

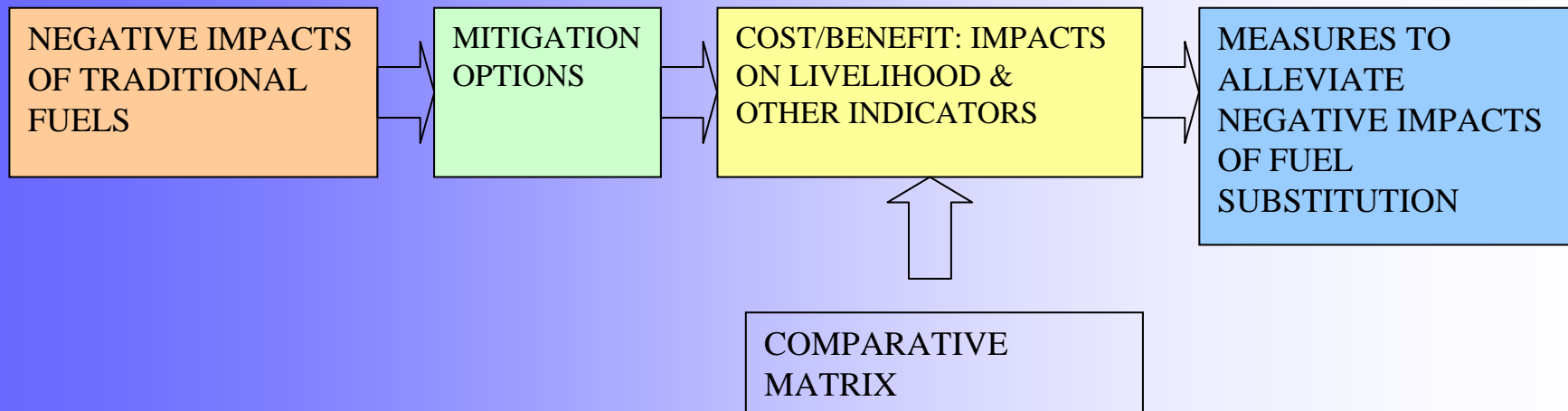
What measures can be adopted to alleviate the impacts of fuel substitution?



Fuel Substitution National Stakeholders Workshop

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The impacts-solutions framework



- More than 2 billion people still rely on biomass fuel to meet their household energy needs;
- The use of such fuels is recognised to have negative impacts;
- In the attempt to find solutions to these problems, governments, bilateral organisations, NGOs etc have promoted various measures , including fuel substitution, improved stoves etc;
- All these interventions have different impacts on the problems they attempt to solve. They often have wider impacts than expected, including impacts on those engaged in supplying biomass fuels;
- All impacts of such mitigation options need to be identified and quantified and alleviation measures suggested before the implementation stage.

The impacts of traditional fuels

- Health

- respiratory diseases (ARI, ALRI, asthma etc)
- eye infections
- burns
- body injuries (back ache, fractures etc...)

- Environment

- forests degradation
- resources depletion
- soil erosion and loss of fertility...

- Social

- different impacts related to gender
- reduced potential for income generating activities...



Alternative options to biomass: the intervention strategy

- 4 categories of interventions
 - Setup and appliances;
 - User behaviour;
 - Fuel substitution;
 - Supply management.



Setup and appliances	User behaviour	Fuel	Supply management
1.Improved ventilation 2.Chimneys and hoods 3.Outdoor cooking hut 4.Improved stoves 5.Improved stove with flue attached	1.Fuel drying & appliance maintenance	1.Briquettes and pellets 2.Kerosene 3.LPG 4.Biogas 5.Electricity	1.Sustainably grown woodlots 2.Sustainable charcoal production

Comparative matrix

INTERVENTIONS	IMPACTS														
	HEALTH				ENVIRONMENT				SUSTAINABLE ECONOMY				SOCIAL		
	Respiratory impacts ⁵	Other health hazards ⁶	Transport related	Handling /vending related	Forestry cover	Soil quality	Local air quality	Water quality	Forex	Official gov't revenues	Security of energy supply	Employment	Income generation	Gender equity	Other livelihood benefits
Setup/appliances															
Improved ventilation															
Chimneys and hoods ¹															
Outdoor cooking hut															
Improved stove															
Improved stove with flue attached															
User behaviour															
Fuel drying & appliance maintenance															
Fuel															
Briquettes and pellets ²															
Kerosene															
LPG															
Biogas ³															
Electricity ⁴															
Supply management															
Sustainable woodlot															
Sustainable charcoal															

1 Built in the structure of the house

2 From charcoal dust or agro-residues

3 Locally produced

4 This is general and includes all electricity sources (fossil fuels and renewables)

5 Includes ARI (Acute Respiratory Infections) and ALRI (Acute Lower Respiratory Infections)

6 Includes burns, eye infections, accidental fuel ingestion etc.

How we used the matrix

- It is virtually impossible to measure in absolute terms the level of impact on each indicator...
- Therefore the performance of all mitigation options have been compared to a business as usual (BAU) situation;
- BAU = use of biomass fuels in traditional manner, e.g. on a three stone fire;
- Impacts are evaluated using a positive, negative and colour scale where:

 denotes a positive impact;

 denotes a negative impact;

 denotes no impact;

 denotes uncertain impact.

Impacts of fuel substitution on the livelihood of suppliers

- Establishing a clear link between fuel substitution and livelihood circumstances has proved difficult;
- However in each country biomass suppliers recognised changes in the traditional fuel market, which they believe related to fuel substitution measures;
- For example in Kenya the impacts on the suppliers' livelihood of the charcoal ban is well known to everybody....
- while in Ethiopia the introduction of subsidised electricity has directly competed with BLT as the preferred fuel for the preparation of the traditional injera bread;
- Employment in the marketing of modern fuels is generally not a suitable alternative option for those engaged in the TF business.

Project conclusions

- Fuel substitution measures intended to reduce the negative impacts of traditional biomass fuels have their own inherent disadvantages;
- While it is an important policy objective to improve access to modern fuels, the negative effects of large scale interventions must be considered by policy makers and measures taken to mitigate these effects;
- The needs of consumers have to be balanced with the livelihood requirements of the vast number of people employed in the traditional fuel sector.



Project recommendations



- An **integrated approach** to all impacts of traditional fuel use is required in order not to create negative effects on a category of indicators while attempting to mitigate the impacts on the next;
- When this is not possible, measures should be taken to correct any negative impacts of the mitigation option;
- Other recommendations?