

CHAPTER 11

Take-home Messages on Gender and Resource Recovery and Reuse (RRR) for Energy

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The case studies presented in this document demonstrate that innovations that recover energy from organic waste have multiple impacts that benefit some of the world's most disenfranchised people. Requiring little investment capital for either producers or consumers, these methods produce inexpensive fuels that fit existing cooking practices. Women and young people can be involved more easily in the production process because the technologies involved are uncomplicated and input materials can be cheaply accessed.

In addition to providing affordable fuels, the case studies address additional benefits to communities when waste materials are put to good use. These include:

- Reusing waste materials from urban markets and highly populated neighborhoods, with limited sanitation services, can help to keep streets and public spaces clean while providing raw materials for briquette production.
- In extreme cases such as refugee camps in arid locations, human waste that would otherwise be a threat to groundwater and human well-being can be directed towards fuel production.
- Providing the indoor urine-diverting dry toilets (IDDTs) for recovery of human excrement can prevent refugees, especially women and children, from having to go outside at night to use pit latrines and supply faecal sludge for briquette production.
- RRR for energy contributes to provisioning cheap, accessible cooking and heating energy that burns cleaner than firewood and charcoal.
- Fuels that burn cleaner such as biogas reduce soot on cooking pots, an improvement that encourages men to participate in cooking.
- Bioslurry from biogas production increased yields in coffee cherries and bioslurry can also be used as feed for pigs and poultry.
- Burning biomass in gasifier stoves produces biomass gas for cooking and in addition produces charcoal as a by-product which can be used as biochar to improve soil quality in home gardens or be used again as fuel for cooking.

- The RRR-to-energy innovations reduce pressure on trees that would otherwise be cut down for charcoal or firewood.

The solutions described in this document can be adapted to various conditions and constraints. They are adaptable to low income urban informal settlements, isolated subsistence rural villages and refugee camps located in extremely arid regions where other means of energy sourcing are so difficult that many families suffer severe energy poverty. Because of this flexibility, local cooks who are generally women, often burdened with family responsibilities and lacking access to cash income, can be more easily integrated into the production and efficient use of energy. Low levels of education and lack of capital or landownership need not preclude participation.

As a business opportunity, the household cooking fuel domain is also attractive for women as traders and consumers: it does not require high literacy levels, it is not capital-intensive and women already have in-depth cooking experiences. Women's traditional knowledge can in this way become a modern business asset. Unlike conventional energy production and use, the profit margin of these varied and small- to medium-scale ventures is limited. The organic waste to energy described can thus grow into healthy local businesses, but they are unlikely to result in larger regional or export goods or to become attractive to international investors. For this reason, investments in these RRR activities for cooking energy solutions will be transformative for local women and/or youth, as the potential benefits stay in the communities and regions they serve. Existing mobile money systems such as Mpesa in Kenya, can provide a means for energy entrepreneurs to save their profits and reinvest in their

businesses. Low cost widely used methods are more effective for female energy producers even when they use waste materials for their production. Bank loans and other more formal means can be intimidating and women fear negative experiences.

The positive impacts that RRR-to-energy strategies can offer disadvantaged women and their families address the major challenge of energy poverty and the disproportionate impact poverty has on women. Nonetheless, a few major limitations remain even in this positive environment:

- The cultural expectation that women should give birth at a certain age, take care of families and carry out family maintenance roles inhibits their full participation in gaining formal education and working full-time. Deliberate policies that promote education for all with effective reinforcement systems and training on leadership skills would help to address these issues.
- As interventions are devised to spread RRR-to-energy, researchers and practitioners must be aware that social change is a tough call for many people. What may look and feel like progress for one group of people, may deeply upset others. Taking the time to understand the existing cultural expectations in a given community is key to success.
- Men's involvement in initiatives that are designed to improve women's decision-making would result in men's support of the process which then avoids alienating them. Particularly in circumstances where everyone is poor, it is critical that everyone disenfranchised group an improvement even if women are the most disenfranchised group.

ANNEX 1

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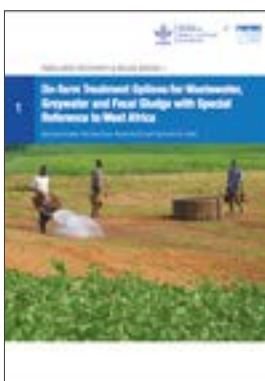
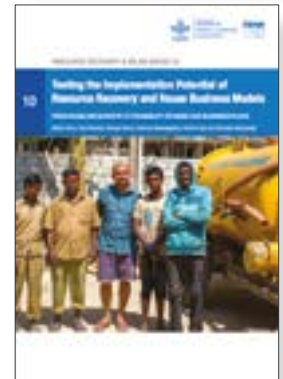
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Resource Recovery and Reuse (RRR) is a subprogram of WLE dedicated to applied research on the safe recovery of water, nutrients and energy from domestic and agro-industrial waste streams. This subprogram aims to create impact through different lines of action research, including (i) developing and testing scalable RRR business models, (ii) assessing and mitigating risks from RRR for public health and the environment, (iii) supporting public and private entities with innovative approaches for the safe reuse of wastewater and organic waste, and (iv) improving rural-urban linkages and resource allocations while minimizing the negative urban footprint on the peri-urban environment. This sub-program works closely with the World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO), United Nations Environment Programme (UNEP), United Nations University (UNU), and many national and international partners across the globe. The RRR series of documents presents summaries and reviews of the subprogram’s research and resulting application guidelines, targeting development experts and others in the research for development continuum.

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