


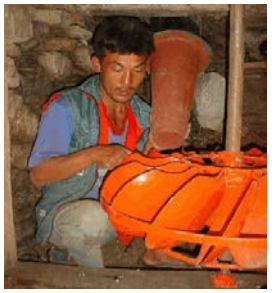

”Eco-Village Development” (EVD) in South Asia
by Anoop Poonia, CANSA

SB42 - UNFCCC Side Event
Rural Development with Low Carbon, Eco Village Solutions in South Asia: Nepal, Sri Lanka, Bangladesh, India
June 10, 2015, 18.30 - 20.00, Room: Bonn 1
World Conference Centre, Bonn, Germany

The Side Event was organised by
INFORSE – International Network for Sustainable Energy
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Position Brief and the NGO advocacy EVD project:
“*Evidence based advocacy for low-carbon, pro-poor sustainable "Eco-Village Development “ (EVD) in South Asia*“
www.inforse.org/asia/EVD.htm

Full Proceedings: www.inforse.org/europe/conf15_PreCOP21-Bonn.htm
More: www.inforse.org/asia www.cansouthasia.net

INFORSE-South ASIA
International Network for Sustainable Energy

"Eco-Village Development" (EVD) in South Asia

Objectives

- Strengthen development to reduce poverty with co-benefits of reducing greenhouse gas emissions in South Asia as contribution to climate cause, though the primary responsibility is of luxury emitters.
- Provide evidence to national and state (provincial) decision-makers, including climate negotiators, to include local sustainable solutions in their climate-proof development policies and in their proposals for international negotiations.

Background

- Development and poverty reduction high priority.
- Most resources go to traditional high-carbon, centralised development solutions (e.g. coal).
- Local low-carbon solutions can achieve successful and equitable development.
- Based on their success they could be promoted by officials nationally and regionally.
- This can change climate action from being seen as a burden to be seen as development driver.

Eco-Village Development Concept

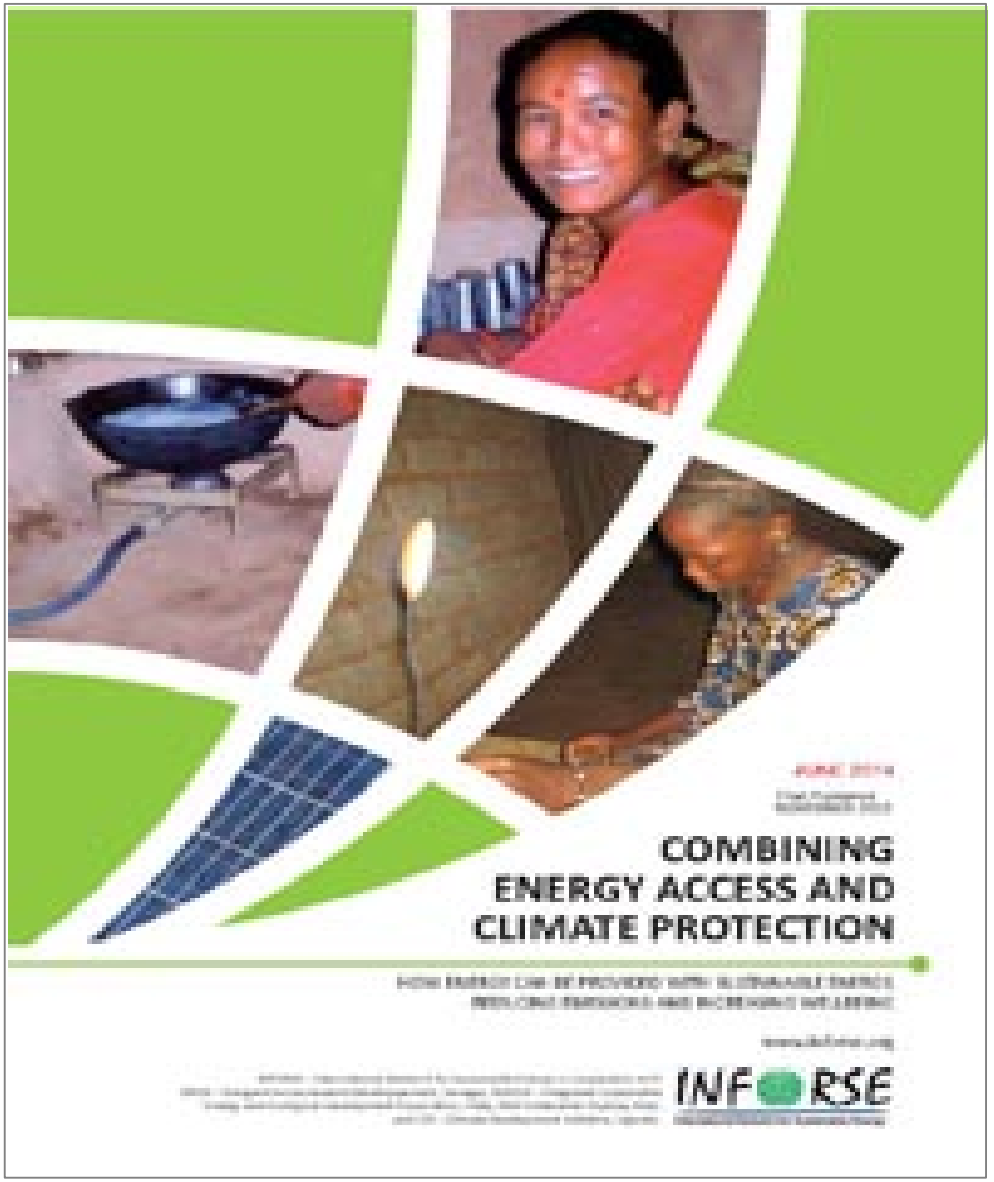
- Local, affordable, sustainable, low-carbon solutions.
- Combines a number of solutions for poverty reduction within sustainable energy, water management, agriculture, gardening and housing.
- The solutions have all proven successful individually in various geographies.

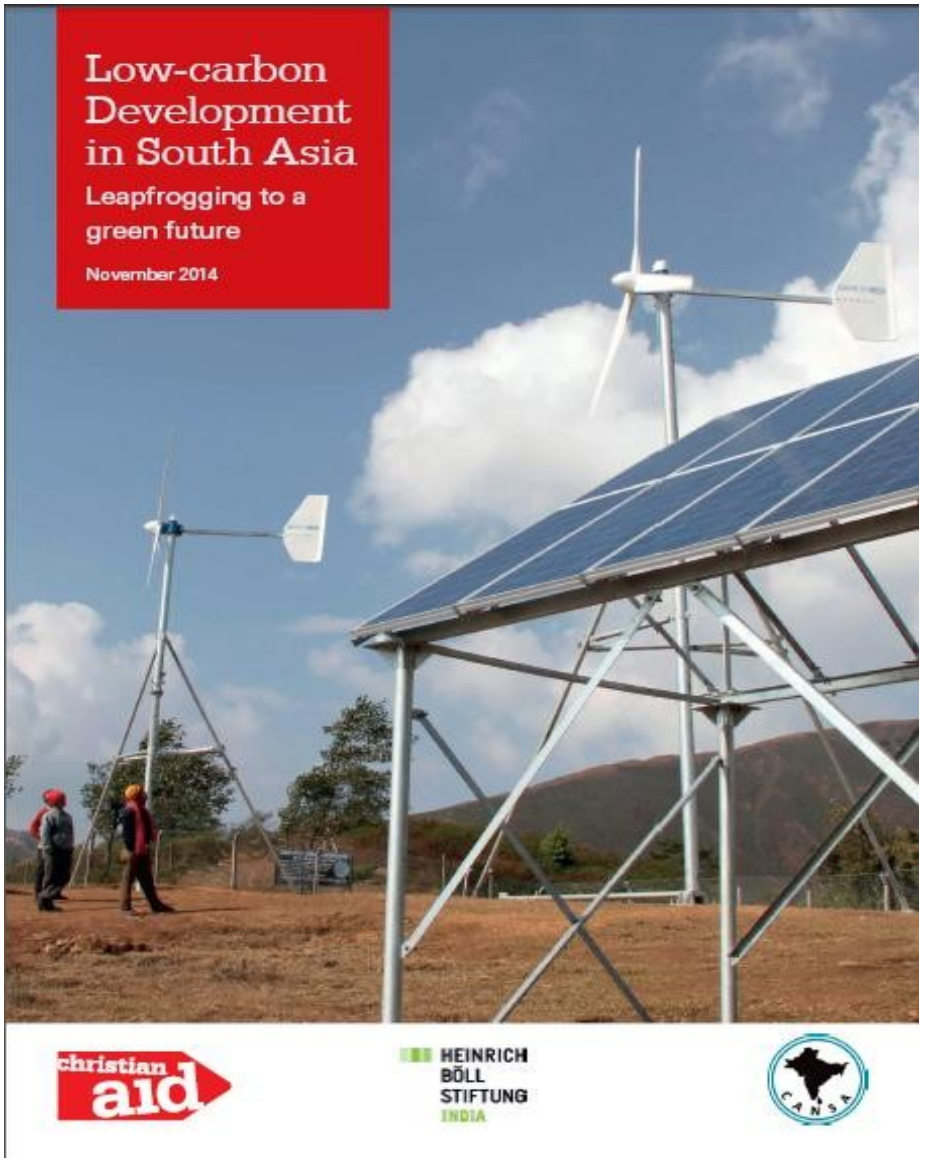
EVD is more than technologies

EVD concept is more than a collection of sustainable solutions:

- Planning right for solutions for each area and each village, to be chosen according to climate, livelihood, etc.
- Local ownership of development model, pace and scale.
- Building capacity of community to design, implement, and maintain the solutions including establishing finance mechanisms such as self-help groups and micro-finance for long-term sustainability.

Thank you


COMBINING
ENERGY ACCESS AND
CLIMATE PROTECTION
INFORSE


Low-carbon
Development
in South Asia
Leapfrogging to a
green future
November 2014
christian aid
HEINRICH
BÖLL
STIFTUNG
INDIA
CANSA






Eco-Village Development in Bangladesh including Successes of Grameen Shakti

by Anoop Poonia, CANSA

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GRAMEEN SHAKTI

Eco-Village Development

Bangladesh

Country Profile

- **Electricity Production**
  - Gas: 64%
  - Hydro: 2%
- **Grid connectivity**
  - Grid Connected people: 62%
  - People living in off-grid: 38%
- **Renewables**
  - No of installed Solar PV: 3.3 million Solar Home System (SHS)
  - No. of constructed Biogas plants: 40,000
  - No. of Improved Cooking Stoves (ICS): Around 1 million
  - No. of Mini-grid: 50 (Projection)
  - No. of Solar powered Irrigation Pump: 1550 (Projection)

Country Policies

- **National Sustainable Development Strategy (NSDS) 2010-2021**
  - Focus on sustained economic growth, development of priority sectors, social security and protection, environment and natural resources, disaster management. Integration with national planning for rural livelihood and electricity for all by 2021.
- **Bangladesh Climate Change Strategy and Action Plan**
  - Actions on food security, social protection and health; comprehensive disaster management; infrastructure; research and knowledge management; mitigation and low carbon development; capacity building and institutional strengthening.
- **PKSF (Palli Karma-Sahayak Foundation)**
  - Palli Karma-Sahayak Foundation (PKSF) was established in 1990 by the Government of Bangladesh as a 'not-for-profit' company. The principal objective of PKSF is to provide funds to various organizations for their microcredit programme with a view to help the poor who have no land or any credible material possession.

Successful Programmes

Solar Energy

Biogas

Improve cooking stove

Grameen Technology Center

Implementation

Installed Solar Home Systems	1.5 Million
Constructed Biogas Plants	Over 30,000
Installed ICS	Over 900,000
Vast Rural Network	>11000 Staff 1500 offices

GS EVD Focus

- Disseminate rural energy technology solutions
- Reinvest the profit for expansion and improvement
- Create green jobs & provide entrepreneurial skills
- Improve standard of living
- Reduce poverty
- Uphold women empowerment
- Create social awareness, environmental sustainability & stability

Support Ecosystem

- **National Rural Electrification Program (financed by IDCOL)**

  - 47 Partner Organizations.

- **National Biogas Program (financed by IDCOL)**

  - 37 Partner Organizations.

  - Bangladesh Biogas Foundation works on capacity building, knowledge sharing and research work.

- **National Improved Cook-stove Program (financed by IDCOL)**

  - 32 Partner Organizations.

- **Grameen Bank (sister org) has access to thousands of villages and credible convincing capacity to impact peoples' lives.**






Climate Change Mitigation Initiatives
by Kalyani Ray,
All India Women's Conference, AIWC, India

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CLIMATE CHANGE
MITIGATION INITIATIVES
by the AIWC

A presentation by **KALYANI RAJ**
MEMBER IN CHARGE, ALL INDIA WOMEN'S CONFERENCE (AIWC)

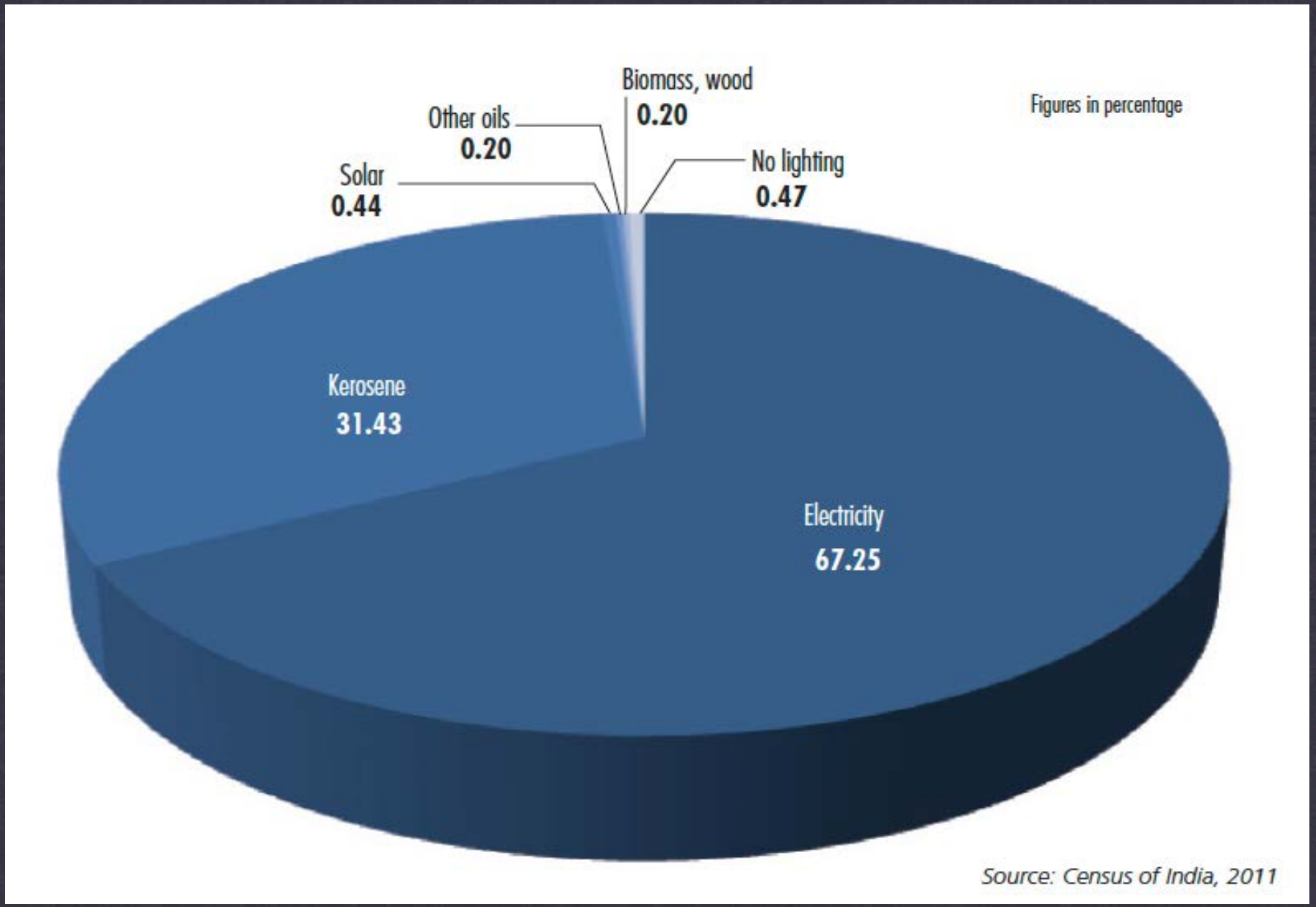
THE AIWC

AN INTRODUCTION

- Recognized as the oldest pioneer national level NGO working on women's issues.
- Has advocated the cause of SOCIO-ECONOMIC EMPOWERMENT of women since 1927.
- Has been propagating the use of RENEWABLE ENERGY TECHNIQUES for over three decades.
- Awarded for 'Best Practices in RET Propagation' by national and international agencies.
- Founding member of INFORSE and ENERGIA.

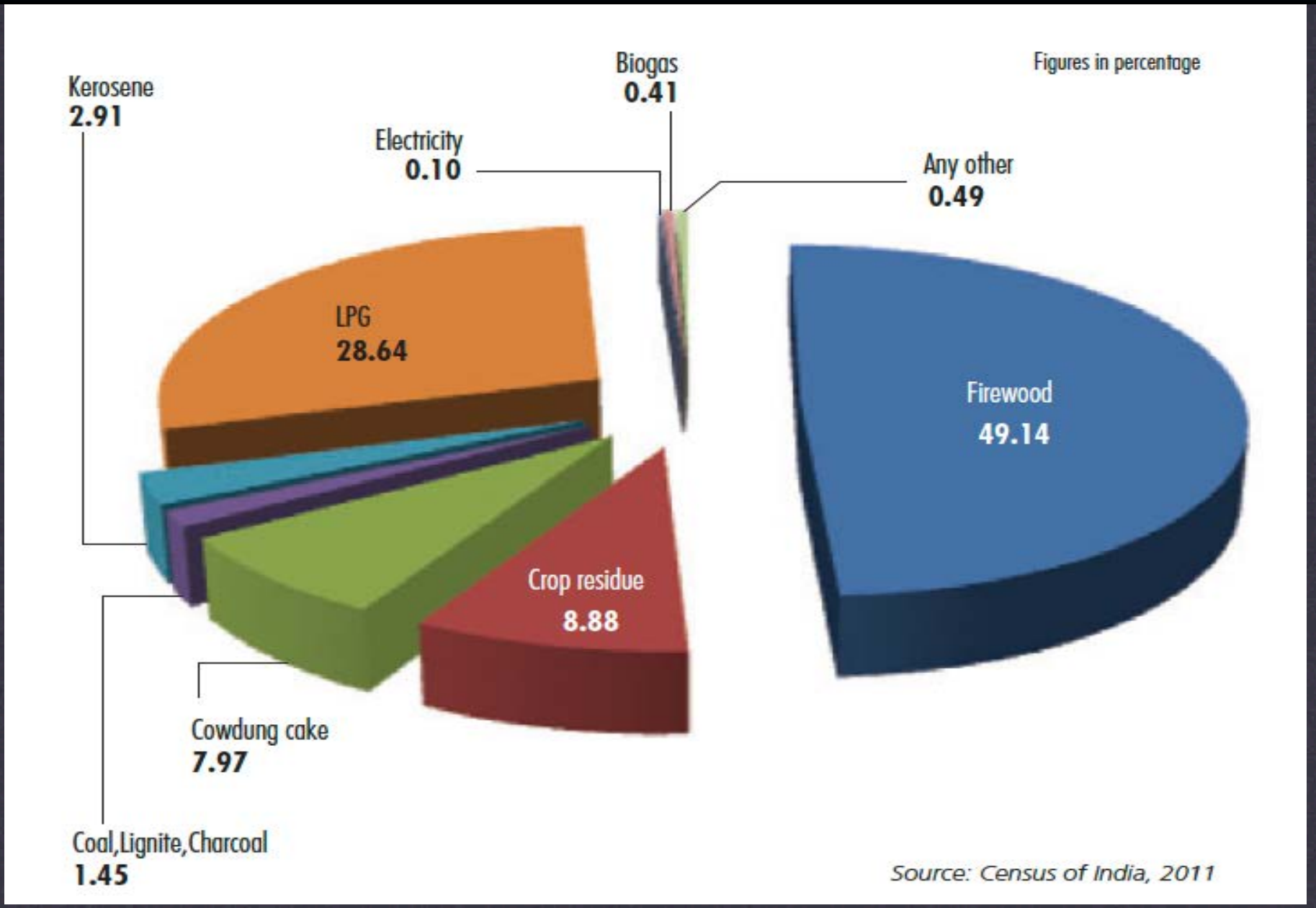
ENERGY POVERTY IN INDIA

Sources of Basic Lighting in India



ENERGY POVERTY IN INDIA

Sources of cooking fuel in Indian households

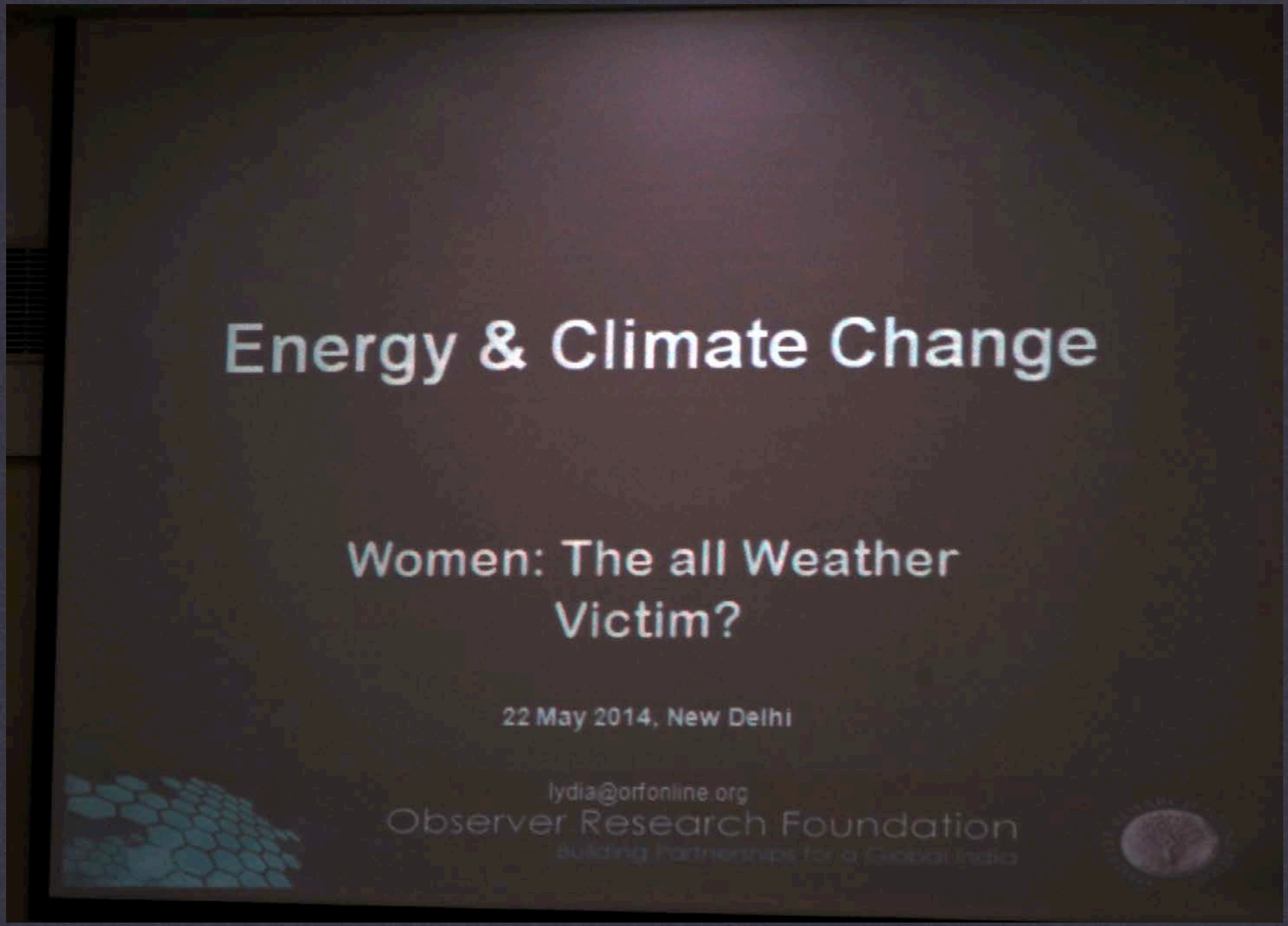


THE AIWC

OUR APPROACH TO CCM

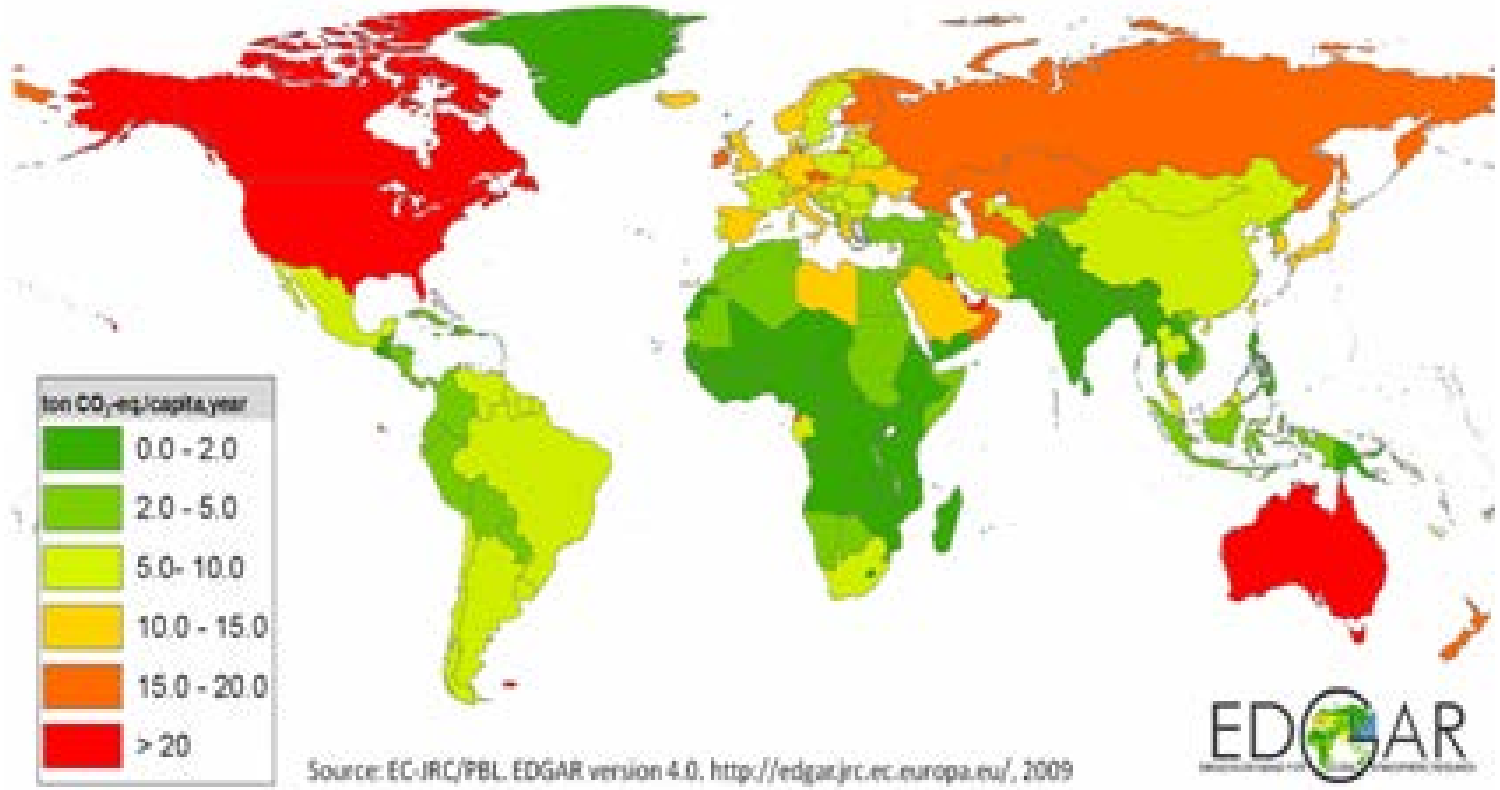
- ADVOCACY
- TRAININGS
- PRACTICE/CREATING MODEL
- PROVIDING INCOME GENERATION OPPORTUNITIES

ADVOCACY


Energy & Climate Change
Women: The all Weather Victim?
22 May 2014, New Delhi
lydia@orfonline.org
Observer Research Foundation

ADVOCACY

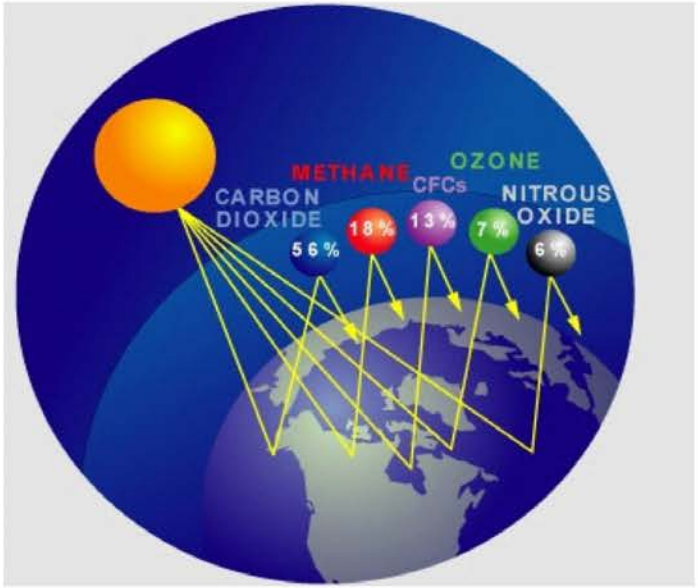
Per person CO2 emissions



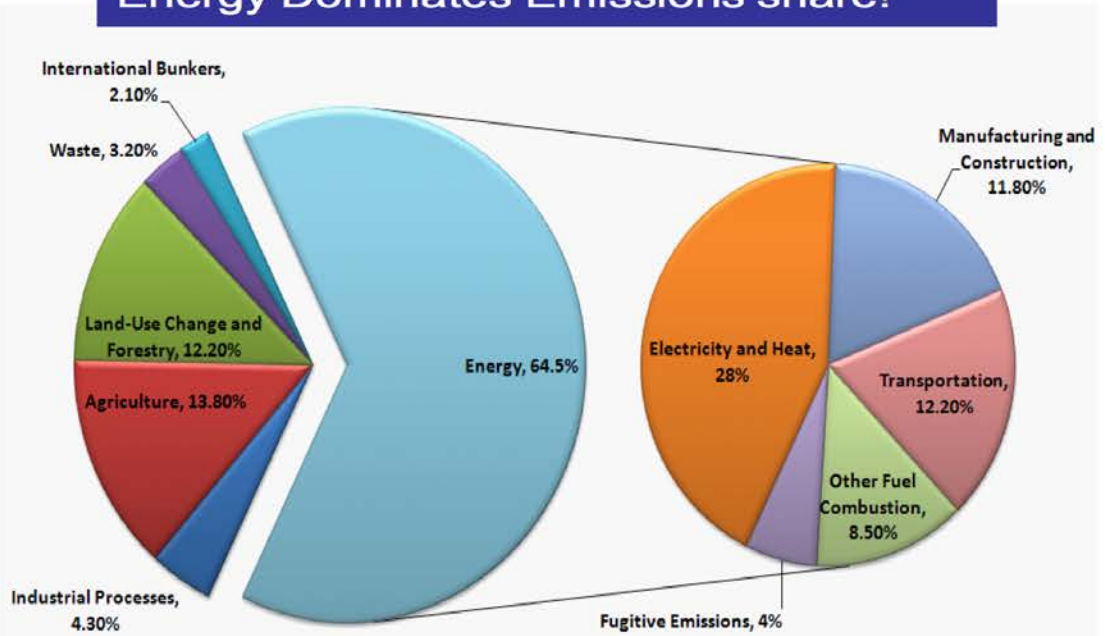
ADVOCACY

Energy generation emits most GHGs

CO2 dominates GHG pie



Energy Dominates Emissions share!



ADVOCACY

ADVOCACY

ADVOCACY

SOLAR FAIR

trainings

SOLAR DRYER

trainings

trainings

MODEL CREATION

MODEL CREATION

MODEL CREATION

VERMICOMPOST

MODEL CREATION

INCOME GENERATION

INCOME GENERATING OPPORTUNITIES

INCOME GENERATION

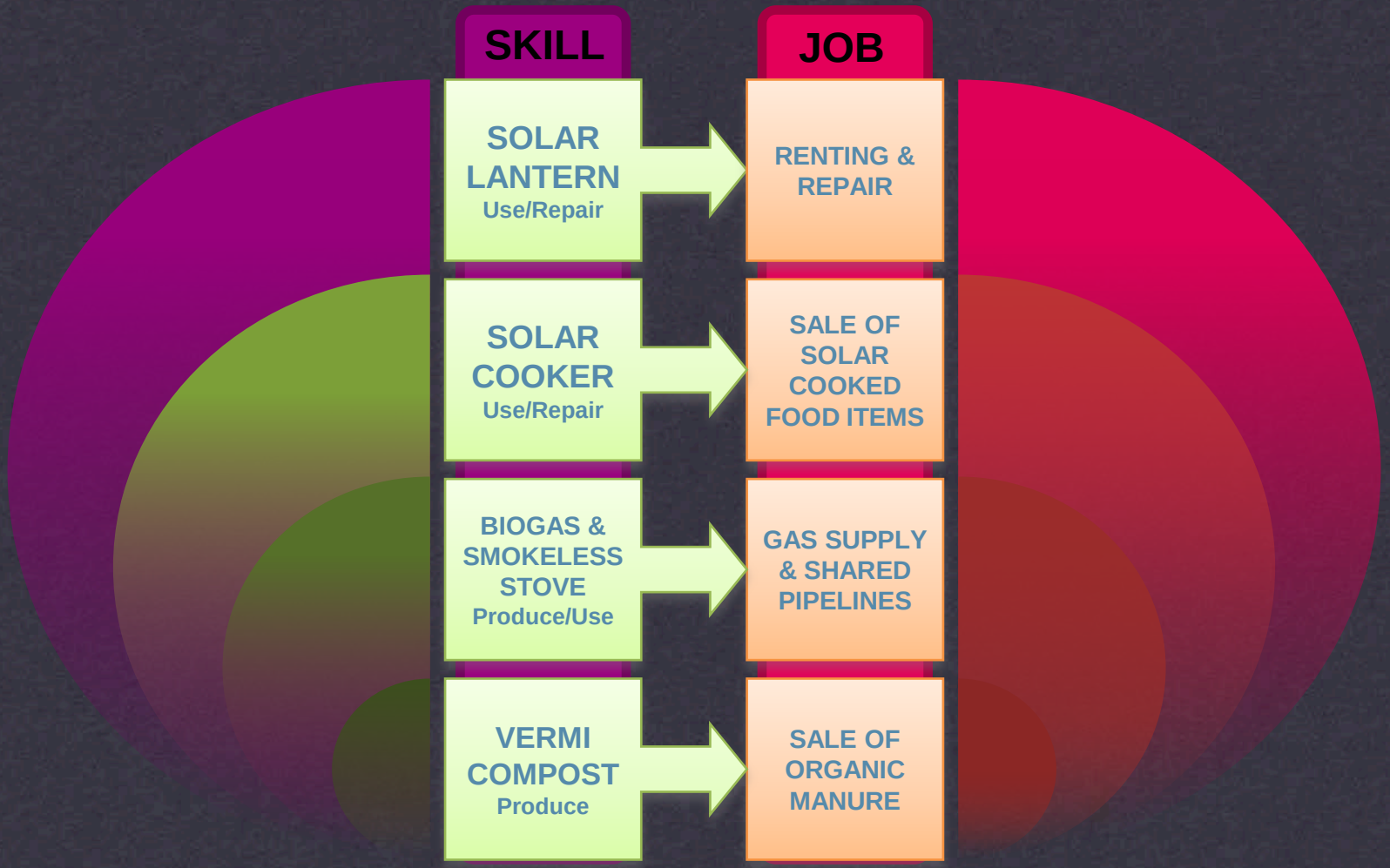
INCOME GENERATION

RENEWABLE ENERGY TECHNIQUES (RET) & INCOME GENERATION

Skilled worker

OBJECTIVE

Market for RET



EVD PROJECT

BY THE AIWC

PROJECT IMPLEMENTATION:

- Tilothu, Rohtas, Bihar

OBJECTIVES:

- Campaign for policy change to help poor in adaptation and mitigation activities for climate change.
- Campaign for policy to promote pro-poor, low carbon green technologies.

EVD PROJECT

BY THE AIWC

PLANNED ACTIVITIES:

- 1st stage Advocacy from grass-root level women to elected village heads.
- 2nd stage Advocacy & campaigning with District heads and State representatives.

EVD PROJECT

BY THE AIWC

ECO-FRIENDLY ACTIVITIES DEMOS:

- Propagation of solar energy
- Water harvesting
- Vermi-composting
- Bio-gas
- Kitchen garden
- Herbal garden
- Waste management

THANK YOU!

http://aiwc.org.in/






Local Solutions & Adaptation in Reconstruction after Earthquake in Nepal by Niraj Shrestha, CRT Nepal

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INFORSE-South ASIA
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Local Solutions & Adaptation in Reconstruction after Earthquake in Nepal

Presented at the Side-Event of the
United Nation's Climate Change Conference
Bonn, Germany
June 10, 2015.

Niraj Shrestha
Project Officer
Center for Rural Technology, Nepal (CRT/N)

OUTLINE

- Introduction to CRT/N
- Aftermath of earthquake and its affect
- Challenges in resurrection after disaster
- Proven EVD solutions in Nepal
- Contribution of EVD solution to climate change
- Adaptation measures in reconstruction activities
- Conclusions

INTRODUCTION

Establishment

- Initiated as a private sector organisation in 1989
- Registered as a national NGO in 1998

Aim

- Develop, promote and disseminate environmentally sound rural/appropriate technologies

Staff Strength

- Around 60 (Engineers, Environmentalists, Livelihood experts, Technicians; Management Experts; Socio-economists; Advocacy and Gender Experts)
- Operational experiences over 26 years working with rural community in rural technology development, promotion and application.

MAJOR TECHNOLOGIES PROMOTED

- Solar cookers/dryers
- Improved Water Mill and Improved Water Mill Electrification
- Hydraulic Ram Pump
- Improved Cook Stove
- Bio-briquette

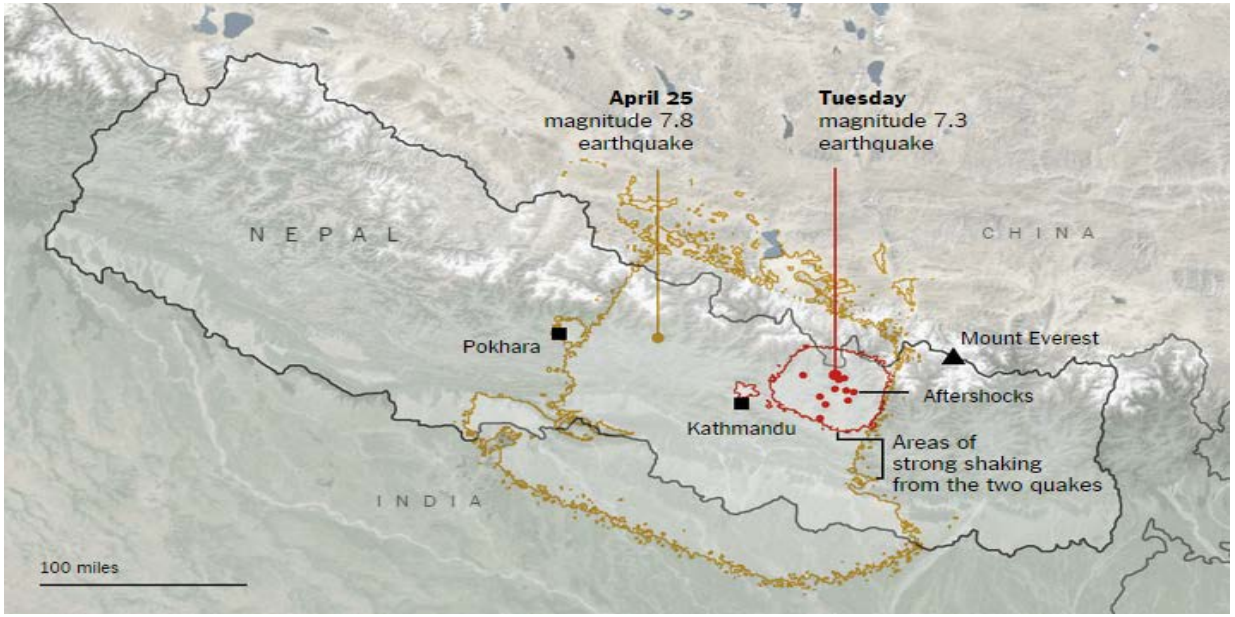







EARTHQUAKE IN NEPAL

- A massive 7.8 magnitude earthquake had struck Nepal on 25 April 2015
- More than 270 aftershocks (>4 Magnitude) has been felt till this date
- 7.3 magnitude was the largest recorded aftershock that hit Nepal on 12 May 2015



EARTHQUAKE: EXTENT OF DAMAGE

- As of May 31, 2015
  - 8,700 people has lost their life
  - 22, 495 people are injured
  - 469,539 buildings has been damaged or inhabitable

(source: Nepal Police, 2015)

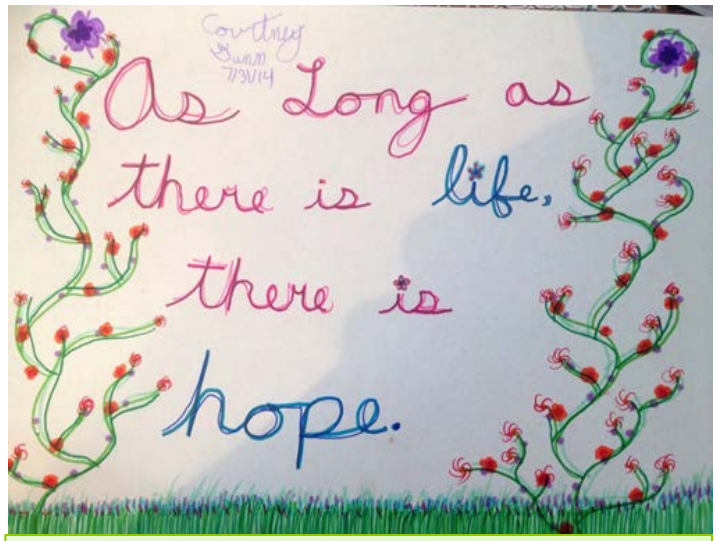
EVD PROJECT IN NEPAL

- EVD project villages are not an exception to wrath of nature
  - In three villages there are 38 completely destroyed house, 34 house are inhabitable and 28 house are habitable after repair
  - 615 people has been affected by disaster
- Unfortunately the need of people have changed
- Delay and difficulty in implementing EVD project





Earthquake: Resurrection



HOPE to rise again better and stronger

But, there are challenges to overcome and realize quick and effective rehabilitation of Nepal

CHALLENGES

- Support victims from approaching monsoon rain
- Difficulty in getting over mental trauma of victims
- Risk of landslides
- Building shelter and life saving rural infrastructure for supporting rural livelihoods
- Victims expectation from I/NGOs in rehabilitation program
- Victims depending on relief for their survival
- Government alone cannot contribute for quick rehabilitation
- I/NGOs are not relief organization therefore need support to facilitate rehabilitation and sustained livelihood program

CONTD…

"How could we all support the affected people in Nepal as they' ve lost everything and paying is not an option for the victims"

"How could the international community support these life saving initiatives in Nepal ?"

Possible EVD Solutions in Rebuilding Process

LOCAL SOLUTION: NATIONAL STATUS

Biogas

- 295,310 (1986-2014)

IWM

- 9,577 (till July 2014)

ICS

- 892,838 (till July 2014)

Micro-Hydro

- 2,818, 41.98 MW (1962-2014)

Solar

- 470,459 HH solar PV, 11,687 SSHS, 496 institutional solar PV, 131 solar pumping and 2,132 solar dryer/cooker (till July 2014)

Hydram

- 21 units; 437 households, 4 schools, 18 hectares of farmland

Source: www.aepc.gov.np, Alternative Energy promotion Center (AEPC) and NRREP, Annual progress Report (AEPC, July 2013-2014)

SOLUTIONS

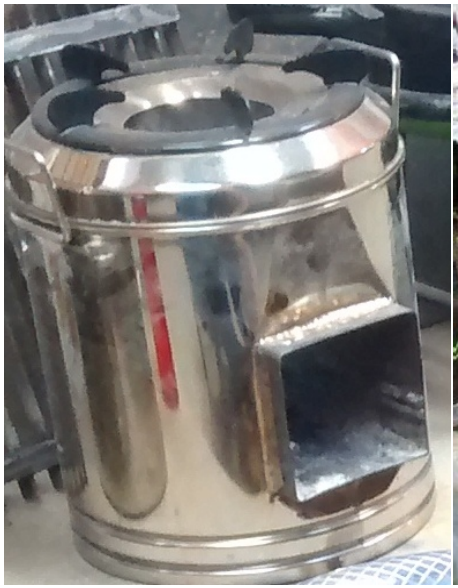
The basic energy needs that could be met relatively quickly through simple products like

Solar Lantern

Solar Mobile Charger

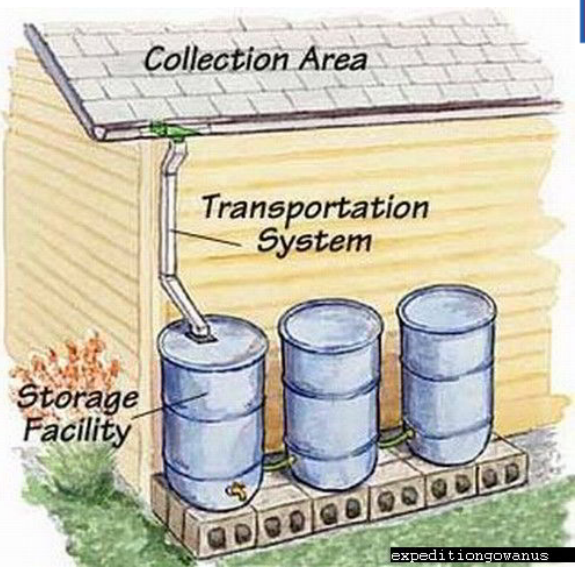
- **In most of the areas grid line have been damaged**
- **Unable to charge cell phones**
- **People involved in illegal practice of hooking**
- **Threat of snake bites and encounter with wild animals**

CONTD...



1.Portable ICS

2.Biogas



3. Rain Water Harvesting

1. Open fire or fire inside a makeshift kitchen pose health and life hazard, in particular, to the women and girls
2. Sources of water and pipelines has been damaged so to collect rainwater from approaching monsoon and fulfill domestic water need

CONTD…

1. Solar PV for local health clinics

2. Water lifting technology like Solar-powered water systems & Hydraulic ram pump

1. Vaccines and medicines vital in affected areas needs to be stored in bulk
2. No access to electricity and therefore clean water supply for drinking and irrigation for agriculture are vital for their livelihood and ensure food security

CONTD...

Technologies to be integrated with rural livelihood practices

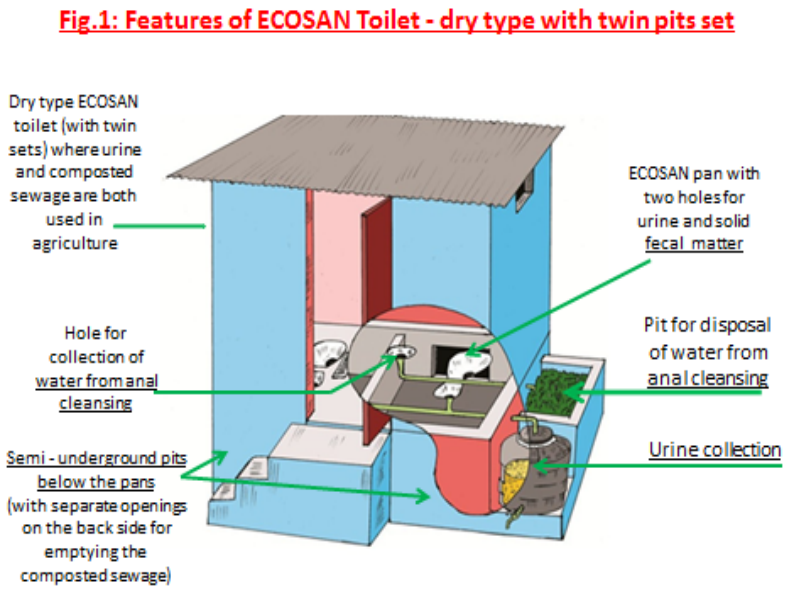
1. IWM and IWME

2. Plastic tunnel house for vegetables

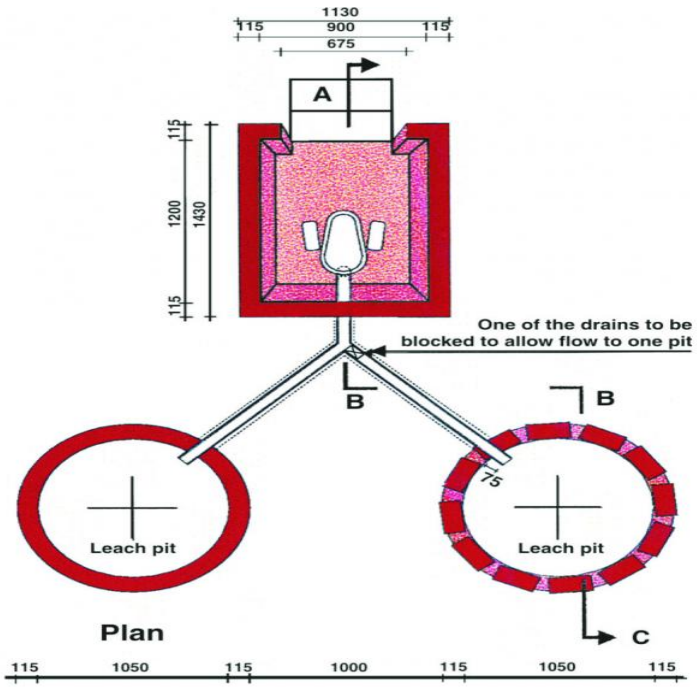
3. Tomatoes grown in plastic house

1. IWM contributes to agriculture value chain
2. People are taking refuge in the plastic greenhouses where they grow vegetables

Contd...



Eco-san for organic farming



Accessible toilet

1. Sanitation and hygiene is essential as there is no latrines that are essential to prevent waterborne diseases
2. These types of latrine can also contribute in enhancing rural livelihood

CONTRIBUTION TO CLIMATE CHANGE

S.N.	Eco- Solutions	Estimated ER factor (tCO_2 e/unit/year)
1.	Improved water mill	3.65
2.	Improved Cook Stoves	1.535
3.	Solar PV Home Systems and Small Solar PV Home Systems	0.10
4.	Solar Drinking Water System	0.880
5.	Solar Dryer	6.260
6.	Domestic Biogas Plants	3.000

Source: National Rural and Renewable Energy Program, Annual progress Report (AEPC, July 2013-2014

Reconstruction and rehabilitation activities will inevitably contribute in minimizing the impacts of climate change

ADAPTATION MEASURES FOR RECONSTRUCTION AND SUSTAINED DEVELOPMENT

- Knowledge sharing on earthquake for improving mental fitness
- Assessing immediate energy needs
- Identification and promoting appropriate, climate friendly technology and improving access to energy services;
- Integrating technology with rural livelihood practices
- Assist in developing business model and enterprise development;
- Linking with Government support and civil societies, services and potential international support;
- Mainstreaming gender and social inclusion;
- Subsidy and financing support; and
- Institutional development

CONCLUSION

- Lack of energy will impede gradual economic growth.
- There is strong case for supporting small-scale, sustainable energy solutions for climate friendly Eco- Village Development (EVD) Initiatives
- Building resilient energy systems will help in quick recovery of Nepal
- Need support from its international partners for national reconciliation that can contribute quick rehabilitation of the victims
- Now is the time for development organization (national/international) to double down on embedding support in development efforts.
- Energy based reconstruction activities on one hand will be contributing in rebuilding process and in other it will lead to development of brand new eco-friendly sustainable villages in Nepal.

For more Information:

Centre for Rural Technology, Nepal
Bhanimandal, Lalitpur, Nepal
www.crtnepal.org
lumink@crtnepal.org
neeraz@crtnepal.org
nirajsh70@hotmail.com

Thank You for Your Patience

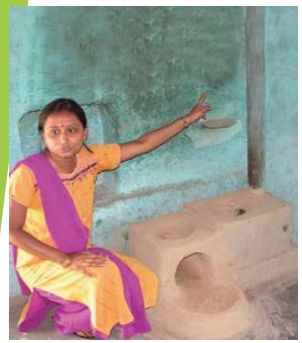
NAMASTE

&

JAY NEPAL





Low Carbon Development and Policy Options in Sri Lanka by *Vositha Wijenayake, CANSA*

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International Network for Sustainable Energy

Low Carbon Development and Policy Options in Sri Lanka

Vositha Wijenayake

Policy and Advocacy Coordinator – CAN South Asia

vositha@cansouthasia.net

A Growing Sri Lanka

- Country's GDP (Billion 2005$) to increase from $33.25 billion in 2010 to $221.59 billion by 2050.
- Population to expand from 20 million in 2010 to 23.97 million by the year 2050.
- Income increases and provincial development will lead to more carbon-intensive lifestyles.
- Pressure on nation's economy and resources.

Energy Situation in Sri Lanka

- Compared to other South Asian countries remain positive: high electrification rate, stable energy generation and greater accessibility to energy.
- combustible renewables (particularly biomass) and petroleum dominate the Total Primary Energy Supply.
- A shift from hydro-power dominated energy supply two decades to fossil fuel based to address the energy supply.
- In 2013, spent USD 5 billion on oil imports, amounting to 25% of total imports.

Energy Access Level of Sri Lanka

Demand by sector (PJ)	2011	2012	2012 (%)
Household and Commercial	179.4	181.4	46.70%
Transport	103.0	111.8	28.78%
Industry	91.1	95.1	24.49%
Agriculture	0.3	0.1	0.03%
Total	373.8	388.4	100.00%

Energy Supply

HH, Comm, Other (PJ)	2011	2012	2012 (%)
Biomass	139.9	141	77.73%
Electricity	23.8	24.8	13.67%
Petroleum	15.7	15.6	8.60%
Total	179.4	181	100.00%

Energy Generation Increase

Source	2012	2013	% increase
Hydro	3,292	6,926	110.40%
Thermal-Oil	6,935	3,304	-52.40%
Thermal-Coal	1,404	1,469	4.70%
Non conventional renewable energy	171	263	53.30%
Total Generation	11,801	11,962	1.40%

National Policies on Energy

- President's Manifesto for Development.
- "Mahinda Chinthana Vision for Future" policy.
- National Climate change Policy (2012).
- National Climate Change Adaptation Strategy: 2011-2016 (NCASS).
- Second National Communication on Climate Change.
- National Energy and Policy Strategy 2006.

National Energy and Policy Strategy

- Reduce dependence on fossil fuels.
- Promote renewable energy.
- Ensure energy security.

Challenges for Low Carbon Development

- Increasing demand for infrastructure and energy.
- Focus on “growing now and clean later” policies.
- Lack public pressure for environmental concerns – though situation is evolving.
- Dependence of oil and coal – larger portion of the energy mix.

Case Study – “Anagi” Cookstove

More on Anagi stove
IDEA: www.ideasrilanka.org

One of the few large-scale successes, energy saving stove designed by IDEA is today fully commercialised.
At present, over 300,000 stoves are produced annually by 185 rural potter families and marketed by a network of private traders dispersed throughout the country.

Project Background

- Duration 1979-2005
- Implementing agency: Ceylon Electricity Board
- Socio-Economic impact: Reduction of fuel use, improved combustion, reduced smoke in kitchen, livelihood development.
- Environment impacts: Reduction in use of wood, reduction in deforestation.

Civil Society Intervention

- Advocacy on low carbon development
- Consultations on energy and sustainable development
- Awareness creation
- Change of behavior – life styles

Thank you!






Local Climate Solutions to support Sustainable Development in South Asian Countries by Sanjay Vashist, CANSA

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June 10, 2015, 18.30 - 20.00, Room: Bonn 1
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Position Brief and the NGO advocacy EVD project:
"*Evidence based advocacy for low-carbon, pro-poor sustainable "Eco-Village Development " (EVD) in South Asia*"
www.inforse.org/asia/EVD.htm

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INFORSE-South ASIA
International Network for Sustainable Energy

Local Climate Solutions to support Sustainable Development in South Asian Countries

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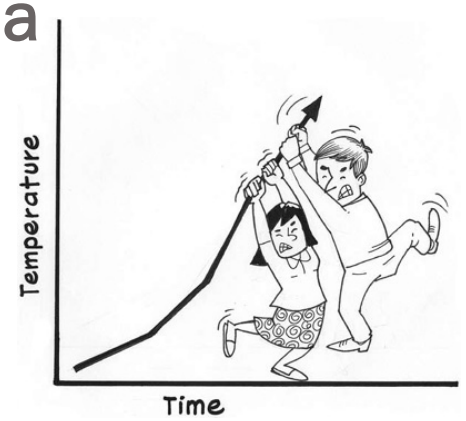


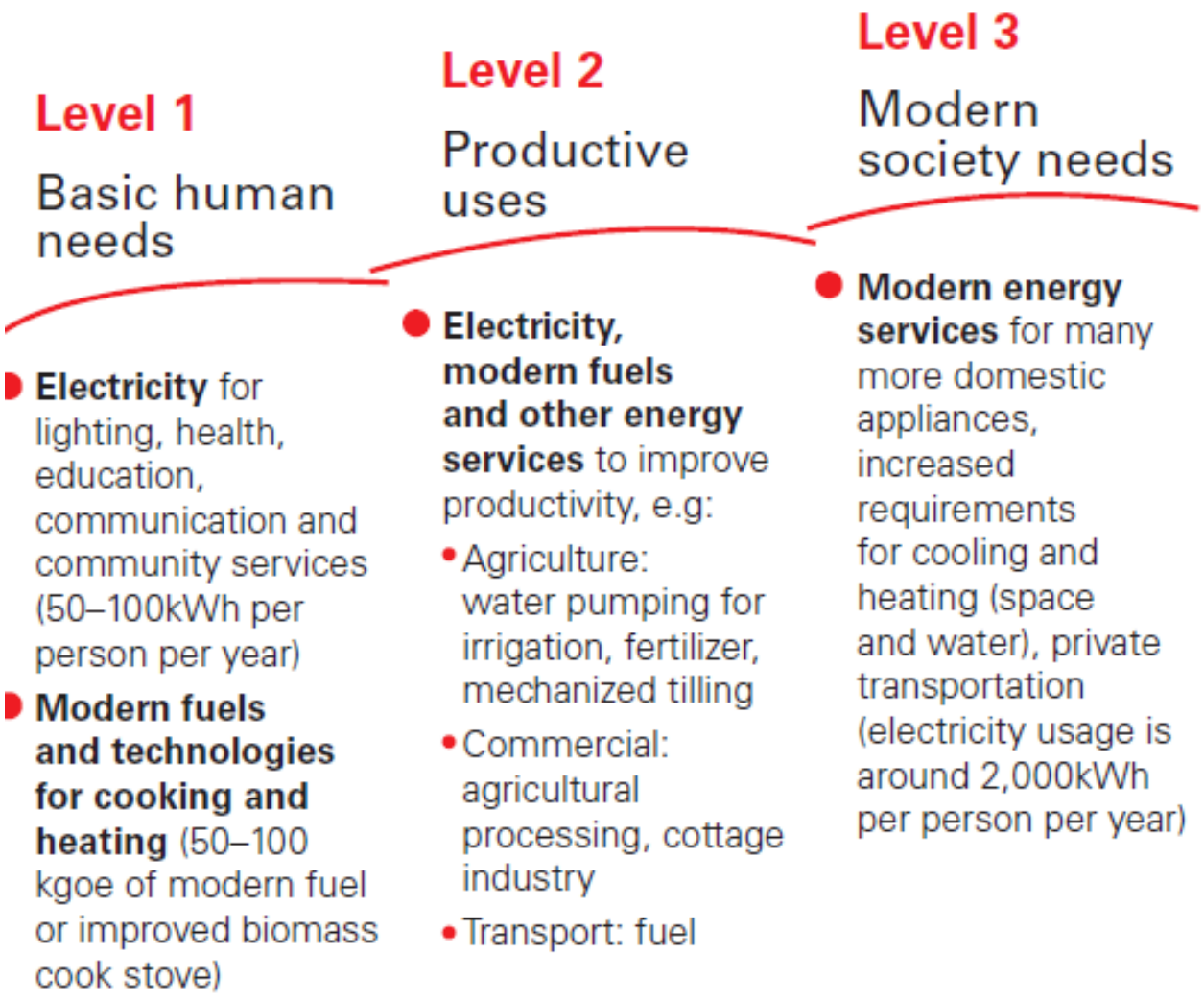
Introduction…

- South Asia, comprising Afghanistan, India, Pakistan, Bangladesh, Sri Lanka, Maldives, Nepal and Bhutan.
- Growth rate for countries in South Asia rose over much of the past decade by an average 7.9% a year.
- There are more people living in poverty in eight Indian states than there are in the 26 poorest African countries.
- the region, 433 million people still have no access to electricity.
- Tremendous challenge because energy is key to lifting people out of poverty and creating the necessary infrastructure to provide healthcare, education, sanitation, clean water, food security and employment.

Energy Poverty…

- 58% of people in rural Bangladesh are energy poor; India, the figure is 57%.
- In urban areas of India, the energy poverty rate is 28%, compared to 20% who are income poor.
- for Pakistan energy poverty ranges from 47-66% in the four key provinces.
- IEA highlight the region as a global hotspot for energy poverty: just 68.5% of the population has access to electricity.
- Rural areas in South Asia, 87% of the population is dependent on wood and charcoal to meet their energy needs.

Energy Ladder



SAARC bodies and mechanisms to identify regional and sub-regional projects in the area of power generation, transmission and power trade, including hydropower, natural gas, solar, wind and bio-fuel, and implement them with high priority with a view to meeting the increasing demand for power in the region. The Leaders welcomed the signing of the SAARC Framework Agreement for Energy Cooperation (Electricity).

Kathmandu Declaration from Eighteenth SAARC Summit, Kathmandu, Nepal, 26-27 November 2014

South Asia RE initiatives...

- India has set a vision of establishing 175 GW of RE (100 GW Solar + 60 GW Wind + 10 GW Biomass + 5 GW Hydro) by 2022.
- Bangladesh has a target of producing 5% of its electricity from renewable by 2015.
- Pakistan plans to develop 3GW of wind capacity in the medium term.
- Nepal plans to increase the share of renewable energy from less than 1% to 10% of the total energy supply, and to increase access to electricity from alternative energy sources from 10% to 30% by 2032.
- Sri Lanka plans to increase the share in grid energy supply from nonconventional renewable energy sources to 20% by 2020.

UNFCCC Agenda to Drive Low Carbon in Developing Countries…

- Climate Finance – Roadmap that can guide Low Carbon Initiatives for Eco-Village Development.
- Ratcheting Up – Post INDCs, MoI can harvest GHG redcn while achieving growth.
- Differentiation – Rich have obligation and Poor can contribute voluntary.
- Adaptation and long term Resilience can be an integral part of Eco-Village Development.

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INFORSE-South ASIA
International Network for Sustainable Energy

Eco-village Development as Climate Solution

Policy Brief by INFORSE and CANSA, June 2015

Executive Summary

More than half of the South Asian population of 1.7 billion people live in rural areas and many of the poverty problems of the region are in the villages. Sustainable development in the villages has the potential to enhance the living conditions and to reduce rural-distress & poverty-induced migration to cities. To develop villages in sustainable ways, a number of issues need to be addressed and adequate solutions supported. This includes energy access, sanitation and safe drinking water, access to information, improved health care, and others. When the solutions are sustainable, local and reduce poverty, they are effectively leading to "eco-village development (EVD)".

The key to successful application of these local solutions include resources including finance, supporting policies, training, quality control and involvement of civil society. Supportive policies for these local solutions include directing subsidies to energy access; financing for up-front cost that are often higher for the local EVD-solutions, even when they are cost-effective; support for technical development and quality control; policy coordination; and involvement of civil society.

International cooperation is also important for large-scale success with local solutions, including climate funding for EVD and other local solutions to be included in a short term "Leapfrog Fund" and in a long-term climate agreement. Additionally the UNFCCC climate-technology mechanism could contribute with exchange of knowledge, experience, and technologies, as well as adaptations to the specific conditions.

Existing Challenges & Alternatives

In India alone 612 million poor people struggle for access to energy, sanitation & drinking water, good nutrition and health, out of which several live in villages or have migrated to cities still maintaining linkages to their villages. There are issues identified with centralised solutions development model in the past decades requiring an alternative approach to fast-track poverty alleviation with co-benefits for climate.

Issues with Centralised Solutions: In many cases the centralised solutions are not efficiently supporting the local development. Rural grid electrification does not provide stable electricity supply everywhere, limiting the possibility for commercial uses, healthcare or stable lighting for homes and streets. Often cooking with LPG is not affordable and then villagers have to return to unsustainable use of burning cow-dung cakes or wood in inefficient cooking stoves. The centralised energy solutions also come with increased emissions.

Decentralised Eco-village solutions: A long range of proven decentralised solutions exist to provide energy for village development with better use of local resources and with very low emissions. These solutions can overcome the problems of unstable supply and affordability that come with the centralised solutions. In specific cases these local, sustainable solutions have shown their value for millions of people using them, such as improved cookstoves in Sri Lanka, solar (PV) home systems for electricity in Bangladesh, and family biogas plants in India.

Lack of Policy Support to Eco-solutions: In spite of these large-scale successes the prevailing development strategies in the South Asian countries are still focussing on the centralised solutions. In the past 15 years of Millenium Development Goals (MDG) campaign to eradicate poverty, this has been a huge missed opportunity for South Asia to reduce poverty in sustainable ways and with lesser greenhouse gas (GHG) emissions.

For these reasons we want to increase the focus on local, eco-village development (EVD) solutions, in particular for villages where centralised solutions are unavailable, unreliable, and/or unaffordable. Local EVD solutions must be in focus in the national and regional policies of South Asia as well as on the international agenda.

Key to Success of Eco-Local Development

- Successful dissemination of thousands or even millions of sustainable energy installations shows that the barriers can be overcome. The key to overcoming barriers and to successful application of local solutions to enhance development with poverty reduction include:
- Resources including finance, tax incentives, subsidies, technical staff for local solutions - subsidies from fossil fuels must be shifted to energy access through local solutions.
- Policy & communication support to local solutions by governments and by the international society
- Exchange of knowledge, insights from experiences, and technologies must be promoted along with training, to women particularly who are the actually engaged at the ground level as users that need practical, implementable local solutions. There should also be provisions for availability of spare parts and maintenance.
- Quality of products must be sufficiently high**.**
- Civil society organisations must be involved to bring in their experiences and use their capacities to disseminate solutions. Civil society can also help to ensure transparency and improve outreach to, for instance, women and poor people.

Supportive Policy Frameworks

Development to reduce poverty based on local EVD solutions will require concerted actions at policy level. Some of the policy issues to be addressed to allow development with EVD solutions are:

- **Subsidy and policy reform:** Subsidies to fossil-fuels and for grid extension are far higher than public financial and technical support for local, sustainable solutions. A subsidy & policy regime reform is important to encourage uptake of EVD solutions.
- **Financing the up-front costs of installation, training and spare parts:** Even though some local solutions are cost-effective compared with centralised solutions, many poor people cannot afford the up-front cost of installation, spare parts, and training, which is in some cases higher than that of the central alternative, in particular when the latter is subsidised. Financing mechanisms and, in some cases subsidies, typically are needed for large-scale success of local solutions.
- **Financial support for technology development & quality control**: Even though the local sustainable solutions have successfully existed for a few decades, such as Anagi cookstove in Sri anka these solutions are still developing fast. With adequate financing such technological developments open up new local solutions that were not feasible as drivers for development earlier. There is also a need for continued quality control, also of more mature solutions.
- **Cross-sector policy coordination:** There is a need for coherence amongst various laws and policies as well as for coordination amongst various ministries and departments relevant for rural areas administration and development;
- **Engaging the civil society:** There is a need for open & transparent policy frameworks encouraging civil society engagement for wider dissemination of solutions as well as solution to ground challenges.

Importance of International Cooperation

While national and sub-national development programmes must address policy issues to successfully promote development with local solutions, international cooperation is also important for large-scale success.

Climate funding can provide some of the resources for EVD and other local solutions with low greenhouse gas emissions. This should be a priority in the coming long-term climate agreement at COP21, while it should also use existing international aid. In the short term a 'Leapfrog Fund' should be established from global mitigation finance to support South Asia in moving towards a low-carbon economy, with focus on EVD solutions,

The UNFCCC climate-technology mechanism could contribute additionally to the facilitation of the exchange of knowledge, experience, and technologies,. This must include solutions from the North as well from the South. It should also support possible improvements, adaptations, and optimisations of technologies and solutions to the specific national or, eventually, local conditions.

Improved Cookstoves

Improved cooking stoves can reduce wood use by about 50%, and in places where use of biomass as fuel is a major contributor to greenhouse-gas emissions, increased cooking efficiency is key to reducing CO_2 emissions. Improved stoves also emit a considerably lower volume of particulates than traditional cooking fires. Around mountain areas with glaciers, their use reduces deposits of black soot from cooking smoke on the ice, another distinct contributor to climate change.

In South Asia, Sri Lanka's stove programme stand out as a large-scale success in reducing biomass use with improved cookstoves. Today the stove dissemination is fully commercialised and about 400,000 stoves are produced annually by 185 rural potter families and sold via a network of private traders and sellers dispersed throughout the country. This reduces greenhouse gas emission around 1 mill. tons of CO_2-equivalents/year, equal to a about 8% of Sri Lankan CO_2-emissions from fossil fuel use. External support and consistent efforts of key NGOs and institutions over many years has lead to this remarkable result.

Solar Electricity

Solar electricity can replace kerosene used for light. It also can replace diesel to power, e.g., pumps, and agricultural machines. In countries where central power supply is based on fossil fuel, especially in the case of coal, solar electricity will also reduce CO_2 emissions substantially compared with grid connection.

In Bangladesh Grameen Shakti (GS) has achieved a milestone by improving the rural livelihood through access to green energy. More than 1.5 million solar home systems have been installed through its micro-credit system. Around 10 million people are getting benefit from the systems, and over 350,000 tonnes of CO_2 are saved each year because of this.

Improved Water Mill (IWM) and Small Scale Hydropower

Nepal has a tradition of water mills, and based on this tradition Nepalese people has developed improved water mills (IWM). IWM technology increases the efficiency and output compared with the traditional water mills. IWM projects have given opportunity of employment generation within the country for IWM kit manufacturing company, service centers based in the districts and the beneficiary communities. IWM can grind grain faster than traditional water mills and can also be used for various purposes like partial polishing of rice husk, expel oil from oil seeds, and generation of electricity (1-3 kW).

Availability of IWM services in the locality helps to increase in resilience of the community and also reducing the drudgery, especially of the women and girl children. It has been calculated that IWMs can reduce emission by 3 - 4.5 ton CO_2/year by replacing diesel-driven machinery. The 8,500 IWMs currently installed in Nepal, are thus reducing CO_2 emissions with about 38,000 tonnes of CO_2/year.

In addition to IWM are installed 2800 pico-, micro-, and mini-hydro plants with a combined capacity of 42 MW. Their power is used for light and business ventures like agro processing, carpentry, communication centers, and poultry. The productive use of energy generated from small hydro has given the opportunities of employment and additional income to the rural people. It has also enabled women to be involved in productive activities in the evening after they are done with their household chores.

Combined the solutions: Eco-Village Developments

In India several organisations are combining local solutions into sustainable "eco-village developments", among others based on the successes with millions of family-size biogas plants now used in India.

One example is a renewable-energy based eco-village development project, which is a joint effort of WAFD (Women's Action For Development) and INSEDA (Integrated Sustainable Energy and Ecological Development Association) to demonstrate how several such local solutions can enhance development.

Among the solutions are biogas plants, bamboo building materials, solar drying, composting, and rain-water collection. In these projects focus are on the how the development process, assisted by the capacity-building of 'end users', makes these interventions sustainable and enduring even after the withdrawal of the national organisations at the conclusion of the project period. This capacity building helps receptive communities to develop their villages into eco-villages and to evolve their own responses to climate change and development-challenges.

This Policy Brief is based on the first findings within the Project "Evidence based advocacy for low-carbon, pro-poor sustainable "Eco-Village Development "(EVD) in South Asia".

The Policy Brief Position was launched at a Side Event of the UN Climate Conference in Bonn, Germany on June 10, 2015.

Read more about the Project at www.inforse.org/asia, www.dib.dk, and www.cansouthasia.net .