

Eco 402: Development Economics: Experiences

Group-B

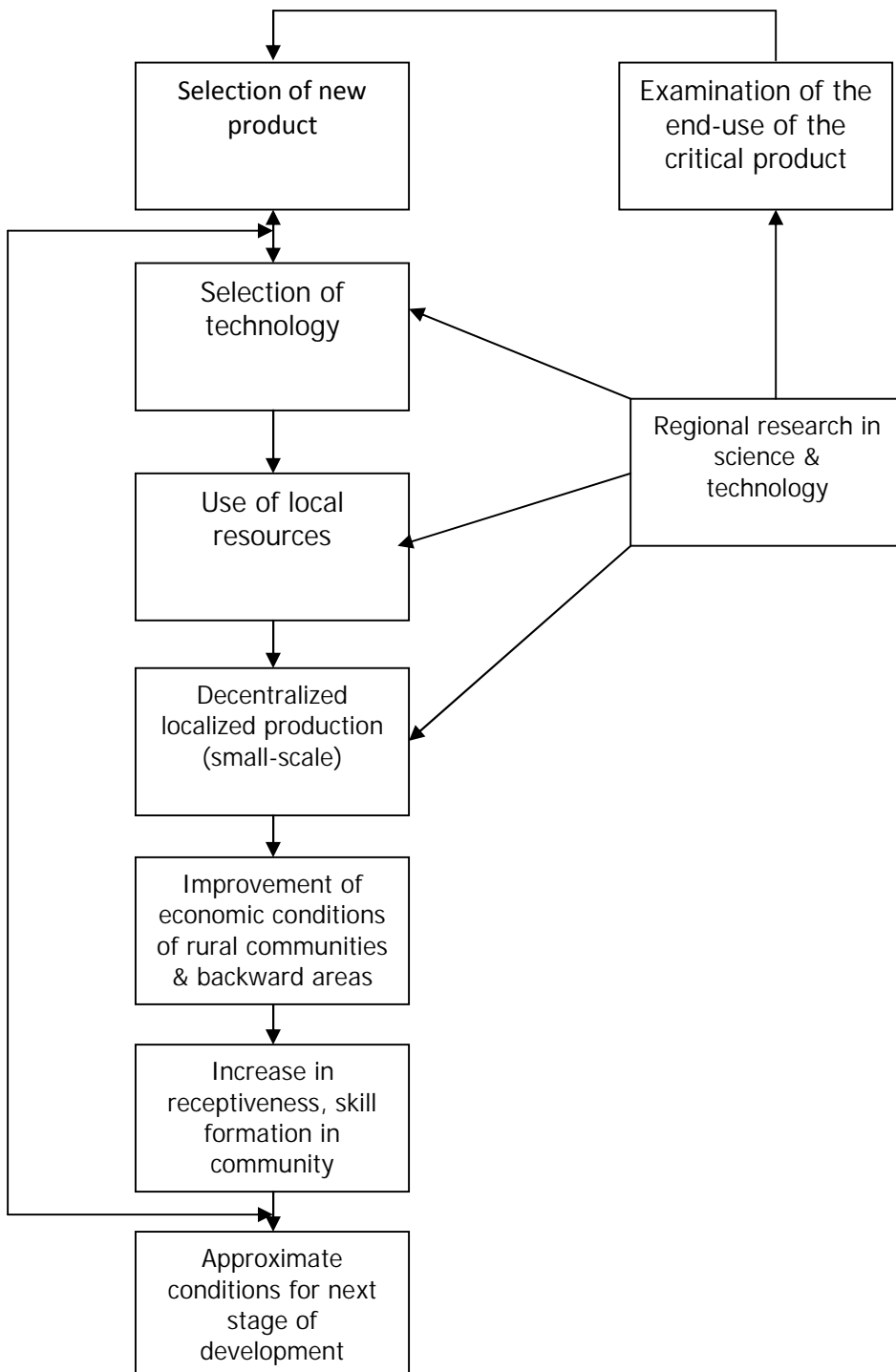
Unit-3: Inclusive Growth and Development of Backward Regions

Lecture-III (Dr. Shrabanti Maity)

ALTERNATIVE STRATEGY (Cont)

Through technology, the nature of the product, the resource use and the spread of the benefits to the local community are influenced. We next consider the influence of the technology on output and present it in figure-2.

Figure-2: Selection of technology



In rural and backward areas, there is a need to promote energy-use and a higher level of technology-use in a gradual and phased manner so that the local community is prepared to accept such changes. The choice of technology becomes a sub-problem of the overall problem of selection of industrialization and locational strategies. The problem of choice of relevant technology can be stated as follows:

- (a) given a product set 'P', to select a technology 't' from the available technology package 'T' so as to make the production process efficient.
- (b) Given a product set 'P' and a resource vector 'R', to design a technology 't' which is efficient and effective; 't' may be within 'T' or outside it.

At present, whenever the question of selection of technology is raised, it is normally from the available set of technologies. This selection process conforms to the statement of the choice problem as described in (a) above.

Of course, it can be argued in the case of (a) that the non-availability of resources at the local level and the consequent higher prices of non-local resources may ultimately lead to the choice of technology as defined in (b). But there is a fundamental difference between (a) and (b). In case (a), choice is confined within the available technology, whereas in case (b), the technology package is not fixed and new technologies may have to be explored and designed before the choice process is completed. It is often felt that the rejected technologies of the West are being dumped in developing countries.

In designing the appropriate strategy, we have to identify new products, explore new technologies and develop infrastructure of the area, and then decide suitable locations of production and service units. Given these requirements, it is highly unlikely that a backward area can be transformed into an economically developed region in one planning period of 5 years. Many of the development processes are linked sequentially, and therefore the entire strategy of development has to be completed in stages, and should in our view have the

following seven components. Most of the components have to be performed in stages which are sequential in time. However, some can be attempted concurrently.

The following are the components of the development strategy:

- (i) Increasing the bio-mass production and agricultural production. Generally the backward areas (especially tribal areas) are also agriculturally backward, consisting of wasteland and water- scarce areas. It may be necessary in the initial stages of development to provide vegetation cover to retain soil moisture and to stop erosion of the top soil before serious attention can be given to improvement of traditional agriculture. Thus, in the initial phase, increasing bio-mass production should receive priority attention. This can be achieved through the following: increasing agricultural production by improving use of water and wasteland development; better use of other resources; increased supply of bio-fertilizers (by recycling waste and wasteland utilization); and the introduction of social forestry and 'food gardening'. However, this does not preclude taking appropriate steps in relatively better pockets of the underdeveloped regions to improve agricultural productivity through better agronomic practices and even by changing cropping patterns. Watershed development, wherever possible, can be undertaken at this stage.
- (ii) Small-scale energy and chemical production using bio-conversion processes. This would apply the new technology of converting wood cellulose to a wide range of materials, and converting bio-mass into useful products by 'pyrolyses'. The development in bio-technology would follow once the bio-mass availability was increased by step (i). A technological forecasting exercise has been undertaken in this area to determine the future possibilities of bio- technology development (for details, see CASAD).

- (iii) Development of physical infrastructure. This is to be achieved by using energy-saving materials technology for constructing infrastructure. This technology will include fabricating equipment for the energy industry, bio-conversion processes, recycling of wastes, pollution control, transportation equipment and creation of facilities for food drying, packaging and storage.
- (iv) Efficient production and local distribution of energy. This is done by developing solar/thermal co-generation processes concurrently with an improved transportation system for gases and liquid fuels through pipelines (we are here talking of small-scale distribution pipelines within the village). Low-cost solar technologies are not yet available in usable form for extensive application.
- (v) Dispersed industrialization. This will be based on energy-saving materials technology, improved transportation and use of renewable energy, along with creation of new towns/ settlements in dispersed locations. This will facilitate development of better communications and spread of the beneficial effects of individual growth. An (LP) energy-allocation model attempted in one district shows that the local sources of energy (particularly renewable sources) must be significantly enhanced for achieving the development targets in the region. Estimation of energy demand and the optimal manner of providing the needed energy also received attention.
- (vi) Exploitation of renewable sources of energy wherever possible. This will be achieved by over-coming constraints through use of low-cost energy-saving technologies for exploitation of wind-wave-tidal energy and hydropower resources. (This of course will be only applicable in special areas, and as such will be of limited use.) Basically the idea is to use/exploit as far as possible all renewable energy sources.
- (vii) Development of health, education and other facilities. This requires the equitable distribution of infrastructure facilities for health and education. It is necessary also to

improve the quality of services through better management practices, participation of the beneficiaries and use of modern information and communication technologies.