

Chapter 18

Analysis of the Decision-Making Process in Wetland Management-Ramsar Wetlands. Case Study: Abras de Mantequilla Wetland: Los Ríos Province, Ecuador

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Abstract Despite being the only ecosystem that is the subject of an international convention (Ramsar), wetlands continue to be degraded around the world. Wetland management deals with a strong dilemma between ensuring conservation, while fulfilling the (economic) needs of the inhabitants of the wetland. Thus, decisions frequently involve trade-offs. This analysis aims to create a better understanding of the drivers and factors that determine how a wetland is managed, especially Ramsar wetlands. An analytical framework to study planning and management in theory and in practice was developed. Some conclusions were drawn that highlight the factors (political, economical, social and environmental), which are predominant in decision making in wetland management. Contrary to what could be expected in a Ramsar site, the environment plays a very small role; that is the reason why wetland management tools focused very much on this factor should be reviewed for developing countries.

Keywords Wetland management • Ecosystems • Los Rio Province • Ecuador

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18.1 Introduction

18.1.1 *Efforts Pro-wetlands*

Curiously, regardless the actual state of wetlands, there is a great deal of concern at the international level about their values, benefits and the need to conserve them. It is the only ecosystem that has an international convention (Ramsar) signed by 159 countries agreeing to protect and maintain wetlands given their relevance. Scientists are even imitating their functions in artificial wetlands as an alternative for water treatment among other valuable uses.

Moreover, wetlands are also part for the implementation and success of strategic programs and legislations such as the EU Water Framework directive, the UN Millennium Development Goals and the Kyoto Protocol (WETwin 2008).

18.1.2 *Justification of the Research*

In Africa and Latin America wetlands have been threatened because of unsustainable management (WETwin 2008). Among many causes for the loss of wetlands, Wang (2008) presents the following list: lack of public awareness, insufficient funding, imperfect legal system, insufficient wetland research, lack of coordination among agencies and unclear responsibilities and undeveloped technologies.

Wetlands, because of their value and ecological richness are the focus of many dilemmas as they, on the one hand need to be conserved and at the same time fulfill users' requirements. Hence, management can become very complex, and many decisions about tradeoffs have to be taken. Consequently, the need to comprehend the factors that influence decision making and the role of national and international guidelines in this process is particularly appealing to better understand the management system.

According to the Ramsar Convention, putting in place a sustainable wetland management system is an essential tool to achieve the wise use of wetlands. Years ago it was believed that wetland management could be resolved with extensive and accurate information, and nowadays this has been determined with the availability of technology; but still we are losing wetlands. Recently, the concept of participation has been adopted as an option, but the practice reveals that this is not applied everywhere. This research focuses on the decision-making process in order to better understand the main cause of wetland deterioration in developing countries, including Ecuador.

18.2 Methodology

The outline of RBM developed by Mostert et al. (1999) was used as the basis for the conceptual framework for the assessment of wetland management. Some changes and adaptations from Mostert's outline to this framework were made, mostly

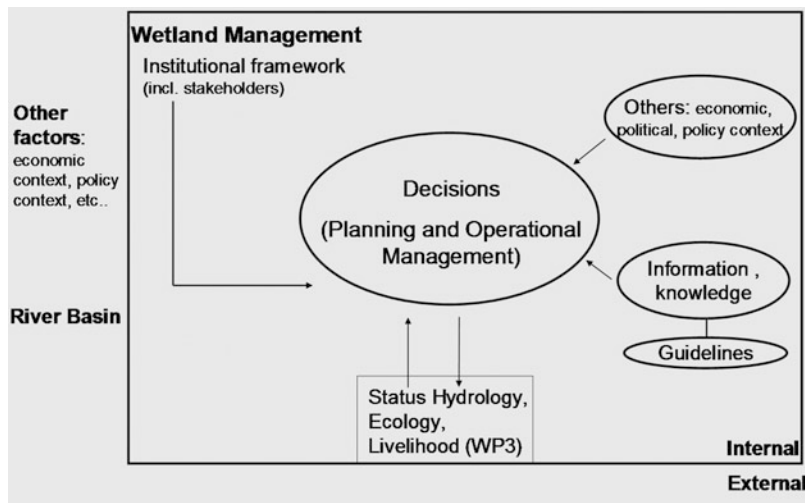


Fig. 18.1 Conceptual framework

because other factors were missing, such as the influence from economy, political context and policy.

In this conceptual framework there is the outside influence of the River Basin, due to the importance of the relationship between water and land, pointing out the geographical situation (downstream – upstream); Mostert et al. (1999). Additionally, the importance of decision making has a central role, considering a central process within a complex context such as wetland management (Fig. 18.1).

Using the Conceptual Framework, for practical purposes an Analytical Framework was developed. This last one consists of seven parts; the ones that related to the conceptual framework are shown in Table 18.1. This analytical framework was implemented in Ecuador for the case of Abras de Mantequilla wetland.

18.2.1 Case Study: Abras de Mantequilla Wetland: Los Ríos Province/Ecuador

In this case the objective was to analyze how things were done in wetland management and more specific, how decision were made, being of primary importance to define some relationships. Abras de Mantequilla wetland has an extension of about 65,000 ha and is located in Guayas River Basin, which is very important for Ecuador, due to their agricultural activities (Fig. 18.2).

The following list is the criteria by which this particular wetland was chosen. The reason for the selection related to the opportunity and accessibility of information, and relevance of the site at local, national and international level (Table 18.2).

Table 18.1 Linkages between the conceptual and analytical framework

Conceptual framework	Analytical framework
Influence of the river basin, “other factors”	1. Description river basin
General context of the wetland, “others”	2. Description wetland
Wetland management (Institutional framework)	3. Management structure of the wetland
Information – knowledge – guidelines	4. Wetland guidelines and indicators
Decisions in the planning process	5. Wetland planning in practice
Decisions in the operational management process	6. Wetland operational management in practice
Relation river basin – wetland	7. Adaptive capacity

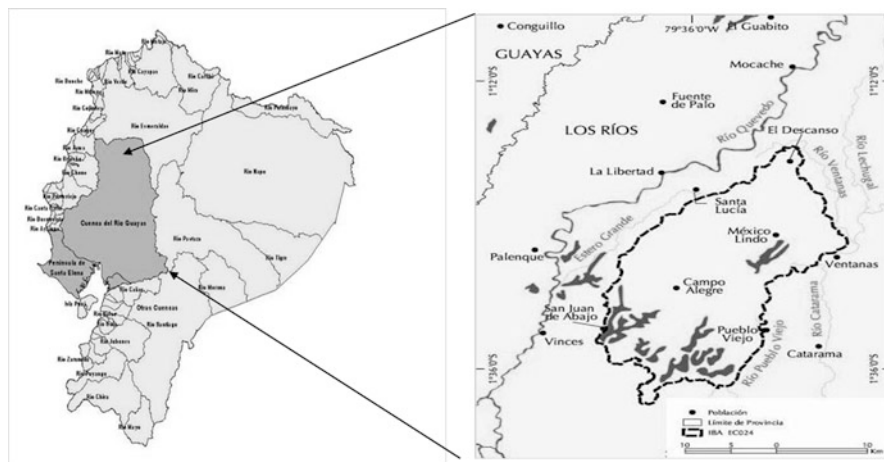


Fig. 18.2 *Left:* location of the wetland River Basin in Ecuador. *Right:* location of the wetland in the Guayas River Basin

18.3 Results

In this section the results of the fieldwork in Abras de Mantequilla are presented. In the following Table 18.3, there is a list of the factors that have been identified by the interviewees, and the importance they give to each of them. This will help with the comprehension of how decisions are made inside the wetland and in relation to it.

- 1. Political Factor:** Ecuador’s population is very engaged in politics, which is the reason why people mention it as a separate factor. Moreover, in reality the other factors are very much interconnected with politics.

The economical, social and environmental factors happen in a political scenario; in conclusion, first the site has to wait to be part of the national political agenda. Therefore, it will gain importance if it becomes a political resource for acquiring votes, money and power. Secondly, after becoming an asset, the site can start the application of Ramsar and national requirements to achieve a wise use of the wetland. The Ministry of Environment, RBO (River Basin Organization) and Commonwealth, because of their status as public entities, have a political duty; therefore, politics is the first factor that is taken into account when making a decision.

Table 18.2 Criteria for case study selection

Abrás de Mantequilla			
	Criteria		Reasons
O/A	Available information	√	Internet sites were the first source of information and a very accurate one. In the country printed documents were available
RQ	Conserve natural conditions	√	This is a 1–4 and 6–8 Ramsar site, meaning that it is representative because of its habitat and large area, it has not being altered by human activity maintaining the biodiversity of the habitat
RQ	Population’s dependency on the wetland	√	The main activities of the people around the wetland depend on it: agriculture and fisheries
RQ	Wetland management in place	X	This is not in place, but the ministry of environment is very involved in the area and there is a pilot plan recently developed, showing a form of organization
RQ	Part of an organized river basin	√	The wetland is part of the biggest and most important River Basin in the country: the Guayas River Basin, and it has a RBO (River Basin Organization) in place
RQ	Ramsar site	√	This wetland is consider of international importance since 2000
O/A	Contacts	√	The counterpart of the WETwin project in Ecuador had already the knowledge of the key contacts in the area
O/A	Communication facilities	√	Spanish is the language in the country and internet facilities are very widespread in the country, even in rural areas

RQ Research questions, O/A Opportunity/Accessibility

Table 18.3 Factor and actors in the decision making process

Factors	Actors				
	Ministry	River basin organization	Commonwealth	Locals	Inhabitants
Politic	1	1	1	2	3
Economic	4	2	2	1	1
Environmental	2	3	4	3	4
Social	3	4	3	2	2

The order of Importance from: 1 the most important and 4 the less important factor

2. **Economic Factor:** This case study was conducted in a developing country; the State cannot cover all the expenses of the public institutions from the central budget. Therefore, the RBO and the Commonwealth have to find other ways to finance their works, which is why this factor is in second place of importance to influence their decision-making process.

For the locals (people living in the region, not specifically in the wetland) the economical issue is of primary importance. Therefore, any decision they made is related to the perceived benefits for the improvement of their lives: development, more work, and income.

Finally, inhabitants of the wetland based their decisions on whether their basic needs such as food and shelter will be covered; therefore, they will lean towards the option that will assure their economic situation.

3. **Social Factor:** This community has proved to be very active and willing to fight against anything that can jeopardize their wellbeing. This has been shown through the protests against informal garbage dumping in the wetland, where an informal social movement was organized and supported by local and national authorities. The response from society to specific actions has a predominant value in the process of decision making. Local institutions, as the Commonwealth, are aware of the power social movements can have; consequently they consider this factor as more important compared to other national institutions.
4. **Environmental Factor:** One might assume that the environment would be the first factor considered in the decision-making process due to the Ramsar status. To the contrary, it is the last factor to be taken into account, due to other needs that have to be addressed first by stakeholders and decision makers. Moreover, problems concerning the environment are not obvious to the naked eye, which is the reason why outsiders (decision makers) overlooked this factor. It seems that water is sufficient and clean, animals are present and people look healthy around it.

18.3.1 The Role of Ramsar

Abras de Mantequilla has been a Ramsar site for almost 10 years now. In 2008 the authorities, noticing the lack of applicability of this Convention, made an evaluation. The results showed that Ramsar has been used mostly to fill the legal emptiness that presented the environmental law on wetlands, and their handbooks utilized for the development of plans.

In the case of Abras de Mantequilla, there is a Pilot Plan, which used the handbook about management planning, specifically for the action plan that was proposed. The central office of the Ministry of the Environment is aware of the poor diffusion of Ramsar guidelines, but also blames the people for their lack of interest in research.

Furthermore, the statements the Convention presents in their guidelines center the discussion on the environment. For this reason the country has noticed the need to interact with other institutions to define the applicability of Ramsar guidelines, in order to have a wider point of view (social and economical primarily).

Finally, in Ecuador all Ramsar guidelines are perceived as the most trustworthy documents that exist. The local environmental authorities do not see the need to invest time in developing more guidelines; to the contrary, they see the need for finding ways to apply them to local realities.

18.4 Conclusions

Wetlands can be the solution to different problems, and most of the time decision makers overlooked the complexity of its management. Through this case study the different factors that push forward the decision-making process have been presented.

Furthermore, the importance these actors give to each factor is what shaped the future of the ecosystem and its functions.

In conclusion, the interests of the most influential institution or actors are the ones that will be taken into account in the decision-making process. Those considered the strongest can be decision makers or stakeholders, depending on how much noise and pressure they have over the population and resources.

Consequently, it becomes a game of powers: the actor which has the potential to cause the biggest losses due to their actions, or has the power to produce considerable pressures (in an economical, political, social or environmental way) is the winner; and their priorities (their factors) will lead the process for making a decision.

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