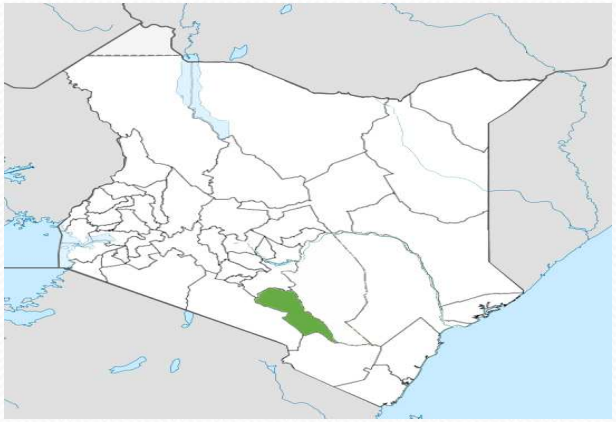
Coops Role in Achieving the Natural Environmental Aspects of UN Sustainable Development Goals:



THE CASE STUDY OF MAKUENI COUNTY SOLAR ENERGY SUPPLY CO-OPERATIVE SOCIETY LTD, IN MAKUENI COUNTY,KENYA

By

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STRUCTURE

- Introduction
- Research methodology
- Findings
- Conclusions and Recommendations

1.0 Introduction :Background

- The Millennium Development Goals (MDGs) are coming to a close in 2015 ushering in Sustainable Development Goals.

- So far the MDGs goals: alleviation of poverty , education access , gender equality and empowerment of women, child and maternal health, environmental sustainability, reduction of HIV/AIDS and communicable diseases, and building a global partnership for development have been impressively achieved McArthur(2013), the achievements toward reaching the MDGs are all the more impressive.

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- C o-operatives, which have both economic and social "faces", have attempted to impress positively on the eight Millennium Development Goals.(ILO,2014)
- Therefore, co-operatives will be expected to play very critical role beyond 2015 in contributing to the achievement of the United Nation (2012) 17 Sustainable Development Goals among them Goals relating to the sustainability of the environment.

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- Goals relating to the sustainability of the environment, more so the natural environment are crucial as human survival depends on them.
- The world is currently suffering from global warming, rains have become unpredictable, rivers are drying up and human race is under siege from food insecurity and poor health!

- The big bet to ensure the protection of the natural environment is through the co-operative business. After all, co-operatives are not meant to maximize profit, but to empower the members through offering of competitive services.(ICA,1995)

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- Co-operatives and natural environment are strongly joined at the hip!
- Co-operatives cannot meet the common economic, social and cultural needs and aspirations of the members without reference to the natural environment .
- HENCE , immortalization of the relationship through the seventh principle of co-operatives, "the Concern for Community"
- whatever a co-operative is to do, it must ensure that the environment is protected by making it clean, safe and sustainable.

CONT'D

- co-operatives can be used successfully to address some natural environmental Sustainable Development goals such as ensuring access to affordable, reliable, sustainable and modern energy for all; taking urgent action to combat climate change and its impacts and protecting, restoring and promoting sustainable use of terrestrial ecosystems, sustainably managing the forests, combating desertification, and halting and reversing land degradation and biodiversity loss(ILO,2013).

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- Many African countries depend on hydro-power, coal or natural gas to turn turbines (Daily Nation, 17TH November, 2014) which are costly.

- Solar power is envisioned to power Africa enterprises as it is cheap and cleaner and
- Africa has abundant sunshine and is cost effective (Business Daily ,17TH November , 2014):

- Williamson Tea (Kenya) has installed 1 megawatt plant (Business Daily,17TH November , 2014)
- South Africa has added 96 mw to the grid from the solar park .
- Kenya is piloting a metering project with privately run Strathmore University to import surplus electricity from 600kw roof-top plant while Rwanda has connected 8.5 Mw farm on rolling green hills east of Kigali(Business Daily,17TH November , 2014

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- Cooperatives have diversified into energy generation:
- We will Look at the case of Makueni Solar Energy Supply Co-operative Society Ltd, which is a unique co-operative in Kenya
- has leveraged on the only environmental resource in abundance in the area, the solar energy from sunshine, to lift the members from the York of poverty while at the same time is nurturing the other surrounding natural environmental resources.

Objectives and significance of the study

- 1) To establish the environmental condition where the co-operative is set;
- 2) To establish the membership of the Co-operative;
- 3) To assess the governance structure of the Co-operative;
- 4) To determine the economic, social and environmental performance and contributions of the Co-operative and
- 5) To analyse the challenges the Co-operative faces.

Significance

- The study will go a long way in providing a frame work for paradigm shift from focusing on the ordinary types of co-operatives into new venture co-operatives which can be supported by the environment and for the replication of such co-operatives.

2.0 METHODOLOGY

- Design :Descriptive survey design using qualitative research approach was used.
- Sampling: Purposeful
- Population of the study: Management Board members, Members, and Staff of the cooperative;
- County Co-operative Commissioner, Director of Co-operatives,; Minister of Trade, Industry, Tourism and Co-operatives, and Customers, Government officials (Chief) and .
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- Both primary and secondary data was collected on 28th October 2014:
- Primary data - collected through interview, focus group discussions and observation.
- Secondary data -collected from the records of the co-operative. Data collected was cleaned and analyzed qualitatively

FINDINGS

Generation and distribution of solar energy

- Makueni County Solar Energy Co-operative Society ltd, -registered in September 2012 under the
- , is situated in Kitonyoni Market, Kitonyoni Sub-location, Makueni County, Kenya.
- The sub –county is generally an arid and semi- arid zone
- The county suffers food insecurity, low farming economic activities and poor vegetation dotted with very spars thorny bushes .

Replica of vegetation within the sub-county

CONT'D

- The area is off-grid and the only power line that was constructed after the project by the government is too expensive for people as there is one-off connection fees of ksh 35,000 and monthly regular power bill.
- Amidst all these challenges, the sub-county is blessed with two peculiar resources, solar energy from sunshine almost throughout the year and people with transformational and innovative attitude bent on empowering the community to greater level of economic and social prosperity.

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- 214 villagers together within the sub-county and specifically in the area surrounding Kitonyoni Market to fight economic and social enemies by forming the only solar power consumer co-operative, the Makueni County Solar Energy Co-operative Society ltd, that generate electricity power from solar energy for its members

Solar energy plant and office.

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The formation of the co-operative

- Need analysis survey, was done initiated by The Energy for Development (E4D), a consortium led by the University of Southampton and Imperial College, United kingdom (UK),
- fully supported by the beneficiaries, the then local and national governments of Kenya.
- The aim of the project, which had been financed to the tune of ksh 40 million through a grant from Engineering and Physical Sciences Research Council(EPSRC), was to produce 13.5 kwp that would light the homes of around 3,000 villagers and give electric power to the surrounding 40 businesses, schools and churches .

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- Solar energy is generated from a solar power plant made up of 56 panels mounted on the roof top of two containers structures which house the office, step up storage batteries, electronic power production control meter(measure power generated and distributed) and automatic diesel generator just in case there is no enough sunshine to generate the solar power
- The electricity is distributed to the customers through electric poles.
- One encouraging aspect of the solar power plant is that it has life span of 25 years.

Cont'd:**The 56 solar panels mounted on roof top**

Power from the 56 solar panels step-up batteries

Step- up storage batteries and Electronic Power Production Control

Automatic Diesel Generator

Electric poles.

Payment and distribution

- The co-operative uses a state- of –art-efficient – prepaid system technology where by a customer is given an electronic prepaid card with his number.
- The amount worth of electricity unit purchased is entered into the electronic card through the office computer.
- The customer goes to place the card into a slot on a meter mounted in his/her premises.

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- This pre-paid system has greatly assisted the coop as the default rate is zero unlike before when the post paid system was in use.
- For one to be supplied with power, he/she must pay a connection fees of kshs 17,000 to the co-operative although on installment basis.

- So far the co-operative has connected electricity to around 38 businesses, 4 churches, 1 primary school, Dispensary and the chief's camp.

- The availability of cheap power has attracted many investors to the Kitonyoni Market resulting in rapid fast expansion of the business activities.

Businesses connected to the solar power within Kitonyoni Market

Kyaka Primary School connected to the solar power within Kitonyoni Market.

Kitonyoni Dispensary connected to the solar power within Kitonyoni Market

Benefit from the solar power generation and distribution

- The co-operative has gone a long way to provide clean and safe environment
- Protection of the environment against any pollution
- Business growth in the market has improved
- Improvement in examination results at Kyaka Primary School

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- The co-operative has improved the members' financial fortune in that it has many streams of income such as membership fees, share capital, selling of electricity, selling of batteries and lanterns; charging of lanterns' batteries and
- giving of loans to members for further investment.
- The net income from all these sources is re –invested back to grow the business.

Challenges from the solar power generation and distribution

- The power from the co-operative has been controlled to be used by light power consumers like households and very small businesses.
- The solution to this is that full power generation and distribution from the co-operative should be stepped up as the solar power plant has that capacity.
- Stepping up of the power requires urgently talking to the implementers of the projects, the University of Southernmpton.

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- Limited distribution :The distribution of raw materials like electric poles and copper wire are very expensive as they go for ksh9,000 per pole and ksh 1,000 per meter to buy.
- the co-operative has plans to at least make power distribution within a radius of 600 meters.
- requires massive capital injection

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- Currently, one kilowatt is going for ksh1oo from the co-operative. To the ordinary members and customers, this is regarded too expensive.
- Solution :The co-operative needs to connect many customers so as to bring down the cost per Kilowatt. Otherwise, this may push the community back to paraffin and wood fire for lighting to the detriment of the environment.

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- The co-operative is struggling to boost its income.
- Development of new products and strengthening of the capital base
- recruitment of more members, more customers and retaining of more surplus.

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- Past Governance gaps in the cooperative

- Solution: Proper training on co-operative governance and business should be offered to the committee members by

Conclusion

- The cooperative has made use of the solar energy from sunshine,
- to empower its members, customers and community reorganize the need for protecting the environment as they get their livelihood from it

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- The co-operative needs to re-engineer itself and push its business venture forward by using the same electricity to pump water from the bore hole for domestic and solar drip irrigation. This will not only improve the food security in the area, but will also enhance environmental protection. This case study is an eye opener in that policy makers can replicate the co-operative model to provide cleaner, safe and cost-effective power from solar energy and in the so doing, sustain the natural environment.

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THANK YOU

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