



Creative Capacity Building in Uganda

CREATIVE CAPACITY BUILDING HAS A GREAT POTENTIAL TO CONVERT LOCAL COMMUNITIES INTO INNOVATORS

HIGHLIGHTS

Overtime science and innovation have driven human development. Sub Saharan Africa countries are increasingly investing in research and development with a focus on the rural areas. We use a randomized control trial (RCT) and the difference in difference and qualitative tools to analyze the impact of D-Lab's village level creative capacity building (CCB) training program in rural Uganda. We examine two treatments namely full dose, half dose and a control. We analyze impact along four dimensions of technology creativity, household welfare, behavioral change and attitudinal change.

Results show that CCB training increased tools and machine usage and creativity among participants. CCB training also increased the number and type of economic activities, value of assets, household

KEY POLICY MESSAGES

- The Creative Capacity Building (CCB) approach has great potential to convert local communities into vocational and innovation centers by building their capacity to design and make tools using locally available material. The approach showed that the local people have the capacity to design their own tools if given the capacity and confidence to change their own perception and self-esteem.
- CCB technologies showed significant impact on crop income suggesting that CCB training has great potential to alleviate poverty.
- There is urgent need mainstream CCB training in order to help sustain its impact on local communities and on the economy.
- CCB training has great potential to be mainstreamed in national vocational training programs involving local institutions at the low cost.
- There remains a challenge sustainably producing and marketing tools and spare parts in the local community setting that needs urgent policy attention.

incomes and welfare. Furthermore, CCB training reduced labour requirements and improved gender division of labour. We affirm the potential of CCB training to convert local communities into innovators, eliminate drudgery in agricultural value chains. It can also be mainstreamed in existing local skills

development training programs. The study underscores the need for complementary policies and programs to support the production, dissemination and marketing of tools and spare parts developed through CCB training.

Impact of Creative Capacity Building Training on Rural Household Welfare and Innovations in Uganda

INTRODUCTION

Since the industrial revolution, technologies and innovations have driven human development and competitiveness and it is for this reason that countries that invest in research have correspondingly higher levels of innovations and human development (OECD 2007). Sub Saharan Africa (SSA) has the second lowest Research and Development (R&D) intensity (gross expenditure on R&D as percent of GDP) and the lowest human development index. The low investment in R&D forces countries to import most of the technologies. Some technologies have been found to be inappropriate due to cultural, social and economic reasons and this has prompted efforts to focus on technologies that are made in close collaboration between external inventors and local communities. Additionally, efforts are also being made to discover the local community inventions and their local knowledge and technology. Nurturing and developing local innovations – especially in the rural communities have been limited – especially in SSA.

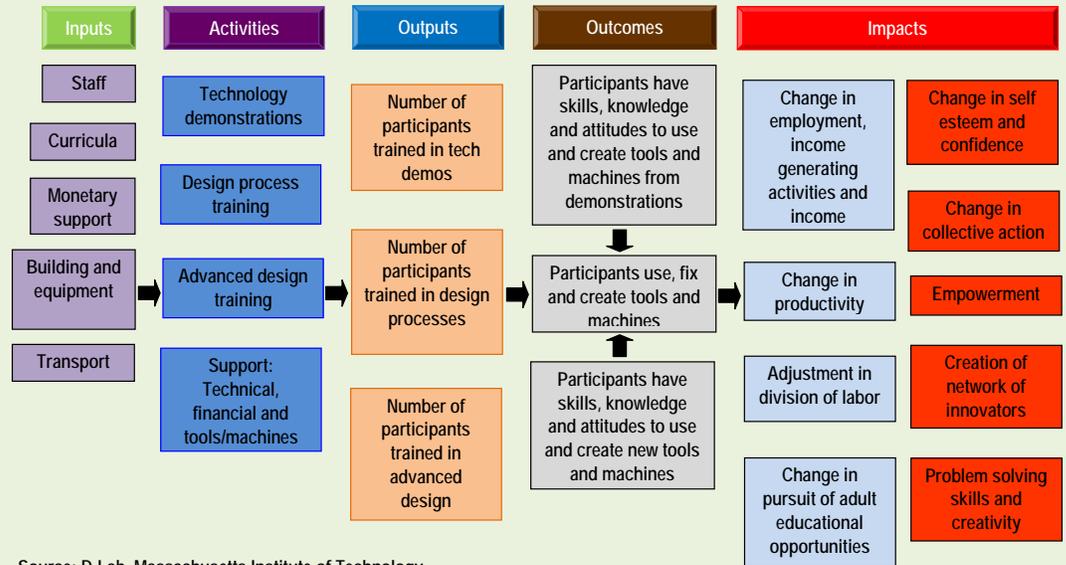
Creative capacity building (CCB) approach is a community-driven program that allows communities to identify and design their own tools, machines and other innovations that meet their priority needs. CCB training was implemented in nine districts in Uganda and involved about 400 trainees. D-Lab - a program at the Massachusetts Institute of Technology (MIT) provided the CCB training in close collaboration with Kulika Uganda. CCB focuses on harnessing local creativity and indigenous knowledge in the technology design process, facilitating community-based innovation and invention, with specific attention to rural job creation, improving labour productivity, and quality of life at community level. CCB encourages and trains people to make technologies that generate income, improve health and safety, save labor and time and change perceptions about themselves.



The design process is made by distilling key elements into a hands-on curriculum that is accessible at any educational level. This study was conducted with a broad objective of determining the impact of local innovations on human welfare and local communities' perception and attitudes on their ability to innovate.

THE RESEARCH PROCESS

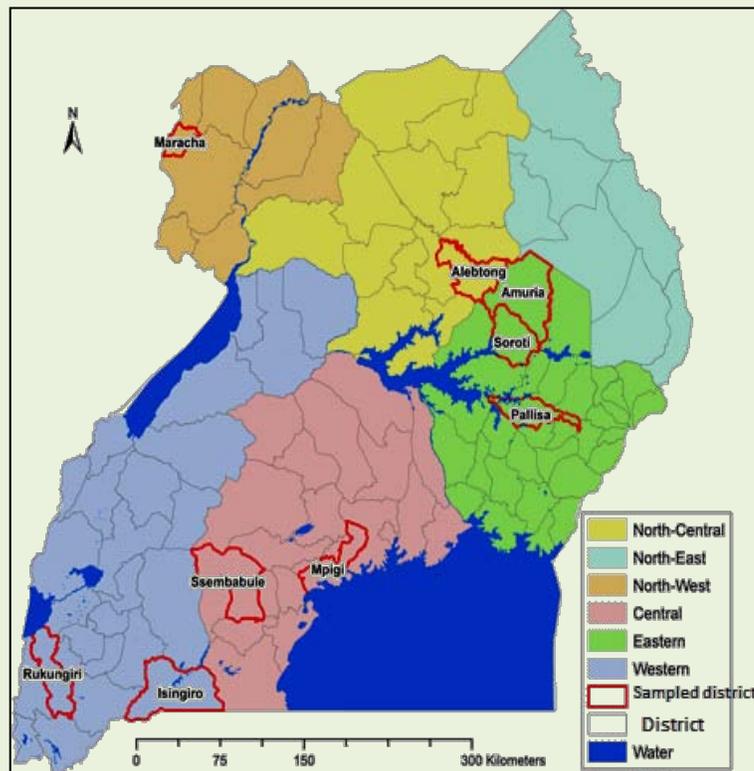
The study used both qualitative and quantitative approaches to achieve the study objectives focusing on 9 selected districts across the four regions of Uganda. Focus group discussions (FGD) were conducted among the CCB beneficiaries only. Stratified cluster random sampling was used in designing the random control trial (RCT) design used in this study. Quantitatively, baseline (2014) and end line (2016) survey data were collected from a panel of 1252 households and this supported the estimation of the difference in difference model. CCB training is effective if conducted among trainees who



have worked together and know one another closely hence we selected CCB participants from farmer groups. We considered three treatments namely, full dose (CCB training and demonstration), half dose (demonstration only) and the control.

KEY FINDINGS

Technology Creation and Use: Compared to the control group, CCB training increased the number of tools and machines used at the household level by 71% for full dose and by 64% for half dose treatments.



Economic Impact: CCB training increased the number of economic activities by two for both full and half dose CCB beneficiaries.

CCB training also led to a significant increase in the type of activity done; specifically, a significant share of full dose CCB beneficiaries switched to artisan activity involving tools. The major reason for switching to a new activity was acquisition of new vocational skills.

Asset Value and household income: Impact of CCB training on the value of household assets is weak and not robust. However, CCB training had a large and significant impact on crop income which increased by 36 percent for full dose beneficiaries. This was expected given that most of the CCB tools developed were for crop processing. Impact of CCB on non-farm income was significant at 10% for both full and half dose beneficiaries. Impact of CCB training on livestock was not significant because of the crop orientation of the CCB tools designed. Total household income increased respectively by 43% and 55% for the full and half dose beneficiaries.

Labor saving and division of labor: CCB technologies reduced labor requirement from 54% to 96% for major value addition activities. Except for transport cart, all technologies reduced labor needed for doing the same activity using traditional tools/methods by over 80%. CCB tools significantly changed the division of labor across different activities. The fruit picker changed the dynamics from an exclusively men activity as women could also pick fruits without needing to climb. The CCB seed cleaner enabled men to get actively involved in the

seed cleaning activity that was initially for women by winnowing. Some CBB technologies including the maize sheller, groundnut plucker and sprayer did not significantly affect the gender division of labor.

Ability to repair broken tools: CCB increased the capacity of beneficiaries to repair tools and machines by 60% in full dose households and 75% in the half dose household.

KEY REFERENCES

- Agrawal, A. (2004). *Dismantling the divide between indigenous and scientific knowledge*. Gainesville: Department of political science tropical conservation and development program, University of florida.
- Binswanger, H., & Pingali, P. (1989, Janvier). Technology priority for farming in Sub-Saharan africa. *Journal of International Development*, 1(1), pp. 46-65.
- MIT. (2015). *Creative Capacity Building*. Retrieved from D-Lab, Development through Dialogue, Design and Dissemination: <http://d-lab.mit.edu/creative-capacity-building#village-level-training>
- Nwachukwu, P. O. (2014). *Poverty Reduction through Technical and Vocational Education and Training in Nigeria*. Lagos, Nigeria: Developing country study.
- UE. (2012). *Vocational Education and Training for Better Skills, Growth and Jobs*. Strasbourg, France: Commission staff working document.

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Cover Photo: Elderly lady cutting wood in one of the sessions. Source: Kulika Uganda

