

## **From Colombo to Copenhagen - A Road Map**

### **Part 3: The Solution: Low carbon economy**

**by Asoka Abeygunawardana**

Climate change is rapidly leading the planet towards a catastrophe. Despite the terrible danger it poses to mankind, no one has come forward to present a sustainable solution fearing that he or she will be branded as an 'anti-development' individual who proposes a revisit back to the Stone Age. The fact that all of us should recognize but constantly choose to ignore is that the world will reach a new era after the aforementioned catastrophe that will be similar to an era that appeared on earth long **before** the Stone Age. Convinced as I am, on the facts and figures published by scientists on the climate catastrophe I have no hesitation in expressing my views on a possible long-term solution. Any and all stones thrown in my general direction as a result will merely reflect the astonishing ignorance of people living around us.

The solution is a low carbon economy. This is not a new concept. This solution has been discussed at length among the insightful and the far-thinking since the first oil shock occurred in the early 1970's. During that period they were considered as fanatics. I am glad to be a son of one of the fanatics of that era. Unfortunately, even at present, people seems to be ignorant on the issue of climate catastrophe.

A low carbon economy is an economy that does not burn fossil fuels where development frameworks involve using less energy while generating energy from low-carbon sources (renewable energy), protecting carbon stores (forests), encouraging the development of low-carbon technologies and discouraging high-carbon investments. This includes both the measures required to control greenhouse gas emissions (e.g. low-carbon energy sources), and the mechanisms through which these measures are implemented (e.g. policy incentives).

For centuries, human beings lived in a low carbon economy. Even at present the majority of the world's people emit less carbon into the atmosphere. Both high carbon emitting communities and low carbon emitting communities wholeheartedly agree to a one fact: the ultimate goal of everyone should be to reach the lifestyles of high carbon emitting societies. This is the sad part of the story: the solution is in front of us, yet, due to an insane level of mental inertia and dullness, we are not willing to accept it. Let me discuss low carbon solutions for three major carbon emitting sectors in Sri Lanka; transport (60%), Electricity (30%), and industry & agriculture.

#### **Transport**

Although traffic congestion has long been identified as a problem, it continues to worsen in almost all urban areas. Since 1997 the speed of vehicles during rush hours has reduced from 32 km per hour to 8 km per hour for a 13 km distance from Colombo along Kandy, Galle, Ratnepura, Negambo, Kaduwela and Horana roads. Car ownership in many Asia's cities is doubling every 3 to 7 years. Annual new registration of vehicles is over 300,000 in Sri Lanka. 50% of such registrations are motorcycles and only 1% constitutes public passenger transport. The ownership and use of private cars has vastly outstripped expectations. Traffic congestion has tremendously increased burning of fossil oil and people are exposed to high levels of local air pollution resulting in them experiencing a range of associated health problems.

The Asian Development Bank (ADB) which was providing finances to build the fossil fuel based infrastructure in Sri Lanka over a long period of time has now come up with a new theory called

'sustainable urban transport (SUT)' in its report named 'A new paradigm for Sustainable Urban Transport'. The SUT paradigm proposes to manage the demand for travel instead of supplying more and more infrastructure for the seemingly unstoppable growth in private vehicles. This SUT paradigm also calls for a fundamental shift in transport policy and advocates the "avoid-shift-improve" approach.

The ADB says it is necessary to promote energy-efficient modes of transport, particularly public transport and non-motorized transport such as bicycles and walking, and seek to strengthen vehicle and fuel technologies, exploring alternate fuel sources, and reducing local and global emissions.

How can we reduce the need for travel? This is nothing new. Historically, many cities have measured up well to this ideal with a range of services and amenities located in each neighborhood. In more recent times, however, indiscriminate land use has forced residents to make greater use of motorized transport. The remedy is sensible land use planning that reduces residents' need to travel. The key transport issues are witnessed during the rush hours. If we can avoid rush hours we do not need to widen our roads further at a huge cost which ultimately increases the debt burden of the country. The ADB argues that planners should integrate land use development with mobility needs to minimize the need for travel.

The rush hours are school hours and office hours. Since independence, Sri Lanka had a comparative strong school network of over 10,000 schools scattered throughout the island. Unfortunately, instead of expanding further, the quality of the schools network deteriorated at a rapid rate during the last 3 decades with some schools getting closed, basic facilities deteriorating in others due to lack of proper maintenance, the capacities of school teachers declining etc. As a result, the increasing disparity between schools forced parents to admit their children to better schools far from their homes. The outcome is that children commute past a number of schools before they reach their school leading to traffic congestion on a daily basis. A simple solution for a low carbon pathway is to avoid school rush hours by eliminating this disparity amongst schools. The office rush hours has a similar solution. How many suitable workplaces do people go by while travelling to their offices? On the other hand it is necessary for the employers to provide quarters to those special employees needed to fulfill certain tasks. Land use planning is part of the solution which can reduce the need for travel. If it is properly planned the modern communication systems can be helpful in reducing the need of mobility. It is however necessary to conduct a comprehensive energy audit for the full lifecycle before taking appropriate measures.

Goods transport has increased rapidly during the last 30 years mainly due to import export oriented development: what we produce is consumed by unknown consumers living far away and what we consume is produced at some unknown place far away. This production - consumption pattern needs to be changed drastically if we are to find paths for a low carbon economy. Self sufficiency of basic needs in the smallest possible locality is of utmost importance to reduce transport related high carbon lifestyles. This is the opposite of what happens at present where the policy makers are desperate to find international markets for local products.

Changing from private vehicles to public transport systems is essential for low carbon economies as it will significantly reduce capita carbon emissions. The ADB report has suggested that both the "stick" of traffic restraint and the "carrot" of attractive public transport are necessary to ensure this shift. The "stick" will constitute implementing parking policies, congestion charging, car pooling and other measures. Further, it is important to levy fuel surcharges along with vehicle license duties that reflect the vehicle's impact on air pollution and other externalities. The net revenues from these measures

should be invested in improving the public transport system to secure acceptance for unpopular but necessary policies.

As “carrots” it is possible to introduce the early integration of bus priority ways, bus-ways, and bus rapid transits into cities’ expansion and development plans. The bus-ways should be physically segregated in the roadway while prepaid fares will ensure fast boarding. Road-level platforms for alighting are also important. Rail transport should be the main mode of goods transportation, clearing containers and lorries from the highways since these have now become a major burden for the road network.

The roads are currently managed to maximize motorized traffic capacity which is detrimental to the non-motorized road users. An integral part of influencing mode choice is road management and it is necessary to manage existing roads with a prioritization of demands of pedestrians, cyclists, buses, and private vehicles in that order. Road networks should therefore be developed to facilitate the movement of people and goods - not private cars. These measures influence mode choice and alleviate congestion and pollution.

In the long run it is necessary to shift from fossil fuel based vehicles to renewable energy based vehicles. Unlike fossil fuel, renewable energy is scattered and difficult to gather and supply to motor traffic. Using electric vehicles is a better option for transportation: it is necessary to ensure that electricity is produced by renewable energy technologies and not by fossil fuels. Bio fuels are also widely discussed as an option for transportation. There is a growing concern, however, against bio-fuels as there is a possibility of using agricultural land and food products for producing bio-fuels. It is necessary to strictly ensure that the food requirement of the masses is adequately satisfied before producing bio fuels.

Transport planners are generally unaware of the climate catastrophe and they are largely ignoring future trends. Their current goal is to provide mobility and to increase the road, port and airport capacity to meet forecasted demand. The low carbon transport pathway is diametrically opposed to this as it provides accessibility and managing demand over increasing capacity. Public transport should be central and should be people centered as opposed to traffic centered. Low carbon transport plans should be based on sustainable policies and strategic planning with **all** stakeholders. At present the transport plans are devised by technical experts using transport models with little stakeholder influence. For low carbon solutions, strong stakeholder involvement and influence is needed. Technical inputs should fit the purpose and strong consensus among the key stakeholders is a core requirement.