

Grassroots trainings on sustainable woodfuel systems in Coastal Tanzania



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Background

The grassroots trainings were carried out as part of the capacity development and awareness raising under the response plan on scaling up sustainable wood fuel (charcoal and firewood) systems in Pwani, Lindi and Mtwara regions Tanzania supported by Climate Technology Centre and Network (CTCN). The response plan is being implemented by World Agroforestry Centre (ICRAF) and the request was made by Tanzania Renewable Energy Association (TAREA) through Tanzania Commission of Science and Technology (COSTECH). The grassroots trainings on sustainable woodfuel systems were held between 8th and 19th October 2018 in the three regions. The trainings were conducted by 23 (18 male and 5 female) trainers in their respective regions of Mtwara, Lindi and Pwani. The trainers were graduates of the training of trainers (ToT) course held in March 2018. During the grassroots trainings, a total of 118 trainees (76 males; 42 females) were trained (Table 1). Six different modules were covered through a co-learning approach (Table 2). In addition, three entrepreneurs involved in stove manufacturing were supported with nine metal sheets as essential materials and one machine used to produce improved charcoal stove. The metal sheets were donated to Baldwin F. Mpunga and Wasiya Abdallah of Ruangwa who are jointly producing improved charcoal stove and the metal bending machine was donated to Bakari Kambale of Kilwa Masoko to help in manufacturing improved metal charcoal stove with clay liner.

Table 1: The total number of trainers and trainees participated in the grassroots training programme selected regions

Sex	Mtwara	Lindi	Pwani	Total
Trainers				
Male	3	8	6	17
Female	2	3	1	6
Total	5	11	7	23
Trainees				
Male	22	25	29	76
Female	16	12	14	42
Total	38	37	43	118

Objectives of the grassroots trainings

- Co-learning on systems approach and innovations for sustainable woodfuel among stakeholders involved in various aspects of woodfuel systems at the grassroots level
- Gathering ideas about the content and delivery options for grassroots courses

Table 2: Lessons on sustainable woodfuel systems and mode of delivery

Module No.	Module	Lessons and mode of delivery	Date Mtwara	Date Lindi	Date Pwani
1	Introduction to sustainable woodfuel systems	<p>1.0 *Background information including woodfuel and the need to make it sustainable</p> <p>2.0 Woodfuel systems approach</p> <p>2.1 Components of woodfuel system, changes over time and gender differentiated roles in the woodfuel system</p> <p>2.2 Components of woodfuel sustainability</p> <p>Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees using real life situations (cut one tree and plant more trees, chop branches for firewood and maintain the main tree stem)</p>	8 th Oct, 2018	13 th Oct, 2018	18 th Oct, 2018
2	Causes and effects of unsustainable woodfuel systems	<p>3.0 Causes and effects of unsustainable woodfuel systems</p> <p>Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees using real life situations including uncontrolled and unplanned harvesting of natural forests, drawings of inefficient traditional kilns used in producing charcoal, inefficient stoves used for cooking.</p>	8 th Oct, 2018	13 th Oct, 2018	18 th Oct, 2018
3	Interventions to make woodfuel systems	<p>4.0 Interventions to make woodfuel systems sustainable</p> <p>4.1 Sustainable wood production for woodfuel</p> <p>Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees using real life situations. It also involved demonstrations at a tree nursery where the trainees were taken through all the steps on establishment of a tree nursery and transplanting of seedlings.</p>	8 th Oct, 2018	13 th Oct, 2018	18 th Oct, 2018
		<p>4.2 Improved charcoal processing using more efficient kilns</p> <p>Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees from real life situations. It included discussions on varieties of kilns, benefits and disadvantages of improved vs. traditional kilns and management of the areas after charcoal production. It also included demonstrations with drawings on flip charts.</p>	8 th Oct, 2018	13 th Oct, 2018	18 th Oct, 2018
		<p>4.3 Improved cooking practices and stoves</p> <p>Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees from real life situations. It included discussions on varieties of cook stoves, benefits and disadvantages of improved vs. traditional stoves and need for drying wood well before use as firewood. It also included a step-by-step procedure on production of clay-lined improved cook stoves and demonstrations on a variety of improved stoves.</p>	8 th Oct, 2018	13 th Oct, 2018	13 th Oct, 2018
4	Briquettes as an alternative	<p>5.0 Briquettes as an alternative sources of biomass energy</p>	10 th Oct, 2018	15 th Oct, 2018	19 th Oct, 2018

	source of biomass energy	Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees from real life situations. It also included practical demonstrations on step by step procedure in briquette production and use.			
5	Woodfuel trade and marketing	6.0 Woodfuel trade and marketing	10 th Oct, 2018	15 th Oct, 2018	19 th Oct, 2018
		6.1 Marketing channels and consumer tree species preferences 6.2 Charcoal trading system and market chains 6.3 Market research, packaging, pricing and marketing 6.4 Conditions of internal trade Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees using real life situations. Trainers explained different standard packaging sizes for charcoal which are approved by TFS, exiting selling centres and different modes of transport used from the manufacturing sites to the point of sale/consumption.	10 th Oct, 2018	15 th Oct, 2018	19 th Oct, 2018
6	Policy and regulatory framework	7.0 Regulations in wood sourcing, charcoal processing, transportation and trade 7.1 Harvesting of forest products and required legal documents a. Harvesting from government-managed forests b. Harvesting trees in village land forest reserves or privately-owned forests Delivery: This lesson involved a lecture using the manual, question and answer session and examples from the trainers and trainees using real life situations. The participants used different permits needed for someone to involve in the charcoal business including transit pass, licence for harvesting, business licence and other relevant documents for discussions.	10 th Oct, 2018	15 th Oct, 2018	19 th Oct, 2018

*lessons number follows the numbering of topics in the manual.

Illustrations on the training process



A) Mr Bakari H. Kambale (in white T-shirt), receiving metal bending machine from the manufacturer Mr Baldwin Mpunga; B) Mr Kambale (in white T-shirt) and Mr Ashiru Yusuph testing the efficiency of the new metal bending machine at Bakari Kambale's workshop which were donated by the project, Kilwa Masoko-Lindi.



A refresher training session for Trainers using the Kiswahili training manual in preparations for the grassroots trainings at Masasi, Mtwara (A); Kilwa Masoko , Lindi (B); and Kibiti, Pwani (C).





Practical lessons with Trainees on tree nursery establishment in Masasi, Mtwara: A) filling soil mixture in polyethane tubes, B) Arranging polyethene tubes on nursery beds, C) Application of shade in the nursery, and D) Proper way of lifting and handling seedlings for transplanting/sales.



The grassroots training on sustainable woodfuel systems at Mtanga village, Kilwa Masoko District, Lindi. Ms Wasiya Abdallah educating farmers on how to produce the clay liner for improved charcoal stove.



*Trainees in a practical session to produce charcoal briquettes using dried grasses and charcoal dust (waste from charcoal) at Kimbuga Village, Kibiti-Pwani
A) Woman trainee preparing cassava porridge (starch) to be used as a binder; B) Trainees mixing cassava starch with charcoal dust.*

Lessons and quotes from the trainings

- Using the Swahili training manual was very effective for both the trainers and the trainees.
- Community awareness on sustainable woodfuel systems was enhanced as there was low understanding of the connections between the different components of the woodfuel system.
- Knowledge and skills on trees planting and nursery establishment were improved as trainees visited TFS nursery sites (Temeke TFS nursery site, Mtanga TFS nursery production site and Kibiti TFS nursery production site) in Mtwara, Lindi and Pwani respectively. This made participants aware of the TFS tree nursery sites in each district, where production of tree seedlings of different species are produced and distributed freely to the community
- The use of visual aid tools, practical sessions (e.g., different types of traditional and improved stoves for charcoal and firewood), and illustrations using flip charts increased understanding of trainee.
- Discussion and exchange of ideas and experience among trainees was critical in raising interest for implementing the innovations on sustainable woodfuel systems that were taught.
- In the sites where the trainings were conducted, there plenty of biomass materials for production of briquettes as an alternative to charcoal which will reduce the high dependence on the natural forests for woodfuel.
- The alternative source of charcoal to majority of the people in the coastal regions is a new thing and participants were amazed about the this technology and think that it will contribute to saving trees, supplying affordable cooking fuel and generate income.

Participants comments

- *Planting trees in one's own farm reduce harvesting of trees from natural forests and saving trees in forests has many benefits for everyone.*
- *I really appreciate the training as I have now understood that using stoves that consume more firewood or charcoal contribute to cutting down of more trees while using modern stoves save trees.*
- *I want to start producing charcoal using improved kilns as the technology reduce cutting down of trees and produce more charcoal. A quote from trainee*
- *It is important for other members of the community to understand that harvesting of trees for woodfuel production without following rules and regulation makes charcoal and firewood unsustainable as they are not bad by themselves.*

Table 3: List of trainers who were also graduates of the trainer's course on sustainable woodfuel systems in Pwani, Lindi and Mtwara regions, Tanzania

SN	Name	Sex	Education	Position	Module and lesson that the trainer offered	Phone	Email
				Mtwara			
1	Jane Kajange	F	Diploma	Farmer, charcoal trader	Module 2 Lesson 3.0 & Lesson 3.2; Module 5 Lesson 6.1	0656625995	janejaja8597@gmail.com
2	Tozini A. Ally -	M	Primary	Farmer, charcoal trader	Module 3 Lesson 4.1 & 4.1	0686433502	uhifadhimazingirakazamoyo@gmail.com
3	Nasma A. Kaburu	F	Secondary	Hotel chef, small scale user	Module 2 Lesson 3.0 & 3.1	0718225770	nasmakaburu@yahoo.com
4	Ronald N. Pangah	M	Degree	Regional secretariat	Module 1 Lesson 1.0 & 2.0; Module 5 Lesson 6.3 & 6.4; Module 6 Lesson 7.0	0656045336	roniimaqamara@gmail.com
5	Revocatus M. Frumence	M	Degree	District TFS-Manager	Module 1 Lesson 2.1 & 2.2; Module 4 Lesson 5.0; Module 5 Lesson 6.0; Module 6 Lesson 7.1	0784341834	Mryanumburm68@gmail.com
				Lindi			
6	Baldwin F Mpunga	M	Primary	Farmer, stove producer	Module 3 Lesson 4.3	0654507421	
7	Wasiya Abdallah	F	Primary	Farmer, stove producer	Module 3 Lesson 4.3	0657083325	
8	Bakari H. Kambale	M	Primary	Farmer, stove producer	Module 3 Lesson 4.3	0684676724	
9	Violet R. Byanjweli	F	Degree	Tree nursery producer (DAICO)	Module 3 Lesson 4.1	0682005486	vai2009@yahoo.com
10	Amina Mandali	F	Degree	Head Master, large scale firewood user	Module 1 Lesson 2.1 & 2.2,	0782586468	aminamandali@gmail.com
11	Twahili Issa Sudi	M	Primary	Farmer, charcoal trader	Module 5 lesson 6.1	0654101491	
12	Waziri A. Shaweji	M	Secondary	Farmer, charcoal trader	Module 5 lesson 6.2	0689806599	
13	Zawadi J. Jilala	M	Degree	Regional secretariat	Module 1 Lesson 1.0, & 2.0; Module 5 lesson 6.3 & 6.4 Module 6 lesson 7.0	0788604192	zjilala@yahoo.com
14	Ashiru S. Yusuph	M	Degree	Lecturer VETA, Lindi	Module 2 Lesson 3.0	0754690918	ashym200@yahoo.co.uk

					Module 3 Lesson 4.2; Module 5 lesson 6.0		
15	Nururdin Basekanganya		Degree	TFS Kilwa Masoko	Module 3 Lesson 4.2 Module 6 Lesson 7.1		
16	Benjamin Mwakabala	M	Degree	Regional Agriculture Advisor (RAA) Lindi	Module 3 Lesson 4.0		
				Pwani			
17	Daniel M. Wangese	M	Secondary	Large scale charcoal user	Module 2 Lesson 3.0	0715669606	
18	Seleman M. Jullu	M	Primary	Farmer, charcoal producer	Module 4 Lesson 5.0	0717632074	
19	Hamisi O. Salum	M	Primary	Farmer charcoal trader	Module 1 Lesson 2.1&2.2	0715028704	Sakahamisi2017@gmail.com
20	Ignatus J. Pesha	M	Degree	Tree nursery producer (ECOCE)	Module 1 Lesson 1.0&2.0; Module 3 Lesson 4.0 & 4.1; Module 5 lesson 6.1	0688916557	ignatus.pesha@gmail.com
21	Uwesu Omary	M	Primary	Farmer, smart kilns builder	Module 3 lesson 4.2	0716894075	
22	Abdallah S. Mpape	M	Form II	Farmer charcoal trader	Module 2 Lesson 3.0; Module 5 Lesson 6.4	0717219355	
22	Kidawa Kibuki	F	Primary	Farmer, Charcoal trader	Module 3 Lesson 4.0		
23	Mathew Ntilicha	M	Degree	TFS Manager-Kibiti District	Module 5 Lesson 6.3; Module 6 Lesson 7.0 & 7.1	0784 815005	Ntilicha@gmail.com
Back stopping team							
24	Denis Saleko	M		Biomass energy expert (TAREA)		0763445827	Salekod62@gmail.com
25	Ogossy Gasaya	M	MSc	Environmental and Natural Resource Economist (ICRAF)		0784941220	gasayaogossy@gmail.com
27	Jimmy Sianga	M	Secondary	Logistical officer (ICRAF)		0713686486	J.Sianga@cgiar.org
28	Harun Makandi	M	Degree	Geological consultancy and Ecosystem researcher- COSTECH		0689 892 205	harunmakandi@gmail.com