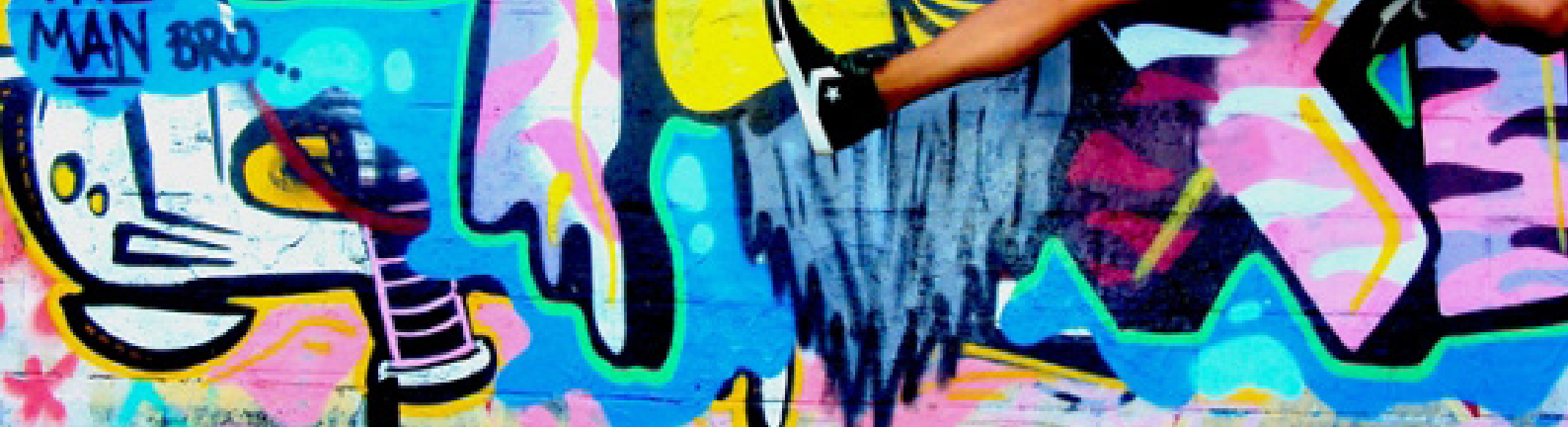

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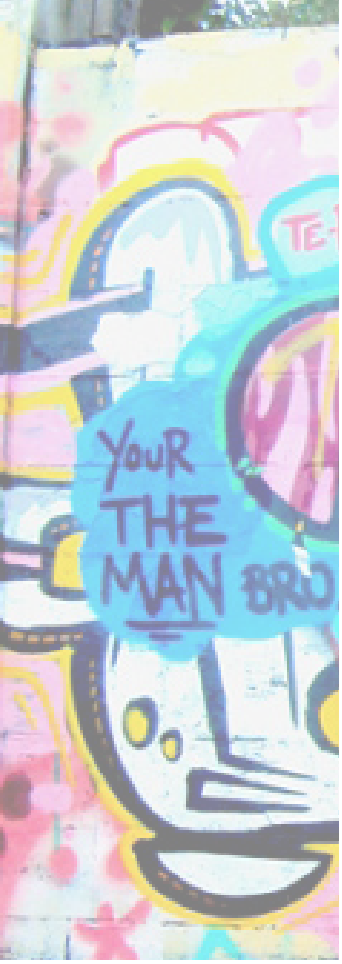


Article

Global Warming and Climate Change in India: A Social Work Perspective

By Manju Mohan Mukherjee

Earth provides enough to satisfy every man's needs, but not every man's greed. (Mahatma Gandhi)

India has ratified the Paris agreement in terms of its scope and impact, and it is probably the most far-reaching international agreement for the protection of the environment. India needs to make every effort in terms of economic sustainability for climate change and its objectives in future. This shift is already underway. Bringing in greater efficiency in the way energy is produced and consumed is crucial to fulfilling one of India's main commitments. The country seeks solutions to interrelated problems and research has to play a central role in the implementation of the 2030 agenda for social change (RIS 2016).

GLOBAL WARMING AND CLIMATE CHANGE

According to the U.S. Environmental Protection Agency, the term climate change is often used interchangeably with the term global warming, but according to the National Academy of Sciences, the phrase 'climate change' is growing in preferred use to 'global warming' because it helps convey that there are other changes in addition to rising temperatures. Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period.

GLOBAL WARMING AND ITS EFFECT

Atmospheric levels of carbon dioxide have risen from around 320 parts per million in the 1950 to 400 parts per million in 2015. This gas absorbs energy that would otherwise escape into space, thereby warming the climate. Since the 1950 the global average temperature has increased by nearly 0.7 degrees Celsius.

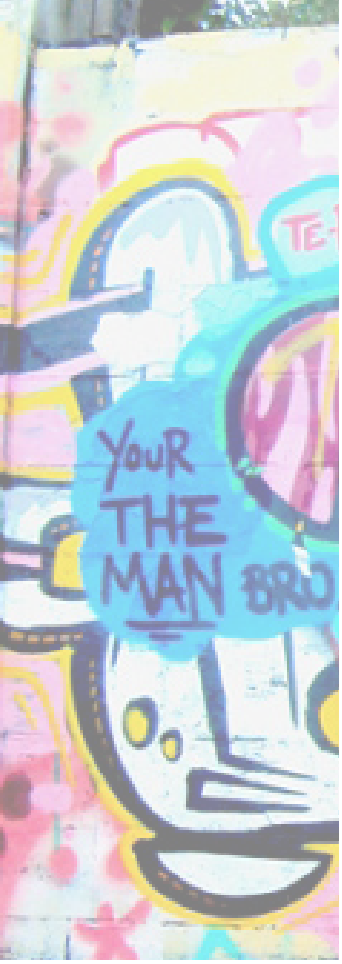
The 10 warmest years since the 1880 nine have occurred since 2000. The 20 warmest years have all occurred after 1981.

Sea level rise is another result of this warming trend. In the 20th century, the average sea level rose around 17 centimeters. In 2010 alone the rate of sea level rise has increased to approximately 2.6 millimeters per year.

Arctic sea ice has also decreased significantly in recent years, from nearly 8 million square kilometers in 1980 to a record low of 3.6 million square kilometers in 2012. (Jones, N., 2017)

Global warming refers to the overall warming that the atmosphere experiences with the introduction of high volumes of gases. Warming air rising from the Earth's surface should dissipate before reaching the atmosphere. With the greenhouse effect, however, these gases rise in high volume into the atmosphere, which then traps them. The trapped gases retain heat, which in turn causes higher temperatures and helps the atmosphere hold more moisture, mostly in the form of water vapor.

The increased volume of water vapor translates to more frequent and severe precipitation, as well as a larger cloud cover. In addition to water vapor and CFCs, methane, nitrous oxide and carbon dioxide play large roles in fueling global warming. These gases and compounds derive from different sources, including fertilizer runoff, automobiles, agricultural waste and burning fossil fuels.



CLIMATE CHANGE AND REDUCTION HFC GASES

The second major international agreement to fight climate change to eliminate planet-warming HFC (hydrofluorocarbon) gases after the Montreal protocol in 1989, the Paris Agreement will allow the use of ozone-saving Montreal Protocol to phase-out HFCs, a set of 19 gases in the hydrofluorocarbon (HFC) family that are used extensively in the air-conditioning and refrigeration industry. HFCs are not ozone-depleting but are thousands of times more dangerous than carbon dioxide in causing global warming.

It is estimated that we need to avert 70 billion ton of carbon dioxide-equivalent emissions between 2020 and 2050 (MEFCC). This is considered equivalent to shutting down more than 750 coal power plants, each of 500 MW capacity.

The complete elimination of HFCs by the year 2050 is required to prevent a 0.5 – degree Celsius rise in global temperatures. The Paris Agreement target being to keep global temperature rise to below 2-degree Celsius compared to pre-industrial times.

A group of developing countries, including China, Brazil and South Africa, are mandated to reduce their HFC use by 85 per cent of their average value in 2020-22 by the year 2045. India and some other developing countries – Iran, Iraq, Pakistan, and oil economies like Saudi Arabia and Kuwait – will cut down their HFCs by 85 per cent of their values in 2024-26 by the year 2047.

CHALLENGES BEFORE THE WORLD

The main challenges before humankind are three – to preserve peace, to eradicate poverty and to conserve the environment. The path that the world has until now traversed in the pursuit of technological mastery has imperiled peace and the environment and failed to provide prosperity and equality for all the peoples of the world. A major change is required in our outlook and our methods.

SUSTAINABLE DEVELOPMENT

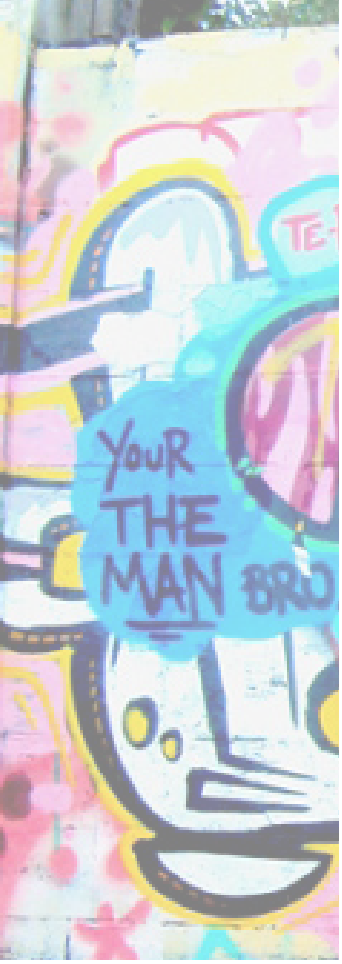
The earth is one but the world is not. We all depend on one biosphere for sustaining our lives. Yet each community, each country, strives for survival and prosperity with little regard for its impact on others. Some consume the Earth's resources at a rate that would leave little for future generations. Others, many more in number, consume far too little and live with the prospect of hunger, squalor, disease and early death.

ECOLOGICAL DEGRADATION

In the name of growing more food and providing more comforts, we have denuded our forests. In the name of industrial growth, we have polluted the rivers and seas, heated up the globe through the accumulation of carbon dioxide, and even depleted the ozone layers that shield the planet from harmful cosmic radiation. Ecological degradation affects developing countries more fundamentally than it does the developed ones. We, in India know this only too well.

ENVIRONMENTAL INSECURITY

Among the dangers facing the environment, the possibility of nuclear war is undoubtedly the gravest. Certain aspects of the issues of peace and security bear directly upon the concept of sustainable development. The whole notion of security as traditionally understood – in terms of political and military threats to national sovereignty – must be expanded to include the growing impacts of environmental stress – locally, nationally, regionally, and globally. There are no military solutions to 'environmental insecurity' and 'poverty'.



The failures that we need to correct arise both from poverty and from the short-sighted way in which we have often pursued prosperity. Poor people are forced to over use environmental resources to survive from day to day. This causes their survival even more difficult and uncertain.

Environmental stress has often been seen as the result of the growing demand on scarce resources and the pollution generated by the rising living standards of the relatively affluent. But poverty itself pollutes the environment, creating environmental stress in a different way. Those who are poor and hungry will often destroy their immediate environment in order to survive: They will cut down forests; their livestock will overgraze grasslands; they will over use available land; and in growing numbers they will crowd into congested cities. Economic development that destroys the environment will create more poverty, unemployment and diseases – as the poor depend on the nature much more for their day to day needs – and thus cannot even be called economic development. Productivity of the poor going down but their expenses on medical care is shooting up, resulting in their further misery. (Paul, K., 2017)

I believe that people can build a future that is more prosperous, more just, and more secure, increasing environmental decay, poverty, and hardship in an ever more polluted world among ever decreasing resources.

SAFER EARTH FOR A NEW GENERATION

Those looking for success and signs of hope can find many: Infant mortality is falling; human life expectancy is increasing; the proportion of the world's adults who can read and write is climbing; the proportion of children starting school is rising; and food production increases faster than the population grows. Children born today can expect to live longer and be better educated than their parents. In many parts, the new-born can also expect to attain a higher standard of living in a wider sense.

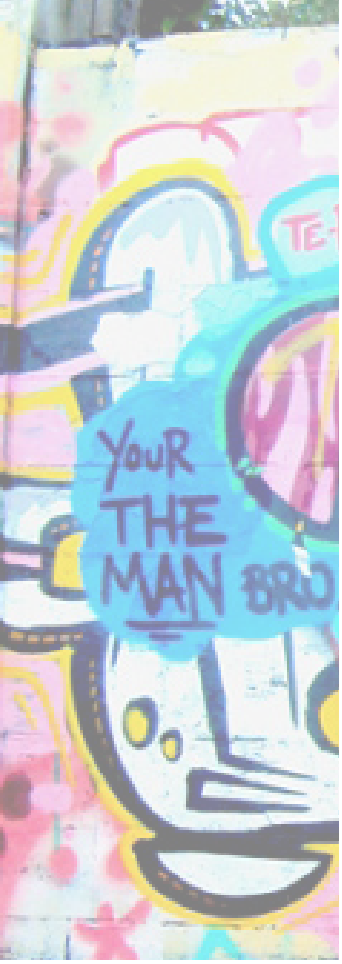
Such progress provides hope. Earth a safer and sounder home for us and for those who are to come.

DEVELOPMENT AND INEQUALITIES

While the number of people living in absolute income poverty as defined by the World Bank (US $1.25 per day) has fallen relative poverty persists and marginalised groups are excluded from access to clean water and sanitation, healthcare and education. (Paul, K., 2017) Such inequalities represent great difference not merely in the quality of life today, but also in the capacity of societies to improve their quality of life in the future.

Some development initiatives leave increasing numbers of people poor and vulnerable, while at the same time degrading the environment. This realisation broadened the author's view of development. We came to see it not in its restricted context of economic growth in developing countries.

Humanity has the ability to make development sustainable, to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. But technology and social organisation can be both managed and improved to make way for a new era of sustainable economic growth. Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs.



The poor are largely excluded from the institutions and partnerships that can enable them to share and control the decisions that affect their lives. This is because institutions tend to be controlled by the powerful non-poor. Channeling appropriate assets such as land and education, technology to raise the productivity of assets, and markets to improve sales and purchases, improve the poor's 'exit options' that over time may also help them alter institutions for their sustained benefit.

Poverty reduction is a complex task requiring sustained commitment to consistent, yet flexible, joint action. There are no quick fixes and no easy solutions. In the light of our growing understanding of this complexity it is time to invite the poor to participate in the analysis and solution.

Participation allows the poor a voice, and through a transfer of responsibility gives them the power to discover and determine ways to improve their lives. Empowering the poor is the foundation of rural poverty alleviation. The poor's chance to influence rules and to help control organization depends on their power and influence.

SOLAR AND WIND ENERGY

Solar photovoltaic panels and, to a lesser extent, large windmills will become one of the most familiar sights representing the fight against climate change. India plans to install as much as 100 GW of electricity generation capacity through solar energy by 2022, of which 40 GW would be through individual rooftop systems. India had initially announced plans for setting up 60 GW of wind energy by 2022. A number of villages are already powered solely through solar or wind energy. But decentralised production and consumption of electricity, through solar, wind, biogas or small hydro initiatives, is likely to become more prevalent as efforts are made to take electricity to 200 million people still in the dark. (Ebinger, K. 2016).

HOME APPLIANCES

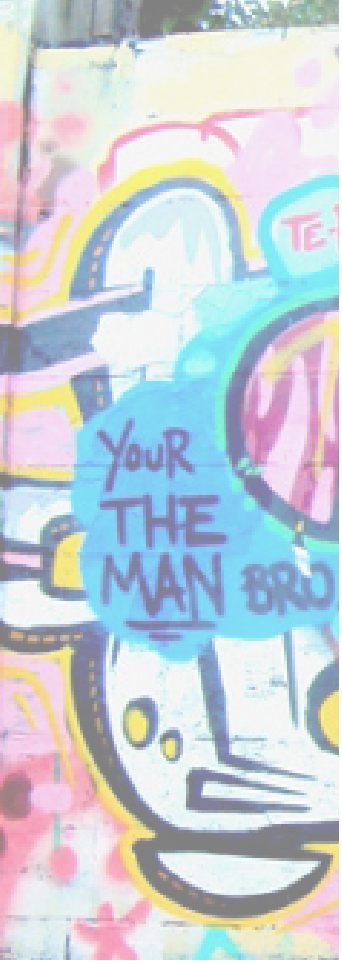
Under the Paris Agreement, India has promised to reduce emissions intensity, or the amount of greenhouse gas emissions per unit of GDP, by 33 to 35 per cent by 2030 as compared to 2005 levels. So far, more than 30 million households have switched over to energy efficient LED bulbs, according to government figures. More than 165 million LED bulbs are in use in these houses and this will increase under the Government subsidy program introduced in 2016 by Indian Finance Minister Arun Jaitley.

PRIVATE AND PUBLIC TRANSPORT

Electric cars slowly marking their presence and battery operated rickshaws have become popular in many cities. Now, stricter fuel efficiency norms will be put in place, with India advancing the implementation of Bharat VI (India VI) pollution norms to 2020 instead of 2022. Besides, Metro tracks coming up in various cities across the country that will resolve, to a large extent, not just the problem of mass urban transport but also pollution caused by older forms of transport.

GREEN INDIA WITH TREES

India has promised to create an additional carbon sink – system capable of absorbing carbon dioxide (CO_2) from the atmosphere – of 2.5 to 3 billion ton of CO_2 – equivalent through forest and tree cover by 2030. That is an ambitious target. Just over 24 per cent of India's geographical area is currently under forest and tree cover, and the stated objective is to take it to 33 per cent. (Ministry of Environment, Forests and Climate Change, 2016) However, it will be difficult to rapidly expand the forest cover, especially because more forest area will be cut for developmental or industrial requirements.



As a result, planting of trees would be seen as an alternative. Besides, with close to half of India's forests of very low quality, transforming them would lead to an increase in carbon sink. In the previous Parliamentary session, the government managed to get the landmark CAMPA (Compensatory Afforestation Found Management and Planning Authority) bill passed to make up for every piece of forest destroyed for any reason. Thousands of millions of rupees are available for afforestation drives through CAMPA, or Green Indian Mission. The government is planning to plant trees along the entire stretch of highways and railways. (MoEFCC, 2016).

BUILDINGS AND WATER

Projections show that 70 per cent of the infrastructure that India will have in 2030 is still to be built, including new cities and buildings. "Smart" and "Net Zero" buildings are becoming the new buzzwords, though a vast majority of new constructions are still of poor quality.

Climate change induces a lot of uncertainties in water availability. A country that is already water-stressed, climate change is an additional urgent reason to reform the way in which water is managed and utilised. Some movements in this direction have already started happening. Free water is likely to be rationed in future and water for all uses is likely to be priced.

BETTER GOVERNANCE

The numerous development programmes where studies suggest that the 'leakage' is estimated to be between 20 and 70 per cent. Close monitoring can be organised in selected areas such as implementation of schemes relating to primary health, primary education, watershed development, empowerment of the local people to discharge their responsibilities effectively at the local level, as evidenced by the implementation of poverty alleviation programmes etc.

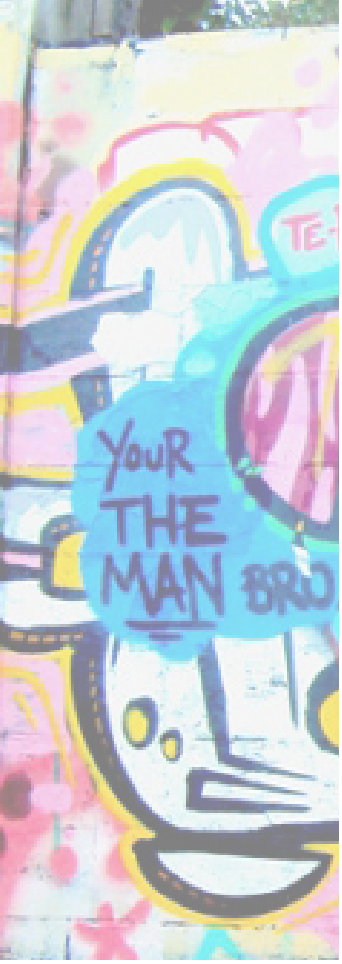
Corruption has become common in every public work draining a major proportion of government expenditure, showing little improvement in the conditions of poorer sections of people. (Transparency International, 2016).

Accountability, transparency and the rule of law, are integral constituents of good governance. Transparency in government functioning will in itself reduce the possibilities of leakage and malpractice. The issue of accountability is crucial for effective financial management and a responsive civil service.

The better governance and implementation of programmes within a pro-poor policy framework is needed for effective results on the ground. Successful implementation of development programmes requires adequate funds, appropriate policy framework, and effective delivery machinery. Past experiences suggest that availability of funds alone may be a necessary but not a sufficient condition for tackling the problems of poverty and backwardness.

ROLE OF CIVIL SOCIETY

It is tempting to ignore these problems, partly because we feel that one person cannot make a difference. But we are not alone on this world, and individual action forms part of a greater whole. As Xunzi, the famous Confucian philosopher, once said, "No river or sea can be formed without the streams. (Li Bingbing, UNEP, 2016)



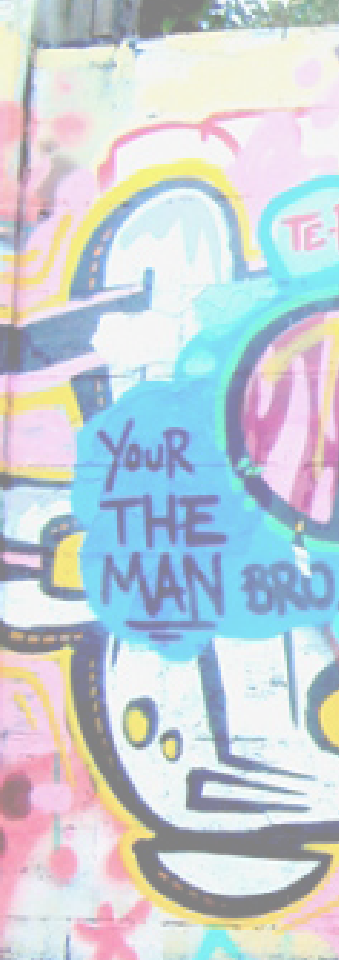
We should, therefore, accept personal responsibility for the success of the environmental protection programmes of our respective communities by cooperating and actively participating in making the atmosphere pollution free.

People's participation and individual action will achieve the desired goal. Carbon dioxide is the climate's worst enemy. It's released when oil, coal, and other fossil fuels are burned for energy—the energy we use to power our homes, cars, and smart phones. By using less of it, we can curb our own contribution to climate change while also saving money. Here are some effective ways:

1. Insulate our home, clean our air conditioning filters and install energy efficient showerheads.
2. Replace our current home appliances (refrigerator, washing machine, dish washer) with high-efficiency models.
3. Recycle our home's waste newsprint, cardboard, glass and metal.
4. Install a solar heated system for hot water.
5. Replace incandescent light bulbs with compact fluorescent bulbs.
6. Buy food and other products with reusable or recyclable packaging instead of those in non-recyclable packaging.
7. Patronise local foods and goods. In this manner, transporting goods and foods prepared with GMOs which use fuel from conventional energy sources will be minimised.
8. Stop smoking or at least follow the "No Smoking" sign.
9. Keep car properly maintained to keep it in good running condition to avoid smoke emissions. Share a ride or engage in car-pooling. Instead of choose to walk or ride a bicycle whenever possible.
10. Live green by using green power supplied abundantly and freely by wind and the sun. Enjoy fresh air from open windows to lessen the use of air conditioning system.
11. Hang our laundry to dry to minimise use of gas or electricity from dryers.
12. Use eco-friendly or biodegradable materials instead of plastic which are made up of highly toxic substances injurious to our health.
13. Create our green space. Plant more trees and put indoor plants in our homes.
14. A proper waste disposal system especially for toxic wastes.
15. Never throw, run or drain or dispose into the water, air, or land any substance in solid, liquid or gaseous form that shall cause pollution.
16. Do not cause loud noises and unwanted sounds to avoid noise pollution.
17. Do not litter in public places. Anti-litter campaigns can educate the populace.
18. Industries should monitor their air emissions regularly and take measures to ensure compliance with the prescribed emission standards.
19. Industries should strictly follow applicable government regulations on pollution control.
20. Organic waste should be dumped in places far from residential areas.
21. Adopt the 3Rs of solid waste management: reduce, reuse and recycle. Inorganic materials such as metals, glass and plastic; also organic materials like paper, can be reclaimed and recycled.
22. Celebrate birthday and rituals by planting tree not lighting the candle.

CONCLUSION

Breathing is life. We know that we will survive without food for several weeks and without water for few days, but without oxygen, we will die in a matter of minutes. The oxygen, the air we breathe sustains us. So, let us make today and everyday a good day for everyone. Allow the earth to have more clean air. Help control pollution. Otherwise, Earth will eventually have an atmosphere incompatible with life.



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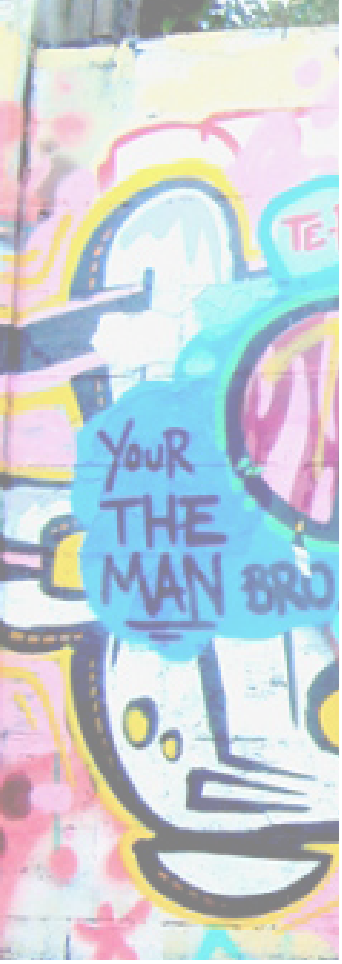

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