Energy use and possible changes in our lifestyle to meet the energy need of tomorrow

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Abstract:

The world wide economy is driven by huge amounts of energy. The nature is gifted with abundance of renewable energy sources with it but unfortunately mankind does not have economical as well as efficient mechanism to tap the potential of non conventional sources of energy. While the traditional methods can dependably produce cost effective energy in significant quantity, the environmental side effects (Green house effect and global warming) and other issues (rise in prices and shortage of resources) are rendering them increasingly problematic. Burning fossil fuels raises the level of carbon dioxide in atmosphere and carbon dioxide is major contributor to Green House Effect and Global warming. Rather than sending hard-earned cash to offset companies, we need to examine our lifestyles and consumptive behaviour. We must all do what we practically can, to cut down or avoid carbon emissions .We may not be able to reduce global warming, end pollution and save endangered species single handedly but by choosing to live an earth friendly lifestyle, we can do a lot everyday to achieve these goals. This paper reviews the need to do change in social setup , the changes we can do in our daily lifestyle to meet the energy need of tomorrow , the possible barriers in it and in brief concept of green living is also being discussed. By making wise choices about how we live and the amount of energy and net resources we consume, we can help protect Environment and save Planet Earth.

Keywords: Energy , Green , Lifestyle, Social setup.

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1. Introduction

Energy has now becomes a fourth basic need of human being in addition to bread , cloths and dwelling for survival in today's world. The world at a large heavily depends on fossil fuel which is finite in nature to cater it's energy need, the increased consumption of fossil fuel results in environmental and health related problem as a byproduct due to rise in pollution .The nature is gifted with abundance of renewable energy sources with it but unfortunately mankind does not have economical as well as efficient mechanism to tap the potential of non conventional sources of energy.

Today the two most important issues facing the world are the energy security and the environmental concerns. Out of the 6 billion people on the earth, around 2.5 billion people still depend on biomass for their daily energy needs.

The developing countries in the world have very low per capita energy consumption but at the same time their energy intensity happens to be the highest due to inefficiency and lack in technology compared to the developed countries India today happens to be ranked fifth in terms of energy consumption. The per capita energy consumption of world is 2600, whereas for India it happens to be just over 600 units a year. This inefficiency further results in high amount of pollution and GHG emissions contributing to global warming and climate change. Moreover, even today about 35% of the population in India lives below 1 dollar per day, though India is one of the fastest growing economies in the world with brilliant performance in the 10th Five year plan. The pace of growth unfortunately has not been able to match the supply and demand and as such India is still a net importer of energy.

India today imports around 25% of its primary energy. India is highly dependent on imports for meeting its petroleum needs and as such 70% of its petroleum products are imported mainly from Middle East countries. Indian energy sector is structurally handled by five separate ministries (Coal, Petroleum and Natural Gas, Atomic Energy, Power and Non-Conventional Energy Sources) which work in silos and make independent policy and decisions which are neither optimal nor in the best interests of the country. Majority of Indians still use traditional fuels such as cow dung, agricultural wastes, and firewood as cooking fuel.

In order to deliver a sustained growth of 8% through 2031, India would at least need to grow its primary energy supply by 3 to 4 times whereas the electricity supply needs to grow at the rate of 5 to 7 times the present consumption. In real sense of the Indian context, the issue of sustainability is larger compared to OECD countries as India as a nation have to address the basic needs of teeming millions both today as well as tomorrow. For oil supply country has to depend on other countries and is required mainly to cater the need of transportation and industry of the nation.

Table 1:- Energy Scenario in India

Period	Energy Requirement (MU)	Availability Million Units(MU)	Energy Deficit/ Surplus (MU)	Energy Deficit/ Surplus (%)
9th Plan End	522537	483350	-39187	-7.5
2002-03	545983	497890	-48093	-8.8
2003-04	559264	519398	-39866	-7.1
2004-05	591373	548115	-43258	-7.3
2005-06	631757	578819	-52938	-8.4
2006-07	690587	624495	-66092	-9.6
2007-08	739345	666007	-73338	-9.9
2008-09	774324	689021	-85303	-11
2009-10 (Anticipated)	840544	762115	-78429	-9.3

Table 2:- Power Scenario of India

Sr. No.	Period	Peak Demand Mega Watt(MW)	Peak Met (MW)	Peak Deficit/ Surplus (MW)	Peak Deficit/ Surplus (%)
1	9th Plan End	78441	69189	-9252	-11.8
2	2002-03	81492	71547	-9945	-12.2
3	2003-04	84574	75066	-9508	-11.2
4	2004-05	87906	77652	-10254	-11.7
5	2005-06	93255	81792	-11463	-12.3
6	2006-07	100715	86818	-13897	-13.8
7	2007-08	108866	90793	-18073	-16.6
8	2008-09	109809	96685	-13124	-12
9	2009-10 (Anticipated)	118794	103816	-14978	-12.6

The above table states that energy demand and supply gap for last ten years is negative consistently and is expected to reach in two digit figures, similarly for power demand and

supply gap is around 12 percent for last ten years, demands for the more comprehensive planning and think of ways to bridge the gap. This situation compel us to think for our consumption pattern of energy or identifying and exploring new energy sources to meet the current demand, but for these due to technological limitation this is yet not become feasible to meet the current need. So, it is required to check the option of reconsidering the consumption pattern.

2. Why life style Change?

Following are the reasons why life style change is desirable to meet the energy need of tomorrow.

2.1. Today, technological innovation and industrialization has led to the overexploitation of natural resources beyond limits. Apart from fulfilling their basic needs all have been driven by greed to go to extremes, to lead not just a quality life but an over ambitious, luxurious life. Everyone has become individualistic and materialistic. Now a day's q*uality of life* is not just fine; but everyone is interested in a *high standard of living.* Starting from basic lighting appliances everything in homes has got sophisticated. People love to be in an air-conditioned atmosphere rather than enjoying the fresh natural air.

2.2. In today's consumer world, the products and services we opt to, and desire to use play an essential role in how we express our identity and values. At a national scale, consumption is traditionally seen as the engine of growth and development, and therefore stands at the heart of our economies. Today, the global environmental, economic and social challenges we are facing show us that our consumption and production patterns are not sustainable. We must develop alternative paths for development and more efficient and simpler ways of living our lives in balance with our communities and nature.

2.3. The world faces complex and interlinked development and lifestyle challenges. In an interconnected world, Lifestyles of one nation are influenced by the desires of people in other countries, foreign and domestic government policies, even the weather in different parts of the world impacts on the food habits, the prices and the cultural movements swept along by any nation is getting affected by the other nations of the world. The recent financial crisis demonstrates just how speedily the effects of events can spread across the globe.

2.4. Our world is becoming increasingly more populated – density of population increased by more than 250% in the last 50 years, in the last 5 years it increased 6.7%. The economies and societies in which all these people live are focused on growth. The measure of growth Gross Domestic Product (GDP) has been used as the only tool for measuring well-being and progress. Unfortunately, these measure do not include emotions, aspirations, well-being and happiness by which human being's all activities are being initiated. According to the New Economics Foundation's 2009 Happy Planet Index, the UK ranks as only the 108th happiest country, Sweden the 119th and the US the 150th. Costa Rica, Vietnam and the Philippines score in the 20 happiest countries. Which clearly indicates that GDP can be a parameter of growth and happiness up to certain limits , where as happiness requires something more than the consumption of goods or services.

2.5. About 800 million people are hungry in the world today which is more than the entire population of Europe. Meeting basic needs is a priority, but in a globally connected world, the aspiration is to live the life with higher level of affluence those in the developed world do, as quickly as possible. Scientifically, achieving this aspiration is impossible. Because in a world in which nine billion people all aspire to the level of affluence in the OECD nations , Such an economy would need to be 15 times the size of today's global economy by 2050 and 40 times bigger by the end of the century". We would need 5 planets, for everyone to adopt the consumption patterns and lifestyles of the average citizen in North America. We only have one, which is being degraded, contaminated and eroded with every passing second. About 60% of the Earth's ecosystems" services have been degraded in the past 50 years.

2.6. Unsustainable patterns of consumption impact on the world around us creating challenges like climate change, waste generation, air pollution and water shortages, to list just a few. The global consumer class now stands at 1.7 billion, with nearly half coming from developing economiesix. But consumption is a power that remains unevenly distributed, reflecting immense imbalances between developed and developing countries. Billions in the world cannot consume enough to meet their basic needs: 60% of the 4 billion people living in the global south lack basic sanitation; 25% do not have adequate housing.Within the finite constraints of one planet, continuing consumption in its current form will only make these challenges more damaging and severe.

2.7. Energy efficiency improvements may not be reflected in energy conservation because people consume more of the goods concerned (bigger cars and fridges, for example);or savings in one area might be spent in another (perhaps on cheap flights).This so- called 'rebound effect' has been the subject of much discussion and dispute (Cambridge Centre for Climate Change Mitigation Research (4CMR) with Cambridge Econometrics Ltd and Policy Studies Institute and Herring,2006; Sorrell,2007). So it emphasizes on the need of change in consumption pattern of the energy ultimately change in the life style.

3. Literature review:

The link between households, lifestyles and energy use, and carbon intensities is studied by Noorman, Biesiot and Moll (1999) carried out a scenario-based analysis of household energy use for the Netherlands, and concluded that achieving a sustainable level of energy use (using a baseline for sustainability defined by the authors based in part on global energy equity) would mean reducing household energy budgets by about four times by 2050. Meeting a target of this nature was seen as possible only with significant changes in lifestyles and the authors quantify possible reductions as emerging from a number of sources, including reducing meat consumption; improving appliance and building efficiencies, reducing standby use of electrical appliances, taking fewer vacations especially those requiring long air trips, and increasing use of public transport, walking and cycling.Christensen (1997) attempted to compare four different lifestyles in order to understand their energy use and environmental impacts. The most energy-intensive lifestyle, referred to by the authors as an 'American Lifestyle' was estimated to consume over eight times as much energy (and consequently emit about eight times as much CO2) as the most 'green' lifestyle considered. The latter involved a low and renewable-energy-powered house, more vegetables than average, and biking to work. This is admittedly a somewhat radical shift from present patterns so while it may be true that modern lifestyles use too much energy, it seems unlikely that a reduction by such a large factor could be achieved in practice. A larger study was carried out by Weber and Perrels (2000) where household survey data on expenditures of time and money for different uses was combined with input–output models to quantify the effect of different lifestyles on energy use and emissions for West Germany, the Netherlands, and France. According to Tim Jackson, (2005), "Understanding (mainstream) consumer behavior is a pre-requisite for understanding how to motivate or encourage pro-environmental behavior". So,it is required

to identify , what influences, constrains and motivates our behavior, why we consume and what, will help identify what needs to change to increase the adoption of more sustainable lifestyles. In a carbon-constrained world there is an immediate need to free up some space through emission reduction from conspicuous consumption to accommodate survival emission. Changes in lifestyles can contribute to achieving low-carbon emission growth that is both equitable and sustainable.The focus of change needs to be on patterns of energy consumption. The IPCC report mentions that lifestyle choice and technology can both help to improve the climate. The concept of lifestyle in the behavioural sciences has been studied in connection with 'social class' , culture-specific consumption patterns as well as individual choice.

Table 3: Lifestyle, energy use and emission outcomes

Lifestyle hotspots	Home energy use and emission outcome (total/per capita)
Social status symbol	High
High income	Generally high
Private jet ownership	High
Frequent air travel	High
Living far from public transport service	High
Large house	High
Non-vegetarian and diary diet	Higher (primary energy) by 2.5 times than vegetarian
Personal transport and home	45–55% of total energy
Water heating in colder region	35% of electricity
Space cooling and lighting in warmer regions	60–67% of electricity
Food preparation	17–19%
Recreation	6–8%
Urban households Indirect Energy use	2.44 times higher than direct use, emission 2.78 times higher
Rural households Direct energy consumption	high

Lifestyle is also described in an operational sense through the correlation between the level and pattern of consumption and socio-economic parameters such as age, family size,

occupation, income, gender and education. So consumers can be essential driver for change once the hotspots are identified (Table 3).

Energy is a demand derived from how a household provides its members with food, care for young and old, health care, personal care, education, clothing, recreation and entertainment, vacations, furnishings, refrigeration and cleanliness . These lifestyle choices determine energy consumption, material consumptions and consequent emissions. About 45–55% of total energy use is influenced by consumers' choice of personal transportation, personal services and homes. In colder region households, the most energy consuming appliances are hot water heaters with 35% of household electricity consumption, followed by freezers, cookers and refrigerators 30% . In warmer regions, hotspots are space cooling, followed by lighting, water heating and cooking.

4. Attitudes and behaviors in the context of energy

Eden (1993) observes that responsibility is very much linked to likelihood of efficiency of the technology used. A lack of timely communication and consultation, however, is likely to make matters even worse. The *Growing Cooler* report, (Ewing, Bartholomew, Winkelman, *et al.* 2007) points out that there is evidence to suggest that compactly designed communities allow for reductions in driving between 20% and 40%, in turn translating to significant reductions in overall energy use. EnergyEven so, it is by no means easy to determine the relationship between energy prices and demand. For example, while estimates of consumer price and substitution elasticity for energy sources and electricity have been derived in the past (see for example, Roy, Sanstad, Sathaye, *et al.* 2006 and Branch 1993),

Government campaigns in the energy and environmental fields have often been predicated on a rationalist 'information deficit model'(Burgessetal.,1998), which assumes that ''environmental education, drawing from scientific work, will lead to people making the link between policy and action, and acting in order to meet policy objectives''(Eden, 1996). This assumption has not been borne out in practice. Providing information may in some circumstances influence attitudes on issues like energy and the environment, but ''often has little or no impact on behavior '' (McKenzie-Mohr,2000). Attitudes themselves are influenced by a variety of social, political and cultural factors. Owens, (2000), states that in both contexts—domestic energy consumption and transport—individuals may perceive that

they have ‘‘neither the prime responsibility to take action, nor the agency to have much effect’’.

As per the Owens and Cowell, (2002),The physical and social structures of modern life (spatial separation of activities, cultural norms of mobility and consumption, choice in public services) make it difficult to act on the message that driving contributes to climate change, especially when price signals provide a powerful counter-incentive .

Behaviour is shown to be influenced in complex ways by factors such as price, awareness, trust and commitment, including a sense of moral obligation (Devine-WrightandDevine-Wright, 2004). It is also influenced by dominant conceptions of comfort, cleanliness and convenience, which become embedded in the built environment (Shove, 2003). Stirling (2004), suggests a three-fold typology fro behavioural change, normative (participation in itself is right); instrumental (it is a more effective way of achieving particular outcomes); and substantive (it leads to‘better’ ends).So ,Attitudes and behaviours need to be change in order (i) to manage demand and achieve step-changes in energy efficiency, and(ii) to secure a sustainable energy supply for the future, involving the sitting of new facilities.

5. Major consideration towards changing Life Style

Lifestyle is a expression of individual for social position, political preferences and psychological aspirations to others through them.It is having roots in culture, politics, economics and social norms. To change the lifestyle of people, peoples need to be helped and supported by the social and technical systems and institutions that surround us. For instance, designing more efficient public transport systems will help people leave their car at home, reducing their carbon footprint.

Sustainable lifestyles can become instruments for development that will have positive impacts on our environment, societies and communities and helps to make a provision of energy for tomorrow. Sustainable lifestyles also have a role to play in the opportunity for developing countries to “leapfrog”, a term used to describe the possibility to bypass inefficient, polluting, and ultimately costly phases of development. Leapfrogging offers countries the opportunity to jump straight onto a resource efficient sustainable development path. For example, “leapfrogging” might involve the use of sustainable or solar energy in rural areas where unreliable or limited sources of energy previously existed. The objective is not only resource efficiency but also the creation of new business models, new social

aspirations, initiatives that demonstrate that sustainable lifestyles is part of the solution and is feasible.

The lifestyle change requires change in attitudes or behavior and for changing the attitude or behavior following are the major consideration:

5.1. Regulation have already been made for reducing the mis use of energy but is required to be implemented properly,

5.2. Any change in life style which reduces energy use is required to be rewarded and economic incentives are to be provided in relation to the amount of energy saved by modified life style. For motivating the life style consumes lower energy incentives for lower energy usage compare to the normal usage must be provided, and higher prices should be charge for more use of energy in slab wise, may motivate the people to curb their energy need to encase the financial incentives.

5.3. Various studies as discussed above states that provision of information have played a very important role in change of life style, as by providing information individual can understand the purpose of why they required to change their lifestyle, and how the change in lifestyle results in energy conservation. So, educational and training programme has to be designed to facilitate the life style change , and for that government of india already having various institutes like , BEE, CIA, MNRE, they requires to multifold their efforts to educate the communities and equip them with necessary skill set for life style change.

5.4. Moreover, to change the life style the message for required change has to be aligned with the Physical, social, cultural and institutional contexts and constrain people's choices and options regarding the proposed change , it will compel them to adopt the new life style.

5.5. It is also observed that social tradition is one of the sources to change the life style for energy usage. e.g. If a rich people is convinced and wanted to use mass transport, the tradition of car as a social symbol may restrict him to use mass transport as use of mass transport may create a image of bankruptcy or financial crisis.

5.6. Technical infrastructures of institute or economy affect behavior of community overtime, Though the community is willing to adopt to the sustainable life style for energy conservation it is the technological limitation which produces a resistance , so, the measures like technology transfer among third world and developing countries must be

encouraged and time frame has to be decided, so that inefficient technology can be removed in planned manner .

5.7. The subsidies for energy efficient or renewable energy can be a motivator to change the consumption pattern of energy and the energy fuel mix also, As India is having for major period of a year a clean sun light there is a large opportunities to tap this potential for cooking the foods, heating , lighting and electricity generation by making economic micro solar units to solve the energy crisis as well to increase the use of clean energy. suggest that information is dispensable, but that it should be part of a wider strategy, will not necessarily be neutral, and should flow in more than one direction.

6. Possible Barriers

Barriers for adoption of sustainable life style is as bellow

6.1 Ignorance or unawareness of the benefit of modified life style is one of the barrier

6.2 Absence of motivation for adoption of modified life style

6.3 Absence of Technological support for adoption of sustainable life style

6.4 Social belief for the modified life style

6.5 Cultural Misfit of modified life style

7. Possible Changes in Life style

Following are some measures which we can take to change the living style a bit but contribute to the energy saving a lot.

7.1 Reduce, Reuse, Recycle

Reduce waste by choosing reusable products instead of disposables. Buying products with minimal packaging will help to reduce waste. And whenever we can, recycle paper, plastic, newspaper, glass and aluminum cans. By recycling half of our household waste, we can save 2,400 pounds of carbon dioxide annually. Reusable shopping bag, sometimes called bag for life .It is made up of those material that don't harm the environment during production and don't need to be discarded after each use, reduce pollution and save resources that could be put to better use than making plastic bags . It requires less waste of

natural resources such as oil and less emission of carbon dioxide to produce than plastic bags.

7.2 Use Less Heat and Air Conditioning

Adding insulation to our walls, and installing weather stripping around doors and windows can lower our heating costs more than 25 percent, by reducing the amount of energy we need to heat and cool our home.

Turn down the heat while we're sleeping at night or away during the day, and keep temperatures moderate at all times. Setting our thermostat just 2 degrees lower in winter and higher in summer could save about 2,000 pounds of carbon dioxide each year.

Check our windows and doors for any drafts sending air into our house. Even sockets not fitted properly can let air in. Sealing these areas can make a huge difference to our heating and cooling bills.Turn the central heating down when we leave for work, and turn it up again when we get home. That way we're not heating an empty house all day.

7.3 Daylight Saving

Daylight saving time (DST) is to shift human activity patterns to make better use of daylight, and thus reduce the amount of electric lighting necessary to support these activities. Metering and survey studies show that lights are switched on for an average of 2–3 h per day in houses, and that most of this use occurs in the evening . Therefore, if DST reduces this use by 1 h for approximately half the year, total annual electricity use would be reduced by approximately 0.7%.We have to explore aspects of residential design that may contribute to a delay in switching on lighting in the evening. Similarly in cities the street lights are ON for whole nights whereas it's actual requirement is for the time period up to 1:00 am and after 4: 00 pm for most of the cities in the country, so we may reduce those lighting in those period up to the 25 percent and increasing for 50 percent for timing 11:30 PM to 1 am and 4 am to 5 am, and for the rest of the period all street lights can be ON.

7.4 Use CFL and LED

The largest lighting manufacturer in the world reckons that if everyone switched to energy-efficient lighting, we would save $152 billion in electricity costs a year, 555 million tonnes of carbon emissions and 1.5 billion barrels of oil.

Wherever practical, regular light bulbs should be replaced by Compact fluorescent light (CFL) bulbs and Light Emitting Diode (LED) as they are more energy efficient and less expensive.Until recently, LED lighting has been impractical for most other everyday applications because it is built around costly semiconductor technology. But the price of semiconductor materials has dropped in recent years, opening the door for some exciting changes in energy-efficient, green-friendly lighting options. According to HowStuffWorks.com, LED bulbs are lit solely by the movement of electrons. Unlike incandescents, they have no filament that will burn out; and unlike CFLs, they contain no mercury or other toxic substances. Proponents say LEDs can last some 60 times longer than incandescents and 10 times longer than CFLs.

But as with early CFLs, LED bulbs are not known for their brightness. According to a January 2008 article in Science Daily, "Because of their structure and material, much of the light in standard LEDs becomes trapped, reducing the brightness of the light and making them unsuitable as the main lighting source in the home." LED makers get around this problem in some applications by clustering many small LED bulbs together in a single casing to concentrate the light emitted.

7.5 Drive less , Drive smart

Less driving means fewer emissions. Besides saving gasoline, walking and biking are great forms of exercise. When we do drive, we have to make sure our car is running efficiently. For example, keeping our tires properly inflated can improve our gas mileage by more than 3 percent. Every gallon of gas we save not only helps our budget; it also keeps 20 pounds of carbon dioxide out of the atmosphere. Explore our community mass transit system, and checking out options for carpooling to work or school carpooling really makes environmental sense. Four people sharing a car would collectively be responsible for emitting only 104 kilograms of CO_2, while the same four people taking up four seats on a plane would generate some 736 kilograms of carbon dioxide.

Train systems are the most efficient in many ways, typically emitting less carbon and using less fuel per passenger than buses, but they are often more expensive to implement. Another promising alternative is bus rapid transit (BRT), which runs extra-long buses in dedicated lanes . Increase in the use of public transport and reducing the use of individual transport vehicles in order to reduce the oil consumption and to save the export bill of the

country have somer added advantages of safety, energy independence, health and cost savings.

7.6 Buy Energy-Efficient Products

“The green products are around five per cent costlier than the normal products but the long-term benefits are huge for the consumer’s pocket and for the environment,” Home appliances now come in a range of energy-efficient models. Say when it's time to buy a new car, choose one that offers good gas mileage. If we reduce our household garbage by 10 percent, we can save 1,200 pounds of carbon dioxide annually.

7.7 Use Less Hot Water

Set our water heater at 120 degrees to save energy, and wrap it in an insulating blanket if it is more than 5 years old. Buy low-flow showerheads to save hot water and about 350 pounds of carbon dioxide yearly. Wash our clothes in warm or cold water to reduce our use of hot water and the energy required to produce it. That change alone can save at least 500 pounds of carbon dioxide annually in most households. Use the energy-saving settings on our dishwasher and let the dishes air-dry.

7.8 Use the "Off" Switch

Use energy-saving lightbulbs - they use 80 per cent less electricity and last 12 times longer than ordinary bulbs. Save electricity and reduce global warming by turning off the lights, television , video player, stereo and computer when we're not using them. It's also a good idea to turn off the water when we're not using it. While brushing our teeth, shampooing the dog or washing our car, turn off the water until we actually need it for rinsing. We'll reduce our water bill and help to conserve a vital resource. Standby can use between 30 and 70 per cent of the energy used when an appliance is on.

7.9 Slay Energy Vampires

According to the U.S. Environmental Protection Agency (EPA) electronic products such as power adapters and cell-phone chargers are energy vampires as they continue to suck up electricity even when they are not being used. They are easy to spot and easy to slay, and “every energy vampire we vanquish saves us money, helps reduce greenhouse gas emissions, and helps in the fight against climate change.”

The EPA recommends three simple steps to help us to protect our home and office from energy vampires: 1. Unplug power adapters or battery chargers when equipment is fully charged or disconnected from the charger. 2. Use a power strip that can be switched off when electronics and appliances are not in use. 3. Look for the Energy Star label when purchasing products powered by electricity.

7.10 Encourage tree plantation

Trees are an integral part of the natural atmospheric exchange cycle here on Earth, but there are too few of them to fully counter the increases in carbon dioxide caused by automobile traffic, manufacturing and other human activities. A single tree will absorb approximately one ton of carbon dioxide during its lifetime.

7.11 Encouraging GREEN LIVING

The broad definition of green living is any action or activity that results in a positive impact, to any degree, on the environment so that the planet can continue to support future generations. The goal and purpose of green living is preserving and improving the health of planet Earth for all who live here! Adopting a green living philosophy simply means making choices and decisions that have the most positive effect possible for all of these environments.

7.11.1 Roofs Design

White Roofs:

While painting the house we should make use of brushes or rollers instead of spray paints. Painting the roof white can bounce off solar energy and prevent it from being absorbed into the roof and house in the summer. They reduce the amount of energy needed to cool the living space and bring the cost of cooling a home down by as much as 20 percent

Fig .1

7.11.2 Zero Energy Home

Build a house with a Passive Solar Design meaning opt for a house that is solar friendly. We can have a huge amount of savings by having a house that is well-lit by the sunlight

and naturally ventilated. By allowing sunlight to enter into our home,we lessen the need to use electricity to light up our rooms during the day. It is easily possible to maximize the use of solar energy at domestic level by maximizing the use of solar cooker, solar lanterns, solar pump, solar heater, as well as solar lighting requires to

Fig.2

change the life style like the cooking habits and are required to learn hoe to use those gadgets. Similarly in industry for lighting and primary heating solar energy can be used.

7.11.3 Green Roofs

A green roof offers a building and its surrounding environment many benefits. These include stormwater management ,improved water run-off quality, improved urban air quality, extension of roof life and a reduction of the urban heat island effect .Other benefits also include enhanced architectural interest and biodiversity .There are two main classifications of green roofs; extensive and intensive. Extensive green roofs have a thin substrate layer with low level planting, typically sedum or lawn, and can be very lightweight in structure. Intensive green roofs have a deeper substrate layer to allow deeper rooting plants such as shrubs and trees to survive. Germany has the largest uptake of green roof technology, where the industry was reported to be worth $77 million in 2008.

Fig.3 Original flat roofs at Ethelred Estate and green sedum roofs after refurbishment.

Landscape architects have developed so-called “green roofs,” which use living plant matter and soil on top of a building to absorb, collect and reuse rainwater while preventing runoff.

Many buildings employing green roofs are able to find abundant uses for the water they collect, from watering exterior plants at ground level to flushing toilets inside.It maintains ecological integrity within otherwise paved over areas and it can turn these wasted spaces into a force for cleaner air, cleaner water, energy savings, cooling, beauty and recreation.

The U.S. EPA encourages the creation of green roofs for mitigating the urban "heat island effect," whereby temperatures in crowded cities can soar some 10 degrees Fahrenheit higher than in less developed areas nearby. Other benefits, include: providing amenity space for tenants; reducing building heating and cooling costs due to the buffering effect of the plant matter and soil; filtering pollutants like carbon dioxide out of the air and heavy metals out of rainwater; and increasing bird habitat in otherwise built-up areas. Beyond going all out to build a "living" green roof, certain inorganic materials can also make an existing roof greener. The non-profit Cool Roof Rating Council (CRRC), for instance, suggests roofing surfaces that reflect the sun's heat to reduce the urban heat island effect while improving residential energy efficiency. According to the group, "a cool roof reflects and emits the sun's heat back to the sky."

7.12 Eat more Vegetables

Eating less meat and more fruits and vegetables can help the environment more than we may realize.Eating meat, eggs and dairy products contributes heavily to global warming because raising animals for food produces many more green house gas emissions than growing plants. Raising animals for food also uses enormous amount of land , water, grain and fuel.

7.13 Pay bills online

Many banks, or other businesses now offer their customers the option of paying the bills online, thereby eliminating the need to write and mail paper or to keep paper records. Signing up for online bill payment is easy and also doesn't take much of the time. By doing this we can save time , money , lower the administrative costs of the companies with which we do business and reduce global warming by helping in prevention of deforestation.

7.14 Design Eco friendly communities

Community must be designed in a mixed use of commercial and residential development in pedestrian friendly and green space rich neighborhoods. Basically besides home , it may

contain school ,town hall, open air market, games club , amphitheatre , post office , everything anyone could ever need in a community and all within a walk. Walkable neighborhoods lower carbon footprints .

7.15 Don't use bottled water

Producing, packaging and transporting a liter of bottled water requires between 1,100 and 2,000 times more energy on average than treating and delivering the same amount of tap water,and bottling water produced more than 2.5 million tons of carbon dioxide and it took 3 liters of water to produce 1 liter of bottled water according to a peer-reviewed energy analysis conducted by the Pacific Institute, a nonprofit research organization based in Oakland, California. Energy is used during each stage of bottled water production, in making the plastic bottle, processing the water, labeling, filling and sealing the bottles, transporting bottles for sale, and cooling the bottled water before it ends up in the market.

7.16 Encourage Others to Conserve

Share information about recycling and energy conservation with our friends, neighbors and co-workers, and take opportunities to encourage public officials to establish programs and policies that are good for the environment. And less energy use means less dependence on the fossil fuels that create greenhouse gases and contribute to global warming.

8. Conclusion

It is concluded that in ever increasing demand of the country and consistant gap between energy supply and demand we required to identify the measures other then energy supply, like improving energy efficiency or reducing the energy demand by changing the consumption pattern by change in life style. Improvement in energy efficiency is a costly business as it requires large investment in transfer and change of technology, where as if we can change our life style in order to reduce the energy consumption it may conserve energy on sustainable basis. Simplifying our life is one of the most beneficial things we can do for the environment and our carbon footprint. On a day to day level, it's about reducing our consumption of the world's resources. But change in life style is not a easy task it requires to over come the barriers of ignorance, social belief, inadequate infrastructural support and absence of motivation for modified life style.

In addition to market forces and the government, the corporate sector, multinationals, civil society, non-government organisations, local community-based institutions, religious institutions, educational institutions, households and individuals can all play a measurable positive role to scale up the action to meet climate challenge. The evidence cited above clearly demonstrates that making changes to our lifestyles can be a far more effective tool in preventing climate change. Instead of paying to rectify the damage once it's done, we should take steps to reduce our own carbon emissions by taking personal responsibility for the environment, simplifying our lives, and addressing the consequences of our actions as consumers.

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