INFORSE's Submission to the UNFCCC Submission Portal. Issue: The first global stocktake. Session: SB 56. 28 February 2022.
Direct link: https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202202281907---GST-INFORSE-Submission-2022-1.pdf
INFORSE at the UN: https://www.inforse.org/INFORSE-UN.php3
Direct link: https://www.inforse.org/doc/INFORSE-UNFCCC_Global_Stocktake_Submission_2022-2_GST.pdf

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SUBMISSION FOR THE FIRST INPUT PHASE OF THE GLOBAL STOCKTAKE FEBRUARY 2022 International Network for Sustainable Energy

International Network for Sustainable Energy (INFORSE) is a network of civil society organisations. Since 1992, INFORSE and its members have worked for sustainable energy to reduce climate and environmental impacts of energy and at the same time provide sustainable energy for poverty reduction and development. With our experiences from many parts of the world, we have in INFORSE identified key climate solutions and pathways that also take into account local energy needs to address poverty for the more than one billion people that are still trapped in it.

We see the UNFCCC Global Stocktake (GST) as an important process to identify and close the gaps in national climate plans to meet the goals of the Paris Agreement, including pursuing efforts to limit global warming to 1.5 °C. Together the current nationally determined Contributions (NDCs) to the Paris Agreement, fall short of meeting the Paris Agreements goals, the temperature goal as well as the finance goal. Thus, it is important that the GST is used as a vehicle to identify additional actions that can increase the ambitions and close these glaring gaps in meeting the Paris Agreement Goals.

Regarding the Paris Agreement temperature goal, many of the solutions that we have identified, are not adequately included in many of the NDCs, and we urge that for all countries, the GST review how these solutions contribute to reduce greenhouse gas (GHG) emissions. The missing solutions are generally local solutions that can contribute to reduce emissions from fossil fuels and from overuse of biomass. This includes:

- Improved cook stoves that can reduce emissions by a factor 2-3 or more compared with traditional three stone fireplaces, metal charcoal stoves, chulhas etc. in households, institutions, restaurants etc.
- Small household biogas plants that can replace traditional stoves and fossil fuels for cooking, and with management to minimise methane emissions are important climate solutions
- Super-efficient electric "e-cookers" that can cook with around one tenth of the energy needed for traditional fires. In countries with a mainly renewable power supply, the e-cookers can reduce cooking emissions drastically.
- Fireless cooking including hayboxes/retained heat cooking and solar cooking
- Energy efficient cooking-fuel production, including higher-efficient charcoal making
- Energy efficient installations for small enterprises, including kilns, stoves, baking-ovens, fish-smoking ovens etc.
- Local power production from renewable energy, including solar home systems, micro-hydro, and renewable mini grids

- Energy efficiency in electricity use with efficient light bulbs, other energy efficient home appliances etc.
- Energy efficiency in housing with building designs that minimise energy use for heating and cooling.
- Bicycles and small-scale electric mobility, including electric bicycles, electric scooters, electric three-wheelers etc. that replace fossil fuel driven transport with small impact on climate and environment

These solutions are all important as drivers to reduce emissions beyond what is possible with large-scale solutions. They also contribute to development and poverty reduction. While some of these solutions are included extensively in some NDCs, they are missing in others.

Therefore, we propose that in the GST, it is reported to which extent these local solutions are used in each country, how they are included in climate plans and NDCs, and which potential they have for further reductions of emissions in each country.

We have in a recent analysis shown how Kenya can turn to renewable energy in ways with large focus on the above-mentioned local solutions and with reductions of energy-related climate emissions to close to zero including ending the current overuse of biomass. This shows how important local solutions are in reaching climate targets while also helping to secure energy for development. See https://inforse.org/Africa and https://www.suswatchkenya.org/publications/

On the following pages, we have collected examples of some of the local solutions that we propose, for reference.

INFORSE is member of Climate Action Network (CAN) International, and we support the proposals of CAN, as expressed in CAN's submission to GST, including that in the GST it is important to consider equity, social and gender justice, intergenerational justice, the protection and promotion of human rights, just transition, and environmental integrity. We also support that as part of the actions, fossil fuels must be phased-out fast, while dangerous, harmful and questionable climate solutions should be avoided such as nuclear power, geoengineering, and unsustainable biomass use.

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NEXT: Appendix: Examples of Local Sustainable Energy Solutions for Reduction of Greenhouse Gas Emissions and Development

Local Sustainable Energy Solutions for Reduction of Greenhouse Gas Emissions and Development

This section includes some examples of local solutions for climate and development, in particular solutions that are useful in many developing countries

Improved Firewood Cookstoves

New high-efficient cookstoves for firewood have efficiencies more than three times higher than traditional fires, similar to gas and electric stoves. In many developing countries, they have the potential to reduce wood consumption to sustainable levels while removing smoke from kitchens. The stove on the picture is the SeTa-IIFC stove, an efficient firewood stove designed for institutions as well as for small and medium enterprises (SMEs) such as schools, colleges, prisons, hotels, restaurants, and any other mass- cooking places. The stove has a thermal efficiency of 54.8%, which means it has the ability to reduce fuel consumption by more than 70% compared to three-stone fireplaces. The reduction of fuel consumption also implies that the stove contributes to a reduction of the institution's cooking-energy budgets, allowing less time to be spent in cooking and contributing to environment conservation. The high-efficient stoves are developed by TaTEDO, the East African INFORSE Coordinator. Source: tatedo.or.tz and http://localsolutions.inforse.org/

Small Household Level Biogas Plants

Millions of household biogas plant converts animal dung and agro-waste into methane gas and good quality manure through anaerobic digestion process. The Methane gas produced by the biogas plants is used for cooking as a clean fuel in rural areas while the degassed manure is used for organic

farming. In this way, they replace wood and other cooking fuel with renewable biogas. The picture shows the Grameen Bandhu Biogas Plant that is a dome shaped plant, constructed underground, using bamboo frames as reinforcement and is plastered using cement mortar from inside and outside thus eliminating use of bricks or plastic. Different models can produce 2-3 m^3 biogas a day, replacing 8-12 kg fuelwood a day. In places where this fuelwood consumption is contributing to deforestation, this is important to limit climate change. The reduction of use of traditional fireplaces also reduces the emissions of black carbon, another driver of climate change

Bamboo is used in the construction of biogas plants since it has good tensile strength and has several environmental benefits, including lower greenhouse gas emissions in production than steel bars that is the normal material for reinforcement of concrete. In the construction is used a gas tight layer in the concrete dome to limit the methane emissions from the biogas, as methane is a strong greenhouse gas.

The Grameen Bandhu biogas plant is developed by INSEDA, the South Asian INFORSE Coordinator. Source: https://inseda.org/ and https://inforse.org/evd

Super-efficient electric “e-cookers”


Cooking with Efficient Electric Pressure Cookers (EPCs) can reduce electricity consumption for cooking to levels where many African families living in cities can afford it. In Tanzania, the electricity for cooking with the EPC is approximately 7 times cheaper than kerosene, 10 times cheaper than LPG, and 13times cheaper than charcoal for boiling heavy foods, based on 2020 market prices of the electricity. The electricity demand is less than half of a kWh for a typical family meal (heating, cooking of 6 ltr. pot). Families can typically cook with EPC and also use smaller appliances while still staying within the cheap lifeline tariff of Tanzania, allowing consumption up to 75 kWh/month with a cost of 100 Tzs/kWh (4.4 US cent/kWh). Source: https://tatedo.or.tz/en/, http://localsolutions.inforse.org/and regarding the lifeline power tariff https://tanesco.co.tz/

Fireless cooking: retained heat cooker

Retained Heat Cookers (RHC, also known as hayboxes) are non-electrical insulated bags or containers designed to reduce the amount of fuel required to cook food. Instead of being placed on a stove for the entire duration, food is heated to a boiling temperature and then transferred to the RHC. It uses the principle of thermal insulation to continue the cooking process without requiring any additional heat or fuel. Laboratory tests have shown that 40-70 % energy can be saved using an RHC, depending on the type of meal. This can be an important contribution to reduce fuel use for cooking, and related greenhouse emissions from overuse of biomass and from fossil fuels. The RHC on the picture is used in Bangladesh, where it also helps to reduce the problems of many households with the current gas shortage. Information from Grameen Shakti, Bangladesh. Source: https://inforse.org/evd

Energy efficient cooking fuel production : Improved Kiln for Charcoal Making

The traditional Earth Mound Kiln (EMK) is one of the oldest and most commonly used kilns in East Africa for charcoal production. EMK has average efficiency of 8-15%. Carbonization time is 8 days, during which the kiln requires continuous attention, and cooling time is 24-48 hour on average. The quality of charcoal produced is rather low. The Improved Basic Earth Mound Kiln (IBEK) has efficiency of more than 25%, carbonization takes only 4 days, cooling takes 24 hours, and the quality of charcoal produced is relatively high. This simple improvement doubles the efficiency of the charcoal production, potentially reducing the wood demand for charcoal to half. As charcoal making is one of the drivers of deforestation in many African countries, it is important to increase efficiency while at the same time reduce overuse of wood in other ways, such as Community Based Forest Management. This simple, yet effective, improvement just require one corrugated-iron sheet to

make the chimney, all the rest is clays and other local materials that are also used for traditional kilns. Each ton of charcoal produced and consumed in Tanzania using traditional methods generates nine tons of CO_2 emissions; IBEK cut the emissions by about half. The design also reduces the emissions of harmful volatile substances in the smoke by as much as 75 % compared with traditional kilns. Source https://tatedo.or.tz/en/ and http://localsolutions.inforse.org/

Energy efficient installations for small enterprises: Improved brick making

In conventional brick production, the brick mixture consists of mostly clay. In Sri Lanka, the quality and strength of the bricks are uncertain, when they are made with conventional brick making and firing practices. Issues such as cracking of bricks and wastage from the kiln, are common problems. With small and medium scale brick makers, brick production is carried out seasonally. As opposed to permanent kilns which are heat efficient, temporary kilns made according to traditional systems are inefficient and consume large quantities of firewood which are cut from forests. Given the inefficiency of the production procedures, the economic and environmental impacts are adversely felt by the producers as well as by the society, directly or indirectly. Traditional brickmaking also contributes to deforestation with overuse of wood and thereby to climate change.

The introduction of technologies of mixing paddy husk and sawdust to clay in brick making to reduce the use of clay, has been proven widely beneficial. The bricks produced by biomass-clay mixture and improved kiln practices have helped to improve the quality of the produced bricks while lowering the impacts on the environment. In addition, brick kilns improvements have substantially reduced the consumption of firewood, lowering cost of production while reducing tree felling for firewood which has led to significant reductions of CO_2 emissions.

In addition, utilization of bio-waste in brick making has significantly reduced indiscriminate dumping and/or burning of rice husk and saw dust which had caused pollution of waterways and atmosphere.

Source: IDEA and Publication: ”*Sri Lanka and Socio-Technical Manual for Training of Trainers on Eco-Village Development in South Asia”*, available i 5 languages at https://www.inforse.org/asia/Pub_EcoVillageDev_TOT_Manual_SouthAsia.htm