#### LESSON LEARNED FROM IMPLEMENTING ENERGY EFFICIENCY PROJECTS IN TANZANIA

**Case Study Analysis** 

By

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## Introduction

- Two cases of GEPAT and SUCCEED projects
- Cross-case analysis
- The proposal for future project planning and improvement





### Definition

- Energy efficiency addresses behavioural change towards sustainable utilization and protection of resources for future generation, environmental protection and profit making (Folmer et.al. ;2001)
- Green economic perspective-access vs. efficient energy
- Example of companies-USA Environmental Protection Agency (EPA)
- by deploying environmental protection competitive advantage (Porter, 1991), companies can immediately harvest hanging fruits.





Tanzania Enabling Economic Institutions relevant to energy efficiency

- 1997 Environment Policy and
- 2014 Zanzibar Environment Policy;the Environment Management Act (number 20 of 2004),
- The National Biosafety Framework for Tanzania of 2004;
- National Adaptation Programme of Action (NAPA) of 2007;
- National Climate Change Strategy of 2012 and
- Zanzibar Climate Change Strategy of 2014;
- the National REDD+ Strategy of 2013; the Renewable Energy Strategy of 2014;
- the State of the Environment Report of 2014; and
- the National Biodiversity Strategy and Action Plan, 2015-2020
- Environmental protection vs Climatic change mitigation and green energy efficiency for poverty alleviation projects are vital eg Mtibwa Sugar Company Ltd co- electicity generation



# Case 1: Green for Education and Poverty Alleviation in Tanzania (GEPAT)Project

- Started in 2008 in Karagwe district, Kagera Region in one village and 100 participant via a Participatory Action Research (PAR)
- Major Objective: To mitigate climatic change through community participation - tree planting in the waste soil (mountainous areas)







#### **Conceptual framework- Principal Agent Theory**







### ...cont...

Figure 1 is the conceptualization of the project leading to the problem tree analysis and the log frame of the project applying principal-agent theory picturing carbon credit incentive structure (solar **lamps**) and number of trees planted incentives by smallholder famers, the outcome is energy efficient access (cheap and environmental friendly light) in **Karagwe district** 





### The process







					Exa	mple		
S/ n	Product s	Photo s	Whole sale Price (Tsh)	Specia l Price for GEPA T	Retail Price (Tsh) in Dar	Qua ntiti es per cart on	GEPAT Order per December, 2014	Number of trees
1	S2		14,000	12,750	15,000 to 17,000	24	Cartons 10X lamp 24XTshs 12,750=3,060,00 0	(150 trees per 1 lamp) 36,000 trees
2	S20		18,000	16,000	Between 20,000 to 25,000	12	2x12xTshs 16,000= 768000	(200 trees per lamp) =2,400 trees
3	S300		50,00 0	47,000	Between 50,000 to 60,000	6	(47,000x6= 282,000 1 carton	(500 trees per lamp set) 3,000.00
4	4LED		148,0 00	135,00 0	Between 160,000 to 180,000	4	10x4x135,00= 5,400,000.00	2,000 trees per lamp set) = 40,000.00
GRAND TOTAL							Tshs 9,510,000	81, 400





# Outcome /verifiable Indicators

1,000 solar lamps of different sizes were distributed in 2014

About 7,000,000 trees have been planted and natured in Karagwe and (today) Kyerwa District.

Currently, about 7,000 solar lamps of different sizes have been distributed to tree planters





# Case 3: SUCCEED project

#### Started in 2013 Objective: to establish a sustainable campus development platform to foster collaborative learning and action for energy access and efficiency.





## Implementation

- -Round table discussion to share ideas on energy efficient in Tanzania
- Awareness creation on efficient energy use was introduced.
- Through Tanzania Industrial Research and Development Organization (TIRDO) (<u>http://tirdo.or.tz/</u>), in the round table, it was agreed to conduct the baseline study on energy audit.
- The energy efficiency resource unit has been established, but not yet equipped with necessary tools.
- Training modules have been prepared





#### Outcome /verifiable indicators /impact

- MU-Staff and management are aware and supporting SUCCEED project
- Unfortunately, reimbyrsement policy of the project is somehow hampering implementation of activities.
- There have been delay in procuring energy resource materials
- Energy auditing has been stifled by incomplete contract





### Cross-case analyses

- Carbon credit prepaid activities has facilitated efficient energy adaptation through incentive structure
- GEPAT project is 8 year old compared to SUCCEED project which is 3 year old is still having high potential to create a huge impact at the national level.
- Energy efficient projects are currently important to build an industrialized Tanzania (*"Tanzania ya Viwanda"*) slogan.



#### Conclusion and recommendation

The lesson learned from the two projects :

- Participatory action research requires incentive structure relevant to the project beneficiaries
- Energy efficient project implementation is currently vital for East African communities to access cheap and affordable energy.
- This challenges East African universities to collaborate and carry out interdisciplinary researches as an opportunity for poverty alleviation, wealthy creation, economic growth and sustainable utilization of natural resources available such as sunlight.



### THANK YOU



