

Scheme of Community Politechnics

The nation has made a substantial investment, in manpower, material and capital, in Rural Development programs. While some breakthroughs have been achieved, e.g. the Green and the white "revolutions", the condition of the masses in the rural areas, still leaves much to be achieved. The scheme of community polytechnic, was launched in 1978 and later extended, with the expectation that with their technical skills, and equipment facilities, and some incremental support, these polytechnics could make a decisive contribution to rural development.

There is no doubt that we need to apply more science and technology in our efforts at rural development. Education in its broad sense should be the "cutting edge" in this endeavour. While generally agreeing with the direction the scheme has taken, we feel it necessary to clarify and stress some aspects of the scheme, viz. 1) Selection of projects 2) Information system and 3) Broad plan of action or strategy.

Selection of Project :-

We believe the selection of projects and definition of problems needs to be discussed and clarified. Every aspect of rural life needs development and every problem faced by the rural population is an opportunity for the application of science and technology.

1. The community polytechnics (CPs) should select projects where they can exploit their own strengths in skill and facilities. The project work should sharpen their skills and enable them to "grow" and become centres of excellence in the field. This will by itself be a justification in using a skilled resource; and the institution itself will be climbing the "Technology Ladder".
2. Any project taken up by the CPs should have the potential for exponential growth and not just linear growth. A few hundred CPs each tackling 10-50 villages each cannot hope to make an impact on 6 lakhs villages. The CPs must start a chain reaction that keeps growing once started. It is worth noting that exponential growth may start slow but quickly overtakes linear growth. A sigma shaped curve is typical of a successful product or service. A program that always depends on subsidy or promotion can only grow linearly and needs to be looked into.
3. The on-going programs (technologies) must be the first to be examined for possible areas of support through cost reduction, improving productivity and / or quality. This ultimately makes it easier to get more funds for newer projects or technologies. Because of large scale operations, even small improvements can make big financial savings that establish credibility and boost morale. Testing new ideas in an on-going program also gives precise and programmatic directions for development and immediate acceptance of useful ideas.
4. Costing and economics must be involved from the selection stage of the program. Costing exercises not only bring out the areas that need more effort but often provide the means of monitoring the progress. There are ways of providing monetary values for social benefits and intangibles. Care should be taken to balance these against the net surplus in such a way that exponential growth is maintained.
5. Whether in the development or popularisation of a new product or service, the target population must be clearly and precisely defined, quantitatively where possible. No product or service can be propagated for all the population in the same way. To carry the message successfully we should define the social, physical, economic and intellectual parameters of the target population. Equally important during the development stages, we should build an

information link from a sample of the target population to the technology generator. If this link becomes vague, the project becomes irrelevant. The user, and not an expert panel, is the ultimate judge of the product or service.

6. Identification of bottlenecks – rate controlling parameters are often very rewarding activities for study. Work study and value analysis are useful tools for this quantitative thinking is most important.

7. Removal of drudgery and generation of employment are both national objectives the difference between them is only productivity. Low productivity makes drudgery same activity at high productivity is good employment. To remove drudgery, we need only to increase productivity – not eliminate the activity.

Productivity is the ability to increase the assets with given resource in all forms.

8. Capital and labour intensive activities. The true capital of a nation or an individual, is the Human Resource and time. The human resource should be weighted for skills and is not based on numbers alone. Natural resources do add to the capital but are subsidiary to human and time resources – as so well demonstrated by Japan. We always carry the impression of money being the capital. Money is only a token of surplus assets built up in the past by the use of human resource and time.

Therefore the question of labour intensive or capital intensive ? should be decided on the basis of which produces faster growth of assets with available resources in all forms. It is not immediate growth, but the rate of growth that is important.

9. The difference between luxury and a necessity is only accessibility. Something that is within reach of every one has the potential to become a necessity, if it makes a useful improvement in the quality of life. The motor car changed from a luxury to necessity in USA in the early part of this century. Electronics is doing that now even in some developing countries. Soaps and detergents, plastics, synthetic fibres, electricity, are all examples of things that are making the change from luxury to necessity. So in choosing the project we chose that which has the potential to become a necessity. The question we should ask is whether the product or service has the potential to make an impact on the quality of life if technology should bring it within reach of every one.

The gap between the market value of a product and the cost of materials that go into it, is a measure of the scope for science and technology to bring down the price.

10. Finally the selection of project, should take into account the chance of success. We should have a portfolio of projects, so that we have a success to our credit at reasonable intervals. Success breeds motivation.

The criteria of success are also important. Technical success is not the end of the project. Sometimes field use indicates the need for a complete change in the technology. Therefore regular use in the field is the only indicator of success.

The Information System:

Information both technical and management, is not only a most important resource, but also a capital Asset that is built up and grows. So it represents money spent. This is more particularly important for educational and development projects. Good information starts chain reactions and is worth much more than the money spent on it – so it is wasteful to carry out a project and not record all the information on it.

The information system could consist of two parts: 1) Information recording and access system 2) A referral system.

All raw technical data must be suitably recorded and conclusions indicated. The technical reports must be properly indexed for accessibility. Significant results of one group, must be reproduced by another group. All information must be categorised in terms of its confidence level, which should rise continuously, until it reaches the stage of "proven" technology. In the absence of such scientific documentation. A lot of funds and time are lost either in repetition of what has already been done elsewhere or in adopting a technology which is not yet fully developed.

The referral system forms a chain in which information flows in both directions.

Target	School	Community	TTTI or	IITs Universities
Village	Centre	Polytechnics	Resource	CSIT, etc.
Population			Centre	

In the referral system, each group tackles problems it can. Problems that are considered important (benefit quantified) but difficult to tackle are referred to the next institution along with the problem definition. The group that can solve it passes information and instructions in the reverse direction with practical demonstration where necessary. This system forms a pyramid of expertise.

A technical journal, bilateral and group meetings and a central information centre will also form the communication links.

Broad plan of Action:

Here we illustrate one system, whereby an exponential growth pattern is obtained, simultaneously strengthening existing educational and IRDP programs.

1. Select one or few villages for building up the "models".
2. Select high school (or other institution) as your local extension arm/ centre.
3. Equip and give skills to teachers/ active youth at the centre to make them trainers
4. Build information links in the referral system.
5. Introduce through the local trainers – programs for giving skills / service such as SUPN/ WE/ TRYSEM, non formal education etc.
Socially useful productive work, work experience; part of educational programs.
Training for Rural Youth in Self Employment; part of IRDP program for those below poverty line.
6. Local Centre to start identifying "problems" in on activities, collect quantitative information and "transmit" this through the referral system, as necessary.
7. After satisfying that the extension arm is functioning satisfactorily, the community polytechnic uses this as a model to start more centres – all the them linked to it and to each other through information system.

The above system illustrates one example of how the ideas on the selection of projects and the information systems can be linked to produce an overall program of rural development, involving not only the community polytechnics but higher technical educational institutions as well. There could be other systems that could be considered.