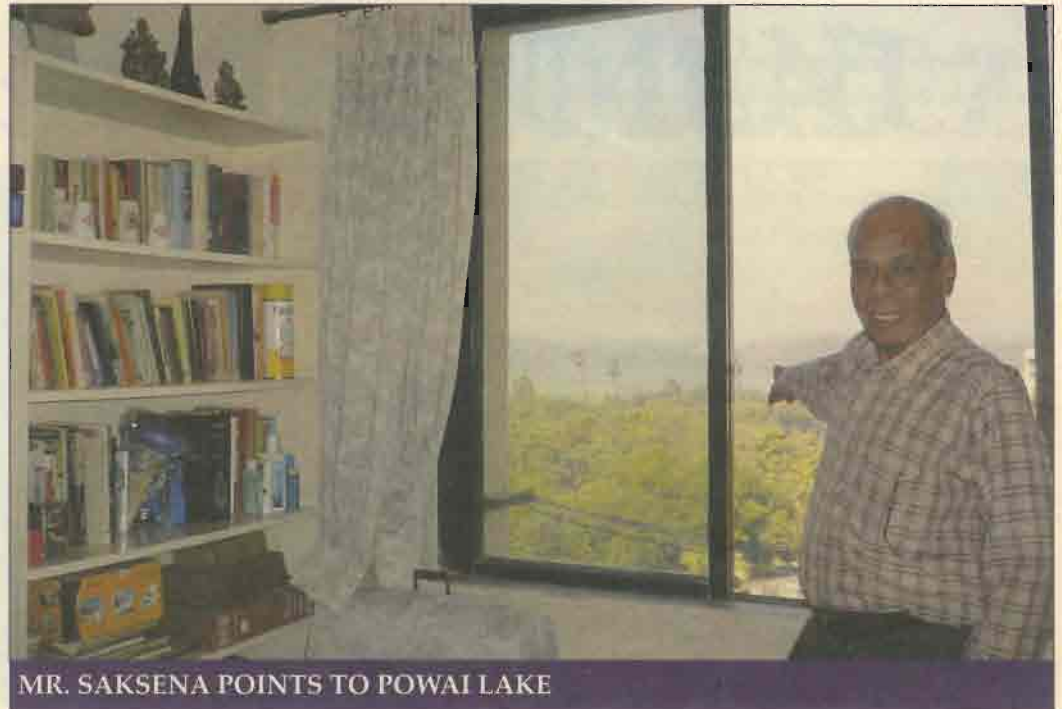
Sources- 'Conservation vs. Tribal Rights', Ecology for the people, Ramachandra Guha - <http://www.indiatogether.org/2005/nov/rgh-ecology.htm>

WHOSE LAW IS IT

The state government should float global tenders and parcel off Mahalaxmi Racecourse, the Aarey milk colony plots at Goregaon and Worli and the Godrej land at Vikhroli. The money can be used to pay off the loans and remainder can be spent on strengthening the health and education infrastructure.” -Ganesh Naik, Environment, Labour and Excise Minister. Mumbai Mirror, August 19, 2005.

“No development zone does not mean never development zone.” -Vilasrao Deshmukh, Chief Minister, Maharashtra, Mumbai Mirror, August 19, 2005.

“Sell land in Nashik, Nagpur, Pune too,” says Ganesh Naik. “*Saccha raja wahi jo bhukhi praja ko apna khazana luta kar rahat de*” (a true king digs into his treasury to feed his hungry subjects). Mumbai Mirror, August 19, 2005. The irony of this statement is that he owns a plush country manor in his 500 acre plot in Murbad, Thane, and that this person is the Environment Minister. The statements made by these people’s representatives to sell off Mumbai’s No Development Zones reconfirm the suspicion that



MR. SAKSENA POINTS TO POWAI LAKE

politicians treat the environment as just another profitable business venture.

In the Yeoor hills of Thane, disregard for nature can be seen, which is a handy tool to bypass the No Development Zones restrictions. “The No Development Zones law permits development if the tourism board de-notifies the region. Interestingly, many Members of Parliament (MPs) and other politicians own this land; hence it has been de-notified as a tourist location,” points out Mr. Rajendra Godbole, an architect with Soham Builders, one of the premium builders in Thane. This is like any other story of finding loopholes in a law and exploiting it to its fullest.

The Urban Development Board as per the Development Control Regulations defines No Development Zones as “land with built up area not exceeding Floor Space Index (i.e. the ratio of the gross floor area of all floors to the gross area of the plot) of 0.025 for principal activity and 0.015 for ancillary activities allowing multiple usages such as agriculture, horticulture, animal husbandry, gardens, poultry farms, golf course, private parks, playfield, stadium, swimming pools and gliding facility.” The basic idea is to take care of the needs of the floating population.

However, the definition is interpreted in such

a way that golf courses and swimming pools are given priority vis-à-vis the basic needs of the people. Forests in Goregaon are cleared to make way for golf courses and the Yeoor hills are adorned not by Warli art but by country clubs. Owned by Pan India Paryatan Ltd (PIPL-Subhash Chandra of Zee TV fame) Esselworld stands on 300 acres of mangroves and violates the Coastal Regulatory Zone law by building a bund and by destroying more mangroves by cutting the water supply to them. (Mid-Day January 18, 2006)

Mangroves, wetlands, wastelands and salt-pan lands act like sponges and allow the water to drain out. In the past 10 years, each of these has been destroyed systematically in Mumbai and the concretization of these lands translates into the water not being able to seep underground and aquifers not being regenerated. The 944mm rainfall on July 26th, 2005, would have affected any city but it devastated Mumbai because there was no place for the water to drain out. The Powai Lake, one of the ten lakes in the national lake conservation plan, could not act as a buffer against excess water as it was brimming with silt - a direct result of the quarrying of the Powai and Chandivali hills.

ANYWAY?

Mr. S. K. Saksena- the President of Hiranandani Gardens Welfare Association recalls how occasional blasting made way for construction. "Extensive quarrying resulted in pelting of stones into our compounds almost daily." This forced the residents to file a complaint with the then district collector, Mr.C.S. Sangitrao. A year later, on July 22, 2000, the district collector issued orders to stop quarrying immediately and permanently. Such prompt action was also possible because of a letter written to the Indian Air Force base in Thane. "Hills in and around Mumbai cannot be quarried because of reasons of national security as hills provide a launching base for Surface to Air Missiles (STAM). More-

M/s. Sharma and Co. and not by me." Mr. Rajendra Godbole explains: "Quarrying is always done on lease basis, which means land is taken from the government on lease for a period ranging from 60 to 99 years at very nominal rates. Often the land is sublet to a contractor who quarries. This makes it difficult to punish these violators primarily because there is no one person responsible and it's not a violation unless the contractor quarries below the surface." The ambiguity of this law makes it difficult to punish the offenders.

The other major threat to NDZ is from ad hoc de-reservation by authorities. NDZs are de-reserved covertly and stealthily, often for commercial activity. "Though a public notification is essential to de-reserve an NDZ, most notifications are issued in small scale Marathi newspapers read by very few people. Besides the addresses are given in terms of an area code (City Survey Number) which you must decode from the BMC office. By the time you know which land is being de-reserved it's already being constructed upon thus defeating the basic premise of public notifications, that is involving the public in decision-making," explains Neera Punj, convenor of Citispace, a citizen's forum that deals with the protection of open spaces,

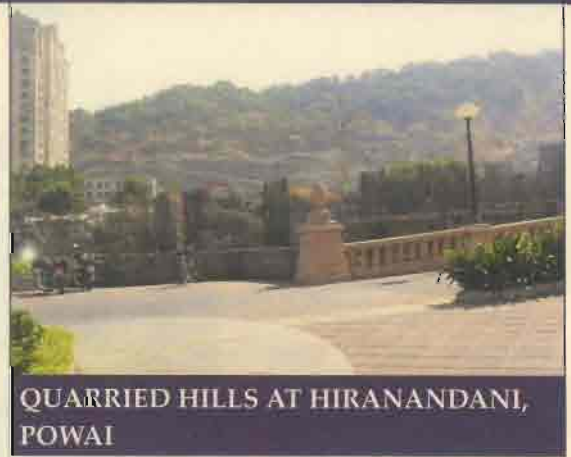
as she looks for the letter Citispace has written to Mr. N.B. Patil (Principal Secretary, Urban Development Board) asking for more transparency and accountability in the de-reservation of NDZs.

The law concerning NDZ places various authorities in charge of the de-reservation process. Like Yeoor, even Thane would also require Maharashtra Tourism Development Corporation to identify it as a Recreational and Tourism Development Zone for it to be de-reserved as an NDZ. This makes it difficult for the common citizen to file a complaint as a different set of rules

applies to every bit of land de-reserved depending on the use it will be put to after being de-reserved.

Incidentally, there is no mention of NDZ in the National Building Code(NBC) dated 1983 which governs development and construction in the country. "Like all our current laws, the British laid down all the rules in NBC, and the latest revision was made in the 1940s, without taking into account the Indian perspective. Ironically these laws haven't changed ever since," reveals Mr. Rajendra Godbole.

As we see various repercussions that come with not respecting the ecological balance of the city, we should be more stringent with our laws. In the endeavor to transform Mumbai into Shanghai, we are choking this city by developing it's No Development Zones. At what cost this development is taking place is a question we need to consider sooner rather than later.



QUARRIED HILLS AT HIRANANDANI, POWAI

"THE STATE GOVERNMENT SHOULD FLOAT GLOBAL TENDERS AND PARCEL OFF MAHALAXMI RACECOURSE, THE AAREY MILK COLONY PLOTS AT GOREGAON AND WORLI AND THE GODREJ LAND AT VIKHROLI. THE MONEY CAN BE USED TO PAY OFF THE LOANS AND REMAINDER CAN BE SPENT ON STRENGTHENING THE HEALTH AND EDUCATION INFRASTRUCTURE."
-GANESH NAIK, ENVIRONMENT, LABOUR AND EXCISE MINISTER.
MUMBAI MIRROR, AUGUST 19, 2005.

over hills help maintain the environment balance," adds Mr. Saksena. The NDZ law allows 'minor dressing of the hill'; this then translates into quarrying depending on who decides how much is minor.

Mr. Niranjan Hiranandani, the managing director of Hiranandani Constructions, dismisses the efforts of the residents' associations to get him to stop quarrying. He proudly exclaims, "The entire Hiranandani complex is built on quarried land, therefore they have no right to complain against quarrying. Besides the quarrying of Powai and Chandivali Hills is done by

Supriya Bandekar
Riddhi Sayla
Diksha Sharma

CAN YOU HEAR ME NOW?

An 80-year-old tribal can hear as clearly as a 20-year-old youngster living in the city of Mumbai. Do you know why? It's due to the fact that a 20-year-old is 'constantly exposed to high levels of sound while commuting to work, when engaged in entertainment activities or even while trying to relax or worship.'

Unwanted sound is defined as Noise, although the same sound may be expressed differently by different people or by the same person at different times. Noise levels can be measured by using a decibel meter. A continued exposure to noise above 85 db, for sustained periods, can lead to harmful effects such as rupture of the eardrum, permanent hearing loss, cardiac and cardiovascular changes, stress,

fatigue, lack of concentration, deterioration in motor and psychomotor functions, nausea, disturbance of sleep, headaches and insomnia to name a few. Pregnant women exposed to high noise levels may be at a higher risk. There are harmful effects even if you don't feel you are being disturbed. Dr. Y.T. Oke, Secretary, Anti-Noise Pollution Committee, says,

"At Diwali, someone burst an atom bomb at 2 a.m. outside the window of the bedroom where an elderly lady with a heart ailment was sleeping. Due to the shock of the sudden bang, she died of a heart attack!"

There are various sources of noise in the city, such as firecrackers and loudspeakers used during religious and cultural festivals, construction, traffic, revving of engines and reversing horns (the use of which has been banned), railways, aircrafts and use of household appliances which have increased exponentially. "Noise lev-



MS. SUMAIRA ABDULALI, CHAIRPERSON OF AWAAZ FOUNDATION

els have greatly increased in recent years by the use of loudspeakers and other sound amplification systems used indiscriminately in crowded cities during festivals, marriages, political rallies and other functions," comments Sumaira Abdulali, Chairperson of Awaaz Foundation, an NGO working against noise pollution.

The city of Mumbai is covered by the Environment Protection Act of 1986, which regulates noise levels. Accordingly, in silent zone areas, decibel levels cannot exceed 50dB in daytime and 40dB at night. So the government of India passed certain rules under the Environment Protection Act of 1986 and the Rules on Noise of

AREA CODE	CATEGORY OF AREA/ ZONE	LIMITS IN dB	
		Day Time (6a.m to 10p.m)	Night Time (10p.m to 6 a.m)
A	Industrial areas	75 dB	70 dB
B	Commercial area	65 dB	55 dB
C	Residential area	55 dB	45 dB
D	Silence Zone	50 dB	40 dB

1989, which states the use of maximum decibel levels permitted in certain areas.

If a person is found violating the above-mentioned rules then he/she is liable to pay a fine of Rs. 100,000 or face imprisonment up to five years or a fine of Rs. 5000 under the Police Act.

Silence zones are designated areas within 100 metres of hospitals, educational institutions, courts and religious places. "During one of the religious festivals, people were singing some religious songs at Chowpatty beach near Lokmanya Tilak's statue and I residing at Babulnath, which is within the silent zone, could hear these songs. So, I wrote a complaint letter to the Commissioner of Police stating that noise was created by the singing," says Mr. Sudhir Badami, a member of Awaaz foundation.

Recently, Mumbaikars have debated the 'rights' of various groups of persons to make noise in a good cause. Rang Bhavan, the only open-air amphitheatre in south Mumbai is home to the annual Independence Rock Festival as well as tamasha artists across Maharashtra. This auditorium was closed down as it falls within 50 meters of GT Hospital. "Due to the closure of Rang Bhavan several folk artists and musicians have lost out on a venue to perform. South Mumbai has lost one of its cultural centers," states musician Farhad Wadia.

The other order passed by the Supreme Court of India on July 18, '05 was the banning of loudspeakers and firecrackers between 10pm and

6am. However, it took the pro-active zeal of citizens to ensure that the Supreme Court order was honoured. "We set up a 'helpline' to make citizens aware of noise laws and actions that they could take in case these laws were violated in their areas. During Navratri, we received a large number of complaints. This year the police took action by setting up control rooms to register telephonic complaints from citizens. They enforced the Silence Zone restrictions and the 10 pm statutory deadline and took actions in most cases," says Sumaira Abdulali.

Another notable case is of Mr. H.S D'Lima, a senior citizen and a core group member of the NGO Citispace, who suffered immeasurably due to the noise in his area- Gaothan lane no 1, Andheri (W), Mumbai. He says, "Now when I enter my lane I feel a sense of peace come over me, but this was not the case a few years ago." He explains, "Every year during the month of Ramzan, a stage was erected along with a loudspeaker, next to my house and the function would continue till 1 a.m. in the morning, disturbing the residents of the lane. I tolerated this out of fear for twenty years, until in 1997 I decided it was time to protest against this 'nuisance in the name of religion'. I filed a Public Interest Litigation and was attacked for my act. But I still

continue to fight my battle against noise."

Another major source of noise is that of construction work. While construction is important for the development of the city, it often disturbs residents as the work continues till late at night and on weekends too. This can be avoided by enforcing the use of silencers and adhering to fixed time restrictions for carrying out construction work.

Indeed, there is an increasing need for awareness about the harmful effects of noise pollution. There are organizations such as the Awaaz Foundation working for this cause. But as Mr. D'Lima states, "If everybody takes care of what is in front of his door, the city will be taken care of."

If you suffer from noise pollution, you can call up the police control room (100), the nearest police station or Sumaira Abdulali of Awaaz Foundation (9821520805).

Ekta Bhatnagar
Sanaya Chavda
Pooja Raheja

Sources- 'Noise Pollution screams for attention', Monish Gangwani, Times of India, Mumbai, 13th January 1998.

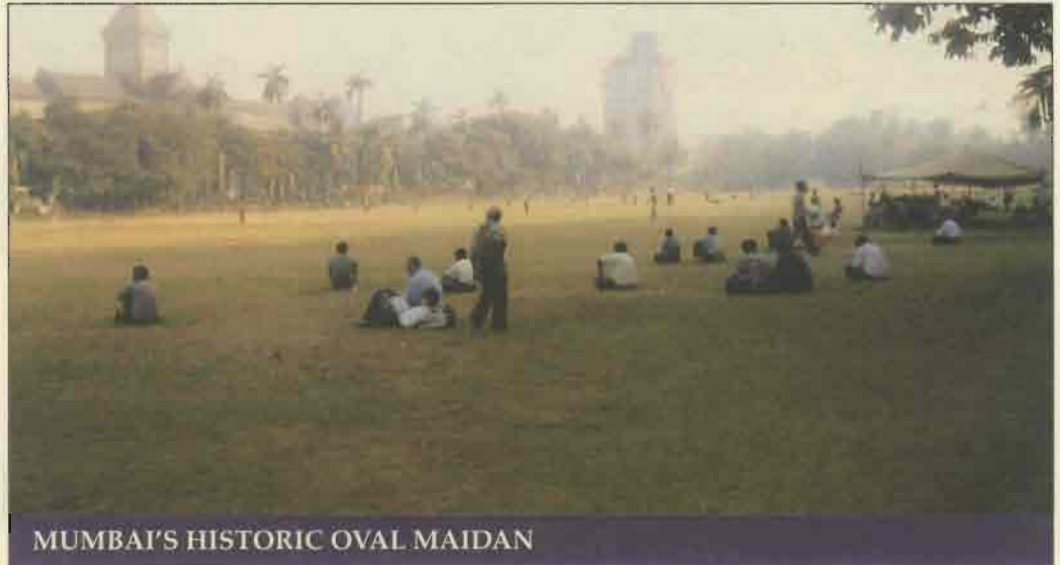
'Noise - Man's hidden enemy,' Dr. Y.T. Oke

http://personal.vsnl.com/aspirations/noise_pollution_what.htm, Sudhir Badami.

MAPPING THE GREEN

Inhale...Exhale...Inhale.. Exhale...these are some of the breathing exercises performed by the residents of Oval Maidan, Mumbai, during their morning walk in the lush green milieu of the maidan. At the other end of the maidan, a group of aspiring cricketers practice bowling. This was not the situation 30 years ago, when the ground was covered with shrubs, bushes and weeds. The indefatigable efforts made by OCRA (The Oval Cooperage Residents Association) over the years made it possible for the lost charm of Oval Maidan to be restored. They developed 90,000 square feet of land, removing the debris which had marred its beauty.

As Mr. Gerson da Cunha, an active member of the OCRA and Convenor of AGNI (Action for Good Governance and Networking in India), explains, "The vast open space offers an uninterrupted view of the whole vista to every individual here. It also provides playgrounds to clubs and young people playing football and cricket. But the most vital benefit is the enormous impact it has on the air and ground water." Open spaces are that part of



MUMBAI'S HISTORIC OVAL MAIDAN

vacant land reserved by the Brihanmumbai Municipal Corporation (BMC) as recreational grounds (playgrounds, parks and gardens) for public use. Section 22 of the Maharashtra Regional Town Planning (MRTP) Act, which designates open spaces as public amenities, ensures that every Development Plan must have sufficient land allocated for open spaces. However, these plots are often de-reserved by the BMC to allot the land for largely commercial purposes.

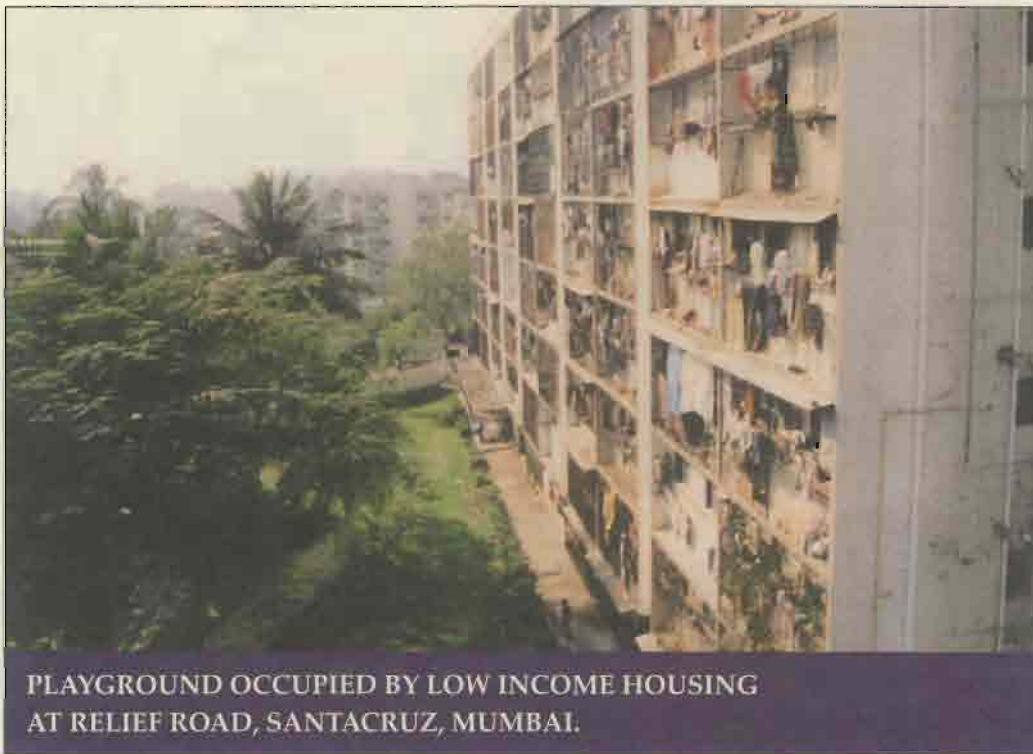
This outright denial of the land to the people to whom it belongs, is becoming a very common phenomenon. Usually the land is given to construction giants to build commercial and residential properties, which serves their own profit motives. However, NGOs such as Citispace, a citizen's forum committed to the protection of open spaces in Mumbai, are waging a bitter battle for the rights of citizens. Citispace presented a report on neglected open spaces and appealed to the government to follow the adoption policy of the Municipal Corporation of Greater Mumbai (MCGM). The adoption policy states any kind of construction inside parks or gardens is prohibited. "They were planning to construct clubs in the BMC owned grounds, which allowed only a section of society to access the facilities," points out an angry Neera Punj, convenor of Citispace.

Furthermore, illegal construction activities and lack of urban planning has led to the reduction of open spaces. As a result, Mumbai has the lowest ratio of open spaces in the world. While the international norm set by the United Na-

What are Development Plans?
Every ward in Mumbai follows a Development Plan, designed by the government which allocates land for industrial, residential and recreational purposes.

tions development agencies is 4 acres per 1000 people, Mumbai has a dismal ratio of 0.03 acre per 1000 people - one fortieth of this norm. Even other Indian metropolises like Delhi and Kolkata have a comfortable 4 acres per 1000 people. If open spaces are the lungs of a city, we are desperately gasping for air. We will be facing serious health problems like asthma and bronchitis if the situation is not immediately altered. A massive traffic problem will become a day long affair. Also, there will come a time when children will be robbed of the few playgrounds left. Mumbai will be devoid of every little patch of green that it has.

However, despite the severe depletion of



**PLAYGROUND OCCUPIED BY LOW INCOME HOUSING
AT RELIEF ROAD, SANTACRUZ, MUMBAI.**

available open spaces, Mumbai still stands a chance to win back a massive portion of land. This could change the city irrevocably and be a landmark in its history. Mill lands of the island city which stretch from Prabhadevi in the west through Parel and Lalbaug in the center to Sewri on the eastern water front occupy an area of nearly 600 acres. Of the 58 mills, most are defunct, which is compelling the mills owners to sell off these properties. According to Section 58 of the MRTP Act formulated in 1991, the mills can be sold provided they give one third of the land for public amenities such as open spaces, one third to MHADA (Maharashtra Housing and Area Development Authority) for low income housing while another one third can be sold in the open market. However, in 2001, certain amendments were made without public notice, which stated that only the vacant land surrounding the mills is to be divided into three parts. This leaves behind only negligible patches of land for open space. This apparent robbery reveals the level of corruption existing in our legal system, as the government owns much of the mill lands. Currently, BEAG (Bombay Environment Action Group) is fighting a battle in the

Supreme Court to revert to the original Section 18 of the Act of 1991 and secure the hundreds of acres set aside for public amenities.

But there have been instances where individuals have fought for the protection of open spaces. Raghavanand Haridas, an architect by profession, is currently struggling with the BMC in the High Court to reclaim the 12,000 sq meters of land proposed for gardens and playgrounds in his society. In 1998, Haridas, the secretary of the Relief Road Housing Society located at Santacruz (West), Mumbai, spearheaded a campaign for the removal of encroachers from a 10-acre plot reserved for roadside gardens. Within two years their appeals were considered by the BMC and the slums that had mushroomed on the vast expanse were demolished. However, their spirits were soon dampened when they found that the proposed area reserved for open spaces was being used to construct houses for slum dwellers. "Under the pretext of the Slum Rehabilitation Scheme (SRA scheme) the government robbed us of our open spaces," comments Haridas with deep resentment. The 12,000 sq meters boldly marked as 'playground and parks' on the Santacruz (W) Development

**MUMBAI HAS THE
LOWEST RATIO OF
OPEN SPACES IN THE
WORLD.**

Plan Sheet (DP Sheet) were entirely obliterated by the seven buildings constructed to house the slum dwellers. His struggle for the city's share of open spaces continues in the High Court.

A handful of conscious citizens cannot fight this battle alone. "Citizens must take the initiative to save the few open spaces that are left. They must look at how to know more and empower themselves to do more," says Gerson da Cunha. Open spaces are meant to be democratic, where citizens irrespective of their social status are welcome to spend quality time. Hence, it is their prerogative to object if somebody intrudes into their space. If this spiralling decay of public spaces persists, soon people will have nowhere to go other than expensive malls, multiplexes and restaurants to unwind and re-charge their lives.

**Rai Das
Isha Marwaha
Prachi Patel**

Sources- Mumbai Cotton Textile Mills, July 2005 (Research), Knight Frank

THE OVAL- O.V.A.L. Trust, October 19, 1999.

<http://www.nagaralliance.org/citispace/>

LIVING ON THE EDGE

One in every three human beings could live in a slum by 2030. Many of them, Indians. 'The challenge of slums' - a United Nations Report of 2003 - suggests a third of all humanity could be in slums in less than a quarter of a century from now. Asia is already home to over 60 per cent of the world's slum dwellers. A big chunk of those are in India - well over 12 million in the four major metros alone.

About 60 per cent of Mumbai's population lives in an estimated 37,000 slums. That is, 7.5 million people live in Mumbai's slums and occupy only 14 percent of the residential land in Mumbai, which at an estimate amounts to about 140 sq. km.

Extreme poverty, compounded by lack of proper housing facilities, push debt-driven farmers and landless workers further onto the edge and force them to exist on the brink of survival. In Mumbai, they form a part of the unskilled work force and perform menial jobs like that of carpenters, electricians, domestic helpers or worse, rag pickers. From this, it is obvious that they form a major part of the work force that the upper and middle classes rely on.



A SLUM AT CUFFE PARADE, MUMBAI

Slums and poverty are closely interlinked and feed off each other. The more the poverty, the greater the slums. Slums are the catchment area for the rural poor fleeing the countryside for a hopefully better life in the cities. They also reflect a search for cheap or affordable housing.

Article 38, 39 and 49, of the Indian Constitution grants the right to equal justice (economic, social and political), adequate means of livelihood and a minimum standard of living to all Indian citizens. The extreme poverty in which the slum dwellers exist speaks of a different story of corruption within government organizations.

Slums are usually located on land owned by the Central and State governments, the Municipal Corporation, private individuals and lands belonging to the airport authority, the port authorities and the railways. These slums are located a few feet away from the railway line. As a result, trains that run at peak hours have to slow down when they pass these sections. This can be fatal not only to the environment, but also to the lives of people.

Dr. V.S. Tondwalkar, the Joint Project Director (Environment) for the Mumbai Metropolitan Region Development Authority (MMRDA), states, "slums are a hindrance to the development of Mumbai. 50% of the slum dwellers defecate openly. Carcasses of animals from industrial units of slums like Dharavi lie around in the open for days. There is no sewage management system, and the living conditions are extremely unhygienic. Currently around 11 lakh slum dwellers need to be rehabilitated, which is a burden on the economy as these people pay no land or water tax."

This is not entirely true. The correlation between slums and the environment is in fact not so simple and has various other dimensions. People believe that slums are unhygienic and hazardous to the environment. But there is a reality that lies beyond this impression. An exploration of these aspects would help clear certain myths about slums.

Initially, slums located near the railway tracks and the airport were paid no heed to by the

government, but at the same time it allowed informal rent collection (with the direct connivance of the junior staff of the Railways). Such a strategy is based on the belief that if these settlements are not acknowledged by the authorities concerned, then their illegal status would be

maintained. In the future, as and when the land was needed, the settlements were to be demolished and residents could be evicted.

At a talk held at St. Xavier's College, Mumbai, on January 14, '06, social activist Medha Patkar opined that there is "no accountability of the space near the airport which be-

ACCORDING TO OFFICIAL DATA RS. 16 CRORES HAVE BEEN SPENT ON REHABILITATION OF SLUMS NEAR THE AIRPORT, PREDICTABLY WITHOUT ANY VISIBLE EFFECT OR ACCOUNTABILITY.

longs to the government. They want to displace 80,000 slum dwellers to build a car park, which would benefit only 20% of the population who own cars." She added that "the giant elephant (the government) is misusing resources." According to official data, Rs. 16 crores have been spent on rehabilitation of slums near the airport, predictably without any visible effect or accountability.

when in fact, their low purchasing power forces them to be extremely economical with all that they own. According to an article by clearair.net, 'the main factors contributing to urban air quality deterioration are growing industrial emission and vehicular pollution'.

The increasing consumption levels of fu-

els in industries have been a recent and major source of pollution. Most water-related pollution today is caused by improper dumping of industrial waste, due to inadequate disposal

vested interests in the property these slum dwellers occupy. By Dr. Tondwalkar's admission, "the politicians bring in unemployed people from villages to serve as their vote banks with promises of housing and work." Demolitions and razing their property and lives to dust is not the most humane or viable solution. Proper housing facilities, financial assistance (micro credits), equal opportunities and more equitable distribution of wealth (as mentioned in the Constitution) can be a good start. Kill poverty, not the poor!

A SLUM AT DHARAVI, MUMBAI

els in industries have been a recent and major source of pollution. Most water-related pollution today is caused by improper dumping of industrial waste, due to inadequate disposal



measures adopted by the industry. Do slum dwellers own these vehicles and industries?

Slums are held responsible for harboring crime. However, in actuality, in cities with high crime rates, poor people suffer more from violence and petty theft than rich people.

What is ironic is the fact that it is politicians, builders and the corporate world who endorse such myths, and for obvious reasons – their

measures adopted by the industry. Do slum dwellers own these vehicles and industries?

Slums are held responsible for harboring crime. However, in actuality, in cities with high crime rates, poor people suffer more from violence and petty theft than rich people.

What is ironic is the fact that it is politicians, builders and the corporate world who endorse such myths, and for obvious reasons – their

Divya Joseph
Preeti Saraf
Vedika Sud

Sources- 'One David and Three Goliaths', Sheela Patel and Kalpana Sharma

Paper on Environment and Health, Dr. Dewaram Nugdeve

UN-Habitat publication: 'The Challenge of Slums', Global Report on Human Settlements
www.clearair.net:

Best Wishes From:

VAPI EXPORTS

SINCE 1965
KISHOR FILM CORPORATION
(16mm FILMS DISTRIBUTOR)

69, BHANDAR HOUSE, KAMATIPURA 2nd LANE, MUMBAI-400008

PHONE NUMBERS: 23098964, 23085200, 9869001135

BRANCHES: PUNE, NASIK, CHIPLUN



With Best Compliments From:

The Explorers

Organizers of Educational Tours and Camps

Tel: 22004774 / 5 **E-mail:** info@explorersindia.com

Outdoors since 1990



SILVANA- THE CAKES 'N' SNACKS PEOPLE

24-A, Clare Road, Byculla, Mumbai-400008 Tel:23099481

Specialities: Cakes of all kinds, including rich Plum Cakes,
Pastries, Savouries and Breads

Infinite career options in GRAPHICS, ANIMATION etc.. join..

KULKARNI BLOCK, D. L. VAIDYA Rd. / RANADE Rd., DADAR (W) 2436 60 73 / 45 41



FIND A BEACH...IF

The call of seagulls drifts over the roar of the surf. Millions of tiny creatures scurry around for food in the nourishing sands. The thin ribbon of land that rims Mumbai, which we take so much for granted, exhibits an unparalleled topographical diversity throughout its length. Of Mumbai's waterfront, the eastern front is closed due to the port trust and lands used by the armed forces and only 15 kms of 35 kms on the western waterfront i.e. beaches, are open to the public.

For long stretches in the city, such as Shivaji Park, the old and the new construction shields the waterfront from public gaze. Dadar Chowpatty, which stretches 4 kms from the Mayor's bungalow to Mahim fort, could easily win a dirty beach contest, if there was one. Plastic bags, garbage dumps, urine and faeces lying on this beach float out into the sea along Mahim beach. Stray dogs, beggars and rag pickers are the only tourists visiting this beach.

"People say I am lucky to live near a beach, but one look over the compound wall and all one can see is dirt and filth. During the monsoons and Ganpati im-



GARBAGE DUMPED AT DADAR CHOWPATTY, MUMBAI

mersion the situation gets worse and the high tide returns all this dirt back to the shore," says Madhura Phadnis who stays a few blocks away from Shivaji Park, near the waterfront. Every year, several thousand tonnes of non-biodegradable waste are dumped into the sea during the Ganesh immersions. Poisonous metals like cadmium, zinc and chromium leach from the idols, damaging marine life. According to the test done by the Envirocare Labs Pvt. Ltd., an environmental technology lab approved by the ministry of environment and forests in '05, the most polluted of all Mumbai's beaches is the one at Dadar with mercury levels 310 times and cadmium levels 66 times more than international standards. Juhu beach has mercury levels that are 33 times more and cadmium levels 47 times more than international standards partly due to industrial waste and pollutants. Apart from garbage, untreated sewage also poses a problem. Earlier sewage was given preliminary, primary, secondary

and tertiary cleaning treatment, but now only preliminary treatment is available which increases pollution.

It is easy to dispose of waste by dumping it onto the beach, which may be carried away by the current but will never disappear. This makes us even more vulnerable to diseases like dengue, malaria, hepatitis and gastroenteritis. The sea has a great ability to break down waste materials, but not in the amounts discarded by society today. This eventually results in pollution and drives the ecosystem askew. Destroying the eco-balance has many implications, particularly for thousands of people who live off the coasts, for e.g. Kolis, whose livelihood faces a threat.

The glamour of Juhu beach has been escalating due to the seven star hotels along its stretch, but the beach itself is littered with plastic bags and garbage. The one year-old Juhu Citizens Welfare Group (JCWG) has made a brave start to restore some of its lost glory. This group mainly comprises

**AS MUCH AS 70% OF
THE GARBAGE ON JUHU
BEACH CONSISTS OF
PLASTIC BAGS.**

YOU CAN!

of members of the Advanced Locality Management (ALM) who keep an eye on BMC conservancy workers and private contractors.

Juhu is also famed for its lip smacking food like chatpata chat, ice candies and pavbhaji which attract a large number of visitors but leave behind an ugly beach. Explains pav bhajiwala Ramchandra Kadam: "We use dustbins for keeping the beach clean. We are willing to pay for the beautification but moving to the new proposed food court is not practical. The present stall space is 3X3 and a-half-meters but the new stalls will be merely 1X2 metres, food court waghera toh sab theek hain, par hamara tawa kahan aayega (the food court is fine but where will we place our pan?)."

Architect P.K.Das says, "The restoration of Juhu beach is a movement to regain public space in Mumbai which is fast eroding and is the least compared

Actress Hema Malini, current Rajya Sabha M.P. has released Rs.2 crore from her M.P. fund and former Rajya Sabha M.P. Shabana Azmi had also given Rs.1 crore for the project which includes relocation of 80 stalls owners, out of the 135 who will move to the food court. The problem of Juhu beach is not just the replacement of the hawkers but the piling up of litter all around. This is also compounded by the severe shortage of dustbins at regular distances, which increases littering by visitors. Constant littering leads to garbage piles that choke the storm water drains which

Girgaum Chowpatty that was earlier a mass of filth, is now a success story. Large dustbins, daily garbage clearance, animals disallowed for commercial purposes, 18 private guards for continuous patrolling and 3 police chowkies - all in less than four months. The efforts of the residents along with Mr. Pramod Navalkar,

former Culture Minister of Maharashtra have made Girgaum Chowpatty a beach to be proud of.

But it is disconcerting to know that the beaches, which are an important part of Mumbai's lifestyle, do not have a special department in the BMC for their upkeep and maintenance. Explains architect P.K.Das, "The reason is lack of vision on the part of the government and their being hand in glove with various agencies to give public space for private profits. Conflicts can be resolved through community dialogues between various interests to

shield our environment and turn our backyards into cultural courts of the city."

GIRGAUM CHOWPATTY, MUMBAI - THE SUCCESS STORY



THE SHORE OF OUR IGNORANCE, MAHIM BEACH, MUMBAI

to any other metropolitan city in the world. The objective is to protect these open spaces near the waterfronts to avoid colonization. We hope to make comprehensive plans so that everybody has access to these public spaces."

These encroachments have been the main hurdles in the redevelopment plan of Juhu beach.

open into the sea during floods. "As much as 70% of the garbage on Juhu beach consists of plastic bags. We have given contracts to private organizations for maintaining the beach, but the only problem is their implementation," rues Mr. Anand Desai, Secretary of JCWG.

In the midst of conserving nature's beauty,

Shveta Sharma
Tasneem Bhavnagarwala
Manisha Kelkar

ECO-LOGICAL THINKING

Familiarity with basic ecology will permanently change your world view. You will never again regard plants, microorganisms, and animals (including people) as isolated entities. Instead you will see them - more accurately - as parts of a vast complex of natural machinery - as, in the dictionary definition, related elements in a system that operates in a definable manner.' - Paul Ehrlich, ecologist.

There is a growing tendency to follow a warped reductionist argument and regard humans as separate from the environment. We put blinkers on and assume, innocently, that our actions are unlikely to have an impact on the environment - at least, not in our lifetime.

We buy the bigger car, dig that bore-well for our building and throw that polythene bag on the tracks. In the name of 'progress', which is presented as an inevitable choice. All manners of violence towards the ecology are under-rugswept. We plead helplessness - 'what can I, just one person, do?'



MR. SHANTARAM SHENAI AT GREEN CROSS SOCIETY, EXHIBITING HIS RETROFITTED TOILET THAT RECYCLES SEWAGE WATER

Here's an answer - eco-design. Its basic postulates are modeled on nature.

"Nature is the school. Whatever we attempt to invent, is actually a discovery," says Professor Ravindra Hazra of the Industrial Design Centre, IIT Powai, Mumbai.

Left alone, nature evolves a delicate balance between its various processes. When organisms die, minute bacteria break them down and return them to the soil. Biodegradable materials, recycling and energy-efficient processes are old tricks of Mother Nature.

The earliest civilizations knew this. They were aware that what went into a product eventually determined the waste it left behind. The structures of Harappa were built of mud bricks. Mud is a natural raw material; and mud-bricks are made by environment-friendly processes. They don't require high tem-

peratures like the red bricks we prefer now. Also, mud keeps houses cooler. The Harappan buildings have survived not only 5000 years, but also the massive Bhuj earthquake of 2001 that destroyed countless modern creations. These are eco-designs.

On the other hand, at present, our so-called modernity is increasingly leading us into complicated situations. Roshni Udyavar, Head of Department, Institute of Environmental Architecture at Rachna Sansad, Mumbai, highlights one. Some buildings in the Bandra-Kurla Complex were facing a massive problem in terms of electricity consumption. Their glass walls absorbed heat thereby increasing the air-conditioning load. Also, the extensive use of tinted glass led to a greater dependence on artificial light. Udyavar, who is currently attempting to remedy this situation,

ONE OF THE GREATEST STRENGTHS OF ECO-DESIGNS LIES IN THE FACT THAT ANYONE CAN PRACTICE IT.

explains how today one may take an example from architects like Surendra Shah who are employing eco-design innovations to avoid problems similar to those being faced in the Bandra-Kurla Complex. "Shah studies the thermal mass of a building to adapt traditional eco-friendly cooling techniques like the installation of a pipe gridline in the frame of a building's structure through which water is allowed to flow non-mechanically (i.e. through the force of gravity). This significantly reduces temperatures and relaxes electricity use," explains Udyavar.

One of the greatest strengths of eco-designs lies in the fact that anyone can practice it. Like the green/turf-roof eco-design. A thin layer of soil easily enables a covering of grass to grow on the roofs of building. "Its benefits are significant – it helps improve the quality of the air, and it reduces the temperature inside the building markedly," states Udyavar.

Eco-designs are not limited to architecture. Recycling of waste materials is another important concept. Almost any 'waste' can be recycled and re-used. Vag Shantharam Shenai of The Green Cross Society has developed an eco-friendly toilet that can be retrofitted into any toilet system. "We have put man into space, but there are not enough toilets for every average person. I have a solution," claims Shenai. In his 'total sewage recycle and odour free flushing toilet and urinal', the waste matter from the toilet is collected in a sump treated with BIO-SANITIZER™ which transforms the toxicity of the sewage water. From here, the treated water is pumped back to the main tank and re-used for flushing. This system provides a continuous slow flush that does away with a flush tank system and furthermore saves on the unnecessary nine litres of fresh water used in regular toilet systems. "What you waste is what you don't need. However, you can gift waste by choosing technologies that transform waste back into resources. Let someone benefit by utilizing your transformed waste. With this system, we can bring toilet heaven on earth," offers Shenai.



THE RECYCLING SYSTEM AT GREEN CROSS SOCIETY

Another contribution in this area is Rashtriya Chemicals and Fertilizers Pvt. Ltd. who buy untreated sewage from the BMC and extract pure water from it. The key process involved is 'reverse osmosis' where, a semi-permeable membrane separates the sewage water from pure water. The application of pressure pushes water through the membrane, thereby separating the salty, sewage water and the recycled water into different compartments. While 80% of the volume is recovered as pure water, only 20% of highly concentrated waste remains. This is an astonishing example of recycling by eco-design. "The system takes in about 3 million gallons of sewage each day; about 2.2-2.4 million gallons of pure water are recovered from it. The extracted water is then used in our chemical and fertilizer plants, to make steam and for drinking purposes," mentions P.T. Desai, Deputy General Manager,

Rashtriya Chemicals and Fertilizers Pvt. Ltd. Eco-designs can also revolutionize the way we move. Today, a key cause for air pollution is the burning of fossil fuel by automobiles. Scooter India Ltd is amongst the first in India to offer a viable alternative i.e. battery driven electric vehicles (EV) in four, six and nine seater versions. "We have created a less polluting vehicle that not only looks attractive but in the long run is cost effective as well," says R.B. Moghe, Senior Manager, Western Zone. These EVs, specifically the nine-seater EV that gives a mileage of about 90

kms on a charge of six volts per eight hours, is currently in use in the Pune University area.

"Eco-design is not a physical, external phenomenon, it's a way of life," says Professor R. Hazra.

Whether it's re-using sewage or growing vegetables in our backyards, eco-design simplifies the problems that we humans create for ourselves. In disturbing nature, mankind is digging a colossal grave that will cost us our lives and future. Recycling, reusing and rejuvenating are the basic postulates of eco-design. Given our present state, it is worth a shot. "All we need to do is equip people with the tools to change," says Udyavar.

"ECO-DESIGN IS NOT A PHYSICAL, EXTERNAL PHENOMENON, IT'S A WAY OF LIFE."

Aliya Baptista
Richa Chadda
Premila Manvi
Shuchi Talati

Sources- 'Wisdom of the Elders - Sacred Native Stories of Nature', Suzuki David and Knudtson Peter. Bantam Books. 1992.

www.greencrossociety.com

WHERE WILL YOU THROW THE WRAPPER?

The garbage from the kitchen journeys a long way to reach its final destination- the dumping ground. Every morning the sweeper rings the doorbell to take away the garbage from dustbins and stores it at the community garbage bin from where it is carried away by the overloaded municipal garbage van and is finally dumped at one of the three dumping grounds in Mumbai-Deonar, Mulund or Gorai.

Rapid urbanization in the city coincides with a steep rise in consumer culture. Each fancy cereal or perfume bottle uses layers of packaging today, which multiplies the problem at the dumping grounds. A middle or higher-income household in Mumbai generates double the amount of waste as compared to a household of lower-income group. The increasing trend of consumerism is seen in the fact that in the past five years, waste generation has increased from 6500 metric tonnes to 7800 metric tonnes. Your dustbin con-

tributes to this massive waste.

Dumping grounds were initially built away from residential settlements to collectively decompose the city's waste. However, now the distance between residential settlements and dumping grounds has drastically shrunk. Raj Kumar Sharma, Coordinator of AGNI (Action for Good Governance and Networking in India) and founder member of Diamond Garden Residents' Forum at Chembur, Mumbai, has played a major role in transforming the area around Diamond Garden into a cleaner and greener place. Says he: "The dumping ground at Deonar has reduced from 350 hectares to 110 hectares due to encroachments. This results in reduction of space for garbage disposal. The increasing proximity of residential areas with dumping grounds increases the susceptibility of people to diseases caused by toxins found in the solid waste."

The absence of a compound wall separating the dumping ground from the surrounding area allows small children from slums around the Deonar dumping ground to easily trespass on it. While playing on what seems like a play ground to them, they come in direct contact with the solid waste comprising of hospital waste, paints, and packaging, containing toxins



such as mercury, nickel and aluminium respectively. Mercury can affect the cardio-vascular, respiratory and central nervous system. Nickel sensitises allergies, causes eye and skin irritation while aluminium can cause Dementia or Alzheimer's disease. These toxins not only have adverse effects on residents in the nearby areas but also endanger the health of rag pickers who segregate garbage at the dumping ground.

Elaborating on the hazardous effects of the dumping grounds, Sharma emphasizes, "Eighty percent of the biodegradable waste contains water. When this waste is decomposed, a dark brown liquid is produced which seeps into the soil and contaminates underground water. The pro-

"IF THE BIODEGRADABLE WASTE IS COMPOSTED TO PRODUCE MANURE AND THE DEBRIS IS USED FOR FILLING POTHOLES OR DITCHES, THEN THE WASTE REACHING THE DUMPING GROUNDS CAN BE REDUCED BY 70%."



DEONAR DUMPING GROUND, MUMBAI

cess of decomposition of garbage also releases methane gas that is inflammable in nature. As a result the area becomes prone to fire break-outs that occur more often in summer due to the heat."

Refuting this claim, Mr. R.R. Markandeya, Chief Engineer of Solid Waste Management Brihanmumbai Municipal Corporation (BMC), comments, "There is no such record of a major fire breakout at the dumping grounds and if the waste released such poisonous toxins, there would have been an epidemic in the city by now. We practise bio-culture, which includes mixing microorganisms with the garbage to hasten the process of degradation without bad odour. I agree that the ground water is polluted to an extent. To

prevent seepage of toxins into the soil we plan to construct sanitary landfills having a clay base in future. The proposed dumping ground at Kanjurmarg that will be operational by the year 2008 is going to be the first in this initiative."

The BMC's proposal to shift the site from Gorai to Kanjurmarg faces strong opposition from environmentalists since Kanjurmarg is lush with mangroves. Sharma says agitatedly, "The BMC is planning to occupy 141.77 hectares of land in Kannamwar Nagar at Kanjurmarg, an area full of mangroves and adjacent to a residential locality. The mangroves are buffer zones of the city. If

they are converted into dumping grounds there would not be any outlet for rain water to recede, which increases the possibility of floods during the monsoons."

IN THE PAST FIVE YEARS, WASTE GENERATION HAS INCREASED FROM 6500 METRIC TONNES TO 7800 METRIC TONNES.

Priya Ubale, Convenor of CLEAN-Sweep, an NGO that works towards a clean and green Mumbai, is appalled at the degeneration of the environment caused by the mismanagement of solid waste by the BMC. Ubale laments, "The dumping grounds in the city have been ruthlessly exploited. The filling capacity of dumping grounds at Deonar and Gorai has already expired. Though the dumping grounds are fully occupied, the BMC continues to pile up heaps of waste." Markandeya argues, "None of the dumping grounds



RAG PICKERS SEGREGATING WASTE AT THE DEONAR DUMPING GROUND, MUMBAI

have expired. The Deonar dumping ground has such a vast expanse of land that it will not expire in the next ten years. The Gorai dumping ground can last for two more years, thereafter we plan to shift it to Kanjur-marg."

Despite the debate, the environmentalists as well as the municipal authorities agree that the huge amount of waste generated in Mumbai can be reduced considerably by garbage segregation. Markande suggests, "At present, a negligible amount of garbage is segregated by rag-pickers before it is dumped. If citizens vol-

untarily segregate their domestic waste into dry (non-degradable) and wet (biodegradable) garbage, the solid waste generated in the city can be reduced significantly. If the biodegradable waste is composted to produce manure and the debris is used for filling potholes or ditches, then the waste reaching the dumping grounds can be reduced by 70%."

Rag pickers play a vital role in garbage segregation. Sangeeta Saraf, Coordinator of Stree Mukti Sangathna (an NGO working towards the empowerment of women rag-pickers) says, "Rag-pickers are an integral part of the process of garbage segregation. Our aim is to engage rag pickers in the process of solid waste management. At TATA Colony in Chembur, Mumbai, we have successfully employed 200 women rag pickers in segregation and composting of garbage. They also take away the recyclable waste and sell it off at the recycling centres."

Nisarg Runa, a community recycling plant at

Bhabha Atomic Research Centre (BARC) goes a step ahead in the reutilization of waste. The plant converts wet garbage generated by residents of BARC colony to methane gas. This gas is supplied to hospitals and office canteens where it is used for cooking. Such initiatives taken by citizens have contributed to effective solid waste management on a small scale.

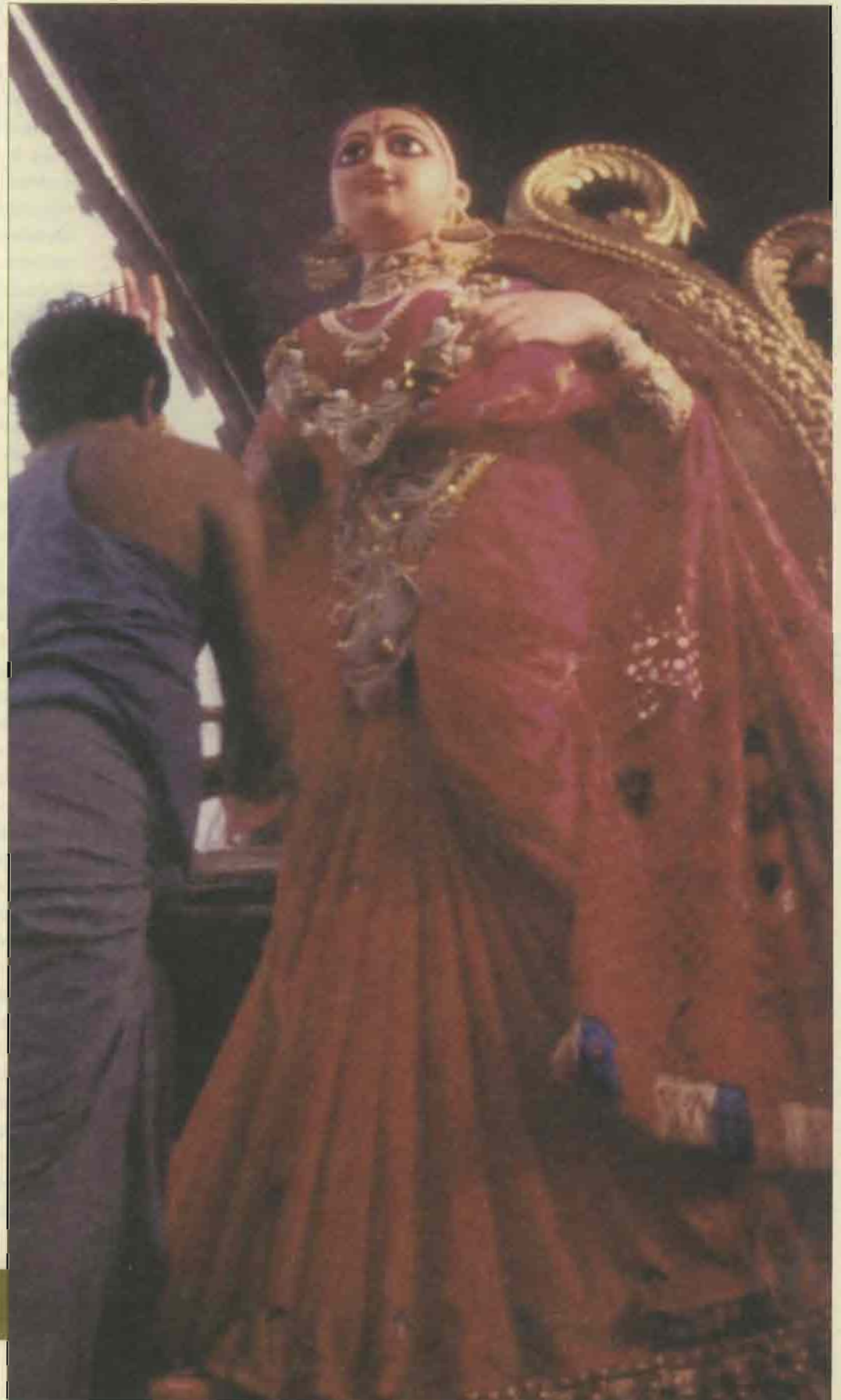
If one does not want the garbage to reach one's doorstep, one needs to stop being a part of the problem and work towards becoming a part of the solution. The chalta hai attitude of the state machinery needs to be changed and so does the outlook of people. Before buying a new packet of cookies or ordering a pizza, think where its wrapper will go!

Shikha Rahi
Rana Shaikh
Supriya Pant

THE POLLUTING PALETTE

At the beach is the colour palette and we love it. Orange-red paper windmills, bright toys that kids want to break, golawallas with bottles that would put a rainbow to shame. Safely, then against the gola one chooses a hot chana chaat- all legume. Would one pause to think that the chana chaat dished out in yesterday's colourful page three could lead to poisoning?

Oils, solvents and a resin matrix hold inks onto paper. The lead based pigments leave a part of themselves on the chaat, which is then ingested. These solvents and oils employed are of industrial use and not ingestible. On prolonged contact or ingestion, especially green and red ink may prove carcinogenic. (According to the ongoing Cancer Prevention Research conducted by the Advanced Centre for Training Research and





Education in Cancer at Khargar)

Looking out from a Borivali local, one sees palak cultivation next to garbage dumps as the train rattles past Jogeshwari. What one cannot see is that the stalks grow out of a soil enriched with shocking pinks, Prussian blues and their myriad hues left behind by the colour pages of printed paper. Since inks are absorbed by the soil, plants in turn absorb the heavy metals such as cadmium from orange-reds and chromium from green-yellows.

Though absorption of colour residues takes slightly longer, another process called 'adsorption' that functions at the surface level is quick and effective. Inks, as is their chemical nature, migrate from their substrate or source and get glued onto the stalks of these vegetables that, get adsorbed and reach the mouths of the health conscious spinach chompers instantly.

A colourant is considered of a higher quality if it does not migrate. Dr Sudhir Kulkarni, the head of Research and Development of CIBA, a company that produces pigments, inks and dyestuff states: "the migration principle must be kept in the forefront while understanding the hazards possible by the ignorance of compliance regulations. This means that one has to ensure that there is no migration; not even in traces of the colourant used in say, a food product to be packaged. The same applies to toys since they are often nibbled on."

However this is easier said than done, certain products in the course of their lifespan come into close contact with colourants that in turn migrate into food items, soil and water bodies. Take for example Coke crates. Coke bottle crates in Mumbai that are manufactured by Neelkamal contain inorganic red pigment. This carcinogenic Cadmium containing pigment is produced by an American company- Ferro. At their headquarters in Atlanta however, compelled by environmental groups and

legal pressures, Coke has switched to organic pigments that are safer for the environment and are not cancer forming. This non-Cadmium based pigment is produced by a CIBA factory in Goa. Area Operations Director of Coke (Nashik-Pune-Goa) Mohamed. Akeel says, "Once they cannot be used they are broken and sold as scrap for recycling."

These crates cannot be recycled safely owing to the presence of Cadmium based pigments. This means, it is difficult to separate the red colour from the plastic. The red crates used in India may leave Cadmium residues in the soil especially during rains. They find their way to 'empty exchangers' - the kabadiwallas that deal solely in crates. Paritosh Pandey, former Consumer Response Co-coordinator (Safety and Loss prevention) of Coke informs us that there are at present more than 2 crore Coke crates in India. "Coke does not have to take responsibility of these crates, especially since it is the defaulting distributors and retailers that sell of the empties that are originally on lease," says Paritosh Pandey. Often these crates are found being recycled by small time manufacturers. Since they are already brightly coloured, production cost of the new product is less and the plastic may be morphed into children's drinking water bottles, toys, boxes for storage of grains etc. In various ways then, the colorants find their way into the stomachs of children either by migration of the inorganic red pigment into water in the case of water bottles, or direct ingestion through toys especially in the case of teething children.

Junaid Shabwani, a consumer lawyer says that there is no separate regulation for colourants used in children's toys in India, neither is there a tracking system to follow the recycling of coloured plastic waste. In India, the prevention of Food Adulteration Act 1954 and Rules 1955 has provisions of regulation on colouring matter. However Mr. Kishore Gore, Food Inspector of the Food and Drug Administration, Mumbai says, "We don't consider children who eat the toys."

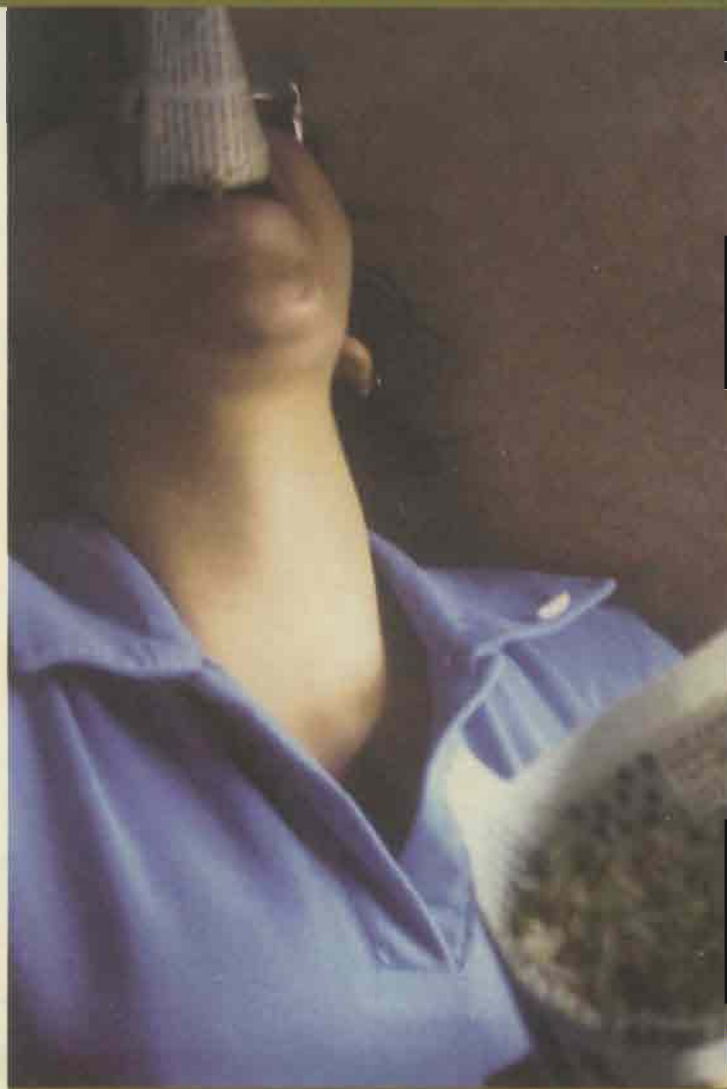
Mr. Vijay Merchant, President of Polycraft an organization that deals with Plastics and Colours in the environment, informs us that the Bureau of Indian Standards 9833 states: "There is always a possibility of transfer of part of packaging material to the packed material, due to intimate

contact with each other. Therefore, formulation of the packaging material must be selected to ensure that any such transfer is at a minimum and substances which do migrate cause no toxic hazard on consumption." Essentially, colours that are not embedded in the polymers in the correct manner prove to be harmful.

Ganesh Chaturthi, Durga Puja... the mention itself conjures up images of crowds, flowers, incense and overpowering it all - colour. As the gods are immersed, the colours swirl into the Arabian Sea. As time passes, nature goes by with

its business and slowly the paints on the idols begin to chip away, luring the fish. A study conducted by the National Environmental Engineering Research Institute (NEERI) expresses a huge rise in heavy metal levels in the water. With all the bright orange of the idols that the fish eat, we eat cadmium and mercury. With the lovely blue, one receives poly-chlorinated biphenyl (PCB). The environment throws the colours back into our food chain.

The yellow Hyderabad biryani, the vibrant colours of Diwali sweets, the orange-red tandoori chicken, and the mouth watering ice-creams... colours are an undeniable part of the Indian life. However, when packaging rules and the colour palette becomes brighter, disposal becomes a problem. Artificial colours pollute the environment, and the earth and water together send it back into the human food chain. At this point, the problem of colours appears much like many



MUNCHING ON INK

other ecological problems where, for want of a more articulately phrased question one asks - 'now what?' Today, when the market cannot do away with colours, even the right questions are welcome.

Can economics support the ecological movement?

Can the ecological movement support economics?

Purvi Malhotra
Suravi Pradhan
Chandrani Bhattacharjee

Produced by
the Students of the
Social Communications
Media Department,
Sophia Polytechnic,
Batch of 2005-06.



The Salvation Army, India Western Territory
Mumbai HIV/AIDS Community Development Programme



Preparing Community to Respond to HIV/AIDS

- Caring For people infected and affected with HIV/AIDS
- Training community volunteers in Prevention, Care and Support
- Building and mobilizing resources for effective prevention and care in response to HIV/AIDS
- Facilitating transfer of skills from community to community
- Technical assistance for organizations, groups and people in the community in planning and implementing programmes

For more information contact:

The Salvation Army

Mumbai HIV/AIDS Community Development Programme

84 Sankli Street, Madanpura, Byculla Mumbai 400 008

Tel: 23093566

Audencia

NHH - Norway
London School of Economics

Grenoble Graduate School of Business

Stockholm School of Economics

Corvinus University

University of Cologne Helsinki School of Economics

University of Bradford **Solvay Business School**

Copenhagen Business School

Nyenrode Business Universiteit

Essec Business School **HEC Paris**

Esade Business School

Some of the Institutes with the best Masters Program
in Europe where our students have been.

Where do you belong ?



presents

Max **GMAT**

Admission Consultancy Program

To enquire, call Rajat on 98190 93488 or email rajatk@imsindia.com

www.imsindia.com