

Statistics for Rural Development — an Agenda for the Nineties*

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I feel honoured by the Society's invitation to deliver the technical address at this annual conference. It gives me great pleasure to revive my contact with the Society's activities after a lapse of nearly fifteen years and to be in the midst of so many old friends and colleagues.

I am afraid the title I chose for the address is somewhat presumptuous. Statistics for Rural Development embrace a wide range of subjects and sectors of the national statistical system. It is not my intention to speak about the course of action required to establish and manage a comprehensive statistical data base to meet the needs of rural development at various levels. The agenda for the nineties I wish to place before you is rather limited in scope. It is concerned with the measures that can be taken over the next few years to modify and improve some of the on-going statistical programmes to be able to serve better the purpose of rural development. My comments and suggestions are confined to a select few major statistical activities partly due to my familiarity with them but mainly because I believe they are quite important and have much significance in developing a sound and responsive statistical data base for rural development especially in the context of the Eighth Five Year Plan.

I shall first consider briefly the emerging data needs of rural development in the light of Plan programmes during the past decade and the priority objectives of the Eighth Plan. I shall then present an out-line of the statistical data base and consider the extent to which available sources meet the needs and finally the measures to improve the performance of several major sources whose contribution is crucial to statistics for rural development.

* Technical Address delivered by the Sessional President on 20 Feb., 1993 at the 46th Annual Conference of ISAS held at OUAT, Bhubaneswar.

RURAL DEVELOPMENT AND THE FIVE YEAR PLANS

Rural development is concerned with the overall betterment of the economic and social conditions of the rural weak and the poor. Its principal thrust is to mobilise the labour force in the development process, provide gainful employment to the largest number possible and enhance their productivity and income levels. This is sought to be accomplished by optimum use of all available resources particularly those available locally. The main priority is to improve the living conditions of the less privileged and vulnerable sections of the community.

The Early Plans

Rural development has been one of the main objectives of the Five Year Plans since their inception. The Community Development Programme (CDP), launched in 1953, was the first significant effort to bring about economic and social change in rural areas. A major contribution of CDP was the establishment in all parts of the country a development infrastructure at the grass root level. Each C.D. block was equipped with a team of extension personnel dealing with all major sectors (Agriculture, Animal Husbandry, Industries, Cooperation, Social Education, Health, Family welfare) headed by a Block Development Officer and multipurpose village level workers one each for 8-10 villages. CDP was a unique experiment in area planning, mobilisation of local resources and encouraging self help and people's participation.

The integrated approach to rural development had, however, a set back during the sixties with a shift in planning emphasis in favour of growth oriented sectoral programmes especially those related to intensive agricultural production. This eventually led to the "Green Revolution" which benefited mostly the large farmers and areas with better endowments. The net result was shrinkage of funds for CDP and its virtual disintegration.

The rural poor could not be neglected for long and a variety of programmes were taken up during the Fourth Plan to benefit specific groups of rural poor and to improve the backward and ecologically disadvantaged areas. Noteworthy among them were the Small and Marginal Farmers Development Agency (SFDA/MFAL), the Drought Prone Area Programme (DPAP) and the Desert Development Programme (DDP) aimed at restoring ecological balance through land, water, forest and pasture development measures. Simultaneously a Minimum Needs Programme (MNP) was launched with the object of providing the rural population, particularly the poor, certain items of social consumption such as

elementary education, health, nutrition, water supply, rural roads, housing etc.

Sixth Five Year Plan

The problem of rural poverty was brought into sharper focus during the Sixth Plan (1980-85). It was realised that a sustainable strategy of poverty alleviation had to be based on increasing productive employment opportunities in the process of growth itself. A massive programme called Integrated Rural Development Programme (IRDP) was launched on a countrywide scale to assist through loans and grants select categories of people to acquire productive assets or appropriate skills for enhanced self-employment. The target group comprised families with annual income below a cut-off line (usually lower than the poverty line). In the choice of families special preference was given to the scheduled castes, scheduled tribes, women and the handicapped earmarking separate quotas for them.

IRDP has two sub-programmes viz. Training of Rural Youth for Self Employment (TRYSEM) to impart institutional training in technical and entrepreneurial skills; and Development of Women and Children in Rural Areas (DWCRA). Under DWCRA, groups of 10-15 women are assisted to take up viable economic activities.

IRDP with which SFDA/MFAL was merged is essentially meant to enhance self employment opportunities through acquisition of assets and putting them to productive use. The scope of activities is quite wide covering the primary, secondary and tertiary sectors of rural economy. The credit institutions are closely involved in the programme to assess the viability of each proposal before extending financial support.

In addition to self-employment, creation of wage employment opportunities was also found necessary especially for the landless labourers who are without work for long stretches of time. Two new projects were started with this purpose called the National Rural Employment Programme (NREP) and the Rural Landless Employment Guarantee Programme (RLEGP). Under these programmes, community works such as construction of minor irrigation works, school and hospital buildings, rural roads, social forestry are taken up to generate additional wage employment. RLEGP has the specific objective of providing upto 100 days of employment per annum to at least one member of each landless household.

The Seventh Five Year Plan

During the Seventh Five Year Plan (1985-90) the special employment and area development programmes were pursued more vigorously. NREP and RLEGP were merged into a single country-wide programme called the Jawahar Rojgar Yojana (JRY). JRY has special funds earmarked for housing to scheduled castes and scheduled tribes and freed bonded labourers. 20 percent of the resources are set apart for construction of wells (Million Wells Programme) and other minor irrigation works to be given free to poor scheduled caste and scheduled tribe farmers.

Progress was also made in the decentralisation of the planning process by establishing a District Rural Development Agency (DRDA) in each district. DRDA with the District Collector as the chairman and membership comprising both officials and non-officials has been assigned the function of preparing the District Plan and securing inter-sectoral and inter-departmental coordination to oversee the implementation of the plan programmes. A compact team of project officials headed by a Project Officer was created to discharge the functions of DRDA.

Thus by the end of the Seventh Plan, a firmly established machinery extending down to the district level has come into place for systematic preparation of plans for rural development with due regard to local needs and resources and to oversee its implementation. Simultaneously the (C.D.) block level extension staff has been restored to its previous strength to look after the implementation of the projects at the ground level.

The Eighth Five Year Plan

The Eighth Five Year Plan (1992-1997) has made a massive provision for rural development with a plan outlay of Rs.36,000 crores which is over four times the outlay of the previous Plan. Elimination of rural poverty continues to be the major concern: "Expansion of employment opportunities, augmentation of productivity and income levels of both the under employed and unemployed poor would be the main instruments of achieving this objective".

All on-going special employment programmes (IRDP, JRY), special area programmes (DPAP, DDP) and the minimum needs programme (MNP) are to continue. The manner of planning and implementing them will, however change. There has been increasing recognition that the fragmented approach followed hitherto with several agencies being involved in often overlapping activities does

not yield results which are commensurate with the investment. The new strategy is to bring about greater integration among on-going poverty-alleviation and area development programmes and, more important, to link them closely with the sectoral schemes treating the district as the unit of planning and management. The DRDAs are vested with this responsibility.

The Eighth Plan gives priority to three additional programmes as part of anti-poverty strategy. These are (a) Land Reforms, (b) Public Distribution System and (c) Rural Energy. Although the need for land reforms was stressed in successive plans and land ceiling legislation and tenancy laws were enacted by all the states, much still remains in realising the goal of "land to the tiller" and elimination of exploitation in land relations. The Public Distribution network which was set up to supply at affordable prices food and other essential articles of consumption is being strengthened and expanded to cover all back ward areas. Non-availability of energy for domestic use or production needs is a serious constraint in the rural area. An Integrated Rural Energy Programme (IREP) was taken up in the Seventh Plan to study and develop the institutional arrangements for preparing and implementing rural energy projects. Based on the experience gained, IREP in the Eighth Plan will focus on provision of energy for meeting the needs of cooking, heating and lighting especially for the weaker sections by utilising locally available resources to the extent possible, and provision of energy as a critical input in the creation of employment and for increasing productivity.

The Plan recognises the imperative need to involve the people in the development process. New forms of rural institutions and organisations are to be developed to enable the small farmers and other under-privileged sections to improve their inherent potential and productivity and protect their interests. The active participation and support of voluntary organisations is to be enlisted at the stages of planning and implementation of various programmes.

Specifically, the Eighth Plan has the following priority objectives:

- (i) Generation of adequate employment to achieve near full employment level by the turn of century.
- (ii) Containment of population growth through active people's cooperation and an effective scheme of incentives and disincentives.
- (iii) Universalisation of elementary education and complete

eradication of illiteracy among the people in the age group 15 to 35 years.

- (iv) Provision of safe drinking water and primary health care facilities, including immunisation, accessible to all villages and the entire population, and complete elimination of scavenging
- (v) Growth and diversification of agriculture to achieve self-sufficiency in food and generate surpluses for exports.
- (vi) Strengthening the infrastructure (energy, transport, communication, irrigation) in order to support the growth process on a sustainable basis.

All these objectives are of special relevance to rural development. The on-going plan programmes described before have an important role in fulfilling them.

DATA NEEDS

The preceding review of rural development programmes over the last two decades and the Eighth Plan strategy provide the background for the consideration of the emerging data needs for rural development and the direction in which current statistical activities need to be reoriented to meet them.

Rural Development is a multi-pronged effort encompassing a wide range of developing activities—economic, social and demographic — with an integrated approach to improving living conditions especially of the under privileged and vulnerable sections. The statistical data for rural development have accordingly to be equally diverse. To begin with, they should help to review and assess available and potential resources, both physical and biological, the infrastructural facilities and institutional arrangements. The statistical system has to serve the needs of plan formulation covering all development sectors, implementation and monitoring of plan programmes, and eventually their evaluation including the over-all impact.

With an increasing trend of decentralised planning, the requisite statistics should be available with as much disaggregation as possible. In many cases, disaggregation is required according to select groups of people (small and marginal farmers, landless labourers, scheduled castes, scheduled tribes, women, children etc.) in order to formulate and execute projects of special benefit to them.

In order to specify the statistics for rural development, it is convenient to consider them according to individual sectors of rural economy though, as I said before, all the sectors are intrerrelated and need to be taken together at the stages of programme planning and implementation. Among the sectors, agriculture is the most important as it is the principal means of livelihood of the largest section of the rural population including many of the rural poor. Land reforms and agricultural development have therefore a predominant role in the whole programme. Animal husbandry, fisheries, village industries are important as they are the means of generating additional employment opportunities beyond what agriculture can provide. Education and literacy, health, family welfare, housing, infrastructural facilities and access to amenities are necessary concomitants to improve the skill, productivity and living conditions of the rural people.

Basic to all the sectors and determining their scope and potential are the natural endowments. An assessment of the status of soil, land and water resources with a view to exploiting them on a sustainable basis is a prerequisite of development planning. The most important endowment obviously is the local inhabitants themselves. A detailed description of people in terms of demographic characteristics, literacy and education, economic activity, levels of living is necessary with breakdowns for special groups (S.C. S.T. Women etc.)

It is beyond the scope of this address to describe even briefly the programme elements of each individual sector and delineate the corresponding statistical requirements. I shall have to content myself with indicating in broad terms the data needs of each sector keeping in mind the major areas of concern especially of the Eighth Plan programmes and priorities.

I should say at the outset that my suggestions are with regard to statistical requirements and not the whole range of information needs of rural development. Further, the statistics I refer to are those that can be obtained from carefully planned and periodically repeated programmes of data collection and processing.

In listing the requirements, one is constrained by what the existing statistical system can deliver in the short range. I believe the available data sources can meet to a large extent the needs of rural development provided sufficient effort is made to exploit them fully and improve the timeliness and quality of the processed results.

Of the three major sources of statistical data—administrative records and reports, censuses and sample surveys, the first two have a major role in developing the database as they are capable of

providing disaggregated statistics for small areas and meeting the growing needs of micro planning.

Statistics derived from administrative records/reports, however, have several short comings. They are often incomplete in coverage and of doubtful quality due to non-adherence to prescribed procedures of collection and tabulation. Repeated training of the primary reporting staff, adequate administrative and technical supervision and professional support in processing and tabulation are necessary to improve the timeliness and reliability of the statistics.

We are much better off with regard to censuses though here too, there is much room for improvement in reducing the time lag in the availability of final results. All the four major censuses – the decennial population and economic censuses and the quinquennial agricultural and livestock censuses have a large contribution to the statistical database. Their usefulness can be further enhanced by undertaking additional tabulations not usually included in the census publications.

For more detailed and frequent statistics, the censuses need to be supplemented by sample surveys. We are well served in this area also with long established countrywide surveys in agriculture, animal husbandry, industry, trade and services and a number of socio-economic topics of special relevance to rural development.

OUT LINE OF THE STATISTICAL DATA BASE

I have suggested in the following two tables a fairly comprehensive list of statistics for rural development having regard to the considerations just mentioned. Table 1 presents the major statistical series for formulation and evaluation of rural development programmes, and Table 2 a select set of indicators for monitoring progress and keeping watch over programme implementation. The statistical series/progress indicators take due account of the broad content and priorities of various sectoral programmes, in particular, the Plan projects I described earlier.

Table 1 enumerates the statistical series under ten major sectors, each divided into several sub-sectors. The table also shows the level and periodicity of each series and the principal source(s) from which the data can be obtained. Many of the statistical series have multiple classifications each of which generates several statistical tables. The formats of the tables have to be settled at the time of establishing the database.

Table 2 lists over 60 progress indicators grouped under 14 major areas of development activity. It is proposed that all the indicators

should form part of the block level progress reports as the C.D block is the basic unit with the necessary infrastructure to implement the plan projects as well as maintain adequate statistical record of the progress of activities.

Time does not permit me to go into the details of the statistical series/indicators. I would only mention that they largely focus on what the planning agencies at the state and district levels require to assess local resources and needs, fix realistic targets and detect imbalances, if any, among the various segments of the programme. They give special attention to the major areas of land reforms, promotion of agriculture and allied activities, employment, education, health and family welfare. It is possible to derive from the data a variety of socio-economic indicators to gauge the improvement registered in individual sectors and groups of related sectors. The statistical series also help in evaluating the over all impact in terms of the effect on levels of living and reduction in disparities among different sections of the community.

Of the 62 statistical series listed in Table 1, 47 will be available at the level of the district or below. For the remaining 15, sample surveys are the principal source and they do not for the present permit disaggregation below the state level. It should, however, be possible to frame district level estimates, for some of them, through appropriate statistical measures without resorting to large-scale expansion of sample sizes.

I need hardly say that the proposed lists are not exhaustive but indicative of what is possible by optimum use of the existing statistical system. The need for additional series and demand for greater detail and disaggregation will arise as microlevel planning and use of sophisticated planning techniques become more prevalent. However, before any fresh programmes of data collection are contemplated, it has to be ensured that they are absolutely unavoidable and that the available data and data sources cannot serve the purpose. In any case, *ad hoc* collection of data is expensive and often counter productive as past experience of such exercises amply demonstrates.

I would, therefore, suggest that as a first step, the District Rural Development Agencies (DRDA) should take necessary measures to develop the statistical database with the proposed series with the active help and participation of the State Statistical Bureau and its district officials. Now that each district has access to adequate computer facility, storage and handling of statistical data will be much easier once the available software is suitably modified.

The states have already launched with the help of the National Informatics Centre a programme of District Information System (DISNIC) and also propose to develop a District Planning Information System (DISPLAN). The database proposed here could form part of DISPLAN with the understanding that the State Statistical Bureau is fully associated with the development of the statistical database at all stages and it plays the leading role in determining the content and format of the database. It has to be ensured that there is no duplication of effort and the same data sets are used and disseminated by all agencies concerned.

**Table 1 : Formulation and Evaluation of Rural Development Programmes
Major Statistical Series**

Statistical Series/Tabulation	Level	Frequency	Principal source
I INVENTORY OF RESOURCES			
1. People			
1.1 No. of households and no. of persons by sex and broad industrial category separately for scheduled castes, scheduled tribes and all social groups	C.D. Block	10 years	Population census
1.2 Total rural population by sex, broad age groups (0-4, 5-14, 15-24, 25-34, 35-59, 60 and above), economic activity (main workers, marginal workers, non workers) and industrial category separately for S.C., S.T. and all groups..	District (rural)	10 years	Ditto
1.3 Composition of households by size of household	District (rural)	10 years	Ditto
2. Soil and Climate			
2.1 Geographical area by type of soils	District	One time survey updated whenever fresh data become available	Records and reports of geological survey and special investigations including remote sensing
2.2 Average monthly distribution of rain fall, temperature, humidity and evaporation	Meteoro logical sub-divisions/ district	Annual	Publications of the Indian Meteorological Department

	Statistical Series/Tabulation	Level	Frequency	Principal source
3.	Land and Water			
3.1	Total geographical area classified by type of land use (nine-fold classification)	C.D. Block	Annual	Reports of the State Department of Land Records
3.2	Total area under forest by type of forest, legal status, composition and ownership	District	Annual	Reports of the State Department of Forest
3.3	Total area irrigated by source of irrigation	C.D. Block	Annual	Reports of the State Department of Land Records
3.4	Area of surface water by type of use	District	5 years	Administrative Records
II	LAND REFORMS AND AGRICULTURE			
1.	Land Reforms			
1.1	No. and area of operational holdings by size class, tenancy, terms of leasing, land use and irrigation	District/C.D. Block	5 years	Agricultural Census
1.2	No. and area of operational holdings by size class and by major crops and groups of related minor crops further classified by irrigation	District/C.D. Block	5 years	Ditto
2.	Agriculture			
2.1	Area under each major crop and groups of related minor crops classified by irrigation, sown with HYV seed, treated with fertiliser and plant protection measures.	C.D. Block	Annual	Reports of State Department of Land Records/Bureau of Statistics
2.2	Average yield and production of each major crop classified by irrigation	District	Annual	Crop Estimation Survey

	Statistical Series/Tabulation	Level	Frequency	Principal source
2.3	Value of output of each major crop at current and constant prices	State	Annual	Central Statistical Organisation/State Statistical Bureau
2.4	No. and principal characteristics of Agricultural establishments (separately for own account enterprises) classified by type of agricultural activity and size of employment.	District	10 years	Economic Census
III	ANIMAL HUSBANDRY AND FISHERIES			
1.	Animal Husbandry			
1.1	No. of livestock classified by species, sex, age and nature of use	C.D. Block	5 years	Livestock Census
1.2	No. of poultry birds classified by species & sex	C.D. Block	5 years	Ditto
1.3	Quantity and value of principal livestock products (milk, wool, meat, eggs etc.)	State/District	Annual	State Sample Survey of Livestock products
2.	Fisheries			
2.1	Area under surface water suitable for pisciculture and area utilized	District/C.D. Block	5 years	Special Inventory Survey
2.2	Quantity and value of catch of fish (marine, inland) by major types	State	Annual	Sample Survey and Records of Fisheries Department
3.	Agriculture Machinery and Implements			
3.1	No. of agricultural machines and implements by type and use of power	District/C.D. Block	5 years	Livestock Census
3.2	No. of fishing craft by use of power and no. of fishing gear	District/C.D. Block	5 years	Ditto

	Statistical Series/Tabulation	Level	Frequency	Principal source
IV	NON AGRICULTURAL PRODUCTIVE ACTIVITIES			
	(Mining, manufacture, trade, transport, communications, construction and services)			
1.1	Principal characteristics of all non-agricultural establishments classified by nature of non-agricultural activity (major groups) and size of employment	Dis-trict(Rural)/C.D. Block	10 Years	Economic Census
1.2	Principal characteristics of non-agricultural own account enterprises classified by nature of non-agricultural activity (major group) and size of employment	District	10 Years	Ditto
1.3	No. of non-agricultural establishments and value of total annual output/turnover/receipts by nature of activity and size of employment	State (Rural)	5 years	Sample Surveys of the unorganised sector and the Annual Survey of Industries
1.4	Value of materials, fuels, electricity consumed during the year by nature of activity and size of employment	State (Rural)	5 years	Ditto
V.	EMPLOYMENT			
1.	Manpower			
1.1	No. of main workers classified by industrial category, age, sex and educational level	District (Rural)	10 years	Population Census
1.2	No. of marginal workers classified by industrial category, age, sex and educational level	District (Rural)	10 years	Ditto
1.3	No. of non-workers seeking/available for work classified by age, sex and educational level	District (Rural)	10 years	Ditto

Statistical Series/Tabulation		Level	Frequency	Principal source
2.	Labour force status			
2.1	Percentage distribution of persons of age 5 and above "usually working" by sex, occupation groups and industry group.	State (Rural)	5 years	N.S.S Socio-economic Survey
2.2	Percentage distribution of persons of age 5 and above by current weekly activity by sex and age.	State (Rural)	5 years	Ditto
2.3	Percentage distribution of persons of age 5 and above by current daily activity by sex and age	State (Rural)	5 years	Ditto
3.	Internal Migration			
3.1	No. of migrants from rural areas within the state reporting employment as reason for migration by age, sex, educational level and duration of residence	State	10 years	Population Census
Tables 1.1, 1.2 and 1.3 to be prepared separately for S.C. and S.T.				
VI	EDUCATION			
1.	Education and Literacy Status			
1.1	No. of persons by age, sex and level of education	District (Rural)	10 years	Population Census
1.2	No. of persons attending school/college by completed level of education, age and sex	District (Rural)	10 years	Ditto
1.3	No. of persons (age 5-16) by single year age, school attendance and economic activity	District (Rural)	10 years	Ditto

	Statistical Series/Tabulation	Level	Frequency	Principal source
2.	Educational Institutions			
2.1	No. of educational institutions by level and type of education and size of enrollment	District (Rural)	Annual	Annual Report/ Administrative Records of the State Directorate of Education
2.2	No. of teachers by sex, level and type of education and qualifications	District (Rural)	Annual	Ditto
2.3	No. of pupils enrolled in educational institutions, by sex, age, level and type of education	District (Rural)	Annual	Ditto
2.4	No. of pupils by sex, age, level and type of education and by benefits like scholarships, fee concession; free books, mid-day meals and the total expenditure on provision of benefits	District (Rural)	Annual	Ditto
	Note : Tables 1.1, 1.3, 2.3 and 2.4 will be prepared separately for S.C. and S.T.			
2.5	Percentage of pupils repeating grade by sex, age, level type of education	District	Annual	Administrative Records and quinquennial education survey
2.6	Percentage of persons discontinuing formal education by sex, age, highest educational level attained and reason for leaving formal education	State (Rural)	5 years	N.S.S. Socio-economic Survey
2.7	No. of non-formal educational institutions by type of facility and their capacity of enrollment	C.D. Block	Annual	Block level Records/Reports
2.8	No. of special education institutions for disabled persons and their capacity	District (Rural)	Annual	Reports of the state Directorate of Education

	Statistical Series/Tabulation	Level	Frequency	Principal source
VII	HEALTH AND NUTRITION			
1.1	No. of medical institutions by type (hospitals, dispensaries, subcentres primary health centres, community health centres, family planning clinics)	District	Annual	Reports/records of the state Department of Health
1.2	No. of doctors, trained nurses, medical assistants, midwives and lady health visitors	District	Annual	Ditto
1.3	No. of beds in hospitals and dispensaries by type of institution	District	Annual	Ditto
1.4	No. of households classified by source of drinking water, and toilet facilities separately for S.C., S.T. and total population	District	10 years	Population Census
1.5	Amount of cereals and dairy products consumed per person by type of household, size, monthly expenditure and occupation	States	5 years	NSS Socio-economic Survey
VIII	FAMILY WELFARE			
1.1	Total population classified by age, sex and marital status, separately for S.C. and S.T.	State	10 years	Population Census
1.2	Annual live birth rate, death rate and infant mortality rate	State	Annual	Sample Registration Scheme
1.3	Currently married women by present age and births during last year by birth order	District (Rural)	10 years	Population Census
1.4	Ever married and currently married women by present age, and parity and total no. of children ever born by sex	District (Rural)	10 years	Ditto

	Statistical Series/Tabulation	Level	Frequency	Principal source
	1.5 Ever married and currently married women by present age, and no. of surviving children and total no. of surviving children by sex	District (Rural)	10 years	Population Census
IX	HOUSING			
	1.1 No. of households by predominant material of roof, wall and floor of dwelling units occupied by them	District (Rural)	10 years	Ditto
	1.2 No. of households by size, type, monthly expenditure, household occupation and tenure status	District (Rural)	10 years	Ditto
	1.3 No. of households by size, tenure status, and number of rooms occupied	District (Rural)	10 years	Ditto
	1.4 No. of households classified by source of drinking water, availability of electricity and toilet facilities	District (Rural)	10 years	Ditto
	1.5 No. of house less and institutional population	District (Rural)	10 years	Ditto
X	LEVELS OF LIVING			
1.	Consumer Expenditure			
	1.1 Per Capita value of consumption during specified period of major consumer goods and services (foodgrains, fruits and vegetables, dairy products, fuel and light, clothing, footwear, consumer durable etc.) by different expenditure classes separately for total rural population, marginal farmers, small farmers, agricultural labourers, S.C. and S.T.	State	5 years	NSS Socio-economic survey

	Statistical Series/Tabulation	Level	Frequency	Principal source
2.	Assets and Liabilities			
2.1	Value of assets - physical (land, buildings, livestock, agricultural machinery, non-farm machinery, transport equipment, household durables etc.), and financial (shares, deposits, loans receivable etc.), Value of liabilities (dues payable), and source and terms of borrowing classified by asset classes separately for marginal formers, small farmers, agricultural labourers S.C. and S.T.	State	5 years	NSS Socio-economic survey
3.	Prices			
3.1	Retail prices of all important commodities traded in rural areas (In selected localities and markets)	District	Monthly	Reports of rural price collecting agency

Table 2 : Selected Indicators for Monitoring and Concurrent Evaluation of Rural Development Programmes

Information is to be furnished for each C.D. Block. Achievements and targets are to be given against each item. Wherever the frequency is a quarter, the annual target, achievements during the quarter and cumulative total since the beginning of the year are to be reported.

Item	Unit	Frequency
I LAND REFORMS		
1.1 Land acquired through application of land ceiling laws	hectare	annual
1.2 No. of holders from whom land was so acquired	no	annual
1.3 Government and community land released for allotment	hectare	annual
1.4 Surplus land allotted and number of families benefited by allotment	no. & hectare	annual
a. small farmers - no. and area		
b. marginal farmers - no. and area		
c. agricultural labourers - no. and area		
2.1 Holdings covered by land consolidation		
a. Number	no	annual
b. area	hectare	annual
3.1 No. and membership (by sex) of voluntary organisations concerned with promotion of interests of small farmers	no	annual
II LAND DEVELOPMENT		
1.1 Land reclaimed for		
(i) cultivation	hectare	annual
(ii) pasture and grazing		
(iii) afforestation		
1.2 Land developed through watershed measures	hectare	annual
1.3 Land protected from floods/water logging	hectare	annual
III IRRIGATION		
1.1 Extent of additional irrigation potential created by	hectare	annual
(i) major and medium irrigation works		

Item	Unit	Frequency
(ii) Minor irrigation a. community works b. private works		
1.2 Number of irrigation wells dug	no	annual
(i) open wells		
(ii) tube wells		
(iii) pumpsets installed		
1.3 Construction/lining of irrigation channels	no./ length in metres	annual
IV AGRICULTURE		
1.1 Supply of high yielding varieties of seed by principal crops	quintals	quarterly
1.2 Supply of fertilisers		
1.3 Supply of pesticides		
1.4 Supply of improved agricultural implements	quintals/va lue	
1.5 No. of demonstrations/experiments in cultivator's fields	no.	
2.1 Additional area brought under	hectare	annual
a. fruits and vegetables		
b. improved pasture		
c. farm forestry/village woodland		
3.1 No. of persons trained in the provision of agricultural services (training of rural youth for self employment - TRYSEM) - separately for SC and ST	no.	annual
V ANIMAL HUSBANDRY AND FISHERY		
1.1 Improved animals supplied by species and sex	no.	quarterly
1.2 Scrub animals castrated	no.	quarterly
1.3 animals artificially inseminated		
2.1 improved birds supplied by species	no	quarterly
3.1 fish tanks and ponds developed	no/ hectares	quarterly
3.2 fingerlings supplied	no	quarterly
3.3 area stocked with fish fry	hectares	quarterly

Item	Unit	Frequency
4.1 Beneficiaries under livestock, poultry and fishery programmes by status (small farmers, marginal farmers, agricultural labourers) separately for SC and ST.	no.	annual
4.2 No. of persons trained in animal husbandry services (TRYSEM)		
VI VILLAGE INDUSTRIES		
1.1 Value of improved tools and appliances distributed by industry/craft	rupees	annual
1.2 No. of common service facility centres set up		
1.3 No. of units set up for processing of agricultural and horticultural produce by type		
2.1 No. of persons trained in village industries (TRYSEM)	no.	annual
2.2 Financial assistance to rural artisans by purpose and source of assistance (number and amount)	no.	annual
VII RURAL ENERGY		
1.1 Number of villages electrified	no.	annual
1.2 Number of pumpsets energised		
1.3 Number of bio gas plants set up		
1.4 Number of smokeless chulahs distributed		
1.5 Number of solar energy plants set up		
VIII COOPERATIVES		
1.1 No. and membership by sex of cooperative societies by type (thrift, primary credit, irrigation dairy, poultry, fisherman, industrial, marketing)		
1.2 No. of cooperatives which have become defunct by type	no/ amount	annual
2.1 Structure and operations of the cooperatives by type (share capital, working capital, loans advanced, value of turnover of goods and services)		

Item	Unit	Frequency
IX HOUSING AND CONSTRUCTION		
1.1 No. of house sites provided	no.	annual
1.2 No. of families assisted for construction of houses and the amount of assistance	no/amount	annual
1.3 No. of dwelling units constructed for SC and ST and other weaker sections under special assistance schemes (INDIRA AWAS YOJANA, HUDCO)		
1.4 No. of families assisted for upgrading dwelling units	no	annual
2.1 No. of community buildings constructed : a. school buildings b. primary health centre/sub centre c. community centres		
X HEALTH AND SANITATION		
1.1 No. of villages/hamlets provided with safe drinking water facility (hand pumps, overhead tanks, protected well sets)	no	quarterly
1.2 No. of latrines constructed	no	quarterly
2.1 No. of children immunised for (a) DIT (b) Polio (c) Tuberculosis		
2.2 No. of expectant mothers immunised for tetanus		
XI FAMILY WELFARE		
1.1 No. of eligible couples motivated to practise family planning methods (IUD, C.C. and O.P. users)	no	annual
1.2 No. of sterilisation operations males/females		
1.3 No. of medical termination of pregnancies		
XII EDUCATION		
1.1 No. of children in balwadis/anganwadis functioning and no. of children (by sex) attending the institutions	no	annual

	Item	Unit	Frequ- ency
1.2	No. of pre-primary schools functioning and no. of children attending (by sex)	no	annual
1.3	No. of pupils enrolled in class 1, 2, 3 & 4 of primary schools separately by sex at the beginning of the year and end of the year		
2.1	No. of (i) non formal education centres (ii) adult education centres (iii) Jana Siksha nilayams functioning		
2.2	No. of adults made literate by sex and by SC and ST		
3.1	No. of students provided with mid-day meals		
3.2	No. of students receiving scholarships by sex, SC and ST and the amount of expenditure on this account		
4.1	No. of community centres and no. of centres with buildings of their own		
XIII TRANSPORT			
1.1	No. of villages linked with rural roads during the year	no	annual
2.1	No. of villages with telecommunication facility		
XIV PEOPLE'S INSTITUTIONS/VOLUNTARY ORGANISATIONS			
1.1	No. and membershp (by sex) of organisations/associations by type of main activity - land reforms and protection of tenancy rights, farming, animal husbandry, village industries and services, adult literacy and social education, welfare of women and children, youth activities, welfare of SC and ST rehabilitation of handicapped.	no	annual

COMMENTS AND SUGGESTIONS ON DATA SOURCES

As I mentioned earlier, the existing data sources will go a long way in fulfilling the statistical needs of rural development if sufficient care is bestowed to improve their content and quality and exploit their full potential. Our administrative records/reports, and periodical censuses and sample surveys are most comprehensive in scope and coverage but fall short in the final output often due to deficiencies in organisation and management. Greater commitment and willingness of all concerned to strictly comply with prescribed procedures and time schedules will bring about remarkable improvement in the system.

I wish to consider in the remaining part of the address the possible measures for streamlining and improving the performance of some major statistical programmes to serve better the needs of rural development. I have chosen the following four areas for comments and suggestions : 1. Population Census, 2. Agricultural and Livestock Censuses, 3. Land Records and Crop Surveys, and 4. N.S.S. Socio-economic Surveys.

Population Census

The population census is the principal source for a large number of statistical series listed in Table 1. Being a complete count of households and people, the census permits a high degree of disaggregation and cross-classification of a variety of demographic, economic and social variables. The 1991 census tabulation plan is comprehensive and includes a number of tables of particular relevance to rural development. The following deserve a special mention: (i) Sets of detailed tables for scheduled caste and scheduled tribes respectively; (ii) the village primary census abstract giving for each village several particulars including the composition of people by sex and principal industry, no. of children, no. of literates, scheduled castes and tribes; (iii) the village directory giving the amenities available and land use classification of every village. These details are of great value to identify the target groups and areas for mounting special development projects.

Due to constraint of resources most of the census tables are up to the district level only. Further there is considerable time lag in the availability of census publications. However, the 1991 Census basic data as well all the census tables are held on machine readable forms and can be accessed for more detailed tabulation as and when necessary. I would suggest that the State Statistical Bureau should include in its database computer tapes of all important census

tables and each DRDA at least the village primary census abstract and village directory of the district concerned.

Agricultural and Livestock Censuses

Next in importance to the population census is the agricultural census which provides much useful information regarding land reforms and agricultural development. The last census with the reference year 1986-87 was a combination of full count of holdings in the states with land records (14 states and 5 u.t.s accounting for 83 per cent of total number of villages) and sample enumeration in the remaining parts. Even in the case of the former complete enumeration was only in respect of the number and area of holdings; the rest of the data on other characteristics (tenure, tenancy, land use, irrigation crop areas etc.) were collected from 20 per cent sample of villages. In the states without land records all the data were collected through sample survey of households covering 20-25 per cent of villages. An input survey conducted along with the census in 7 per cent village provides data on agricultural inputs (fertilisers, pesticides, seeds etc.) according to five size groups of holdings.

The census tabulations are upto the district level only and the sampling approach followed in the census does not permit further disaggregation. This is possible only in the case of land records states with regard to the number and area of holdings. The 1991-92 census which is due soon is also based on sample enumeration and will, therefore, have the same deficiency. The next census in 1996-97 should revert to the earlier practice of complete enumeration of all characteristics of holdings in the states with land records. It is desirable to have census by full count at least once in ten years.

The census does not at present collect information on farm population and its composition which is a major attribute of the operational holding. This lacuna should be filled in the next census.

All the states should be persuaded to use computers for processing the census data starting with the 1991-92 census for speedier availability of results as well as better access to the basic data.

As the census follows the method of retabulation of data from village land records and land use and crop statistics, its reliability rests on how accurate and upto date are the records. It is well known that the village records are deficient in several respects. This needs to be set right on a priority basis.

The quinquennial livestock census is a complete enumeration

of all households with regard to livestock population poultry, agricultural machinery and fishing craft. The data collected are quite elaborate in nature. However, the ultimate published output leaves much scope for improvement as regards timeliness, reliability and the level of at which the information is available.

Although the livestock census is based on household enquiry, the census data are not related to the households and their composition. It is important, for example, to have the number of purely livestock holdings classified by main occupation of the holder.

I strongly believe there will be both operational and technical gains if the agricultural and livestock censuses are taken together as recommended by the FAO World Census of Agriculture Programme. Even now, the same village agency is responsible for the field operations of the two censuses. Like the livestock census, the agricultural census too has been following the household approach in all non-land records states. It is not difficult to establish correspondence between the household and the operational holding even if the latter is based on retabulation of land records data. The Eighth Conference of Central and State Statistical Organisations (1988) recommended a pilot study to evolve suitable procedures for the integration of the two censuses. This should be pursued without further delay and jurisdictional problems, if any, in undertaking a joint programme should be resolved so that the censuses due in 1996-97 could be a single integrated operation.

Land Records and Crop surveys

Statistics of crop area are compiled with the help of village patwaris in the temporarily settled parts of the country (14 states and 5 union territories), and by specially appointed field staff in the permanently settled states (Kerala, Orissa & West Bengal) under a scheme known as "Establishment of an Agency for Reporting Agricultural Statistics (EARAS)". The remaining eight states in the North East Region and two other u.t.'s do not have a reporting system and compile what are called conventional crop estimates based on personal assessments of village Chowkidars. The three categories of states and u.t.'s account for 88, 11 and one per cent respectively of the total crop area.

In the states with the patwari agency a census of all fields called girdawari is made in every village during each major crop season to compile land use, irrigation and crop area statistics. In the states with EARAS the girdawari is confined to a 20 per cent sample of the villages.

Crop area statistics of the temporarily settled parts are comprehensive being based on the census method. They are considered to be fairly reliable because of the patwari's intimate knowledge of local agriculture and his ready availability in the village. However, with the increasing range of functions entrusted to the patwari the girdawari has tended to receive low priority. In order to improve the timeliness and quality of crop area statistics, two schemes were introduced in the early seventies viz the Timely Reporting Scheme (TRS) and the scheme for Improvement of Crop Statistics (ICS).

The TRS has the objective of reducing the time lag in the availability of crop area statistics. Under the scheme the patwari is required to complete the girdawari on a priority basis in a 20 percent sample of villages and submit the village crop statement to the higher authorities by a stipulated date for the preparation of advance estimates of area under major crops. These are used by the Central Ministry of Agriculture for issuing the crop forecasts.

The ICS scheme aims at physical verification of the patwari's girdawari by an independent supervisory agency in a sub-sample of TRS sample villages. The verification is made in four clusters of five survey numbers each, and a comparison is made between the supervisor's and patwari's crop entries to assess the extent of discrepancies. The supervisor also scrutinises the village crop statement to ensure that it is free of totalling errors and checks whether it has been despatched for processing by the prescribed date. The ICS covers the EARAS states also in which similar supervisory check is made in a sub-sample of EARAS sample villages. In all about 10,000 sample villages are covered, roughly 8,500 in TRS states and 1,500 in EARAS states. The National Sample Survey Organisation (NSSO) is responsible for the overall planning and operations of the ICS. It shares the field work with the designated state agencies which carry out the field supervision in about half the number of sample villages. The NSS deploys around 450 full-time supervisors (Asstt. Superintendents) for the supervisory check. The states employ even a larger number of their official staff using them part-time.

The ICS scheme also includes a check on the field operations of the General Crop Estimation Survey (GCES) under which around 350,000 crop-cutting experiments are conducted every year to estimate the yield rates of major crops. GCES covers both the temporarily and permanently states/u.ts and uses for field work the part-time services of the state revenue and agricultural staff above the rank of the patwari. The ICS check consists of visiting a sub-sample of GCES experiments at harvest time and verifying that

the field staff follow the correct procedure in carrying out the experiments. Around 30,000 experiments are supervised, half by the NSS Asstt. Superintendents and the remaining half by the staff of the State Agricultural Statistical Authority.

An analysis of the performance of the TRS based on the findings of the ICS scheme reveals a disturbingly high degree of negligence in carrying out the girdawari, there by casting doubt on the over all reliability of crop area statistics. The results of the analysis are presented in Annex. 1 (statements 1-4) for the three years ending 1988-89 (the latest year for which the analysis is available).

Statement 1 shows the status of submission of village crop statements by the patwari for processing. Statement 2 shows the extent of agreement between the supervisor's and patwari's crop entries in the sample clusters of survey numbers. Statement 3 shows the impact of recording errors on crop areas at the cluster level; and the impact of totalling errors made in the preparation of the crop statement. Statement 4 shows the extent of agreement between the final crop estimates and TRS estimates; and between the final estimates and the estimates based on the supervisors reports of crop areas of the ICS sample villages and clusters. The findings of the analysis are briefly as follows:

1. Village crop statements are submitted by the patwari for processing in respect of only 75 per cent of the sample villages i.e. there is a non-response of 25 per cent in framing the TRS crop estimates. The non-response is of the same order in both kharif and rabi seasons and all the three years. 1988-89 kharif is an exception with a non-response as high as 60 per cent.
2. Crop statements are submitted for processing by due date in respect of only 45 per cent of the sample villages. The situation remains the same over the years and seasons. Here too 1988-89 kharif fares badly with 22 per cent statements submitted in time.
3. Crop statements are submitted for processing without completing the girdawari in 8-9 per cent of the sample villages— a clear case of fudging.
4. Crop entries of the patwari and the supervisor tally with each other in about two thirds of the survey numbers inspected. Once again, this ratio remains practically the same over the years and seasons. The situation is relatively worse in

- Karnataka, Maharashtra and Tamil Nadu with the tally ranging between 32-57 per cent.
5. The impact of recording errors expressed as the ratio between the crop totals recorded by the patwari and supervisor at the cluster level is quite large in respect of even major crops. For example during 1988-89, the discrepancy is 9 per cent for winter rice, 8 per cent for wheat and 6 per cent for gram (all states together). Out of 33 crop-year comparisons, 13 show differences of 5 per cent or more.
 6. The impact of totalling errors in the preparation of crop statements is small showing that arithmetical errors in totals are not serious.
 7. There is close agreement between the final crop estimates and the TRS estimates for all crops together in each year. There are, however, marked differences for some individual crops (e.g. jowar and ragi).
 8. There is a large difference between the final estimates and the ICS estimates for all crops together - 8 per cent, 5 per cent and 9 per cent respectively during 1986-87, 1987-88, 1988-89. Crop wise differences are even more (e.g. 8-16 per cent in the case of kharif rice).

These findings are a clear indictment of the patwari's neglect of one of his major functions. It is a matter of great concern that this is allowed to go on for a number of years (in fact the situation is practically the same during the eighties), evidently with the knowledge and indulgence of the higher level officials of the state departments of revenue and land records.

That the situation is equally bad with the General Crop Estimation Survey (GCES) is amply brought out by the ICS scheme. An analysis of ICS findings of GCES performance is presented in Statements 5 and 6 (Annex. 1). Statement 5 shows, statewise, the percentage of experiments correctly performed and Statement 6 the extent of agreement between GCES estimates of yield rates and ICS estimates based on the data of supervised experiments.

It will be seen that the experiments in the GCES survey were conducted properly in only 60 per cent of the cases and the rest had one defect or the other. The quality of performance was uniformly poor over the years and seasons with further decline in the last year (1988-89). In some states (e.g. Haryana, Maharashtra, Rajasthan) one half to two thirds of the experiments supervised did not meet

the prescribed standards. The defects were of a serious nature in 8-10 per cent of the cases — mistakes in selection and location of the experimental plot and weighing of produce. It was reported that in a substantial proportion of cases, the field staff were not either supplied or they did not use essential equipment such as measuring tapes and weighing scales.

The ICS and GCES yield estimates are seen to differ widely from each other (Statement 6) much more than what can be attributed to sampling errors. The differences were as large as 15 per cent for rice and 28 per cent for wheat in certain years (for all the states together). The comparisons are even more unfavorable for individual states and crops. One cannot help but conclude that the GCES in many states is carried out most perfunctorily unmindful of the serious consequences.

It is amazing that crop statistics are allowed to come to this pass despite the fact that "High Level Coordination Committees in Agricultural Statistics" in the states and the Technical Working Group on Agricultural Statistics at the centre are said to review regularly the various issues and take remedial action. That the patwari is over burdened and finds it difficult to pay adequate attention to girdawari has long been acknowledged. The National Commission on Agriculture (NCA) while reiterating that the patwari agency should continue to be responsible for collection of basic agricultural statistics recommended that his jurisdiction should be reduced wherever it is excessive and that intensive supervision through normal revenue and statistical staff should be organised over his work of area enumeration. The statistical check launched through ICS was in partial fulfillment of the NCA recommendation. The National Sample Survey Organisation (NSSO) at the Centre and the State Agricultural Statistical Authorities (SASA) have been doing a commendable job in assessing the quality of crop statistics and bringing to light the deficiencies. Unfortunately there was no corresponding effort on the side of the State Revenue and Land Records departments to take effective remedial action.

One need not reiterate the crucial importance of land use and crop statistics to the development programmes and to the whole national economy. With decentralized programme planning and management the quality of the statistics has to be assured down to the lowest level of Panchayat and village. Complete enumeration alone can best serve the purpose. The patwari agency and the girdawari which stood the test of time and proved to be cost-effective and efficient are still available to us. It will indeed be a great folly if they are allowed to disintegrate putting the whole system of agricultural statistics in jeopardy. The agricultural statisticians and

in particular the Indian Society of Agricultural Statistics (ISAS) have the responsibility to raise their voice against the continued erosion in the quality of agricultural statistics due to administrative apathy and inaction. The Government of India is reported to have set up a National Commission on Revitalization of Revenue Administration to take up all issues relating to land record management in the states. I would suggest that ISAS should put forward before the Commission a strong case in favour of girdawari and the patwari's role in it.

Meanwhile, the most urgent consideration should be given by the states to improve the performance of the TRS by reducing the workload of the patwari in the sample villages; by according high priority to girdawari among his functions; and prescribing mandatory and frequent supervision over his work by higher level revenue officials. The ICS scheme too needs streamlining. Its purpose should be more to ensure that the girdawari is done accurately and in time than merely to identify its deficiencies. Greater interaction between the ICS staff and the local revenue officials will help better awareness of the importance of this programme. The State Agricultural Statistical Authority (SASA) has to assume a leading role in this respect. It should consider using whole-time staff for supervision as the N.S.S.O does.

The ICS supervisors' crop records of the sample clusters should be used to make appropriate corrections in the TRS estimates of crop areas. The ICS survey design should be reviewed in order to examine the sampling efficiency, the relative merits of the use of a cluster as the second stage sampling unit, and what ancillary information will help to improve the precision of estimates framed from the sample check data.

It seems to me that the ICS field operations will greatly improve if the ICS set of sample villages forms part of the sample of the regular rounds of the NSS socio-economic survey. Joint operations of the two surveys in the same set of villages will be to mutual advantage of both.

Similar streamlining is called for in the General Crop Estimation Survey (GCES). At present several state agencies are assigned the work of crop cutting experiments which cannot perhaps be avoided altogether when a large number of experiments have to be conducted within a short period. Nevertheless, an effort should be made to reduce the diversity of agencies and use as far as possible the state statistical and agricultural agencies. The revival and strengthening of the Block level extension staff including the statistical assistant should greatly help.

The immediate priority is to reduce the unacceptable level of non-sampling errors in the survey. All field workers should have ready access to the experimental equipment and a serious view should be taken of any one not using the prescribed tools. Central fabrication of easily portable experimental kits and simple house keeping arrangements for their maintenance and storage will go a long way in improving the field operations.

I think a ceiling should be imposed on the size of the GCES sample and no further increase should be allowed. In fact even the current scale of experiments (350,000 per annum) is excessive having regard to the lack of control over the field operations. I know there is growing demand for larger sample sizes to furnish estimates for small areas especially in connection with the crop insurance scheme, but such needs should be met by separate arrangements by the agencies concerned and they should not form part of the GCES.

The SASAs should initiate experimental studies to try out several techniques available for framing "small area estimates" and examine the feasibility of utilizing the information already available from the censuses or that can be easily collected as part of GCES to compute usable estimates for local areas. The availability of high power computers in every state will permit studies with complex models.

In sum, the emphasis during the next several years should be on consolidation and improvement of the present system of crop surveys and ensure their efficient management.

NSS Socio-economic Surveys

The NSS socio-economic surveys are a valuable source for a number of statistical series/tabulations considered before. The surveys which are carried out in annual rounds cover in a cycle of ten years a variety of topics such as land holdings, livestock holdings, debt and investment, employment and unemployment, consumer expenditure, health, education etc. all of which are of vital importance to development planning. The list of subjects covered by NSS during the period 1982-91 is given in Annex. 2.

With a sample of about 9,500 villages and 4,500 urban blocks, and 20-25 households per village/urban block, the NSS is capable of providing reliable estimates of major socio-economic variables at the state level separately for rural and urban areas. The NSS sample is matched by a corresponding state sample of equal size, which the State Statistical Bureaus handle following identical survey procedures and tabulation plans. The pooled results of the central

and state samples are expected to improve the precision of state estimates and also permit disaggregation to the level of 70 regions (groups of districts) into which the country is divided.

The NSS organisation has elaborate arrangements for survey design, field operations and data processing each in charge of a Division. The Field Operations Division (FOD) is the largest among them with about 170 field offices spread through out the country, and staff comprising 44 Assistant Directors and 320 superintendents at the supervisory level; and 1640 Assistant Superintendents and 1360 Investigators for data collection and related operations. Of these about 430 Asstt. Superintendents are employed in the Improvement of Crop Statistics (ICS) scheme; and 400 Asstt. Superintendents and 900 Investigators in the socio-economic survey.

During the course of each survey round the NSSO collects a large volume of data relating to sample villages/urban blocks, sample households and members of households. Not all the field data get fully processed and analysed. The publications usually contain priority tables. However, NSSO undertakes special tabulations to meet specific user requirements. Although the FOD usually completes the field operations of the survey round by the stipulated time, subsequent processing and release of results take unduly long thereby diminishing the usefulness of the results. There has been some noteworthy improvement during the eighties in the release of results but the target of 15 month gap between the completion of field work and publication of results has not been achieved. Most often the interval is of the order of 3-4 years barring preliminary summary results based on part samples. Annex. 2 shows the number of reports published for the rounds during the eighties and the month and year of the release of the earliest and latest publication of the round.

So far as rural development is concerned, we need more timely estimates and they should preferably be at the district level. The pooling of results of the State and Central samples meets this need even if partially. However, despite the state participation in NSS since 1954 (8th Round) the pooling of results has not taken place so far except for few isolated instances. Further, for the past several rounds the state sample data have not been processed by most of the State Statistical Bureaus although they have all been participating in the data collection activity. Assuming that the states spend as much as the NSSO does on field operations (around Rs. 10 crores per annum); one can easily reckon the cost of infructuous data collection.

I am told that the NSS Governing Council is seized of these problems and hopefully, it will soon be possible to witness radical improvement in fuller use of the data collected and more timely availability of the survey results. I would, however, venture to make the following suggestions especially in the light of the requirements of rural development.

First and foremost, NSSO should accord the highest priority to the reduction of time-lag in the release of results which, in my view, can be accomplished by decentralizing machine scrutiny and validation of field data and assigning it to the Sub-Regional Offices (about 200) which already are responsible for manual scrutiny of filled in schedules. This implies installation of a PC/AT and net addition of one person in each Sub Regional Office; training of staff in data entry and computer operations and a pre-prepared set of software programs for scrutiny and edit of the several schedules of the given round. These are all well within the means of NSSO and can be implemented within 2-3 years, given the necessary administration support.

Second, the State Statistical Bureaus also should be persuaded to follow the same procedure of scrutiny and validation of data. They have now easy access to computers at the district and regional levels, and can take advantage of the software developed by NSSO. Simultaneously arrangements should be made for the pooling of the central and state sample results by mutual exchange of validated data tapes between the NSSO and SSBS.

Third, NSSO should consider adding a few additional items to the village, house listing and household schedules and repeating them in every round to help assess the progress and impact of programmes of special relevance to the Eighth Plan priorities – employment, literacy, primary education, health, drinking water, domestic energy, access to amenities etc. A list of the items is given in Annex. 3. These items were covered before in one round or the other. What is suggested now is to repeat them as a set of core items in each round to be able to study the short-term changes.

Fourth, as mentioned earlier, it seems desirable to bring about maximum coordination between the ICS and socio-economic surveys. There will be obvious gains in field operations and better supervision of crop enumeration and crop cutting experiments if the ICS sample villages form part of the larger socio-economic sample. This should be possible with some change in the system of stratification and method of selection of first stage units. A schematic presentation of the changes required is given in Annex. 4 as a possibility for consideration.

Fifth, there should be an early review of the sample design of the socio-economic survey which has remained practically the same since the early seventies. It is desirable to undertake a study of the design effect (deft) and the gain in efficiency due to present procedures of stratification, sample allocation and selection in respect of major socio-economic variables. The availability of the 1991 census list of villages on computer tape along with information on a number of village characteristics provides several options for stratification and sample selection. It seems to me a deeper stratification than at present will improve the precision of the estimates and also facilitate the framing of estimates for small areas.

Meanwhile NSSO should arrange to compute the sampling errors of state estimates for major variables and include them in future publications. The previous practice of presenting independent sub-sample estimates should be revived.

The NSS has made outstanding contribution to the enrichment of the statistical database especially in areas which are of vital importance to development planning. Its usefulness will increase further with greater attention given to comprehensive tabulation of data and early release of survey results.

I wish to conclude by repeating that the current national programmes of data collection with only minor modifications and additions, will go a long way in meeting the statistical needs of rural development. What is urgently required is to ensure that they are carried out properly with due regard to prescribed technical standards and the data thrown up are subjected to timely and comprehensive processing. This seems to be a tall order going by past performance. I would urge that the agenda for the remaining part of the nineties should concentrate on streamlining and consolidating the on-going statistical programmes and equip the statistical machinery at the district and block levels to put the data to maximum use. It is my earnest hope that all those concerned with official statistics specially the agricultural statisticians will address themselves to this task in view of the immense importance and urgency of rural development.

Thank you.

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Annex. 1 : SCHEME FOR IMPROVEMENT OF CROP STATISTICS (ICS)
(A) Performance of Timely Reporting Scheme (TRS)*

STATEMENT 1. Submission of Crop statements by the patwari					
Percentage of villages		1985-86	1986-87	1987-88	1988-89
Statements submitted by due date after completing girdawari	Kharif	45	42	46	22
	Rabi	48	42	47	46
Statements submitted without completing girdawari	Kharif	8	8	9	5
	Rabi	8	8	9	4
Total statements submitted for processing	Kharif	77	75	75	40
	Rabi	81	78	76	72

STATEMENT 2. Percentage Survey numbers in which crop entries by the supervisor and the patwari tally with each other						
State	1986-87		1987-88		1988-89	
	Kharif	Rabi	Kharif	Rabi	Kharif	Rabi
Andhra Pradesh	88	89	86	86	78	82
Assam	90	85	91	76	85	—
Bihar	94	79	94	88	95	85
Gujarat	75	77	74	79	73	76
Haryana	85	85	85	79	83	76

Contd . . .

* EARAS scheme in the case of Kerala, Orissa and West Bengal.
 Source : N.S.S. Reports on the Status of Agricultural Production.

Contd . . .						
Karnataka	41	43	42	36	38	32
Kerala	63	-	74	-	77	-
Madhya Pradesh	57	62	59	64	56	57
Maharashtra	40	41	41	35	39	38
Orissa	98	-	97	-	93	-
Punjab	92	91	93	92	95	97
Rajasthan	73	70	73	74	71	78
Tamil Nadu	57	42	51	41	47	39
Uttar Pradesh	77	66	72	71	72	60
West Bengal	79	50	83	48	71	28
States covered	66	69	66	67	68	65

Statement 3. Impact of recording errors : Ratio between the crop totals of patwari and supervisor

Crop	At Cluster Level			At Village Level		
	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89
Rice (autumn)	0.92	0.90	0.97	1.01	1.00	1.02
Rice (winter)	0.97	0.98	0.91	0.97	0.97	0.98
Rice (summer)	0.93	0.96	0.90	1.03	0.96	1.01
Jowar (Kharif)	1.07	0.96	0.96	0.96	0.98	0.97
Jowar (Rabi)	0.98	0.95	0.97	1.00	1.02	0.99
Bajra	0.99	0.99	1.01	0.98	1.00	0.96
Matze	0.98	1.01	1.01	0.96	0.98	0.99
Ragi	1.00	0.97	1.01	0.94	0.90	0.99
Wheat	0.93	1.00	0.92	1.01	1.03	1.00
Barley	0.89	0.95	0.98	1.00	1.04	1.02
Gram	0.97	0.94	1.06	0.98	1.01	1.00

Statement 4. Crop area comparison : Crop area according to TRS and as estimated from supervisor records of sample clusters, both expressed as per cent of final estimates

Crop	No. of States	TRS over final estimates			Sample check over final estimates		
		1986-87	1987-88	1988-89	1986-87	1987-88	1988-89
Rice (Kharif)	14	99.4	98.1	99.3	116.3	110.3	107.7
Rice (Summer)	5	99.9	103.0	104.1	135.5	169.6	148.9
Jowar (Kharif)	9	100.4	107.0	102.6	102.9	107.0	101.6
Jowar (Rabi)	4	105.2	102.7	104.0	99.6	86.4	83.3
Bajra	11	97.6	103.2	97.3	99.5	99.3	148.5
Maize	10	96.7	99.6	99.3	101.4	100.5	101.5
Ragi	7	96.1	90.6	92.7	102.7	91.1	99.4
Wheat	13	100.5	99.2	96.4	106.6	105.2	104.0
Barley	7	97.6	97.4	102.2	102.7	105.5	80.4
Gram	9	105.4	101.2	100.4	107.2	97.9	90.7
Total	-	100.1	100.4	99.1	107.9	104.7	108.7

* States for which TRS estimates were not prepared have been omitted in the comparison.

(B) Performance of the General Crop Estimation Survey (GCES)

Statement 5. Percentage of crop cutting experiments found correctly conducted during spot check under I.C.S.						
State	1986-87		1987-88		1988-89	
	Kharif	Rabi	Kharif	Rabi	Kharif	Rabi
Andhra Pradesh	50	54	47	56	61	30
Assam	76	82	90	95	78	29
Bihar	58	68	55	61	59	71
Gujarat	56	69	55	58	67	69
Haryana	34	46	46	55	40	NA
Himachal Pradesh	74	75	71	78	83	82
Jammu & Kashmir	22	70	23	32	40	NA
Karnataka	70	83	62	72	65	64
Kerala	52	—	76	—	84	—
Madhya Pradesh	75	73	76	84	74	60
Maharashtra	40	44	41	47	42	NA
Orissa	94	—	96	—	94	—
Punjab	86	81	64	88	89	93
Rajasthan	34	33	40	34	41	45
Tamil Nadu	52	—	52	—	57	—
Uttar Pradesh	45	50	45	50	54	40
West Bengal	89	80	76	59	80	73
All States	58	62	57	63	58	48
Total No. of experiments supervised	14,436	7,523	14,118	7,150	14,915	7,378

STATEMENT 6. Yield rate comparisons : Difference between the ICS and GCES estimates of yield rate expressed as a percentage of the GCES estimates

State	Rice (K)			Jowar (K)			Bajra			Wheat			Gram		
	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89	1986-87	1987-88	1988-89
Andhra Pradesh	11.5	-6.3	-0.8	5.8	14.2	11.8	42.4	72.5	21.3	-	-	-	-	-	-
Assam	-5.7	3.9	3.0	-	-	-	-	-	-	NA	-10.3	-15.9	-	-	-
Bihar	22.5	-21.6	7.2	-	-	-	-	-	-	7.6	13.4	NA	16.3	13.9	-
Gujarat	-10.5	-29.9	-38.8	-26.6	38.0	-23.69	-	106.7	25.4	9.5	5.1	-4.0	-	-	19.2
Haryana	-7.4	6.1	8.7	-79.8	100.0	-25.9	17.7	31.0	11.6	-3.1	7.3	-1.2	-8.1	-12.1	-8.5
Himachal Pradesh	2.4	3.3	24.2	-	-	-	-	-	-	9.5	9.4	-0.1	-	-	-
Jammu & Kashmir	7.9	-24.4	-22.8	-	-	-	-	-	-	2.6	3.5	2.6	-	-	-

Kerala	-5.0	-5.0	-0.6	-	-	-	-	-	-	-	-	-	-	-	-
Madhya Pradesh	24.1	9.7	7.0	-20.9	20.6	-15.1	11.7	-19.8	8.3	-12.0	2.0	-6.1	-3.5	8.7	-
Maharashtra	15.5	12.4	-19.4	0.4	-9.7	-9.0	6.3	-18.0	-16.1	7.8	-8.1	-13.0	-20.1	-4.5	-30.8
Orissa	0.9	-19.2	NA	-	-	-	-	-	-	-	-	-	-	-	-
Punjab	1.1	-4.6	5.7	-	-	-	-	11.6	-16.5	-2.4	2.4	2.1	16.3	-16.1	3.1
Rajasthan	-	-	-	9.7	22.2	-40.4	13.0	-13.8	36.2	-0.9	NA	3.2	-14.2	-	-39.1
Tamil Nadu	-1.4	-10.1	-14.3	-10.8	-16.1	-30.4	12.7	-16.2	-13.4	-	-	-	-	-	-
Uttar Pradesh	-2.2	-8.8	-0.2	44.6	17.4	2.2	-5.9	8.5	-1.9	-12.4	-4.1	-0.7	-10.4	5.7	-3.9
West Bengal	0.9	NA	NA	-	-	-	-	-	-	-	-15.9	NA	-	-	-
All States	5.3	-6.3	14.8	-	-6.6	-49.1	5.1	23.1	12.6	-1.9	-4.2	-27.9	-	12.4	-0.8

Annex. 2 : N.S.S. SOCIO-ECONOMIC SURVEY**Topics Covered and Availability of Results (1982-91)**

ROUND	PERIOD	SUBJECTS COVERED	NO OF REPO RTS	MONTH AND YEAR OF PUBLICATION OF REPORTS	
				EARLI EST	LATEST
37	JAN 82 - DEC 82	Land holdings, live stock holdings debt and investment	7	JULY 86	JAN 90
38	JAN 83 - DEC 83	Consumer expenditure, employment and unemployment, births & deaths	13	APR 86	OCT 90
39	JAN 84 - JUN 84	Population, births and deaths	2	JAN 90	JAN 90
40	JUL 84 - JUN 85	Unorganised manufacture-own account enterprises and non-directory establishments	2	JAN 90	MAR 90
41	JUL 85 - JUN 86	Trade-own account enterprises and non-directory establishments	2	JAN 90	MAR 90
42	JUL 86 - JUN 87	Maternity and child care, family planning, public distribution system, education, use of health services, aged persons over 60	7	APR 90	APR 92
43	JUL 87 - JUN 88	Consumer expenditure employment and unemployment, travel habits	6	SEP 90	APR 92
44	JUL 88 - JUN 89	Level of living of tribals economic activity and enterprise accounts of tribals, migration and ownership of land of non-tribals, housing condition, construction	6	DEC 91	MAR 92
45	JUL 89 - JUN 90	Unorganised manufacture-own count enterprises and non directory establishments	-	-	-
46	JUL 90 - JUN 91	Trade- own account enterprises and non-directory establishments.	-	-	-

Source : Sarvekshana, Vol. XV No. 4, Apr-Jun 1992 (Bibliography of NSS Results)

Annex. 3 : N.S.S. SOCIO-ECONOMIC SURVEY**Items Recommended to be Repeated
in each Survey Round****I Village Schedule**

An additional block on village amenities as follows:

Distance of the village from the nearest (i) fertiliser depot, seed store, machine repair and service centre, warehouse, wholesale market, veterinary centre (ii) fair price shop, daily market (iii) railway station, bus station, metalled road, post office, telegraph/telephone office (iv) Allopathic hospital, dispensary, sub centre, primary health centre, community health centre. (v) balwadi/anganwadi, pre-primary school, primary school, middle/secondary school, high school, industrial training centre (vi) non-formal education centre, adult education centre, jana siksha nilayam (vii) integrated education centre, vocational training centre (for disabled persons) (viii) community centre, public library, reading room, community radio/TV centre, cinema. (ix) panchayat office, police station.

II House Listing Schedule

1. Social group of households; 2. Size of household; 3. means of livelihood; 4. Land possessed.

III Household Schedule**a) General Particulars**

1. size; 2. religion; 3. social group; 4. principal occupation of head of household; 5. average monthly expenditure; 6. land possessed; 7. land cultivated; 8. area irrigated; 9. drinking water (major source, whether perennial); 10. Toilet facilities; 11. primary source of energy for cooking; 12. primary source of energy for lighting; 13. whether household purchased during last 30 days selected commodities from the Public Distribution System (PDS); 14. if no purchase made from PDS, reason; 15. whether household allotted any land for cultivation during the last 365 days; 16. whether household received assistance during last 365 days from IRDP, JRY, DWCRA; 17. whether any household member underwent/ undergoing training under TRYSEM during last 365 days.

b) For Each Member of Household

1. sex; 2. age (years); 3. marital status; 4. (for members of age 0-4) inoculation for measles, d.p.t, tetanus, tuberculosis, typhoid; (for members of age 5 and above); 5. whether literate; 6. if literate, general education; 7. current weekly activity— (a) status, (b) industry; 8. usual activity— (a) principal, (b) subsidiary.

Annex. 4 : Sample Design of N.S.S. Surveys in the Rural Sector

	A: Current Status				B: Suggested Change			
	Survey for Improvement of Crop Statistics (ICS)		Socio-economic Survey-- (Rural)		Survey for Improvement of Crop Statistics (ICS)		Socio-economic Survey -- (Rural)	
Coverage	Temporarily and permanently settled states, Delhi and Pondicherry. Universe comprises TRS/EARAS sample villages		All states except Laddakh and Kargil districts of J&K and about 2/3 and 1/3 villages of Nagaland and Andaman & Nicobar respectively.		No change		No change except that the universe for sample selection comprises the TRS/EARAS sample (20% of total no. of villages)	
Sample Design	Two stage stratified design		Two stage stratified design					
	<i>First Stage Unit (FSU)</i>	revenue village	<i>First Stage</i>	census village	<i>First Stage Unit</i>	census village	<i>First Stage Unit</i>	No change
	<i>Second Stage (SSU)</i>	cluster of 5 survey nos.	<i>Second Stage</i>	household	<i>Second Stage</i>	No change	<i>Second Stage Unit</i>	No change
Stratification	<i>First Stage</i>	State, district, tehsil/group of contiguous tehsils	<i>First Stage</i>	State, NSS region, district/group of contiguous tehsils	<i>First stage</i>	C.D. Block/group of blocks	<i>First Stage</i>	C.D. Block/group of blocks
	<i>Second Stage</i>	None	<i>Second Stage</i>	Group of households formed according to specified criteria	<i>Second Stage</i>	No change	<i>Second Stage</i>	No change

No. of Strata	<i>First Stage</i>	2000 approx.	<i>First Stage</i>	540 (approx.)	<i>First Stage</i>	1000-1200	<i>First Stage</i>	1000-1200
	<i>Second Stage</i>	None	<i>Second Stage</i>	4-5	<i>Second Stage</i>	No change	<i>Second Stage</i>	No change
Sample Size	<i>First Stage Units</i>	5000 approx.	<i>First Stage Units</i>	9,500	<i>First Stage Units</i>	No change	<i>First Stage Units</i>	No change
	<i>Second Stage Units</i>	4 per FSU	<i>Second Stage Units</i>	20-25 per FSU	<i>Second Stage Units</i>	No change	<i>Second Stage Units</i>	18-20 per FSU
Sample Allocation	Total no. of FSUs allotted to states on joint consideration of crop area and value of production. Within state, FSUs allotted to districts in proportion to gross cropped area and to tehsils in proportion to no. of villages with the restriction that each stratum has at least 2 FSUs.		FSUs in a state allotted to strata in proportion to the stratum population with the restriction that the no. of FSUs in a stratum is 4 or a multiple of 4.		No change upto district level. Allocation to strata within district in proportion to population. No. of FSUs per stratum at least 2.		No change except that no. of FSUs per stratum is 2 or a multiple of 2.	
Sample Selection	<i>First Stage Units</i>	Simple random sampling without replacement	<i>First Stage Units</i>	p.p.s. to population with replacement	<i>First Stage Units</i>	p.p.s. to population with replacement (as in NSS-SE)	<i>First Stage</i>	No change
	<i>Second Stage Units</i>	Simple random sampling without replacement	<i>Second Stage Units</i>	Circular systematic sampling with random start	<i>Second Stage Units</i>	No change	<i>Second Stage</i>	No change