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Topic (ii): Gender equality indicators

**Establishment of a Core Set of Gender-Sensitive Indicators for the Agricultural Sector:
A Preliminary Proposal**

Submitted by FAO¹

Contributed Paper

Introduction

Gender-sensitive indicators highlight changes in gender relations in society over time. They are useful for measuring changes in the status of women and men over time by measuring whether gender equality is being achieved. The utilisation of gender-sensitive indicators enables us to monitor and evaluate development activities more effectively; these in turn will feed into more effective future planning and programme delivery (FAO 2000a).

Although the need has been recognized since at least the adoption of the World Plan of Action by the International Conference on Women in 1975 (UN 1975; Narain 1999), increased attention within the UN system has been drawn to the issue of gender-sensitive indicators in the aftermath of the World Summit for Social Development and the Beijing Platform for Action in 1995 (FAO 2000b). For example, Chapter 40 of Agenda 21 highlights the needs for data and indicators at local, provincial, national and international levels, and calls for the development of a core set of indicators of sustainable development and the promotion of their use (ECOSOC 2000: 7). Inter-agency collaboration initiatives have been undertaken towards defining a common set of indicators for goals from four or more conferences. A useful summary of this work can be found in the report of the 1999 ECOSOC meeting on indicators in the context of conference follow-up (ECOSOC 1999).

Within this framework, however, there appears to be a paucity of gender-sensitive sustainable development indicators for natural resources management or the agricultural sector. For example, the United Nations Department of Economic and Social Affairs (ECOSOC) Division for Sustainable Development (DSD) Commission on Sustainable Development (CSD) have developed a list of core indicators of sustainable development. However, gender and agricultural indicators remain in separate quadrants, both conceptually and empirically, of the CSD indicators matrix (DSD 2000: Table 2). Agricultural indicators are found under the Environmental/land theme. These are: Agriculture/secure food supply; Arable and permanent crop area; Use of fertilizers, and; Use of agricultural pesticides (DSD 2000: tables 2 and 3). Gender-

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sensitive indicators in the CSD initiative are limited to the social theme in the matrix and include only: the ratio of average female wage to male wage; the difference between male and female school enrolment rates; and women per hundred men in the labour force.

Agro-environmental indicators from other sources are similarly gender-blind. For example, the OECD agro-environmental indicators contain many interesting indicators to land use and farm management but these do not include a gender perspective. In the Food and Agricultural Organization's (FAO) Food Insecurity and Vulnerability Information and Mapping systems (FIVIMS) and the Terrestrial Ecosystem Monitoring Sites (TEMS) databases, gender-related information is largely limited to data on access to education and health.

In response to the apparent lack of gender-sensitive indicators for the agricultural sector, this paper discusses issues concerning the development of a core set of gender-sensitive indicators for monitoring gender aspects of the agricultural and rural sectors. The FAO response to the work on gender-sensitive indicators in the UN framework is described briefly, and a framework for establishing a core set of such indicators using available sources of data is discussed. A provisional core set of indicators is offered in following major areas: ownership of land, access to productive resources (machinery, fertilizer and pesticide use), and the role of women in agriculture (participation in the agricultural labour force). The paper also discusses data requirements and estimation issues associated with these indicators, and uses examples drawn from the World Agricultural Census 2000 as illustrations.

1. FAO Response to Demand for Gender-Sensitive Indicators and Agricultural Data

The apparent segregation of gender and agricultural dimensions in sustainable development indicators noted above appears at a time when there is growing interest in—and demand for—information on rural women's contribution to agricultural and rural development. The Food and Agriculture Organization of the United Nations (FAO) has recently noted that, concomitant with an increase in gender awareness worldwide, there is both a lack of information on women's contribution to development and an increasing demand for gender-specific statistics at national and regional levels from a widening range of stakeholders engaged research and decision-making on socio-economic development issues (FAO 1999: 2).

Such interest is of direct relevance to the FAO, whose mandate is to promote the common welfare by furthering action in order to raise nutrition levels and living standards in Member Countries, secure improvements in the efficiency of production and distribution of all food and agricultural products, and better rural living conditions, thus contributing towards an expanding a world economy to ensure humanity's freedom from hunger (FAO 1999: 4). Through its Corporate Strategy E, the Organization works to improve decision-making through the provision of information and assessments and the fostering of knowledge management for food and agriculture. An important element of this strategy is development, improvement and maintenance of an integrated information resource base, with current, relevant and reliable statistics, information and knowledge made accessible to all FAO clients (FAO 1999a: 30-35).

1.1 Activities

In response to this increasing demand for gender-sensitive information, the FAO has worked with other UN agencies to improve the situation regarding gender and information. This includes the inclusion of sex-specific data on the economically-active (agricultural/non-agricultural) population in the FAOSTAT data base, (with UN Population Division and the International Labour Organization), a study on the legal status of rural women in 1979, and a workshop on the improvement of statistics on women in agriculture in 1979. In 1991, FAO organized an inter-agency consultation statistics and data bases on gender in agriculture and rural development, which recommended the processing of existing information for gender analysis to augment existing knowledge and information, and the improvement of definitions and classifications used in data collection through agricultural censuses and surveys in order to reduce gender bias (Narain 1999). Issues of gender-sensitive statistics were also addressed in the high-level consultation on rural women and information in 1999 (FAO 1999b), and have formed an essential feature of the FAO

Plans of Action for both the Integration of Women in Development (1989 -1995, 1996-2001) and the current Gender and Development Plan of Action 2002-2007 (FAO 2002).

In this context, the FAO Gender and Development Division (SDW) has devoted considerable efforts, especially in collaboration with the Statistics Division (ESS), to develop the quality and availability of gender-sensitive data and indicators. SDW's focus on gender and natural resource management has included efforts to develop socio-economic and gender-sensitive indicators (SEGS) in this area. These efforts have included an assessment of the current status of SEGS, identification of gaps and development of a SEGS conceptual framework (SDWW 2002). Provisional sets of SEGS, largely qualitative and farmer-based, that combine socio-economic with bio-physical information have recently been generated and field tested for agro-biodiversity conservation and for land use and management. The results should be available in the near future.

The Gender and Population Service (SDWP) of FAO is working on indicators to monitor non-health impacts of HIV/AIDS on rural livelihoods. This extensive set consists of both qualitative and quantitative indicators at household and community levels for various livelihood capitals (i.e., economic, natural, physical, social and human). Some of these indicators will be field-tested as part of FAO work on identification and testing of mitigation strategies for HIV/AIDS impacts on agriculture and rural livelihoods.

Over the last decade, the collaboration of SDW and ESS at both headquarters and in regional offices for Africa (RAF), Latin America-Caribbean (RLAC), Asia-Pacific (RAP) and Near East-North Africa (RNA) regions has resulted in numerous collaborative activities to meet the increasing demand from countries for integrated use of information for sustainable development. These include:

- Recoding existing survey data to enable analysis by sex of household head
- Developing a supplementary questionnaire for the agricultural survey focussing on the socio-economic situation of women
- Support to User-Producer workshops on agricultural statistics to increase awareness
- Participation in user-producer workshop on gender disaggregated agricultural data to enhance the production and use of GDD through improved user – producer contacts
- Participation in the sessions of African Commission on Agricultural Statistics (AFCAS), and other international meetings
- Technical backstopping of agricultural statistics projects in the framework of the current round of Agricultural Census

In the European region (REU), gender and statistics activities have most often occurred within the context of support to the development of national plans of action for rural women in development. These have included support to a study of men and women in Bulgarian Agriculture conducted by the Institute of Sociology, Bulgarian Academy of Sciences, an regional expert consultation on gender and participatory research methods for Central and Eastern countries, Bulgaria, June 2001, and a regional workshop on gender-disaggregated data for Central and Eastern European Countries in Romania in 2001.

Principally through its Integrated Support to Sustainable Development and Food Security Programme (IP), SDW has developed SEAGA-based training materials in the production and use of gender-disaggregated data and indicators (GDD). The principle target groups for these materials are agricultural statisticians and policy analysts, as well as programme planners for non-governmental organisations (NGOs) in Member Countries.

The GDD materials developed in English have been tested in several workshops including a regional workshop for Central and Eastern Europe held in Romania in 2001. These materials are currently being translated into French and Spanish in order to adapt them to other cultural settings for wider use. In several instances, GDD training in the workshops has been reinforced by follow-up activities to re-tabulate existing data sets in order to produce sex-disaggregated data bases. Retabulated data sets have been

produced for Namibia and Zambia, using data from the annual agricultural surveys, and a retabulation of national agricultural census data in Hungary will occur later this year.

1.2 A Gender Analysis Framework for Gender-Sensitive Indicators in Agriculture

Clearly, there is a need for an appropriate gender analysis framework in order to formulate gender-sensitive indicators for agriculture. Such a framework has been developed by the FAO Socio-economic and Gender Analysis (SEAGA) Programme to consider gender relations at field, institutional and policy levels.

The goal of SEAGA is to build capacity to incorporate socio-economic and gender analysis into development strategies in order to ensure that all efforts address the needs and priorities of men and women. The SEAGA framework operates at three levels of analysis: the *field level*, targeting extension workers, government and non-government field workers, local communities and institutions; the *intermediate level*, focusing on development workers engaged in institutions that act as bridges between the field and macro levels; and the *macro level*, addressing policy and decision makers who work at the international and national levels.

Major strengths of this approach are the focus on individuals and households in rural settings, and its provision of tools for analysing gender relations at household and community levels. This is particularly important for developing a core set of gender-sensitive indicators specific to agriculture, since agricultural censuses and surveys, the principle sources of data on the agricultural sector, use the agricultural holding or household as the unit of observation. In many parts of the world, particularly the developing world, the household is a principle unit of management for the holding and the source of most productive resources, particularly labour.

In analysing gender relations in rural settings, SEAGA and other frameworks (e.g., Feldstein and Poats 1989) ask basic questions in order to arrive at an understanding of the structure and dynamics of the rural farm household or agricultural holding:

- Who does what?
- Who owns what?
- Who has access to/controls what (i.e., which productive assets)?
- Who knows what?
- Who benefits?
- Who should be included in development programmes (and how)?

Several of these questions, particularly the first three, can be structural in nature, and can be used to guide the identification of gender-sensitive indicators for agricultural sector structure and trends.

Knowing the sex and age of the head of the agricultural holding and members of the holding's labour force makes possible the gender-sensitive tabulation of a wide range of data collected by agricultural censuses and surveys, and the subsequent construction of gender-sensitive indicators on related themes. For example, despite their being couched in somewhat Women in Development language, the CSD indicators mentioned in the introduction of this paper can be characterised by age and sex and viewed through a gender lens as addressing the following questions in gender analysis:

- The role of women (Who does what?)
- Ownership of agricultural land (Who owns what?)
- Use of fertilizers (Who has access to what?)
- Use of agricultural pesticides (Who has access to what?)
- Ratio of average female wage to average male wage (Who benefits?)

1.3 Gender-Sensitive Indicators and Agricultural Census Data

Given its global mandate to serve as an international source for agricultural statistics and its UN mandate as a focal point for rural women, the FAO provides technical support in agricultural statistics and gender analysis, particularly within the framework of the World Census of Agriculture (WCA) 2000. Agricultural censuses and surveys usually focus on the basic characteristics relating to production technologies and land use (FAO 2000: 17). Like its five previous predecessors, The WCA 2000 is intended to assist countries with national agricultural censuses by providing definitions, concepts, standards, and guidelines for the decade 1996-2005 in order to generate a data base of internationally comparable figures (FAO 1995: Forward). Basic characteristics of the WCA are:

- Uniformity in concepts, definitions and classifications with those from other data sources, especially other UN organizations
- Limited data coverage, given the scale of the exercise and limited resources
- Keeping changes from previous WCA programmes to a minimum while accommodating new elements to address gender and environmental issues (FAO 1995: 3-4)

FAO Guidelines offer advice and international standards on procedures for conducting an agricultural census, methodological considerations, proposed census items (including definitions) and the tabulation plan. Proposed census items are arranged in ten categories, many aspects of which are recommended for cross tabulation by the sex of the head of the holding. These suggestions can be found in the recent FAO publication, *Filling the Data Gap* (FAO 1999: 17-18).

The FAO Statistical Development Service (ESSS) collects and posts a limited set of summary census data from countries that participate in the WCA. Contributions to this summary collection are voluntary and the coverage of censuses is therefore not complete. Starting with the year 2000 a new format was adopted for data presentation based on a Country Form developed by the FAO. Thus, census data compiled since then are presented at the site in a different format. This Form is intended to facilitate the collection of primary census data in a standardized form and consists of 12 Census Items:

1. Total number and area of holdings
2. Number and area of holdings classified by size of area of holding
3. Fragmentation of holdings into separate parcels
4. Legal status of the holder
5. Land tenure of holdings
6. Area of holdings by tenure of land operated
7. Members of holder's household, including holder, by sex
8. Employment in agriculture
9. Land use
10. Temporary crops (on arable land)
11. Permanent crops
12. Livestock

Nevertheless, these summaries provide a useful indication of the potential for gender analysis and construction of gender-sensitive indicators using WCA data. From these data it seems possible to estimate indicators for the following six CSD theme areas:

Table 1. Proposed Core Set of Gender-Sensitive Indicators from Agricultural Census Data

Gender Analysis Question/CSD Sub-Theme	Indicator
<i>Who does what?</i> Role of women (in agriculture) (This is WID; modify indicators to sex ratios)	<ul style="list-style-type: none"> Ratio of males-females economically-active in the labour force Difference in average or median age of males and females economically active in agriculture
<i>Who owns what?</i> Ownership of agricultural land	<ul style="list-style-type: none"> Share of agricultural holdings that are female-headed Difference in median age of male and female heads of holdings
<i>Who has access to/controls what?</i> Use of farm machinery and equipment Use of fertilizer Use of agricultural pesticides	<ul style="list-style-type: none"> Ratio of male and female-headed holdings that use farm equipment Ratio of male and female-headed holdings that use fertilizer Ratio of male and female-headed holdings that use agricultural pesticide

2. Selected Indicators for the Agricultural Sector

2.1 Illustrations of the Use of Selected Indicators

The potential use of the indicators proposed in Table 1 can be illustrated by the following two examples. Figure 1 shows the share of female heads of holdings contained in the WCA summaries compiled and distributed by ESSS. The number of censuses reporting sex-disaggregated data on head of holding for each region is shown in parentheses on the X-axis. Although too small to be representative, the sub-samples illustrate interesting regional differences. These might result from a number of factors including variation in definitions (e.g., *de jure versus de facto* of head of holding) employed in national census and other factors that may have systematically biased the results. It should be noted that most of the census represented by the ESSS summaries were conducted during WCA 1990 (1985-1995) prior to the inclusion of recommendations for collection of sex-disaggregated data in FAO guidelines, and the use of the new format for reporting census data summaries initiated in 2000. These factors may well have contributed to the small portion of censuses reporting information on this indicator.

Figure 1.

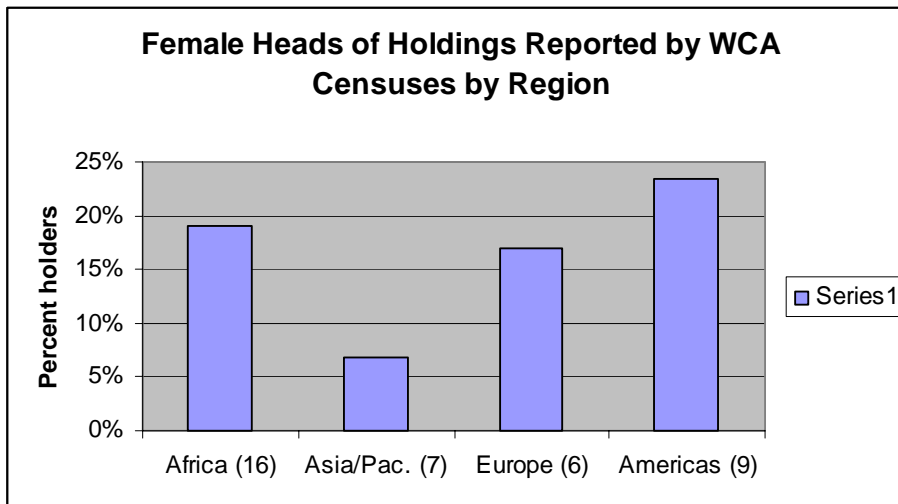
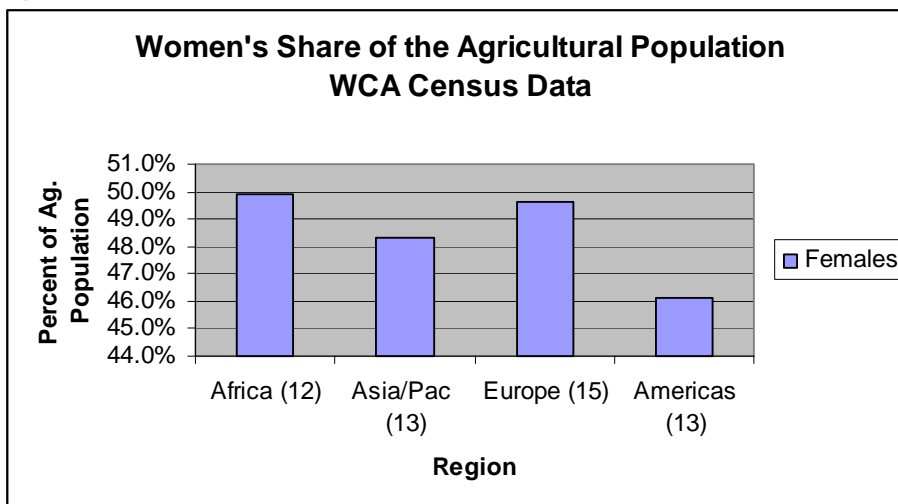


Figure 2 shows the percent women's share of the economically-active agricultural population for different geographical regions as estimated from the WCA 2000 summary data. The coverage for this indicator is better than that for the previous indicator. The data used refer to those members of the household belonging to the holdings, which has been reported by sex, and sometimes age category, in the summaries. The number of censuses reporting this information in each region is reported in parentheses on the X-axis. Unfortunately, data on the sex of hired agricultural workers from outside the household are not reported.

Figure 2.



2.2 Issues and Challenges for Discussion

In discussing the proposed indicators in the list, it is perhaps useful to do so with reference to the attributes of indicators identified by ECOSOC (ECOSOC 1999).

Policy-relevant indicators are capable of providing clear and unambiguous responses to key policy issues and concerns. Beyond the fundamental policy issue of equity (in this case, gender equity), the indicator set is designed to provide policy makers with useful information on changes the age and sex structure of key aspects of the agricultural sector. These include agricultural land ownership, labour force and use of key,

policy-relevant inputs; i.e., agricultural machinery, fertilizer and pesticides. Knowledge of these trends will become increasingly important in some geographic regions in the future, as policy issues such as the feminisation of agriculture, rural ageing, and the impacts of HIV/AIDS on agriculture and rural livelihoods assume prominence.

Specific refers to the capacity of indicators to measure only the phenomena for which it has been selected, and be definite in terms of magnitude and time. The chosen indicators are highly variable with regard to specificity. Indicators on machinery and input use have perhaps the best specificity, since use of an input or resource is a reasonable indication of some level of access. However, these indicators are less specific with regard to resource *control*, which may be better measured by the *timeliness* in which the resource is accessed. An example of this would be access to tractor power for ploughing and planting arable crops. In Swaziland during the 1980s, farmers who depended on subsidized government tractor pools for ploughing and land preparation would often experience delays in ploughing and maize planting, with resultant yield losses, depending upon their position in the queue for these services.

Indicators relating to ownership of land and the role of women in agriculture also have problems with specificity. Use of measures of central tendency (average or median) for age is imprecise, and specificity would be increased by using sex-specific indicators for specific age categories, enabling cross-categorical comparison of values. This, of course, would increase the number of indicators called for, diminishing the user-friendliness of the set. The indicators on female participation in agricultural labour are not specific enough with regard to magnitude of the contribution, which is better reflected by measuring the amount of time spent by females of various ages in specific tasks related to specific crops or livestock types. Such data are not contained within the framework and would need to be obtained from special surveys, such as farm management surveys. This would affect the user-friendliness and cost-effectiveness of these indicators.

Valid indicators are able to actually measure what it has been chosen to measure, that is to say, close to the reality being measured. For this set of indicators validity issues are closely associated with the issues of specificity discussed in the previous section. This is particularly serious with respect to labour-force participation indicators. Provision of labour for agricultural tasks is only one aspect of women's participation in agriculture. Reliance on this single dimension obscures, for example, women's roles as agricultural and household managers, food processors and sources of agricultural knowledge. These aspects are outside the scope of agricultural censuses and structural surveys, and require specialized studies. The CSD category of "Role of women" is perhaps far too broad to be addressed by a single (even a composite) indicator. Until more data in this area are collected systematically and with wider coverage, this is perhaps the best that can be done under the circumstances.

Other validity issues are associated with problems of definition of key concepts. Recent FAO publications have noted the measurement problems resulting in underestimation of women as agricultural workers and owners/managers of agricultural holdings (FAO 1998; FAO 1999). These problems include relying on biased (e.g., *de jure*) definitions of head of household or holding, minimum sizes of holdings that exclude female-managed small plots, exclusion from the "economically active" category women engaged in activities considered to be economic activities in National Systems of Accounts and ILO recommendations. Definitional issues are particularly worrisome for the land ownership indicators, particularly in instances where the *de jure* definitions of household head, rather than gender-sensitive definitions of plot manager, are used to elicit ownership and management.

Reliable refers to indicators that are accurate and consistent, able to express the same message or yield the same conclusions if the measurement is carried out with different tools, by different people, in similar circumstances. FAO has made a considerable commitment to the production of guidelines (both general and gender-related) to increase the reliability of agricultural census data in the framework of the WCA 2000. As with other indicator attributes, reliability for this set of indicators is dependent to a great extent on consistent application by WCA participating countries of recommended definitions, concepts and procedures data collection, data tabulation and presentation in the context of their respective national

agricultural censuses. Metadata on the conduct of the census and the data collected will be very important for assessing the reliability of these indicators.

Sensitive indicators have the capacity to measure changes in the phenomena that it is intended to measure. The indicator set is expected to be reasonably sensitive to monitor changes in the gender aspects of land ownership, access to/use of key productive resources, and the sex/age division of labour in the agricultural sector. Such knowledge will assist policy makers track the dynamics of (what is for some global regions) the rapidly-changing rural and agricultural sectors, as well as changes in gender roles due to globalisation.

Measurable indicators are those that are based on available data or feasible with respect to obtaining the required data. By relying on data collected routinely as part of national agricultural censuses and annual surveys, these indicators are measurable in this sense. Moreover, these indicators are measurable at both sub-national and national levels, allowing for their use in national and international data sets for comparisons. It should be noted here that FAO and other international organizations are not producers of data *per se* and are heavily dependent upon independent decisions of Member Countries on whether or not to adopt a policy to include specific indicators, as well as provide the data for their estimation. This creates certain difficulties in proposing indicators for measurement.

User-friendly indicators are comprehensible and timely (and should be few in number). The proposed indicators are expected to be comprehensible to policy makers and other users, relying as they do on proportions and well-known measures of central tendency (mean, median). The indicators are also timely in that they can be estimated as part of the tabulation of the census data and they are relatively few in number. However, a related issue concerns the difficulties of introducing gender indicators that would constitute additional data and effort to collect on the part of national producers of agricultural statistical data. In such instances, there may well be extra effort needed (and expense incurred) in collecting the needed information through an expanded census or survey questionnaire.

Cost-effective suggests that the results should be worth the time and money it costs to implement them. The introduction of gender-sensitive indicators may confer additional constraints on already scarce available resources for conducting agricultural censuses and surveys since additional operations may be required if they are not included in the planning or early stages of agricultural censuses and surveys. It is therefore important for policy makers to actually use such indicators in policy formulation in order to make them cost effective. This may well require further efforts to sensitise decision-makers on the importance of gender indicators for policy, and to provide them with the necessary skills for their effective use. Since they rely for their estimation on either currently available data or data routinely collected by national statistical services, these indicators are expected to be reasonably cost-effective, especially when combined with a programme of training in gender issues and (agricultural) policy.

Conclusion

This paper has discussed the need for a core set of gender-sensitive indicators for agriculture in the context of the mandate of the UN system to develop indicators for sustainable development and improve data collection for their estimation. It has reviewed the work FAO has undertaken in the area of gender-sensitive indicators and promotion of the integrated use of information for sustainable development by improving of agricultural statistics through the incorporation of gender and population dimensions into agricultural statistics. This work is based on collaboration among several divisions of FAO with national statistical services and includes training in gender-disaggregated data, development of concepts, methods and guidelines for incorporating gender into statistical data collection and analysis, re-tabulation of existing data to produce gender-relevant data sets and analyses, and field testing of training materials and indicators.

To stimulate discussion on gender-sensitive indicators for agriculture, the paper has also examined an appropriate gender analysis framework (SEAGA) for establishment of such indicators using available

sources of data, proposed a core set of indicators in the areas of ownership of land, access to productive resources (machinery, fertilizer and pesticide use), and participation in the agricultural labour force, and discussed data requirements and estimation issues associated with these indicators, using examples drawn from the World Agricultural Census 2000 as illustrations. The indicators appear to be reasonably policy-relevant, user-friendly, measurable and cost-effective. However, as with any untested indicator, there are potential problems with specificity, validity and reliability. In the case of these indicators, problems may result from lack of more specific data due the limited scope of agricultural censuses, limited geographic coverage of existing sex-specific data from censuses, inconsistent use of definitions and data collection protocols, and the inability of a one-dimensional measure to reflect complex phenomena.

In order to these and other issues, particularly those of specificity, validity and reliability, the following recommendations are made:

- Indicators in the core set should be reviewed periodically for policy relevance
- Efforts should be made to increase the policy use of these and other indicators; this should include training and sensitisation of policy analysts and decision-makers in both gender issues and analysis of data indicators for policy formulation; materials on the use of the core set should be developed and included in training packages
- The specificity issues associated with several indicators should be seriously considered and addressed; for example, a more specific indicator on female contribution to agriculture (especially labour) may need to be constructed using data sources other than the census, even at the risk of diminishing the user-friendliness of the set
- Further efforts should be made to encourage national statistical services to use consistently standard concepts and methods in statistical data collection to increase the validity and reliability of the data used to estimate the core set indicators; special attention should be paid to recommendations and guidelines pertaining to gender-disaggregated data
- In order to maintain user-friendliness of the core set, the number of indicators should be limited to the current number; new indicators in the core set should be replacements for existing indicators, rather than additions to the core set.

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