Constraints faced in introducing technology to suit rural livelihoods

**Gamini Kulatunga, Coordinator Rural Research Unit
of the Open University of Sri Lanka - kdkul@ou.ac.lk**

INTRODUCTION

The Rural Research Unit of the Open University is engaged in a project 'technology for sustainable livelihoods'. The initiative was based on a COL-funded rural communication project to identify rural technology needs in Sri Lanka.

Based on the findings five rural centers were opened in the year 2005, with Norwegian funding, to train 30 participants at each center per year. Each center was managed by a trained animator. The animators were given training in basic technology and were asked to select a project of their choice. The project, on completion was presented to a group for evaluation. The aim was to develop self-directed critical learning that would help the students to identify sustainable livelihoods in a wider sense of a sustainable society.

This is a five-year programme and the second year just completed and the third year has just started. The first batch, selected after a short practical test, was taught core subjects and then asked to work on a suitable project. As this approach was not very successful, a different one was adopted for the second batch. The students were formed into groups and asked to present project proposals. These projects were started at the beginning and subsequent teaching was demand-based.

The activities were mainly driven by peer emulation rather than authentic need-identification. This will be corrected by conducting interactive sessions with the prospective students, with community participation, to identify needs and capabilities of the community. The matching of the resources that include cognitive, goodwill, material, personnel, institutional and time, will be the most crucial part in finding acceptable and viable technologies that will retain students' interests.

The paper attempts to discuss the constraints faced in the context of a rural setting in introducing technology that would sustain the livelihoods of the people. The resource constrains as well as the practical constraints in implementing such a programme are described with the intent of sharing the experience and learning from others' experience.

SUSTAINABLE LIVELIHOODS

Sustainable livelihoods were identified using the following description, as defined by Department for International Development (DFID) UK, for implementing the project:

> "Livelihoods" are the ways people combine their capabilities, skills and knowledge with resources at their disposal that will enable them to make a living. A "sustainable' livelihood is one that can be carried on now and in the future without depleting the resources it depends on and without depriving other people of a livelihood. It can also be carried on in spite of shocks and changes like natural disasters or seasonal cycles)."

The areas selected were mainly rural bases and the main activity is agriculture. The livelihoods aimed at was not mere farming but value-adding to the produce and post harvest technology to minimize losses suffered during glut periods.

This necessarily entailed some minimum technology that could be adapted to suit local needs on a sustainable basis. Energy constraint was one aspect that had to be taken into account.

Project selection

Therefore, it was important that the capabilities and the resources available were identified at the outset. This became a difficult task as the students were of 18 to 25 age group who were expecting a large input from outside even to identify these. Various strategies were tried out at different stages. At the beginning the students were asked to face an interview where they were made to describe their interest and what the family background is. The selection based on this did not produce the desired results due to lack of community participation.

The second batch was selected based on a project proposal submitted by students who were asked to form into small groups based on their interests and complimentary roles they could play in completing the projects undertaken by them. The outcome was better than in the previous year but to maintain group cohesion was difficult due to many reasons.

The third batch was first made to attend the final presentations of the previous batch in order to give them an inkling of what is expected of them. They were given time to from into groups and identify projects based on capabilities and resources. A second round of consultation was carried out to refine the proposals and build in sustainability and continuity into the projects proposed.

RESOURCE CONSTRAINTS

The resources were identified to be of six kinds following the model proposed by Bhola, 1996. These are cognitive, influence and goodwill, material, personnel, institutional and time. Each of these will be discussed at two levels from the context of students and from the context of the animators.

Cognitive aspect was the most intractable as the basic concept of learning-to-learn is a lost art among the students as well as the animators. To facilitate search for information and knowledge each center was equipped with a computer with internet facilities. In addition to the ICT facility, basic texts on relevant disciplines were made available at the centers for easy reference. What was evident in most centers is that the animators' interests get transformed into student projects without much modification on the part of the students.

Influence and goodwill were sustained by working with NGOs and CBOs in selecting the students as well as in implementing the programme. But in certain instances, the students' representation was skewed due to these reasons. For instance gender balance and ethnic balance could not be achieved in some centres.

Material constraints were overcome to a large extent by supplying basic materials and lending equipment and tools whenever necessary. The animators were trained to use the tools and they ensured the safety and upkeep of the tools and equipment.

Personnel management was based regular reporting of activities and planning monthly work in advance. The animators were given mobile phones for easy communication in addition to the email facilities available to them. The students were not so equipped and as a result the facilities were used mostly to deal with the centre and among the animators but not with the students. The students too were engaged in various other learning activities such as computer, English, external examinations at universities etc. So the timely management of interaction with the students was rather constrained.

Institutional constraint was mainly one of apathy to the programme by most of the other academics at the university. Although the Open University has community activity as one of the objectives in its corporate plan, very little interest was shown. This may be due to the fact that the administration was busy implementing a large revamping programme of the university's regional centers, under ADB assistance.

Time, on the part of the students, animators and coordinators was a major constraint. The students were young and they were following numerous other courses that would give them alternate livelihoods. The animators had no transport facilities and they had to rely on public transport to interact with the students. The student projects were mainly home-based and they were also scattered and not easily accessible. The coordinators had to spend time visiting the centres that were selected from remote areas from the centre. Also the coordinators are full-time academics who had to spare the time for visits, in addition to their regular work.

PRACTICAL CONSTRAINTS

The centres were selected from remote and underserved areas. Another criterion was the availability of an intermediary NGO for participation. These met the primary objectives of the programme but the selection gave rise to constraints in implementation mainly due to communication and transport difficulties. Some adjustments were done to relocate the centres at suitable places without inconveniencing the students.

Although ICT facilities were made available connectivity was a major problem due to various constraints. In some areas the civil unrest compelled service providers to curtain the coverage. In places where the service was available the costs were too high for regular use by the students.

The projects selected were mainly home based and this necessitated transport of equipment and personnel to distant places. The poor public transport system was a major hindrance and the time and money spent was inordinately high compared to the usefulness.

The unsettled condition in some parts of the country compelled the closure of one centre and shifting another to a safer place. The visits by the coordinators to the centers to evaluate progress, too, were hampered due to these reasons.

A major draw back was inaccessibility to markets where value added product could be sold. In the village itself, the demand for dried product etc was minimal as the farmers had access to fresh produce. The critical quantity needed to access a distant market was not produced by the programme. Therefore, the marketing opportunity is lost, in many instances.

The few exceptions were production of mushrooms which had a ready demand in most villages either in bulk form or as in packets of small quantities, and minimal-processed leafy vegetables.

Processed products such as yogurt, milk toffees, jams, cordial etc. have a demand in the village but the scale of operation needs to be expanded to justify obtaining the necessary approval by the provincial councils to market these food products.

A way out would be to form network of groups to produce in quantities sufficient for expanded marketing. In order to achieve this, the students from previous batches are asked to find new students so that the networks will from automatically.

TECHNOLOGICAL AND ENTREPRENEURIAL INPUTS NEEDED
Technological

Appreciation of technology is lacking mainly due to poor exposure to technology. Even a simple tool such as a knife or any cutting tool is not kept sharp until it becomes so blunt that the cutting effort exceeds one's capacity. The use of tools and selecting the correct tool for the particular job has been lost mainly due to mass-marketing of homogenous products. The traditional practice of getting tools made by the village blacksmith has gone out of practice.

The exposure to other traditional village technologies such as brick-making, carpentry, weaving etc., have moved out of the village to the towns where electricity is available. This deprives even the minimum exposure to technology. As a result, introducing any form of technology appreciation becomes exceedingly difficult.

Basic hand-tools such as screw drivers, hammer, pliers etc are rarely found in a rural house. The students are not familiar with their use or where to obtain these. Though the project lends such tools and equipment, constant supervision is needed for safety and proper use. This is a waste of time of the animators as the project has no intention to impart vocational training to the youth.

Even in rare cases of tools being available in a house, the upkeep and proper maintenance is not done which is evident from the state of disrepair one could see. Under such situation purchase of tools and equipment would be a waste of capital.

Entrepreneurial
The lack of market sense where the buyer driven economy prevails, it is difficult to bring in a sense of costing where labour is considered free. Often, in a cash-short economy, more than profitability cash income is considered primary. In such circumstances, concepts such as life-time costing, depreciation of capital investment become meaningless to the entrepreneur.

The sharing of ones produce and selling it to the neighbours when cash is needed at any price is the common practice. While bartering is also common if a market approach is to be instituted then a different value system and a way of valuing needs to be appreciated.

This become important when value-adding is considered where some form of investment is necessary on equipment. Often family labour is considered free in the absence of alternate opportunities. At least a notional value must be given to labour to choose from options. It is rather difficult to build this idea in to the rural farming communities.

Investment is mainly done as a form of emulation. When asked why a certain piece of equipment was bought very often the answer is that others in the trade have it. Whether the output justifies the investment is never looked into.

The need to seek information from the market to produce what is needed may not be common in rural settings as the decision to grow a crop is decided by many other factors in addition to the market.

PEDAGOGY FOR LIVELIHOODS
Pedagogy as practiced today may not have the means to transform knowledge to livelihood skills, especially for people of a different social setting different from the technology and entrepreneurship as known today. Whether the technology and entrepreneurship of tomorrow will follow the same patterns is also question that needs to be answered.

Learning for what kind of life and world has to be asked constantly as Kierkegaard says "Life can only be understood backwards. In the meantime it has to be lived forwards". Or in a more recent version as stated by management guru Marshall Goldsmith "What got you here won't take you there".

The space of change is fast and the poor in rural areas are at the receiving end of most of the damage. What changes are needed to face the future has to come from an approach that fosters learning-to-learn. Simplifying life and aiming for a higher quality life may sound opposed to what is proposed but that may be the outcome needed.

As Delors suggested in "Treasure Within" the being mode may to be actuated for the rural people in particular to sustain their livelihoods. The four pillars in the 'being mode' are: learning to know, learning to do, learning to live together and learning to be. The programme has attempted the first three but the last may become increasingly important in the future.

In such an approach, getting the right answers may not always be the most important goal (Laurillard, 1993). But, a constant search and innovation may be necessary for sustainable livelihoods in a fast changing world. The answers may emerge out of the search.

Saljo (1984), says that our knowledge gained by personal experience and therefore 'true' in our everyday realm of life, may have to yield in a different culture have to yield to an alternative mode of conceptualization that links 'scientific version of the world'. This conceptualization need not be 'scientific' but it should encompass both religious and work ethics which Lyotard calls the meta-narrative (Lyotard, 1984).

The lack of innovation in technological and entrepreneurial skills we bemoan may reflect on a misplaced means of evaluation. The rural man may be adapting a stance which is more sustainable in the long term based on an alternative value system. Knowing the risks the rural man takes in a given environment, a more encompassing view taken by him may be the answer.

In designing the programme and the teaching material we may have to follow the advice by Hodgson (1984). He says The design of the teaching material will be challenging and creative especially when one realizes these 'students' are treated as social beings and not as mere learners.

CONCLUSIONS
The gender balance is skewed with over 67% female participation. This may indicate that home base projects cater to girls than to boys. The expected group cohesion in executing projects did not materialize again indicating mismatch in project selection and objectives of the programme.

The constraints faced may be an indication of the need for change in direction and objectives. To pilot a changed stance a small group of young students, close to the university, is being given an "English education" as a means to create curiosity and search for knowledge which seem to be stifled by formal schooling. As Akuo Arai (2004) emphasized, the importance of changing schooling is the most fundamental basis for lifelong learning.

If this is found successful we may try this too with the next batch. Hopefully, by next year some of the constraints found in the physical infrastructure will be over with the resolution of the country's prevalent unsettled conditions.

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