SYSTEM APPROACH TO RESOURCE PLANNING :

A CASE STUDY OF SUGARCANE PROCESSING IN INDIA

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CERTIFICATE

This is to certify that the thesis with the title "**SYSTEM APPROACH TO RESOURCE PLANNING : A CASE STUDY OF SUGARCANE PROCESSING IN INDIA**" by **MR. SATBIR SINGH** has been prepared for the award of the degree of **DOCTOR OF PHILOSOPHY** under our supervision in confirmity with the rules and regulations of **INDIAN INSTITUTE OF TECHNOLOGY, DELHI**. The research report and results presented in this thesis have not been submitted for any degree in any other University/Institution.

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ABSTRACT

For increase in the magnitude of savings and investment, introduction of either a new product or a new production process in the economy and achieving the objective of distributive justice, the planning frame which India tried during the last fifty years heavily depended on rate of savings and the assumption of Marginal Propensity to Save (MPS); rate of interest, price incentive and fiscal system respectively. Over dependence on these tools has forced the Indian Planners to design Investment Planning, Human Resource Development Research and Development, Institutional Framework and Fiscal System for producing capital, trained manpower, technologies and infrastructural facilities and services suited to the select use of inputs intensive production processes.

Select use of inputs intensive production processes has given birth to very wide inter and intra sectoral variation in the intensity of skill, energy, capital, pollution free environment and infrastructure per employed and underemployed worker. Intensities of all these inputs influence the Physical Quality of Human Resource(PQHR), and hence, labour productivity. As such, very wide inter and intra sectoral variation in inputs intensities has increased inter and intra sectoral variation in PQHR and labour productivity. Very wide inter and intra sectoral variation in inputs intensities, PQHR and labour productivity has further given birth to many socio-economic problems in the society. For example, very wide inter and intra sectoral variation in capital intensity has created the problem of unemployment and underemployment, inefficient use of capital in

capital intensive production processes and inefficient use of labour in labour intensive production processes. This has made the present planning frame socially irrelevant, unsustainable and incompetitive.

Solution of all the above referred problems demands that the objective, strategy and measurement of planned economic development should be defined from the angle of distributive justice in terms of intensities, PQHR and labour productivity and accordingly different tools of policy-frame should be designed. Technologies are generated and upgraded by R&D institutions through R&D programmes. Trained human resources are generated and upgraded by the higher technical education institutions through their HRD programmes. Infrastructural facilities and services are generated and upgraded by the government through fiscal system. Capital is generated and upgraded by creating surplus resources for further investment through utilisation of available men and material resources. Available men and material resources can be allocated among different sectors of the economy or different regions of the country in two different ways: either through market mechanism or through investment planning. Application of investment planning for allocation of men and material resources among different sectors of the economy or regions of the country demands three tools: (i) a methodology for identifying appropriate production path for processing a particular raw material: (ii) pricing mechanism other than market mechanism and (iii) resource allocation mechanism. Utilisation of generated, upgraded and allocated men and material resources requires a grass root level organisational structure for providing piece wage employment to the unemployed and underemployed willing workers.

The present study has been designed primarily for defining the overall objective, strategy and measurement of development and the concept of PQHR from the angle of distributive justice in terms of techno-economic parameters and evolving the methodology for influencing policies and programmes related to Investment Planning, Human Resource Development, and Research and Development and illustrating its application in respect of processing of sugar cane. However, for ensuring the availability of all the inputs in integrated manner for promoting the adoption of Appropriate Production Path in each and every sector of the economy, the complementary mechanisms compatible and consistent to the proposed methodology, have been borrowed from the existing literature and included in the study. In order to examine the effectiveness of the evolved techno-economic parameters in explaining the production process from the planning angle; of the concept of PQHR in monitoring the policy frame and controlling the inefficient use of one or the other factors of production and of the evolved methodology for identifying Appropriate Production Path; R&D issues involved in making the identified path technically feasible and developing course material for B.Tech. and M.Tech. courses, the required data have been collected and analysed.

The results of the analysis put in the Sixth Chapter confirm the basic hypothesis of very wide inter and intra sectoral variation in inputs intensities, PQHR and labour productivity. Also the effectiveness of the evolved techno-economic parameters in expressing the production process from planning and implementation angles is confirmed by the results of the analysis. Results also confirm the effectiveness of PQHR for monitoring the policy frame and controlling the inefficient use of one or the other factor

of production. The methodology evolved for identifying the Appropriate Production Path; R&D issues involved in making the identified path technically feasible and developing course material for B.Tech. and M.Tech. courses seems to be capable enough in performing its function. In brief, the study proposes an altogether new planning and policy frames. Implementation of the proposed planning and policy frames would prove very effective and efficient in initiating and running socially relevant, sustainable and competitive process of development.

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