Firewood: Forgotten Fuel of the Masses - Future Depends on Energy Policy of the Country - Case for Firewood in Sri Lanka

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Neglect of Decentralized Energy Sector in Sri Lanka: The Importance and Contribution of Biomass Energy in Rural Development and Subsistence.

Biomass energy is the major energy resource, which sustains the rural economy and impacts the quality of life of the rural and urban poor of Sri Lanka. In the year 2017, nearly 12000 kt of biomass have been utilized and records show that almost similar amounts having been utilized in the other years although the amounts as percentages have dropped. In the 1980s the Ministry of Power and Energy recognized its importance and paid much attention to the development of this sector that resulted in efficient use of fuel wood and conversion of oil-fired furnaces and boilers to fuel wood. However, it is unfortunate that the Ministry of Power and Energy in the recent past had not paid adequate attention to biomass energy issues despite the fact that still biomass plays an important role in meeting thermal energy needs of the commercial, industrial sectors and cooking needs of a vast majority of households. Biomass is the most common source of energy supply in the country, of which the largest use is in the domestic sector for cooking purposes. In the Industrial sector 76.1% of demand is met by biomass while in the commercial and domestic sectors it accounts for 67.4%. (Sri Lanka Sustainable Energy Authority Energy Balance table 2017).

It is estimated that approximately 40 Billion kg of biomass can be generated by converting marginal land to fuel wood plantations and improving productivity of other crop land and home gardens (Energy Conservation Fund, 2005). **Various figures are given as the % of forest cover in Sri Lanka. It is accounted as 32.9 % in 2016, according to the World Bank collection of development indicators, compiled from officially recognized sources.** (Trading economics.com). **UN-REDD gives a figure of 29.7% and an estimate of 16.5% is given by Center for Environment & Nature Studies in 2019. The tree cover of Sri Lanka is estimated to be 52% of total land area in 2018.** (https://rainforests.mongabay.com/deforestation/archive/Sri_Lanka.htm)

But there is no evidence to say that use of firewood by the poor has contributed to deforestation in Sri Lanka.

Cooking with firewood, Anagi stove (middle photo), kiln using firewood in rural industry. Photos by IDEA, Sri Lanka.

Given its importance, it is surprising how energy empowerment of the nation can be achieved, and Energy Policy/Energy Plans/Energy Strategies can be formulated without giving due consideration to Firewood use in Sri Lanka. Biomass which is still the major source of energy of 70% of the population. It must be noted that despite the 40 year long open economy in Sri Lanka, the LPG which is a relatively cleaner and a much more convenient source of energy, its users are only about 29%. This clearly indicates that firewood would still remain as the major source of energy and it will remain so, in the foreseeable future, despite the ambitious marketing tactics launched by the commercial fuel industry.

Research Triangle International - USA
Source: Sri Lanka Pilot Study to Examine Respiratory Health Effects and Personal PM2.5 Exposures from Cooking Indoors. Philips J et al (cbi.nlm.nih.gov/pmc/articles/PMC4997477/)

Children in homes with Traditional stoves were significantly more likely to report respiratory problems than those with Anagi stoves (efficient, improved cookstoves); however, the location of the cooking area was particularly important. Our results suggest that having a chimney may lower PM concentrations and reduce respiratory health conditions in Sri Lankan cooks. Our findings also suggest that use of an Anagi stove and a partitioned cooking area could reduce the prevalence of respiratory problems in children from HAP.

The Issues Need to be Addressed.

Since the transition from traditional to modern is likely to take substantial time, it is imperative that priority interest should be to first, improve the current use of traditional biomass and secondly to transform biomass into high-quality low-emission modern fuel. But where are the strategies and initiatives? Since the users - "*victims"* are the most under-privileged in the society, this lack of concern can be construed as a grave social injustice.

On the other hand, firewood has kept the poor out of hunger facilitating provision of nutrition needs for survival required by the poor thus providing a high level of self reliance providing energy and food security. In this context, the global concerns seem to be in conflict when WHO in the past said that improved wood stoves are the cheapest solution for indoor air pollution, now calls the firewood using kitchen a ***killer*** promoting modern fuels, which has been exploited by the commercial energy sector worldwide.

However, the slogan of the FAO is ***"Sustainable wood fuel for food security a smart choice: green, renewable and affordable"*** (http://www.fao.org/3/a-i7917e.pdf) and the Executive Director of World Food Programme (WFP), Josette Sheeran states that, ***"Safe, fuel-efficient stoves enable women to be the frontline champions in the battle against climate change and hunger and empower communities with immediate, practical, adaptation solutions."*** (Characteristics of firewood. https://documents.wfp.org/)

It is not the fuel that is important, but the services given by fuel as heat, light, electric energy, mobility etc which powers both subsistence and development sectors. Electricity, fossil fuel, and firewood are the major fuels, which provide these services. The characteristics of these are very different, which calls for different strategies, outlook and participation. Among many differences, major ones are, firewood is indigenous, renewable, decentralized and non-commercial mostly used by the rural poor. It is also observed that firewood is a byproduct of multi-sectoral rural development related decentralized activities such as forestry, agriculture, home gardening, plantation agriculture, etc., which the consumers themselves manage on their own without any burden on the government. However it must be observed that, though firewood is collected by women free of

any financial cost, there is an opportunity cost which is a harassment and burden imposed on the poor in terms of time and health. Commercial fuels cannot be of any help because of the poverty. This calls for efficient use of firewood, improved ventilation in kitchens and behavioral change, as well as provision of affordable and often simple technology solutions to meet the rural energy demand which is the only remedy to protect themselves on the middle term.

Campaign Against Firewood

It is known that globally 4 million people die from Indoor Air Pollution (WHO) every year. This has led to some international organizations to campaign for replacing firewood with LPG in 10 countries including Sri Lanka. It is a pity that it is not realized, that how shortages of biomass could potentially lead to more deaths due to hunger and lack of nutrition. Moreover, zero hunger will not be realizable.

In the past, understanding this reality, giving prominence to the Integrated Energy Planning concept, the Ministry of Power and Energy and the Ceylon Electricity Board, initiated the National Firewood Conservation Programme, which promoted efficient cooking with firewood- "Anagi" improved cookstove" based on participatory strategies. A large number of donors, government, non-government, community organizations and the community itself made the programme and secured Presidential priority. It became a sustainable programme providing ½ ton of wood savings and ½ ton CO_2/capita savings annually, according to FAO/AI/university of Moratuwa. Nearly 3 million households use the "Anagi" stove. Stoves made available in rural commercial networks, are produced by poor potters with an output of 300,000/annum earning a local income of Rs 1 billion, saving of Rs 35 billion in foreign exchange expenditure (which could be potentially used to import LPG) and helping Sri Lankan women to achieve a life expectancy of 80.1 of years at birth (World Bank Data) despite nearly 4500 victims of respiratory diseases (WHO). A research survey carried out by RT International (USA) in Sri Lanka indicates that "Anagi" stove with a Chimney Hood reduces smoke by 70 % and has observed that children in houses have not recorded any respiratory illnesses in a sample of 52 households in Digana, near Kandy in central Sri Lanka. ***The Sri Lankan stove programme*** has been nominated for the World Clean energy Awards in 2007 by an elite and expert committee of international organizations, as one of the ***most sustainable woodstove programmes in the world.*** Ironically, ***adverse commercial propaganda*** nationally by companies that had the origin in the Ministry of Energy rallying against the stove programme have **resulted in *making cracks in the sustainable stove commercial structure***. This highlights the ***lack of the clarity in development policy*** within governments shadowed by its ambition for modern development strategies victimizing the rural poor.

According to the World Bank, 45% of people in Sri Lanka are poor, earning less than 3 dollars a day. Moreover, government data reveals that the income of 30% of the rich is equal to 70% of the income earned by the poor people. This inequality has continued for the last 40 years. Affordability and accessibility decide the choice of fuel which makes 70% of the poor to use firewood, which has given them life. This situation will continue for long time to come.

Nothing can exist without energy, which is required for sustenance of life and development, making energy as important as the primary needs of humanity. It is also said that firewood facilitated the nutrition necessary to make the ape develop to a civilized human being and guided the path leading to industrial development.

In the history of mankind with the discovery of fire, the energy required for the entire world was provided by biomass (firewood) for both subsistence and industry until the 18th century. With the industrial and agricultural

development and the need for more, energy created havoc in the society which made the theft of firewood the major crime (80% of total crimes) of the day causing heavy punishments afflicted on the poor. This created an uninhabitable environment which caused people to migrate to other countries seeking for energy, where the creation of "America" was as a consequence of this migration. This is explained by Karl Marx in his first book "theft of firewood" making him sensitive to empathize on poverty issues, influencing and providing guidance to his political career. He calls firewood the "Nature's alms" which everyone has a right to. It could not be avoided that many people tend to think that utilization of firewood causes deforestation and affect sustainability in Sri Lanka although there is no evidence to prove the claim (SEA). However, it is necessary to maintain the sustainability of the supply and use of firewood to avoid contributing towards climate change, health hazards and deforestation which calls for government intervention.

The Need of Firewood as a Fuel

Biomass (Firewood) is not a commercial fuel in Sri Lanka and unlike fossil fuels it will never be exhausted if sustainably used, which depends on a realistic energy policy. Zero Hunger can never be realized without Biomass (Firewood) and equality of distribution of income. Unfortunately, the government promotes the use of LP gas at the expense of firewood discouraging the use of firewood for reasons of health and climate change for which proven local technologies are available. The major energy demand in Sri Lanka is for firewood which is about 45% of the total energy consumed. This energy basically meets the major heat energy required by the cooking and rural industries in the rural areas which is really decentralized and noncommercial energy secured by the consumers themselves, unlike in the commercial and centralized energy sector for which the national government and commercial sectors are interested in and responsible for. The benefits provided by using firewood is unmeasurable. However, the central government has not been able to provide adequate focus on the decentralized sector, which is a complex network of activities covering several development activities at the rural level calling for participatory and integrated development approaches at the decentralized level. It is linked to Ministries of forest, agriculture, food, climate change, environment, health, energy, land, poverty alleviation, science, and technology etc., which require holistic strategies where the community must play a major role in planning of the supply and use of firewood unlike in the commercial energy sector.

Proposal and Conclusion

<u>There is an urgent need for a new mechanism</u> using existing institutional infrastructure, within the local governmental sectors, to facilitate supply of non-commercial energy (biomass) and to promote its efficient use for the needy population in Sri Lanka and its participation in the global efforts towards meeting the sustainable development goals.

At present, alternative renewable energy is under the responsibility of the Sustainable Energy Authority (SEA) within the Ministry of Power. However, their focus has been to address commercial energy issues, mostly due to priorities enforced by the commercial sector. Nevertheless, under the 13th amendment of the constitution decentralized energy is a devolved subject of the local government sector.

Depending on the informal and decentralized nature of the rural energy structure It is evident that the Ministry of Local Governments should be assisted to form a network of all relevant organizations to address biomass issues at the decentralized level and the Ministry of Power should support the formation of this network as envisaged. The best example of integrated Energy policy was the assistance provided by the Ceylon Electricity Board (CEB) in the use of efficient use of firewood for cooking rather than advertising firewood as a primitive

fuel. Please note that while firewood is necessary for the poor, fuels such as gas and electricity are also necessities for those who live in rural and urban areas. There is no competition necessary to promote each other at the expense of firewood or improved stoves which is unethical. There are several advertisements in the media that highlights firewood as a killer and discourage the use of firewood or improved wood stoves as primitive, backward and dangerous as compared to commercial fuels which also pollutes and contribute to climate change directly and causing environment impacts as well.

As the core of rural energy lies in the villages, strengthening the rural energy sector, calls for a holistic, integrated and community based, participatory village development planning and implementation approach. This would necessarily be a bottom-up planning approach which thoroughly understands the needs at grassroot level and instills appropriate solutions for the betterment of the community with the integration of relevant stakeholders both at government and non-governmental levels.

According to FAO "The "rural energy crisis" has been receiving increasing attention from development policy makers because it affects the very survival of the vast majority of the world's population, who live in the rural areas of the developing countries, and is also deeply inter-linked with the whole concept of sustainable development. The linkages between rural energy and sustainable development, however, need to be understood in the overall context of the energy situation in the developing countries. This also falls extremely well with the UN Sustainable Development Goal 7 of Agenda 2030 as an essential and a vital strategy of achieving the same.

The key message for policymakers is: Give wood energy a fair chance in the energy mix of your country in order to make the world a more sustainable and more environmentally friendly place.

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Read more on EVD and Anagi stove success story at INFORSE-Asia's web site: www.inforse.org/asia/EVD.htm, www.inforse.org/asia/P_successes_practices.htm; and at IDEA's web site www.ideasrilanka.org