

# Why Discontinue the NSS Crop Survey?

S Naqvi  
S B Pillai  
K P Saha

*The Government is reported to be considering discontinuing the survey of acreage and yield of principal crops which the National Sample Survey has been annually conducting since 1957-58. The idea seems to be to rely henceforth exclusively on the estimates prepared by the Ministry of Food and Agriculture.*

*This move calls for an explanation since it was the defects in the Ministry's estimates which had prompted the Government to entrust the NSS with the task of carrying out a more scientific and independent crop survey.*

*There is no evidence that the defects in the Ministry's estimates have since been rectified. At the same time, the NSS has in the course of the last ten years developed objective and scientific methods of estimation, trained up a field staff comprising about 2,000 investigators and inspectors and built up an experienced team for processing and analyzing the data collected. To scuttle all this expertise would be a retrograde step and would leave the country without a reliable estimate of agricultural production.*

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THE National Sample Survey (NSS) is a permanent organisation, set up in 1950, for carrying out multi-subject surveys for the whole of India. As one of its major activities, the NSS has been regularly obtaining, since 1957-58, estimates of area and yield of major cereal crops on scientific lines through statistically designed sample surveys and following uniform concepts and definitions throughout the country. The data on crop acreage are collected by actual observation of the utilisation of a sample of plots spread over a selected sample of villages in the whole country in each season. The estimates of yield rate are made on the basis of crop-cutting experiments conducted in a similar sample of plots. The Indian Statistical Institute (ISI) which has been a pioneer in the field of large-scale sample surveys is in charge of the planning and design of the surveys as well as processing of the data of the NSS. The field work is carried out in a sample designated as the central sample by specially trained whole-time staff belonging to the Directorate of NSS, which is administratively under the Cabinet Secretariat, Government of India. In the central sample, the data on crop acreage are collected now from 255,000 plots per season spread over 8,500 villages. The estimates of yield rates are obtained on the basis of about 34,000 crop-cutting experiments. Besides the above villages and plots constituting the central sample, in most of the States, the State Statistical Bureau also participates in the

programme of NSS work in a parallel sample of almost the same size as the part of the central sample falling within the State, and adopting the same methodology and technique. The field work of this counterpart NSS State sample is carried out by the whole-time staff of the Statistical Bureaus of the respective State Governments. The processing and tabulation of data of the NSS central sample is done by the ISI and that of the NSS State sample by the respective State Statistical Bureaus.

For more than a decade the NSS has in this manner been providing estimates of crop area and production of major cereal crops. Regarding the agencies involved in this survey, particularly the ISI and NSS Field Directorate, it should be noticed, first, that a high degree of competence and experience both in statistical and in field work is being used and, secondly, that these institutions are outside the Ministries and Departments responsible for agricultural production, land revenue or procurement and distribution of food-grains. It is, therefore, strange that the air has suddenly become thick with the rumour that the Union Government is contemplating discontinuation of the acreage and yield survey undertaken by the NSS.

Now, it is well known that the NSS undertook the work of crop estimation a decade back (in 1957-58) because the estimates so far released by the Union Ministry of Food and Agriculture as part of "official" statistics were found to be seriously defective. For example,

the Technical Committee on Co-ordination of Agricultural Statistics (TCCAS) set up by the Union Ministry of Food and Agriculture had pointed out in 1950 the following principal defects in the official agricultural estimates:

- (i) gaps in coverage;
- (ii) lack of uniformity in definitions and classification, between one State and another and even within a State;
- (iii) defects in planning and co-ordination;
- (iv) defects in work of the primary reporting agency;
- (v) defects of inspection, supervision and checking; and
- (vi) defects in tabulation and processing (i.e. totalling and transfer errors).

The committee recommended a series of reforms in the methods and procedures of crop area and yield estimation, in order to eliminate the distortions introduced in the estimates by the above defects.

Nine years later, evidently as a result of the failure of the Governmental agencies responsible for crop estimation, to implement the proposed reforms, the Union Government decided to include in the programme of the NSS a large-scale annual crop survey in order to obtain estimates of area and production of major food crops by adopting uniform concepts, definitions and procedures throughout the country and by using a professional organisation for sample survey work.

Right from the beginning, it was found that there was a wide divergence between the estimates released by the NSS and the 'official' estimates of the Ministry of Food and Agriculture. In fact, it was found that the NSS estimates of production were substantially higher than the estimates released by the Ministry -- by 30 per cent in 1957-58 and 35 per cent in 1958-59. Thus the official estimates were found to be always underestimates when compared with the NSS estimates. This naturally caused serious concern and a critical examination of the two sets of estimates was first undertaken by a Working Group set up by the Central Statistical Organization (CSO) in 1959 and later by a Joint Committee. Subsequently, in 1963, the Planning Commission appointed a Technical Committee (TC) to examine the situation and seek an explanation of the divergence.

#### NO IMPROVEMENT

It is interesting to note that the TC, after 4 years of deliberations, could not discover the reasons of the divergence, but noticed that the principal defects in the 'official' methods and procedure, pointed out by the TCCAS as early as 1950, continued to plague the official agencies and their operations. For instance, it was observed by the TC that

- (i) in the official series, the practices followed for recording net areas happened to be different from State to State and sometimes even in a State;
- (ii) it was not certain that the procedures laid down in the Land Record Manuals were carefully followed by the primary agency and adequate precautions taken in arriving at appropriate net area in all cases; and,
- (iii) the cumulative effect of errors in recording, aggregation and transfer of area statistics from village level upto the State level could also be influencing the official estimates of area.

It may be mentioned here that the TC also critically examined the method and procedure followed by the NSS in its crop estimation. But it is important to note that no defects were pointed out by the TC in respect of methods and procedure adopted in the NSS though NSS estimates of pro-

duction of major cereal crops continue to be substantially higher than the corresponding Food Ministry estimates. Why then the anxiety to discontinue the NSS survey, with which no fault could be found, and preference for continuation of the official estimates which have been found to be still subject to the major technical and operational defects discovered 17 years ago?

The estimates released by the Union Ministry of Food and Agriculture are, in reality, an aggregation of figures supplied by the various State Governments. But it is important to note that the State Government Departments responsible for these statistics do not generally have the full complement of staff required for the work. In fact, agricultural statistics are obtained by almost all the State Governments by employing personnel not having statistical work as their primary duty, belonging to different departments not amenable to a unified control. The estimates of output of any crop is obtained as the product of the area under the given crop and its yield rate. The area under the crop is ascertained in all States except Kerala, Orissa and West Bengal, almost wholly by field to field enumeration generally by the State Revenue agency supposedly according to procedures laid down in the land record manuals. (Actually, even the TC was not certain that these procedures were being carefully followed.) The yield rate of the crop is based on the results of crop cutting experiments by random sampling technique. In all States, except Orissa, West Bengal and Kerala, the field work of the crop cutting experiments is carried out by staff of the State Departments of Revenue and Agriculture and others as a part of normal departmental activity.

In view of the natural preoccupation of the Patwaris, Patels, etc. with the heavy load of revenue administration work and an entire absence of any technical training in statistical methods, their crop area figures are bound to be faulty. Add to it local pressures of parties interested in lowering their share of revenue and procurement levy, etc. and one can imagine how reliable these "estimates" are likely to be. And yet, it is precisely these estimates of area, under different crops, which are used as multipliers for arriving at the total output. Is it

any wonder then that the official output figures diverge so widely from the estimates offered by the NSS?

Besides, the primary level estimates of land under various crops offered by the Patwaris, etc. are calculated and aggregated at the revenue circle, subdivisional and district headquarters and the State headquarters receive only the district totals. Hence, no check is feasible on the primary data which may be subject to intended as well as involuntary errors of a large magnitude, added to which is the effect of arbitrariness of the various procedures followed. In particular, the methods adopted in regard to determining the area under mixed crops are, more often than not, quite arbitrary. For example, at the field level in the case of area under wheat and oilseeds the area records show only wheat, ignoring oilseeds. Later, at the State level, adjustment is made in an entirely subjective manner to obtain net area under wheat and oilseeds. Further, area statistics obtained by complete enumeration employing a large number of ill-trained, overworked, part-time staff are bound to be subject to large ascertainment errors.

#### DELIBERATE TAMPERING

Thus, the principal multiplier — area under crops — being subject to the vagaries of the village revenue functionary's inclinations introduces a basic distortion in the official estimates of output. Again, the method of yield estimation which is not strictly scientific in most of the States and the insignificant amount of supervision at harvest time by the States (2 to 3 per cent) and the central supervisory staff (1 to 2 per cent) provides per se yield estimates of doubtful veracity. Hence, the overall estimate of total output cannot be considered to be reliable.

On top of it comes the deliberate attempt of some States to depress their output figures, for obvious reasons. This has been pointed out in the past by several Food Ministers of the Union Government. Indeed, the Union Ministry of Food and Agriculture has come across situations in the past when some of the State Governments have deliberately withheld the estimates, delayed submission of the crop forecast returns much beyond the due dates fixed for the purpose and, as has been noted in one case, even tried to depress

the estimates of production of foodgrains for one reason or another. And yet the Union Government seems to be keen to discontinue the only independent estimates of area and output of major foodgrains made by the NSS.

The official members of the Technical Committee expressed the view that there would be no need for continuing the present NSS series of crop estimates once the defects found in the official methods of crop estimation were removed by acceptance and implementation of its proposals.\* One wonderer at the optimism of the official members of the Technical Committee regarding the prospects of implementation of the reforms proposed by it which in fact are the same as those suggested by the TCCAS over seventeen years ago. It has been repeatedly acknowledged by the Union Government and several committees appointed by it to look into this question that persistence of the age-long, patently defective system of crop area and yield estimation has been due to the complacent attitude of the State Governments and the bureaucracy about the reliability of crop statistics. How then has the TC come to believe that a mere reiteration of the TCCAS reform proposals would work magically and quickly induce the State authorities to change their opposition to changes in their methods.

#### SUPERFICIAL REFORM

It may be said that the recently proposed tentative scheme for the improvement of crop statistics by the Union Ministry of Food and Agriculture (MFA) would ensure that more reliable data on area and output would be available by the introduction of a system of spot check of area estimates by three agencies (1) The Central and State Sample Survey staff (2) the District Statistical agency and progress assistants and (3) the Supervisory Revenue staff, each being entrusted with the work of spot verification of a number of selected plots in a sample of villages. And this, it is claimed, will yield an 'independent' estimate of the area under crops. The scheme as envisaged cannot certainly give any independent estimates since it altogether ignores the existence of conditioning effect.

It should be noted that at the base, i.e. the village level, it is the Patwari,

etc, who would still have the responsibility (or shall we say the right) to undertake complete enumeration. And yet, it is claimed that the crop area estimate thus arrived at would be "independent". It may be well imagined how independent and reliable the yield rate or output estimate would be, based as they would be in the main on the estimates submitted by the Patwari in the case of area and the revenue official in the case of yield rate which are proposed to be subjected to inspection in a sample of villages by the State and Central staff. We are thus back to the system of the primary data on area being estimated by the Patwari and yield rate by the revenue/agricultural department staff, except for sample checks of area and sample inspection of crop-cutting experiments in the case of yield rates.

#### STRENGTHEN NSS

It is, however, significant that at least the Union Government still recognises the need for independent estimates, in view particularly of the open attempts made by some of the States to edit and depress area and yield estimates. Why then should the Government not consider the advisability of the continuation of the NSS Crop Survey?

In the course of the last 10 years the NSS has developed through experience an objective and scientific method of estimation, trained up a team of field staff comprising about two thousand investigators and inspectors, and built up an experienced team of

processing and analytical staff on which the Public Exchequer has been justifiably investing considerable amounts year after year. And since no fault is found with the NSS methods and it is undoubtedly free from the influence of any local or State interests and is also following a uniform set of concepts, definitions and time periods, why should the NSS not be allowed to continue its independent estimation and the Union Government base its own policy decisions on the NSS estimates rather than run after the Will-o'-the-wisp of reforming and improving the 'Patwari and revenue; agricultural department-based estimates' and seek to render these 'independent' by means of sample checking and inspection? Obviously, the resources necessary for central inspection in the MFA scheme would be substantial. If instead of the MFA scheme the NSS is further strengthened by diverting a part of the resources necessary for central inspection, NSS would be in a better position to meet all the requirements of independent crop estimates for the Union Government. All that is necessary, therefore, is to augment the resources of the NSS for purposes of meeting the requirements of the Union Government. The State Governments may, however, be free to make improvements in their methodology by removing the defects pointed out by the various Expert Committees.

Will the Union Government pause to reconsider the matter before taking any further steps to scuttle NSS operations?

#### Atul Products

ATUL Products fought a losing battle against rising costs and falling income during 1967. Production was curtailed and prices of dyes reduced owing to slack demand. No licence could be obtained for import of necessary intermediates for pharmaceuticals. The naphthalene intermediates plant went into production but, being a multi-product plant, its utilisation could increase only gradually and, besides, the expected sales of its products did not materialise. The OTSA/PTSA plant was ready for production, but it could not be worked because of shortage of toluene, an important raw material. Calcutta's urea formaldehyde plant could not get sufficient supplies of formaldehyde, as the only supplier had a number of

difficulties. He has now established a plant at Vapi, near Atul, and regular supplies are expected from him. The company itself is seeking permission to put up a formaldehyde plant of its own. The sulphadrag intermediate plant is now completed and trial batches are being run. There has been some delay in completing the epoxy resin plant but the erection work is now in progress and trial batches are expected by the middle of this year. Trial production is also being taken up in Atul's fast colour bases plant. Now that the licence for import of equipment has been received, the capacity of the caustic soda plant is being stepped up from 20 tonnes to 27 tonnes a day.

\* The ISI representatives on the TC suggested continuation of the NSS series of crop estimates.