Summary and Conclusions

Show me the man who makes no mistakes, and I will show you a man who has done nothing (Justus von Liebig, 1803-1873).

In this chapter, we may summarise the results along with offering a few suggestions for policy. In this thesis, four alternative scales of sustainability had been proposed, defined and used in order to analyse the crop production undertaken by 590 households spread across 59 tehsils and 5 agro-climatic zones in 2004-05 of the State of West Bengal and 100 households in 1956-57, located in the districts of Hooghly and 24 parganas.

First, in the evaluation of West Bengal agriculture in 2004-05, through the method of energy balance analysis, many households had been found with a negative surplus in energy terms. Given that a Calorie norm was assumed against the necessary energy intake for human labour and the members of household in accordance of age-sex-activity, the actual surplus could be even more given the widely reported under-nutrition and decrease in the per capita food consumption in the country. Further, owing to the taxonomies of the method no account was taken for property relations, and thus other factor incomes, say, rent. Even while the bulk of the farmers cultivated their own land, the imputation of a notional value for rent will certainly reduce the energy surplus accruing as non-rent income to the peasant household; and where rent is actually paid, this would entail the accrual of lower absolute amounts of actual surplus to those particular peasant households. In sum, the number of households identified in this thesis with a positive surplus in energy terms are defined in a very specific manner.

Second, the phenomenon of negative surplus in energy terms was found across three of the lowest CCS size-groups (0-1 ha, 1-2 ha, and 2-4 ha), with a majority belonging to the first two. This is alarming, to say the least, in terms of sustainability of labour engaged on the land for crop cultivation. Further, such occurrence of a negative surplus was found in all the agro-climatic zones of the State, with varying intensity. Only a few of the households located in the new alluvial zone were found to be with a negative surplus. In contrast, many of the households situated in the relatively inferior bio-physical framework of red laterite and coastal saline zones were found to be with a negative surplus. As a consequence, the critical minimum area (in terms of net area sown) or a
Chapter 7

threshold for ensuring a positive surplus was found to be different across agro-climatic zones. Similarly, a threshold output in energy terms was also identified beyond which a positive surplus emerged. For obvious reasons, obtaining the required level of output is dependent on the state of development of the means of production, and the bio-physical framework supporting the production.

Third, the gross cropped area per household size was found to be having a significant influence on the surplus during the cultivating period. A range of 0.6-0.7 ha/household member was found to be the threshold for ensuring a positive surplus.

Fourth, in spite of the massive negative ecological effects associated with the use of inorganic fertilisers, it had been found to be having an important bearing on the quantum of the surplus on energy terms. In fact, in per hectare terms while organic manure had been found to be of higher value than the inorganic ones, its efficacy is not beyond doubt. There are possibilities of improving/modernising this input towards improving its surplus generating power. Further given the enormous quantity of by-products that can be used as organic manure most of which lay waste, there are definite economic and ecological benefits associated in an endeavour that will involve natural and social scientists towards a better utilisation of this inseparable component of the crop production.

Finally, in 2004-05, in comparison to 1956-57, per hectare surplus in scale A and C of this thesis was found to be much higher across the size-groups, even for the very small farms. Such a result was achieved with the increase in the intensity of cropping, enabled by the modernisation of the methods of production that included chemical inputs. While traditional variety of organic farming as used in 1956-57 cannot be used for such intensification, it is possible to modernise the organic farming methods, practiced all around the world towards an outcome that will ensure sustainability of the labour engaged alongwith a much lower ecological impact.