CHAPTER VI
SOME CONCLUDING NOTES, A MODEL OF LABOUR UTILISATION
AND PROPOSALS FOR IMPROVEMENT

SECTION A

Some concluding notes:

The picture, as presented in the last chapter regarding the employment pattern in agriculture, bears eloquent testimony to the phenomenon of underemployment — both disguised unemployment (taking both family labour and hired labour together) and seasonal unemployment (considering the cases of the landholding cultivators and also the landless agricultural labourers) — in the agricultural sectors of the districts of Midnapore and 24-Parganas. And here, the extent of both disguised unemployment and seasonal unemployment is greater in the district of Midnapore than that in the district of 24-Parganas.

As regards our findings on the use of man-days on the holdings in agricultural operations of the 360 sample farms spreading over the districts of Midnapore and 24-Parganas, it has been observed that the actual number of man-days used is positively correlated with the family size and the size of holding. Here again, it may be pointed out that the effect of
the size of holding is very strong in both Midnapore and 24-Parganas. This means that the correlation between the number of man-days used and the size of holding is very high thereby indicating the fact that larger the size of holding, the more will be the use of man-days (on the holdings). Of course, as between the number of man-days used and the size of family, we note the same type of relation, that is, as the latter increases, the former also registers an increase. But here the value of the correlation is lower as compared with the value of the correlation between the number of man-days used and the size of holding. Thus the effect of family size is smaller than that of the size of holding on the number of man-days used. This is true for both the districts of Midnapore and 24-Parganas.

As against these results, which came out from our study, we may put up some concrete proposals in order to give our agriculture a right direction on the employment and production front. Different facets of the employment problem in our agriculture, like disguised unemployment, structural unemployment and seasonal unemployment are inseparably intertwined, as shown in the last chapter. As regards seasonal unemployment, the most notable phenomenon, as revealed by our sample survey, is that there happens an
enforced seasonal diversion of labour from more productive jobs to less productive occupations. This notion of underemployment gains strength during the off-seasons in the agriculture of our survey districts. Thus, to repeat, the two major problems of underemployment — the seasonal one of unemployment and the structural one of disguised unemployment — are intermixed. Hence, no proper policy prescription can be made treating any of these problems in isolation from the rest.
A simple micro model of labour utilisation and some measures which may raise the level of agricultural employments.

The low level of employment in an agricultural farm is clearly due to the maladjustment between the labour demand and supply factors. Here we may present a simple model of labour utilisation in agricultural operations in micro context, that is, taking the case of an individual farm. In this case both family and hired labour are considered together.

\[ S_a = \gamma \{ F, U, \left( \frac{W_a}{W_i} \right), A, E \} \]  \hspace{1cm} (1)

\[ D_a = \phi \{ H, P_a, \left( \frac{W_a}{W_i} \right), M_a \} \]  \hspace{1cm} (2)

For equilibrium, \[ S_a = D_a \]  \hspace{1cm} (3)

Equation 1 indicates that the supply of labour to an agricultural farm \((S_a)\) is a function of (i) the size of the family of this farm \((F)\), (ii) the number of members of this family engaged in non-agricultural occupation \((U)\), (iii) the relative wage rates in agriculture and industry \((W_a/W_i)\), (iv) age structure within this farm family \((A)\), (v) the level of educational attainment of the labour force in this family \((E)\).
Equation 2 expresses the demand for labour in this farm family in terms of (i) the size of holding of this family (H), (ii) prices of the farm products (Pa), (iii) price ratio between labour and labour substitutes in agricultural production (Wa/PK) and (iv) the marginal return added by a labour input (Ma).

Equation 3 indicates an equilibrium condition regarding the use of labour in the case of the farm concerned.

Now, as regards equations 1 and 2, we find two types of cases: one, where the dependent and independent variables are positively related and the other, where these variables are inversely related. In the former case, if the independent variables rise, the dependent variable will rise and if the independent variables fall, the dependent one will also fall. But in the latter case, that is, in the case of inverse relation, with the rise in the independent variables, the dependent one will fall and with the fall in the independent variables, the dependent one will rise.

The nature of the relationship between Sa with each of the independent variables, for fixed values of the other independent variables, may be expressed in terms of partial derivatives as follows:

\[ \frac{\partial S_a}{\partial F} > 0 \quad \text{... (4)} \]

\[ \frac{\partial S_a}{\partial (Wa/Wi)} > 0 \quad \text{... (5)} \]
In the first three cases the relationship is direct, in the last two it is inverse.

In equations 4 to 6, we note that the supply of labour input ($S_a$), will rise with the rise in (i) the family size ($F$), (ii) the agricultural wage in relation to industrial wage ($W_a/W_i$) and (iii) the average age ($A$). So also if $F$ or $W_a/W_i$ or $A$ falls $S_a$ must fall.

In equations 7 and 8, it may be shown that with the rise in (i) the number of members of this farm family who are engaged in non-agricultural occupation ($U$) and (ii) the level of educational attainment within this family ($E$), supply of labour ($S_a$) will fall and if $U$ or $E$ falls, $S_a$ will rise. It may be mentioned that if average age structure ($A$) becomes high, and if the level of educational attainment ($E$) becomes low, off-farm migration comes to be of lower rate and hence the labour supply in the farm will rise up. Again, the expanding family size with a low rate of off-farm migration makes its effect felt in the increased supply of labour for agricultural occupations of the farm.
On the side of demand, the nature of the relationship between $D_a$ with each of the independent variables, for fixed values of the other independent variables, may be expressed in terms of partial derivatives as follows:

\[
\frac{\partial D_a}{\partial H} > 0 \quad (9)
\]

\[
\frac{\partial D_a}{\partial P_a} < 0 \quad (10)
\]

\[
\frac{\partial D_a}{\partial M_a} > 0 \quad (11)
\]

\[
\frac{\partial D_a}{\partial (W_a/P_a)} < 0 \quad (12)
\]

Here in the first three cases the relationship is direct and in the last one it is inverse.

In equations 9 to 11, it may be observed that with the increase in (i) the size of holding ($H$) of the individual farm concerned, (ii) agricultural price ($P_a$) and (iii) the marginal return of labour ($M_a$), the demand for labour ($D_a$) by the farm will increase and vice versa. But, as evident in equation (12) the demand for labour ($D_a$) is inversely related with the price ratio between labour and labour-substitutes ($W_a/P_a$). Thus, if the price of labour in relation to the price of any labour-substituting factor is higher, the demand for labour will definitely ebb down and vice versa.

If now the values of $H$, $P_a$ and $M_a$ are very low, the demand for labour cannot rise. And with the surplus supply in the model is disturbed.
There remains a scope for pointing out in this regard the fact that the rate of changes of money wages (\(\dot{W}_a\)) in the case of hired wage labour is dominated by the situation of 'excess'—whether excess demand for labour or excess supply of labour. This is revealed in the following equation

\[
\dot{W}_a = \Theta [(S_a - D_a) ; B]
\]

Here, the wage rate will be revised in an upward manner if \(S_a < D_a\) and in the downward manner if \(S_a > D_a\). (This excess value here may be positive or negative). This apart, the change in wage rate (\(\dot{W}_a\)) may be influenced by a set of exogenous variables, represented by \(B\) (e.g., changes in the cost of living and the level of profits in agriculture). In case where supply of labour exceeds demand for labour (i.e., \(S_a - D_a\) has positive value), the wage rate becomes low. This situation of low wage may thus obtain in case where surplus labour exist.

Low level of employment, consequent upon the demand-supply maladjustment, comes to prevail in the agricultural farm when, on the one hand, say, there is expanding family size coupled with low rate of off-farm migration and low level of educational attainment within the farm family, thereby resulting in an upsurge of labour supply and on the other hand, there exists very small unit of holdings due to subdivision and fragmentation, etc, with low farm price and low marginal productivity of labour—all of which keep the labour demand
at a low level.

The micro-level solution for such an individual farm marked by the situation of low-level employment or underemployment, may, therefore, come in various directions, both through individual and state initiatives, like on the supply side, (a) controlling family size, (b) getting the farm labourers more educated when the educated younger ones are supposed to be more responsive to hard labour, occupational training and new ideas and values to which the grown-ups do not so easily respond by preferring to stick to farm occupations, (c) raising the rate of absorption in non-farm occupations both within and without the rural sector and, on the demand side, (d) increasing the individual size of holding, (e) making the terms of trade favourable for agriculture and (f) raising the productivity of labour by providing it with adequate complementary and cooperating factor inputs, technology, etc., etc.

Against the background of this demand supply approach to labour employment, a brief mention may be made of some measures which, in the context of the agriculture of the State of West Bengal, may help raise the level of employment. The policy measures, to mention here, of course, may be said to constitute just the sidelights of our work insofar as our main objective is to concentrate on the empirical findings and statistical verification of the extent of rural underemployment in the State of West Bengal. Nevertheless, to conclude,
some such measures which may improve the situation on the employment front in the agriculture of this State are given below.

For increasing the rate of absorption of the rural underemployed into productive lines of activities what may be helpful in the present economic situation of this State is to effect proper re-organisation within agriculture. Diversification of agriculture through making better provisions for dairy farming, poultry farming, vegetables and fruits gardening, fishery, cultivation of suitable commercial crops (like oil-sheds, ground-nuts, cotton etc., in suitable areas where experiment is already getting underway in some districts of this State), etc., and wider introduction of the systems of double or triple cropping and crop rotation, deserve mention in this case. All these may be facilitated by state subsidies, cheap credit facilities, creation of various types of external economies, etc.

It may also be noted that wider application — both crop-wise and area-wise — of the new technology, as embodied in the High - Yielding varieties method of cultivation, already giving good results in many parts of India, may make significant break-through not only in agricultural production but also in agricultural employment. For one thing, this technology is not any labour-saving device, rather, it is complementary to labour. Labour, in this case, is used much more intensively in the cultivation operation. The required number of mandays per acre,
here, for different stages of cultivation has proved to be much higher than what it is in the case of cultivation of native traditional varieties. What is more, the working of this H. Y. V. method of cultivation may open up the opportunities for the development of different activities ancillary to agriculture (e.g. repairing and maintenance services for different equipment, machineries like pump-sets, etc. required for H. Y. V. cultivation), which may provide some sort of employment opportunities within the rural sector.

In the field of H. Y. V. method of cultivation, various follow-up arrangements like the provisions for better credit facilities (particularly required for covering the high cost of purchase of improved input varieties e.g. High-yielding seed varieties, nitrogenous fertilisers, pesticides, etc.), better irrigation system where good water-management is sine qua non of this new method of cultivation, better education, better agricultural experimentation with on-the-spot demonstration, etc. are necessary. One point of note, here, is that the construction and maintenance work entailed in the cases of state-sponsored irrigation projects, demonstration centres, rural electrification for energising the pump sets required for pump irrigation, etc. may help create immediate employment opportunities for a considerable portion of workers in agriculture. The wider application of the new technology may, therefore, help the growth of agro-based industries and various ancillary
activities, which may have some employment potential.

Apart from ensuring steady supply of improved fertilisers, pesticides, and the necessary capital, supported by good water management and credit facilities, the growth of co-operative marketing societies, service co-operatives, etc. may help the farmers to adopt the new technology of H.Y.V., improving the employment situation, particularly when market imperfections threaten to inhibit the progress of our rural economy. On the top of all this, the favourable price movement of the farm products vis-a-vis the movement of the non-farm and manufacturing prices, thereby ensuring favourable terms of trade for agriculture, may be taken as an important factor influencing the investments on improved farming practices and the better labour use pattern in agriculture.

Again, the growth of such organisations in the different centres of operation which can be assigned certain specific responsibilities for drawing up parts of our national plan may be encouraged for closing, as far as possible, the present organisation gap in Indian planning which seems to have significant bearing upon the problem of rural underemployment. The lack of communication between the centralised planning and those who may have specific responsibilities for drawing up, as for example, the separate agricultural plan, usually creates the mal-adjustment between production structure and the available
resources. In labour-utilising agricultural projects the available resources have so long been much less than fully tapped. Hence, if rural organisations are assigned the specific responsibilities for drawing up plans for land redistribution, crop planning, water management, etc., such organisations may make better plans for agro-investments through the utilisation of surplus rural labour. Hence, this type of organisational changes calls for better planning at the base, which is to be co-ordinated with the apex planning.

After all, organisational changes in planning and reorganisation within agriculture with a good amount of intra-farm organisational and technical adjustments may, it is hoped, favourably influence the pattern of labour use in agriculture.