UNDP/GEF "COAST" PROJECT PREPARATION

CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY IN THE DALMATIAN COAST THROUGH GREENING COASTAL DEVELOPMENT

Sectoral Study

PROTECTED AREAS IN THE DALMARIAN COAST

REPORT

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February, 2005

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Acknowledgements

This Report would not be possible without inputs from many people who took part in different ways. The PAs staff had filled up the survey that has been distributed, others provided their opinions both orally and in written form, and some had been participants at the PAs thematic workshop held in Split in January 11, 2005.

My special thanks go to Minsters K. Grabar-Kitarovic and B. Biskupic for their support of this project and for meeting with me at the Croatian Embassy in Washington DC (November 20, 2004 and February 3, 2005).

My special gratitude goes to the Center of Coastal Resources Management at the Virginia Institute of Marione Science for their continuous support of my work in Croatia.

I would like to extand my special thanks to all these wonderful people for their continuos efforts in fields of environmental conservation:

- Vladislav Mihelcic, NP Kornati
- Gojko Pintur, head of the Vrasnko jezero Nature Park
- Vlatka Dumbovic, Vrasnko jezero Nature Park
- Nodilo Jakov, head of the NP Mljet
- Margus Drago, NP Krka
- Gvido Piasevoli, Public institution for PAs, Split-Dalmatian County
- Nikolina Bakovic, Telascica Nature Park
- Meri Rogosic, leader of the REC office, Metkovic
- Branka Martinovic -Vukovic, County Department of communal affairs and environmental protection
- Marina Radic, NGO Sunce
- Slavko Ružanovic, NP Kornati
- Dijana Juric, Biokovo Nature Park
- Jasminka Radovic, State Institute for Nature Protection (SINP)
- Davorin Markovic, SINP
- Radenko Dezalic, Nature Protection Division of MoC
- Kornelija Pintaric, Project Manager, KEC project
- Vlasta Franicevic, Ministry of Agriculture, Forestry and Fisheries
- Bozo Biskupic, Minister, Ministry of Culture (MoC)
- Kolinda Grabar-Kitarovic, Minister, Ministry of EU Integration
- Marijan Gubic, Croatian Embassy in the USA, Washington DC
- Lidija Gnjidic, Jurnalist, Slobodna Dalmacija, Split
- Vesna Rajkovic, Senior adviser, Ministry of Tourism
- Bojana Markotic-Krstinic, Lovinac

Note: The UNDP/GEF grant fuded all the visits to the Project area, as well as the Protected Area Workshop in Split, which made this Report possible.

Acronyms

CCA	Carrying Capacity Assessment
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EU	European Union
GIS	Geographyc Information System
IUCN	The World Conservation Union (French)
IMO	International Maritime Organisation
KEC	Karst Ecosystem Conservation
MEPP	Ministry for Environmental Portection and Physical Planning
METAP	Mediterranean Environmental Techical Assistance
METT	Management Effectiveness Tracking Tool
MoC	Ministry of Culture
MPA	Marine Protected Areas
NGO	Non Government Organization
NP	National Park
PAs	Protected Areas
PI	Public Institution (Javna Ustanova)
REC	Reginal Environmental Center
SGP	Small Grants Programme
SINP	State Institute for Nature Protection
UN	United Nations
UNDP	United Nations Dvelopment Programme
UNESCO	Unitaed Nations Educational Scientific and Cultural Organization
US	United States
USAID	United States Agency for International Development
WWF	World Wildlife Fund

I. Introduction

In general, the purpose of the Project Coast is to provide a long-term direction and a common basis for the development and implementation of integrated and adaptive management plans, strategies and actions for environmental, social, cultural, economic and institutional sustainability. The guiding principles include integrated management, ecosystem-based management, sustainable development, precautionary approach, collaboration and adaptive management.

Protected Areas (PAs) are ideal polygons where this complex approach can be implemented and evaluated with the main purpose to achieve Croatia's long-term sustainable development. In addition, the 'ecosystem-based management area framework' should be established and based on the recognition that integrated management and planning must occur in an ecosystem context with the flexibility to address requirements at various management scales and for different ecosystem types.

Therefore, the ecosystem-based management, and potential for 'protected area network' can be applied at three main geographic scales:

1) **Coastal area** – inshore/estuarine areas where *'Green corridor'* could be established based on the CRO-NEN project findings and EU Ecological Network initiative (NATURA 2000). Existing PAs can become part of the ecological network if they are connected with other functional systems by corridors (e.g. protected landscapes, special reserves), while 'cores' as no-take zones are protected by buffer areas. Therefore, the KEC project area and the COAST project area would be connected through this effort.

2) **Islands and their coastal waters** – where only about 300 km² of the marine ecosystem has been protected, mainly as parts of the coastal and island PAs (e.g. Kornati, Mljet NPs). There is a need to identify and select sites that would become part of the potential marine protected areas (MPAs) network established between and connecting existing PAs along Dalmatian archipelago. The participation and involvement of the local community is the key and 'a major must to be done' process. Therefore, one of the tasks is to prepare socio-economic assessment and relevant survey addressing community's needs, and perspective toward PAs.

3) **Open sea** (Croatian maritime zone has 31,067 km²) – this is an offshore area with no existing protection, and where 'B*lue corridors'* should be established as part of the potential MPAs network, with possible no-take zones (based on the Law on Nature Protection they would be '**strict reserves'**). This initiative is explained in the Attachment 2. MPAs network should include waters within and outside territorial sea! In doing so we could aim to establish representative network of MPAs along the virtual EEZ line. The UN Convention on the Law of the Sea provides the basis for implementing the 'high seas' MPAs.

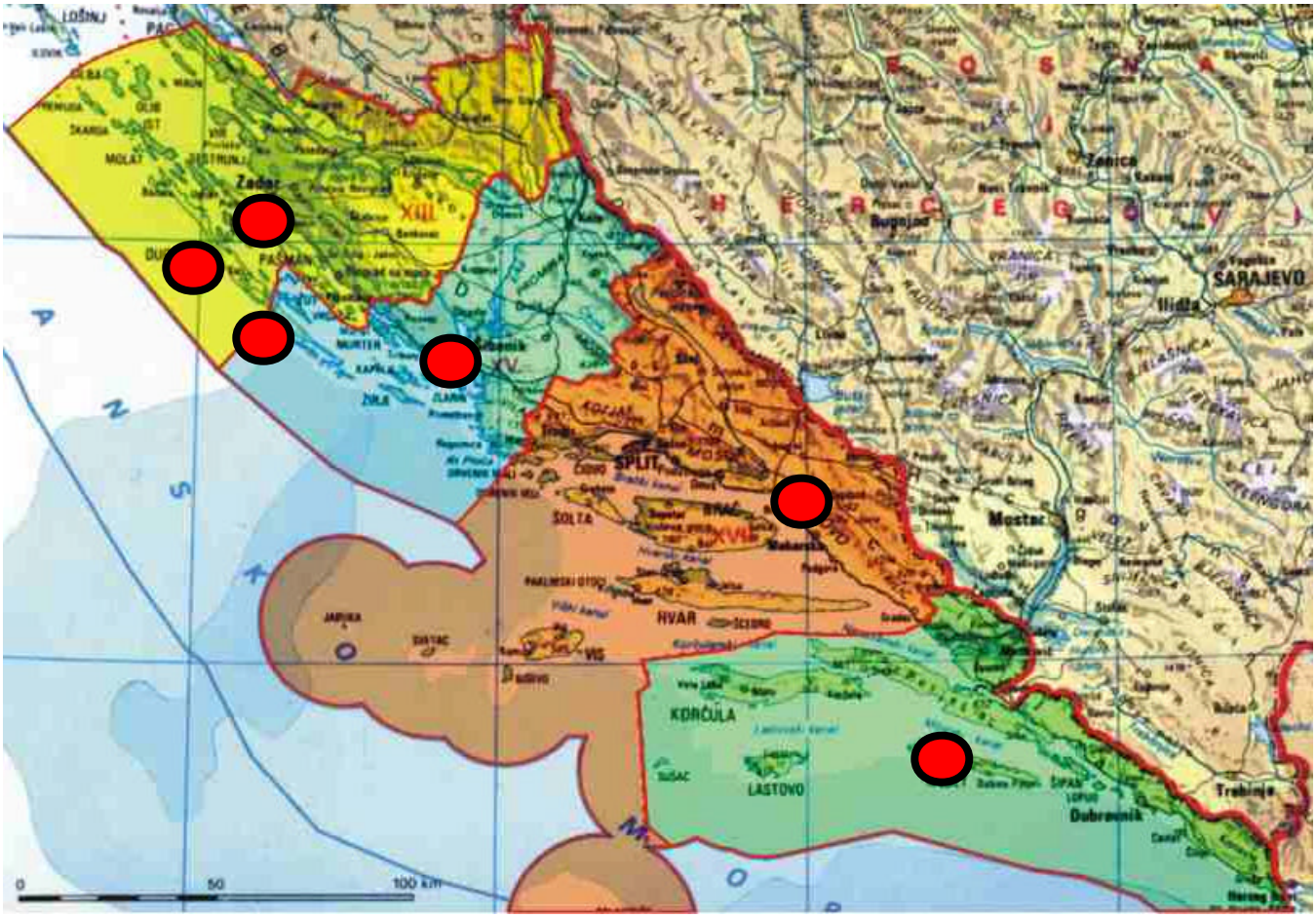
II. PAs in the Project COAST - General Assessment

Protected areas include three national parks and three nature parks devided between four Counties as presented in the Table 1 and with the Figure 1. All detailed information and data about the PAs can be found on their Internet sites. This chapter presents and adresses identified issues and problems related to PAs on the national, regional and local levels, as well as provide potential solutions and recommendations (summery presented in the Table 2).

Table 1. PAs in the Coast Project Area

Name	**Mljet National Park**	**Kornati National Park**	**Krka National Park**	**Biokovo Nature Park**	**Telascica Nature Park**	**Vransko jezero Nature Park**
Established	1960	1980	1985	1981	1988	1999
Area (ha)	5,375	21,800	11,100	19,550	6,706	5,700
Employees	32	19	92	5	35	7
Visitors (2003)	100,000/ 2004	50,200	515,031	40,000	87,200	10,000
Settlements	8	31	23	10	1	0
County	Dubrovacko-neretvanska	Sibensko-kninska	Sibensko-kninska	Splitsko-dalmatinska	Zadarska	Zadarska / Sibensko-Kninska
Internet	www.np-mljet.hr	www.kornati.hr	www.npkrka.hr	www.biokovo.com	www.telascica.hr	www.vransko-jezero.hr
Email:	np-mljet@np-mljet.hr	np-kornati@si.tel.hr	ravnatelj.npk@npkrka.hr	park-prirode-biokovo@st.tel.hr	telascica@zd.htnet.hr	pp-vransko-jezero@zd.htnet.hr
Land-use plan	2001	2003	Management plan	in preparation	1990	in preparation

Fig. 1. Project Coast Area includes the whole Dalmatia; different colours represent four counties with red points for each PA in the project area.



General issues in the project area PAs

In a summary, the major issues include inadequate financing, low visitor fees, lack of benefits to local communities, inconsistent enforcement of low and regulations, low environmental awareness and education on all the levels, lack of professional capacity and knowledge. Most of the below identified issues represent potential barriers to COAST Project implementation. In addition, during meetings, workshops and discussions it has been emphasised that without direct support of PAs and their local communities this Project would miss solving the major problem: *the lack of understanding and support (again at all levels) for biodiversity conservation and responsible uses within and outside of the PAs as the main base for economic sustainable development of the country*.

1. National Level Issues

A) Protected areas lack unified system of National parks and Nature Parks. Which means, no existing unique system of signalization, information, education, training, management, web sites, similar uniforms that would be recognized by visitors and tourists. This was addressed in the KEC project preparation, while in the KEC implementation phase it is addressed through the preparation of management plans for PAs in the KEC project area. However, recent shift of PAs from the Ministry of Environmental Protection (MEPP) to the Ministry of Culture (MoC) does not help exacerbating issues related to PAs administration, regulation and sustainable functioning of the parks.

B) The management of national and nature parks is based on physical plans, which preparation vary from park to park, and some of them do not have physical plans yet (it seams to take 5 years to make one physical plan!). Also, their preparation is based on the County plans, and there is no unified form and system established for preparation of the physical plans for PAs. On the other issue, if the PA has a physical plan it is very hard to obtain a copy. It was suggested that it should be provided for public on the PAs Internet page (e.g. the National Parks in the US provide free copies for visitors). The physical planning falls under the MEPP, Division of Physical Planning, while Counties prepare and implement counties and PAs physical plans, and report directly to the MEPP. The current Law on nature protection (NN 162/03) requires each PA to develop a management plan in addition to the physical plan! This work has been initiated through the KEC project and the first pilot management plan is in the process for the Risnjak NP.

C) Within the government structure the PAs management and regulations include: Parliament, Government, MoC (Nature Protection Department), State Institute for Nature Protection (SINP), Public Institution (PI) a county

level environmental enforcement (although County of Sibenik does not have it); and Advisory Board (Upravna Vijeca) appointed by the Government. It was stated that Advisory Boards are not adequately organized and selected in order to support PAs. Advisory Boards range in size (7-10) and include representatives of ministries, scientific institutions, counties, municipalities, and local stakeholders. Its role is to provide advice, supervise management of the PAs, and report directly to the Government.

D) **Funding**: Parks are financed by a combinantion of self-generated revenues (visitor fees), and from the MoC budget. Self-generated revenues are not sufficient to render the parks financial self-sufficiency. Government financially supports each of 18 PAs (national and nature parks that are under state jurisdiction) with ~ 300,000 KN/year (~ 40,000 €). Total budget for the last year was 8 mil Kn (1.1 mil €) for PAs, and for 2005 the budget is only 5 mil Kn (700,000 €)! This amount includes support for the Ministry's Nature protection department and the State Institute for Nature Protection (SINP). Actually, the Croatian PAs are functioning superbly with the money they receive. In comparison, Greece' s budget in 2004 for their PAs was 100 mil. Euros.

E) Nature Conservation Department has published beautiful informative brochures on the National and Nature Parks, but there are no more copies left! And there is no funding left to support second publishing. Tourism could help this initiative in order to promote different type of tourism activities for the next season, and throughout the whole year (excellent example is Paklenica National Park that receives tourists throughout all 12 months).

F) There are two nature parks in the process of establishment: Lastovo and Neretva. They are presented in the County physical plans and are in the process to be accepted by the Governement. The main problem is negative perception by local communities toward protected areas in their 'back yard'.

G) Policy & Legal issues – Although the current Law on nature protection requires that each PAs has to develop a management plan in addition to the physical plan, the language needs to be improved and more specific. For example, the language should be improved in the article 182 on PAs management plan in the Law on nature protection (NN 162/03). The Law should state that local communities should participate in a preparation of the management plan from the beginning of the process. The Law should also improve language in the article 166: organizing obligatory training programs for PAs employers on how to develop and implement management plans, how to identify mission and vision, how to prepare monitoring plans, interpretation-education programs, etc. In addition, it needs concrete language for the Parks System etablishment! http://www.nn.hr/clanci/sluzbeno/2003/2321.htm

2. County and Local Level Issues

A) One of the major problems at the regional and local level is a conflict between local population and PAs, mainly due to a negative perception of local communities toward PAs, and unresolved private property issues.

B) Regarding Parks operation ther is a huge problem in controlling and supervising the protected areas! Specifically regarding islands and remote archipelagos. There are not enough park specialized staff (e.g. rangers); there is a need for better transportation units; there is no boat available for daily patrolling and controlling of the PAs. Another problem related to this is a current free passage through the parks that are on marine paths. It was suggested to change main transportation routs through the Parks, but without success (Kornati NP was recently declined this request).

C) There is a good example in the Lonjsko Polje Nature Park that addresses solutions to issues with local communities. As part of the LIFE project, this Park established the Collaboration Board ("Suradnicko vijece") with 22 members, as representatives of all stakeholders (all municipalities, counties, and local users, hrvastke sume, hrvastke vode, agriculture, etc) related to the Park. They meet 1-2 times a year, it is on volunteer bases, and they address every single issue there is, and try to find a common solution. Up to now it has been very successful, and the MoC/Nature Consrvation Department, is planning to share this experience with other PAs as well.

D) It is very hard to find and hire professional staff for the Parks, especially from the local communities. Most of the Parks have problems with uncontrolled and illegal hunting and fishing, and local communities have negative perception of PAs. It 's mainly due to private property ownership issues within PAs, where ownership rights and legal status have not been solved; and there also lack of environmental awareness. Insufficient and rare are collaborative efforts between different sectors within and outside the PAs (land use plans, biodiversity conservation, tourism, agriculture, forestry, fisheries, transportation, etc). The incentives, regulations and policies should be established in order to support local communities to be able to market their autochthon, traditional, and certified produces in the PAs.

E) Science & Technology needs – all parks have established scientific projects, which are approved by the MoC on the yearly bases, depending on the available budget. However, PAs still need to establish comprehensive and detailed database and monitoring systems: biodiversity assessment and mapping (GIS); cultural heritage assessment and mapping (GIS); socio-economic assessment and mapping (GIS). Table 3 provides a list of scientific projects in the PAs for 2003.

F) Regarding establishment of the new protected areas, and potential MPAs one of the main obstacles is a legal issue. The request for establishment of a reserve site under the sea has to be done by the County's Public institution based on the scientific studies. Public institution for local protected sites can also be established by municipalities (e.g. Komiza has it for a Bisevo cave, so that they can collect visitor fees!). The current Law should be improved by amendments that would support and better control and justification of establishment of local protected areas. However, this would not make sure that real protection is in place! Control of activites is more important than estblished protection on paper. For example, the new Low for Physical Planning (*Law 100/04 article 45*) is very supportive regartding controlling the activites along the coast and islands. This new article *45.a* requires that each island has to have only one, unified physical plan (all municipalities will have to work together on one plan).

G) Other problems include: PAs management plans and tourism development cannot be made without baseline scientific data and environmental assessments (GIS maps of biodiversity, habitats, ecosystems, cultural and archaeological areas). Tourism strategy plans would be difficult to make with no visitor/ information centres and transportation systems in the Parks. The solution should be to prepare comprehensive and integrated PAs management plans, establish monitorning programs, identify types of "uses" within appropriately zoned areas, establish additional financing mechanism in order to have sustainable "green economic development".

H) Regarding the Small Grant Programme (SGP) it was suggested that this program should be initiated through the PAs and counties, which would establish better relationship with local communities. However, the problem is again the need for assessment of ecologically sound activities in the PAs (what, where, when and how). Each PA exactly knows what it needs and how to do it, but it lacks financial and expert/staff support.

PAs Management

PAs management needs to link management of protected areas with social and economic development of local communities! The management goal is to take the ecosystem and landscape approach in conservation and work with communities within and around PAs to further conservation objectives and sustainable development of the area. How is it possible, and how will the Coast project make conservation and development compatible?

Although PAs are designed for conservation of wildlife and cultural heritage, they should be used together with selected **demo sites** as drivers and providers for social and economic changes. However, Parks are currently ill equipped to address socio-economic issues (e.g.

poverty alleviation, land tenure and resource allocation, social and economic injustice and market failures).

Ideally, the Park management strategy and plan should achieve **six main conditions** to become long term efficient and sustainable:

1) **Clarity in conservation goals and objectives** – vision and mission for each Park has to be based on the national vision and strategy for conservation (other Ministries should be involved in this process). The problem in Croatia is that conservation is not incorporated in most sectoral strategies, notably in those of the tourism, forestry, fisheries and agriculture, and physical planning sectors, which have potential great impacts on biodiversity and PAs.

2) **Supportive policies** (local, regional, national and international) – it has been clear that government policies and their application often cause biodiversity loss and threats to parks: in general, there is a lack of political commitment for conservation, which reflectes in the weakness of conservation agencies (Ministries) and a lack of adequate financing for park management.

3) **Effective social processes and alliances** (participation and partnership with local communities) – this means that wherever possible local communities should benefit from park-generated revenues (e.g. tourism income, employment benefits, tax incentives); management should provide transparency and fairness in deciding what uses are permitted, when, where and by whom; local ownership is a big problem and management/policies/regulations should ensure that local communities retain benefits not available to outsiders (fostering local stewardship for conservation). How to solve the problem with poachers? Maybe one solution is to turn them into gamekeepers and fish keepers.

4) **Appropriate incentives for biodiversity conservation and linkages between conservation and development** – this relates to sustainable uses and establishment of zoning within the Parks and creating buffer zones around the Parks. Comprehensive and integrated PAs management plan will identify types of 'uses' within appropriately zoned areas, looking for additional financing mechanisms in longer terms (lessening dependence on unpredictable government budgets). In addition, the idea is to establish a type of a **trust fund or PAs Foundation (e.g. Croatian Conservation Foundation)** that could provide revenues from different sources (e.g. yearly memberships, donations, tourism fees, payments for ecosystem services, watershed services, etc.). Currently it is opposite: the PAs are paying government taxes for water use, electricity, wastewater etc.

Tourism (responsible and nature-based tourism) is the main economic activity in the PAs. The issues identified in this field include: absence of appropriate tourism programs, poor control, weak monitoring capacities; lack of implementation of policies, regulations and low penalty fees. PAs need comprehensive management and business plan that will also address tourism development both within and outside the

Parks (e.g. sustainable uses/activities, carrying capacity, zoning, concessions, development of "green" transportation systems, establishment of Visitors centers, educational and interpretation programs, improved technical monitoring and control capacities). It should also consider establishment of network between PAs, Public Agencies for PAs, Tourism Associations and private sector. This approach will create more opportunities for development of specific and targeted types of nature based tourism and broaden currently short tourism season throughout the year! (Good example is the Paklenica National Park)

5) **Awareness, knowledge and capacity to conserve biodiversity** – there is an urgent need for better public-private partnerships; greater role of NGOs, and local communities in PAs, in order to build 'local ownership' and support of PAs! It is essential that PAs become examples of not only how to best conserve natural and cultural heritage but also present solutions of current environmental problems in the country and the region. This can be done by presenting adequate interdisciplinary scientific knowledge and applied technologies. Alternative and environmentally friendly technologies should find their place in PAs as swell as in selected demo-sites! Specifically regarding sewage and effluent treatments, energy sources, recycling and garbage disposal, eco-housing, etc. All sectors of the Coast project and their interdependence should be presented in the PAs.

6) **Clear monitoring indicators to have flexible and adaptive management** – good example is the Management Effectiveness Tracking Tool (METT), developed by the World Bank/WWF (2003); METT is an example of a framework for assessing management effectiveness of PAs and PAs systems; it helps tracking and monitoring progress in PAs management; (www.forest-alliance.org)

Regarding PAs, the Coast project should use already developed METT data sheets with criteria, which could be adapted for each PA. In addition, due to complexity of the Coast project, it would be good to establish monitoring framework of natural and socio-economic indicators to monitor the progress during the project implementation phase (see Appemdix 2 with Tables 1 and 2). With the reference to the ongoing KEC project, there has been identified a lack of socio-economic indicators! Suggestion is to preform a detailed socio-economic assessment in the PAs as well as in the selected demo-sites.

Collaboration with the KEC project

The PAs staff have recognized important benefits from the KEC project through their collaboration and sharing of knowledge and information. During the implementation of the KEC project many training workshops were organized, as well as study tours, where all National PAs were invited to participate. Currently there are several areas of interest to the Coast project and PAs:

1. Preparation of the management plans for PAs in the KEC project area, with the first pilot plan for Risnjak National Park. The agreed format of the management plans fulfills the legal obligation given by the Croatian law and follows international standards (e.g. IUCN, WWF). It was agreed that a two-part plan would be used consisting of a) the strategic part, which will provide a framework and general guidelines for the PA management plan; and b) a second part containing of the 'action plans' for species, topics and areas needing special attention. Beside the KEC PAs, other park staff participated in the working groups on drafting national PA zoning standards! This is significant because it is important that the management of all parks in Croatia is based on the unified vision for PAs management planning and implementation.

2. The KEC project prepared a survey with their PAs on sustainable nature based tourism in the Parks. A survey methodology was determined working with a range of stakeholders including park managers and tourist authorities. Three questionnaires have been prepared (in English, German, Italian, Czech and Croatian) to be field out by tourists, visitors, tourist agencies this past summer season. It would be great to follow up on the results and ask for copies of the surveys.

3. Small Grants Program – The KEC project established conservation and rural revitalization program grants. The goal is to enable individuals to carry out activities that contribute to achieving the goals and objectives of sustainable development (environmental conservation and economic sustainability). This program finances entrepreneurial projects that demonstrate linkages between sustainable uses of natural resources, economic development. And biodiversity conservation. The local communities have very successfully accepted this program. The only problem is a high application rate (over 100), while only 10 were selected due to lack of funding (in the first phase it was US$150,000, total is 500,000). Also, the bureaucracy of the whole procedure has slowed the process and delayed delivery of funds to the recipients. Norwegian Ministry of Foreign Affairs has contributed additional US$200,000 to this program! Something to follow up with and share with the Coast project. The draft idea for the Small Grants Program (SGP) is presented in the Attachment 5.

Note: The SGP has been specifically supported and aknowledge as a great idea by the Minster Biskupic, the MoC, and SINP!

Solutions and recommendations

Most of them are summarized and presented in the Table 2 together with identified issues.

Accordaning to the general Project objectives, most of the identified activities in PAs are related to tourism sector. Thereofre, each PA needs a Carrying Capacity Assessment (CCA) tool with the appropriate monitoring system established. This should be part of the tourism management plans and business/marketing plans for PAs. The important role concerning this task will have the State Institute for Nature Protection (SINP) as part of the Ministry of Culture (MoC), as well as respective tourism boards and local stakeholders. The need to establish e.g. Croatian Conservation Foundation has been identified because it could provide revenues from different sources (e.g. yearly memberships, donations, tourism eco-fees, payments for ecosystem services, watershed services, etc.). The idea to establish the Foundation was supported by the SINP and PAs representatives.

The Full Project should include, if possible, preparation of at least one management plan for a selected PA as a pilot one, while others should be supported by the National Fund for the Environment or available EU funds (e.g. PHARE, CARDS). In addition, the Full Project activites should include preparation of tourism/visitor management plans for the counties in demo-areas and PAs that include interpretation, education and information materials and marketing tools. PAs should be adequately involved in tourism development in the region (counties). Support should also be provided for eco-certification process in PAs, local communities and their autochthon, organic and ecological produces (e.g. support from the Small Grants Programme).

Visitor educational paths for identified activities should be developed: olive oil, vine, cheese, figs and fruits, medicinal plants and herbs, honey, etc. Help should be provided to establishment of a long-term vision and plan for green and blue corridors along the coast and islands (already started with the KEC project) as a base for sustainable development.

Potential Funding Sources:

- The World Bank – CAS approved 1.5 bill US$, and one of the priorities is to support activities related to sustainable development and protection of natural and cultural heritage: http://siteresources.worldbank.org/INTCROATIA/Resources/CAS_Nov24-2004_CR.pdfEU - INTERREG, PHARE, CARDS, SAPARD: http://europa.eu.int/comm/enterprise/services/tourism/tourism-publications/documents/internet_guide_en04.pdf http://www.welcomeurope.com/news_info.asp?idnews=1091 http://www.welcomeurope.com/prog.asp?Pgm=11340 http://www.welcomeurope.com/prog.asp?Pgm=11491 http://www.eugrants.org/choices_list.asp EU FP6 Program: http://www.cordis.lu/fp6/accession_info.htm Dutch Eco-Labels: http://www.welcomeurope.com/news_info.asp?idnews=1019EU LIFE: http://europa.eu.int/comm/environment/life/life/environment.htm http://www.strategyguide.org/bioserve/implemen/funding.html#fundcountry JICA and Asian Development Bank, NIPPON: http://www.nippon-foundation.or.jp/eng/how/other_fields.html

Table 2. The list of issues, causes and potential solutions in the PAs (based on the received survey responses, meetings, and workshop discussions):

Problems/issues	Couses	Potential solutions
Ilegal building	Due to ineffective control and regulation, and overlapping of controlling agencies/ministries	some parks need new physical plan where the local communities and land owners will be initiators and real 'carriers' of the plan; development of the Park's vision and mission together with the local communities and land owners; development of the management plan
Ilegal fishing/hunting	Depletion biodiversity and degrading the PAs as an institution for conservation; unsupportive local population;	Management plan with EA monitoring of species; develop yearly and long term management of species; management plan for recreational fishing and controlled hunting in zoned areas; Hiring responsible rangers and strict implementation of parks regulations; Increase of fines for illegal fishing; organizing educational workshops, presentations, and meetings with topics related to conservation of habitats; Providing special permits for local people and hiring them as guards and controlers;
Accumulation of debris and waste	Due to unaware/uneducated people, no clean up activities and no organized recycling and trash collection	Management plan and physical plan for the county with designated sites for waste; educational programs, building up public awareness; better control; applying regulations and increasing penalty fees;
Lack of controlled and organized visitation	Insufficient collection of entrance fees; insufficient and inadequate Park information and no signalization; there is no informative/visitor center	Management plan with tourism plan and strategy Visitor centers (most PAs lack a visitor ceneter), interpretation guides, training courses for staff, controlled PA entrances for visitors; better control in the PA (needs better transportation support with boats and cars); Educational programs
High institutional debts	Expensive and ineffective organization of the Parks not enough professional staff, low quality work	need for new professional enthusiastic young people (preferably from the local areas, and Park's land owners); provide them with seminars, workshops, training courses, etc
Insufficient research, lack of monitoring of natural and cultural values/heritage	Insufficient base line data; mainly due to very high expenses for research projects; depending on gov. funding of external scientific projects; lack of scientific staff in PAs;	Management plan based on environmental and socio-cultural assessments; establish research center within Parks with adequate accommodation, laboratory equipment, diving equipment, boat, etc.; increase funding for research and monitoring; recover and preserve archeological sites;

Traditional /cultural activities are disappearing	Neglected cultural traditions; uninterested and not stimulated land owners; pastures are not maintained (successions); degradation of agricultural fields and traditional landscapes and architecture;	Providing incentives/loans/grants for traditional activities and linking them to island-rural-tourism and conservational goals of the Park (Small Grants projects); rural/traditional tourism development; With management plans introduce integration of small parcels into larger ones to insure agricultural production; provide marketing within and outside PAs;
Lack off/insufficient /outdated physical plans (cause and issue)	Slow administration and lack of collaboration and cooperation between Pas and county officials;	Better implemntation of laws and policies: management plan required for PAs should be based on well developed and current physical plans;
Conflicts with local communities	Unregulated private properties and ownerships within PAs Old cataster, lack of financing for this issue	Buying out lands by the PAs; providing substitutes for owners; alowing identified sustainable uses and activities (e.g organic farming, cattleing); special permits for locals; providing jobs in PAs;
Fires	Lack of funding, lack of anti-fire roads; Lack of equipment for stoping fires	Management plan, increase funding for fire controlls, ducational programs for visitors and local communities;
Lack of energy and water supply on island parks	Insufficianl infrastracure, ditstant islands, Expencive alternative technologies; increased # of visitors;	Management plan; collaboration with industries and scientific institutes providing alternative technologies; support from Government; Tourism plan development with carrying capacity; tourist season through out a year;
Unstable water levels in PA Vransko j. (degradation of marshes)	Melioration and intensive agriculture in PA watershed; uncontrolled exploatation of small water springs by local towns	Increase PA borders; better regulation of water in and outside the PA (Management plan); collaboration with Hrvatske vode and establishment of biological minimum for water use in springs;
Eutrophicatio n in PA Vransko lake	Intenzive agriculture (nutrient inputs, high sedimentation in shellow lake); meliration and use of chanel Prosika	Mitigation of marshes (to replace some agricultural lands within PA); develop extensive and organic agriculture; limited use nd control of Prosika chanell; EIA study;

Table continues with a list of activities needed in each PA (V), and suggested needed funding:

Technical needs/ potential activities in PA	**Kornati**	**Telascica**	**Vransko j.**	**Krka** (did not respond to the survey)	**Biokovo**	**Mljet** (did not respond to the survey)
Management plan	V	V	250.000 €		V	V
Transportation vehicles	V	91.373 Kn	250.000 €		V	V
Visitor center facility	0.5 milVrulje 1.5 mil Murter	V	1,500.000 €		V	
Information center	V	71.730 Kn	V		V	
Improve Biodiversity assessment study	V	V	V		V	
Improve Socio-economic assessment study	V	V	V		V	
Integrated GIS maps with baseline data for each park	V	V	130.000 €		V	
Electrical cables between Sali and Mir bay		405.000 €				
Building anti-fire roads		310.765 Kn				
Waste water treatment		V				
Public restrooms	V	V				
Biking paths		V			V	
Visitor paths/hiking Educational paths	V	V	V		V	
Information and interpretation system of panels	V	V	V		V	
Mooring buoys	V	V				
Sustainable tourism plan	V	V	400.000 €		V	

Hydrological/waters hed study			170.000 €			
Traditional agriculture and organic farming	V	V	500.000 €		V	

Suggested technical assistance for PAs	**Aproximate Cost Needed for each PA**
Inventory and mapping of biodiversity components in PAs	300.000 €
Inventory of karst hydrological and geological formations/data	50.000 €
GIS equipment	200.000 €
PA system marhet analysisand marketing plan	80.000 €
PA ranger training programs	25.000 € (done by KEC project can be replicated)
Guidelines for local and NGO participation in PA management	55.000 € (check with KEC project for examples and replication)
National PA management and planning guidelines	90.000 € (done by KEC project and should be used)
Prepare PAs promotional materials (providing the same system of information and interpretation)	50.000 €
Small Grants Program	Total: 1.5 mil €
Training in interpreataion and education of PA staff	25.000 €
Facilities and equipment for interpretation and education	200.000 €
Develop local tourism capacity	40.000 €

Table 3 . List of Research Projects in each PA during 2002 and 2003:

Research projects in 2002 -2003 - KRKA National Park					
Project #	**Projecta leader**	**Project name**	**Year**	**Finialised**	
1.	N.Cukrov, M. Branica, G. Mihelcic	Geochemical research of travertine bariers in NP "Krka"	2002	Yes	
2.	PMF Zagreb	Baterflies of NP "Krka"	2002– 03	No	
3.	PMF Zagreb	Perifiton communities on travetine bariers and their role	2002– 03	No	
4.	Institute of turizam, Zagreb	Evaulation of tourism in NP "Krka"	2002 – 03	No	
5.	GISDATA d.o.o. Zagreb	Development of digital ortho-photo plan for "Krka"; digital qualification and quantification of land cover	2002 – 03	No	
6.	Hrvatski prirodoslovni muzej	Inventory and research of herpeto and amphibian founa	2003	No	
7.	Zavod za ornitologiju HAZU Zagreb	Inventory of ichyofouna	2003	No	

Research projects in 2002- 2003 - TELASCICA Nature Park

1.	M. Juracic	Geological and geomorphological inventory	2002	Yes
2.	Tatjana Bakran-Petricioli	Inventory of undersea biocenosis in the bay Telašcica	2002	Yes
3.	Antonieta Požar-Domac	Inventory of litoral biocenosis and species	2002-03	No
4.	Vesna Štamol	Inventarory of terrestrial snails	2002-03	No
5.	Boris Liovic	Phytophag insects	2002	No
6.	Branka Anicic	Geomorphological mapping, part of the field teaching	2002	Yes
7.	"BIUS"- Luka Jurinovic	Research of Sea gulls	2002	Yes
8.	"BIUS"- Ana Ostojic	Inventory of flora	2002	Yes
9.	"BIUS"- Tvrtko Dražina	Speleological inverstigation	2002	Yes
10.	Marija Kuljeric	Reseach of karst lizard (*Podarcis melisellensis*)	2003-05	No
11.	Tatjana Bakran-Petricioli; Donat Petricioli	Investigating the cold sea cave on the island Veli Garmenjak – habitat of *Asbestopluma hypogea* (carnivorous sponge)	2002	No

Reseatch projects in 2002 – 2003 - BIOKOVO Nature Park

1.	Damir Lackovic	Inventory and presentation of geomorphological phenomena	2002-03	No
2.	Irena Grbac	Biodiversity inventory of herpetofouna and amphibians	2002	No
3.	Marija Edita Šolic	Inventory of flora	2003	No
4.	Roman Ozimec	Inventory of founa in caves, springs, and bat habitats; biospeleological mapping	2003	No
5.	Mladen Kucinic	Research and inventory of lepidoptera	2003	No
6.	Damir Lackovic	Speleological research and inventory of deep karst caves	2003	Yes

Research Projects in 2002-2003 - VRANSKO JEZERO Nature Park				
1.	Dragan Radovic	Winter migration of crnoprugastog trstenjaka and bird ringing in the marshes of the Lake Vrana	2002-03	Yes
2.	Dragan Radovic	Research of nesting of eagrets and *Phalacrocorax pygmeus* (mali vranac)	2002	Yes
3.	Dragan Radovic	Quantitative research of nesting bird species in the Ornithological reserve	2002	Yes
4.	Dragan Radovic	Birds ringing actions and research of migration across this area	2002	Yea
5.	Dragan Radovic	Inventory, categorization and evaluation of bird species and habitats in teh Nature Park	2002-03	No
6.	Dragan Radovic	Ornithophouna ringing in the NP	2002-03	No
7.	Milorad Mrakovcic	Inventory, categorization and evaluation of flora and founa in the NP	2002-03	No
8.	Tonci Rada	Biospeleological research in the whole area of NP	2003	No
9.	Dragan Radovic	Monitoring of ornithophouna in the NP	2003	No
10.	Vesna Tutiš	Owls in the NP	2003	No
11.	Stjepan Krcmar	Inventory and evaluation of *Tabanidae* species (horseflies)	2003	No
12.	Tomislav Bogdanovic	Inventory and assesment of *Odonata* species (dragonflies)	2003	No
Research projects in 2002 - 2003 - KORNATI National Park				
1.	Vesna Tutiš	Assessment of *Bubo bubo* (eagle owls)	2000-03	No
2.	Dragan Radovic	Ringing od *Larus cachinnans michaelis* (yellowlegged gull): research of their presence in the Adriatic sea in comparison with Mediterana, Atlantika and North Sea	2002-03	No
3.	Tadej Dolenec	Sampling of eggs of *Larus cachinnans michahelis:* research of izotops of nitrogen, carbon, and heavy metals	2003	No
4.	Sanja Gottstein Matocec	Research of aquatic undergroudn founa species in certain caves in NP	2003	No
5.	Draško Holcer	Research of bottlenose dolphin (*Tursiops truncatus*)	2002-03	No
6.	Vladimira Vadic	Monitoring and research of precipitation of atmospheric metals and anions in Vrulje station (island Kornat) and ozon monitoring	1998-2003	No
Research projects in 2002 – 2003 - MLJET National Park				
1.	Miroslav Benko	Management of forests with special tasks	2002-03	No
2.	Boris Vrbek	Quality and dinamics of underground waters in forest ecosystem	2002-03	No
3.	Boris Vrbek	Exposition of forests to harmful imepcts and strengthening their protection	2002-03	No
4.	Adam Benovic	PROJECT Jellyfish: internacional research of jellyfish zooplankton in the Adriatic	2002-03	No

III. County PAs Assessment

Summary of PAs in each county is presented in a table below. It is important to note that considering he COAST project area, the total surface area of national and nature parks (6) involved in this project, is about 702 km², which is only about 2.1% of the total counties area (32,680.5 km²). PAs that are not considered by this project are Paklenica National Park, 102 km² (Zadar County), and Velebit Nature Park, 2000 km² (belongs to three counties). If these tow PAs are included in this calculation, the percantage of protected areas in four counties would be 8.5%.

Category	**Zadar county**	**Sibenik county**	**Split county**	**Dubrovnik county**
National Parks	1 (Paklenica not in project)	2 (Krka, Kornati)	-	1
Parks of Nature	3 (2 in project)	-	1 (Biokovo)	1 (Lastovo)?
Special Reserves	4	-	3	7
Protected Landscapes	2	9	14	8
Park Forest	1	1	1	9
Nature Monuments	3	1	24	7
Horticultural monuments	4	-	4	9
Strict reserves	-	1	-	1

Source: http://www.mzopu.hr/doc/karte-image-1-21/21PPZ_WEB.htm

1. County of Zadar

Source: Land-use plan of Zadar County (revised), 2004, Zavod za prostorno planiranje Zadarske zupanije, Zadar.

There is one national park (Paklenica); three nature parks (Velebit, Telascica and Vransko jezero); four special reserves; three natural monuments; two protected landscapes; one park forest; and four horticultural monuments. In addition, with a new physical plan, the County is suggesting eight new protected areas as special reserves.

Vransko Jezero Nature Park
http://www.vransko-jezero.hr/

The Vransko Lake is situated near Biograd and Pakostane, close to the coastline. It is the greatest natural lake in Croatia with surface area of 30.7 km². It is connected with the sea, which makes the lake water brackish. It is established as the Nature Park in 1999. In the north-west part of the lake is a wetland area protected as the Special Ornithological Reserve. It accommodates one of the last heron colonies in the Mediterranean, breeding species include Purple Heron (*Ardea purpurea*) - about 20 pairs, and Pygmy Cormorants (*Phalacrocorax pygmaeus*), possible is also breeding of Great White Egret (*Egretta alba*) and Little Egret (*Egretta garzetta*). Lake Vransko is an important resting and feeding place during migration and wintering of waterfowl, accommodating yearly over 130.000 water birds, mostly Coot (*Fulica atra*) and ducks. A total of 224 bird species have been recorded in the area. Cave Pecina near Vrana in the vicinity of lake is the only locality for endemic Pretner's cave pill-bug (*Monolistra pretneri pretneri*).

Cultural and hystoric velues are still under investigation, as this whole area has a very rich hystory (2000 years B.C.) The intention is to develop a cultural and historic baseline data since neolitic, hence the litterature is very scarce. One of the projects in the Park will include creating a cultual-historic educational path, connecting old fortresses, churches, monosteries, caves, ethnological heritage (e.g. mills in Vrana). Today there are about 5000 pepoe living within the Park, with average of 50 years old.

This whole Park has an amazing capacity to provide conservation of unique, rich ornitophauna, as well as provide sustainable economic development for the local communities and link with coastal tourism. Tourism development in this area does not use yet a capacity and potential this area can offer: biking, fishing, bird watching, walking, there are one of the most beautiful and stuning bellviues ever seen in this region, and just at the 200 meter! The management of the Park was very successful, and accomplished a lot in a very short time, despite all the problems it has been experiancing. Biking path was established (50 km), the main little marina/port was reconstructed with the old stones and in the way it used to look hundred years ago (Prosika channel connencted the Lake with the sea in 1780)! Around the Park there is an unpaved road built against forest fires, and has been maintained in a great condition. Other Parks should come and learn how to do so much with minimum funding, and also with help of local communities! However, the Park

does not have a visitor center, and the idea is to establish it in the area where the camp and restourant are currently situated, and where is the main entrance for visitors and tourists. Also, the eastern entrance at Prosika will need a small info house, where boast and bikes could be rented. The idea is to have an electrical boat for transportation of tourists and visitors across the Lake.

The Park has been having huge problems with ilegal building and controversial political conflicts that should not take place in protected areas. This late situation does not benefit anybody, at least the local communities. Most of the locals changed their behaviour regarding fishing and hunting, in support of the Park and their own long term future. There is a 'traditional' ilegal fishing in the Lake, and recetly it has been better regulated and prohibited. Hance, it is hard to catch ilegal fishermen, as they fish during night in the winter time, when all fish colects around fresh water springs that are wormer. It is estimated that one person can collect up to 10 tons of fish in one night! Police does not react properly, and if they do so, the fees are still minimal in comparison how much fishermen make selling this fish on the market (e.g. 100 tones per year bring them 3 mil. Kuna). Hence, there is still no knowledge about yearly production of the lake!

Regarding demages that are done by birds to local communities agricultural crops in this Park, it was not paid by the government (aprox 500,000 Kunas). There is no exisitng fond that will cover those types of damages, like they will cover damages done by wolf, bears, etc. And recenlty established Fond for Environment does not include protected areas! Local communities traditional small agriculure includes vegetables, vineyards, olive trees, as well as sheep Therer is a potential for certified organic production in this area! (Small grants initiative)

Another probel is polution within the watershed area of the Vransko lake. There should be a buffer zone established around the watershed area, also addresing the need for waste water treatment (collectors) (not included in the County Physical Plan). Fresh water springs have been poluted by open sewage systems, and the are not for drinking use any more. It is necessary to establish stabilized and regulated hydrological system within the watershed Vransko jezero (Croatian Waters/Hrvatske vode have done 14 hydrological studies). This watershed remains as water supply for settlemsnts and towns in the area , also causing lower lake level. Lake has been experiancing agresive eutrofication in the last years as well, aminly due to only 2.5 meters of deth, input of nutrients and organic metters, and high temperatures.

With all the problems, solutions, and potentials, this area could be a great pilot project especially if connected with the nearby coast, through Prosika and Modrava area, towards surrounding islands (Arta, Radelj, Zminjak, Murvenjak, etc), and all the way to the Kornati isalnds and national park. It would be a great example of the 'regional park' (protection on the County level, but there is no existing ones in Croatia). It could become an example of conncetion between unique inland area and remoted islands, topic everyone is talking about with no action.

Specific porjects include:

- GIS maps for the Park and education of staff to use GIS; estimated cost is 130,000 €
- Strategy for sustainable tourism development would include master plan for tourism, carrying capacity, impact assessments and monitoring programs, establishment of educational paths and visitor centers (e.g. Prosika); involving local communities and their local produces; printing of broschure and informative publications and maps, employment for one staff specialized in tourism; estimated cost is 400,000€
- Preparation of the Management Plan which was hoped to be done through the COAST project; estimated cost is 250,000 € (includes environmental assessment and inventarization, research studies and monitoring programs)
- Building the Management and Visitor Center – will include current autocamp Crkvine; and providing all necessary equipment for the Center; estimated cost is 1.5 mil €;
- Establishment of rural tourism – estimated cost is 0.5 mil €
- Renovation of traditional agriculture, husbandry, production of food and health produces – greening of local activites and establishing marketing for local, organic and certified produces; estimated cost is 0.5 mil €
- Purches of special boat for visitor transportation along the Lake, with capacity of 50 passangers; estimated cost is 250,000€;
- Restauration and rebuilding of the old archeological tower Vrana from XIth century – estimated cost is 1 mil €
- Restauration, revitalization and conservation of the archeological site Maskovica hanfrom XVIIth century – estimated cost is 2 mil €;

Telascica Nature Park
www.telascica.hr

Current problems in the Park are:

- land use planning is not done yet;
- this area covers 70.5 km² of which land is 29.95 km², and 95% of it is under private property. In ordeer to imporve protection and mace conservation efforts more efficient, the Park is planning to purches pivate property lands; but die to lack of funding it is a very slow process;
- There is no visitor center and no Park management center, so staff are using several rooms in the Sali village which is not appropriate nor sufficient; Visiotr center would provide educational workshops and seminars, specifically for local communities and public awareness and capacity building,
- Lack of operational equipment, lab equipment, audiovisual equipment for presentations and education of visitors;

- Currently there are 19 mambers of Park staff which is not enough for efficient Park management; Park would like to hire local land owners so that communication between the Park and local communities woudl improve and become more beneficial for all;
- It is very hard to find needed staff for the Park, specially on the local levels
- Dissapearance of traditional activities, and agriculture, no marketing oportunities for local produces
- High concentration of tourist during the summer seazons isbecoming a more serious issue; need for management plan and tourism startegy plan
- High threats of fires; need for road maintanence against fires; providng equipment as well
- Need for educational (geological, archeological, geomorphological) paths, as well as biking paths; that woudl imporve park visitation and use of wide park area;
- Ilegal dumping of garbage and waste are creating potential health hazards; inadequately solved waste collection and placement outside the Park; concentration of waste in the once pristine environment;
- In the Mir bay are two touris facilities with open sewage systems directly into the nearby coastal waters, causing pollution and health hazard;
- There is no suply of electruc energy except agregates; need for solar energy solutions;
- Problem with ilegal nautic anchoring in the Park
- There is an issue with existing toruist facility that belongs to Slovenian Iskra-Kranj, and they are asking 3 mil kuna, and the Government has no money to purches this facility. It would be the best if this facility would belong to the Park, but how is the question?
- Insufficient scientific research and inventory of baseline data.

The Park's web site provides an excellant information on the basic features and phenomenons. However, increased tourism and boat visits might turn into a massive torusim if carrying capacity of the area and more control is not invisioned in the Park management.

The NGO Eco-Zadar has a project that addresses revitalization of olive trees growing on the island Dugu otok and in Telascica Nature park (near Mit lake). This traditional activity has been declingn and through this project local communities are educated and supported in organic farming! This NGO helps represent organic produces from the local areas at the yearly fairs «Days of Sun» (usually summer fair, and torus attraction).

Specific projects include:

- Putting electrical cabels between Sali and Mir bay that would bring electrical supply to the Park; estimated cots is 405,000€; potential source is EU funds
- Development of antifire roads – first stage was done in 2004 preparing 3,250 meters of roads; estimated cost is 310,765 Kuna; also buy equipment;
- Currently teh Park has only three old rubber boats (Lomac 430) which are insuffient for control of the Park; new necessary boat would cost 91,373 Kunas;

- Adaptation of the small house in the Kobiljak baytaht would be used as a station for staff during control and visit of the outer range of the Park area; estimated cost is 71,730 Kunas;
- Waste water system in the Mir bay
- Building biking paths
- Building appropriate garbage disposal outside the Park
- Providng mooring buoys and piers for boats
- Restoration of old traditional fishing piers
- Develop sustem for iformationa and interpretation throughout the Park, and preparing a 'bellview' site at Grpascak;

2. County of Sibenik-Knin

Source: Land-use plan of Šibenik-Knin County, 1999, URBING d.o.o. Zagreb

Protected areas in this county include two national parks (Krka and Kornati), parts of two nature parks (Vransko and Velebit), one strict reserve (Purara), nine protected landscapes, and one nature monument. The Land use plan suggestes new protected areas: six special reserves, two nature monuments and eight protected landscape sites.

Kornati National Park
www.kornati.hr

Source: Kornati national park Land-use plan, 2001, URBING, d.o.o. Zagreb

Kornati National Park covers area of 220km² that includes 89 islands, islets and reefs, which are most in the private ownership (similar situation is in the nearby Telascica Nature Park). Main identified problems are:

1. Illegal building –mainly due to ineffective control and regulation, and overlapping of controlling agencies/ministries; this problem could be solved by new Physical plan where the owners will be initiators and real 'carriers' of the plan; development of the Park Vision and mission together with the local communities and land owners;
2. Ileagal fishing – causing depletion of fish stocks and degrading the National Park as an institution for conservation; this could be solved by hiring responsible rangers and strict implementation of parks regulations; increase of fines for illegal fishing; organizing educational workshops, presentations, and meetings with topics related to conservation of fish and fish habitats in the national Parks;
3. Debris and waste on the islands – specifically in the areas (bays) where there are settlements and boats; which is due to unaware/uneducated people, no clean up

activities and no organized recycling and trash collection in the Park; solution is possible with educational programs, building up public awareness;

4. Lack of controlled and organized visitation of the Park – insufficient collection of entrance fees; insufficient and inadequate Park information and no signalization; there is no informative/visitor center (in Vrulje); building a center in Murter as the Kornati NP entrance point; establishment of 'floating receptions' at two entrances near Opat and Vela Proversa islands; hiring new professionals in tourism department that would develop educational tourist tours (walking, diving, sailing, with different topics); appropriate advertisement of the Park;
5. The Kornati NP is very expensive and ineffective organization – high institutional debts; not enough professional staff, low quality work, current employees show low interest and are insufficient in their work; need for new professional enthusiastic young people (preferably from the local areas, and Park's land owners); sending employees to short seminars, workshops, trainings, etc.
6. Insufficient research and scientific knowledge of the Park – no monitoring of natural and cultural values; mainly due to very high expenses for research projects (field trips, accommodation in the Park, transportation, energy, water, food); potential solution would be establishment of the research center in the Park with adequate accommodation, laboratory equipment, diving equipment, boat, etc.; need to increase funding for research and monitoring;
7. Traditional activities of the area are disappearing – neglected cultural traditions; uninterested and not stimulated land owners; pastures are not maintained (vegetative successions); degradation of agricultural fields; solutions would include incentives/loans/grants for traditional activities and linking them to island-rural-tourism and conservational goals of the Park (Small Grants projects!); there are about 3000 sheep (3 sheep/hectare!), there is a need for integration of small lands into large ones in order to maintain the production of milk and cheese; cutting sheep does not exist (good example is Cres island where this problem has been solved);

Other issues relate to a recently placed mooring buoys in the Park – how to solve the problem of uncontrolled boat visitors that degrade environment (e.g. water quality and bottom habitats)? The question remains of how to solve signalization of the Park's borders?

<u>Projects that are current and planned in the NP Kornati include</u>:

- CRONOGIP II project is developing the GIS maps of the park area, including maps of land-uses and private ownerships (sponsored by the Norway Government)
- Equipment support for the future visitor center Vrulje on the island Kornati is sponsored by the biological station Ravensberg from Germany; donation includes six microscopes, one stereoscop magnifier, one projector, one scuba diving compressor, one PC pronter, and other small office and laboratory equipment;
- Building the Visitor center Vrulje and providing a full equipment – which woul d become the first visitor center in the NP Kornati; this center will provide educational presentations and workshops for visitors, eco-schools in nature for

students, local public and tourists, also it wuld become a research center with a lab and accommodation for visiting researchers and scientists (estimated cost is 0.5 mil €);

Krka National Park
www.npkrka.hr

The Krka National Park is located entirely within the territory of Šibenik-Knin County and encompasses an area of 109 square kilometers along the Krka River: two kilometers downriver from Knin to Skradin and the lower part of the Cikola River. This Park has both physical plan and management plans, and has a good history of research projects and internationally supported projects (e.g. METAP project). This Park is the most inhanced/developed and visited protected area along the coast, almost reaching 0.5 mil visitors between June and September. Current estimated carrying capacity is 10,500 visitors a day! But monitoring still needs to be developed and established. For comparison, the Paklenica National Park with similar surface area (102 km²) has established carrying capacity for visitors of 800/day.

3. County of Split-Dalmatia

The Split-Dalmatia County currently has 47 protected areas: 1 Nature Park (Biokovo); 3 Special Reserves; 14 Protected Landscape; 1 Park Forest (Marjan); 24 Natural Monuments; and 4 Horticultural Monuments (based on the Land-use plan of Split-Dalmatian County, 2001, Zupanijski zavod za uredjenje, Split).

The County also suggested by their Land-Use Plan additional 82 protected areas, mainly protected landscapes and natural monuments, but also four marine special reserves: marine areas around island Bisevo, Scedro, Palagruza archipelago, and Palmizana bay.

Public Insitutution (PI) supports research projects and activites that support protection of individual species, like *Falco eleonore*, and its nesting areas on the island Vis as well as and surrounding islands. Research and monitoring project for the Falco started in 1998, and now it is part of the Mediterranean collaborative project that monitors the population of this endangered species. It is estimated that there are about 120-150 adults in the Vis archipelago area. Currently, the national action plant for protection of this species is underway. In addition, the PI suggested extension of this type of monitoring research project that would include other threatened and endemic ornitofouna.

Another suggestion is to establish a regional park in the area that includes remoted islands near Vis, and their pristine marine ecosystems. It was suggested that development of environmentaly friendly tourism has a huge potential in this County, specifically in remote

islands. This approach needs a to be initiated locally with established incentives and small grants for local communites.

Currently, the PI does not have educational program due to lack of funding and staff, there are only 6 people employed. Local NGO Sunce has been working successfully preparing educational programs to increase environmental awareness on the local level in the County. PI only has two terrain vehicles for land control but there are no boats for controlling remote islands where public transportation is not available (cost of one boat is about 200,000 EU).

Pantan wetland was designated in 2000 as a special ornithological and ichthyological reserve. This small wetland was created due to the karstic spring in a small 13 m deep lake on the coast very close to the sea and in vicinity of the UNESCO's world cultural heritage town of Trogir. In Pantan, water flows as a small rivulet towards the sea and floods the wetland area. Besides the vast reedbeds, there is important halophytic vegetation on the coast. Extensive lagoon is also important habitat type where different birds occur. Besides interesting fish species, there is a rich ornithofauna too, including 196 recorded species, 46 of them being breeding birds. There is an old mill on the lake that represents valuable monument of cultural heritage. Because of its values, Pantan is protected as ichthyological-ornithological reserve. It is under County jurisdiction and financial support. However, as the airport Ciovo has navigational equipment in the reserve, they are paying concession for using the PA property. The PI is planning to develop an information center, and also suggests that in order to protect this unique wetland, the private property land surrounding it should be purchased.

Modra spilja – Blue Cave on the island Bisevo has no entrance fee because it is 'Pomorsko Dobro'; and this famous cave should be under better control and supervision of visitors and divers.

Island Svetac is a private island and with island **Palagruza** are one of the most important fishing areas. Protection of these islands and surrounding waters has been initiated. WWF and NGOs Sunce and Zelena akcija are initiating establishment of the Regional Park that would include islands Svetac, Brusnik, Bisevo, Vis, Lastovo, Susac, Mljet, and Palagruza archipelago with Jabuka pit. (*Note*: WWF and UNDP have the Memorandum of Understanding).

Island Lastovo has around 700 inhabitants and they have been supportive for establishment of the Nature Park Lastovo (based on the county's physical plan).

Island Vis has only terrestrial conservation and does not include aquatorial areas (marine ecosystem).
Pakleni otoci – to those very remote islands a visit is only possible if arranged by police boats.

Islands Jabuka and Brusnik are the only volcanic islands in the Adriatic, and their protection is only on the level of protected landscape. Regarding those open sea islands, none are protected based on their biological diversity and value, which should be changed.

Mooring is a big problem around all remote islands: it was suggested that there should be controlled and organized visitations of the islands with adequately provided mooring buoys. Due to uncontrolled visitations of the islands some endemic and relict species have disappeared, e.g. Jabucki karanfil; or some alien species were brought, like rats and rabbits on the Jabuka island.

Adriatic Cross Border project (INTERREG IIIA) - Ecological Role of North Adriatic Wetlands for the Waterbird Migration and Wintering: Guidelines for the Conservation and Management of the Coastal Natural Heritage. PI Split collaborates with Italy and Albania in monitoring wetlands and migratory birds along the coastal Adriatic, in order to establish better coordinated mechanisms for their conservation and protection. PI is the only representatives from Croatia and they monitor two areas: Pantan and Neretva wetlands.

Biokovo Nature Park
http://www.biokovo.com/hr/

Although it has been a Nature Park since 1981, the Park borders are one of the main issues. Mapping and cartography has not been updated and provided in the GIS format, so that it could be used in research projects, species and habitats mapping (e.g. inventory and analysis of vegetation has not been adequately done). It is hard to protect if you don't know what you have and where is it.

There is a need for a socio-economic assessment of the local communities that have no benefits from being near and within the Park. There has been a problem with illegal building within the Park area; as well as dumping of the waste and trash all over the Park. In addition, there is a problem of maintaining the hiking and walking mountain paths.

As there are only 5 employees in the Park it is hard to control and cover the whole area. There is no visitor center, although the web site and basic brochures are well done in informing potential visitors and tourists. Their web site provides sufficient information about the Park, and about current seven inventory research projects. Park explains the regulated system of visitation, however, there is a problem with to many cars (capacity is 80 vehicles per day, as there are no more parking places) entering the Park. It was suggested that all the Parks should be stopped at the entrances of the Park and organized transport should shuttle visitors around the Park. The entrance fee can only be collected at one entrance, where reception has been organized with the Croatian forest ("Hrvastke Sume").

This summer in the Park's current office site in Gornja Podgora, the ethnological exhibit was organized. Traditional way of making cloths and carpets were presented with traditional old equipment (tkalacki stolovi), organized by 30 women from the local

settlements. Other traditional activities include production of cheese (sheep), honey, meet produces (prsut), vine yards, etc. The area along Makarska Riviera has been supported by tourism, and it would be great to establish link and collaboration between coastal and inland regions through the Biokovo Nature Park. The inland activities could support tourism with local, autochthon and certified products (possibilities for Small Grant projects!).

Unfortunately, there is a lack of local official support for the Nature Park Biokovo, there were no signs of the Nature Park in the County's tourism prospects! Also, the brown official signalization for the Park was not placed by the County, because the County is asking 1,800 kunas to place each table along the roads! As it is too much for the Park, that did not receive funding for this year, there are no signs. The local officials have suggested several activities in the Park: skiing resort, cable and tunnel through the mountain Biokovo. In order to justify those three actions the EIA (environmental impact assessment) is requested and required for each project. This would also help environmental assessment of the whole area that has enormous gap in data.

4. County of Dubrovnik-Neretva

Source: Land–use plan of Dubrovnik-Neretva County, 2003, Županijski zavod za prostorno planiranje, Dubrovnik.

Protected areas in this County include one national park (Mljet), one strict reserve (Maliston bay), seven special reserves, nine park forests, eight protected landscapes, seven natural monuments, and nine horticultural monuments. Suggested protected areas include: three nature parks (Neretva, Lastovo, and Elafiti islands), five special reserves, one forest park, four protected landscapes, one natural monument, and three horticultural monuments.

Mljet National Park
http://www.np-mljet.hr/

The Mljet Park has been experiancing a negative feelings and interactions between the Park and local communities. Local communities do not feel as their are active part of the Park, and they are not involved in the decision making process. This has been identified and adressed through the USAID supported project Peoples and Parks, where technical and advisory support was provide by the the US National Park Service staff (2000-2002). The project was donne as part of the KEC project preparation and Mljet NP received USAID grant to develop educational path through the Park. Developed posters and information tablets were never finalised and placed throughout the Park. It was stated that the whole project was a vaste of time and effort and that it was done unprofessionally without specialists in forestry, geology, ethnology, marine scinece, and agriculture. It was also stated that uncussesful results are mainly due to inadequate staff at the time in the Park, and that interns were not adequalty selected. However, other Parks that received similar

grants for selected priority projects showed more successful results and are looking forward new opportunities for similiar initiatives (National Parks: Krka, Paklenica, Risnjak, Kornati; Nature Parks: Velebit and Lonjsko Polje).

Neretva Delta

The NGO REC (Regional Environmental Center) has been working in this area for the last several years, preparing educational program (e.g. Green Pack for schools), building environmental awareness and funding small projects. Available Reports on Neretva delta include: Survey of existing water rights; Relationship between hydrological dynamics and biodiversity values; Socio-economic analysis; Review of imapcts of major economic activities (fisheries, settelements, hunting, agriculture, transportation); Survey of awareness of environemtnal issues amongst key groups. The GTZ prepared a master plan and strategy for tourism development in Neretva region. Most of the documents can be received on CDs from REC.

Sources:
http://www.rec.org/REC/Programs/REREP/Biodiversity/NeretvaActivities.html
www.rec-croatia.hr
REC, 2002, Neretva Delta Rural Tourism Strategy (Draft 1), November 2002

Attachment 1

SMALL GRANTS PROGRAM
Draft

Prepared by Anamarija Frankic

The Small Grants Program (SGP) should become part of the COAST project. The development goal of the COAST project is to enhance stewardship of biodiversity of coastal and island ecosystems in Dalmatia/Croatia in a way that is participatory, economically viable, and integrated with the country's socio-economic goals. The SG program will enable local communities and individuals to carry out activities that contribute to achieving the goals and objectives of the COAST project. The SG program will support and finance entrepreneurial activites/projects, which demonstrate linkages between sustainable use of natural resources, economic development and biodiversity conservation. Approximately ??? (total amount to be determined) will be available for grants to farmers, artisans, entrepreneurs, businesses, individuals, NGOs, and others. Grant activities could support a wide range of activities including, but not limited to, support local communities to develop small businesses; to disseminate knowledge and build capacity; and for environmental education and public awareness building.

Goal and Objectives of SGP

The goal of the SGP is to improve the contribution of biodiversity assets to the economic well-being of local communities. This approach is very important regartding Pas and their role in sustainable development of the Adriatic coast and sialnds. Therefore, the objectives of the SGP are to:

- enhance the objectives and activities of the COAST project by supporting community based initiatives which address the COAST project goals
- demonstrate the link between the objectives of conservation and tangible benefits for local communities
- develop replicable approaches to economic development which ensures biodiversity and ecosystem conservation
- strengthen new and emerging local civic groups and NGOs in order to promote biodiversity conservation
- test innovative approaches and technologies to biodiversity conservation and sustainable development
- establish partnership between local communities, protected areas administrations, NGOs, and government organizations to promote sustainable development of local communities in the COAST project area.

Approach

The SG program approach is to support community-level driven activities to achieve the biodiversity conservation objectives of the COAST project. The approach emphasizes

initiation, evaluation, selection, and implementation of grants on the local level. The SGP will support small-to medium-to large scale local initiatives related to biodiversity conservation and sustainable development that will reduce pressure on natural resources, while at the same time improving local livelihoods and enhancing socio-economic development. The SGP projects will be developed and implemented by local communities, NGOs and individuals living in villages, municipalities around and in the project protected areas (links with demonstration sites).

SGP Implementation

The SGP implementation will be tied into the COAST project implementation and arrangements. The SGP will be implemented over the ?? year duration of the COAST project. In the first year of the COAST project implementation, the details of the program will be developed including grant application forms and guidelines; grant evaluation and selection procedures; grant monitoring and evaluation procedures; grant procurement and disbursement arrangements; training needs; and program promotion. The first SGP recipients will be announced in the second year of the COAST project and implementation will begin. All SGP activities financed by the COAST project will be completed by the end of the COAST project.

Eligibility and criteria for selecting target communities

The SGP is open to any qualifying body operating in, or located within, the defined COAST project region/demonstration sites? The following types of organizations are eligible to apply:

- Private sector – companies, businesses, and scientific institutions and individuals
- Governmental sector – companies, local, provincial and national authorities, state scientific institutions
- Non-Governmental sector – local and National NGOs, local associations

Typology of projects to be financed by SGP

Given the nature of participatory planning which provides the flexibility for communities to decide their own priorities, it is expected that broadly three categories of projects will be proposed:

(i) small business and infrastructure investments
(ii) capacity building and business management
(iii) environmental education and public awareness.

This will be based on findings of community needs assessment in a project area. This exercise will conduct focus group discussions amongst a range of stakeholders on the community level, to identify community interest and potential projects to be financed under the SGP. The needs assessment will also increase public and community awareness of the program, as well as of the COAST project.

Tentatively, the possibilities of project categories are:

Small business and infrastructure investments projects

These types of projects create infrastructure in the communities that conserve biodiversity and natural resources while creating economic opportunities for the residents. The types of activities that could be funded include:

- Traditional agriculture production: olive trees, vine yards, fruit trees (maraska, figs, amlonds, etc.)
- Cattle raising for milk or meat production and marketing
- Organic meat production and marketing
- Pasture management
- Organic vegetable or fruit production and marketing
- Meat, dairy, fruit, vegetable micro/small-processing centres and marketing (e.g. chees production)
- Bee-keeping, organic honey production
- Small scale processing of medicinal plants
- Flower growing and marketing
- Cultivation of valuable genetic species, including relict and ancestors of wild species
- Traditional handicraft activities
- Agroforestry and horticulture investment
- Sustainable fishing and fish marketing; certified organic mariculture
- Development of ecotourism and home stay activities in the protected areas, within buffer zones and outside the PAs
- Alternative energy systems infrastructure; in situ waste water tratment technologies

Capacity building and business management projects

These types of projects upgrade the knowledge base or skills of community members. Grant funds can also be used to provide technical assistance and training activities which focus on developing community based organization and NGO capacities. Proposed activities could include:

- Training for establishment of small-scale processing activities that use local natural resources
- Skill upgrade in handicraft production and ecoptoruism
- Small project development and implementation related skills
- Business management and marketing skills training
- Financial management and infrastructure operation and maintenance skills
- Formation of common interest groups (e.g. grazing association for shepherds/livestock owners; local cooperatives; commercial association; ecotourism enterprenuors)

Environemntal education and public awareness projects

These projects will improve education and capacity building of the community members in regards to biodivesrity conservation. They may include dissemination of innovations and best practices. Proposed activities could include:

- Children environmental education programs fro pre-schools and primary schools (including teacher training)
- Community environmental awareness programs
- Community workshops on biodiversity conservation and protected area management
- Preparation of promotional materials on community based ecotourism initiatives and their dissemination to potential target groups

Category by funding size of the SGP projects

Suggestion is that the projects proposed will be categorized into one of three categories:

- Small grants – up to US$10,000 for the small projects. These are expected to be used largely by individuals.
- Medium grants – up to US$20,000
- Large grants – up to US$35,000

Selection Process to be identified

Criteria for grant funding

Criteria will be determined during the first year of the program, but could include:

- Investment should relieve pressures on community natural resource base
- Should be beneficial to the majority of community
- Must be financially feasible
- Involve low risk
- Proven technology unless designated as a demonstration or pilot technology
- Developed markets and good access to markets
- Must be environmentally friendly with no significant environmental impacts
- Must not increase unsustainable pressures on natural resource base or utilization of biodiversity resources from protected areas (e.g. increase in livestock numbers, collection of medicinal plants and wild rare and protected species)
- Must be owned and implemented by community groups, or private and not by the PAs
- Should be compatible with the PAs plans and regulations, management plans, forest management plans, and tourism strategy, once they become available
- Funding proposals should focus on target communities or community groups living in the buffer zones and vicinity of the PAs and demonstration sites

Priority would be given to projects which:

- Are located where pressures on biodiversity and natural resource base are the highest
- Are viable, financial feasible income-generating activities
- Use matching funds
- Are implemented with the participation of local people and local NGOs
- Increase civil society involvement in decision making
- Facilitate the strengthening of an NGO network involved in protected area management

Additional Topics to be addressed:

SG projects screening, appraisal, and approval

Administration and management of SG program

Procurement

Grant Disbursements and reporting requirements

Reporting

Monitoring and the key performance/outcome/impact indicators

Attachment 2

Establishment of Marine Protected Areas (MPAs) in the Adriatic Sea

Prepared by Anamarija Frankic

Background

In the Mediterranean region some countries have made a significant effort for the creation of protected areas along the coast (e.g. Turkey, France, Italy). However, most of these areas consider mainly terrestrial or wetland environments, and much stronger efforts are required for the marine environment (IUCN, 1995). Currently, only 3% of the total Mediterranean sea coastline belongs to Specially Protected Areas (SPAs), covering only 1.1% of the total basin surface area (Gugliemi, 2004; WWF, 2003; CIESM, 1999). Due to the lack of suitable legislation, institutions, and trained staff in most countries of the region there is no management for at least 50% of the existing protected areas, making them just "paper parks". However, with more intensive regional cooperation and increasing international assistance, this trend could be and should be altered. There are new methodologies and strategies for development and management of an MPA system as well as new ways of budget allocations to support coastal and marine conservation and protection (Balmford et al. 2004; PEW 2003; Crosby, et al, 2000; CIESM, 1999).

Ratification of the new Protocol of the Barcelona Convention, concerning specifically protected areas in the Mediterranean will remedy critical gaps regarding intergovernmental cooperation in marine environmental legislation (Salm, 2000; Scovazzi, 1999). Main international legislative and instruments that support MPAs also include: UNEP-MAP, Natura 2000 Network, Emerald Network, Bio-Landscape Diversity Strategy, RAMSAR, SPAMI (Specially Protected Area of Mediterranean Interest), PEEN (Pan-European Ecological Network), GFCM (General Fisheries Commission for the Mediterranean), and FAO Code of Conduct: Integration of fisheries into coastal management. In addition, two recent European documents will support and foster 21st century efforts toward sustainable development of the coastal areas.

On June 16, 2001, the European Union (EU) adopted the first ever Sustainable Development Strategy under which member states will have to develop national sustainable plans including a sustainable impact assessment. Another document is the ICM Strategy for Europe, adopted in September 2000 (COM/2000/547). This Strategy aims to promote a collaborative approach to planning and management of the coastal zone at local, regional and national levels. The Strategy indicates that although based on provided legal and institutional integrated context, solutions to concrete problems can only be found and implemented at the local and regional level. European Council and Parliament adopted on 30 May 2002 Recommendation concerning the implementation of Integrated Coastal Zone Management in Europe.

Generally speaking, the coast of the Mediterranean Sea, as well as the Adriatic Sea and its adjacent marine waters constitute one of the greatest assets of the surrounding countries,

and at the same time is under greatest threat (CI, 2001; NAS, 2001). The fact is that the Mediterranean and Adriatic shores today are the number one tourism destination in the world (WTO, 2004; CIESM, 1999). If responsible, coastal tourism is to succeed in a sustainable way, analysis of tourism business decisions must be based not only on estimates of costs and benefits to the entrepreneur, but also must be measured by long term ecological and socio-cultural costs and benefits for local communities (Frankic, 1996). Tourism strategies should be established and supported within the context of natural resources limitations and socio-cultural constraints. Therefore, if appropriately done, responsible coastal tourism together with MPAs can become an important educator of environmental awareness and a positive force in maintaining a region's natural and cultural attractiveness. The basic principle for management strategies is that decision-making process is based on environmental concerns, and any process/activity must work within the environmental limits of sustainable development (Frankic and Hershner, 2003). The best places to practically show this approach are protected areas, and they just represent a type of 'use' that has to be sustainably managed.

Coastal management and protection of the Mediterranean and Adriatic regions with their marine waters is a major economic imperative as well as environmental concern. Action is required to ensure conservation not only of important species, habitats and fish but also cultural and traditional heritage. Very often national and international marine protected areas provide the only solution, with active and applied management in place. Establishment of MPAs have been used effectively throughout the world to conserve biodiversity, manage natural resources, protect endangered species, reduce user conflicts, provide educational and research opportunities, manage humane activities, and enhance sustainable commercial and recreational uses of marine resources (PEW, 2003; Salm et al., 2000; Alison et al, 1998).

Adriatic region and MPAs

The Adriatic Sea is one of seven biogeographic subdivisions of the Mediterranean Sea. The Adriatic Sea is a long canal (about 780 kilometers), surrounded by Italy on the west and by Slovenia, Croatia, Bosnia, Montenegro and Albania on the east. The average width of the Adriatic is 240 km, and the total area is 131,000 km². The Adriatic Sea is mainly shallow with an average depth of 44.4 meters in north, and a maximum depth of 1,324 meters at the south of the central area (Jabuka Pit). adriatic area currently contains of 10 protected areas as national and nature parks: 2 Italy, 2 Slovenia, 5 Croatia, and 1 Montenegro. The southern part of the Adriatic Sea has been identified as a global biodiversity hotspot (WWF, 2003; CI, 2001). However, in order to insure sustainable coastal development in this region there is a need for further assistance in updating biodiversity assessment, and development of a framework for a protected area system approach.

Croatia signed the Convention on Biological Diversity in 1992, and ratified it in 1997. Although there are 175 protected areas divided into seven different categories, Croatia has not yet drawn up an inventory of biodiversity data. Apart from the Global Environment

Facility (GEF) grant that assisted the development of the national strategy and action plan for biological and landscape diversity conservation, as well as preparation of the Karst Ecosystem Conservation (KEC) project, Croatia and Adriatic region received very little international assistance to protect biodiversity and marine, coastal ecosystems (Frankic, 2002). There is no MPA in Croatia, only national parks (e.g. Brijuni, Kornati, Mljet) protecting mainly terrestrial ecosystems, and only about 300 km² (0.9 %) of all marine ecosystems. However, the World Wild Life Fund (WWF) have initiated a large scale Conservation planning project that identified 15 hot spot marine biodiversity areas for conservation in the Mediterranean region (WWF, 2003). One of 15 sites is in the Adriatic sea, Dalmatian coast, representing a 'blue corridor' for biodiversity conservation. It specifically recognizes islands: Svetac, Brusnik, Bisevo, Vis, Lastovo, Mljet, Susac, Jabuka pit and Palagruza (Fig. 1). Another recent initiative includes the UNDP/GEF Coast project as a continuation of the KEC project along the Dalmatian coast and islands.

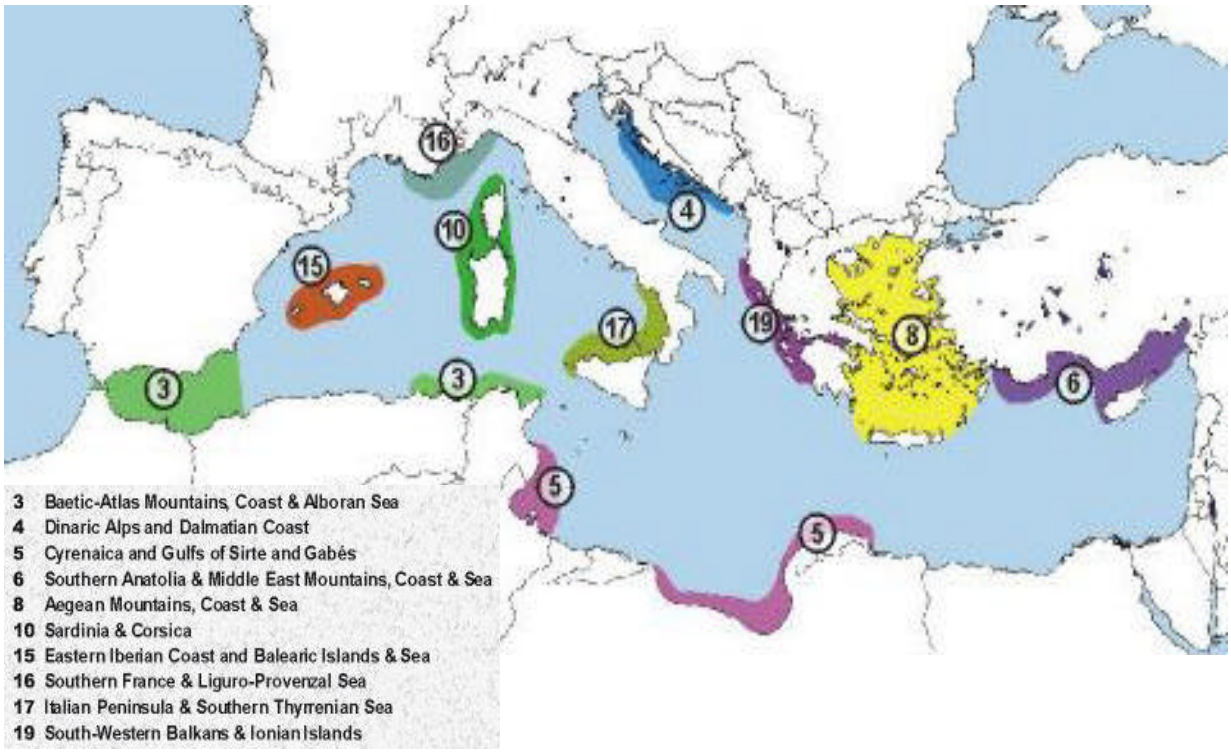


Fig. 1: The WWF Conservation Planning areas in the Mediterranean region: #4 is the area in the Adriatic Sea, Croatia.

Why establish MPAs?

MPAs not only aim to conserve biodiversity, they also maintain large scale ecosystem functioning with sustainable human interactions. It is important to understand interactions and relationships between healthy ecosystem function and resource uses. The participation and involvement of the local community is the key to successful protected area establishment and management. Therefore, one of the first tasks is to prepare socio-

economic assessments and relevant surveys addressing community needs and perspective toward MPAs.

Establishment of MPAs will depend on: the existing physical plans; identified National priorities; and on local community issues and needs. For example, each island in the Adriatic archipelago should have a type of MPA that represents its cultural and natural resources. This will comply with a new amendment to the Physical Planning Law that proclaimed the Protected Coastal Zone between 1000 meter inland and 300 meters offshore from the coastline (NN 128/2004). Protected areas and their ecosystem-based management should be part of integrated coastal management and planning zones, as they represent one of the 'uses' of the coastal and marine environment. Zoning is often used to specify permitted activities, but with more comprehensive and balanced approach zoning should be based on performance criteria and indicators to manage various impacts of uses, including conservation (Frankic, 2003).

How much area should be devoted to MPA, and how dense should they be within the network? It depends on the ecosystem, marine and coastal community being protected, human community involved in support of the network, and the main purpose and goals of each MPA. For example, MPA may be used as a tool for habitat-protection, ecosystem-management, and for fisheries conservation, or all together.

Croatian coastal zone is almost 6,000 km long, while maritime zone covers 31,067 km^2. Recently established by the Croatian Government, the 'Ecological and fisheries zone' increases the maritime area by 25,207 km^2, so the total marine area is 56,964 km^2. This whole open sea area has no protection!

The idea is to follow up on the *'blue corridor'* project by WWF and Sunce (NGO from Split, Croatia), and establish MPA network along Adriatic with identified no-take zones (based on the Law on Nature Protection they could become **strict reserves**). Blue corridors could become part of the Mediterranean MPA network: the SPAMI system (Specially Protected Areas of Mediterranean Importance) (MAP News, 2003). The UN Convention on the Law of the Sea provides the basis for implementing 'high seas' MPAs and no-take zones. Therefore, the MPAs network could virtually become the EEZ, but with better and more efficient purpose!

It has been scientifically proved that full protection of marine communities results in an increase in size and numbers of heavily exploited species within the reserve. Substantial density and biomass increase for short-lived, fast-growing species happened within five years of protection (PEW, 2003). Marine reserves protect bottom habitats and ecosystems within their borders, but also provide significant export of species or populations to surrounding areas. This 'spillover effect' might become beneficial and important for depleted fisheries in the Adriatic Sea! It provides larval spillover and replenishment of natural ecosystems (Garry et all 2004; Garry and Alcala 2003; Roberts et al, 2001 and 2002). In order to establish network of MPAs with no-take zones, it is important to identify areas with: e.g. biogeographic representation; heterogeneity and different habitat types; under human threat; especially vulnerable habitats (nursery and spawning areas); species

of concern; exploited and threatened species; and areas that provide ecological services for humans (PEW, 2003). Therefore, the site ranking system will be based on both ecological criteria and socioeconomic (e.g. fishing impact, community management, and community benefits).

The key to successful resources management is cooperative stewardship, not limits imposed by one group on another. That's why the fishing community will play a major role in the monitoring and enforcement of MPAs and no-take zones. Today, there are many examples proving this approach in New Zealand, Australia, and Canada. Historically, *kapu zones* in Hawai'i were an extensive network of no-fishing areas used hundreds of years ago as a type of sustainable management of resources. Native Hawaiians were the first to use *kapu zones* as a management tool to restrict fishing in nursery and spawning grounds, and established caretakers of different marine areas (PFC, 2002).

Establishment of MPAs and no-take zones will be beneficial for sustainable fisheries management, and based on the involvement and participation of fishermen who would become owners and 'caretakers' of no-take zones and MPAs. In addition, ecotourism development and local economy would benefit in the short and long run (this will include cost benefit analysis and monitoring). For example, with this approach fish will be provided by locals from their sustainable fisheries and sustainable mariculture farms (organic farming and certification). In addition, local restaurants and hotels can become part of this initiative establishing special seafood festivals, educating tourists to purches sea food species that are sustainably managed, and are not endangered and threatened by fishing, pollution etc. ('greening of fisheries industry'). Establishment of MPAs and no-take zones will increase scientific understanding, and enhance non-extractive human activities related to tourism and recreation.

Recommendations

1. Follow up and collaborate with the initiatives and projects that are under way: e.g. the UNDP/GEF Coast project; projects by the WWF and local NGOs.
2. Identify island communities that could support a potential center for the MPAs network initiative. One example is the island Rava that has several successful environmental projects and local capacity building in progress. The village Mala Rava has an abandoned school building that belongs to the Zadar municipality. This building can be used as a future center for MPAs, with educational and research purposes regarding conservation of natural and cultural heritage, becoming essential activity in the process of sustainable development of the islands.
3. Identify local communities that would benefit from MPAs establishment and management (e.g. fishermen communities and associations, island local communities and tourism associations). This will require a comprehensive social and economic assessment of the inhabited archipelago.
4. Collaboration with the World Bank project: "Coastal Cities Pollution Control"

Suggested Approach regarding MPAs establishment

Selected Project Team (SPT) needs to develop a criteria analysis, which includes ecological, socio-cultural and economic indicators (Table 1 and 2)*. Based on established indicators, and their application in the ecosystem assessment and analysis, the SPT would identify priority areas for potential MPAs, and provide recommendations for types of protection (e.g. no-take zones as marine strict reserves; zoning types regarding allowed activities; special zoological undersea areas for endangered marine species like sea turtles, dolphins, posidonia beds, etc.). Comprehensive process to identify MPAs as network along Dalmatian archipelago should be transparent and involve all stakeholders and local communities, and integrate local environmental knowledge.

Suggested methodology in MPA selection should include four general analytical stages:

i) GIS analysis and mapping of available scientific knowledge (includes environmental assessment and spatial analysis of biodiversity hot spots, habitats; and socio-economic assessment, including cultural heritage and traditional landscapes);

ii) Assessment and GIS spatial analysis of existing and potential uses and activities (e.g. tourism, agriculture, fisheries, transportation), and impact assessments;

iii) GIS use-conflict modeling and analysis – identification of all types of existing and potential management issues;

iv) Selection of most desirable sites for marine conservation; based on outputs provide management options, outcome scenarios and recommendations on MPAs development and implementation plan;

Note: The Adriatic Sea could be designated as the Particularly Sensitive Sea Area (PSSA): The Guidelines for the Identification and Designation of PSSA state that a PSSA is an area that needs special protection through action by IMO (International Maritime Organisation), because of its significance for recognized ecological, socio-economic, and/or scientific reasons and which may be vulnerable to damage by international shipping activities.

Acknowledgments

This paper review would not be possible without help from the Center of Coastal Resources Management at the Virginia Institute of Marine Sciences, which provided continuous support for my work in Croatia. My special thanks go to Dr. Donna Marie Bilkovic for providing her expertise and helpful comments in reviewing this paper.

* Suggested list of indicators are presented in Tables 1 and 2.

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Attachemnt 2 /Table 1/: Suggested socio-economic indicators:
Source: UNESCO/IOC/COOP, meeting in Halifax, Canada, February 2004.

www.phys.ocean.dal.ca/~lukeman/COOP/hfx_april_04.html

1	Resident Population (census data)	17	Coastal Energy Production (% of National Production by type)
2	Population Density (DMSP satellite images)	18	Level/Value of Commercial Fish Landings by Harvest Area, gear type, species, weight and value;
3	Land Use/Land Cover (Patterns/Composition)	19	Artisanal Fishing Effort: by harvest area, value, species, and type;
4	Employment by Industry Sectors	20	Number/Value of Recreational Fishing Days
5	% Population with Potable Water	21	Property Values
6	% Population with Internet Access (examples of social sustainability level indexes; surrogate for GDP)	22	Seafood International Trade Value/Quantity/Terms & Direction FAO data
7	Change in User Conflict (e.g. # of law suits)	23	Number of Tourists (% of National) per day or # of bed nights;
8	Income/wealth Distribution (# collected, the best economic #)	24	Number/Attendance at Recreational Bathing Beaches: # of beach bathing days
9	% Altered Coast (GIS maps available)	25	Number of Shipping Vessels Entering/Transiting Coastal Waters # of vessels by weight and type (includes cruisers)
10	Non-Use Values of Coastal Habitat (Bequest/Existence/Option) Includes MPAs, protected areas, and natural environment that is not used;	26	Aquaculture – Total Hectares, by type (ponds, land based), weight, value and species type
11	water dependent use industry/coastal industry (any ind. dependent directly on water: fisheries, ports)	27	Seafood Consumption Patterns: gram/person/day or grams/day by species!
12	Public Access Points/ km of coastline	28	Pesticide Use in Watershed
13	Value of Products dependent on Coastal Habitats	29	Value Change in Seafood Due to Chemical Contamination (# of the loss in value)
14	% Population Served by Wastewater (considers disposal and treatment)	30	Value Change in Seafood Due to Pathogenic/Toxic Contamination
15	Fertilizer Use in Watershed (natural & chemical)	31	Number of Beach Closings: days/area
16	Groundwater Extraction	32	Social mitigation Cost of Invasive Species (public & private)

Attachment 2 /Table 2/: Natural indicators (first 15 as key ones) proposed by the UNESCO in the Strategic Design Plan for Coastal Ocean Observing Module; Bold 15 variables are primary ones. http://ioc.unesco.org/goos/docs/GOOS_125_COOP_Plan.pdf

	VARIABLE		VARIABLE
1	**Sea level**	20	Fisheries: landings and effort
2	**Water temperature**	21	Primary production
3	**Currents**	22	Total organic C and N
4	**Changes in bathymetry**	23	Neutral red assay
5	**Salinity**	24	Incident solar radiation
6	**Surface waves**	25	Total suspended solids
7	**Sediment grain size**	26	Cholinesteraze (pesticides)
8	**Benthic biomass**	27	Cytochrome p450 (e.g. oil)
9	**Changes in shoreline position**	28	Metallothionein (trace metals)
10	**Dissolved oxygen**	29	Zooplankton biomass
11	**Dissolved inorganic nutrientsN, P, Si**	30	Eh in sediment
12	**Phytoplankton biomass (chlorophyll)**	31	Particulate organic C and N
13	**Attenuation of solar radiation**	32	Benthic species diversity
14	**Faecal indicators**	33	Zooplankton species diversity
15	**Sediment organic content**	34	Biological oxygen demand
16	Phytoplankton species diversity	35	pH
17	Nekton species diversity	36	Seabird diversity
18	Coloured dissolved organic matter DSOM	37	Nekton biomass
19	Seabird abundance		

Attachment 3

REPORT SUMMARY

United Nations Development Programme/Global Environment Facility (UNDP/GEF)
Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC)
Republic of Croatia

Re: CRO/03/G41 Croatia - Conservation and Sustainable Use of Biodiversity in the Dalmatian Coast through Greening Coastal Development ("COAST" Project, PDF B Phase)

Title / Date: Workshop on Protected Areas (Split, January 11, 2005)

(A detailed Report has been prepared in Croatian, to be used as an operational document; all details and Annexes available at request.)

Background: The workshop was organized as part of a series of workshops organized during PDF B Phase. Date and place: The workshop was held in Split, at the premises of PAP/RAC, on January 11, 2005.

Objectives: (a) to brief the participants and PAs focus group members of the current development of the Project; (b) to present current conditions in PAs at national, county and local levels; discuss and initiate proposals of concrete actions, strategies and plans to solve the identified issues and needs of PAs; c) to present the possible role PAs in the Project, i.e. (i) relationship with other sectors (tourism, agriculture, fisheries/mariculture, economy) and ICM, (ii) linkages (direct and indirect) of PAs with selected demo-sites, (iii) proposals of concrete actions in the framework of the FP, (iv) activities outside of the FP at national and county-level: discuss and initiate proposals of actions, strategies and plans to solve the identified issues and needs of PAs; d) to brief the participants of the proposal to establish marine protected areas (MPAs) in the Adriatic (as a regional and national project).

Attendance: The workshop was attended by representatives of directly concerned and responsible ministries and institutions, counties and county institutions, biologists from the PAs in the four participating counties, and some members of the Focus Group. Besides, the meeting was attended by Project experts and management, and some members of the PSC. The complete List of participants is attached as Annex I to this Report Summary.

Agenda: (i) a review of past developments in the Project preparation; (ii) a review of current conditions and issues at national, regional and local levels; (iii) PAs in the framework of the "COAST" project interactions with other sectors and demo-sites, proposal of concrete actions and projects in PAs, proposal of establishing MPAs; (iv) the role of PAs in the Project; (v) PAs in the FP: criteria and needs; (vi) General discussion and Round table. Chairing / moderators: A. Pavasovi æ , S. Balent, A. Franki æ , D. Markovi æ , Technical assistance, Report: B. Bari æ .

Reference documents: Tentative Agenda; Provisional List of Participants; "Protected Areas –Overview of Issues and Potential Solutions" by A. Franki æ ; "Establishment of Marine Protected Areas (MPAs) in the Adriatic Region" by A. Franki æ ; "Biodiversity in COAST Project Area", a draft document prepared by a team of Project biologists; ppts of the Workshop Reference Persons.

Reference persons: A. Franki æ , Project PAs expert; A. Štrbenac, State Institute for Nature Protection - SINT (presentation prepared by J. Radovi æ , SINT); S. Balent, Environment Programme Associate, UNDP CO; A. Pavasovi æ , NPM.

Major outputs and findings

The workshop presented and discussed: a) PAs - a review of current conditions and issues at national, regional and local levels; b) PAs in the framework of the "COAST" project – interactions with other sectors and demo-sites, and the Small Grant Programme (SGP) application; c) identified priority actions and concrete action plans and projects in the PAs. The Project reference persons presented the role of PAs within the "COAST" project, emphasizing that PAs can not be directly supported by the Project, but only when linked with productive landscape and private sectors. The ensuing discussion reviewed the major problems causing inefficiencies in PAs active conservation and protection. The basic problem is at the national level, i.e. the lack of funding for PAs. The budget for the year 2005 is 50% less than for the previous years - the total of 5 mil Kn (700,000 €). The self-generated revenues (e.g. visitor fees) in PAs within the "COAST" project are not sufficient to support the long-term active management of the Parks. Another major problem is at the regional and local level – in some PAs, conflicts with local population and local officials, due to negative perception of local communities toward PAs.

Reviewing priority actions needed in PAs, the representatives of PAs realized that the "COAST" project would not directly provide funding for PAs, but primarily through interaction with productive sectors, tourism primarily. The main question asked was how PAs could support "greening activities" in tourism and agriculture, if the PAs did not have management plans identifying areas where those activities could take place. The other problem is that management plans cannot be made without baseline scientific data and assessments (GIS maps of biodiversity, habitats, ecosystems, cultural and archaeological heritage). Tourism strategy plans would be difficult to make with no visitor/ information centers and transportation systems in the Parks. Some participants stated that the "COAST" project approach is not supporting PAs management. The solution should be to prepare comprehensive and integrated PAs management plans, to identify types of "uses" within appropriately zoned areas, to establish the additional financing mechanism, and to define the "green economic development".

Regarding the Small Grant Programme (SGP), it was suggested that the SGP should be initiated through the PAs, which would establish better relationship with local communities. However, the problem is again the need for assessment of ecologically sound activities in the PAs (what, where, when and how). Each PA exactly knows what it needs

and how to do it, but it lacks financial and expert/staff support. A number of participants from PAs expressed their disappointment with the fact that the "COAST" project cannot support directly the management-related activities in PAs.

The above issues were identified as big barriers to Project implementation. The PAs representatives emphasized the need for understanding that without direct support to PAs and their local communities this Project will miss solving the major problem: the lack of understanding and support (at all levels) for BD conservation and responsible uses within and outside of the PAs as a base for economic sustainable development of the country.

Potential solutions

The additional comments and explanations were given by NPM and Project experts, explaining again the need for establishing linkages between the PAs and productive landscape and private sectors in accordance with general Project objectives. They repeated that the main identified activities in PAs are related to tourism sector. Each PA needs a Carrying Capacity Assessment (CCA) tool with the appropriate monitoring system established. This should be part of the tourism management plans and business/marketing plans for PAs. The important role concerning this task is within the State Institute for Nature Protection (SINP) as part of the Ministry of Culture, and respective tourism boards and industry.

The need to establish a Croatian Conservation Foundation has been identified - that could provide revenues from different sources (e.g. yearly memberships, donations, tourism eco-fees, payments for ecosystem services, watershed services, etc.). The idea to establish the Foundation was supported by the SINP and PAs representatives.

The Full Project should include, if possible, preparation of at least one management plan for a selected PA as a pilot one, while others should be supported by the National Fund for the Environment. In addition, the Full Project should include preparation of tourism management plans for the counties in demo-areas and PAs with interpretation, education and information materials and marketing tools. PAs should be adequately involved in tourism development in the region (counties). Support should be provided to eco-certification process in PAs, local communities and their autochthonous, organic and ecological production, and linked with the Small Grants Programme. Visitor educational paths for identified activities should be developed: olive oil, vine, cheese, figs and fruits, medicinal plants and herbs, honey, etc. Help should be provided to establishment of a long-term vision and plan for green and blue corridors along the coast and islands (started with the KEC project) as a base for sustainable development.

Power point presentations, prepared and translated by experts, are enclosed to the present Workshop Report.
Closure of the meeting: After having thanked the participants for their contribution to the success of the meeting, Ms. Balent declared the meeting closed at 15:30 hours.

List of participants

1. M. Babajko, Head Expert, Public Institution for Management of Protected Parts of Nature, Zadar County
2. N. Bakovi æ , Expert Associate - Biologist, Park of Nature "Telaš æ ica", Dugi otok
3. S. Balent, Environment Programme Associate, UNDP CO
4. B. Bari æ , Project Administrator, Assistant to NPM, PAP/RAC Split
5. M. Boji æ , Expert Associate, PAs Directorate, Ministry of Culture
6. I. Brnada, REC Country Office Director, the Regional Environmental Centre for Central and Eastern Europe (REC)
7. V. Dumbovi æ , Expert Associate - Biologist, Park of Nature "Vransko Lake", Biograd N/M
8. A. Franki æ , Project PAs Expert
9. I. Hajdi æ , NP "Mljet", Dubrovnik-Neretva county
10. I. Jardas, Project Marine Expert
11. N. Jasprica, Institute of Oceanography and Fisheries, Laboratory Dubrovnik
12. D. Juri æ , Park of Nature "Biokovo"
13. D. Marguš, Public Institution National Park "Krka"
14. D. Markovi æ , Director, State Institute for Nature Protection
15. M. Maroevi æ , Project Local ICM Expert
16. B. Martinovi æ -Vukovi æ , PSC member, Assistant Head, Management Department for Municipal Services and Environmental Protection, Dubrovnik-Neretva county
17. V. Mihel è i æ , National Park "Kornati"
18. A. Miški æ , Advisor for Island and Regional Development, Dept. for Regional and Island Development, Šibenik, County of Šibenik-Knin
19. A. Pavasovi æ , NPM
20. L. Petri æ , Project Local Tourism Expert
21. G. Piasevoli, Head Expert, Public Institution for Natural Protected Values Management in the County of Split-Dalmatia, Split
22. G. Pintur, Director, Park of Nature "Vransko jezero"
23. M. Radi æ , Consultant, WWFMedPO
24. M. Rogoši æ , the Regional Environmental Centre for Central and Eastern Europe (REC) Project Office Metkovi æ
25. Z. Ružanovi æ , Advisor - Biologist, NP "Kornati", Šibenik-Knin county
26. P. Sršen, NP "Mljet", Dubrovnik-Neretva county
27. A. Štrbenac, Head, Nature inventarisation and follow-up Dept., State Institute for Nature Protection
28. V. Ti è ina, Project National Fisheries/Mariculture Expert

A.Frankic Presentation

COAST PROJEKT:
PROTECTED AREAS WORKSHOP

Dr. Anamarija Frankic
afrankic@vims.edu
http://www.vims.edu/ccrm/frankic_a.html

Split, 11.1.2005

Presentation:

- Review of current PA issues
- Review of identified priority actions
- Necessary support and funding
- Connections with other project sectors and demonstration sites
- Small Grants Program

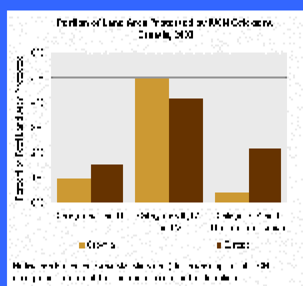
Are you proud of your homeland Croatia?

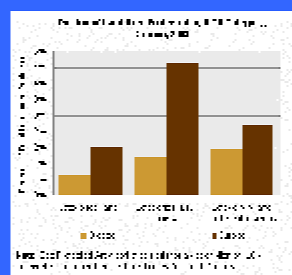
Answer: Yes, we are mostly proud of the natural beauty and natural heritage in Croatia!

But how do we protect them?

National level:

- Minimum financial support – only 5 mil Kn/year while ~ 50 mil Kn is needed
- Protected areas = forgotten and unwonted areas
- Lack of common vision and strategy for PAs – Protected Areas System!





Budget for Croatia:

8.1 mil Kn/2004

5 mil Kn/2005 = 700.000 EU

Budget for Greece:

100 mil EU/2004

World Resources Institute

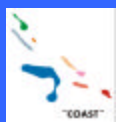
http://earthtrends.wri.org/text/biodiversity-protected/country-profiles.html

PAs in the COAST Project (+ Nature Park Lastovo):

Name	Mljet National Park	Kornati National Park	KrkaNational P ark	Biokovo Nature Park	Telascica Nature Park	Vranskojezero Nature Park
Established	1960	1980	1985	1981	1988	1999
Area (ha)	5,375	21,800	11,100	19,550	6,706	5,700
Employees	32	19	92	5	3 5	7
Visitors	69,753/year	50,200	515,031	40,000	87,200	10,000
Settlements	8	31	23	1 0	1	0
County	Dubrovacko-neretvanska	Sibensko-kninska	Sibensko-kninska	Splitsko - dalmatinska	Zadarska	Zadarska / SibenskoKninska
Internet	www.np-mljet.hr	www.kornati.hr	www.npkrkahr	www.biokovo.com	www.telascica.hr	www.vransko-jezerohr
Email:	np-mljet@np-mljet.hr	np-kornati@si.tel.hr	ravnatelj.npk@npkrka.hr	park-prirode-biokovo@st.tel.hr	telascica @ zd.htnet.hr	np-vransko-jezero@zd.htnet.hr
Physical plan	2001	2003	Management plan	in preparation	1990	in preparation

Counties and PAs:

- County JU for protected areas – insufficient number of experts and staff support
- Minute financial support
- Inadequate control/, monitoring, and implementation of regulations and policies
- Fragmented and ineffective decentralization

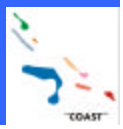


Problems/issues	couses	Potential solutions
Ilegal building	mainly due to ineffective control and regulation, and overlapping of controlling agencies/ministries	some parks need new physical plan where the local communities and land owners will be initiators and real 'carriers' of the plan; development of the Park's vision and mission together with the local communities and land owners; development of the management plan
Ilegal fishing/hunting	depletion biodiversity and degrading the PAs as an institution for conservation; unsupportive local population;	Management plan with EA monitoring of species; develop yearly and long term management of species; management plan for recreational fishing and controlled hunting in zoned areas; Hiring responsible rangers and strict implementation of parks regulations; Increase of fines for illegal fishing; organizing educational workshops, presentations, and meetings with topics related to conservation of habitats; Providing special permits for local people and hiring them as guards and controlers;
Accumulation of debris and waste	which is due to unaware/uneducated people, no clean up activities and no organized recycling and trash collection	Management plan and physical plan for the county with designated sites for waste; educational programs, building up public awareness; better control; applying regulations and increasing penalty fees;
Lack of controlled and organized visitation	insufficient collection of entrance fees; insufficient and inadequate Park information and no signalization; there is no informative/visitor center	Management plan with tourism plan and strategy Visitor centers (most PAs lack a visitor ceneter), interpretation guides, training courses for staff, controlled PA entrances for visitors; better control in the PA (needs better transportation support with boats and cars)
High institutional debts	expensive and ineffective organization of the Parks not enough professional staff, low quality work	need for new professional enthusiastic young people (preferably from the local areas, and Park 's land owners); provide them with seminars, workshops, training courses, etc
Insufficient research and scientific knowledge: lack of monitoring of natural and	Insufficient base line data; mainly due to very high expenses for research projects; depending ongov. funding of external scientific projects;	Management plan based on environmental and socio-cultural assessments; establish research center within Parks with adequate accommodation, laboratory equipment, diving equipment, boat, etc.; increase funding for research and monitoring; recover and preserve archeological sites;

Traditional /cultural activities are disappearing	neglected cultural traditions; uninterested and not stimulated land owners; pastures are not maintained (successions); degradation of agricultural fields and traditional landscapes and architecture;	Providing incentives/loans/grants for traditional activities and linking them to island-rural 4ourism and conservational goals of the Park (Small Grants projects); rural/traditional tourism development; With management plans introduce integration of small parcels into larger ones to insure agricultural production; provide marketing within and outside PAs;
Lack off/insufficient/outdated physical plans (cause and issue)	Slow administration and lack of collaboration and cooperation between Pas and county officials;	Better implemntation of laws and policies: management plan required for PAs should be based on well developed and current physical plans;
Conflicts with local communities	Unregulated private properties and ownerships within PAs Old catatster, lack of financing for this issue	Buying out lands by the PAs; providing substitutes for owners; alowing identified sustainable uses and activities (e.g organic farming, cattleing) ; special permits for locals; providing jobs in PAs;
Fires	Lack of funding, lack of anti -fire roads; Lack of equipment for stoping fires	Management plan, increase funding for fire controlls, ducational programs for visitors and local communities;
Lack of energy and water supply on island parks	Insufficianl infrastracure, ditstant islands, Expencive alternative technologies; increased # of	Management plan; collaboration with industries and scientific institutes providing alternative technologies; support from Government; Tourism plan development with carrying capacity; tourist seasonthrough out a year;
Unstable water levels in PA Vransko j. (degradation of marshes)	Melioration and intensive agriculture in PA watershed; uncontrolled exploatation of small water springs by local towns	Increase PA borders; better regulation of water in and outside the PA (Management plan); collaboration with Hrvatske vode and establishment of biological minimum for water use in springs;
Eutrophication in PAVransko lake	Intenzive agriculture (nutrient inputs, high sedimentation in shellow lake); meliration and use of chanel Prosika	Mitigation of marshes (to replace some agricultural lands within PA); develop extensive and organic agriculture; limited use nd control of Pro sika chanell; EIA study;

Examples of identified activities in Pas and potential donors:

- Management Plans – KEC/WB, CARDS,
- Tourism strategies and marketing plans – COAST
- Responsible 'green' tourism development based on natural and cultural heritage – COAST, SPARDS, Interreg IIIA, www.mmtpr.hr
- Sustainable use of natural recourses, recognition, evaluation and certification of eco and autochthon produces – COAST, SPARDS, PHARE, ECO-FOND
- Technical support – lab equipment, vehicles/vessels- PHARE
- Visitor/information centers – MMTPR, ECO-FOND
- Establishment of scientific baseline data and monitoring– EC/FP6
- GIS equipment and mapping
- Educational visitor paths: cultural/archeological, biking, hiking, vina, olive oil, honey, cheese, medicinal plants and herbs, etc - COAST
- Interpretation and education information system – COAST, USAID



Tourism! – the indicator analysis by the World Travel & Tourism Council showed that there are three key factors for successful tourism development in Croatia: human potential, price and natural heritage;

- Sustainable tourism development – interconnection of all sectors: Pas, agriculture, fisheries and mariculture, private entrepreneurship, science, technology and education;
- PAs should and must become ideal polygons and examples for sustainable development in Croatia!

Potential Funding Resources:

The World Bank – CAS approved 1.5 bill US$, and one of the priorities is to support activities related to sustainable development and protection of natural and cultural heritage :
http://siteresources.worldbank.org/INTCROATIA/Resources/CAS_Nov24-2004_CR.pdf

- EU - Interreg, Phare, SAPARD: http://europa.eu.int/comm/enterprise/services/tourism/tourism-publications/documents/internet_guide_en04.pdf
- EU FP6 Program: http://www.cordis.lu/fp6/accession_info.htm
- Dutch Eco-Labels: http://www.welcomeurope.com/news_info.asp?idnews=1019
- European Commission: http://www.welcomeurope.com/news_info.asp?idnews=1091 http://www.welcomeurope.com/prog.asp?Pgm=11340 http://www.welcomeurope.com/prog.asp?Pgm=11491 http://www.eugrants.org/choices_list.asp
- EU LIFE http://europa.eu.int/comm/environment/life/life/environment.htm
- http://www.strategyguide.org/bioserve/implemen/funding.html#fundscountry
- JICA and Asian Development Bank, NIPPON: http://www.nippon-foundation.or.jp/eng/how/other_fields.html

ECOSTAR Program

Certification Example

http://www.irf.org/recostar.htm

Environmentally Suitable Indicators	Excellent	Good	Poor
Beach area capacity (m^2/person)	8 -10	6 - 8	< 6
Sea Temp. (°C) for swimming	> 25		
Water supply (l/day/person)	200 – 250	100 - 200	< 100
Dissolved oxygen (mg/l)	> 5		
Water quality (E.coli) Drinking Swimming (*)	0< 100	40 - 50 100 – 200	> 50 (MPN/100 ml) > 200 (MPN/100ml)
Suspended solids/ sediments (mg/l)	> 5		
Bottom type	Sand, small gravel		mud
Current/exposure	Sheltered bays		
Bathymetry (m)	0-5		
Shoreline slope (%) topography	2-5		
Beach area access (buffer zone 2000m)	Within buffer zone		
Energy supply	Sufficient, solar and alternative resources present		
Sewage systems (Waste water treatment)	Present		
Protected areas, Nature Reserves, MPAs	Present		
Cultural Heritage Preservation	Present		
Food Supply, local mariculture, autochthon products	Sufficient and present on site		
Sustainable Infrastructure & landscape Design	Present		

Small Grants Program

- Encouraging and supporting local communities in development of green tourism (rural, eco, cultural, medicinal/health), restoring traditional activities, organic and autochthon agriculture, educational programs and activities promoting environmental awareness;
- Suggestion: give priorities to activities directly related to PAs and support of local communities in and near the parks!

Protected Areas: Vision

Green Corridor initiated by the KEC project, and should continue with COAST

Blue Corridor initiated with COAST project, and should continue with MPAs network

Croatian Conservation Foundation (CCF)

Fondacija za zaštitu prirodne baštine Hrvatske!

Establishment initiated and presented in the USA

www.croatianchronicle.com