NATIONAL ACCOUNTING WITH LIMITED DATA: LESSONS FROM NEPAL

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The Kingdom of Nepal is one of the least developed and least known countries. In order to understand the sometimes non-conventional estimating procedure used, a background section is included, describing the physical, socio-economic and institutional framework. In the second part of the paper some illustrative examples of the approaches used are given, the full description being published in four volumes, *National Accounts of Nepal*, National Planning Commission, Kathmandu. The last part of the paper considers the usefulness of national accounts based upon the market economy, and in general, the problem of applicability of international concepts to a developing country. What is the significance of international concepts to a developing country? What is the significance of national value aggregates in a country in which the unit of national currency does not serve as a nation-wide standard of value? Can a common denominator be found if the scale of values and the whole outlook of different groups are so different? What do people value, and does the rural population in localized economies put a monetary price on the value? Has the concept of labour force or employment, as used in industrial societies, any meaning in a society where all those capable, including small children, of contributing to daily survival do so? The conceptual problems have not yet been solved. National accounts are a useful first step in providing planners with symbols for telling a complex story in simple terms and as a kind of statistical reconnaissance, but as development planning is moving more and more in the direction of planning from below and into regional and rural development projects, household surveys are becoming essential planning and evaluation tools. Based upon twenty-five years of field experience, the author reflects upon problems and possible solutions, discussing managerial, training, substantive and statistical aspects.

I. Introduction

It is the primary purpose of this paper to discuss systematically how one might deal with actual problems of national accounting when information, statistical resources and time are limited. The bias of the paper is operational. There is no attempt to improve the general theory of national accounting as applied today to developing countries. Nevertheless some theoretical problems have to be mentioned. The national accounting concepts are based upon a market economy. Is this concept relevant to economies where the majority of transactions are effected by direct barter and production is mainly for own consumption? What is the significance of national value aggregates in a country in which the unit of national currency does not serve as a nation-wide standard of value? Can a common denominator be found if the scale of values and the whole outlook of different groups are so different? What do people value, and does the rural population in localized economies put a monetary price on the value? In a subsistence economy, economic life is characterized by the isolation of the economic unit and by the independent valuation made by each isolated unit of production results. Can therefore a meaningful average aggregate be formed? How should the monastic system and monastic life be treated? After all, we should remember that the boundary of production included in national accounts is really established in an arbitrary way. In my opinion most of the above

conceptual problems have not yet been solved. National accounts theory is operational in the sense that the concepts used are potentially quantifiable, the relations postulated potentially measurable, and the parameters required potentially observable. The practicing estimator must, however, find ways, within a certain time limit, in which he uses actually and not potentially measurable and quantifiable magnitudes. At every turn arbitrary decisions must be made: at the same time one must make the degree of one's lack of knowledge explicit.

II. The Background: Nepal—The Land and the People

In order to better understand some of the national accounting problems encountered and the solutions adopted, a short description of Nepal is given herewith. There are still very few publications on Nepal, and most of the available ones represent mainly the popular image of outsiders. Nepal is a country of surprises, picturesque environment, courteous people, rich exotic experiences, and breathtaking splendour of the Himalayan environment. The gay look of Kathmandu's surface, gilded with a veneer of exotic mystique, the many colourful and strange festivals, camouflage the agonies and pains of an old-young country. Only on a close look does the other face of Nepal emerge, but very few studies of Nepal's problems are available and their dissemination is generally limited to Kathmandu. The flow of information to and from Nepal during the Rana regime (up to 1951) was, for political reasons, nearly non-existent, and is still limited today, although for other reasons.

Landlocked, lacking substantial resources for development, heavily dependent upon weather conditions for basic food supplies and upon India for basic materials and foreign trade in general, and with an inadequate transportation network. Nepal is one of the poorest and least developed countries of the world.

Many basic needs of life go unmet. The average calorie intake is between 86 percent to 95 percent of requirements, especially in the Hills and Himalayan regions where nearly two-thirds of the rural population live. Less than 5 percent of the rural population have access to safe water, and daily many hours are required to carry home drinking water, generally polluted, fuelwood and fodder. Poor environmental sanitation facilitates the spread of communicable diseases; health services are rudimental. Only about 3 percent of the population have access to electricity. Life expectancy is about 45 years, and the rate of infant mortality, at about 200 per thousand, is among the highest in the world. About 80 per cent of the adult population is illiterate. The rate of population growth is high and population density with respect to cultivated land probably exceeds that of India, Pakistan and Bangladesh.

The large-scale migration of Mongolian groups from Tibet and Indo-Aryan people from Northern India, which accompanied the early settlement of Nepal, have produced a diverse linguistic, ethnic and religious pattern.

On the basis of racial groups, the Nepali people can be grouped into Aryans, Mongolians and pre-Aryan indigenous people, and on the basis of religion into Hindus, Buddhists, tribal Shamanists and some Muslims. Every religious group has developed a distinct style of religious practice and belief. Thus, the definition

of a Hindu or Buddhist society in the classical sense of the term is not applicable to Nepali society in general. Very few people stick to the professions prescribed for their castes and caste names today are not much different from tribal names. Still some castes are more competitive than others because of political, geographic or economic circumstances. This applies to senior posts in the administration and to other fields. The bulk of the famous Gurkha contingents in the British army come from the Gurung, Magar and Rai groups. The British maintain a recruiting centre in Nepal; the remittances of Nepali soldiers abroad and their pensions represent an important component of the balance of payments, and Gurkha veterans a valuable human resource.

The New Legal Code of 1963 abolished the legal support for a vertical hierarchy of castes.

Geography plays an important part in Nepal. This independent and only Hindu Kingdom in the world is landlocked between two giant neighbours—India and China. India is fifty times larger in population and China seventy-five times larger (the population of Nepal is at present about 14 million). Still, with an area of 145 thousand sq. km. the country is almost as large as Bangladesh and about twice the size of Sri-Lanka.

Nepal could be compared to a gigantic staircase rising from the Tarai plains, once uninhabitable due to malaria, to the Himalayan peaks. A variety of valleys and river basins dispersed from east to west through the successive parallel ranges of hills can be found in between. All the three major river-systems of the country are transversal, cutting the east-west stretching land into fragments and adding to the difficulties of communication.

The extreme North region (about 34 percent of the country) is largely arctic land and has been a marginal area for human settlement. Population here is sparse and the main economic activities are barter trade, pastoralism and shifting agriculture. In hilly areas live the majority of Nepalis. In the Tarai plains, the granary of Nepal, live about 38 percent of the population on about 66 percent of the cultivated area.

The mountainous topography and formidable physical barriers make communications between the different areas and zones extremely difficult. Only selected localities are connected by ropeways or roads and in most of the country porters or animals are used for transportation. As a result many areas consist of a multiplicity of separated and largely isolated communities. Each village is a subsistence market, neither producing for, nor receiving from, others. There is nearly no economic integration between districts or within districts or between a number of isolated and segmented pockets. In other words we find a large number of local societies—28,000 villages—grouped together under a national name and under a national government with hardly any point of mutual contact, other than the taxes levied by the government.

Nepal is an agricultural country: about 90 percent of the labour force is employed in agriculture; agriculture is the main source of exports and of the domestic product. Here again Nepal's unique physical and ecological environment, which is as varied as it is difficult, has to be taken into consideration. The hills and mountain areas account for about one-third of the arable land, but have to support nearly two-thirds of the population. The population density has

reached almost 1,500 person per square kilometer of arable land, the average farm has been reduced to less than 0.4 ha. and the acreage extension into marginal lands—prohibitively steep slopes—is causing serious deforestation problems. The agricultural production in the Hills, in *per capita* terms, is decreasing, reducing incomes and the already low nutrition levels. Because of food deficits, migration to the Tarai has accelerated, causing unplanned settlements especially in the forests.

The situation in the accessible plains of Tarai is much better, with a population density of less than 400 persons per square kilometer and larger farms (average 1.7 ha.). This area has a potential for generating surpluses. It is therefore disappointing that production has not increased and average yields are declining. Some of this decline is due to poor weather and agricultural systems, some to absence of structural change.

Rural energy needs are almost entirely met by the fuelwood collected by villagers. However, the growing population has both increased the demand for fuelwood and reduced the supply, by converting forests into cultivated land. The increased run-off of the monsoon due to deforestation contributes to soil erosion as well as to the drying up of springs.

Nepal is at a very early stage of industrial development. In addition to cottage type enterprises some consumer goods such as cigarettes, beverages and textiles are produced; most of the industrial output is derived from processing agricultural commodities.

Nepal is therefore confronted by a formidable set of development constraints, deeply rooted in its location, geography, history and social relations.

Among the changes that took place in Nepal consequent to the overthrow of the Rana regime (1951) and assumption of responsibility for the nation by King Mahendra (1955) was the commitment to planned development. Today "Development" and "Modernization" are the key words, often repeated by the present King, the political leadership and the civil servants. Nepal started its first Five Year Plan in 1956 and the present Sixth Plan covers the period 1980–85.

The National Planning Commission, chaired by the Prime Minister, is the apex body of planning. The planning process is very much centralized and the exercise is from top down. The five year plans are generally aggregations of sectorial plans of the public sector prepared and eventually implemented by the respective ministries and departments. The spatial context is generally not made explicit.

As in many developing countries but probably even more in Nepal, planning is severely handicapped by the lack of dependable data in sufficient quantity. The objective constraints on data collection—the mountainous topography, formidable physical barriers, lack of communication, diverse linguistic and ethnic patterns, very high illiteracy rate, very low *per capita* income and limited budgets—have already been mentioned. Another factor is the administrative structure.

During the Rana rule the administration was designed to maintain law and order, to collect agricultural and related revenues, and to minimize government expenditure. Decision-making was highly centralized, the various departments highly compartmentalized with hardly any interaction, and the day-to-day objec-

tive was to follow sacred rules and the slogan was "no change from the traditional patterns."

The concept of duty was to the regulation and to the superior. Although many institutional changes have been introduced during the last 25 years, many basic problems have not yet been solved and the administration is still seen as sluggish and unimaginative in its performance. Even today, nothing officially can be done except by letter. Then a file—manila folder—is opened. Each file has to pass through numerous hands with various officers adding their comments and seals and reach the highest level before any decision can be taken. Then the file returns through proper channels to the lower echelon officer.

III. Approaches Used, Methods of Estimation and Problems

Taking into account the objective and subjective constraints, as described in the previous section, it was decided that special non-conventional estimating procedures would have to be used. Basically, this involved maximum utilization of administrative information, adaptation of the information to uniform national accounting concepts suitable for Nepal, assimilation into the framework of results of the many existing feasibility studies scattered in the different international or bilateral aid agencies and, for the missing parts, implementing several *ad hoc* surveys. The method could also be seen as a fragmentary reconnaissance which coalesced into some kind of general picture, rough and possibly incomplete but something to go on to get the measure of the country and to describe the unclear and confused picture lucidly. The general conceptual reference was the appreciation that any system must be understood in the context of the surrounding society, with its specific values and aims.

During our work we have been constantly called upon to choose the least unsatisfactory of a number of alternatives, all of which were even more unsatisfactory. In a developing country we have to learn to live with partial answers and suitable standards. Trying to frame too exact a standard is as pointless as trying to determine the exact minimum number of whiskers that qualify to be called a beard. In any case, statistical definitions and methods in developing countries are ripe for an adventure in innovation, and the innovating should be theoretically valid, practically essential, and as simple as can be made but not simpler.

A full description of the approaches used and methods of estimation is beyond the scope of this paper, and only a few illustrative examples will be given here. At the same time it is not claimed that the procedures chosen offer tidy solutions of universal applicability, but rather merely hints of possible approaches.

Domestic Product by Kind of Economic Activity Agriculture

The agricultural statistics division of the Ministry of Agriculture publishes data in respect of ten major foodgrains and cash crops; paddy, maize, wheat, barley, millet, sugar cane, oilseeds, tobacco, potatoes and jute. The estimating methods employed in respect of the major crops are very similar, and are therefore described under the same heading.

Out of the total 75 districts of Nepal, agricultural statistical units have been established in 50 districts; those 50 districts include the 31 cadastrally surveyed districts. The production estimate is based upon area and average yields. The yields are not measured in an objective manner by the method of crop cutting and standardized weighing of output, but are based upon subjective judgement. Since land rent is based on crop production, yield figures tend to be underestimated. Another major difficulty arises in the establishment of the unit of land. Paddy land is almost always referred to in either ropanis or in muris. Sloping or hillside land areas are usually referred to in hals in hill areas, but may be calculated in hals, ropani or muris in the valleys. Whereas the ropani and the muri are relatively well defined and understood, there is doubt about the hal. The hal has no specific measurement, but is the area ploughed in one day by a pair of bullocks. A further complication is that a farmer is quite likely to measure different fragments of his land in both ropani (or muris) and hals, and may give widely different estimates of land area in any survey relying upon personal interview.

It has been decided, therefore, to check the official estimates with other sources: consultants' regional studies, feasibility reports, area surveys, rural development projects, etc. It has been found that, especially in the non-surveyed areas, both area and production are seriously underestimated. Based upon the above studies, an adjustment of the official estimates has been made.

In the official and adjusted production estimates, the quantities refer to pre-harvest or harvest quantities. In order to measure the production marketed or consumed on the farm, losses up to the sales or consumption period have to be deducted from the "gross-gross" production estimate. There are no official figures based upon a survey of the losses, and several estimates have been made by the I.B.R.D., consultants and Food Balance Sheet estimators. It was assumed that in case of paddy the losses amounted to 10 percent in the Tarai and 20 percent in other areas and in case of other field crops, 13 percent in surveyed areas and 18 percent in non-surveyed areas.

Monthly price data in respect of each district were available from the Food and Agricultural Marketing Services Department. In addition some price data were available in farm management surveys, crop budgets of the Rastra (Central) Bank and different production and marketing agencies. For each district and for each crop the harvest date was obtained from the Ministry of Agriculture, and post-harvest prices were used as ex-farm prices or prices received by producers (nearly 80 percent of the produce is consumed or sold in the village).

In the case of crops with by-products, e.g. straw, the value of such by-products has been estimated from sample studies of Agricultural Marketing Services and Rastra Bank surveys. The value of by-products has been divided into that sold (used) outside the agricultural sector, and that used as intermediate products consumed by cattle (inputs of livestock subsector).

Using farm management studies and other relevant information, the percentage breakdown of major cost elements (cost elements as a percentage of value of production) was obtained. The cost elements were seed, manure, fertilizer and plant protection material, human labour divided into hired and family labour, bullock labour, interest, taxes, depreciation, other purchases and residual. Using

adjusted data from the Agricultural Inputs Corporation, a government enterprise selling inputs to farmers, an estimate of intermediate consumption (purchases from enterprises outside the agricultural sector) was obtained. In this way the cost elements were grouped into intermediate products (value of seed less value of seeds purchased, manure, bullock labour) and purchased inputs (seeds purchased, fertilizer, plant protection material and other purchases). The final table, for each crop, looked as follows:

Gross value of production.
Less intermediate products.
Less purchased inputs.
Less indirect taxes.
Equals gross domestic factor income (product) originating.
Less consumption of fixed assets.
Equals national income originating (distributed factor income).
Consisting of
    Compensation of employees.
    Interest.
    Value of own labour.
    Income from property and entrepreneurship.

In the case of other crops different sources of data had to be found, and the estimating procedure adapted to each source.

Own-account Fixed Capital Formation

Production of fixed assets on own account, especially by the subsistence sector, has been included in gross agricultural output. Two main sources have been used: Rastra Bank "Agricultural Credit Survey" and different farm management studies.

The Rastra Bank study included an estimate of gross capital expenditure per farm family in the Tarai and the Hills and an overall estimate. Purchase of land (about 41 percent) has been deducted and agricultural investment, excluding land, calculated. From that total, investment in the organized sector, taken from Agricultural Development Bank and including private matching investment, has been deducted. A similar method has been used in respect of farm management studies. Although the internal breakdown was different probably due to difference in definitions, etc., the totals were not much different. The internal breakdown—construction 31 percent, equipment 69 percent—was based upon the Rastra Bank study. As a check on the order of magnitude, an estimate has also been made from the rural household side.

Construction

As will be apparent from the detailed description of the estimating procedure given below, no satisfactory direct measurement of the value of output existed. The main sources of data were administrative accounts which are kept on the cash basis. In other words part of the value of production was measured from the expenditure side of the agencies and not from the income and profit side of the construction companies. Construction projects implemented during the

financial year and not yet paid for were unfortunately not included; on the other hand advances on account of construction works not yet undertaken were included in the value of production. One can only hope that the two flows cancel each other. Owing to the estimating procedure adopted, indirect taxes paid by construction companies could not always be identified. Domestic factor income, national income originating, and the return to capital all therefore included some indirect taxes.

As the usual sources of information—reporting by construction companies, contract awards, building start permits or commodity flow analysis—were not available, a different methodology had to be devised. The value of output has been classified into two purchasing groups: the public sector, including non-profit organizations serving households, and the private sector.

The main source of public sector purchases of construction activities were the reclassified accounts: here the purpose of construction was generally available. Major construction projects, civil engineering and building were reclassified from construction company accounts and the percent share of major cost components in the value of output obtained. The percentages were then applied to the value of output of the different purposes of construction (housing, offices, agricultural construction, roads, major or local authorities, etc.). Public sector expenditure on maintenance and repairs was also available in the reclassified accounts and the share of contractors was calculated.

Purchases of construction by the private sector were grouped into non-residential and residential, each group again subdivided into several categories. Total loans disbursed for agricultural purposes were obtained from the Agricultural Development Bank, together with the purpose of such loans. The loans were reclassified into loans for investment purposes and loans for current production. Loans for investment purposes, including matching investment from private sources, were again reclassified into construction, equipment and purchases of land. This breakdown was based upon rural feasibility studies. The percentage breakdown of cost elements (compensation of employees, intermediate consumption, etc.) was applied to agricultural projects and buildings. A similar procedure was followed in case of the Nepal Industrial Development Corporation. Other private sector non-residential construction activities were estimated from financial statements of enterprises, the assumption being that only larger projects are undertaken by contractors.

Residential construction was divided into urban and rural. The survey "Employment, income distribution and consumption patterns" contained some data on rural housing conditions. Additional information was found in "The physical development plan for the Kathmandu Valley," especially in the background sections dealing with the settlement patterns and housing types on a regional basis. Based on the above information, the cost of several types of houses (kachha, pakka, etc.) was estimated and checked with resettlement organizations and some non-profit institutions. The Nepali culture encourages individual extended family dwelling units, because life is focused upon the family and its immediate environment. The number of households per housing unit is therefore very low (in 1969 in the Kathmandu valley the ratio was 1.1). It was therefore assumed that the number of new houses equals the increase in the

number of households. No allowance was made for basic repairs and replacement of houses destroyed, e.g. during monsoons or through fire. It was assumed that superior types of houses (5 percent of new construction) are built by contractors: here the usual breakdown of cost elements was applied to the value of production. In case of the pakka type of houses it was found that the share of intermediate consumption (value of materials etc.) was 40 percent and in other types 10 percent. No information on repairs was available but it is expected that kachha houses require constant repairs: 10 percent has therefore been added, mainly to return to labour.

The estimate of urban houses constructed during the year was based upon licences issued by the local authorities (Town Panchayats). Although all towns were contacted, returns were received from larger towns only. In the case of towns where no records were available or no answers could be obtained, an estimate based upon the population and the assumed rate of economic development and urban activity was made. The estimate obtained from the licences was similar to the increase in urban households, if allowance is made for houses constructed for hire for diplomatic and foreign aid staff. In some cases local authorities reported also the type of houses constructed—superior, pakka or kachha. Based on the above, the percentage distribution by type has been calculated. This distribution agreed more or less with the income distribution of urban families as found in "Employment, income distribution and consumption patterns." Based upon information received from builders, houseowners, real estate agents and some local authorities, national average prices of different types of housing units were estimated, care being taken to deduct the price of land. With the aid of some contractors, cost components (material, labour, depreciation and profit) were calculated. Some data on repairs were included in the local authorities returns—about 15 percent of licences issued were for repairs—but it was found that the definition of repairs was not clear, and in some cases additional rooms etc. were classified as repairs. It was assumed that expenditure on repairs amounted to 5 percent of new construction: 1 percent materials and 4 percent labour.

Transport, Storage and Communication

Traditionally, most of the goods were transported by porters; in certain areas pack animals were also used. Porter, foot and mulepaths still serve as primary communication arteries for much of the population. The extension of vehicular transport modes to all levels of population, even in the areas where its use would be feasible, is limited by the high cost of such transport. Road transport has been divided into two groups: public sector (railways, ropeways, trolleys, buses and trucks, all run by Nepal Transport Corporation) and private sector. The accounts of Nepal Transport Corporation were reclassified for national accounting purposes. In case of private road transport for hire the universe was first established from a survey of zonal police station records (14 stations where all cars, etc., are supposed to be annually licensed; there is no central register of licences). The results were compared with two existing average daily traffic counts. Considerable effort was invested in this survey because it

was found that the existing estimates—IBRD and returns submitted to UN—were not reliable. The commercial vehicles counted during the survey were grouped into trucks, buses, taxis, tempo (three wheel taxis) and other (small tractors etc.), A sample was taken from the first four groups and an average income/expenditure account calculated for each group. In case of taxis the accounts were calculated for owner-driven taxis and these driven by hired drivers. In case of tempo the estimates were adjusted in order to account for the supplements of employees (additional income of the driver) and under-estimates in reported gross income and expenditure. In case of small tractors etc. a global estimate was made. The estimate of non-motorized transport included rickshaws, tangas, ekka and other pushcarts for hire, and porters. The estimate of rickshaws was based upon licences issued by zonal police, puller's licences issued by some local authorities and a survey of rickshaws' average income and expenditure in the main towns. It appeared that only about half of the rickshaws operating have been licenced and the universe has been adjusted accordingly. The estimate of other non-mechanized transport was based upon miscellaneous pieces of evidence. Workers stationed in remote areas were consulted, and sometimes we had to use hearsay evidence and arbitrary assumptions. Still, by combining all bits and pieces of information, and by generalizing on the basis of what data there were (weighted by such relevant factors or indicators as existing roads, areas of impact, assumed population, volume of trade), the probable order of magnitude was estimated. The result was still less than might be expected from the structure of the economy and intervillage distances involved. The whole output has been considered return to family labour. To this total, income of porters from tourists as estimated from "The economic impact of tourism in Nepal" has been added. Inland water transport is mainly of the subsistence type and a notional figure has been included.

Air transport was based upon reclassified Royal Nepal Airlines accounts and a survey of other airlines, adjusted in accordance with the share of other airlines in the international traffic. Services incidental to transport were estimated from a survey of customs brokers, forwarding enterprises and travel and tourist agencies income and expenditure accounts. The grouping was according to size: small, medium and large. The results were checked with our estimate of tourist expenditure on such services. Only one enterprise was active in storage for hire available to the general public; the accounts of this enterprise were obtained from the Auditor General.

Communication enterprises' accounts were available and were reclassified; for historical reasons newspapers were included in this group; the estimate was based upon accounts of the major newspapers and adjusted, in the case of other publications, for circulation.

A special multipurpose publication—*Public Sector Accounts*—has been prepared with the aim, *inter alia*, of presenting a consolidated account of public sector agencies. The field therefore covered all units furnishing, but not normally selling, to the community those common services which cannot otherwise be conveniently and economically provided, and units administrating the state and the economic and social policy of the community. The estimate included the central government, the local authorities (the Panchayat) and private non-profit making

institutions serving government (organizations clearly forming part of the socio-economic policy of the government in respect of the community as a whole, e.g. school boards, university, sports council, different health and family planning projects).

The detailed estimating procedure is beyond the scope of this paper, but some problems can be mentioned. Nepal never had a public budget until after the fall of the Rana regime, and the general attitude towards financial statements still has some aspects associated with familiar practices. Reporting and auditing procedures, especially of the local authorities, are unsatisfactory, both as to method of operations and objectives, and the whole approach is sporadic rather than systematic. The management function of the budgetary accounts is not yet developed and the only aim of the accounts is accountability. Another major difficulty encountered was the treatment of foreign aid activities. In Nepal, as in most developing countries, the activities of international organizations and bilateral aid supplement to a certain degree the national activities, and only consolidated statements can show the true picture. Unfortunately, there was no uniform or consistent way those activities were treated in financial statements. The UN report on development assistance to Nepal had to be used and some items added to government income and expenditure.

The public sector publication included a chapter on non-profit institutions serving households, grouped into institutions financed mainly by internal Nepali sources and organizations financed mainly by foreign donations (e.g. missions). Here, too, as in case of government agencies etc., the final consolidated matrix was presented by purpose and by type of transaction.

The estimate for international and other extraterritorial bodies was based upon data obtained from UN establishments, bilateral technical assistance organizations paid directly from abroad (not charged to projects) and a global estimate in respect of foreign embassies. This estimate was based upon the average number of employees and average salaries and supplements, both obtained through unofficial interviews. National income originating covered compensation of employees of Nepali nationals.

Final Use of Goods and Services

The usual methods of estimating the final use of goods—commodity flow analysis and measurement of the value of commodities moving into consumption or gross capital formation—could not be used owing to the lack of data on foreign trade by commodities. Public sector financial statements, non-profit institution expenditure, household surveys and similar sources had therefore to be used.

Final Domestic Consumption Expenditure

For planning and analytical purposes this item has been classified into five groups: non-residents, foreign residents, urban Nepali households, rural Nepali households and institutional Nepali households. The creation of the "foreign resident" concept needs some clarification. In order to distinguish between domestic and national product, information essential for planning purposes, it

is necessary to have a clear-cut definition of national (resident) and foreigner. The UN uses at present as a working definition of residence the "de facto" concept of population generally used in censuses (residence of over one year). According to this approach nearly all technical assistance staff serving in Nepal are considered residents, as are some other groups having a general eentre of interest outside Nepal. Apart from political considerations, it is clear that the standard of living and the pattern of consumption expenditure of the resident foreigners is entirely different from that of Nepali households. For planning and other purposes it is therefore essential to prepare special estimates in respect of that group.

Changes in Stocks

Financial indicators were used, the assumption being that changes in stocks of government agencies and private non-profit institutions are not significant. The increase in credit by commercial banks, based upon the classification by type of security and consisting of six selected items, was assumed to finance increases in stocks during the same year. Commercial bank loans used to finance capital formation or similar purposes were not included. From this total the net decrease in stocks of some public sector enterprises, not financed by the commercial banking system, has been deducted.

IV. Reflections and Concluding Remarks

During the initial phase of the program, an opinion was expressed that a figure purportedly representing a national aggregate is almost meaningless, so long as the basic statistics from which it is derived are vitiated by serious gaps and shortcomings. Would it not be more useful to utilize scarce resources for improving primary statistics rather than to carry out complex operations on the basis of inaccurate or inconsistent data? On the other hand it was clear to the decision makers that planning cannot be postponed until the statisticians implement ambitious data collection schemes, not always relevant to planning needs. These conflicting views are encountered in many developing countries, the statistician claiming that planners are unable or unwilling to understand the problems faced by the data collecting agency—lack of budgetary support, low status of statisticians, scarcity of professional talent and lack of requests for planning data submitted in time and in the proper manner. Planners do not seem to realize that data can be produced only after prolonged efforts and therefore statisticians must be always ahead of the planners if they are supposed to provide the planning agency with data when required. This lack of close cooperation with national planners results in statistical offices being more influenced by international recommendations and purely statistical considerations than by national planning needs. Also, priorities (and budgets) of foreign aid organizations are not necessarily identical with national needs and many statistical projects are not coordinated, but are constructed for the convenience of international users or national data producers, and not in accordance with planning requirements.

A planner must have some sort of global picture of the country, because without a framework, individual pieces of information remain largely meaningless. Great precision of measurement is not always necessary because the important and interesting changes will be sufficiently marked to show up with even crude measurements. In a like fashion, only in those parts of the economy that are likely to undergo substantial change, e.g. as a result of planned programmes, are details important at all. And it is in precisely these sectors that the necessary data with sufficient accuracy can be produced within the planners' time-table. It has been my experience that in the short run the question is not so much lack of data but rather lack of a flow of information: not statistics but administration. It is true that conventional statistical methods are not geared to and are not sufficient for this type of data collection. It is surprising how much can be learned if the right sort of questions are asked. The flow of information is a day-to-day task which must not be neglected for a single moment, and success depends in no small measure on personal relations and direct contacts. An atmosphere of direct consultations without formality generally produces the best results. Different government departments, local authorities and foreign aid agencies have to be visited, new sources of data discovered and the process elevated to direct perception. A little statistical detective work together with the facility called coup d'oeil—the ability to hit quickly on a truth—is most rewarding. If we agree that the only valid justification for the statistics and the effort made in producing the required information is the use which is made of the data, it follows that the more intense this use, the more status will the producer acquire and the system will become again more efficient. The task of a dynamic national accounts estimator is to maintain a constant and forceful interest in every aspect of the changing economy. He does not make economic policy, but should provide a continuing stimulus, repeatedly challenging the policy-maker to consider all the issues and the choices.

As has been seen, meaningful national accounts, sufficiently accurate for planning purposes, can be constructed within the planners' timetable, provided the data collection function is flexible and non-orthodox, and the estimating procedure adapted to the data collected. Here another crucial function of the national accounts estimator should be mentioned. Someone has to have the responsibility of making sure that the estimates are not only as correct as possible, but also interpreted as correctly as they can be. Can the producer step aside when his data are being discussed? Statistical objectivity and independence should not be understood to mean aloofness, and the data producer must take part in any discussion based upon information supplied by him, because he knows best the basic meaning and the limitations of his estimates.

The experience of Nepal shows that basic information for many significant sectors of the economy is not lacking; what is lacking is an efficient reporting system, able to supply an up-to-date flow of the required information. By expediting this flow even a meagre statistical staff can supply the planner with national accounts data suited to his purpose. The trouble is that the required information and concepts should be planning-oriented, and at the same time should fit statistical categories and methods. Thus, under certain conditions, the

planner's function extends backward to the prescription of the data-gathering frame, just as it is also likely to extend forward into supervision of policy execution, if the plan is to have any impact.

It is one of the paradoxes of national accounting and other statistical work in developing countries that the more comprehensive, ambitious and complex the system constructed, the less likely it is to be successful, owing to lack of managerial capability, lack of skilled manpower and general limitations. The system must be sufficiently simple to be constructed with the existing resources, presented in a compact manner, sufficiently precise for the type of planning undertaken, and constructed within the planners' timetable. In general the presentation of the accounts should be tailored to the user's requirements. For example, the main tables should be presented in such a way that administrators and politicians, not *a priori* familiar with national accounting doctrines and techniques, should be able to understand the main findings. A different presentation is required for overall planners or for sectorial planners. The accounts should therefore have a built-in possibility of enlargement through supplementary accounts or tables according to specific needs.

As shown in the estimating procedure, the approach used was mainly the industrial origin of gross domestic product in producers' prices—the origin of the domestic product of Nepal according to kind of economic activity. The essence of this approach is not merely to arrive at totals, but also to collect and present in a systematic way the key components. Another advantage of this brick by brick method is that it permits a different treatment for each item and therefore a detailed evaluation. We all agree that good figures should not be mixed with guesstimates, as is unfortunately done in many cases of national accounting, because the reliability of the aggregates cannot then be properly judged.

Some deviations from the UN system were found useful. Government transactions and the assistance rendered by international organizations or within the framework of bilateral agreements were delineated and placed in their national context, through the creation of an external aid subsector. In order to be able to distinguish between domestic and national concepts, a special group "foreign residents" was created. In addition to "compensation of employees" the larger concept "return to labour" was used.

The role of national accounts does not end with providing the planner and administrator with a logically consistent intelligence report and a sense of economic proportions. It is well known that for a statistical office the national accounts framework provides an excellent means of appraising the existing or planned statistical series, since most economic data has a place somewhere in the system. The proper examination of the estimates will show lacunae and deficiencies in the data flow and will bring to light problems of accuracy, coverage, timeliness, and form. This examination, used in a flexible manner, is probably the simplest technique of establishing statistical priorities in an objective way. The more limited the statistical resources of a country, the more the statistical office has to look to its priorities, if they are to have any impact.

Judged as a blueprint for statistical development, the national accounts system can also provide the basis for technical and administrative coordination in the production of data and for the systematization of the contents of records.

In addition, the national accounts framework can serve as a basis for the establishment of standards, definitions and classifications, as well as a source for quality control of data. Another function, of great importance in a country like Nepal, is the possibility of using the national accounts as a starting point for creation of a data bank.

The experience of Nepal shows that even in a country with a very narrow data base and scarce statistical resources a modified system of national accounts can be established. The prevailing belief, that Nepal simply does not have the apparatus needed to gather the sort of statistics necessary for a real understanding of the economy, is not justified. The system of accounts, essential for development planning and analysis, can be produced within the planning agency timetable and can be sufficiently detailed and accurate for short-term planning, provided the data collection methodology is adapted to the sources of data. The observing and measuring procedures have to be freed from some of the traditional constraints implicit in its prevailing conceptualization, and have to merge and extend certain rational formulations centring on the selection procedures, the specification of the population, and the relations between sampling and data acquisition.

The accounting system and the supporting tables, viewed as an outline of a statistical development plan, are especially beneficial for data collection agencies in developing countries newly embarking on a balanced statistical development.

National accounts of Nepal have therefore been prepared about as well as it could be done. Why it has to be done at all is another matter which still needs clarification. We provided the planners with useful symbols for telling a complex story in simple terms, essential as a basis for rational decision-making, but not more. Planners in developing countries, and not only planners, often think of national accounts as something celestial—swirling, nebulous, with a bright density of numbers at the center and others flying off toward the margins of space and time. This tendency to grant the highest priority to national accounts has been supported by international and bilateral aid agencies, which require some sort of data for general chapters.

National accounts, in the present form, are in general a necessary but not in itself sufficient precondition for planning in the developing countries, having no intrinsic value but only an instrumental one. The existing accounting framework both influences and is influenced by economic theory and economic policies. Keynesian theory had a large influence on the development of the conceptual framework of the various aggregates and on the way we present them, because the accounts were not created in isolation, but in accordance with certain theoretical presumptions related to production, consumption, savings, etc. The definition of the production or employment function, while expressed in the same notational form, has a different meaning in a developed or developing economy and even the concept of value itself differs. The accounting frame and especially the different components should therefore reflect different theoretical valuations of goods and services produced or consumed. The example of the economic role of child labour might clarify this point.

The concept of childhood must be related to a particular social framework. In a rural community there is a gradual absorbtion of the child into adult activities.

Domestic work starts at a very early age, but very soon work connected with productive activities of the household—agriculture, cottage type manufacturing—is performed: all those capable of contributing to daily survival do so. Many children also work outside the household. Here we can observe a kind of bonded labour: unpaid domestic work or labourers in the households of landlords or urban families. Another case is that of fake apprentices—minimally or not at all paid with little or no training—employed in cottage type manufacturing, e.g. the carpet industry. In hilly areas in many cases children are required to take over some of the adult household members' tasks when adult members seek wage employment in the more developed areas. Children are also employed in the monetary economy, as part of a group, in agriculture, construction or transport. Sometimes, after a poor harvest, poor rural families also reduce their consumption requirements by leaving a child in urban areas, and here we can observe survival type activities of children—both legal and illegal. In actual fact we can also speak about unemployment among children. One should also point out that, especially in the rural areas, formal school enrolment is different from school attendance, not only during harvest time. Generally in the rural areas school attendance is not the main activity of the average child.

It is obvious, therefore, that the definition of the labour force based upon chronological age cannot be applied in developing countries. Failure to perceive the significance of the economic role of children undermines attempts to analyse production patterns, employment or the return to labour. Conventional surveys following international recommendations invariably distort the real picture. What we require is to devise a more complex set of concepts and more disaggregated and refined data, suited to actual conditions, reflecting reality and not conventions. One possible solution appears to be in the direction of activity profiles and time use surveys of households, undertaken within the general framework of household surveys. It will not be an easy task because in addition to all the existing usual constraints one has the feeling that statistical offices in developing countries are overwhelmed by the scale of the task. One senses throughout that the organizations are pulling back to the safety of known particular and meaningless precision of numerical studies, rather than straining forward toward a more daring grandeur of full coverage of the real conditions. It is true that this type of statistical enquiry is possibly the most complex of the surveys and is an ambitious task presenting a series of challenges at all levels, but data should reflect reality not statistical conventions.

Development planning is moving more and more in the direction of planning from below and into regional and rural development projects. Here the distribution of socio-economic elements is essential data which cannot be obtained from aggregates of production, consumption or capital formation. Household surveys are therefore an essential element of the data supply function required for development planning. We have to measure the impact of past developmental activities on the object of development, the people, and to supply data capable of being fed into the decision-making machinery for likely future interventions. It is certainly not just a question of filling gaps in aggregate national accounts, but rather a special data supply function to be developed within the general conceptual frame. Owing to the crucial importance of this subject I shall comment

on problems and possible solutions of this type of survey, based upon not only Nepal experience, but about twenty-five years of field work in developing countries. After all, every author is entitled to take his hobbyhorse for a brief canter now and then. The problems encountered can be grouped under four headings: managerial, training, conceptual and technical-statistical.

One of the main constraints in developmental activities are institutional-managerial problems. Everybody working in developing countries is familiar with bureaucratic inefficiency and reluctance to innovate, but in general diplomacy forbids publishing the true picture. In many cases we find a sluggish administration used to spending its limited resources in traditional ways; red tape is among the most adhesive, obsession with form and ceremony to the exclusion of substance (contagious), promotion by conveyer-belt, failure to dismiss the incompetent due to overstability of the civil service system, attention, even obsessive, with hierarchical status and "proper procedure" and so on. At the same time bureaucracies keep cloning themselves. The functional decreptitude of some administrations is due to a large extent to the relatively low priority the government and in general the culture of the society in question accords to the issue of efficiency as a value *per se*. Performance is not monitored or evaluated, interdepartmental contacts, consultations or discussions are limited; and the absence of a sense of individual responsibility has led to low morale, shoddiness and half-hearted work at nearly every level. Corruption, judging by the many anti-corruption drives, is also a problem. One must understand the limits within which we have to work and put aside one's preconceptions. It has always proved dangerous to try to clamp alien models on the local reality. My solution has been to use the most effective organization existing in the country and willing to cooperate, and try to introduce certain standards of work and incentives tied to performance. This required an ability to recognize the nature and the dimensions of the task ahead, very careful and detailed planning of activities, control of implementation and monitoring of performance. Authority should be sometimes delegated but never diluted.

The question of proper training is another problem to which practitioners have devoted a great deal of intelligence and emotion, combined in varied proportions. Training is only effective when it reflects the traditions and psychology of the group and society we are aiming at and local training and educational institutions are an indispensable key to socio-economic development. Unfortunately most of the training is undertaken abroad. Even if the formal course of training abroad is relevant to developing country needs (and it is not always so), the training is really only the first step since the conditions of the trainee's own country cannot be reproduced in his training programme. The transfer of theoretical knowledge to the realities of life is the most difficult of all educational tasks. In developed countries the problem is less critical because the trainee, being exposed from childhood to newspapers, radio, T.V., books and a school curriculum, has some basic knowledge of his own country. In a developing country, on the other hand, the average trainee is familiar with a small area, generally the capital, and he attempts to generalize for the whole country, although socio-economic conditions in the rural areas are different. The national civil servant's familiarity with the whole country is taken for granted, and this is

probably the greatest mistake of all. Why are nationals of developing countries still being granted scholarships abroad? For a civil servant foreign scholarships are a fringe benefit and are part of his terms of service. No wonder that trainees are sometimes selected for qualities that have nothing to do with what is needed to manage the problems they have to face. For the donor agency the grant of the scholarship is part of the politics of foreign aid (is disinterested aid a contradiction in terms?). For the training institute abroad scholarships are a source of funds and a possibility of establishing direct contacts with the developing country. The whole question of training calls for new approaches and perspectives, the courage to admit errors, and the determination to face facts as they are, and not as we would wish them to be. It also calls for new concepts of practical cooperation. The cornerstone of any operation in the developing countries lies in the efficient and rapid training in required skills of a sizeable number of reliable staff. My solution has been organization of job-oriented training courses and seminars, and inclusion in the curriculum of basic overall subjects. A useful component is periodic tests and examinations as well as a final examination and certificate of competence. The courses were combined with on the job training and learning by osmosis.

The lack of definitions suitable for developing countries has already been mentioned. Under existing conditions, keeping our definitions pure means in this context unadulterated by reality, a procedure as sensible as using Gulliver for a textbook on geography. A few practical hints are given here, but there is no substitute for local experience and preliminary fieldwork is essential.

The "centre of decision" concept of households has been translated into the housekeeping or "cooking pot" (all members present during enumeration) concept but below the line information was obtained on normal household members away (working abroad, army, etc.). The reference period was a full agricultural year (extensive agriculture, wide within-year fluctuations in income and expenditure). All household members had to be observed and interviewed and an attempt was made to list activities (time use data) linked to output. In a rural community this is not such a difficult task as a large proportion of daily activities are routine. Direct observation during two days at harvest time and one week during off-harvest season was required. Respondents were found to be remarkably cooperative and respondent's fatigue was not a problem (the visit of the enumerator was considered a social occasion). Obviously, only questions which the household member had knowledge of could be asked. Quantities of food had to be measured at a certain hour: an interesting point is that owing to moisture, considerable variations were observed between morning and afternoon. We obtained inputs (hours worked) and outputs (quantities).

Valuation of subsistence production is another problem to which no satisfactory solution could be found. In most countries we find a surprising range of price variations, not only between towns and country, between regions or different markets within the same district, but also according to the time of the day. Our solution was to use post-harvest prices in the market serving one village as an approximation of farmgate prices. Valuation, although arbitrary, had to be consistent.

Although income data was collected, at the outset we defined a relatively narrow focus, limiting attention largely to expenditure data, because we considered that this approach was within the capacity of the survey organization to deliver the results in a timely fashion, and to draw out its policy implications. One interesting experiment which could not be completed was to link household activities with the village and to open a village account. This approach I consider essential from the planning, monitoring and evaluation points of view and tried to test methodology through a small scale experiment. Unfortunately pressure from decision-makers caused a switch to substantive results.

One sentence about comparability of definitions. International comparability should be regarded at present as a secondary objective; the best we can achieve is national comparability, possibly using modified national accounts concepts, but remembering that the best practice is a function of local conditions which vary from district to district and sometimes from village to village. Development of operational concepts requires considerable preliminary fieldwork.

A few observations about technical matters. Again, no attempt will be made to be exhaustive, but rather I shall comment on some specific problems which seem to be of wider interest or importance. Taking into account the managerial capability of many developing countries, detailed advance planning and pretesting is essential, including the sampling frame. This stage takes about two years, and the whole survey can be implemented and published within five years. It is essential therefore, that the planning authority should take this timing into consideration. In most cases both questionnaires and schedules will have to be used and translated into different linguistic versions. One useful method of checking the accuracy of the translation is to have one enumerator translate the schedule into the local language and another one to translate it back into English. The lengthy and effective training of investigators at every level is essential and countries should develop permanent capabilities. The quality of data obtained will depend, *ceteris paribus*, on the quality of the field work: training, logistics, instructions to the enumerators and supervision at all levels. Programming of data processing should start as soon as the schedules, etc., are finalized. Here may I add a word of warning, based upon bitter experience, against premature computerization. Installing a computer, even if donated, before the necessary human infrastructure (managerial capability and staff trained both in use and maintenance and servicing) and physical infrastructure (suitable housing, reliable power supply, hardware maintenance, supply of spare parts) is available is a misallocation of resources.

Let me finish on a positive note. The usual caution against optimism aside, there are grounds for believing a start in the right direction can now be made, provided we address ourselves to the uniqueness of the concrete situation, deal with fundamental issues, develop instruments that are capable of an immediate impact on policy makers, infuse our activities with fresh vitality and try our wings at a relatively low altitude.