



PERSGA

*The Regional Organization for the Conservation
of the Environment of the Red Sea and Gulf of Aden*

Implementation of the Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden



Annual Progress Report 2002



The Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden is funded jointly through the member countries of PERSGA, the Global Environment Facility (GEF) and the Islamic Development Bank.

The GEF implementing agencies include the United Nations Development Programme, the United Nations Environment Programme and the World Bank.

PERSGA is the executing agency for the Strategic Action Programme.

SAP Development Objective

To conserve the coastal and marine environments in the Red Sea and Gulf of Aden region and ensure the sustainable use of their resources.

Cover: White cheeked tern, Sudan

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List of Abbreviations and Acronyms

CBO	Community Based Organisation
CEDARE	Centre for Environment and Development in the Arab Region and Europe (Cairo)
EPC	Environment Protection Council (Yemen) now Environment Protection Authority
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FMS	Financial Management System
GEF	Global Environment Facility
GIS	Geographical Information System
HBC	Habitat and Biodiversity Conservation
IAEA	International Atomic Energy Agency
ICED	International Centre for Environment and Development
ICZM	Integrated Coastal Zone Management
IDB	Islamic Development Bank
IMO	International Maritime Organization of the United Nations
LMR	Living Marine Resources
LS	Lead Specialist
MAP	Mediterranean Action Programme
MPA	Marine Protected Area
MSRRC	Marine Science Research and Resources Centre (Aden, Yemen)
NCWCD	National Commission for Wildlife Conservation & Development (Saudi Arabia)
NGO	Non-governmental Organization
NPC	National Programme Co-ordinator
NRMP	Navigation Risk and Marine Pollution
PAP	Public Awareness and Participation
PC	Programme Co-ordinator
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
RAP	Regional Action Plan (for the Conservation of Coral Reefs)
REMP	Regional Environmental Monitoring Programme
ROPME	Regional Organization for the Protection of the Marine Environment
ROWA	Regional Office for West Asia (UNEP)
RSGA	Red Sea and Gulf of Aden
SAP	Strategic Action Programme (for the Red Sea and Gulf of Aden)
SCUBA	Self-contained Underwater Breathing Apparatus
SSM	Standard Survey Methodology
TOR	Terms of Reference
TSC	Train-Sea-Coast
UKHO	United Kingdom Hydrographic Office
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WG	Working Group

Executive Summary

This is a summary of the fourth Joint Annual Progress Report for the project RAB/97/G33 – GE-63717 *Implementation of the Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden*. 2002 was a busy year and one which saw substantial steps forward in all areas of SAP implementation. It could be characterised as a year of sustained progress put together on the solid foundations of capacity building and project management established in the early years. The increase in the pace of execution bodes well for the SAP in 2003.

The SAP aims to reduce the risk of maritime accidents and hence minimise pollution in the region. The proposed new routing measures for vessels in the southern Red Sea were accepted by IMO in December, based on the extensive hydrographic surveys of 2001. New charts will be forthcoming in 2003. A regional training course on Port State Control was held jointly with representatives from IMO and ROPME. The Republic of Yemen joined the Indian Ocean Memorandum of Understanding on Port State Control.

Two LMR research and training centres are now equipped and operational. Considerable further training has been given on stock assessment for fisheries management, with special emphasis on sharks. A regional study on the environmental effects of shrimp trawling is underway. Monitoring and analysis of the aquarium fish trade has been addressed through training and distribution of information. Preliminary moves have been made for the establishment of a Regional Commission for Fisheries.

Regional habitat and species surveys have taken place for mangroves, breeding seabirds, coral reefs and marine turtles. These surveys have followed the procedures designed in the Standard Survey Methods manual and involved on-the-job training for all participants. Data collected will be used for the design of regional conservation plans. Preliminary steps have been taken for the establishment of a reference collection of marine fauna and flora.

Biological, resource and socio-economic surveys were carried out at the proposed marine protected areas in Djibouti, Sudan and Yemen. Each survey involved the use of satellite data and was conducted in cooperation with the national authorities. Survey and camping equipment was procured and provided in advance.

The Integrated Coastal Zone Management Plan for Aden was approved by the local governorate, after several redrafts and discussions, and submitted to the Council of Ministers for signature. An ICZM team was assembled in Sudan and preliminary work for the national CZM plan was conducted. CEDARE made considerable progress with the development of the GIS system for the region.

To raise the level of public participation in marine conservation a number of Community Participation Projects have been initiated in Yemen, Jordan, Sudan and Somalia. Local operatives have been given training in project implementation and relevant financial issues. Public awareness is being raised through the educational system via a series of nature conservation clubs and the preparation of an environmental education learning supplement. Training workshops for teachers and public awareness specialists have been held. A 'toolkit' on Effective Communication for Biodiversity Conservation was prepared to build capacity and assist key personnel in the region. A five-day media workshop resulted in a 'Press-kit for Journalists' and the launching of the MERSA network – Media for the Environment of the Red Sea and Gulf of Aden.

Staff training at headquarters has continued with specialist courses taken in finance and administration. Two persons are undertaking Masters level degree courses through the SAP.

A team led by Professor Dr. Mostafa Tolba undertook the prescribed project Mid-term Evaluation. The preliminary results were discussed at the Fourth Task Force meeting in May. Subsequently a number of Demonstration Activities were prepared by country representatives and submitted to PERSGA for evaluation and implementation.

Two new publication series were launched during the year, a Technical series and a Workshop Report series.

PERSGA was fully represented at the World Summit on Sustainable Development in Johannesburg with an extensive and professional exhibition. The display was later shown at the First Egyptian-International Conference on Protected Areas and Sustainable Development.

Résumé analytique

Le présent document est un résumé du quatrième Rapport d'avancement annuel conjoint du projet RAB/97/G33 – GE-63717 Mise en œuvre du Programme d'Action Stratégique (PAS) pour la Mer Rouge et le Golfe d'Aden.

Le PAS vise à réduire les risques d'accidents maritimes et à minimiser ainsi la pollution dans la région. Les nouvelles mesures proposées concernant le trafic maritime dans la mer Rouge méridional ont été acceptées par l'OMI, sur la base des grands relevés hydrographiques effectués en 2001. La République du Yémen a adhéré au Mémoire d'accord du contrôle par l'État du port dans l'océan Indien.

Deux centres de recherche et de formation en matière de ressources marines biologiques sont maintenant équipés et opérationnels. D'importantes activités supplémentaires de formation ont été menées sur l'évaluation des stocks halieutiques pour la gestion des pêcheries, une attention toute particulière étant accordée aux requins. Une étude régionale sur les impacts environnementaux de la pêche à la crevette au chalut est en cours. Le suivi et l'analyse du commerce des poissons d'aquariums ont fait l'objet d'activités de formation et de diffusion de l'information. Des mesures préliminaires ont été prises en vue de l'établissement d'une Commission régionale des pêcheries.

Des relevés régionaux des habitats et des espèces ont été effectués sur les mangroves, les oiseaux de mer nicheurs, les récifs coralliens et les tortues marines. Ces relevés, réalisés conformément aux procédures énoncées dans le Manuel standard des relevés, comportaient une composante de formation en cours d'activité pour tous les participants. Les données recueillies seront utilisées aux fins de la conception de plans de conservation régionaux. Des mesures préliminaires ont été prises en vue de l'établissement d'une collection de référence de la faune et de la flore marines.

Des enquêtes sur les ressources biologiques et socioéconomiques ont été menées aux sites des aires marines protégées dont la création est envisagée à Djibouti, au Soudan et au Yémen. Chacune d'elles a été effectuée en faisant usage de données satellitaires et en coopération avec les autorités nationales. Du matériel de relevé et de camping avait été acheté et mis à disposition à l'avance.

Le Plan de gestion intégrée des zones côtières (GIZC) d'Aden a été approuvé par le gouvernorat local, après des débats et plusieurs rédactions successives, et soumis au Conseil des ministres pour signature. Une équipe de GIZC a été formée au Soudan et il a été procédé à des travaux préliminaires en vue de la formulation du plan national de gestion des zones côtières. Le CEDARE a réalisé des progrès considérables dans l'élaboration du système d'information géographique (SIG) pour la région.

Aux fins d'accroître la participation du public à la conservation marine, plusieurs projets de participation communautaires ont été lancés au Yémen, en Jordanie, au Soudan et en Somalie. Des opérateurs locaux ont bénéficié d'une formation à la mise en œuvre des projets et aux questions financières pertinentes. Il a été entrepris de sensibiliser le public au moyen d'une série d'activités de clubs de conservation de la nature et par la préparation d'un supplément pédagogique pour l'éducation environnementale. Des ateliers de formation ont été organisés à l'intention d'enseignants et de spécialistes de la sensibilisation du public. Un « module pratique » sur la Communication efficace pour la conservation de la biodiversité a été élaboré pour renforcer les capacités et aider le personnel clé dans la région. Un atelier de cinq jours pour les médias a abouti à la publication d'un Dossier de presse pour les journalistes et au lancement du réseau des médias pour l'environnement de la mer Rouge et du golfe d'Aden (dit réseau MERSA– Media for the Environment of the Red Sea and Gulf of Aden).

La formation du personnel s'est poursuivie au siège de l'Organisation, notamment au moyen de cours spécialisés en finances et administration. Dans le cadre du PAS, deux personnes suivent des cours en vue de l'obtention d'un diplôme de maîtrise.

Une équipe dirigée par le Dr Mostafa Tolba a entrepris l'évaluation à mi-parcours du projet, ainsi que le prévoient les procédures établies. Les résultats préliminaires de l'évaluation ont été examinés lors de la quatrième réunion du Groupe de travail en mai. Subséquemment, plusieurs projets d'activités de démonstration ont été élaborés par des représentants des pays et présentés à PERSGA en vue de leur évaluation et de leur mise en œuvre.

Deux nouvelles séries de publications ont été lancées au cours de l'année, l'une consacrée aux études techniques et l'autre aux rapports d'ateliers.

PERSGA était dignement représentée au Sommet mondial sur le développement durable à Johannesburg où elle avait organisé une importante exposition d'un haut degré de professionnalisme. Cette même exposition a été présentée ultérieurement à la Première Conférence internationale égyptienne sur les aires protégées et le développement durable.

Strategic Action Programme - Annual Report 2002

Introduction

This is the fourth Joint Annual Progress Report for the project RAB/97/G33 – GE-63717 *Implementation of the Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden*. The SAP is being executed by the "Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden" (PERSGA) and contributes to the goals and objectives of this organisation. These goals include the conservation of the environment of the Red Sea and Gulf of Aden, and the sustainable use of the region's coastal and marine resources. The SAP was developed over a period of three years by PERSGA and the three Global Environment Facility (GEF) implementing agencies, namely the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the World Bank (WB). The SAP was set in motion in December 1998 following a signing ceremony held in Jeddah. The implementing agencies, together with The Islamic Development Bank (IsDB), have provided the necessary financial and technical support to PERSGA for the execution of the programme.

The SAP is an interdisciplinary project with eight primary components:

- Institutional Strengthening to Facilitate Regional Co-operation
- Reduction of Navigation Risks and Marine Pollution (NRMP)
- Sustainable Use and Management of Living Marine Resources (LMR)
- Habitat and Biodiversity Conservation (HBC)
- Development of a Regional Network of Marine Protected Areas (MPA)
- Support for Integrated Coastal Zone Management (ICZM)
- Public Awareness and Participation (PAP)
- Monitoring and Evaluation of Programme Impacts (M&E)



Coral garden, Sudan

This report provides an overview of the major achievements of the Strategic Action Programme during the year 2002. It has been compiled from the SAP monthly reports with additional material where appropriate.

A series of seven appendices are attached with supplementary information.

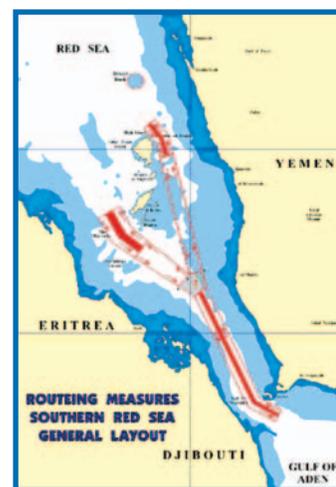
Reduction of Navigation Risks and Marine Pollution

This component aims to reduce the risk of maritime accidents in the region and hence minimise marine pollution.

Hydrographic Surveys, Navigation Aids and Routing Measures

Fundamental for navigation safety is the accuracy of the navigational charts and the implementation of effective routing measures to separate shipping. As charts for the southern Red Sea are based largely on data collected over one hundred years ago, and as no prescribed vessel traffic lanes are in operation through the narrow passage of the Bab el Mandeb or around the Hanish islands, Component 2 has undertaken and completed the formidable task of organising the necessary hydrographic survey work, updating charts and establishing, through the International Maritime Organization (IMO) a formally recognised vessel traffic separation scheme.

The extensive underwater mapping was completed in 2001 and draft new charts prepared in early 2002. The new routing proposals were approved by the Working Group and discussed with the governments of Djibouti and Eritrea who provided letters of support when the documents were formally submitted to IMO by the government of Yemen. The proposed routing measures were presented at the IMO Sub-Committee on Safety of Navigation NAV 48 in July. The recommendation of the Sub-Committee was secured and, at the 76th Session of the Maritime Safety Committee held in December, the Committee decided to adopt the proposed new vessel routing measures to come into force on 1st July 2003. Navigational charts showing these new routes will be prepared by UKHO and printed by 1st June 2003. This initiative will significantly reduce the number of head-to-head encounters by ships passing through this narrow and congested waterway and hence reduce the probability of accidents and their consequent pollution.



Vessel traffic routes accepted by IMO

Port State Control

A groundbreaking meeting was held 18-20 March at PERSGA headquarters to raise the issue of Port State Control (PSC) within the Red Sea and Gulf of Aden (RSGA). IMO has provided consistent and valuable support and sent an expert to deliver papers at the meeting. The Navigation Working Group (WG) recognised the impact that PSC measures can have in improving maritime safety and eliminating substandard ships and requested IMO to further assist the states of the region to prepare themselves technically. It was recommended that the PERSGA states increase the effectiveness of their PSC measures by joining the Indian Ocean Memorandum of Understanding on Port State Control (IOMoU), advice taken by the government of Yemen which became a member in August 2002.

Contingency Plans

A 'Regional Contingency Planning' report was prepared for the PERSGA region by an IMO consultant. Comments were received from Djibouti on the proposed Action Plan and a meeting to discuss the issue scheduled for January 2003. Meanwhile a national workshop was held in Djibouti (13-16 May) on the 'International Convention on Oil Pollution Preparedness, Response and Cooperation' (OPRC) 1990. Proposals were presented to the Council of Ministers in Yemen regarding ratification of the 'International Convention on Civil Liability for Oil Pollution Damage' (CLC) 1969.



M. T. Limburg smoking after incident

As it is generally accepted that improvements are needed to the navigation aids in the southern Red Sea, research was conducted to determine the needs and priorities. PERSGA has secured funding for a new lighthouse and outline specifications prepared that include a stand-by light and the latest in vessel identification equipment (AIS).

Activities in the latter part of the year were marred by the unfortunate incident involving the M.T. Limburg which resulted in the loss of 200-300 tonnes of crude oil into the sea off Al Mukalla in Yemen. Component 2 assisted through the establishment of an Incident and Investigation team, liaison with oil terminal staff and conducting interviews with the ship's crew members. New security exclusion areas were designed for Aden's outer and inner harbours for government approval. Arrangements were made with IMO, PERSGA and the World Bank for the next Navigation WG meeting to focus on 'Accident and Incident Investigations', and to be held in Port Sudan in March 2003.



Oil from M. T. Limburg on Yemen coastline (ITOPF)

Sustainable Use and Management of Living Marine Resources

Training Centres

Through the SAP two LMR Research and Training Centres have been established and equipment provided for their support. One is located at the Fisheries Training Institute in Aden, and the second at the Faculty of Marine Science, King Abdul Aziz University, Jeddah. In 2002 the latter centre was supplied with diving equipment, computers and audio equipment for the conference facilities.

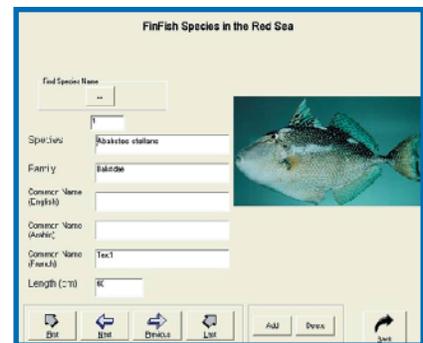
Elasmobranch Fisheries Management

One of the prerequisites for the development of any sustainable fisheries management plan is the acquisition of the essential information on stock levels. In 2001 standard data formats were prepared and fisheries enumerators trained in their use. In 2002 additional technical and logistical support has been provided. Data centres have been established at various fish-landing sites in each country. The necessary equipment (computer hardware, software, peripherals) has been procured to establish four data centres in Djibouti. Here data will not only be used for stock assessment purposes and the preparation of management plans, but also will assist Djibouti in executing the FAO Code of Conduct for Responsible Fisheries. Stock data is now flowing regularly from Saudi Arabia and Egypt to PERSGA. It is reviewed and forwarded to CEDARE for incorporation into the regional fisheries database.



Opening the LMR training centre, Jeddah

A six-day participatory training workshop was held on *Methodologies for Stock Assessment and Fisheries Management of Elasmobranchs* at the Training Centre in Aden, 27 April – 3 May. A detailed *Elasmobranch Field Identification Guide* has been completed and submitted to FAO for printing; it is freely available from the PERSGA website in PDF format. One thousand copies of a waterproof *Shark Identification Guide* have also been prepared (in Arabic) and distributed within the region.



Fish database input screen

These handy guides showing the key characteristics of the common shark species are designed for use at fish landing sites and on board fishing vessels. Regional fisheries scientists should now be able to assess stocks of sharks and rays and consider long-term management of their resources.

Environmental Impacts of Trawling for Shrimp

Studies have been conducted to assess the environmental impacts of trawl fishing within the region. Initial work was conducted from Gizan (Saudi Arabia). Later the Marine Science Research and Resources Centre (MSRRC) was contracted to conduct pilot studies in the southern Red Sea and Gulf of Aden and similar work is underway in Egypt. Data from the trawling studies and from sampling at the markets has been compiled and submitted to CEDARE for entry into the LMR database.

Ornamental (Aquarium) Fisheries

A course was held 9-15 April at the Training Centre in Jeddah on *Methods for Assessing the Status and Potential for Ornamental Fisheries and their Environmental Impacts*, with the broad goal of promoting sustainable use of marine aquarium organisms. The course was attended by 23 representatives from the region and covered identification of species, and methods for analysing the impact of the trade on local ecosystems. Following the training, studies have been carried out in Egypt, Jordan, Djibouti, Saudi Arabia and Yemen to monitor the status of the trade within the region and its impact on the environment. Studies have included an analysis of export data from each country as well as field sampling at collection sites. A full report on the workshop has been published as PERSGA Training Workshop Report 2002 Number 2, (172 pages).



Red Sea butterflyfish



Red Sea surgeonfish

Environmentally Friendly Aquaculture

In collaboration with FAO, ROPME, ICLARM and REDI (Agriculture Policy Reform Project USA), a workshop on *Friendly Aquaculture and Fisheries Practices* was held in Hurghada, Egypt during the period 15-17 September. Forty participants attended. The workshop recommended that national governments prepare and implement action plans to make fisheries and aquaculture polices more environmentally friendly. The FAO regional office in Cairo expressed willingness to provide the necessary guidance for the development of workable action plans. These action plans should focus on:

- Relevant regulatory reforms,
- Better protection of marine resources through implementation of ICZM plans,
- Development and implementation of EIA guidelines for all proposed new aquaculture and fisheries facilities,

- Systematic training to produce a body of skilled professionals,
- Establishment of a relevant database for saving and sharing corporate memory,
- Identification of key measures required to raise public awareness of the future problems that will arise from uncoordinated and rapid development along the coast.

Regional Commission for Fisheries

There is no regional Commission to overview fisheries policies or make recommendations for stock management. This lack of overview is likely to negatively impact stocks that straddle the fishing grounds of two or more countries or that migrate from the waters of one country to another. With this in mind, Component 3 organised a preliminary meeting for the possible establishment of a Regional Commission for Fisheries in the Red Sea and Gulf of Aden (RECOFI) from 24-25 June. It was attended by the relevant decision makers involved with national fisheries policies from the PERSGA member countries and outline approval for the establishment of a RECOFI was received.



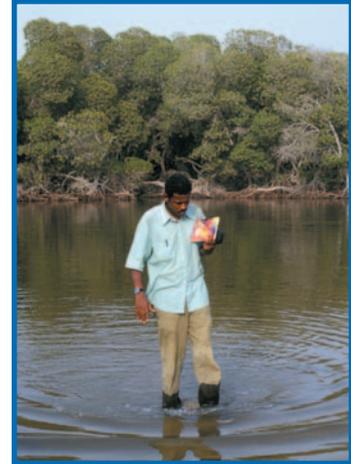
RECOFI meeting, Jeddah

Habitat and Biodiversity Conservation

Standard Survey Methods and Training

Standard survey methods (SSM) have been prepared to ensure that data collected from each country is regionally comparable. Following the design stage, regional teams of experts are being trained in each of the standard methods. Most of the chapters of the 'Guide' are now being edited though the chapter on Reef Fish is still in preparation. An artist has drawn the sixteen different species of cetacean for the marine mammals chapter.

During the first half of 2002 representatives from the region were trained in the SSM for intertidal and mangrove habitats. The course was conducted in Djibouti from 21-28 March and 17 regional specialists attended. The Djiboutian Institute for Research provided laboratory support and conference room facilities. The proceedings of the Workshop have been printed in PERSGA Training Workshop Report 2002 No. 1.



Mangrove Survey

A regional training course on SSM for breeding seabirds took place from 1-10 of June on the Farasan Islands, Saudi Arabia. Ten regional specialists participated. The training programme included lectures, fieldwork, report writing and presentations by the trainees. A regional survey was immediately initiated to consolidate the newly acquired skills.

Surveys and Regional Conservation Plans

Mangroves: A survey of the status of mangrove habitats in Sudan, Djibouti and Yemen was initiated at the end of June so that the training could be put into practice and in order to develop a regional report on the status of mangrove habitats in the RSGA. One regional consultant was hired to conduct the surveys, assisted by six national specialists who had attended the SSM training earlier in the year.

Breeding Seabirds: A regional survey on breeding seabirds was conducted between May and July in Yemen, Sudan and Djibouti. In other countries, where accurate data are already available, national reports were developed from the existing literature. The survey was carried out by two regional consultants assisted by the six national specialists trained by PERSGA in the SSM. The survey covered more than 300 islands in the Region. The results show that the region hosts some globally important breeding sites for eight seabird species.



Brown booby on nest

From these surveys national status reports have been developed and the status and threats on the seabirds presented. Additionally, a regional inventory has been compiled that estimates the population size of the seabirds in the RSGA and presents recommendations to conserve the seabird populations in the region.

Coral Reefs: The final draft of the *Regional Action Plan for Coral Reefs in the Red Sea and Gulf of Aden* (RAP) has been prepared for printing and should be distributed in the first quarter of 2003. As part of its implementation a regional coral reef survey took place from April to June using regional team leaders and national specialists trained by PERSGA. The surveys took place in Djibouti, Saudi Arabia, Sudan, Egypt and Yemen. In Djibouti three trainees and two specialists participated in the ReefCheck training and coral reef habitat surveys. Offshore islands and coastal areas were surveyed over a period of six days. In Saudi Arabia the consultants conducted the survey at some of the offshore islands near Jeddah. In Sudan the ReefCheck programme was conducted during the period 25-31 May. Two regional consultants and two national specialists spent the whole period at sea and surveyed the five most sensitive sites - Sanganeb Atoll, Winget Reef, Towartit Reef, Suakin Reef and Tala Tala Archipelago. In Yemen the coral reef survey focussed on the Yemeni Red Sea coast. A complementary survey was carried out by the Environment Protection Agency in Socotra. The result of this survey - the "Regional Coral Reef Status Report for the PERSGA Region," was published in the *World Coral Reef Status Report*. The report was hosted at the website: <http://www.aims.gov.au/pages/research/coral-bleaching/scr2002/scr-00.html>.

Marine Turtles: A marine turtle survey was conducted in two countries, Saudi Arabia and Yemen, in October and November respectively. Surveys in other countries will follow the seasonality in the turtles' breeding cycle. Two national consultants conducted the surveys; three national specialists assisted each consultant. In Saudi Arabia the survey was carried out in close coordination with the National Commission for Wildlife



Turtle weighing

Conservation and Development (NCWCD) in Riyadh. The survey covered the nesting beaches at Ras Baridi, Ras Alaquq and Farasan Island on the Red Sea coast during the period 27 September to 14 November.

In Yemen, the survey was carried out with the Environment Protection Authority (EPA). The survey was conducted at Ithmoon-Ras Sharma and Belhaf-Bir Ali beaches. Fieldwork involved counts of nesting females, pits and eggs. On-the-job-training was held for team members, particularly in the use of the SSM for taking morphometric data and tagging.



Green turtle hatchlings emerge from nest

Volunteers from several NGOs and schools were encouraged to take part in the beach survey. More than 66 female turtles were tagged and the PERSGA turtle tags were used for the first time in the region.

Reference Collection Centre

Preliminary plans have been drawn up for the establishment of a reference collection of marine fauna and flora to be housed at the Faculty of Marine Science, King Abdul Aziz University, Jeddah. Several preliminary meetings have been held and necessary equipment identified. This activity is being carried out in close coordination with the LMR component.

Working Group meetings were held 18-20 March (Djibouti) and 21-22 October (Sharm El-Sheikh). All members attended the meetings. SAP implementation, regional coordination on international conventions and the joint HBC/MPA Workplan for 2003 were discussed.

Establishment of a Regional Network of Marine Protected Areas

During the development of the SAP twelve areas of regional or global significance were identified that should form the basis of a regional network of marine protected areas. Some are already declared as MPAs, others are still at the 'proposed' stage. This regional network consists of the following areas as shown in the map below.

In 2001 a Regional Master Plan, was prepared in accordance with current international guidelines and tailored for the regional environmental and socio economic conditions.

In 2002 biological, resource and socio-economic surveys were carried out at the proposed MPAs in Sudan, Yemen and Djibouti. The collected data and the Master Plan are being used as the basis for the development of site-specific Management Plans.



Prior to the execution of the surveys the necessary equipment (diving kits, air compressor, generator and camping materials) was procured and forwarded to the relevant authority in each country. In each case survey work was led by the national authorities. The objectives of the surveys were to identify and map the distribution and diversity of marine and coastal habitats, to establish the current status of resources such as fish and benthic communities, and to assess the levels and types of human impacts within the proposed MPAs. All field survey data have been entered into a GIS database and used to create point maps illustrating the distribution and status of resources. The surveys included the use of remote sensing data from the Landsat 7 Enhanced Thematic Mapper satellite to map the broad distribution of habitats and biotopes throughout the survey areas.

The marine protected area surveys of Dugonab Bay and Mukkawar Island (Sudan) took place between 19 January and 19 February. The Wildlife Conservation General Administration (WCGA) took the lead responsibility for execution of the project. A meeting was held with the new Director of WCGA in June where the administration committed itself to the official declaration of the marine protected area.

The survey showed that the marine and coastal ecosystems of the entire area are varied, biodiverse and in generally good condition. The proposed MPA will include a total of approximately 0.8 km² of mangrove, 44 km² of coral habitat and 11.7 km² of seagrass beds. The area supports nationally, regionally and globally important populations of several endangered species, particularly three species of turtles, whale shark and dugong.



Proposed MPA coastline, Sudan

A mission was conducted to Sana'a, Mukalla, Bir Ali and Atag (13-21 April) to assist with the surveys at the proposed Belhaf - Bir Ali MPA (Yemen). The survey was conducted in conjunction with the Environment Protection Authority (EPA) and the Protected Areas Management & Coastal Zones Management (PAM-CZM) project officials. With the same set of broad objectives, the survey noted that the marine and coastal ecosystems within the area of the proposed MPA remain varied and diverse and that some of the most important areas remain in good or very good condition. The total area of the proposed MPA is in the region of 1,184 km² which includes 308 km² of land and 875 km² of sea. The MPA will include one area of mangrove within an isolated volcanic crater lake which, though small in size (<0.5 km²), is globally unique. The Steering Committee overseeing the establishment of the MPA met in Atag on 26 June to discuss the survey report and preparation of the site-specific Master Plan.

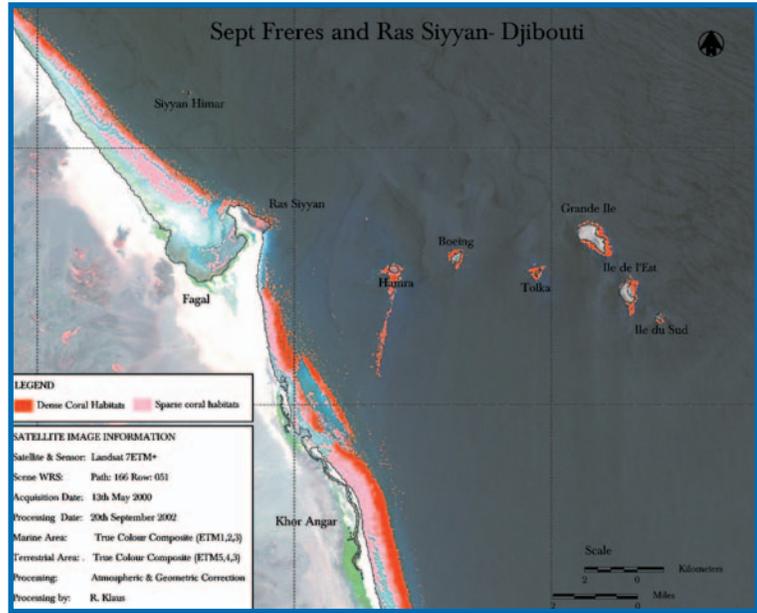
The proposed MPA at Iles des Sept Frères, Ras Siyyan and Khor Angar (Djibouti) was surveyed from 9-20 June 2002 by a team of national and international consultants led by the Ministry of Housing, Urbanism, Environment and Land Use Planning. The Japan International Cooperation Agency (JICA) provided some logistical support. Prior to the survey a meeting was held with members of the Steering Committee at the residence of the governor in the town of Obock where the governor welcomed the creation of the MPA.



Temporary fisherman's shelter, Djibouti

The survey, which has been translated into French, revealed that most of the coral communities were in good condition and that degraded sites were limited to areas experiencing human impacts, particularly at beaches and other popular landing and anchoring sites at the islands. Fish community structure around the islands was also healthy, indicative of low levels of fishing pressure.

The exception to this was the small number of sharks recorded, indicating serious depletion over the last few years. The proposed MPA covers a total area of 400 km² including 107 km² of land. Biotope maps show 2.6 km² of mangrove, 3 km² of seagrass beds and 10 km² of coral habitat. A Steering Committee meeting was held in Djibouti in July to discuss the outcome of the Sept Frères MPA surveys and its official declaration. A decree for declaration was later passed to His Excellency the Prime Minister for approval.



Landsat image showing coral habitats - MPA Djibouti

In order to expedite the process of their official declaration, reference material on environmental legislation was compiled and distributed to MPA focal points in Djibouti, Sudan and Yemen.

Training

Twenty-three participants from the PERSGA member countries and a representative from Eritrea attended the first Marine Protected Areas Management Course in Port Sudan from 6-13 January. The course, prepared by the Train-Sea-Coast Course Development Unit with assistance from PERSGA, was validated by the appropriate authorities.

The national counterparts in the MPA surveying teams were given training sessions on survey techniques, GIS and remote sensing before executing their work in each of the three countries – Sudan, Yemen and Djibouti. On-the-job training continued during the survey activities.

Working Group Meetings

The fifth MPA WG meeting was held in Mukalla, Yemen followed by a field trip to Bir Ali-Belhaf MPA (23–24 June 2002). The sixth MPA WG meeting was held jointly with the HBC Working Group Meeting in Sharm El-Sheikh, Egypt in October.

Support for Integrated Coastal Zone Management

The SAP is working to strengthen integration of environmental and natural resource issues into the planning and management of the coastal zone. During 2002 work was carried out to prepare Model ICZM plans for Aden (Yemen) and for the coast of Sudan.

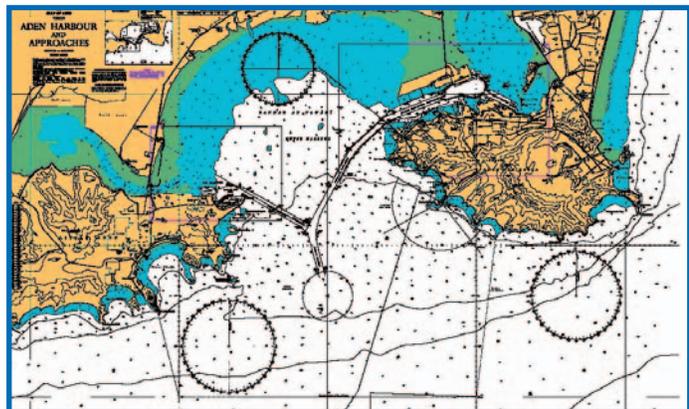
Yemen

Work in Aden commenced in September 2001. A national ICZM workshop was attended by forty participants representing all the key stakeholders. A draft Coastal Zone Management Plan was prepared and submitted to the Aden Local Council for approval and implementation. In February 2002 the draft plan for Aden's coastal zone was discussed with the EPA Chairman, and a workshop conducted with Aden Local Council. The first draft was finalised and forwarded to a legal specialist for editing.



Yemen coastline

In May a joint national/regional ICZM Workshop was held in Aden. At the two-day regional workshop all participants presented their experiences in ICZM issues in their own countries. Activities in Aden were also presented so that participants would become fully acquainted with them and be ready to participate in the following national workshop. Fifty participants representing almost all stakeholders from the Aden Governorate attended the national meeting. The draft of the proposed ICZM management plan for Aden was discussed and the guidelines adopted. Following the approval of the ICZM Guidelines an implementation plan was prepared in June.



Map of Aden used for ICZM and GIS database

In August Aden's ICZM plan was further discussed at a meeting with HE the Minister of Transport and Maritime Affairs together with his legal advisor and the EPA Deputy. The revised draft was submitted to HE the Minister of Tourism and Environment. The final plan, approved by the Governorate of Aden, was submitted for signature to the Council of Ministers in November. While waiting for final approval, the national team continues to work with the local municipality and the University of Aden regarding training schemes and ICZM plan implementation.

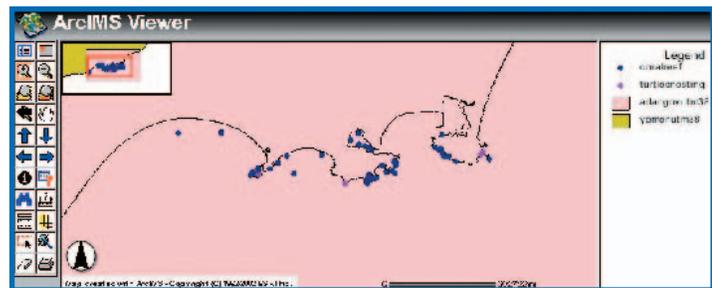
Sudan

Preliminary plans were made early in the year to launch an ICZM Model Activity in Sudan. The ICZM specialists conducted a mission in February to Khartoum, Port Sudan and Suakin to interview candidates and assist in the selection of Sudan's national ICZM team. The teams' role is to prepare the General Report on CZM and the Sudan CZM plan. In early October the Lead Specialist went to Sudan to meet with the national team. Discussions focused on the status of the reports and preparations for the First National Workshop to be held in Port Sudan 16-19 January, 2003. The team submitted the first draft of their reports in December.

Geographic Information System

CEDARE has been contracted to develop a regional Geographic Information System (GIS) database including data collection, quality assessment, standardization and entry. This will be used as a tool for decision-making and management in coastal and marine environmental conservation. Three-quarters of the work was done by the end of the year and final completion is expected by October 2003.

The GIS database has been constructed from data drawn from a variety of sources including UK Admiralty Charts, remote sensing data (Landsat, Spot, Ikonos, radar images) and from the PERSGA Lead Specialists. Charts and data can be viewed and manipulated using ArcView software.



Arc Information screen showing Aden coastline

The first phase of development of a GIS website has been completed. This will enable users in the PERSGA member countries to view, query and analyze the data via their web browsers.

A review (needs assessment) has been undertaken in Djibouti, Jordan, Saudi Arabia, Yemen and Egypt to determine the present level of use of GIS within the Region. A report on requirements and recommendations has been sent to the countries and feedback received.

The software is being held on a new SUN Blade 2000 workstation at CEDARE. This runs the ARC GIS software and publishes information through the Internet. The workstation will be transferred from CEDARE to PERSGA in the latter half of 2003.

GIS training workshop was held in Cairo from 21-25 July. Participants were drawn from all over the region. The workshop helped to build regional human capacity in GIS applications, reviewed regional GIS status and assisted towards the ultimate goal – a PERSGA-GIS technical team to act as GIS trainers in their respective countries. Topics covered in the training included advanced ArcView GIS and remote sensing applications.

A summary of the latest report from CEDARE is included as appendix I.

Public Awareness and Participation

Community Participation Projects (Micro-Grants Programme)

Raising the level of participation in environmental conservation by the local communities is a key objective of the PAP component. This is being addressed through the involvement of local NGOs in Community Participation Projects (CPPs).

In March four CPPs were approved and grants awarded as follows: Management of Lobster Stocks in Mukallah, Yemen; Assessment of Fishing Community, Aqaba, Jordan; Marine Park Visitor Centre, Aqaba, Jordan; Bird Monitoring Unit, Aden, Yemen.

A regional workshop was held in Amman, 28 July to 1 August, for 18 representatives involved in implementing the CPPs. The participants were trained on the financial issues related to the grant agreements, the implementation of CPPs and how to prepare reports according to the format required by the GEF Small Grants Programme. A manual has now been prepared that provides procedures and guidelines for the management and implementation of the CPPs. It will assist Non-Governmental Organizations (NGOs), Community-Based Organizations (CBOs) and other potential grantees in the preparation of project proposals for funding. The guidelines also include criteria for eligibility and selection, as well as the proposal format and several model forms to facilitate proposal development and submission.

The manual is the result of a comprehensive field-assessment of issues affecting the public's awareness of the need to protect marine and coastal resources. The assessment included meetings with a variety of ministers, as well as with staff of UNDP projects, the GEF Small Grants Programme and the Social Fund for Development. Site visits were also conducted to target areas, to NGOs, CBOs and fisheries cooperatives. Focus group discussions were attended by community leaders, local authorities, donors, NGOs and other stakeholders to identify priorities and strategies. The manual and its operating procedures are expected to satisfy the needs of the various managers, implementers, partners and stakeholders of the CPPs at the national and the regional levels.

In July a grant agreement was signed for a CPP to promote marine conservation in Aqaba, and then in September, a second, to implement the project: Community Management of Dungonab Marine Protected Area (Sudan). In December a further six CPPs were approved for Somalia. In NE Somalia: Mangrove Forest Conservation, Beach Sanitation and Greening; and NW Somalia: Protection of Mangroves and Turtles, Mangrove Protection in Saad ad Din and Aibat Islands (MPA). Projects for the Translation and Production of Environmental Materials into Somali, will take place in both areas.

A summary of the CPPs' objectives, budgets, target beneficiaries and executing agencies is included in appendix II.

Public Awareness through the Educational System

Public awareness of marine conservation issues is being raised in the regional school system through the establishment of school environmental or nature conservation clubs, teacher training, and the preparation of an environmental education learning supplement (EELS).

The establishment of school clubs in Somalia, Sudan and Yemen is well advanced. In March new clubs were set up in Djibouti. In July a regional meeting was held in Amman for the focal points of the school clubs. A detailed report was compiled describing the club programme, the system, the activities and the obstacles encountered. A database was assembled with key information for each club in the region. A *School Nature Conservation Club Guide*, which describes the steps that need to be taken to set up and run the clubs, has been reviewed and approved for production. In the autumn student cards were printed for the club members and the first edition of a club newsletter was prepared. A training manual for teachers has been edited and is under production. In order to ensure that the clubs can continue to operate independently, links have been made with national government institutions and/or local NGOs. For example a Memorandum of Understanding has been signed between the Sudanese Ministry of Education (Red Sea State) and the Sudanese Environment Conservation Society to supervise local school nature conservation clubs.



School club members visit plant nursery

Environmental education teacher-training sessions were held for school club leaders in Yemen (Aden, Al Mukalla and Al Hodeidah), NE and NW Somalia (Bosaso, Hargeisa, Berbera and Erigavo). In NE Somalia alone, seven workshops were held (four at primary schools and three at secondary schools) resulting in 42 teachers trained to establish, supervise and manage nature conservation clubs. Seven new clubs have now been created in Bosaso.



Environmental lecture given in Somalia

In cooperation with experts from the Ministries of Education, PERSGA is leading the preparation of an environmental education learning supplement. This will focus on coastal management of the Red Sea and Gulf of Aden. This new initiative will consist of a ready-to-use classroom aide for teachers containing reference material on the marine environment, activities, games, experiments and data collection protocols for trips to the field. The learning supplement will have application at all educational levels from primary to secondary, and is being produced in Arabic, English and French.

The first draft was prepared by experts during a regional workshop held in Amman, 20-30 July, and work was continued at an EELS workshop in Cairo later in the summer. In October preparations were made to convert the EELS into a digital format for e-learning through the Internet, hence increasing the availability of the material.

Workshops

The PAP component is building capacity to deliver environmental public awareness by training key personnel in the region. In May, in partnership with ALECSO and with the cooperation of NCWCD, a joint workshop took place on Environmental Public Awareness and Communication. The workshop was held in Jeddah from 18-22 May at PERSGA headquarters. The objectives of the workshop were to:

- Establish an understanding of environmental training methods
- Prepare training materials on the subject of environmental awareness
- Prepare a 'kit' for the environmental trainers
- Establish links between the environmental trainers within the region.

In July a training workshop took place in Jordan to build the capacity of the PAP board members in *Effective Communication for Biodiversity Conservation*. A 'toolkit' was developed that includes a training manual and guidelines. Technical assistance was provided by the IUCN Commission for Education and Communication. The workshop built the participants' capacity to carry out communication projects and improved their presentation and communication skills.

A five-day regional media workshop was held in Jeddah for journalists from 21-25 December. Results included the launching by Dr. Nizar Tawfiq of the 'MERSA' network – Media for the Environment of the Red Sea and Gulf of Aden. This network will support the Organization in the dissemination of environmental information throughout the region. A 'Press-kit' was prepared for the journalists containing basic information on the Red Sea and Gulf of Aden environment. A special webpage at the PERSGA website (www.persga.org) will be hosted for the exchange of information, cooperation and coordination of environmentally concerned media personnel from the region.



Regional media workshop

General

A range of publicity materials were prepared during the year and used at international exhibitions (WSSD Johannesburg and Sharm El-Sheikh). These include four new brochures, a CD, posters and three videos made with the assistance of UNDP-TV.

Al Sanbouk issue 16 with a focus on ICZM was prepared and distributed in December. The new website went live at www.persga.org in time for the WSSD in August.

'World Environment Day' (June 5): On 'World Environment Day' three clubs from Djibouti-city urban and rural areas were involved in clean-up activities in the city and its suburbs. Local NGOs, including women's organisations, participated in the campaign alongside the clubs and their efforts were broadcast on national TV. In NW Somalia a concert with an environmental theme was performed and a 'plastic-bags collection campaign' held in Hargeisa city. The campaign was jointly organized by the Ministry of Environment and UNDP Somalia with assistance from school clubs. In Sudan a radio programme was prepared and broadcast to celebrate the Day.

Institutional Strengthening to Facilitate Regional Co-operation

Institutional Capacity of the PERSGA Secretariat

The objective of the component - to build the capacity of PERSGA to enable it to execute the SAP and similar projects - has now been fully met both in terms of personnel and infrastructure. Opportunities for continued professional development of staff continue to be taken. The PAP Lead Specialist commenced a Masters degree course at the University of London (Royal Holloway) titled 'Geography of Third World Development'. The SAP continues to fund the training of a student from Djibouti to study at the University of Orleans in France. In June he carried out fieldwork studies on the islands of Moucha and Maskali to collect data for his thesis titled: *The Coral Reefs of Moucha and Maskali Islands – Conservation Status, Human Impacts and Sustainable Management*. The thesis was presented on 10 March 2003.

The Procurement and Finance Specialist and the Procurement and Administrative Officer attended a World Bank Capacity Building training course at Sharm El-Sheikh (10-17 May). The course included training on procurement, financial management and disbursement procedures.

The Chief Technical Advisor left the SAP and his duties were taken up by the Secretary General. His significant contribution to the planning, development and implementation of the Programme were gratefully acknowledged. Mr Ahmed Gouda joined the SAP as the new Procurement and Finance Specialist on 29 January. Ms. Saffanah Barry joined PERSGA/SAP as an Environmental Specialist in the same month.

A rearrangement of office space took place early in the year. New computer network points were put in, old furniture replaced and the opportunity taken for a general refurbishment. The space allocated to the library was enlarged to create a single area for both the library and the PERSGA archives. The framework for a new marine environmental information centre is complete. The quality of the library improves as shipments of books are received.

Mid-term Evaluation

The mid-term evaluation team, led by Professor Dr Mostafa Tolba, visited the SAP focal points, the NPCs and the SAP Project Management Team (PMT) to discuss progress and prepare their report. The final draft of the evaluation was received in July and discussed in the following Task Force meeting.

Following the recommendations of the team, proposals were requested from the PERSGA member countries for suitable Demonstration Activities. The PMT reviewed and discussed proposals received from Egypt, Sudan, Yemen and Jordan at the end of 2002.

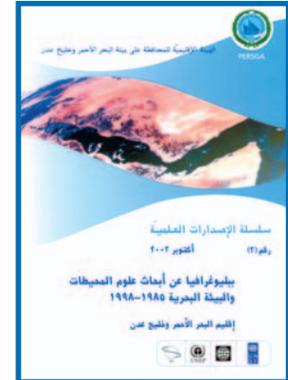
Reports and documentation

PERSGA designed and established two new series of publications, the PERSGA Technical series and the PERSGA Training Workshop Report series. The following documents were prepared and distributed to focal points in the region:

Technical Series

PERSGA Technical Series No. 1, *The Red Sea and Gulf of Aden Regional Network of Marine Protected Areas Regional Master Plan*.

PERSGA Technical Series No. 2, *A Bibliography of Oceanographic and Marine Environmental Research 1985-1998, Red Sea and Gulf of Aden Region*.



Technical Series No. 2
- The Bibliography -

Training Workshop Report Series

PERSGA Training Workshop Report 2002 No. 1, *Standard Survey Methods for Intertidal and Mangrove Biotopes*.

PERSGA Workshop Report 2002 No. 2, *Guidelines for Ornamental Fish Sampling Data Collection and Analysis of the Aquarium Fish Trade*.

SAP Documents

Navigation Risk Assessment and Management Plan (Prepared by Det Norske Veritas and printed by the World Bank).

The Status of the Living Marine Resources in the Red Sea and Gulf of Aden and Their Management (English version printed by the World Bank).

The Strategic Action Programme (Reprint of English text with new Arabic translation).

SAP map-poster (Arabic version).

The SAP Annual Report 2001.

The SAP Semi-annual Report 2002.

General Publications

Reprint of *Background Papers to the Sea to Sea Conference 1995*, (separate editions English and Arabic).

Survey Design for Proposed Marine Protected Areas.

Shark Identification Guide
(Waterproof, Arabic).

PERSGA calendar for 2003.

Al Sanbouk issue 16.



Waterproof shark ID guide

Regional Support and Cooperation

SAP Task Force

The fourth and fifth SAP Task Force meetings were held in Jeddah from 6-7 May and 18-19 September. The meetings were attended by representatives from the PERSGA Member Countries, UNDP, UNEP, the World Bank, the Islamic Development Bank.



Fourth Task Force meeting

A representative from the SAP mid-term evaluation team attended the fourth meeting and the Task Force discussed its preliminary results. Strategies for the future sustainability of the Programme and its achievements were considered. At the Fifth Task Force meeting the Deputy Secretary General presented a report on the successful participation and the contribution of PERSGA to the World Summit on Sustainable Development (WSSD) in Johannesburg. A presentation on the Global International Waters Assessment Programme was given by a representative from UNEP. A preparatory meeting for the next PERSGA Council was held immediately after the Task Force meeting. Recommendations from the two meetings are given in appendix III.

PERSGA Council

The Sixth PERSGA Council Meeting took place in Sharm El-Sheikh on the 24 October. In addition to Council Members, representatives of UNEP, Arab League, ALECSO, ROPME, World Bank, IDB and CEDARE attended the meeting. The agenda included the following issues: report from the Secretary General, report on the SAP mid-term evaluation, financial status of PERSGA and Member State contributions, amendments to PERSGA staff regulations, plans for 2003, PERSGA's Secretary General position.

International Conferences

In preparation for the World Summit on Sustainable Development (Johannesburg, 26 August – 4 September 2002) PERSGA attended the Fourth Summit Preparatory meeting (PrepCom4), a ministerial level meeting, held in Bali Indonesia (27 May - 7 June). The Secretary General and PAP Lead Specialist held a side-meeting for the Ministers from the PERSGA region and presented a strategy paper titled – *"The PERSGA Agenda (for the new millennium): Sustainable Development in the Red Sea and Gulf of Aden"*.

The World Summit on Sustainable Development (WSSD) was held in Johannesburg in late August-early September. A team of representatives from PERSGA attended. The event was held at three separate venues so the team divided their time to maximize PERSGA's presence. They participated in the plenary session and in all workshops related to International Waters issues.

The PERSGA exhibition was very attractive and was shown on a number of TV programmes. The flags of all the Member Countries were clearly visible and acted as a magnet for visitors. The raised floor with Red Sea scenes below, the lighting and the film-show combined to produce a most effective stand. Well-designed colourful documents, CDs, T-shirts, pins and pens were distributed to the public. More than 1,000 persons visited the stand.

PERSGA prepared and supported a display at the First Egyptian-International Conference on Protected Areas and Sustainable Development held in Sharm El-Sheikh 23-26 October. Information, brochures, newsletters and PERSGA CDs were distributed to a wide variety of interested visitors.

Monitoring and Evaluation of Programme Impacts

The objective of this component is to allow continuous and structured monitoring and evaluation of programme impacts. A set of project targets were defined in 2000 together with benchmarks and indicators to measure these impacts. Baseline data has been collected through the surveys conducted by components 3, 4, 5, 6 and 7. The data have been entered into PERSGA's database that has been prepared by CEDARE. Analysis of the information will take place once the database is complete and fully operational.

The strategy for developing a regional environmental monitoring programme (REMP) has been finalised. Agreement has been reached with the Monaco Marine Environment Studies Center of the International Atomic Energy Agency (IAEA) and the Mediterranean Action Programme (MAP) to support its development and implementation.

A list of the training courses conducted through the SAP in 2002 is included in appendix IV. PERSGA training course evaluation questionnaires were circulated to trainees in each country to gain feedback on the value of courses conducted and future requirements.

Appendix I

The Establishment of a Regional GIS at PERSGA

Percent complete: 75%

Expected completion: September 2003

Development of the PERSGA GIS database system involves data collection, verification (quality assessment), standardisation and data entry. Early GIS development in 2001 used data clipped from the CEDARE GIS database and included atmosphere and climate, biodiversity, economic indicators, energy and materials, food and agriculture, forests and land cover, freshwater, health, oceans and fisheries, population and human development and urban data.

The import and integration of available remote sensing data from the region into the GIS database has taken place in 2002. This includes data from Landsat, Spot, Ikonos and radar images. Landsat Thematic Mapper Mosaics for all the region, provided by NASA, have been integrated and clipped. The image resolution (pixel size) is 28.5 meters. The remote sensing data also include some high resolution images covering the regions' major coastal cities (Jeddah, Port Said, Suez, Sharm El-Sheikh, Aden).



Satellite map of Aden

CEDARE has completed the GIS development from Admiralty Charts provided by the UK Hydrographic Office. This includes large scale charts covering harbours, anchorages and navigational hazards, medium scale charts for coastal navigation, and small scale charts for offshore navigation and passage planning.

The charts can be viewed, manipulated and maintained in ArcView software using Arcs Extension and ARCS for GIS.

Updating the GIS system with data from PERSGA Sustainable Use and Management of Living Marine Resources

User-friendly modelling software has been developed that will assist in the data entry and data analysis of Red Sea and Gulf of Aden fisheries. The overall objective of the program is to assist in the development of a sustainable management strategy for transboundary fish stocks and invertebrates. The application will facilitate calculations from different stock assessment models. Three modules are being developed within this software namely a Finfish module, Sharks module and Ornamental Fish module.



Input screen for fisheries database

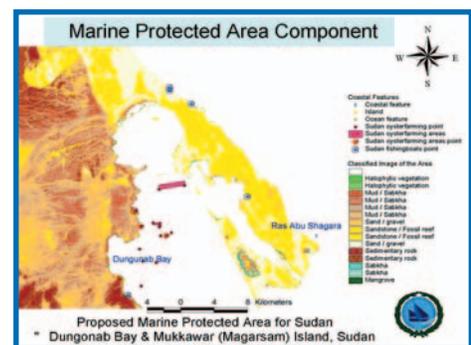
Habitats and Biodiversity

The database structure for the key habitats and species data has been finalized and CEDARE has been provided with data for seabirds and turtles in a study area northwest of Yemen. Data for key habitats and species at other locations will be entered in 2003. Remotely sensed images for the study locations were clipped and registered to the area. Seabird data were posted on the PERSGA GIS web site. Global coral reef data (from Reef Base) was provided and the data for the PERSGA region was clipped and entered into the regional GIS system.

A Biodiversity Information System is currently being designed to provide information for decision makers and researchers about the status of marine species in the Red Sea and Gulf of Aden.

Development of a Network of Marine Protected Areas

Data from the three proposed marine protected areas at Isles des Sept Frères & Ras Siyyan (Djibouti), Mukkawar Island and Dungonab Bay (Sudan), and Belhaf - Bir Ali (Yemen), were registered, verified and entered into the regional GIS database. This included data from survey forms, training documents and Landsat images. All data, including the Landsat images, were posted on the PERSGA Internet Map Server.



GIS based map of Dungonab Bay, Sudan showing coastal features

Support for Integrated Coastal Zone Management

To assist with and support the ICZM Model Activity in Aden the following data sets were entered to the GIS system: historical sites of Aden, administrative districts & borders, fuel stations, fishing villages, fish-landing sites, fibre-glass factory, desalination plant, fishing areas, ice factory, public and private beaches, public roads and Corniche, tourism projects, harbours, coral reefs, seagrass beds, turtle and bird nesting sites, vegetation, wetlands, sandy and rocky coasts, islands, sensitive areas, landfills, dredging, sewage outfalls and cooling water areas. Images of specific locations and species were hyperlinked to the GIS system. A user-friendly interface was developed to allow Lead Specialists to manipulate and analyse the data. Data have been posted on the PERSGA Internet Map Server to allow browsing and data manipulation.

Enhancement of Public Awareness and Participation

A CD-ROM is being prepared that contains clipped images of all the maps and remote sensing data that were developed throughout the project. The CD-ROM will provide an overview of the project outputs and will contain all the documents, images, videos and maps. The CD-ROM will shed light on several coastal hotspots and how GIS applications assisted in the decision making process.

Development of PERSGA GIS website and installation of GIS Internet Map server on PERSGA Workstation

The first phase has been completed with an operational website and Internet map server 'live'. The PERSGA GIS website acts as a portal for all information that is being gathered by the GIS project. The temporary website address is <http://persgagis.cedare.org.eg>. The GIS Internet Map server has been installed on the PERSGA GIS workstation. The ARC IMS will enable PERSGA member countries to integrate centralized GIS/Remote Sensing data sources with Internet data sources for display, query and analysis in an easy-to-use web browser.

An interim PERSGA GIS website (<http://isu3.cedare.org.eg/website/persga-gis>) has been set up allowing access to the PERSGA GIS database and maps hosted on the server in CEDARE. The website will be maintained and updated on a regular basis by CEDARE until the end of the project. Internet Map server was installed on the web site and tested remotely from PERSGA headquarters.

Training

Following on from the successful training course held in February 2001, a second course on advanced GIS was held at CEDARE premises from 21-25 July. Eight participants from Djibouti, Somalia, Sudan and Yemen attended the workshop.

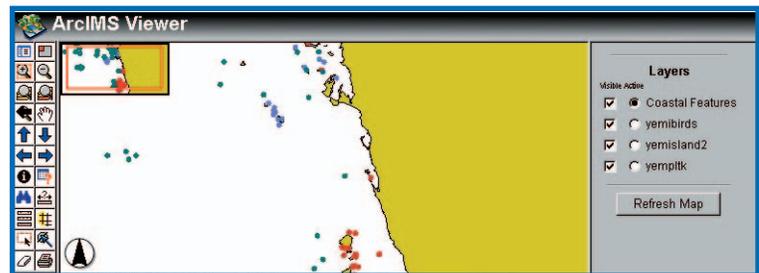
Needs Assessment Reports

CEDARE staff and consultants conducted a needs assessment in Egypt and visited Yemen (April 2002), Saudi Arabia (May 2002), Djibouti and Jordan (June 2002) to study issues related to the implementation of a GIS for the Organization. The main objectives of the missions were to conduct the first step of the proposed regional assessment of GIS capacities and needs, to assess the present use of GIS in marine and coastal management, and to determine needs for further capacity building and the requirements to harmonize GIS systems currently in use.

To achieve the above-mentioned objectives the following activities were conducted during the missions: all existing maps were reviewed along with existing data and departmental use, daily operations of various departments were analysed, including assessment, planning and development. The required GIS applications for each department and a GIS implementation plan was discussed with recommendations for the installation of computer hardware, software and data conversion. The needs assessment report has been sent to the countries, feedback received, and a final integrated version prepared.

Sustainable Development Indicators Information System

CEDARE has developed PERSGA’s Sustainable Development Indicator Information System (SDIIS). This will provide information to decision makers and researchers about the state of the environment and sustainable development in the PERSGA Member States. The system allows the saving and retrieving of sustainable development indicators for different national and international sources. The user can search by country, region, city, indicator or theme. SDIIS is currently available in two versions:



ACR Information screen for Yemen

- Full information system developed using Oracle database management system that runs on local area network using client/server architecture.
- Query executable information system that can be provided for PERSGA beneficiaries on CD-ROM and run on desktop computers to query indicator information and print results in a graphical or tabular format.

Currently, development of a SDIIS web portal is under construction to allow PERSGA beneficiaries to access and search SDIIS through the Internet.

PERSGA Workstation Installation

A SUN Blade 2000 Workstation was delivered to CEDARE in the second half of 2002 and installed. The workstation will run ARC GIS software dedicated to publishing PERSGA GIS information through the Internet. This will act as a means of communication between PERSGA and its member states. The workstation is currently accessible through the CEDARE Internet communication network. The station is expected to be installed at PERSGA headquarters by September 2003.

Appendix II Community Participation Projects

TITLE OF CPP	OBJECTIVES	OUTPUTS	TARGET BENEFICIARIES	EXECUTING AGENCY	BUDGET (PERSGA)
YEMEN Conservation of Lobster Stocks	To replace the destructive fishing gear (gill nets) used by artisanal fishermen to catch rock lobsters with traps.	<ol style="list-style-type: none"> 1. Capacity building of local NGO in project management. 2. Manufacture of lobster traps. 3. Distribution of lobster traps, including a revolving loan system and public awareness. 4. Establishment of an ecotourism site. 	Artisanal fishermen of Mukalla, Yemen.	Friends of the Environment Society - Shuhair	\$29,800 (\$27,500)
YEMEN Aden Bird Monitoring Unit	To protect wetland areas and to preserve the habitats of migrating birds.	<ol style="list-style-type: none"> 1. Capacity building of local NGO in project management. 2. Declaration of site as bird sanctuary. 3. Public awareness campaign to promote lagoons and wetlands. 4. Infrastructure at bird watching site. 	Aden local community.	Mabaret Aden Society	\$14,900 (\$12,500)
JORDAN Assessment of Fishing Community in Relation to Coastal Development and Fishery Status	To conserve and manage fish resources and their habitats.	<ol style="list-style-type: none"> 1. Socio-economic assessment study. 2. Training of fish enumerators. 3. Raised awareness among fishermen. 4. Framework for fishing permit system. 5. Establishment of a catch/effort data collection unit. 	All users of living marine resources especially artisanal fishermen.	University of Jordan, Marine Science Station, Aqaba	\$21,000 (\$14,500)
JORDAN Marine Park Visitor Centre	To reduce the adverse effects on the marine environment of human activities by promoting a better understanding of the value and fragility of its resources.	<ol style="list-style-type: none"> 1. Provision of equipment. 2. Production and distribution of printed materials, brochures on facilities and regulations. 3. Project publicity through the media. 4. Private sector initiatives. 	General public, Aqaba	The Aqaba Marine Park	\$16,300 (\$12,300)
JORDAN Promoting Marine Ecotourism	To promote marine conservation through a public awareness programme.	<ol style="list-style-type: none"> 1. Deliver a training programme on ecotourism to target groups. 2. Capacity building for NGO. 3. Prepare a 'Code of ethics for action'. 	Local community (Aqaba) and foreign tourists.	Friends of the Earth, Amman	\$11,700 (\$8,200)
SUDAN Community Management of Dungenab MPA	To provide assistance to the local community to use natural resources in a sustainable manner and improve livelihoods through involvement in community-centred activities.	<ol style="list-style-type: none"> 1. Women acquire new skills in fish processing. 2. Meeting room built. 3. Public latrines in village. 4. Availability of medicines in village. 5. Rehabilitation of fishing boats. 6. Socio-economic study on ice factory feasibility. 	Local community in Dungenab Bay.	Acord	\$65,574 (\$35,555)

TITLE OF CPP	OBJECTIVES	OUTPUTS	TARGET BENEFICIARIES	EXECUTING AGENCY	BUDGET (PERSGA)
NE SOMALIA Mangrove Forest Conservation	Conservation and renewal of marine resources through public awareness and re-planting of mangroves.	<ol style="list-style-type: none"> 1. Raised awareness of conservation needs of marine resources (mangroves, turtles, sharks). 2. Assessment, meeting, and workshop leading to a management plan for natural resources. 3. Mangrove plantation and rehabilitation. 	Coastal communities of NE Somalia, especially fishing communities.	The Marine Team (NE Somalia)	\$23,050 (\$18,950)
NE SOMALIA Translation of Environmental Knowledge into the Somali Language	To provide environmental information to the Somali people in their own language to empower them to contribute towards improving their living standards	<ol style="list-style-type: none"> 1. Capacity building of NGO. 2. New environmental education materials translated and distributed. 3. Monthly environmental <i>Dhambal</i> newsletter. 	Coastal communities of NE Somalia.	Dan-Dor, (NE Somalia)	\$23,127 (\$18,992)
NE SOMALIA Beach Sanitation and Greening	To improve the sanitation situation on town beaches by establishing a garbage collection system and planting of trees.	<ol style="list-style-type: none"> 1. Selection and construction of garbage collection sites. 2. Raised local awareness of the situation. 3. Greening of the beach area by planting 300 trees. 	Urban community of Bosaso, NE Somalia.	Bosaso Town Municipality	\$22,362 (\$14,140)
NW SOMALIA Protection of Mangroves and Turtles in the Eastern Coast of NW Somalia	To conserve the mangroves and turtles along the eastern coast of NW Somalia.	<ol style="list-style-type: none"> 1. Raised awareness in the local communities of the value of their natural resources. 2. Educational and AVV materials. 3. A local management plan for natural resources. 4. Mangrove rehabilitation and plantation. 	Coastal communities of NW Somalia.	SAFAR	\$18,500 (\$15,000)
NW SOMALIA Translation of Environmental Knowledge into the Somali Language	To provide environmental information to the Somali people in their own language to empower them to contribute towards improving their living standards.	<ol style="list-style-type: none"> 1. Capacity building of NGO. 2. New environmental education materials translated and distributed. 3. Publication of environmental articles in the local newspapers. 	Coastal communities of NW Somalia.	GARD	\$23,042 (\$18,992)
NW SOMALIA Protection of Mangroves in Saad ad Din and Aibat Islands in NW Somalia	To conserve mangroves and turtles in the proposed MPA area in Somalia.	<ol style="list-style-type: none"> 1. Raised community awareness of the value of mangroves, turtles and sharks. 2. A management plan for natural resources. 3. Rehabilitation and planting of mangroves. 	Coastal communities, especially fishermen.	TCS	\$17,500 (\$15,000)

Figures in brackets indicate the PERSGA-SAP contribution to the total budget

Appendix III

Task Force Meetings 2002

The Fourth and Fifth Task Force meetings for the Strategic Action Programme for the Red Sea and Gulf of Aden were held from 6-7 May and 18-19 September, 2002 in the Conference Room of the Presidency for Meteorology and Environment, Jeddah, Kingdom of Saudi Arabia.

Recommendations from the Fourth Task Force Meeting

- Lead Specialists should ensure that all major documents have an Executive Summary that can be translated into French.
- A summary of the SAP Financial Statement for the year should be attached to the Annual Report.
- A letter should be prepared for IMO requesting assistance with the modalities for approaching the private sector to gain further funding for SAP component 2.
- The value of the GEF ICZM distance learning initiative to the implementation of component 6 should be investigated.
- Lead Specialists should ensure that consultancies in Djibouti are of sufficient duration to achieve quality results.
- The SAP management should review the current Workplans in light of the timescale and budget to ensure that the projected achievements are attainable. Amendments should be considered that include on-the-ground demonstration projects if feasible.
- Communication procedures between PERSGA and the Task Force members need to be improved.
- The MTE report should not include the appendix or the section on the Special Review.
- The Task Force and PERSGA management should review the draft Sustainability Strategy.
- The next Task Force meeting will take place from 18-19 September, 2002.

Recommendations from the Fifth Task Force Meeting

Several recommendations were compiled from the discussions held over the two days 18-19 September. These included:

- The urgent need for the countries to fulfil their financial commitments to PERSGA.
- PERSGA will coordinate with the Mediterranean Action Programme with regard to cooperation in a regional monitoring programme for the Red Sea and Gulf of Aden, and to locate suitable francophone marine conservation specialists to assist with programme activities in Djibouti.
- PERSGA will focus on the identification of indicators for SAP Monitoring and Evaluation. PERSGA will prepare a brief summary of the changes made from the original PIP and operational workplans to the revised SAP Work Plan.
- The IDB may assist with financing a workshop in the field of 'marine and coastal environments' and may work together with PERSGA on suitable projects.
- PERSGA will convene a workshop to discuss the institutional structure of the proposed RECOFI once the initial procedures and approval for the establishment of such a body have been agreed upon.
- A regional MPA unit will be established within the PERSGA Secretariat structure in Jeddah. Attention will be placed on the opportunities to extend boundaries of marine protected areas to include important coastal regions.
- UNEP offered PERSGA the opportunity to participate at the Governing Council meeting in Nairobi in February 2003.

Status of Implementation of Recommendations from Fifth Task Force Meeting

<p>Countries fulfil their financial commitments to PERSGA.</p>	<p>Yemen has contributed fully.</p>
<p>PERSGA coordinates with the Mediterranean Action Programme with regard to cooperation in a regional monitoring programme.</p>	<p>Agreement reached with the Monaco Environment Studies Center and with MAP for REMP implementation.</p>
<p>PERSGA coordinates with the Mediterranean Action Programme to locate suitable francophone marine conservation specialists to assist with programme activities in Djibouti.</p>	<p>Some suitable francophone specialists located.</p>
<p>PERSGA will focus on the identification of indicators for SAP Monitoring and Evaluation. PERSGA will prepare a brief summary of the changes made from the original PIP and operational workplans to the revised SAP Work Plan.</p>	<p>Indicators included within GIS database. Summaries in preparation.</p>
<p>The IDB may assist with financing a workshop in the field of 'marine and coastal environments' and may work together with PERSGA on suitable projects.</p>	<p>In abeyance</p>
<p>PERSGA will convene a workshop to discuss the institutional structure of the proposed RECOFI once the initial procedures and approval for the establishment of such a body have been agreed upon.</p>	<p>Awaiting approval for establishment of the RECOFI from certain Member States.</p>
<p>A regional MPA unit will be established within the PERSGA Secretariat structure in Jeddah. Attention will be placed on the opportunities to extend boundaries of marine protected areas to include important coastal regions.</p>	<p>Regional MPA unit at PERSGA provisionally approved. MPA declarations proceeding through national institutions.</p>
<p>UNEP offered PERSGA the opportunity to participate at the Governing Council meeting in Nairobi in February 2003.</p>	<p>Offer accepted.</p>

Appendix IV

Training Courses Conducted Through the SAP in 2002

Comprnent	Title of course	Duration /days	No. of Trainees	Countries represented
1	Inst. World Bank Capacity Building (Procurement, Finance, Disbursement)	8	2	Egypt, Sudan (PERSGA staff)
2	NRMP Port State Control Workshop	3	24	All member countries plus ROPME
3	LMR Methods for Stock Assessment and Fisheries Management of Elasmobranchs	8	20	All member countries
3	LMR Methods for Assessing the Status and Potential for Ornamental Fisheries and their Environmental Impacts	7	23	All member countries
3	LMR Environmentally Friendly Aquaculture and Fisheries Practices	3	40	All member countries
4	HBC SSM for Intertidal and Mangrove Habitats	8	17	All member countries
4	HBC SSM for Breeding Seabirds	10	10	All member countries
4	HBC SSM for Coral Reefs - ReefCheck	6	17	Djibouti, Egypt, Saudi Arabia, Sudan, Yemen
4	HBC SSM for Marine Turtles	10	12	Saudi Arabia, Yemen
5	MPA MPA Managers Course (TSC)	8	13	All member countries and Eritrea
5	MPA Survey Techniques GIS and Remote Sensing	2	9	Sudan, Djibouti, Yemen
6	ICZM Regional ICZM Workshop	2		All member countries
6	ICZM ArcView and GIS	5	8	Djibouti, Somalia, Sudan, Yemen
7	PAP Environmental Public Awareness and Communication (with NCWCD)	5	20	All member countries
7	PAP Social Marketing Workshop	2	17	NE Somalia
7	PAP Environmental Education Workshops	1	131	NE Somalia (42), NW Somalia (30), Yemen (59)
7	PAP Effective Communication for Biodiversity Conservation	6	6	All member countries
7	PAP Media Workshop	6	12	All member countries

Appendix V Conferences and International Meetings

PERSGA/SAP representatives attended the following important international meetings and conferences to promote the Organization and raise its profile within the international community, network with regional and international colleagues, and continue professional development.

- A workshop on the 'Conservation of the North-Eastern Red Sea' held at the National Commission for Wildlife Conservation and Development in Riyadh, from 28-30 January.
- The International Symposium on Ecotourism, 24-28 March, organised by the Supreme Council for Tourism and the National Commission for Wildlife Conservation and Development (Riyadh, Saudi Arabia). A presentation was given titled 'The Marine Environment of Saudi Arabia as an Ecotourism Destination'.
- The IUCN Regional meeting in Riyadh.
- BirdLife International Middle East Division in Amman. The objective was to coordinate activities and discuss the preparation of a "Regional Conservation Plan for Seabirds in the Red Sea and Gulf of Aden".
- Fourth Summit Preparatory Meeting (Prepcom 4), Bali - Indonesia, 27 May - 7 June.
- A conference on public participation in environmental issues held in Thailand in June.
- World Summit on Sustainable Development, Johannesburg
26 August - 4 September.
- The *Second Meeting of the Parties to the African-Eurasian Migratory Waterbirds Agreement* (25-27 September).
- The First Egyptian-International Conference on Protected Areas and Sustainable Development held in Sharm El-Sheikh in 23-26 October 2002. Three papers were presented, the first was titled: 'An Introduction to PERSGA', the second 'PERSGA's Experience with the Conservation of Biological Diversity in the Red Sea and Gulf of Aden' and the third 'The Regional Master Plan for Marine Protected Areas in the Red Sea and Gulf of Aden'.



World Summit exhibition site



PERSGA team and exhibition at Sharm El-Sheikh

Appendix VI Equipment Provided to PERSGA Countries Through the SAP in 2002

Item Description	Beneficiary	Location	Price USD
Diving, survey and camping equipment	Djibouti	Djibouti	20,104
Diving, survey and camping equipment	Yemen	Yemen	19,061
Computers, network & diving equipment	Training centre	Saudi Arabia	28,268
Underwater photography equipment	Yemen	Yemen	6,493
GIS server – for PERSGA headquarters	Regional	CEDARE (temporary site)	30,000
TOTAL			103,926

Appendix VII Financial Disbursements 2002

Description	Amount USD
Country based personnel	97,860
Equipment	125,714
Miscellaneous	223,458
Consultancies: National Consultants	181,445
Others	889,969
Project Overheads	683,283
Training	561,966
Travel in the region	74,467
Total	2,838,162

Implementing Agency	Amount in USD
UNDP	1,543,894
UNEP	455,433
World Bank	745,074
Islamic Development Bank	93,761
Total	2,838,162

Total Project Disbursements from 1999 in U.S. Dollars

1999	2000	2001	2002	Total
\$ 684,000	\$ 2,023,000	\$ 4,447,000	\$ 2,838,000	\$ 9,992,000

Number of Requests for Services and Requests for Goods processed

	2000	2001	2002
Services contracts issued	88	82	91
Purchase Orders issued	95	76	85