Annexure I of IOGOOS Action Taken Report and ANNEX 4 of IOGOOS VI Report

Agenda Item 3 of Annual Meeting

Draft Strategic Plan put up for adoption by IOGOOS VI

Global Ocean Observing System for Indian Ocean (IOGOOS)

Strategic Plan 2007-2011

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1 Mission of IOGOOS

To foster cooperation and concerted actions on ocean observations, ocean science and operational oceanography for the Indian Ocean, to mitigate the impacts of natural disasters and climate change and to inform policy and decision making for protecting life and property and marine habitats and resources.

2 Objectives

The association of marine operational and research agencies and institutions which is IOGOOS recognized the imperative need to take a pro-active role and concerted actions to understand the ocean and coastal regions of the Indian Ocean for making informed decisions that save lives and protect living habitats and resources in the Indian Ocean region,

The broad intent was to contribute, collectively, to the progress of ocean observations, ocean science and operational oceanography, focussing on these imperative needs of the Indian Ocean region,

IOGOOS provides an organizational framework for planning, coordination and effective implementation of appropriate regional and sub-regional ocean and coastal observing systems, associated research and development, and services,

Members of IOGOOS will collaborate and work together for developing programmes for the implementation of GOOS in the Indian Ocean and for promoting activities of common interest for the development of operational oceanography in the Indian Ocean region

The specific objectives are to:

a) Contribute to the enhancement and establishment of the ocean observing system in the region;
b) promote and facilitate efficient and effective management, exchange and utilisation of oceanographic data;
c) promote and facilitate projects in coastal oceanography, in particular in relation to the prediction and mitigation of the impacts of hazards;
d) promote programmes and projects in operational oceanography and ocean services in the region meeting the requirements of end-users;
e) strengthen capacity building for enhancing the capabilities in the region;
f) encourage research in support of the above and the needs of users; and
g) develop synergies with other ocean programmes and regional GOOS bodies and .contribute to international planning and promotion of GOOS.

3 Strategic Approaches

3.1 Enhancement of the Ocean Observing System

a) Identify gaps and deficiencies in the existing/planned in-situ and remote sensing ocean observing system, and develop a programme for realising a well-designed and affordable ocean observation system for the region, adhering to the 'GOOS principles'

b) Promote the development of low cost and efficient operational instrumentation and observing systems

3.2 Data Management, Data Exchange and Communication

a) Promote the development of low cost and efficient systems for acquisition, management, processing and interpretation of data.

b) Expand and strengthen networking of countries using modern technology including internet for real and near real time exchange of data and products.

c) Promote the development of standardized data procedures, including data quality control, adoption and use of metadata models, and data management more generally.

d) Provide high quality data and time series for a better understanding and improving the Indian Ocean ecosystem,

e) Collaborate with other programme and bodies in the field of data collection and data management, including as appropriate, through the ocean contribution to GEOSS

f) Co-ordinate GOOS data acquisition with existing regional and national data gathering systems under the agreements and conventions relating to pollution monitoring, marine meteorology, navigation and safety at sea,

g) Inventory of available data and products

h) Promote the exchange of coastal sea level data

3.3 Applications and operational Services

a) Identify priorities for operational oceanography and ocean services in the Indian Ocean region, based on evaluation of social and economic benefits,

b) Promote the development of regional and local operational oceanography, taking into account the components of GOOS, for realising services and products of maximum value to the countries of the region

c) Support operational oceanography and services in collaboration with marine-related public and private sector organizations and programmes

3.4 Capacity Building

IOGOOS should work with IOC CB to identify requirements for the region and possible solutions encompassing the following.

a) Involve institutions, develop leadership

b) Identify the training needs of countries in the region and promote organisation of training courses, workshops and seminars

c) Promote the development of common infrastructure, major systems or capital installations required to support operational oceanography in Indian Ocean,

d) Promote and aid capacity building, exchange of know-how, technology and personnel as well as collaboration, within the framework of GOOS;

e) Promote pilot projects and studies in the countries of the region to demonstrate the economic benefits of GOOS

f) Strengthen collaboration with GOOS and JCOMM, including DBCP capacity building panels and IOC TEMA including IOCINWIO and IOCINDIO capacity building programmes.

g) To exploit bilateral and multi-lateral opportunities for CB in the region (e.g., exchange of training for access to facilities)

3.5 Research

a) Promote research and pre-operational research for solving problems relating to operational oceanography in the Indian Ocean,

3.6 Co-operation with other programmes and bodies

a) Contribute to international planning and implementation of GOOS,

b) Assist in developing policies for the furtherance of GOOS and co-ordinate the best regional participation in GOOS, identifying where greatest value is added by collaboration

c) Promote collaboration between existing regional multi-national agencies, programmes, organisations, and initiatives having expertise in oceanography, operational systems, and remote sensing of the ocean,

d) Collaborate, as appropriate, with GOOS-Africa, NEAR-GOOS, SEA-GOOS, WAGOOS and WIOMAP through joint projects and activities,

e) Cooperate, as appropriate, with organisations concerned with the assessment of climate change, global environmental research, and the impacts of climate variability and climate change,

f) Promote collaboration with space agencies and remote sensing scientists and engineers so as to ensure optimum integration of both in situ and remote sensed data in operational oceanography;

g) Promote collaboration between Institutes and agencies in providing aid and assistance to developing countries for operational oceanography, and the necessary capacity building.

h) Provide as appropriate, expertise, consultants, etc., to the GOOS Steering Committee (GSC), IOC WMO UNEP Committee for GOOS (I-GOOS), and to the international sponsoring agencies of GOOS

3.7 Publications

a) To publish findings of meetings, workshops, studies and other documents commissioned by the IOGOOS members and submission of documents to international meetings related to GOOS and collective representation of GOOS to regional and national agencies when requested by members.

3.8 Coastal systems and services

a) Coastal indundation

b) Coastal hazards

c) Coastal Zone Management

d) Ecosystems

e) Shoreline change

f) To contribute to the development of the IOTWS through fostering and promoting collaboration on sea level observations and systems;

g) To promote development of observational networks (pilot and operational) that support monitoring and prediction of ocean-related hazards;

4 Strategic Priorities 2007-2010

4.1 Observing System Activities

a. The ongoing Indian Ocean (Climate) Observing System activities that are being pursued by the Indian Ocean Panel are progressing well and are direct contributions of IOGOOS to the Observing System activities in the Indian Ocean. These activities are to be pursued.

b. IOGOOS role and contributions to the Global Coastal Network (GCN): An audit could be coordinated from IOGOOS that could cover national programmes of the IOGOOS members in coastal monitoring, in-situ and remote sensing activities, data products, modelling and prediction activities, Data and Information Management, etc.

c. IOGOOS role and contributions to the coastal ocean beyond the Global Coastal Network (GCN): The coastal ecosystem pilot project, the Indian Ocean elements of Chloro GIN and the remote sensing activities of IOGOOS have been identified as the IOGOOS contributions to the coastal ocean beyond the GCN. These activities are to be pursued

4.2 Data and Information Management:

a) INCOIS and the IOGOOS Secretariat are involved in the Data Management of the IOP Data. An interface to the data is already provided on the IOGOOS Website. Further, a Comprehensive data and information management plan could be evolved by ensuring wide participation of the data managers from the region.

4.3 Applications and Operational Services:

a) Applications of ocean climate reanalyses and climate change projects through downscaling (coral reefs and fisheries applications)

b) Downscaling ocean analysis and prediction: The long-term objective is to develop an IOGOOS project on coastal modelling

c) ChloroGIN Project

4.4 Capacity Building and training:

a) IOGOOS should work with IOC CB to identify requirements for the region and possible solutions

b) Activities need to align with the projects of IOGOOS

c) IOGOOS should pursue activities that facilitate expert/scientist exchange/visits

4.5 Support Coastal Research/Observing:

IOGOOS has strong programmes in climate, coastal ecosystems as well as remote sensing. IOGOOS could play a potentially strong role in coordinating coastal research/observing.

4.6 Co-operation:

a) Participation of IOGOOS on the GOOS Regional Forum

b) Collaboration between the IOP and SIBER.

5 Operational Plan (Programme of Work)

Regional work programs are a fundamental component of the IOC structure to translate the global programmes and ocean services of the Commission into activities that maximize the benefit for Member States, taking into account the regional-specific perspectives and capability and the priorities indicated by Member States.

IOGOOS is not part of the intergovernmental structure but is recognized as one of the GOOS Regional Alliances and can influence the development of GOOS. The MoU for IOGOOS delivers a measure of autonomy since it is the Members themselves who decide actions and mutual commitment.

However, IOGOOS will only be seen as effective as a GRA if its work and actions truly add value and capacity in line with GOOS objectives and related Member State needs. The creation of a GOOS Regional Council does provide a mechanism for formally linking the

work program of IOGOOS to GOOS itself but, in practical terms, it will be through working to the priorities established in GOOS plans, collaboration in bodies and panels of GOOS, and national coordination via IGOOS and JCOMM.

Regional alliances have a unique role in terms of building partnerships and cooperation at the agency level and it is at this level that IOGOOS is most effective.

Work (action) of IOGOOS takes on many forms:

a) Building scientific knowledge and supporting data for

   - ocean and coastal management,
   - decision making and policy formulation, and
   - as contributions to the broader base of oceanographic data and knowledge;

b) Increasing national and regional capacities in marine sciences and observations through

   - training,
   - development of leadership,
   - networking among scientists and research institutions, and
   - the mobilization of resources;

c) Improving bilateral and multilateral support arrangements; and
d) Enhancing communication and awareness building.

The work program can be organized in a number of different ways including

(a) Sector/field or regional specific projects. They are characterised by (among other things)

   - A project plan, with specified objectives, outcomes and measures of performance;
   - An agreed period for the project; and
   - Identified leaders and participants.

(b) Work that is a direct contribution to a GOOS or related IOC program of action. The definition of this work should include

   - Well defined objectives, which may be ongoing;
   - Designation of rapporteurs and/or leaders responsible for interaction with GOOS;
   - A schedule of work for each inter-sessional period; and
   - A clear identification of the IOGOOS role and responsibility.

The IOC's Work Program falls under two Main Lines of Action (MLA) with Natural Sciences, : MLA 3 "Oceans and Coastal Zones" and MLA 7 "Prevention and mitigation of tsunamis and other marine hazards".

5.1 Project Areas

5.1.1 Currently being pursued

a) Indian Ocean Panel and IndOOS

b) Coastal Ecosystems

c) Shoreline Changes

d) Real-time Chlorophyll Mapping and Applications

e) Indian Ocean Core Remote Sensing Project encompassing the remote sensing component of the IOGOOS pilot projects

f) Data and Information Management

g) Capacity Building

5.1.2 Potential new projects

a) Regional (coastal) projections of climate change (sea level, sea temperature, acidification)

b) Extended provision of remote sensing products and involvement in satellite missions

c) Call for proposals for Ocean Colour Sensors

d) Invitation to develop payload instruments for future small sat missions

e) Digital elevation projects to support inundation studies (storm surges, sea level rise), coastal morphology and shoreline change, tsunami modelling

f) Modelling and Operational Forecasting

- Facilitating use of products generated by programs such as Blue Link, OSF, etc
- Demonstration of applications
- Form a Working group with experts from IOGOOS, SEAGOOS and IOC Perth Office for extending use, including downscaling
- Ocean analysis and prediction summer school for the Indian Ocean region ~ 2009

g) Contributions to the Tsunami and Other hazards Warning System (TOWS)

h) Ensure appropriate remote sensing CB activities are built into IOGOOS Pilot Projects