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GENDER-SENSITIVE INDICATORS FOR NATURAL RESOURCE MANAGEMENT

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INTRODUCTION

Women and men, young and old, rich and poor, carry out different work and activities, have differential access to resources, and differential decision-making authorities. The distinction between work that is carried out by women and men (a young girl often takes over her mother's work, while a young boy, his father's), rich and poor, young and old is particularly marked in rural areas in predominantly agricultural countries. Women and men and different socio-economic groups have differential access to and control over various forms of capital and assets, and will build them up in response to their perceived and contextually determined opportunities and constraints. The prevailing division of responsibilities is challenged by demographic phenomena, impacting on the composition of the agricultural labour force by age and sex. An increasing incidence of female-headed households has therefore been observed in many areas. This includes both a tendency towards ageing rural populations as well as an increasing incidence of child-headed households in some parts of the world. Structural adjustment programmes have also had an impact on the division of responsibilities.

Today there are convincing arguments, substantial proof and broad agreement that development responses will be more equal, efficient and sustainable when gender is mainstreamed throughout sustainable natural resource management initiatives.

In spite of the many gender mainstreaming mandates, the political will and rhetorical commitments to mainstreaming gender, few development agencies perform systematic evaluations with gender-disaggregated data. In 1995, both the World Summit for Social Development (WSSD) and the Beijing Platform for Action emphasised the importance of producing and using GSIs to assess sustainability and gender equality. *The World's Women 1970-1990 (UN)* also addressed this. The 1995 United Nations Development Program (UNDP) *Human Development Report* focused on gender and development and expressed the need to draw GSIs to the attention of policy-makers as a first step towards changing policies that were biased against women.

WHAT IS AN INDICATOR?

The term indicator comes from the Latin *indicare*, which means to point out. It is common to describe an indicator as:

- a pointer or sign of change,
- a measurement, number, fact, opinion or perception that points at a specific condition or situation, whose change is examined over time

WHAT ARE THE GENDER SENSITIVE INDICATORS (GSIs)

Gender-sensitive indicators can be used at various levels to monitor gender-related progress or change over time. They can be used at the project level to monitor change in response to project interventions. They can also be used at a regional, national, or global level to monitor broader impacts of policy and international pressures.

Before the 1970s, most attention paid to economic indicators as the focus was mainly on economic growth and infrastructure development. Early 1980s, emphasis was on human-centred development and basic needs and "social indicators" related to health, education, employment and population. From the mid-1980s, the evolution was stronger focused on indicators of empowerment and

participation and on gender-sensitive indicators: recognition of women as stakeholders in development.

Gender-sensitive indicators (GSIs) are important to NRM as they can:

- Demonstrate socio-economic and gender-sensitive changes (in the management of natural resources) over a period of time;
- Facilitate the formulation of efficient NRM responses (e.g. projects, programmes, and policy) and thus contribute to the goals of sustainable development;
- Ensure that gender is mainstreamed throughout the monitoring and evaluation (M&E) of NRM projects or programmes, and consequently;
- Assess the measurement of progress made towards gender equality in the area of NRM (FAO 2003) and thus contribute to the achievement of the Millenium Development Goals (MDGs).

TYPES OF GSIs

- Gender-Sensitive Impact Indicators: These describe actual gender-related change arising from a NRM project or community practice. The evaluation of impact is normally associated with the evaluation of the goals to see if the objectives of higher rank are achieved. The challenge is that the results may depend from more factors (increased production may depend on effective management of irrigation water and fertilizers).
- Gender-Sensitive Output Indicators: describe the actual NRM project in a gender-sensitive way (e.g. No. of men versus women trained in a specific NRM technique).

GSIs can also be qualitative (subjective or soft indicators) or quantitative (hard or objective indicators) in nature:

- Quantitative: GSIs typically use numerical information and are easy to quantify (e.g. No. of pumps received by men and women; ratio of number of preferred traits used by women and men in livestock selection, ... etc.). The source is generally the official surveys (national data), projects, etc.
- Qualitative: GSIs use sociological information that can be derived from more qualitative processes of investigation (e.g. focus group discussions, participatory learning approaches, observation, etc.); used to understand social processes, why and how a particular situation that indicators measure came into being and how this situation can be changed in the future.

INDICATORS OF EMPOWERMENT

Empowerment is difficult to measure and there is no agreed-upon method for measuring it. Consequently, empowerment needs to be clearly defined before developing some indicators.

“Empowerment is about people taking control over their lives; setting their own agenda, gaining skills, increasing self-confidence, solving problems and developing self-reliance. It is both a process and an outcome” (CIDA 1994). Indicators of empowerment should encompass both personal, socio-economic and political change.

Examples of indicators of empowerment:

- % of women in decision-making positions in local government or in Water users associations (WUAs);
- Changes in employment/unemployment rates of women and men;
- Changes in time-use in selected activities;
- Changes in % of property owned and controlled by men and women, across socio-economic and ethnic groups;
- Extent of networking among local women, as compared to men;
- No. of women in local institutions;
- To what degree are women aware of their legal rights?;
- Do women and men perceive that women are becoming more empowered and why?
- Do women make decisions independently of men in their household? What sort of decisions are made independently?

NATURAL RESOURCES MANAGEMENT FACTORS INFLUENCING GENDER DIFFERENCES

Women and men's different NRM roles, responsibilities, knowledge, and decision-making authorities are impacted by many factors including:

- environmental change (e.g. drought, disease);
- economic forces (e.g. policies that favour cash cropping, globalisation, biotechnology, etc.);
- cultural pressures (e.g. taboos, customary law);
- demographic change (e.g. out-migration, HIV/AIDS), and;
- institutional initiatives (e.g. access to services and inputs, projects, etc.).

To assess the gender-differentiated impacts of these and other factors over time, and to identify potential constraints to sustainability, it is therefore crucial to develop and apply a core set of GSI for natural resources management, and revise this as needed.

INCREASED INTEREST IN GENDER-SENSITIVE INDICATORS

A series of factors have contributed to the increased interest in GSIs, including:

- The move to encourage more holistic, systemic, and interdisciplinary approaches to the many NRM challenges facing different regions and also different development agencies.
- Interest in linking biophysical and social dimensions of development and develop indicators to highlight their interrelationships.
- The strong international focus on women's empowerment and participation since the mid 1980's. This has included advocating for the development and use of GSIs and the associated collection of gender-disaggregated data (GDD) to challenge gender biases in the collection of data and subsequent indicator use and policy.

FAO AND GSIS

Decades of research and project experience have shown that addressing gender and socio-economic concerns is key to promoting sustainable agricultural development and natural resources management.. Yet to do so requires influencing NRM policy and practice using meaningful gender-sensitive data. To produce this data, it is essential to develop meaningful gender-sensitive indicators (GSIs) and first, to establish baselines against which change can be monitored.

Recently, FAO has assessed the status of GSIs in the management of natural resources and found:

- A general lack of practical experience in this area,
- A low level of gender-sensitive monitoring of NRM projects in general, and;
- A lack of GSIs to help analyse gender issues in agriculture at national, regional and global levels.

In recognition of this problem, FAO has been working to develop effective and relevant GSIs for monitoring gender-related changes in natural resources management. For over a decade, FAO's Gender and Development Division has worked with the Statistics Division and Member nations to stimulate the production and use of gender-disaggregated data (GDD) and gender-sensitive indicators in agriculture and NRM initiatives, including agricultural surveys and censuses.

FAO has adapted the widely popular P-S-R (Pressure-State-Response) Indicator Framework developed by the Organization of Economic Cooperation and Development (OECD) in 1993, to consider potential GSIs in the gender-differential use and management of natural resources. The

P-S-R framework was originally designed to understand the *pressures* of human activities on the changing *state* of the environment and the societal *response* to this that could then be fed back to mitigate the pressure. Similarly, responses can be developed to deal with gender-based management pressures.

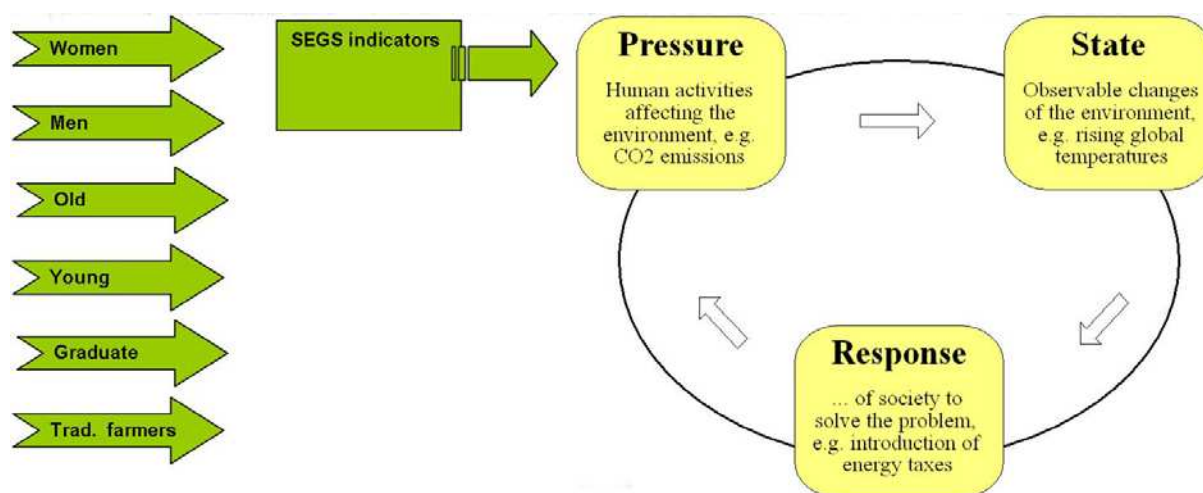


Fig. 1. FAO adaptation of the Pressure-State-Response Indicator Framework

CORE NRM AND GSI DIMENSIONS

The GSI dimensions were developed through the identification of Gender-Sensitive factors that put differential pressure on the management and use of natural resources and are broad in scope and possible application. These include among others:

- Women and men's preferred traits of a given natural resource.
- Women and men's access to agricultural inputs.
- Women and men's access to land.
- Women and men's time dedicated to sustainable NRM.
- Women and men's NRM indigenous knowledge.
- Women and men's participation in development response strategies.

GENDER CONCERNS AND WATER MANAGEMENT

Still very limited information is available on the situation of women in the water sector and there is a great need to develop gender information at three levels: national, ministerial and project or local levels. Information at higher levels should be based on the lower ones: detailed information collected at field level by different government agencies, should be filtered to the ministerial level and aggregated at national level for selected and significative indicators.

- *National indicators*: most indicators come from one of the two areas of analysis gender or water and nearly nil for the common inter-phase and it is necessary to make some modifications to existing indicators to fill the gap. International organizations and NGOs have dedicated considerable efforts to develop a set of indicators that gives an overall view of the gender situation

and water resources. In 2003 the Gender and water alliance has developed 22 indicators on socio-economic, gender and water resources, including among others:

- ❖ Human development index measuring average achievements in terms of life expectancy, adult literacy rate and decent standard of living;
 - ❖ Gender related development based on female/male life expectancy, knowledge, estimated earned income, ... etc
 - ❖ Poverty rate sex-disaggregated;
 - ❖ Women share in labour force in agriculture and non-agriculture.
- *Examples of Ministerial indicators – Irrigated agriculture sector.*
 - ❖ Share of women participating in the management of WUA;
 - ❖ Share of women heading irrigated farm-holdings.
 - *Examples of gender and water indicators at project/local level:* Gender performance indicator for irrigation developed by IWMI, which seeks to answer two questions:
 - 1) Gender of the farm decision-makers, classifying the scheme into male, dual or female farming system (if less than 1/3 of farm decision-makers is female the scheme is called a male farming system);
 - 2) Inclusion and exclusion processes of men and women in irrigation institutions. Gender-specific differences are identified in terms of access to water and land at farm level; inclusion in management fora such as water users associations; and inclusion in leadership positions in these fora.

The level of performance is measured as good, moderate or low according if there are no gender related differences, mid gender obstacles or women are excluded. The M&E system should be developed geared to achieve the project objectives where gender equality is one of the goals.

Examples of World bank Indicators for Gender in Water and Sanitation

Indicators for Monitoring

- Budget:
 - ❖ % of funds earmarked for women and men;
 - ❖ % of funds distributed to women and men.
- Performance:
 - ❖ % of women and men participating in water and sanitation activities;
 - ❖ % of women among persons trained in maintenance and repair or in charge of operation.
- Community development
 - ❖ Existence of village-level women's groups (i.e. self-help group);
 - ❖ Initiatives undertaken by men and women (separately or jointly).
- Impact of availability of water and sanitation
 - ❖ Women's and men's productive activities;
 - ❖ Women's and men's community participation.
- Improvement
 - ❖ Improvement in women's and men's knowledge about water, sanitation, use of water, etc;
 - ❖ Improvement of skills in problem-solving, maintaining water facilities, etc.
- Benefits
 - ❖ Do women use the increased water supply for income-generating, processing food for home or the market, etc?;
 - ❖ Do women use time saved for market production, trading, fruit gathering, agricultural labour, etc?

Indicators for Evaluation

- Were systematic efforts made to ensure that gender-sensitive steps were taken and how well did they work?
- Have roles and responsibilities of men and women changed as a result of the project?
- Have women's and men's access to and control of water changed as a result of the project?
- Describe men's and women's participation in project design and implementation.

GENDER-SENSITIVE STATISTICAL INDICATORS

For the UNECE Work Session on Gender Statistics held in Geneva in September 2002, a paper was prepared on gender-sensitive indicators for agricultural development, which:

- Discussed the need for gender-sensitive indicators for agricultural sector analysis;
- Summarised the work of FAO in gender-sensitive indicator development and gender-disaggregated data, with special reference to collaborative work in the context of the World Census of Agriculture 2000.
- Proposed a framework for establishment of a core set of indicators that was based on the Millennium Development Goals (MDG)/Conference on Sustainable Development (CSD) Indicators, using available sources of data.
- Discussed data requirements and estimation issues associated with these indicators, and used examples drawn from the World Agricultural Census 2000 as illustrations agricultural censuses).

Indicators were proposed for the 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 following table shows an example of such indicators, indicating both the relevant MDG indicator theme and the appropriate Gender Analysis question it is intended to address.

Table 1. Proposed core set of GSI

Gender analysis question	CSD sub-theme	Indicator
Who does what?	Role of women	M/F ratio labour force
Who owns what?	Ownership of agricultural land	Female share agricultural holdings
Who has access to / controls what?	Use of farm machinery	M/F ratio equipment use
Who has access to / controls what?	Use of fertilizer	M/F HH fertilizer use
Who has access to / controls what?	Use of agricultural pesticides	M/F HH ratio pesticide use

DEVELOPING GENDER-SENSITIVE INDICATORS FOR NRM

Selecting gender-sensitive indicators for use in NRM depends on various factors that include:

- Considering specific data requirements,
- Identifying the most relevant gender and NRM issues, and
- Working with the resources available for data collection (human, financial, organisational).

To a large extent, the choice and development of indicators will be determined by *user demands* (whether the user be a community itself, NRM planners, policy-makers, technical specialists or other).

Developing GSIs for monitoring gender-related change arising from NRM policy, projects, or even community/household practice begins with formulating “*specific, realistic objectives that are people-relevant, as well as technically and environmentally sound*”. It is crucial to remember that NRM policies or projects will undoubtedly have gender-differentiated impacts on women’s and men’s perceived benefits and constraints, as well as on their participation, labour, time-use, access to, and control over natural resources.

Criteria for Indicators Selection

- Be Sex –disaggregated;
- Developed in a participatory manner;
- relevant to user’s needs;
- Technically sound;
- Measure trends over time;
- Easy to understand and use.

The most crucial point is to *Develop* gender-sensitive indicators that are objectively (quantitative) and subjectively (qualitatively) verifiable and that meet the following *SMART* criteria:

- *Specific*: Indicators should be linked to the goal or objective, result from one's methods, be measurable, and be meaningful to stakeholders. One indicator per objective is useful.
- *Measurable*: Baseline data is used to measure change. This data is disaggregated by sex, socio-economic grouping, age, and ethnicity, and reveals the situation in the project area before donor (or other) intervention.
- *Achievable*: Measurements (costs, etc.) and timelines (e.g. project life) are realistic.
- *Reliable*: The same conclusion is yielded if the measurement is carried out: i.) with different tools; ii.) by different people; iii.) and in similar circumstances.
- *Time-Bound*: Ideally, time frames should develop from the project and not be imposed on it.

It is important to establish what level of measurement is needed – Individual? Group? Project? District? Agro-ecological zone? Global? What is the unit of observation?

ACTION NEEDED

It is not enough to simply develop a set inventory of GSIs for use in natural resources management. Rather, the inventory and the GSIs themselves should be dynamic and adaptable as situations change either locally, nationally, or internationally. Apart from supporting the various stakeholders in the development of their own GSIs, several other actions are required that would best be served by inter-institutional dialogue and collaboration. These include:

- *Monitoring* GSIs on a continuous basis to facilitate the design and implementation of more efficient, effective, and sustainable NRM development responses.
- *Improving* GSIs and further institutionalising them by ensuring that GSIs are applied, field-tested, and revised or updated as necessary.
- *Encouraging holistic, cross-cutting approaches* to natural resources management that embody, and indeed *value*, both biophysical and social factors and create the demand for gender-sensitive indicators.
- *Facilitating*, through the UN System, strengthened international collaboration in the development and promotion of the use of GSIs in natural resources management, perhaps through the creation of an "indicator platform on the internet".
- Continuing to *develop* GSIs in areas neglected by the work to-date (e.g.. specific sectors such as water resource management, livestock production, post-harvest processes, impacts of HIV/AIDS on agriculture, etc.).

FAO, with its cross-sectoral and inter-regional expertise, is well placed to work on the development of these GSIs that will facilitate the development of NRM policies and practices that are more gender-equal, efficient and sustainable. The continuation of this work would best be served through collaborative efforts with other UN and international organisations (e.g. CIDA, ECLAC, SIDA, etc).

CONCLUSIONS

To conclude the development of Gender-sensitive indicators for NRM requires the inputs and experience of farmers, agricultural planners and researchers, and policy-makers. GSIs make it possible to monitor gender-differentiated changes in natural resources management over time; and gender-based contributions to sustainable development.

"We measure what we value, and value what we measure" (The UN Commission for Sustainable Development, 2001).

The development of GSI indicators in the management of natural resources was undertaken as an attempt to unite two parallel streams of socio-economic and biophysical indicators. In general, GSI indicators allow for a systematic understanding of whether and when gender and socio-economic factors affect the management of natural resources, thus allowing for the monitoring of progress made towards gender *equality* in the natural resource sector. But above all, it is believed that the continuous monitoring of GSI indicators will make it possible to design and implement development responses to be more efficient, effective and sustainable.

Two processes will enhance the institutionalization of GSI indicators. The first is the application and continual field-testing of GSI indicators in various ecosystems. Here, GSI indicators could also be productively expanded into other technical areas, for example, water. Second, several immediate opportunities are ahead at the global level. The World Summit on Sustainable Development in Johannesburg 2002 opened up technical issues to broader crosscutting issues. There is also a wide scope for strengthening the links and collaboration within the work of the United Nations system to improve partnerships at the international level and to develop an indicator platform on the Internet.