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AGRICULTURAL STATISTICS IN THE CIS COUNTRIES*
General overview

Introduction

1. The purpose of this paper is to review briefly current situation in agricultural statistics of the CIS countries and to identify the problems which require attention and need to be dealt with in the foreseeable future in order to improve the coverage, quality and international comparability of this statistics.

2. As will be shown in detail below, statistical offices of the CIS countries produce and publish a variety of agricultural statistics. Unfortunately this statistics is a quantity oriented and there are serious gaps in this information which inhibit serious analysis of many qualitative aspects of agricultural economy essential for making decisions on formulation of agricultural policy. A bulk of the indicators computed by the statistical offices have been inherited from the USSR times and a few new indicators such as value added on the basis of the SNA93 are not sufficiently harmonized with the old indicators. Although the published figures on production of major crop and animal products are, by and large, in line with the FAO definitions, in some cases deviations from the latter are significant. During the recent years some countries have undertaken efforts to harmonize selected elements of agricultural statistics; however, there is still a considerable room for further work in this area. Though sample surveys are employed on

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a larger scale as compared with the practice existed in the USSR, there are still visible shortcomings in the process of collection of primary data and many FAO recommendations in this area are not fully implemented; thus, agricultural censuses and censuses of cattle, in particular, are not carried out as frequently as the FAO suggests.

3. Many CIS countries continue to use the old classification of economic activities by branches of national economy (CBNE) inherited from the USSR times and only plan to introduce ISIC (rev3) in the foreseeable future. In the CBNE agriculture is defined to include i) production of crop products, ii) production of animal products iii) fishery iv) hunting v) selected services to agriculture (including veterinary services). Some countries such as Azerbaijan, Kazakhstan, Kyrgyzstan and Moldova have started implementing ISIC (rev.3) where the scope of agriculture is not too far from CBNE; the only significant differences pertain to fishery and veterinary services which are allocated to the categories outside of agriculture.

4. The review is intended to focus on the following aspects and topics of the agricultural statistics:

- economic accounts
- crop and animal commodity production statistics
- trade and prices statistics
- labor and capital input statistics
- income statistics
- farm registers
- agricultural surveys and censuses.

5. The review deals with the availability of the data pertaining to the above topics, underlying definitions and classifications, major sources of data, consistency with the international standards, degree of accuracy of data in a broad sense, encountered problems.

In the course of the review in many cases a distinction is made between the data collected and disseminated by the CIS Statistical Committee which can claim a degree of international comparability (at least within the CIS) and other data produced and published by the national statistical offices of the CIS countries which may be less comparable internationally, though not necessarily. It should be noted that the CIS Statistical Committee has prepared a number of documents on the methodology of computation of output, intermediate consumption and value added in agriculture which are intended to assist the CIS countries to compile this statistics as close to the SNA requirements as possible.

I. Economic accounts

6. It is worth noting that in the not so distant past economic accounts for agriculture were compiled on a large scale both by the statistical office of the USSR and the statistical offices of the individual republics. These accounts were compiled for an impressive number of agricultural commodities (or groupings of commodities) both in physical units and in monetary form; they were compiled for major types of agricultural enterprises and holdings: state enterprises, collective farms, personal plots of employees, personal plots of collective farmers. These accounts yielded a number of data essential both for analysis of the agriculture and for compilation of national accounts (so called the Material product system also known as the Balance of National Economy). These data referred to output, sales, intermediate and final consumption, value added, fixed capital formation (increase in stocks of cattle),

changes in stocks of goods, etc. Unfortunately this system of accounts (which was also used in many other centrally planned economies and was described in detail in some documents of the European Conference of Statisticians) was practically dismantled during the early years of transition to market economy practically in all CIS countries (largely due to the lack of resources) and only few fragments of this system were retained.

7. Some of these fragments were transformed in order to meet the requirements of the SNA 93. At present time all the CIS countries compile production and generation of income accounts for industries (and for agriculture, in particular) and many CIS countries have started compiling national accounts for the institutional sectors where agricultural enterprises (both corporations and unincorporated entities) are represented. In the context of this work the countries compile the following items of information on agricultural economy:

- output in current prices (basic values)
- intermediate consumption which covers input of agricultural and industrial goods and payments for services
- gross value added in basic prices
- compensation of employees
- other taxes on production, net of subsidies
- gross operating surplus / gross mixed income.

8. In addition some pieces of data on disposition of agricultural output are computed in order to provide the items of information needed for compilation of other accounts of the System; thus, the data on final consumption of agricultural goods, including data on own final consumption of agricultural goods, gross fixed capital formation(change in stocks of cattle), change in inventories and external trade flows are estimated to provide information needed for compilation of “goods and services account“ of the SNA. In many cases these figures are obtained relatively independently from the estimates of output and this may lead to inconsistencies and discrepancies between the figures on sources and disposition of agricultural goods. A reconciliation of the figures on resources and disposition of agricultural goods is achieved in the aggregated input-output tables which are periodically compiled in the CIS countries and in which agriculture is normally represented as one branch or two sub-branches: crop products and animal products. Since, however, this reconciliation is carried out on a very aggregated level it is difficult to eliminate the discrepancies at the lower level of aggregation (because they are likely to cancel each other out in the process of reconciliation at the highest level of aggregation). The results of this reconciliation can be improved if the supply and use tables(or input – output tables) are compiled with sufficient degree of disaggregation which would enable to distinguish major agricultural commodities (or groupings of commodities). It appears, however, that most of the CIS countries will not be able to carry out such detailed compilations in the foreseeable future due to lack of resources.

9. Some CIS countries have undertaken special efforts to enhance consistency between the various types of agricultural statistics. Thus, the Russian Goskomstat has introduced recently for agricultural enterprises a monthly integrated reporting form (? – 1(?)), entitled «The data on production and delivery of agricultural products» which contains integrated information on output and sale of major crop and animal products, stocks of cattle and agricultural goods, stocks of fodder, and on the stage of sowing or harvesting work. This form (though it is compiled only in physical units) seems to be a step in the right direction, however it can not resolve all the problems of harmonisation of agricultural statistics.

10. It is worth noting that there are two methods of computation of agricultural output which have been recommended by the CIS statistical Committee. In accordance with the first method the output of agriculture is taken equal to the sum of outputs of agricultural establishments (the latter include not only establishments of agricultural enterprises but the agricultural establishments of non-agricultural enterprises). This method implies that the measure of output includes deliveries of agricultural goods between the establishments of the same enterprise but excludes own intermediate consumption within the given establishment (for example, delivery of crop products by the establishment which produces these products to the establishment of the same enterprise which produce animal products and use crop product as a fodder is not excluded from the output whereas the input of crop products for own intermediate consumption is not included) It is believed that this method is on the whole consistent with the SNA principles. One implication of this method is that the output of agriculture may include non-agricultural products produced by the agricultural establishments as the secondary output, on the other hand the output of agriculture may exclude agricultural secondary output of non-agricultural establishments.

11. However, in practice the CIS countries use the second method which is also recommended by the CIS Statistical Committee. This method is normally referred to as gross turnover method. In accordance with this method the output of agriculture is defined to include total value of all agricultural products irrespective of where they are produced: in agricultural enterprises, personal plots of households, in agricultural establishments of non-agricultural enterprises or produced as a result of the secondary activities of non-agricultural enterprises. On the other hand, non-agricultural goods produced i) as a secondary output of agricultural establishments and ii) by non-agricultural establishments of agricultural enterprises are excluded from the output of agriculture. The important implication of this method is that the output includes all types of own intermediate consumption (all seeds and fodder produced and consumed in the given year are included irrespective of where they were used for production purposes).

12. More specifically, the output of agriculture as measured in accordance with the gross turnover method includes the following items:

- sales and barter
- goods supplied to non-agricultural establishments of the same agricultural enterprises (e.g., milk supplied to the children institution owned by the enterprise or goods delivered to other establishments of the same enterprise for processing)
- wages in kind
- own final consumption in holdings of households
- own intermediate consumption
- change in stocks of agricultural goods (produced but not sold)
- change in stocks of cattle
- change in stocks of work in progress
- change in stocks of plantations.

It is worth noting that the total output in current prices is computed by multiplying the quantities of the individual products by the average current market prices rather than by summing up the values of the components of output valued at corresponding market prices. Therefore this procedure may result in some discrepancies between the measure of output and its disposition. In Russia commencing with 2000 year agricultural enterprises (other than unincorporated enterprises owned by households) are supposed

to submit to the statistical office on a quarterly basis two special reporting forms which contain data on value of output and sales in current prices as well as on the cost of production (forms ? -1 and 5-? respectively), however, these data require some adaptation to be included in national accounts; for the time being they are used largely for checking purposes because they do not cover either all output/costs or all producers. Nevertheless introduction of the above forms is a step in a right direction.

13. It is important to note that the magnitude of value added does not depend in principle on whether the first or the second method of computation of output is employed but some differences may arise due to different treatment of secondary non-agricultural output of agricultural establishments and secondary agricultural output of non-agricultural establishments. It is also worth mentioning that the gross turnover method is not too far from the method suggested by the Eurostat in the Manual on economic agricultural accounts (EAA); the latter also includes in the output a portion of own intermediate goods although the scope of these components is narrower than in the case of gross turnover method.

14. The figures on output of agriculture, computed by the CIS countries also include the value of selected agricultural services provided by specialized organization (e.g., veterinary services, irrigation services, agro-chemical services and so forth). These services can be market and non-market; the former are allocated to intermediate consumption whereas the output of the latter is treated as final consumption expenditure of government. The differences in organization and financing these activities in different countries may therefore affect the international comparability of value added. Changes in organization of these activities in one country over the time may affect the comparability of value added estimates over time.

15. It is important to note that output of agriculture includes in principle not only output of the informal sector (unincorporated enterprises which sell most part of their output as well as output unincorporated enterprises owned by households which consume most of their produce) but also some estimates of the underground economy or underreported output by the respondents. The adjustments which are introduced to cover this hidden output often rely on a rather crude methods and can not normally claim a high degree of accuracy. That is why reconciliation of resources and uses of agricultural products should be made at the lowest possible level of aggregation which is not the case in practice as was mentioned above.

16. The output is valued at basic prices as they are defined in the SNA 93. This implies, among other things, that output is valued at prices which exist at the moment of production and not at the moment of sale of goods; in other words, efforts are normally undertaken to remove from the output the estimate of holding gain. The same relates to valuation of intermediate consumption which has to be valued at prices which exist when goods enter the production and not at the prices which were actually paid It should be recognized, however, that estimates of holding gain in both cases (output and intermediate consumption) are often produced with the help of rather crude methods and this may affect the accuracy of the value added.

17. Another fragment of the former system of accounts in agriculture which is maintained in most CIS countries refers to balances of resources and disposition which are compiled in physical units for a limited number of agricultural products: grain, products of primary processing of grain, potato, vegetables, melons, watermelons and similar products, fruits, meats, milk products, eggs. The balances in question have the following structure:

Resources

1. Opening stocks
2. Output
3. Imports
 - from CIS countries
 - from other countries
4. Total

Disposition

5. Personal consumption
6. Intermediate consumption in agriculture
7. Processing
8. Exports
 - to the CIS countries
 - to the other countries
9. Closing stocks
10. Total

18. Some countries use a more detailed scheme of this table; for example, Russian Goskomstat provides information on various types of holders of the stocks of agricultural goods (agricultural enterprises, industrial enterprises, trade organizations etc); it also provides a more detailed information on consumption of agricultural goods by showing major groupings of industries which process agricultural products. The CIS Statistical Committee employs a more aggregated scheme shown above for dissemination of these data.

II. Production of agricultural goods in physical units, trade and prices

19. All the CIS countries compute and publish figures on production of major crop and animal products in physical units. The bulk of these data are collected and disseminated by the CIS statistical Committee. These data rely on similar methods (on the whole consistent with the international recommendations) and sources of primary data and therefore can claim a degree of international comparability. The list of crop and animal products the figures on output of which are published includes:

Grain	Flax	Citrus fruits
wheat	Raw cotton	Grape
rye	Sugar beets	Milk
oats	Potato	Eggs
barley	Vegetables	Wool
corn	Melons	Meat (by type)
leguminous crop	Fruits and berries	Output of growing cattle

The statistical offices of the CIS countries compile figures on output of some other crop and animal products such as rice, sunflower seeds, mustard, soy, hay, millet, some material for plantations, honey, skins and some other products but the data on production of these commodities are not collected by the CIS Statistical Committee.

The above data on production of individual crop and animal products are used to derive output of agriculture in constant prices and compute volume indices.

20. As was mentioned above, the underlying definitions and methods of measurement are, on the whole, consistent with the international recommendations and yet there are some deviations which are worth mentioning. Thus, FAO classification of grain is much more detailed than used by the CIS countries (up to 13 brands); furthermore, FAO recommends to register separately different brands of wheat and corn (so called hard brands) but this is not systematically done in the statistics of the CIS countries either. Output of early harvest of potato is not shown separately as the FAO suggests. The recommendation of the FAO to register output of potato after removing pieces of soil and dirt is not implemented either. Prior to 1998 some deviations from the FAO recommendations existed with regard to the methods of calculation of the yield per unit of land. Thus, the CIS countries relied in the context of this analysis on the land which included the land where crop perished or where the crop was not harvested for one reason or another. Commencing from 1998 the countries use the land actually harvested for calculation of the yield per unit of land. This was a result of implementation of the material "Recommendations on computation of the yield per unit in accordance with the FAO methodology" prepared by the CIS Statistical Committee for the CIS countries. It should be noted in this context that CIS statistical committee has prepared a number of other documents intended to facilitate implementation of the FAO recommendations in the CIS countries. Nevertheless some deviations continue to exist in addition to those mentioned above. For example, output of eggs includes some losses which are to be excluded in accordance with the FAO methodology. There are some marginal differences in the scope of output of meat and wool between the CIS and FAO methodologies; for example, contrary to the FAO recommendations the output of meat published by the CIS countries include some fat and so called sub products; the latter may account for up to 3 per cent of the total output.

21. Statistical data on cattle is not detailed enough to meet the FAO recommendations; thus, the latter suggest to work out annual data for each brand of cattle on opening and closing stocks as well as on all types of flows which link the opening and closing stocks such as births of animals, natural losses, exports and imports, slaughtering. These type of analysis is not carried out in any CIS country even at the most aggregated level, that is for the cattle taken as a whole. Measuring of output of growing cattle in monetary form requires data on slaughtering and preferably separate data on change in stocks of cattle allocated to inventories and fixed assets (the latter is especially important for correct valuation of stocks); it also requires special valuation of this elements. In practice, however, they are not always available or they are not complete or they do not meet all the requirements of standard methodology and principles of the SNA.

22. In addition to the figures on output of agricultural products the statistical offices of the CIS countries publish data on average yield per unit of land and productivity for a rather detailed list of crop and animal products; some countries such as Russia, for example, publish data on the average yield of grain per unit of land broken down by major types of grain (winter and spring grain, winter and spring

barley, rye, oats, corn); the bulk of this information is collected and disseminated by the CIS statistical committee.

23. Compilation of data on production of crop and animal products relies on a variety of sources. The specialized agricultural enterprises (state, cooperative, private) submit records to the statistical authorities. For example, in Russia private farms submit to the statistical office two forms: "F.2 Data on output of crop products" and "F.3 Data on output of animal products and number of cattle". The figures on output produced in personal plots of households, including small farms are computed by using indirect methods which rely on the established size of agricultural land (stocks of cattle) and the estimates of the average yield per unit of land (average productivity); the latter are obtained with the help of various sample surveys. The data on agricultural land are obtained from the records of agricultural enterprises and special periodic surveys and censuses; the same relates to sources of data on stocks of cattle. Complete censuses of cattle are carried out once every ten years and this is still another deviation from the FAO recommendations on this matter. The data on stocks of cattle held by small farms, personal plots of households and other unincorporated enterprises of households are established annually from the special register books compiled by local authorities; these data are revised as a result of complete censuses of cattle, however, the latter are carried out rarely as was mentioned above. The data on the yield per unit of land and productivity in personal plots of households are obtained with the help of sample surveys; the list of payers of tax for land is normally used to identify the holdings to be surveyed on a sample basis. The list of deviations from FAO recommendations on statistics of production is not exhausted and can be extended.

24. Practically all the CIS countries compile data on sales of major agricultural goods (crop and animal products) both in physical units and monetary form. The data on sale include goods supplied on barter; the data on sale are normally subdivided into two categories: i) sales to the specialized procurement organizations which purchase goods for needs of the state and ii) sales through other channels (sales at the market, sales to trade organizations and enterprises of catering and so forth). The bulk of this information is collected and disseminated by the CIS Statistical Committee. The data on the average prices of sales are also computed and published by statistical offices of the CIS countries; the prices are computed excluding value added tax, but including some subsidies and therefore they approximate basic prices as defined in the SNA; the list of agricultural goods for which average prices are compiled and published includes approximately 30-35 items and they cover up to 95 per cent of total output; these data provide the basis for computation of price indices; the latter are computed separately for crop products and animal products. Laspeyres formula is used to compute these indices; the data on sales are used as weights. Some CIS countries (such as Russia, for example) also compile price indices on selected industrial goods and services purchased by the agricultural enterprises for production purposes. The list of goods for which this information is available includes both capital and intermediate goods (tractors, combines, trucks, fertilizers, fuel and gas for cars and machinery, cement, construction materials, coal, natural gas, electricity). It appears that at least fragments of this information on prices can be used to deflate intermediate consumption in agriculture to obtain values in constant prices.

III. Labor and capital input

25. All the CIS countries compile and publish figures on employment in agriculture in accordance with CBNE or ISIC (rev.3). The data include persons employed both in agricultural enterprises (state, private and collective ones), in unincorporated private farms and in personal plots of households;

however, employment in personal plots of persons mostly engaged in non-agricultural activities is not included even though the output of these holdings is counted as a part of agricultural output; for example, persons working at industrial enterprises and spending some time at their dachas to grow flowers, vegetables and potato are not included in agricultural employment but their output is counted as a part of agricultural production. The data on employment in agricultural enterprises (both state and private) are obtained with the help of special reporting system (record on labor); for example, Russian Goskomstat employs for this purpose the form ? -4 ??lected on a monthly basis and the form 1-? collected annually. The data on employment in farms (unincorporated entities) are estimated on the basis of information on a number of such farms and the data of periodic surveys which make it possible to establish average number of persons employed at the farms. The figures on employment in personal plots of households are estimated with the help of data on size of land, stocks of cattle and labor input per unit of land (per head of cattle); the latter data are established from special surveys periodically carried out by statistical offices. It should be noted that some CIS countries introduced into regular statistical practices surveys of labor force; in the context of these surveys the persons are asked whether they were engaged in agricultural activities of personal plots of households and if yes whether this employment was secondary or primary; how many hours were spent in personal plots. This information was used then to estimate the employment in personal plots of households. It is clear from the above that statistics of employment in agriculture should be supplemented by the data on man-hours spent in agriculture in order to provide a better basis for analysis of productivity, to coordinate data on output and labor input in personal plots of households and in agriculture as a whole.

26. The information on capital input compiled and published by the CIS statistical offices includes:

- capital investments in agriculture both in current and constant prices as well as volume indices
- fixed assets put into operation in the given year
- stocks of fixed assets classified by major types of assets (buildings and structures, machinery and equipment, transport means, cattle and so forth).

It is worth noting that there is a general understanding that one of the serious problems of agricultural economy practically in all the CIS countries refers to very high degree of wear and tear of fixed assets, however, no systematic and sufficiently detailed statistical data (for example, by types of assets) are available on this topic.

27. Some countries produce more detailed statistics on capital input. Thus, Russian Goskomstat publishes separate figures on acquisition and disposal of fixed assets, on stocks of agricultural machinery (by major groupings), on capital investments in irrigation and so forth.

It should be noted that the above indicators of various flows in stocks in agriculture are compiled outside of the framework of national accounts and therefore their underlying definitions somewhat deviate from those recommended in the SNA 1993. This refers both to scope of flows and stocks and to the methods of their valuation. For example, the stocks of cattle are often valued at cost (rather than at market prices as suggested in the SNA), because this mode of valuation is used in business accounts of agricultural enterprises which submit their data to statistical offices. Valuation of stocks of cattle at cost creates problem with the measuring the output of growing cattle in accordance with the principles of national accounting. Contrary to the SNA 93, capital investments figures compiled in the framework of conventional agricultural statistics do not include capital repair, acquisition of cattle

(classed as fixed assets), purchases of some intangible assets (e.g., software), transfer costs on purchases of non-produced assets such as land.

28. It should be noted in this context that the SNA 93 recommends to compile only two accounts for industries (for agriculture, in particular): production and generation of income account and therefore accumulation accounts are not compiled for industries. That is why the reconciliation of the above flows on capital input with the SNA definitions and classifications has not been yet undertaken on a systematic basis in any CIS countries. On the other hand, some CIS countries are introducing gradually institutional sector accounts and capital account, in particular; for this purpose they use the above mentioned data on capital flows in agriculture as a starting point; they normally adjust these figures to make them consistent with the SNA requirements (by adding or deducting some items which are not immediately available and the estimates of which have to be obtained one way or another).

IV. Income

29. Data on income of agricultural enterprises and population engaged in agriculture are very limited (in the case of enterprises) or practically not available (in the cases of agricultural population) in any CIS countries. As a rule, data on gross income and profits of medium and large enterprises are compiled and published, however, the underlying definitions of these indicators differ from those recommended in the SNA 93 for similar flows. Data on income of other types of agricultural producers (unincorporated farms, personal plots of households are not available. As was mentioned above, the only comprehensive information on this topic which is available now in all the CIS countries refers to generation of income account compiled for the agriculture where value added created is decomposed into its major components, including profits and mixed income. This information could be used as a starting point for a more detailed income analysis in agriculture. It should be reminded again that the other accounts dealing with the income analysis are not compiled (according to the SNA 93) for industries but only for the institutional sectors. It means that in order to compile figures on disposable income and saving in agriculture the flows on primary income as payable and receivable by agriculture (as well as on the current transfers) should be extracted from the relevant income distribution and redistribution accounts compiled for the non financial enterprises where these flows are registered together with similar flows payable to and receivable from other institutional units. This is a time consuming and tedious work, but some data are available for this exercise, e.g. on income from property payable and receivable by agricultural enterprises, on taxes payable by agricultural enterprises both on income and land, on insurance premiums and claims payable and receivable by agricultural enterprises and so forth. It is worth reminding in this context that manual of the Eurostat on agricultural economic accounts recommends to compile, among other things, entrepreneurial (agricultural) income account using as a starting point the balancing item of the generation of income account.

30. The data on income of population engaged in agriculture are not compiled by the CIS countries and there is no methodology currently available which can be immediately used for this purpose. Some fragments of information on income of agricultural population are contained either in so called "Balance of money income and expenditure of population" (which in the past was an important element of the MPS and which is still continued to be compiled by all the CIS statistical offices) or in income accounts of household sector compiled in many CIS countries which started implementing the SNA 93. But again, a great deal of work is required to extract the data needed for analysis of income of agricultural population from the above sources.

V. Registers, surveys and censuses

31. In all the CIS countries the registers of enterprises and organizations belong in both to private and public sectors have been set up. In addition to them statistical offices set up agricultural sub-registers which contain detail data on agricultural enterprises, unincorporated farms, personal plots of households, including personal plots of non-agricultural households, where they grow vegetables, potato, fruits and flowers. In some countries such registers contain significant number of indicators and represent computerized data basis. For example, in Russia sub-registers of agricultural enterprises contains 250 indicators, while the sub-register of unincorporated farms includes 70 indicators describing activities of this holding. A considerable number of indicators is contained in sub-registers of Kazakhstan. Completeness and reliability of such registers is by statistical offices by close cooperation with the administrative bodies (which have their own registers) and with tax inspection agencies. Agricultural sub-registers are used as a basis for organization of various statistical surveys on a number of topics. Especially efficient for these purposes are the registers of agriculture's enterprises and unincorporated farms which exist in Russia, Belarus, Ukraine, Kazakhstan, Kyrgyzstan and Tadjikistan. Registers of unincorporated farms in Armenia and Moldova are been established in present time. Commencing from 2001 the work on establishing is to be initiated in Georgia.

32. The sample surveys which are carried out periodically by statistical offices make it possible to collect data needed for analyses of various aspects of agricultural activities (size and structure of agricultural land, yields of crop products per unit of land, productivity of cattle, availability of fodder, cost of production, availability and use of agricultural machine and others).

33. In 1993 CIS Statistical Committee sent out to the CIS countries recommendations of the program of agricultural census. This document has been used to some extent by the CIS countries in their activities in this area. During the last 3 years the following censuses were carried out in CIS countries:

- censuses of perennial plantations in Azerbaijan, Belarus, Moldova and Ukraine,
- censuses of cattle in Russia, Ukraine and Moldova,
- census of vineyards in Azerbaijan,
- censuses on various sub-branches of husbandry in Ukraine.

At present time a preparatory work on agricultural censuses on the basis of program of the World Agricultural Census for 2000 has been initiated. In Kazakhstan program of agricultural census to be carried out in 2003 has been tested and pilot census in one of the districts of Djambul region has been carried out. In Kyrgyzstan complete agricultural census is scheduled for 2002.

VI. Conclusions

34. The major conclusions from the above overview are as follows.

Although the CIS countries produce and publish a variety of agricultural statistics, it appears that during the past years of transition from centrally planned to market oriented economy no significant progress has been yet achieved in improving these statistics and adapting it to new economic conditions. The quantity and quality of data compiled and published by the CIS countries do not seem to be sufficient to carry out in depth analysis of agricultural economy, to assess many qualitative aspects

essential for making sound decisions on important issues of agricultural policy such the impact of the various types of government support of agriculture (direct and indirect subsidization, loans on favorable conditions, reduced tax rates forgiveness of debt and so forth); overall financial status of agricultural enterprises and their accumulated debt to the government, in particular; redistribution of income through price mechanisms, procurement of agricultural goods by state organizations and regulation of procurement prices, the impact of imports of agricultural goods and import duties and so forth.

35. The emphasis is still put on compilation of indicators in physical units such as production of major agricultural goods, the size of land, yield per unit of land, productivity of cattle and so forth and relatively less attention is paid to indicators of income and finance, cost of production, saving, assets and liabilities, etc. Although, as noted above all the CIS countries introduced production and generation accounts for agriculture on the basis of the SNA 93, the indicators derived from these accounts (value added, operating surplus/mixed income and so forth) are not sufficiently harmonized with the old indicators that are also published in official statistical editions; the figures on value of output in current price and its disposition on various purposes are computed independently from each other and this creates a problem of their reconciliation.

36. It is difficult to assess the reliability of the data. There are no reasons anymore for the enterprises to overestimate figures on output in the records submitted to the statistical offices (what periodically happened in the USSR), but there is an incentive now to underreport output and profits to avoid paying taxes. The volume of data submitted by the agricultural enterprises to statistical office diminished considerably during the past years of transition; the growing private sector require organization of various sample surveys but the resources and experience of statisticians essential for the efficient surveys are not sufficient. As noted above, the agricultural censuses are not carried out as frequently as required and as recommended by the FAO. The economy itself has become more sophisticated and evasive and as a result it is not easy to measure many economic phenomena; though practically all the CIS countries introduce adjustments for non- observed economy, there seem to be a considerable room for improving the quality of such adjustments.

37. It appears that insufficient attention has so far been paid to organizational aspects of agricultural statistics; the adoption of special legislation regulating certain important matters, such as the types of surveys and censuses to be carried out and their frequency, the relationship of statistical offices with the respondents, confidentiality issue and so forth, would seem to be very much appropriate measure. Such legislation exists, for example, in Germany and studying this German experience in this area would be useful for statistical offices of the CIS countries.

38. Although there are some positive changes in application of statistical registers and sample surveys the work in this area is still at the early stages and there is a considerable room for further improvements of data collection. In many cases sample surveys are carried out on ad hoc basis and attempts to introduce a systematic approach and planning in this area have not been so far entirely successful.

39. It appears that insufficient attention to this statistics from the governments or insufficiently clearly defined demand for statistical data from the government agencies responsible for formulation of agricultural policies are the factors which, to some extent, account for a slow progress in transformation of statistics inherited from the USSR times. On the top of it, it appears that agricultural policy has not so far been a priority topic on the agenda of the governments of the CIS countries. Though some countries,

such as, for example, Russia, have adopted recently programs of improvement of agricultural statistics it appears that the scope of these programs and the range of topics dealt with in them are limited and therefore their implementation is unlikely to result in the drastic improvement of this statistics in the near future.

40. To sum up, the improvement of agricultural statistics of the CIS countries requires a number of interrelated measures pertaining to: i) refining methodology by a more consistent implementation of the international standards, ii) harmonizing indicators characterizing different aspects of agricultural economy with the SNA 93, iii) introducing new indicators essential for qualitative analysis, (analysis of income, productivity, financial aspects, etc.), iv) improving collection of primary data and especially of the data on activities of unincorporated farms and personal plots of households; this implies a more systematic approach to implementation of surveys and agricultural censuses, v) adopting special legislation which would regulate the most important aspects of organization of agricultural statistics.

41. Under these conditions it is essential to improve training of the personnel, to enhance familiarity of the statisticians with the international standards and experience of other countries. It appears that agricultural statistics should be among the priority topics for the international organizations which provide technical assistance to the statistical offices of the CIS countries.
