Chapter 8

A SIMPLE MACRO MATHEMATICAL MODEL

8.1 INTRODUCTION

In the preceding chapter we illustrated the use of complementarities in case of agricultural productive activities. This is true for all sorts of rural productive processes. For animal husbandry, for example, complementary support from agriculture is necessary. Animals need some kinds of commodities like maize and gur processed from sugarcane and, above all, grass raised on land. A picture of interdependence of these activities provide us with important insights on the operation of the activities. Much mathematical operation based on a model derived from an input-output table is not possible within the space of this dissertation. Yet important points can be made. These might enable important restructuring of the integrated rural development project being made for the success of the project.

8.2 COMPILATION OF AN INPUT-OUTPUT TABLE

We compile a three sector input-output table. The three sectors are : agriculture, animal husbandry and non-agricultural production. By agriculture we covered crops raised from land. The production in animal husbandry includes production of milk, a nimals and outputs from hens and ducks. The commodities produced in the non-agricultural sector includes rural handicrafts, making

Table 8.1

An Input-Output Table for the Project Area

Using Sector / Producing Sector	Agriculture	Animal husbandry	Non-agricultural production	Final Demand	Imports	Total Production
Agriculture	199,789.66	-	-	3,814,626.88	767,050.29	4,781,466.83
Animal Husbandry	105,208.61	-	-	64,262.00	145,313.49	314.784.10
Non-agricultural production	-	-	-	432,119.53	670,649.44	1,102,768.97
External supply of labour	468,461.39	-	-	-	-	-
External supply of non-labour inputs	298,588.90	145,313.49	670,649.44	-	-	-
Primary inputs	3,709,418.27	169,470.61	432,119.53	4,311,008.41	-	-
Total Production	4,781,466.83	314,784.10	1,102,768.97	-	-	6,199,019.90

Table 8.2

Input-Output Co-efficients

Using Sector / Producing Sector	Agriculture	Animal husbandry	Non-agricultural production
Agriculture	0.04	-	-
Animal husbandry	0.02	-	-
Non-agricultural production	-	-	-
External supply of labour	0.10	-	-
External supply on non-labour inputs	0.06	0.46	0.61
Primary inputs	0.78	0.54	0.39
Total Production	1.00	1.00	1.00

of traditional foods like puffed rice; beaten rice, rural transport and smithies. We must mention that bullocks used as fixed capital by crop raising farms were included in agriculture. So cowdung produced by the bullocks of agriculture went as inputs to agriculture along with seeds. That means current inputs purchased by agriculture from agriculture were not confined to seeds only but also included cowdung of bullocks used in the processes of agriculture. If there was no time frame for collection of data it might have been possible to have a finer seggregation of data.

8.3 SOME OVER-ALL COMMENTS

The input coefficients show that agriculture has been on the whole labour absorbing. We have already seen before that there is great scope of heightening agricultural outputs through greater use of inputs and through ushering in of infrastructural facilities. The quantum of non-labour inputs used is small and even some meagre irrigational facilities used come from outside the habitation of producers.

The table of input co-efficients also suggest a low level of complementary support between agriculture and animal husbandry. The growth of agriculture and animal husbandry on complementary basis is very fundamental in a less developed country of Indian type. This is a device not merely of increasing incomes and employment but also a great means for assuring the

essential security for balanced food for both the rural and the urban sector.

The current input of cowdung coming from animal husbandry to agriculture in terms of input coefficient stand at 0.02. This might increase to 0.038 if we take out the cowdung of bullocks that finds place among current inputs used by agriculture from its own output. We have already seen that a great deal of cowdung is being burnt out as fuel. So there is a need of the growth of a vast activity of fuel forestry in our local level rural economies so that cowdung now being used a domestic fuel are released for use being made as agricultural inputs.

The amount of cowdung may increase manifold if animal husbandry is fostered as real complementary activity for our agriculture. The table of input coefficients support the observation that the animal husbandry of the area are in a bad shape. There is hardly any infrastructural facility available for this sector. The death of animals, want of marketing facilities, absence of skill formation and consequent low level of production explain the input coefficients in table 8.2.

At the same time the production of feed for the animals can take place on agricultural farms as suggested in section 8.1. The land reserve existing in the area are enough for mutual support of agriculture and animal husbandry. Moreover, the

inputs received from animal husbandry will foster the growth of new crops and processing activities with these crops. These will give new sources of growth in animal husbandry, agriculture and derived activities.

The organic manure grown on the new technology now being developed within the country may also comprise an activity within or outside agriculture. All these activities mentioned so far would go a long way to change the pattern of input co-efficients as given in table 8.2. We shall find that coefficients of primary inputs of both agriculture and animal husbandry would be high. At the same time the well-based processing industries located at the grass-roots will make up the growing constituents of non-agricultural production.