WWF

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# PAYMENT FOR ECOSYSTEM SERVICES

## A new conservation approach for freshwater in Sebou

Red-knobbed coot (*Fulica cristata*) nest, Middle Atlas, Morocco © L.Chillasse

HUMAN DEMAND AND THE PERSISTENT NEGLECT OF THE ECONOMIC VALUE OF GOODS PROVIDED BY NATURE HAVE LED TO AN ALARMING DETERIORATION IN THE STATUS OF, AND THE SERVICES RENDERED BY, NUMEROUS ECOSYSTEMS

# What is an Ecosystem Service?

Nature provides a range of life-sustaining goods and services. Most of these services, particularly those revolving around a supply of food, fibers, water and minerals, are well known. However, nature and its ecosystems also deliver less tangible goods such as climate regulation, water purification, protection against natural and man-made hazards and the preservation of certain plant and animal species.
Human demand and the persistent neglect of the economic value of goods provided by nature have led to an alarming deterioration in the status of, and the services rendered by, numerous ecosystems. To date, government regulations, state budgets and private donations have not been enough to halt this negative trend. WWF is proposing Payment for Ecosystem Services (PES) as a new conservation opportunity in Morocco.

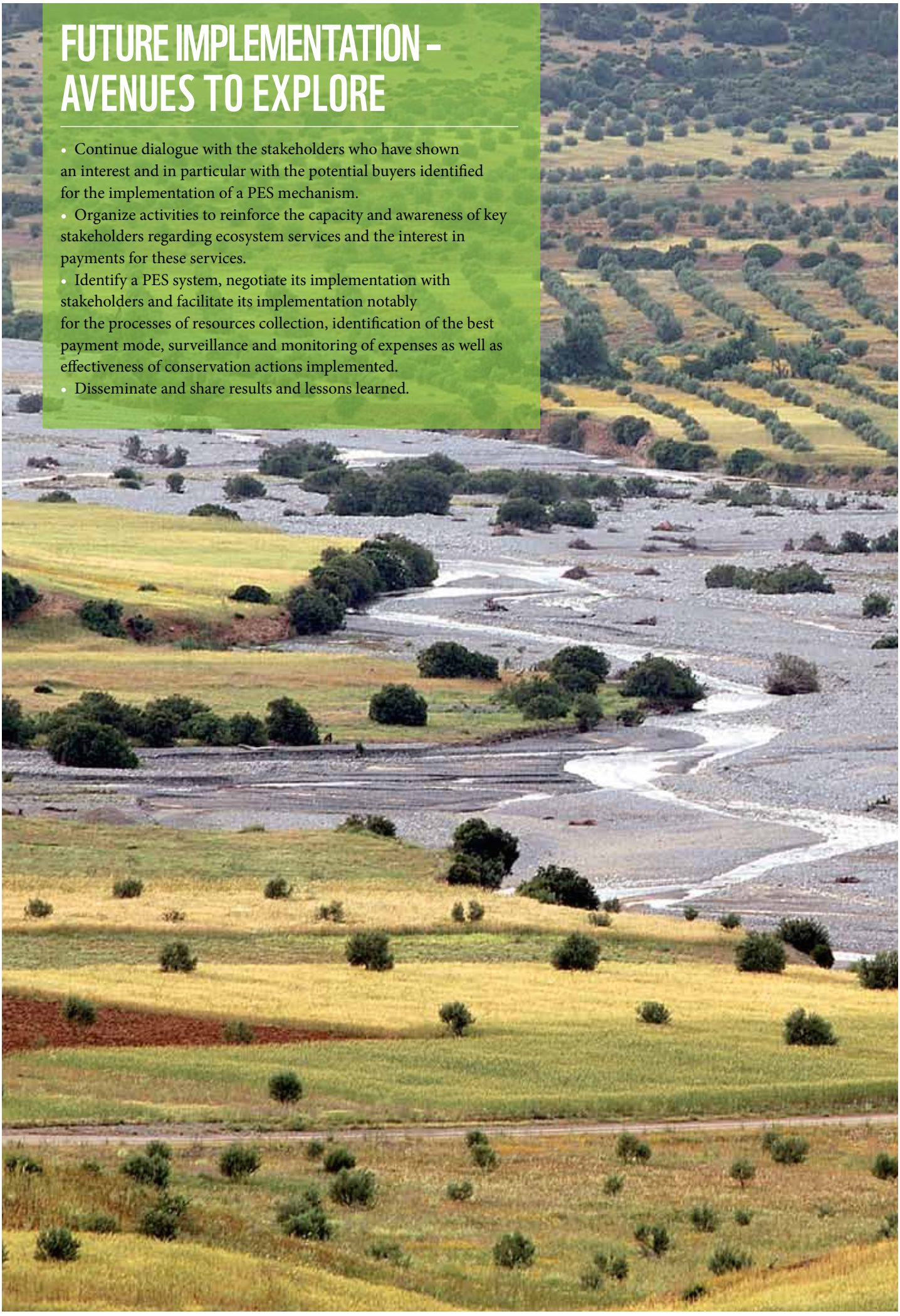
Group of experts, Afennourir, Morocco
© L.Chillasse

# Why are Payments for Ecosystem Services important?

In recent years, an increasing number of initiatives have emerged around the world which aim to heighten people's awareness of ecosystem services by creating payment mechanisms to maintain these services. Payment for Ecosystem Services (PES) can play a vital role in the fight against the degradation of freshwater ecosystems and in the preservation of their resources.
PES relies on diverse modes by which people who benefit from certain services are required to pay those who provide them to ensure their sustainability.
By highlighting nature's contribution to development through the services it provides, PES is a means by which beneficiaries – individuals, societies, governments and others – can demonstrate their recognition of and will to maintain these services through payments in cash or kind.
With more consumers aware of what they are paying for, the provision of ecosystem services can improve, which increases the efficiency of spending on conservation.
On a large scale, PES can provide a vital source of income for generally impoverished local populations, and become an important lever for sustainable development.

# FUTURE IMPLEMENTATION – AVENUES TO EXPLORE

- Continue dialogue with the stakeholders who have shown an interest and in particular with the potential buyers identified for the implementation of a PES mechanism.
- Organize activities to reinforce the capacity and awareness of key stakeholders regarding ecosystem services and the interest in payments for these services.
- Identify a PES system, negotiate its implementation with stakeholders and facilitate its implementation notably for the processes of resources collection, identification of the best payment mode, surveillance and monitoring of expenses as well as effectiveness of conservation actions implemented.
- Disseminate and share results and lessons learned.



Oued Zioul in the middle of agricultural lands, Middle Atlas, Morocco © Michel Gunther / WWF-Canon

# THE IMPORTANCE OF THE SEBOU BASIN AND THE MIDDLE ATLAS LAKES

Most of the Middle Atlas lakes are located in the Sebou river basin. This basin, one of Morocco's most important water resources, is remarkable for the large number of ecosystems that it contains: 39 important wetlands, including 5 areas classified as Ramsar sites[1], 2 national parks, and 17 sites of biological and ecological interest. Many of these sites are natural habitat of migratory birds and other endemic animal and plant species that are both rare and endangered.
The Sebou basin is also of vital socio-economic importance for Morocco, being home to nearly 20% of the population. It holds 30% of the agricultural land and 20% of the country's irrigated land potential yet covers only 6% of the national surface area.
Unfortunately, over the past few years there has been a sharp reduction in the surface area of the wetland ecosystems and a deterioration of surrounding areas that has affected fauna and water quality.
The overexploitation of surface and ground water, overgrazing, deforestation and pollution are the primary causes of the degradation of these natural areas.
This situation is the result of factors including the poverty of local populations, ignorance of the importance of wetland ecosystems, high demand for irrigation water, inadequate hydraulic infrastructure, ineffective water management and the overall difficulty of enforcing laws on water and the environment.

1. The RAMSAR convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

Tadorne, Middle Atlas, Morocco © L. Chillasse

# What are our objectives?

To contribute to changing habits and promoting behavior that is more respectful of water resources and natural habitats, WWF conducted a study to assess the feasibility of establishing payment systems for services rendered by water-related ecosystems in the Sebou basin.
PES can be an integrated water resource management tool that is simultaneously efficient from both an ecological and economic perspective and equitable from a social perspective.

## THE ULTIMATE OBJECTIVE IS TO PRESERVE THE LAKES AND DAYAS OF THE MIDDLE ATLAS BY:

- IMPROVING THE HABITATS OF WILD BIRDS, PARTICULARLY MIGRATORY AND ENDANGERED SPECIES
- IMPROVING VEGETATION COVER
- REPLENISHING AQUIFERS

# Which ecosystems are we interested in and why?

AGUELMAM SIDI ALI

AGUELMAM AFENNOURIR

AGUELMAM TIFOUNASSINE

THE DAYAS OF IFRANE (AWWA, HACHLAF, IFRAH, AFOURGAH AND IFFER)

These lakes and dayas were selected for the study due to their important geographic location in Morocco, situated in the Central Middle Atlas region of the Upper Sebou. This area offers an ideal configuration for the implementation of a PES scheme. The lakes are characterized by a diversity of animal and plant species, in particular ornithological species. They also offer highly varied natural resources that are often the basis of economic and subsistence resources for local populations (handicrafts, fishing, agriculture, livestock) as well as essential ecological functions such as water resource conservation, flood control and biodiversity conservation.
However, these wetlands are menaced by multiple threats and the natural resources that they shelter must be preserved and managed better. This is particularly true of the quality and quantity of water resources.

# Principal project activities

The activities developed under the framework of the PES project led to the collection of information and data that enabled an understanding of the study area context needed to assess the possibility of implementing a PES scheme. The following studies were conducted:

- STUDY OF THE HYDROLOGICAL STATUS OF THE MIDDLE ATLAS LAKES
- STUDY OF THE BIODIVERSITY OF THE MIDDLE ATLAS LAKES
- STUDY OF THREATS TO THE CONSERVATION VALUES OF THE MIDDLE ATLAS LAKES
- SOCIO-ECONOMIC STUDY OF THE LOCAL POPULATION LIVING AROUND THE MIDDLE ATLAS LAKES
- IDENTIFICATION OF PES SCHEMES POSSIBLE FOR THE MIDDLE ATLAS LAKES

THE SEBOU BASIN IS HOME TO **39** WETLANDS

Reports for each of these studies were prepared describing the status of the Middle Atlas dayas and lakes, their links with underground water, the wealth of flora and fauna, the various threats and hazards and the socio-economic values of the region. Over the entire duration of the project, workshops, discussions and the dissemination of study outputs were organized.

## Field visits

Field visits were undertaken to identify the most seriously endangered ecosystem services and to assess the status of the degradation/conservation of these services.

What emerged from these visits was that the service requiring most attention due to overexploitation is the replenishment of the groundwater aquifer connecting the various lakes and consequently affecting all of the services provided by the lakes. The sustainability of the lakes is closely tied to the groundwater aquifer. However, the recharge of groundwater is affected by overgrazing at the level of the cedar forest which hinders the infiltration of water. It has also been subject to the impact of intensive agriculture (onions, apples, cherries, pears, grapes) and various industrial activities.

There was also found to be an exceptionally high level of water in the lakes. Such levels have not been seen for many years due to a drought that led to the complete drying up of some of the lakes and dayas, such as Awa and Ifrah.

Hachlafe, Middle Atlas, Morocco © L.Chillasse

Other visits were undertaken to assess the socio-economic situation of the local population to answer key questions such as:

- Who are the people or groups of people that could have a role in the establishment of a PES scheme and what are their activities and living standards?
- What economic benefits can these people derive from natural resources?
- What is the importance of water for the local economy?
- What are the needs of these people and how may they be satisfied?

## Workshops

Five workshops were organized to reinforce the capacities of key stakeholders who could play a direct or indirect role in the conservation of ecosystem services delivered by the Middle Atlas lakes.

These workshops allowed participants to learn about Payment for Ecosystem Services, the interest in PES demonstrated in the Middle Atlas region and similar experiences from around the world. The workshops also provided an indispensable way to adapt the PES approach to the context of Morocco by opting for a participatory approach involving numerous public and non-governmental water sector stakeholders.

# RESULTS AND CONCLUSIONS

Studies on biodiversity, hydrology and socio-economic aspects related to the targeted wetlands enabled WWF to:

## 1. Understand the hydrologic functioning of the lakes and their relationship with groundwater

The Middle Atlas lakes that were studied are located on two very important groundwater tables of the Sebou basin: the groundwater of the Tabular Middle Atlas and the groundwater of the Folded Middle Atlas. The map below situates the lakes in relation to the groundwater[2].

It also emerged from the hydrogeomorphological study of the region that the groundwater of the Middle Atlas constitutes the visible part of the groundwater aquifer. As the groundwater is intimately linked to the lake water and consequently to the ecosystems, the vulnerability and the sensitivity of lakes depends on the quality of the groundwater filling them.

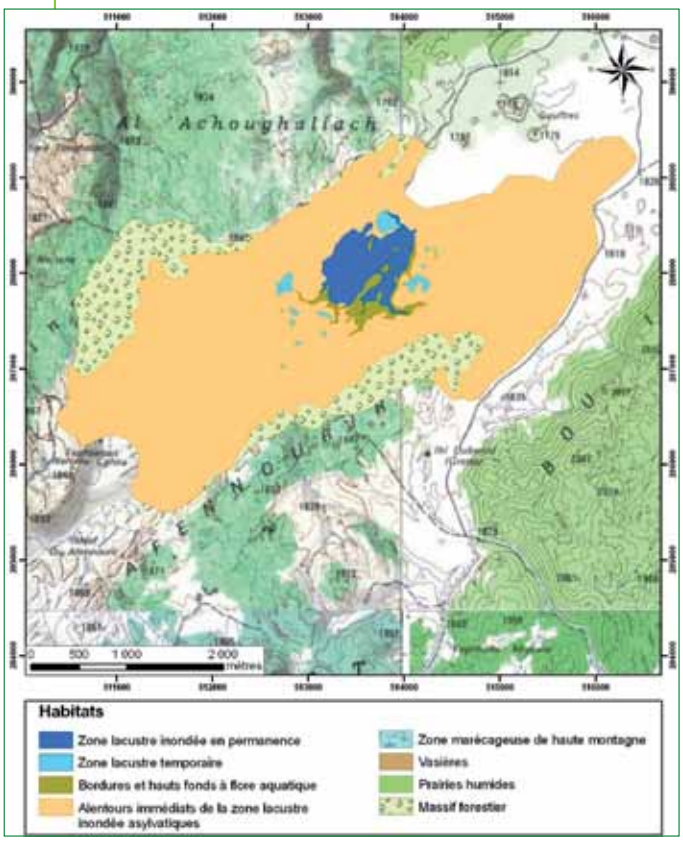
2. National debate on water - the future of water concerns us all ABHS-2006


## 2. Establish an inventory of lake water uses

The two most important activities in this area are agriculture, particularly apple and cherry crops, and animal husbandry, mainly goats and sheep. These activities create overexploitation and pollution problems.

### SIX MAPS, EACH REPRESENTING THE MAIN HABITATS AROUND THE LAKES STUDIED, WERE PREPARED

**1** MAP OF HABITATS OF AGUELMAM AFENNOURIR



## 3. Inventory of animal and plant species

The inventory of flora at the level of the 8 lakes studied found 75 plant species and sub-species distributed in 4 branches: 5 classes, 31 families, and 46 genera. The ensemble was represented mainly by two classes: *Liliopsida* and *Magnoliopsida* with respectively 29 and 30 species.
As for the fauna inventoried around the eight lakes, we were able to count 198 species and sub-species distributed in 12 classes, 72 families and 145 genera.

3. Class holding less than 2 species

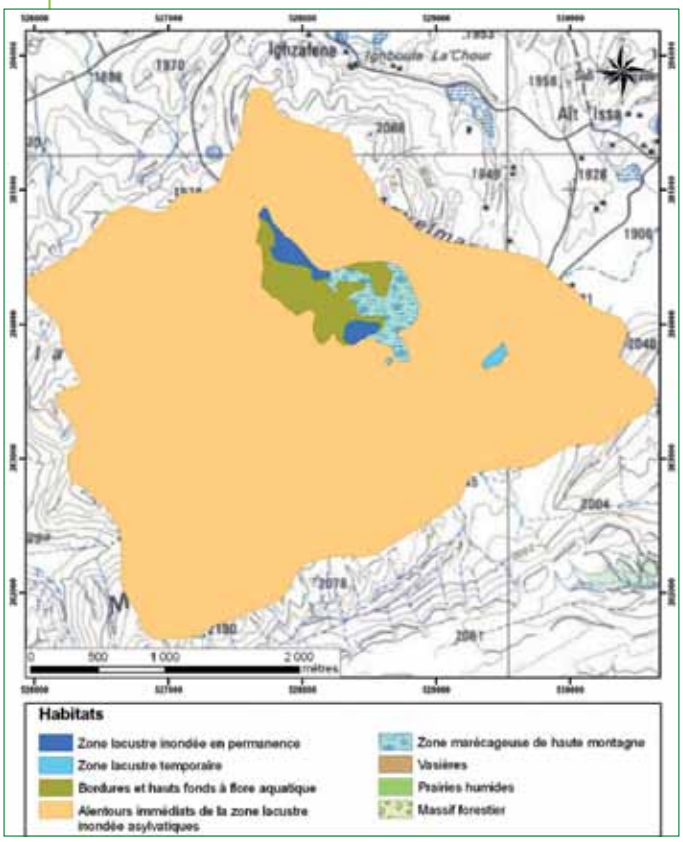
The main branches represented are the *Arthropoda* and the *Chordata* with respectively 4 classes *(Insecta, Crustacea, Malacostrata*[3]*, Malacostraca*[3]) and 5 classes (*Aves, Actinopterygii, Amphibia, Reptilia, Mammalia*). The most representative classes in terms of species richness are: the insect class with 76 species, the bird class with 47 species, and the fish class with 17 species, the majority of which are introduced species.

Group of birds, Afennourir, Morocco © L. Chillasse

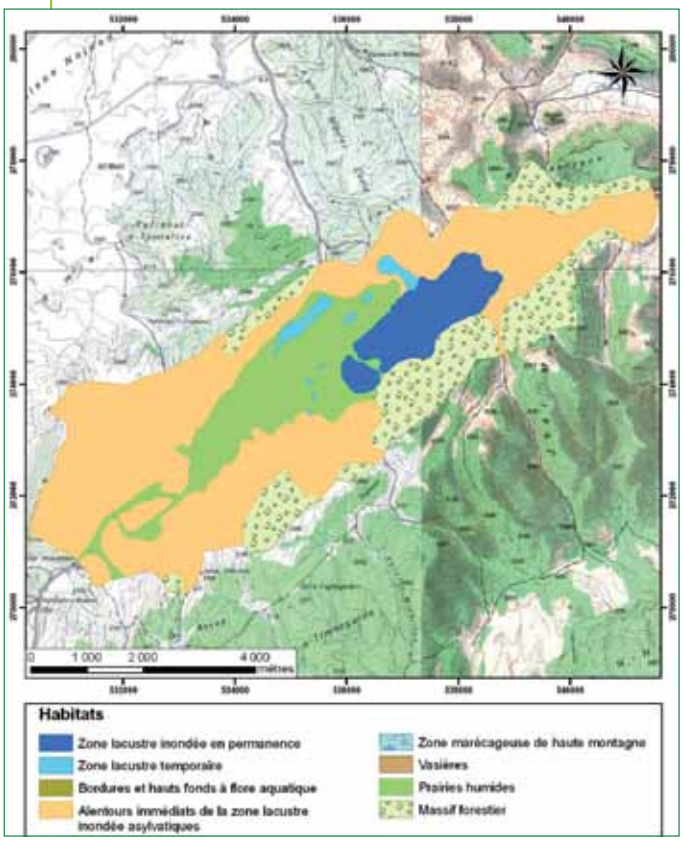
## 4. Identify and map the habitats around the targeted wetlands

The different habitats found in the wetlands of the Middle Atlas are:
- Permanently flooded lacustrine areas;
- Temporary lacustrine areas;
- Immediate surroundings of the flooded lacustrine areas above the tree line;
- Shores and shallow waters with aquatic flora;
- Wet meadows;
- High mountain marshy areas;
- Mud flats;
- Forest stands.

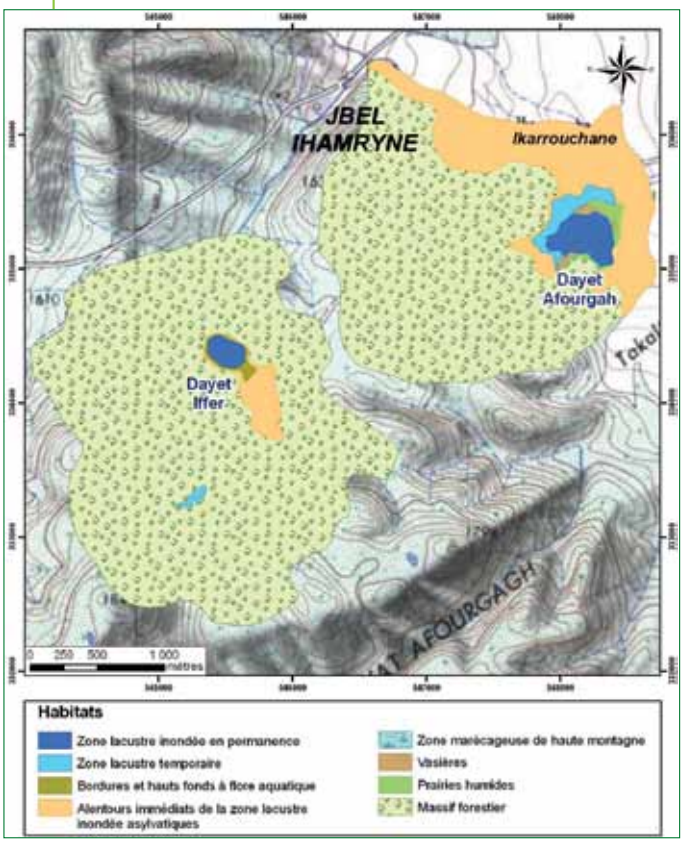
**2** MAP OF HABITATS OF AGUELMAM N'TIFOUNASSINE



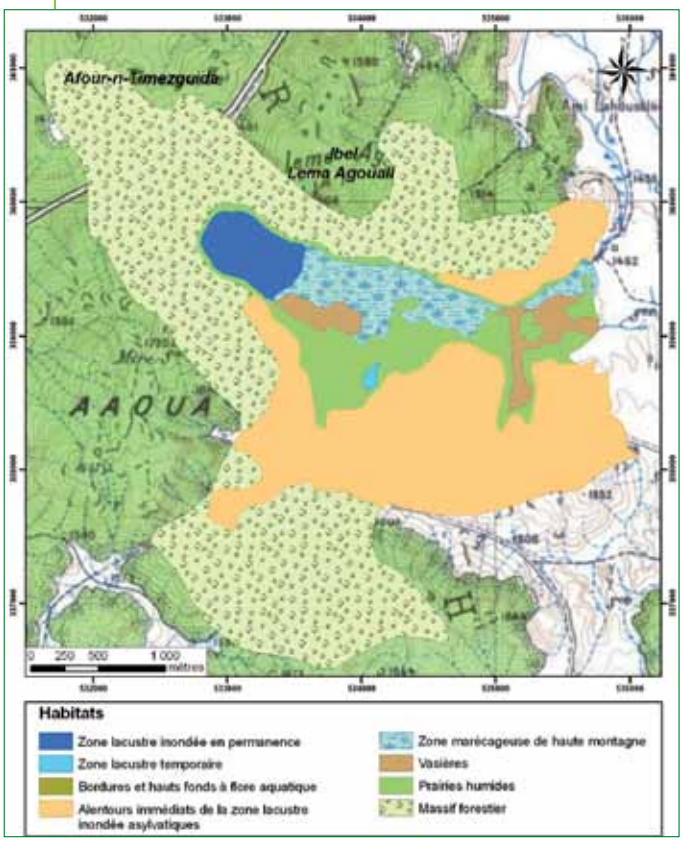

**3** MAP OF HABITATS OF THE SIDI ALI WETLAND



## 4 MAP OF HABITATS OF DAYET IFFER AND AFOURGAH




## 5 MAP OF HABITATS OF DAYET AOUA



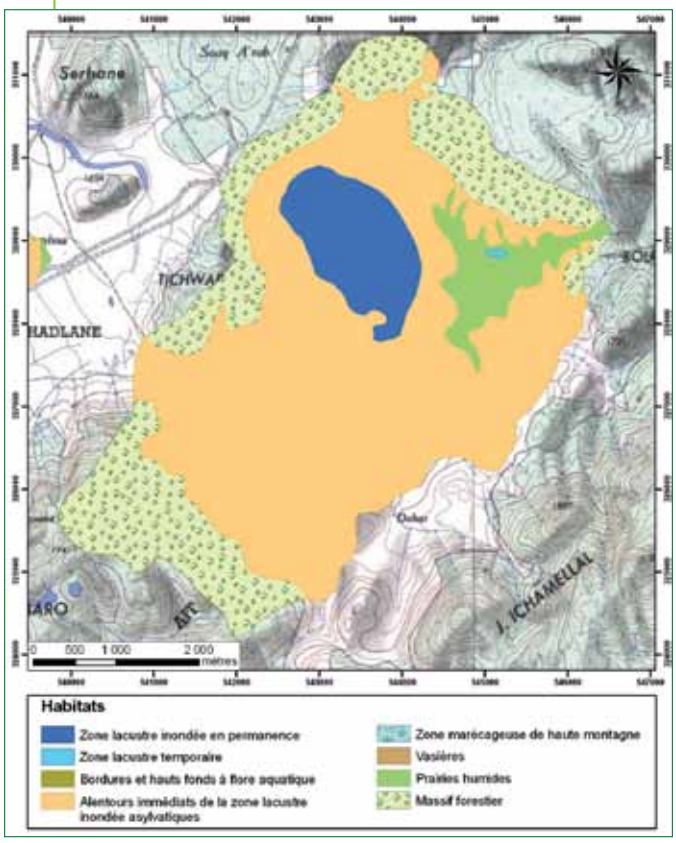

## 5. Identify the Ecosystem Services delivered by each lake

While the services provided by each lake are similar, they differ in importance from one lake to another. The inventory of services provided by each lake therefore classifies the services from most important (+++) to least important (0).
The grouped results are presented in the table below.

0 *no importance* + *service exists* + + *important service* + + + *very important service*

| Type of service | Ecosystem | Services | D. Aoua |
|---|---|---|---|
| Provisioning | Lake | Production of fresh water | +++ |
| | | Improved water quality | +++ |
| | | Production of fish | +++ |
| | Forest | Production of timber | 0 |
| | | Production of firewood | +++ |
| | | Animal production | +++ |
| | | Plant species production | +++ |
| | Meadows | Animal production | |
| Regulating | Lake | Buffer reservoir for runoff | ++ |
| | | Recharge groundwater | ++ |
| | | Reduction of flood risk by storing excess runoff flows | ++ |
| | Forest | Protection of land from erosion | +++ |
| | | Reduction of the sedimentation of the lake | |
| | | Improved underground and surface water quality | |
| Supporting | Lake, forests and meadows | Habitat of wild animals | +++ |
| Cultural | Lake, forests and meadows | Recreation and ecotourism | ++ |
| | | Environmental education / Scenic beauty | +++ |

## 6 MAP OF HABITATS OF DAYET IFRAH




## 6. Identify conservation values for the lakes

Conservation values are the components of a geographic space that are important for conservation, in the broad sense, including the land, the natural and man-made physical elements found on it, as well as supplementary values such as animal and plant species, ecological and human communities, ecological processes and essential ecosystem services.

| D. Hachlaf | D. Ifrah | D. Iffer | D. Afourgagh | A. Afennourir | A n'Tifounassine | A. Sidi Ali - Taanzoult |
|---|---|---|---|---|---|---|
| ++ | +++ | + | ++ | + | ++ | +++ |
| +++ | +++ | +++ | +++ | +++ | +++ | +++ |
| + | + | + | + | ++ | + | +++ |
| + | 0 | + | + | +++ | 0 | ++ |
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### THE MAIN CONSERVATION VALUES IDENTIFIED IN THIS STUDY ARE:

**A.** THE ENVIRONMENTAL SERVICES PROVIDED BY THE LAKES AND THE FOREST AREAS SURROUNDING THEM

**B.** THE WEALTH OF BIODIVERSITY AT THE LAKE LEVEL AND OF THE HABITATS SURROUNDING THEM. MOST HOST SEVERAL RARE AND/OR ENDANGERED SPECIES

**C.** THE LOCATION OF THE LAKES ALONG MIGRATION CORRIDORS AND THEIR USE BY MIGRATING BIRDS IN A TEMPORARY FASHION FOR NESTING AND OVERWINTERING; TO PROVIDE A ROUGH IDEA, THE MIDDLE ATLAS LAKES ANNUALLY RECEIVE OVER 6,000 WINTER BIRDS REPRESENTING SOME FORTY SPECIES[4]

**D.** THE IDENTIFICATION OF MANY LAKES AS SITES OF BIOLOGICAL AND ECOLOGICAL INTEREST AND AS PART OF THE IFRANE NATIONAL PARK.

4. Franchimont et al. Analyse de l'évolution du nombre des oiseaux d'eau hivernant dans le Maroc central au cours de la décennie 1983-1993. Porphyrio vol.6 n°1-7-94.

## 7. Analyse the institutional, legislative and legal framework of natural resource use

Mediterranean pond turtle, Morocco © L.Chillasse

A review of the literature, coupled with interviews and field visits, brought to light that after the publication of the law 10-95, potential holders of lake water user rights had 5 years to present their historic rights to the Administration for these rights to be recognized and validated, whether the lakes or springs involved were equipped or not with installation works, and whether or not there were extension works.

At present, no one holds user rights to the lake water. It is completely forbidden to draw water from a lake without the permission of the Agence de Bassin Hydraulique de Sebou (ABHS). This applies to all the lakes without exception. With regard to springs, some are regulated by the State. This generally involves a sharing of outflow, with 60% going to the local farmers and 40% to the government. These established claims were published in official bulletins.
With regard to concessions, there are two concessions on D. Aoua Lake that rent pedal boats and small electric motor boats to tourists. The area where tourists can navigate normally is limited to within 1km of the boarding point. No concessions have been awarded on the other lakes.

The basin agency has a division charged with recording these rights: the public hydraulic domain division. It is currently making an inventory of rights over the public hydraulic domain, notably springs and wadi banks.

## 8. Determine the needs of local populations and possible means of satisfying these needs within a PES framework

Afennourir, Middle Atlas, Morocco © L.Chillasse

The Middle Atlas lakes located in the mountains are part of the land of the "Tamazights". The community living in this rural area is composed of five ethnic groups: Aït Seghrouchen, Aït Youssi, Aït Mouli, Ait Ben Yacoub and Bni M'guild, who cohabit in scattered doars (villages) and whose main activities are animal husbandry, agriculture, arboriculture and exploiting the resources of the surrounding ecosystems.

Although the population density in the region is low, the natural resources are also very limited due to the poor soil, harsh climate, and lack of equipment. This leads to the overexploitation of existing resources, including wild fauna and flora.

In terms of population distribution, one may distinguish two areas. The first, to the north around the Ifrane region dayas, has several agricultural areas and sufficient underground and surface water resources for subsistence farming and fruit arboriculture with good yields. While the large farms are not always owned by the indigenous populations, they constitute a substantial source of work and income and represent opportunities for services and commerce. The second, the Aguelmams area, is situated more to the south at a higher altitude, is devoid of good soil and above all is disadvantaged by a much less temperate climate.
The geo-climatic and edaphic conditions largely explain the socio-economic situation of the local populations.

## 9. Identify threats related to pressures on conservation values

Various types of pressure are put on the conservation values identified. These pressures may be subdivided into three categories:
i) pressure on biodiversity;
ii) pressure on habitats around the lakes, notably on the forest;
iii) pressure on water.

### THREATS RELATED TO THESE PRESSURES HAVE BEEN IDENTIFIED:

- OVEREXPLOITATION OF GROUNDWATER RESOURCES AROUND D. AOUA LAKE BY AGRICULTURE
- POLLUTION OF GROUNDWATER BY SOLID WASTE, SEWAGE, AND ANIMAL HUSBANDRY AND AGRICULTURAL ACTIVITIES
- TOURISM THAT DOES NOT RESPECT THE ENVIRONMENT AT D. AOUA AND A. SIDI ALI LAKES
- DEVELOPMENT OF SETTLEMENTS CLOSE TO THE LAKES OF D. AOUA, D. IFRAH, D. HACHLEF
- DETERIORATION OF FORESTS AROUND A. SIDI ALI AND A. AFENNOURIR LAKES
- OVERGRAZING AROUND AFENNOURIR LAKE
- EXCESSIVE HARVESTING OF RESOURCES BY LOCAL POPULATIONS. THIS PROBLEM IS WIDESPREAD IN MOROCCO BUT WHAT IS MAINLY INVOLVED AROUND THE LAKES STUDIED IS HUNTING AND POACHING OF WATER BIRDS AND THEIR EGGS

### THE MAIN NEEDS OF THE LOCAL POPULATIONS ARE:

- FINANCIAL ASSISTANCE TO IMPROVE THEIR HOMES (SANITATION, FOR EXAMPLE)
- DRINKING WATER AND ELECTRICITY SUPPLIES
- SUBSIDIZED OR FREE GAS TO TAKE THE PLACE OF FIREWOOD
- CONNECTION OF SERVICES, FOR EXAMPLE BUILDING DRINKING TROUGHS, REPAIRING TRAILS
- CREATION OF EMPLOYMENT OPPORTUNITIES WITH REGULAR INCOME CLOSE TO THEIR DOUARS
- SCHOLARSHIPS FOR CHILDREN (BOARDING IN HIGH SCHOOLS IN NEARBY TOWNS)

The farmers themselves are most interested in subsidies to enable them to modify cropping practices and improve their yields.

## 10. Identify the providers of ecosystem services

Ifrah, Middle Atlas, Morocco © L.Chillasse

The providers of ecosystem services are the "land owners and users" who have the capacity to influence the delivery, in terms of quantity and quality, of the said services. In the Middle Atlas lake region there are three categories of providers: crop farmers, livestock farmers, and rural inhabitants.

**Farmers** principally arboriculturists who produce apples in the region between D. Hachlaf and D. Aoua. Orchards have been extended so that they now cover nearly all of the arable land. The farmers are largely responsible for the overexploitation of groundwater and the use of chemical pesticides.

**Livestock farmers** are responsible for degrading pastures, the lake shore and the quality of the lake water. For this category of providers the problem is relatively complex insofar as the livestock farmers are not always the owners of the herds. Their shepherds may also be considered to be service providers due to their almost permanent presence on the land and because they are responsible for some damaging activities such as illegal hunting, collecting eggs of waterfowl, and disturbing birds.

**The inhabitants of rural areas around the lakes** are the main managers of the space. They are the main users of resources intended to meet their essential needs and complement their incomes: wood[5], wild plants and animals, birds' eggs. They are also responsible for pollution through sewage, solid wastes and disturbing wild animals.

**Women** play an essential role in this region and participate in all activities including the most exacting ones. The establishment of PES schemes must therefore take gender into consideration to optimize negotiations with local people and give projects the greatest chance of success.

5. An average family in the Middle Atlas uses approximately 1.7 tons of wood per year to meet their heating and cooking needs.

## 11. Identify potential buyers and partners for the establishment of PES schemes

Dayet Aoua, Middle Atlas, Morocco © L.Chillasse

The agreement to pay for the maintenance and/or improvement of ecosystem services is conditioned by, among other factors, the intensity of demand for the service. Based on an analysis of the demand, some of the potential buyers have been identified:

**The Office National de l'Eau Potable** (ONEP) is the public body in charge of the supply of drinking water for the entire country. It provides water to operators and distribution companies but it also directly manages potable water and sanitation networks in towns where there are no distribution operators. Under a policy framework to provide potable water to all, ONEP also installs street fountains in douars that are not connected to a network.
This office has an autonomous financial and legal status and operates throughout Morocco, notably in the communes covered by this study.

**The Agence de bassin du Sebou** (ABHS). The basin agency is a government body whose role is to manage the quantity and quality of the water of the Sebou basin. Under this framework, ABHS subsidises, for example, farmers who install

## 12. Who else could play a role in a PES scheme?

### A. IFRANE NATIONAL PARK

The objectives of PES are in perfect harmony with the three main objectives first assigned to Ifrane National Park in 1994 and when it officially opened in October 2004. These are:

1. *conservation of biodiversity and its ecosystems;*
2. *environmental education and ecotourism;*
3. *sustainable development of production systems related to the use of natural resources.*

### B. LOCAL AND NATIONAL NGOS

They can ensure a link between the local population and public services. They are entities that are most familiar with the field, problems and eventual solutions. At present, the NGOs that have shown most interest in the PES approach are GIZ, the Association des amis du Parc National d'Ifrane and the Association Marocaine de la Biodiversité.

### C. UNIVERSITIES

Universities are stakeholders able to conduct technical studies and that are familiar with the field.

**20%**

**OF THE POPULATION OF MOROCCO LIVES IN THE SEBOU BASIN**

Coot, great crested grebe, grass snake, teal. Middle Atlas, Morocco © L.Chillasse




drip irrigation systems which enable water conservation. This subsidy resembles a PES. The ABHS is an essential actor in all projects aiming to protect water bodies and groundwater because this agency is the manager of the public hydraulic domain.

#### Farmers

Farmers of the Dayet Aoua region use the ecosystem services of the lakes. Some of them are relatively wealthy and potentially may pay for certain ecosystem services.

#### Spring water bottling companies

Mineral and spring water bottling companies in the Sebou basin are relatively numerous (Sidi Harazem, Aïn Saïss, Aïn Allah). They are users of the Middle Atlas wetland ecosystem services, notably those that exploit spring water. The demonstration of this link is not obvious due to the distance separating the lakes from the springs. Nonetheless, these companies may be considered to be potential buyers because they often associate the image of their product with that of the Middle Atlas and therefore they have a stake in maintaining this image.

#### Communes

Communes are essential operators in all projects undertaken in rural areas. In general, they do not have large budgets, and are unlikely to be buyers in a PES type of project, but they must be involved in identification of beneficiaries, setting up conventions and supervising activities.

#### Office National Marocain du Tourisme

This office seeks to promote tourism in Morocco. It has a communication budget but it is not certain that it would be inclined or authorized to carry out actions in the field.

#### Tourists

Visitors to Middle Atlas lakes are potential buyers.

#### The Coca Cola corporation

This multinational corporation has a bottling station in Fès and consequently uses the water of this region.

# ABOUT THIS PUBLICATION

This is the final product of the project "Development of an Approach to Payment for Ecosystem Services (PES) for the conservation of wetlands in the Middle Atlas" funded by the MAVA foundation and carried out by WWF Mediterranean Programme with the technical assistance of the WWF Macro Economics Programme (MPO) and of the Moroccan organisation "Etudes et Mesures les 5 Domaines". While this publication offers a brief summary of the main results of the PES project in Morocco, the full technical reports produced within the framework of the project are available at **mediterranean.panda.org**

Tifounassine, Middle Atlas, Morocco © L.Chillasse


**Project Coordinator**
**Dr. Meryem El Madani**
*WWF Mediterranean*
Résidence Naciria, Imm 10, Apt. 10
(Route de Kénitra)
Salé, Morocco
+212 6 61 20 99 13
melmadani@wwf.panda.org

**Head of Freshwater Unit**
**Francesca Antonelli**
*WWF Mediterranean*
Via Po, 25/c
00198 Rome, Italy
+39 06 844 97 339
fantonelli@wwfmedpo.org

**Communications Officer**
**Chantal Ménard**
*WWF Mediterranean*
Via Po, 25/c
00198 Rome, Italy
+39 06 844 97 417
cmenard@wwfmedpo.org


## Constraints and difficulties

The project assessment stage, needed to define an overall view of the situation highlighting conservation objectives and threats, is a time-consuming process but one which is indispensable for assessing and identifying the most relevant, effective and feasible conservation actions.

One of the principle obstacles to a PES scheme in the Sebou basin resides in the complexity of the rights of land and water users.

The karstic texture of the region constitutes a major constraint to understanding the hydrology of the area. This leads to difficulties in identifying and convincing potential buyers of a resource and, consequently, complicates the process of setting up a PES scheme.

WWF

**Why we are here**
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.