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“Healthy wetlands, healthy people”

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Progress in developing a framework and guidelines for wetlands and agriculture – the work of the GAWI project

Background

1. In Resolution VIII.34 on “Agriculture, wetlands and water resource management” (COP8, 2002), Ramsar Parties requested the Scientific and Technical Review Panel (STRP) to “identify, document and disseminate good agriculture-related practice” with respect to wetlands. Specifically Resolution VIII.34 called upon the STRP and the Convention’s International Organization Partners (IOPs) to:
 - a) establish a framework for identifying, documenting and disseminating good agriculture-related practices; and from this,
 - b) develop wetland-type specific management guidelines.
2. As a response to this call, the “Guidelines on Agriculture, Wetlands and Water Resource Interactions Project” (GAWI) were developed during the 2002-2005 triennium and launched at Ramsar COP9 in Kampala, Uganda in 2005.
3. GAWI is a collaborative consortium among the Food and Agriculture Organization of the UN (FAO), Wageningen University and Research Centre (WUR), the Ramsar Secretariat, the International Water Management Institute (IWMI), Wetlands International (WI), Wetland Action (WA), and individual Ramsar STRP members.
4. GAWI has been actively supported by the governments of the Netherlands, Slovenia, and Switzerland. In developing and undertaking its tasks over the last triennium, GAWI has worked closely with the STRP and consulted a broader group of wetlands-agriculture experts through three dedicated GAWI workshops.

Progress since Ramsar COP9

5. GAWI work during 2005-2008 has focused on the first phase of the approach outlined in Resolution VIII.34 – the development of a framework for identifying good practice, to act as a frame for the subsequent development of guidance.

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6. This framework report “*Scoping agriculture-wetland interactions; Towards a sustainable multiple-response strategy*” is being published in 2008 as a joint publication of FAO, Ramsar, and WUR, as no. 33 in the series *FAO Water Reports*. It will be launched at COP10 and will be available to COP participants.
7. The framework report provides a comprehensive analysis and characterization of agriculture-wetland interactions (AWIs) over the broad range of agro-ecological and socio-economic settings, with the specific aims to:
 - i) scope out the relevance and nature of AWIs;
 - ii) identify the range of responses to AWIs;
 - iii) determine gaps/limitations in current practices and identify opportunities for developing comprehensive responses; and
 - iv) identify the structure and content of the AWI guidelines to be developed.
8. To ensure a broad-based approach of widespread relevance, the analysis of AWIs has been conducted using a data-set of 90 agriculture-wetland interaction cases. These are distributed over Ramsar wetland types and regions and are not restricted to Ramsar sites. This case study data is provided in an electronic database attached to the report. In addition to the analysis of the 90 cases, five different agriculture-wetland interaction settings are presented in detail to illustrate the strength of the AWI framework and concepts.
9. The AWI framework draws on the ecosystem services framework developed by the Millennium Ecosystem Assessment (MA) and the findings and recommendations of the Comprehensive Assessment on Water Management in Agriculture (CA), as well as the Integrated Water Resources Management (IWRM) framework. These are concepts and approaches already adopted by the Ramsar Convention. They are brought together through the application of the Driver, Pressures, State changes, Impacts and Responses (DPSIR) framework. This is used to undertake a comprehensive analysis of AWIs with respect to biophysical characteristics, ecosystem services, and socio-political and economic conditions.

Analyses and information from the AWI framework

10. The notion of sustainable AWIs is defined in terms of the MA ecosystem framework as the attainment of a balance in the use and exploitation of the multiple ecosystem services – i.e., provisioning (e.g., agriculture comprising of crop cultivation, fisheries/aquaculture and livestock), regulating, cultural and supporting services. Together these ecosystem services constitute the state (changes) of the agriculture-wetland system.
11. AWIs have a tendency to lead to an imbalanced or skewed exploitation of ecosystem services with a predominance of provisioning services (usually with a limited range, or monoculture, of agricultural activities), often with major tradeoffs/reductions in regulating, cultural and supporting services and with major socio-economic impacts, both positive and negative, upon stakeholders and livelihoods.
12. A river basin approach has been adopted with several types of AWIs identified. A framework is provided in which 22 types of AWIs are defined. These cover *in-situ*,

peripheral and river basin level (upstream and downstream) interactions between agriculture and wetlands.

13. The assessment has found that drivers and pressures towards further increased exploitation of agricultural services, and hence further skewing of the ecosystem services, are pronounced, especially for general non-Ramsar site wetlands, with profound impacts at the river basin scale.
13. AWIs are driven by a complex mesh of socio-economic and policy factors and elements that shape the pressures on the agro-wetland system. Biophysical and technological factors predominantly shape the pressure-state changes on the agro-ecological system, which in turn drives the nature of the socio-economic impacts.
14. Devising response strategies for achieving sustainable AWIs and rebalancing ecosystem services requires a set of multiple measures. Technical and natural resources management measures are needed to address the pressure-state changes interface. They should be accompanied by policy and regulation measures that address the driver-pressure interface. The DPSIR approach provides a suitable framework to identify and address these multiple dimensions of AWIs.
15. AWIs are context-specific, being subject to socio-economic and policy configurations. They are also site-specific, especially in agro-ecological terms. As a result they require specifically targeted response strategies. To address this key finding of the GAWI analysis, the report calls for a set of methodological guidance modules that will address different policy and technical elements in AWIs. These modules should include reference to available and potentially promising technical and policy options for addressing the agro-ecological system and its issues – rather than providing wetland type and crop-specific guidelines as was called for in Resolution VIII.34.

Towards Agriculture-Wetland Interactions guidelines in 2009-2011

16. To support development of such guidance modules during the next triennium, the GAWI project is now seeking to broaden and strengthen its collaborative consortium.
17. Contracting Parties, IOPs, institutions and individual experts are therefore invited to:
 - a) advise GAWI on the scope and type of agriculture-wetlands guidelines that should be prepared; and
 - b) join the GAWI initiative through participation in and/or support for the preparation and implementation of the GAWI work plan for the next triennium.
18. During COP10 it is planned to hold an agriculture-wetland interactions side event to present and discuss the major findings and recommendations from the GAWI report, as well as the relevant findings of the Millennium Ecosystem Assessment (MA) and the Comprehensive Assessment of Water Management in Agriculture (CA).
19. During this event and other opportunities for discussion during COP10, feedback and guidance from COP participants will be sought concerning the scope of, and priorities for, coverage of the planned guidance modules on agriculture-wetland interactions. This should

include identification of the major issues with AWIs that should be covered by the guidelines. This will then contribute to the work planning for the GAWI initiative over the next triennium.

20. There are a number of major issues and questions that have been identified in the preparation of the GAWI framework, and that will need to be taken into account in the next phase of the GAWI work. These include:

- i) Agriculture-wetland interactions (AWIs) are primarily influenced by market drivers (both global and local) that tend to produce a skewed exploitation of ecosystem services. This typically involves an emphasis on provisioning services, and within provisioning services a focus on market-demanded monocultures. This pattern is expected to increase over the next three decades due to population growth and market forces.

What actions could provide effective mitigating responses to improve AWIs (cf. product certification processes such as green energy certification in Europe)?

- ii) The “losers” in the agricultural transformation of wetlands are usually the poor, including subsistence farmers who depend on wetlands for their livelihoods. Gains in market agriculture are often offset by losses in subsistence agriculture, while any gains in subsistence agriculture are indicative of negative feedback loops (driven by population density) that further increase the pressures on wetlands and reinforce the skewed (over-)exploitation of provisioning services.

How can wetland management and poverty alleviation mitigate this situation to avoid the marginalized peoples being forced into unsustainable subsistence practices in wetlands?

- iii) Attaining sustainable AWIs (defined in terms of balancing the exploitation of ecosystem services) requires the establishment of a “virtual buffer/conservation fence” to deflect, counter or insulate agro-wetland systems against the drivers and pressures that lead to a skewed (over-)exploitation by agriculture of a limited set of provisioning services. This is an inherently complex, context-specific and intractable issue because changing patterns of ecosystem services exploitation imply redistributing the wealth/benefits that stakeholders (livelihoods) obtain from the agro-wetland ecosystem. The establishment of such driver/pressure cordons around agro-wetland ecosystems requires concerted multiple responses at multiple levels on the drivers, pressure, state changes and impacts, including policy, technical and managerial measures.

Do guidelines need to cover policy analysis and response elements that are inherently cross-sectoral, or should guidelines be limited to technical and managerial issues at wetland sites?

21. The attainment of sustainable AWIs requires response strategies that:

- i) rebalance the exploitation of ecosystem services;
- ii) manage and reduce the negative impacts associated with the exploitation of provisioning services (e.g., agriculture);

- iii) stimulate the generation of tangible economic benefits (or income) derived from non-provisioning services (e.g., regulating and cultural services); and
 - iv) ensure the maintenance of the full range of ecosystem services in wetlands.
- 22. To achieve this, a functional and strategic management/policy approach to ecosystem services at the landscape scale is needed. This must:
 - i) assign functional priorities in terms of ecosystem services to agro-wetland sites, based on strategic considerations of demands, suitability, etc.: for example, assigning primary, secondary and tertiary functions to wetlands in terms of provisioning (agriculture), regulating and cultural services delivered by them; and
 - ii.) devise exploitation criteria/management plans for the multiple use of wetland sites with assigned primary, secondary and tertiary roles for different ecosystem services within an appropriate natural resource management framework.
- 23. Where the assigned primary function for a wetland is provisioning services (e.g., agriculture), this requires guidance to be developed:
 - i) on Good Wetland Agricultural Practices in wetlands and basins which will minimize negative pressures, in particular indirect basin-level AWIs, especially downstream ones, and support positive state changes, such as those that maximize agricultural production in a sustainable manner; and
 - ii) for the diversification of provisioning (agricultural) services in order to support multiple livelihoods and avoid 'mono-stresses' associated with agricultural monocultures.
- 24. Where the assigned primary functions are regulating or cultural services (water purification and flood control for regulating services, and biodiversity / tourism / recreation for cultural services, with carbon sequestration another potential regulating service of primary importance), the issues are:
 - i) the need to provide tangible economic benefits for local, rather than global, stakeholders in order to insulate them against sliding into market-driven agricultural development, and thereby preventing provisioning services, which had been assigned a secondary/tertiary role, from becoming primary services. Such benefits can accrue to governments, which are thus enabled to provide the driver/pressure insulation with cross-compliance or economic incentive schemes, or can accrue at the local level through Payment for Environmental Services (PES) benefitting directly stakeholders and livelihoods;
 - ii) the lack of evidence so far outside OECD economies that these regulating and cultural services can be raised to a primary function by providing tangible economic benefits; and
 - iii) the need to see if specific regulating and cultural services can be identified that can be exploited or marketed to generate tangible economic benefits for local stakeholders (including governments), also outside the OECD economies, and to establish whether or not these are wetland type specific.
- 25. For assigned secondary functions of provisioning services, a part of the guidance on Good Wetland Agricultural Practices (GWAPs) could be developed where agricultural

provisioning services are secondary to primary regulatory or cultural services. Such guidance would need to specify the conditions in which agriculture can be developed, given the hydro-ecological characteristics required for the primary regulating or cultural service(s) assigned to the wetland. GWAPs should primarily target *in-situ* agriculture-wetland interactions.