

SECTORAL ALLOCATION OF RESOURCES AND PROJECT SELECTION USING O.R. TECHNIQUES IN THE CONTEXT OF NEPAL

By

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*DEDICATED
TO THE MEMORY OF
MY GRANDFATHER
LATE SHRI KANCHAN LAL SHRESTHA
(1895 -1990)*

CERTIFICATE

This is to certify that the thesis entitled "Sectoral Allocation of Resources and Project Selection using O.R. Techniques in the Context of Nepal" being submitted by Mr. Rabindra Nath Shrestha to the Indian Institute of Technology, Delhi, in fulfilment of the requirements for the award of the degree of "Doctor of Philosophy", is a record of bonafide research work carried out by him under my guidance and supervision.

To the best of my knowledge, the thesis has reached the requisite standard. The material presented in the thesis, in part or full, has not been submitted to any other University or Institution for the award of any degree or diploma.



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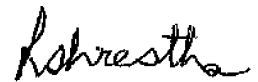
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ABSTRACT

In this thesis, a comparative model of sectoral allocation of resources is developed based on the lines of Stewart. For project selection and the allocation of resources among different projects, a Goal Programming model was developed and applied to selection of developmental projects in Nepal. Hydropower, irrigation, multipurpose and road projects have been considered for project selection.

The allocation model considers that the average labour productivity of the poorest sector should be substantially raised so that there is no incentive for rural labour to migrate to urban areas. For this condition, average income of the poorest sector should be at least equal to the national average. The study undertaken has considered the available data beginning with the VIIth Five Year Plan. The marked deviation of allocation pattern obtained from the model is the reflected exposure of the asymmetric growth or the share of expenditure in the previous economic plans. The priority in order of the share of allocation has shifted from the Social Service sector to the Transport and Communication sector. Although Agriculture sector remains second in both the cases, its share has considerably increased in the alternative model proposed. Resource Allocation by the proposed model have been found to be better in the sense that employment generation has increased without causing adverse effect on economic growth.

In the Goal Programming model, Power, Energy, Irrigated Area, Live Storage Volume, Road Length, Traffic Density etc. have been considered as technological goals. Besides technological goals, economic and social goals like Economic growth, Benefitted

population, Employment generation, Regional development, Project affected population, Affected land area, Cost, Sustainability etc. have been considered in the model.

The priority structures and targets have been fixed for many scenarios. Different scenarios have resulted in selection of different projects from among the pool of projects.

The G.P. model was observed to be highly sensitive to targets of the first priority goals than other priority goals. Project selection depends mostly on the first priority goals and their targets. G.P. model can be used as a method in selection of developmental projects, as it can handle multiple objectives of national economic growth, environmental impact, employment generation, benefitted population, sustainability etc. at the same time.

The results obtained by the two models have been discussed and finally conclusions and recommendation have been made.

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