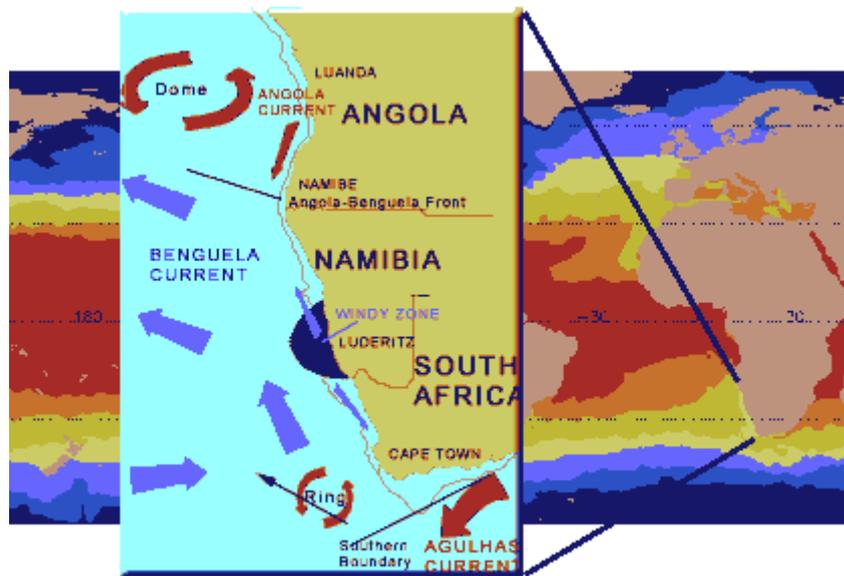


**THE BENEFIT PROGRAMME:
REPORT OF THE EVALUATION PANEL**



Norwegian College of Fishery Science
May 2001

This report was prepared for NORAD during March – May 2001.

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THE BENEFIT PROGRAMME: REPORT OF THE EVALUATION PANEL

Abstract:

The Benguela Environment Fisheries Interaction and Training (BENEFIT) Programme is a cooperative programme between the three countries (Angola, Namibia and South Africa) having coastlines bordering the Benguela Current System (BCS), and international partners of which Norway (NORAD: Norwegian Agency for Development Coordination) and Germany (GTZ: German Agency for Technical Cooperation) are the most important in terms of both technical cooperation and funding. The objective of the BENEFIT Programme is to develop the enhanced science capability required for optimal and sustainable utilization of the Benguela ecosystem's living resources, by improving knowledge and understanding of the dynamics of important commercial fishery stocks and their environment, by making linkages between environmental processes and stock dynamics, and through building appropriate human and material capacity for marine science in the countries bordering the BCS.

The present report provides a review of the Programme, conducted by a Panel nominated by NORAD, GTZ and the Southern African Development Community (SADC), from its initiation until the time of the review in April 2001. The conclusions and recommendations arising from this review are presented in Section 8 of the report, which also serves as an Executive Summary.

The overall conclusion of the review is that the Programme has made substantial progress towards achieving its goals, and that an equally important result of the Programme is that it has created a spirit of trust and cooperation between partner institutions in the three countries which otherwise would probably not have emerged so rapidly.

An organizational structure for managing the science and administration of the Programme has been established, including the staffing and housing of a Secretariat. As a result of the Programme, confidence building in the region is moving forward, a large amount of data and information has been collected, and the Programme has produced many publications of which higher level scientific ones are clearly emerging. So far, the Programme has funded 17 students taking university degrees at the Diploma, Bachelor Honours, M.Sc. and Ph.D. levels. In addition, many people have taken part in training schemes for capacity building at the technical level.

The goals of the Programme are still considered valid by the partners, but there is a need to clarify the relation between development goals and the means to contribute to these goals.

One important aspect of this clarification is the recognition that capacity building for management related research must contribute to robustness, cost effectiveness and sustainability of fisheries management by being based on an understanding of the specific needs in relation to the management systems in each of the three partner countries, the character of the stocks and the fisheries and the human, technical and financial resources available in the national research and management institutions. There is an urgent need to establish such an understanding and to develop research priorities and a capacity development plan on this basis.

Another aspect is a need for the Programme to clarify the status of socio-political goals within the Programme and to produce guidelines for the implementation of such goals. The need to address socio-political goals is evident both within the national partner-institutions participating in the Programme and between the countries. The Programme has been aware of these needs both in terms of prioritizing previously disadvantaged groups, including women, in the training programme and in terms of assisting Angola becoming more fully integrated into the Programme. The Programme should maintain and further develop this by assisting the partner institutions in giving the groups targeted for special support a higher profile within a wide range of activities (e.g. projects) under the Programme, and by strengthening Angola's position in the Programme as a whole due to its special needs.

The need to clarify the relation between development goals and research within the Programme should also be addressed by the Management Action Committee (MAC) taking a clear responsibility for providing direction and guidance regarding goals and priorities. This is needed for the partner institutions to be able to produce relevant research of high quality in the future. The communication between different levels and entities in the Programme in relation to linkages

between development goals and research priorities could be improved by addressing this theme in the annual BENEFIT Forum.

Research projects within the Programme are organized within two lines, fisheries and environment respectively, and the NORAD and GTZ have divided their support according to the same division. It is crucial for the Programme that linkages between the two research lines are identified and that projects addressing these linkages are developed. Recent workshops have started to address this and some potential research projects have been identified, but there is a danger that projects in this area suffer an apparent lack of prioritization ('falling between two chairs') both in terms of research interests and donor support.

Partly as a result of the Programme having been built up on obvious enthusiasm with the initial emphasis having been placed on the establishment of the science portfolio, there is a need now for more effort to be directed at developing good and timely administrative procedures. These include more efficient and informative reporting and feedback between all levels of the organization, together with the production of financial budgets and audited accounts, annual reports from the science projects and from the Programme as a whole, and routines for assessment and monitoring of progress. The submission and decision-making procedures regarding the approval and eventual funding of science projects and related activities appear cumbersome, resource consuming, and in some cases difficult to comprehend. The time and resources used overall for this may be streamlined and made more effective by extending and modifying the annual BENEFIT Forum to include possibilities to finalize business matters there to a greater extent than at present.

In recognition of the substantial progress made by the BENEFIT Programme towards achieving its goals, the Evaluation Panel recommends that NORAD and GTZ provide support and funding for a second phase of the Programme.

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1 COMPOSITION AND TERMS OF REFERENCE OF THE EVALUATION PANEL

With the first main funding period of the BENEFIT (Benguela Environment Fisheries Interaction and Training) Programme coming to an end in 2001, NORAD (Norwegian Agency for Development Coordination) and GTZ (German Agency for Technical Cooperation/Deutsche Gesellschaft für Technische Zusammenarbeit), as the two main foreign funding agencies, agreed to have the programme reviewed and evaluated in April and May 2001 before the funding of the second promotion phase could be approved.

Terms of Reference (ToR) for a Joint NORAD and GTZ Mission were established involving the following persons as members of the Evaluation Panel:

- Dr Poul Degnbol¹
- Professor Christopher C.E. Hopkins²;
- Dr Uwe Lohmeyer³;
- Dr Hein von Westernhagen⁴.

Ms Unda Tjihuike was nominated on behalf of SADC (Southern African Development Community), as a counterpart to the above-mentioned persons in the Panel.

Further details concerning the ToRs for the GTZ and NORAD review are given in **Annex 1**.

Further, at the request of SADC after the arrival of the Evaluation Panel in Namibia, some extra tasks related to 'overall progress and relevance' (two tasks), 'inputs and outputs' (two tasks) and 'relationship and impacts to on cooperating and other bodies' were added to the ToRs, as shown in **Annex 2**.

2 WORKING METHODS USED BY THE EVALUATION PANEL

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The Panel conducted its work by arranging a number of interviews or meetings with various persons individually, and with organizations or institutions and their subsidiary bodies connected with the BENEFIT Programme including:

- The Nansen Programme;
- GTZ Office, Namibia;
- BENEFIT bodies including the Management Action Committee (MAC), the Secretariat, the International Scientific Advisory Panel (ISAP), the Steering Committees (BENEFIT Nansen Committee; BENEFIT Committee for German Cooperation, BCGC), and the Working Groups (Fishery Resource Working Group, Environmental Working Group, Training Working Group);
- SADC Sector Coordinating Unit (SCU) for Marine Fisheries and Resources;
- Angola: Ministry of Fisheries and the Environment), Instituto Investigação Marinas (IIM);
- Namibia: Ministry of Fisheries and Marine Resources, National Marine Information and Research Centre (NatMIRC);
- South Africa: Marine and Coastal Management (MCM) under the Department of Environmental Affairs and Tourism, and University of Cape Town.

The above-mentioned contacts were either held before, during or after the annual BENEFIT Forum that was arranged in Alte Brücke, Swakopmund (Namibia) from 2-6 April 2001. The Forum provided the Panel with the opportunity to personally attend and follow the Opening Address by the Namibian Minister, The Hon. Abraham Iyambo, as well as reports and presentations from the diverse BENEFIT portfolio of activities and meetings. These included: reports from more recent Workshops and the Training Working Group, reporting from the Fishery Resource Working Group and current resource projects, reporting from the Environmental Working Group and current environmental projects, new initiatives including the Benguela Current Large Marine Ecosystem (BCLME) programme, the meeting of the International Scientific Advisory Panel (ISAP), presentations by Principal Investigators (PIs) on new resource proposals being considered for support in the Fiscal Year 2002 by the Nansen Programme, presentations by Principal Investigators (PIs) on new environmental proposals being considered for support in the Fiscal Year 2002 by the GTZ, discussions on the strengths and

weaknesses of the BENEFIT Programme and achievements in the light of implementation of the BCLME Programme. On the two last days of the Forum (i.e. 5-6 April), the Panel attended the business meetings of the BCGC, the BENEFIT/Nansen Steering Committee, and held a joint dialogue meeting with the MAC.

An overview of the schedule adopted by the Evaluation Panel for its work, together with the various meetings and interviews held and participated in, is provided in **Annex 3**.

The Panel also obtained and studied a substantial number of reports and documents connected with the BENEFIT Programme. These are cited in the text of the report and/or noted in the list of Literature References (Section 10).

There is no programme/project document in the traditional sense of the word available for the BENEFIT Programme containing the objectives, outputs, activities, inputs and implementation plans. This is partly a result of the history of the Programme, originating as a mechanism for research cooperation developed and promoted by active scientists. Instead, the Science Plan (BENEFIT 1997) plays the role of the founding and guiding document and has been used as such a reference in the present evaluation. This history has resulted in considerable flexibility, but also in less clarity, regarding the rationale of objectives and expectations concerning the outputs and inputs of the BENEFIT Programme.

During its evaluation, the Panel has reviewed the Programme both in relation to the overall goals and the cross-cutting issues of specific relevance to BENEFIT as given in the following matrix:

		Cross-cutting issues		
		Relevance	Quality	Socio-political balance
Overall goals	Produce knowledge & science			
	Link to management			
	Build capacity			

The overall goals as expressed here are an amalgamation of the various statements in the Science Plan that justifies the project by overall reference

to “optimal and sustainable utilization of the Benguela ecosystem’s living resources” and provides two goals to achieve this, i.e. improved knowledge and increased capacity. The cross cutting issues include the basic aspects of relevance and quality and sociopolitical balance that has emerged as an important underlying goal as indicated by the stakeholders as discussed in Section 3.

The Panel believes that the success of the BENEFIT Programme will eventually be measured by the degree to which it achieves a good and appropriate level of weighting throughout the nine ‘scoring’ fields of the matrix. The Panel further considers that greater awareness of the cross cutting implementation issues throughout the Programme will lead to greater transparency and efficiency in managing the output (‘deliverables’) from the Programme.

Some of the issues in this matrix are already being evaluated by separate mechanisms. This pertains especially to the quality in relation to production of knowledge and science, which constitutes the domain of normal peer review in science. Two mechanisms are presently in place ensuring an ongoing evaluation of research quality: the normal peer review process when project publications are submitted to scientific journals and the International Scientific Advisory Panel (ISAP) which is assigned to overview the quality of research work. The invitation of international peers to technical workshops is another mechanism for peer review used in the programme for specific subject areas. Given that these mechanisms are in place and especially that a separate body, the ISAP, is assigned to provide scientific quality review, and given that the ToRs for the present Panel emphasizes the development aspects of the Programme, the present Panel has chosen not to produce a detailed review of scientific quality but to prioritize the development aspects of the Programme. The Panel emphasizes that it considers scientific quality to be a cornerstone of the Programme and that this prioritization of development issues merely reflects the fact that mechanisms for assurance of scientific quality basically are in place.

Given that the objectives of the current review mission had to take into account both the Norwegian (NORAD) and the German (GTZ) donor interests and that the mission had to produce a single report expressing common findings, it was necessary to develop an appraisal approach that

would satisfy the needs of both donors. For this purpose, the standard GTZ procedure which usually foresees working along a template for Project Progress Reviews (PPR) was altered, taking into consideration the special points of interest of the GTZ project evaluation procedures, such as the identification of “a project's contributions and its development impact”, while a comparison of the actual situation with the targets or a follow up of “indicators” was of secondary importance, as laid down in the ‘Guide to Project Progress Reviews (PPR), GTZ, Eschborn, January 1999’. This approach is also considered to fulfill NORAD’s requirements for the review that relate to the contents rather than format.

3 BACKGROUND AND OBJECTIVES OF THE BENEFIT PROGRAMME

3.1 Priorities and goals of the partners

The southern African countries are in a process of dramatic change after the demise of apartheid in South Africa. The main challenges facing the region are to establish peace and—especially for South Africa and Namibia—to provide opportunities for the formerly disadvantaged to participate fully in society economically, socially and politically. Provision of economic opportunities also relate to access to natural resources including fisheries and a pressure on government institutions to integrate new groups and mindsets and address the new challenges. Many existing government institutions have been established in the past and have inherited both the culture and approach of former social organizations. These institutions must evolve and integrate new groups, not only for reasons of democracy and justice but also as the only means to achieve credibility and to mobilize talent from the whole population.

3.1.1 National policies

Fisheries are important to *Angola*, both as a generator of foreign currency income from licenses and exports, as an important possibility for economic activity and income generation in coastal areas, and as a provider of food security. Angola's fisheries administration is limited in its resources and possibilities to reach the sector by the war situation in the country. Foreign fleets exploit Angolan resources on the basis of license agreements and the management of this system is an important aspect of the fisheries administration's work. The administration is apparently not based on a specific written sectoral or development

policy but seems to be in accordance with the general development goals of BENEFIT.

Namibia's policy for the fisheries sector since independence has addressed three issues: sustainable use of fisheries resources, ‘Namibianization’ of the fishing industry and food security. The fisheries are largely industrialized and controlled by TACs. To achieve sustainable use, Namibia has implemented a precautionary TAC policy and there is a direct link between the regulations and the outputs from resource assessments.

The Marine Living Resources Act of *South Africa* prioritizes sustainability, equity and stability. Provision of access to formerly disadvantaged groups is an important means to achieve equity and stability. The sectoral development objectives therefore include capacity building within small and medium sized enterprises, establishment and support to subsistence fisheries including allocation of fishing rights, introduction of more affordable fishing methods for small entrepreneurs and attention to sustainable coastal development. Development objectives include introduction of better management practices based on biological and numerical analysis as basis for TACs, outsourcing of fleet management and increased control of poaching.

3.1.2 NORAD and GTZ policies

As specified by NORAD in the Programme Document for the Nansen Programme (NORAD 2001), the main goal of Norwegian policy towards developing countries is to:

“contribute towards improving economic, social and political conditions in the developing countries within the limits of sustainable development.

More specifically, the main objectives of Norwegian development cooperation are:

- *To contribute towards promoting peace, human rights and democracy;*
- *To contribute towards economic and social development for poor countries and population groups;*
- *To contribute towards sound management of the global environment and biological diversity;*
- *To contribute towards promoting equal rights and opportunities for women and men in all areas of society;*

- *To contribute towards preventing and alleviating distress arising from conflicts and natural disasters.*

The most important challenge for Norwegian development cooperation is to strengthen the capacity of the recipient countries to take responsibility for their own development. In actual terms, in many developing countries, this means to contribute to the strengthening of national institutions through increasing their competence and capacity to a level where they can efficiently administer the available resources.

Institutional cooperation is considered an effective tool in reaching this goal and, through the Nansen Programme, Norwegian institutions work together with institutions in developing countries to increase the ability of national institutions to function efficiently as administrative bodies.”

The three BENEFIT partner countries belong to NORAD's list of privileged countries although none presently are programme cooperation countries in relation to Norwegian assistance.

The primary goal of Norwegian assistance for *Namibia* is to strengthen the country's independence after its secession from the former apartheid regime in South Africa in 1990. Norway has focused on helping to promote economic growth through the sustainable exploitation of natural resources so that the Namibian authorities have a better foundation for achieving more equitable living standards. Cooperation is concentrated on the fishery and energy sectors and on maritime issues, which have high priority in the country's development plans and where Norway is well qualified to contribute (www.norad.no 2001).

In *Angola*, Norway has continued to provide aid, both to alleviate acute distress and to contribute to the country's long-term development. One of the main challenges has been to structure humanitarian aid in such a way that it lays the foundations for more long-term development cooperation. Norwegian assistance for Angola is provided in the form of government-to-government assistance or channelled through the UN and through national and international non-governmental organizations. Aid is poverty-oriented and targets the weakest, most vulnerable groups in society. This is done by supporting both measures to alleviate acute social distress and measures aimed at achieving long-term, sustainable development.

Aid efforts particularly target the rural population (including internally displaced persons), focusing mainly on women, children and other vulnerable groups. Regarding social issues Norway is involved in sectors such as health, education, gender equality, children's rights, mine disposal activities, rural development, and water and sanitation. Norway provides assistance to economic development by supporting responsible management of resources in the petroleum, energy, and fisheries sectors. Support to institutional development, peace and reconciliation is another target for Norwegian assistance including support to public institutions and non-governmental organizations relating to the development of the rule of law, support for macro-economic planning and efforts to promote debate on peace and democracy at grassroots level (www.norad.no 2001).

The goal of Norwegian development cooperation with *South Africa* is to help ensure peace and democratic development by supporting restructuring processes and poverty alleviation programmes. Since its start, Norwegian development assistance for South Africa has also aimed at facilitating extensive cooperation between Norwegian and South African institutions (www.norad.no 2001).

The main goals and guidelines for the German BMZ/GTZ policy towards development countries are very similar to the Norwegian and show no significant differences. Therefore a coherent approach towards the Programme development goals and objectives are possible. The priority sectors qualifying for German Technical Assistance are presently under consideration, with the aim of concentrating on from one to three sectors at the most. However, currently the objectives for the bilateral projects like BENEFIT are determined in a joint workshop and planning session, with all partners involved, and being approved by the German side as long as they match the development guidelines. While the core activities must have a clear development goal if they will be funded by BMZ/GTZ, supplementary funding within the framework of scientific cooperation is also made available from other sources in Germany, namely the Ministry of Education Science and Technology (BMFT). The German research vessels, for example, were funded in such a way, based on a common interest in research matters related to the Benguela Current System. These additional complementary activities are most welcome, and fit well into the Programme. It should be mentioned that the availability, for example, of

the research vessels had to be negotiated case-by-case and could not be taken for granted over the full period of the Programme.

3.2 The stakeholders and goals of the BENEFIT Programme

3.2.1 Stakeholders in the BENEFIT Programme

According to the BENEFIT Science Plan (BENEFIT 1997):

“Implementation of BENEFIT will lead to a greater understanding of the dynamics of the Benguela’s living resources, as well as the development of capacity in fisheries-related marine science and technology in Angola, Namibia, and South Africa. It will result in close cooperation between marine and fisheries institutions in these three countries, build links between these and tertiary education establishments, attract scientific and technological expertise from outside the region, and result in improved regional utilization and protection of living resources. Moreover, it will be consistent with global ideals of sustainable regional utilization of resources as articulated in a number of international conventions and agreements (e.g. Agenda 21, Law of the Sea Convention, Zone of Peace and Cooperation in the South Atlantic).

The implementation of BENEFIT will thus be of major concern and interest to a wide number of local, regional and international groups and organizations, including the Southern African Development Community, and will provide job creation opportunities, food security, enhanced social and political stability and more effective resource management. Stakeholders in BENEFIT include:

- *National governments, fishing communities, and peoples of the region;*
- *National and international marine and fisheries research institutes, universities and technikons, meteorological and hydrological services, and conservation, tourism and recreational bodies;*
- *Marine/fisheries scientists and technicians and future leaders of science and technology in the region;*
- *The Southern African Development Community;*
- *Coastal developers, funding agencies, consumers and those dependent on living marine resources.”*

From the time of its inception in 1995, the BENEFIT Programme has primarily been a partnership between the fisheries sector of Angola (IIP: Instituto de Investigação Pesqueira/now Instituto de Investigação Marinas, IIM; Ministry of Fisheries and the Environment), Namibia, (NatMIRC: National Marine Information and Research Centre; Ministry of Fisheries and Marine Resources, MFMR) and South Africa (Marine and Coastal Management, MCM; Ministry of Environmental Affairs and Tourism).

In 1998, the SADC Sector Coordinating Unit (SCU) for Marine Fisheries and Resources adopted the BENEFIT Programme as the primary facilitator for training and capacity building within the SADC region as a whole.

The partnership was extended to include tertiary level education establishments within the three participating countries, e.g. Agostino Neto University (Luanda, Angola), University of Namibia, Windhoek (Namibia), Namibia Polytechnic, Windhoek (Namibia), University of Cape Town (South Africa), University of the Western Cape (South Africa), Rhodes University (South Africa), and the Cape Technikon (South Africa).

In addition to NORAD and GTZ, donor stakeholders in the Programme include the UN’s Food and Agriculture Organization (FAO), the World Bank, the African Development Bank (AfDB), France (FSP), Japan, and Iceland (ICEIDA).

The Review Panel notes that the stakeholders are for the most part evident in the activities of BENEFIT as of May 2001. However, an active outreach programme should be promoted in order to achieve full support by the all the potential stakeholders as intended in the Science Plan.

3.2.2 Goals of the BENEFIT Programme

According to the BENEFIT Science Plan (BENEFIT 1997):

“The overall goal of the Programme is to develop the enhanced science capability required for the optimal and sustainable utilization of living resources of the Benguela ecosystem by:

- *Improving knowledge and understanding of the dynamics of important commercial stocks, their environment, and linkages between environmental processes and stock dynamics;*

- *Building appropriate human and material capacity for marine science and technology in the countries bordering the Benguela ecosystem.*

The first part of the goal will be addressed through activities focusing on each of the three elements of the science and technology component of BENEFIT viz. resource dynamics, the environment, and linkages between the environment and resources.”

The objectives of the above three elements are:

- *“To increase knowledge of the dynamics of key Benguela resources through improved monitoring of the abundance and distribution of these resources through research on stock dynamics;*
- *To develop and integrated monitoring capability for quantifying environmental variability in the Benguela region on appropriate time and space scales;*
- *To identify linkages between the dynamics of the key Benguela resources and the physical forces that influence population variability, in order to forecast how climate variability and change will alter the distribution, productivity, food web and stocks of the Benguela ecosystem.”*

The Science Plan further emphasizes that:

“The second part of the goal (i.e. capacity-building component) of the Programme is being addressed through a number of task-orientated framework activities relevant to the science and technology component. These activities, which include training, the development of databases and communication networks, the optimization and sharing of facilities, the development of system and population models, and technology transfer per se, will have as collective objectives:

- 1. To build human capacity in the region, particularly in areas of greatest need and greatest historical disadvantage;*
- 2. To develop, enhance and maintain national and regional infrastructure and cooperation needed to support fisheries-related marine science and technology in the region;*
- 3. To make the countries in the region, and the region as a whole, more self-sufficient in marine science and technology, so that the living resources of the Benguela ecosystem can be managed nationally on a sustainable basis for the benefit of local inhabitants.”*

The Panel notes that these objectives and goals, as stated in the 1997 BENEFIT Science Plan, are not formulated in a clear hierarchy distinguishing development objectives and longer- and shorter term objectives, and there is not a clear distinction between goals and means. The actual development objective—optimal and sustainable utilization of living resources of the Benguela ecosystem—is not formulated as such but is indicated in passing. Further down, the means to achieve intermediate goals have become objectives in their own right. There is no need to be too formalistic about the details of formulations as long as everybody agrees on how objectives are understood so that priorities can be decided on a common understanding. However, it has been the experience of the Panel, that the lack of clarity in the formulation of objectives has led to considerable confusion and cross-talk within the Programme, the main discrepancy being the relative emphasis on 'to increase knowledge', which is stated as being an objective even though it—from the context—is a means to an end, and 'optimal and sustainable utilization' which is not stated as an objective at all but is implied as the development objective. In order to enable a better structured debate and prioritization within the Programme there is a need to reformulate the objective structure so that the hierarchy and time frame becomes clear and so that it is clear what is considered as the means to achieve higher level goals.

The substance of the goals stated in the 1997 Science Plan are still considered valid by the regional and international partners in the Programme as confirmed by the members of the Management Action Committee (MAC) and by representatives for NORAD and GTZ. These goals may therefore be maintained into a new phase of the Programme. However, it has been emphasized from the national representatives at the policy and management levels in the Programme that there is an urgent need to address socio-political goals through and within the project and that capacity building therefore should emphasize opportunities for and the integration of disadvantaged groups. This is in accordance with the policies of both NORAD and GTZ, and there is thus agreement between both regional and international partners on this point. The need to address socio-political issues has been realized by Programme participants at the implementation level but the prioritization of these issues has not been entirely clear as the allusion to this in the

original Science Plan was weak and clear interpretational guidance has been lacking.

4 IMPLEMENTATION OF THE BENEFIT PROGRAMME AND SHORT-TERM IMPACTS

Major strides have been made in establishing and implementing the BENEFIT Programme. The following highlights may be noted (BENEFIT 2000a):

- BENEFIT grew out of a workshop in Swakopmund (Namibia) entitled 'Fisheries Resources Dynamics in the Benguela Current Ecosystem' (30 May to 2 June 1995);
- SADC SCU adopts BENEFIT as the western component of Project MOZ 4.11 (now AAA 4.11) 'Assessment of Marine Fisheries Resources' in June 1996;
- BENEFIT formally launched in Walvis Bay by Minister H. Pohamba in April 1997;
- One-year preparatory phase of BENEFIT funded by GTZ in November 1997;
- BENEFIT Science Plan published and policy and upper management committees established in December 1997;
- Secretariat established in Swakopmund, and appointment of Chief Executive Officer and Administrative Assistant in March 1998;
- BENEFIT community prioritizes environmental research agenda in a series of meetings, including the first meeting of the International Scientific Advisory Panel in April 1998;
- NORAD's first contribution to Secretariat in September 1998;
- BENEFIT community prioritizes fisheries resource research agenda in March 1999, at the precursor of the BENEFIT Forum, leading to BENEFIT's first four-year Workplan;
- Secretariat publishes first BENEFIT Newsletter and opens website (www.benefit.org.na);
- BENEFIT Shipboard Research Training Cruises on RV 'Africana', RV 'Algoa', RV 'Poseidon' and RV 'Welwitschia' from May – July 1999, during which 59 young scientists and technicians from nine countries received training in fisheries science and oceanography;
- NORAD's first contribution in June 1999 to support fisheries resource research agenda of BENEFIT;
- Three-year financing agreement signed with GTZ in October 1999;

- First BENEFIT Forum and presentation of draft Training Plan held in April 2000.

Since the BENEFIT Programme started, substantial attention has been directed towards developing an open and transparent organizational structure for running the programme at the policy, management, administrative, scientific and training/ capacity building levels. Additionally, a BENEFIT Secretariat has been established as the administrative office of the BENEFIT partnership. The following describes the main features of the BENEFIT organizational structure as perceived by the Panel.

4.1 Administration and governance

Figure 1 represents the approved organizational structure of BENEFIT at the time of the Evaluation, i.e. April - May 2001.

In order to formalize the governmental framework of the Programme, a draft Charter for the BENEFIT Programme is close to being completed and adopted (BENEFIT 2001a). The Charter comprises the following sections: Preamble, Basis for the Partnership, Programme Management (including parts pertaining to the Ministerial Board, Management Action Committee, International Scientific Advisory Panel, Steering Committees, Administration, Accounting Procedures), Ownership of Assets, Time Frame, Relationship to SADC SCU, Amendment of the Charter, and Signatories.

4.1.1 Leadership, direction and cooperation

The BENEFIT organizational structure (**Fig. 1**) has undergone some evolution previously but has now reached a stage of near stabilization and maturity. It is clearly hierarchical leading from the overall policy and direction levels to the trained working scientists and technicians and those under training and education.

The Ministerial Board

BENEFIT is managed at the highest level by the Ministerial Board comprising the Ministers (of fisheries) from the partner countries Angola, Namibia and South Africa to address matters of policy and protocol related to the regional mandate of the Programme, and its efficient and transparent functioning.

The Management Action Committee

At the second level, a Management Action Committee (MAC) is responsible for daily management of the Programme, providing executive direction to and approving the agenda for research and capacity development/training. The MAC comprises six members, two from each of the partner countries: one will be a senior official while the other will be a senior research scientist. The Executive Officer attends the MAC meetings as an *ex officio* member representing the Secretariat. The SADC Sector Coordinating Unit (SCU) is represented on the MAC as a non-voting member. Each country chairs the committee, rotating every two years.

The MAC may at its discretion form committees, working groups and panels to facilitate the planning or carrying out of the research/capacity building activities under its guidance. Three permanent Working Groups are currently recognized: Resources, Environmental, and Training.

The Evaluation Panel notes that the MAC is the key structure in the BENEFIT organization for translating policy into practical actions that are understood and implemented throughout the Programme. This particularly applies to frame conditions of the Programme concerning the sociopolitical aspects of science.

The Secretariat

The BENEFIT Secretariat is the administrative office of the regional BENEFIT partnership, and is based in Swakopmund, Namibia. The Secretariat functions at all levels within the BENEFIT organizational structure, and represents a direct link between the donors and the research and academic community of BENEFIT. A Chief Executive Officer (CEO), who reports directly to the MAC, manages the Secretariat. Thus, the CEO and the Secretariat are responsible for ensuring that the policy and management decisions that are determined by the Ministerial Board and the MAC are implemented in an effective and timely manner. Further details concerning the tasks of the Secretariat are given in Section 4.1.2.

In evaluating BENEFIT, the Panel acknowledges the substantial efforts that have been expended by the Programme in developing an operational organizational structure. The Panel confirms that the current BENEFIT structure has the necessary entities to carry out the required tasks in this type of international organization. However, the Panel

provides its evaluation of the actual functioning of the various entities in the structure in the appropriate sections concerning the specific entities below.

Overall, the Panel notes that the BENEFIT organizational structure is hierarchical but that it is able to provide top-down and bottom-up interchange and dialogue of views. This has contributed in a very positive manner to a general feeling of co-ownership and equality amongst the participants with associated confidence building. It is clear that the Programme intends to achieve transparent, cooperative, and participatory planning of its component activities. As in most systems, some difficulties remain to be ironed out and some additional improvements made.

4.1.2 Management, finance and supporting functions

The Programme involves financial, personnel and technical resources provided by many partners. An overview of the budgetary inputs for the 2001 Fiscal Year is presented in **Table 1**.

The Secretariat

The Secretariat was officially established on 30 March 1998, and was composed of the Chief Executive Officer (CEO) and a full time Administrative Assistant. The Staff were later supplemented by a full-time Office Manager. In order to solve administrative tasks within the Programme and to liaise with the partners, the Secretariat has employed more staff, notably one Technical Assistant (half time) and one Office Assistant (half time).

The Panel was provided with and took note of the post descriptions ('terms of reference') for the Chief Executive, the Office Manager, the Administrative Assistant, and the Technical Assistant.

In addition to mediating between the partners, the responsibilities of the Secretariat encompass liaising between the Programme entities (Ministerial Board, MAC, ISAP, Steering Committees) and ensuring the flow of information between the latter, the Working Groups and the Principal Investigators.

A major part of the Secretariat's work is concerned with budgeting and financial affairs related to the project funds. These activities include the purchase of equipment (whenever not done

through the GTZ Office in Windhoek), making travel arrangements, as well as the yearly accounting of the expenditures from funds provided by the various donor agencies. The Office Manager is also in charge of project documentation, such as records of bursaries, project lists, and a general follow-up of project documents arising from meetings (e.g. MAC, ISAP), workshops or other project-related group activities.

In a summarized form the responsibilities of the Secretariat include, but are not limited to:

- Work under the directives of the Ministerial Board;
- Liaise with the Management Action Committee (MAC), the Working Groups, the Scientific Advisory Panel, and Steering Committees;
- Liaise with donors regarding the implementation of BENEFIT research and training/ capacity development projects;
- Standardize and integrate research and training proposals from the regional scientific and academic community into an annual Workplan that provides the rationale for BENEFIT research and training activities for each fiscal year;
- Liaise between scientists in South Africa, Namibia, Angola, and donor countries regarding the drawing up of joint proposals for the Workplan;
- Facilitate, and occasionally initiate, all BENEFIT meetings, workshops, symposia, joint research cruises, and training activities;
- Draw up and administer the annual budget, including maintaining and completing to trial balance the account books for each donor;
- Schedule semi-annual audits of the Secretariat books with a certified accounting firm, or more often if so required by donors;
- Advertise and otherwise promote BENEFIT regionally and abroad;
- Maintain links between BENEFIT and affiliated marine science programmes such as the GEF/World Bank/UNDP Benguela Large Marine Ecosystem (BCLME) Programme, GLOBEC/SPACC, ENVIFISH, and VIBES;
- Communicate BENEFIT's activities to participants and other interested parties through the media and a regular newsletter;
- Produce an annual report on the Programme's activities and achievements.

The Secretariat also works closely with the SADC SCU for Marine Fisheries and Resources to fa-

cilitate participation of personnel from the neighbouring SADC states on training and research activities conducted within the Benguela region under BENEFIT. This includes direct assistance to the SADC SCU for the planning and acquisition of donor funds for such activities.

The Secretariat has generally contributed well to the necessary development of the Programme from a somewhat diffuse science driven initiative into a regional programme that combines the informality needed at the science level with the formal requirements required to link the Programme to governmental policies and structures and to ensure transparency and efficiency. Further initiatives in this direction are clearly required as outlined in other sections of this report. However, the Secretariat has taken some initiatives already and appears prepared to pursue this route further.

The functions of the Secretariat have in a short time been built up to a satisfying standard given the complexities in establishing regional cooperation on this scale of challenges. A high degree of motivation and enthusiasm among all staff members is obvious. The Secretariat promotes good teamwork among the working groups and therefore it contributes to the overall good reputation of the Programme, not only with regard to scientific matters. Attempts are being made to attend to the specific needs of the partners and respect for each other's work, and thereby enable the less advantaged partners to more fully participate in the Programme. There is an evident strategy to bring the various partners towards a teambuilding process, emphasizing scientific matters. The process has developed remarkably well considering historical constraints.

As originally conceived, the Secretariat should be composed of the Chief Executive Officer, a full time Administrative Assistant and a full time Office Manager. In order to solve administrative tasks and liaise with partners, the Secretariat employed more people, notably one Technical Assistant (half time) and one Office Assistant (half time). The premises of the Secretariat in the former building of the Fisheries Observers in Swakopmund, adjacent to the NatMIRC building, also harbour a Technical Assistant working on a separate project to build up a Fisheries Information System. An additional associate of the Secretariat, a Technical Assistant (part time), is based in Namibe (Angola), providing logistic support for the Angolan partner. The tasks of the Secretariat are

described in more detail in the Work Plan 1999-2002 (BENEFIT 1999a).

A Technical Assistant supports the Chief Executive Officer. This post was originally created on the initiative of the South African partners to address the need to coordinate and liaise with the many and diverse South African institutions involved. The present tasks relate to scientific and technical Programme matters including planning and preparation of workshops, and follow-up of internal Programme matters such as the writing of Minutes and conceptual planning. The involvement from this post at all levels of the Programme, including bodies responsible for decisions, has created some consternation due to the lack of clarity in distinguishing between purely Secretariat services and participation in decisions.

In view of the heavy workload of the office personnel, the Panel finds it surprising that the presently vacant position (since September 2000) of the Administrative Assistant has not yet been filled.

The Partners

A short description of the main collaborating and supporting parties in the BENEFIT Programme follows.

NORAD and GTZ

The two major donors, NORAD and GTZ, implement different approaches to cooperation in the Programme that basically reflect the division of labour between the two agencies within the Programme. GTZ assists in research and capacity development in relation to environmental matters. German technical assistance and research vessel access (e.g. RV 'Meteor') is based on a direct cooperation between German research institutions and the Programme, where the research institutions provide their personnel and vessel inputs on the basis of internal funding and on the basis of an interest in the research issues within the cooperating German research institutions. The inputs to research projects are thus mainly funded and driven by the German research institutions. NORAD assists in fisheries-related issues with an emphasis on the development aspects of the Programme. Norwegian technical assistance and research vessel access (RV 'Fridtjof Nansen') can as a consequence not be based on 'free' delivery of personnel from research institutions which do not have a development oriented mandate but

must be based on full cost recovery from the Norwegian assistance to the Programme. This difference has implications for the setup of the two support lines: the NORAD line must be geared to identify activities on the basis of development goals and to define ToRs for Norwegian technical assistance and vessel use on this basis as an ongoing negotiation process. The German line must be geared to facilitate contact to German research institutions, but is not involved in the details of the contents of the resulting cooperation as the personnel costs of technical assistance are put at disposal by the German cooperating institutions based on research interests.

The Norwegian funding for the Programme targets the various project activities relating directly to fisheries resources and core funding to the Secretariat. The Norwegian assistance has been highly appreciated by all partners as instrumental in getting the Programme started and as essential to the further progress of the Programme.

NORAD, as the funding agency, is only indirectly involved in the actual implementation of the Programme as the Norwegian support is embedded in the cooperation between Norway and the three countries through the Nansen Programme. This setup is a result of the overall approach to the Programme which necessitates a technical input to facilitate the ongoing identification of activities on the basis of development goals and accordingly to define ToRs for Norwegian technical assistance and vessel use.

The Nansen Programme is located in the Institute of Marine Research (IMR, Norway) and provides support to the development of fisheries management and research institutions through cooperation between Norwegian institutions and institutions in the region. The Nansen Programme is thus a research and development partner. The Nansen Programme has at the same time been delegated responsibility to manage NORAD funds under responsibility to the Steering Committee and NORAD. This combination of a technical partner role and a management role has both assets as well as deficiencies. The assets include the simplified development cooperation with Norwegian institutions, that the IMR-based Nansen group can provide the necessary technical input to the planning and prioritization of activities within development goals which could not be provided by an administrative body, and that a closer cooperation including planning and follow-up is possible. The role of the Nansen Programme input in

maintaining development goals has also been noted by members of MAC as being instrumental in raising specific development issues relating to sociopolitical targets that might otherwise have received lower attention in the Programme. The deficiencies are that the combination of technical partner and management roles may reduce clarity and can create confusion in the decision-making process both in relation to the responsibility of the Nansen Programme in a specific situation, and in relation to the objectives of the cooperation. By being in the role of a 'twinning partner', which is a partnership between equal partners where both partners have a full right and responsibility to exert their influence while at the same time being perceived as a donor where recipient responsibility would apply, the Nansen Programme is put in a difficult situation.

The Panel believes that the cooperation between the Nansen Programme and the BENEFIT Programme generally has been very good but that problems have arisen recently, in some cases including some lack of clarity relating to the development objectives and the responsibilities of the Nansen Programme to ensure that these are being addressed in the Programme. The only way to ensure transparency in this situation is to ensure that the cooperation is based on an open discussion on the basis of clear and agreed goals, both in relation to science and development.

The Nansen Programme was evaluated in 2000. This included an evaluation of the Nansen Programme's assistance to the implementation of the BENEFIT Programme. The evaluation concluded (MRAG 2000) regarding the BENEFIT inputs that:

"The review team heard a variety of views about the purpose and objectives of BENEFIT. One of the more prevalent of these was the idea that the programme would become, effectively, the scientific and technological 'arm' of the GEF funded BCLME. Under this scheme, BENEFIT becomes a vehicle for funding new projects which contribute to the BCLME; the main responsibilities for research on resource distribution and migration continues to rest with the individual national research institutions; how does this arrangement match NORAD's criteria for providing donor assistance?"

The FN [RV 'Fridtjof Nansen'] is recognised as one of the world's most advanced fisheries research vessels; with monthly operational running

costs of the order of NOK 2.3 million, arguably, the vessel should be used in situations where its output will have the largest potential value. Is this represented by deployment of the FN within the BENEFIT programme?

Ostensibly, use of the FN as a platform for BENEFIT resource survey projects offers a valuable training opportunity to fisheries scientist from the region, particularly in acoustic survey techniques; in practice, it is known that there is very little free time available during normal survey schedules to allow for this type of activity. Owing to the nature of the equipment, it is simply not feasible to allow calibrated sensors to be changed in order to 'see', for example, cause and effect in outputs. Training in instrumentation setup, calibration and maintenance, survey design, planning and analysis are exercises which are more profitably undertaken on specific training cruises, in the laboratory, or a combination of both.

How valuable is training on board the FN? It has been indicated that the value of the vessel as part of the overall FNP is as a standard survey platform; how likely is it that the partner countries within BENEFIT would expect to see a similar level of technological sophistication on board their own national R/V's? In the absence of significant capital investment locally, is it not much more likely that there will continue to be a technology 'gap' between the FN and local R/V's which will act, ultimately, to preserve long-term dependency on the FN within the region.

If it is the case that the BENEFIT programme is to be a component of the larger BCLME, then perhaps it is more appropriate to consider using BCLME funding to upgrade local capacity and allow appropriate maintenance budgets for existing R/V platforms within the region in order to carry out those scientific and technological projects which serve, primarily, the BCLME."

The MRAG evaluation was essentially based on the assumption that the BENEFIT Programme becomes a technological implementation component of BCLME. This is discussed elsewhere in the present report (e.g. Section 6.1). However, the remarks concerning the contents and relevance of training is pertinent to the present BENEFIT Programme as discussed in Section 4.3 on training.

There has been some uncertainty and delay in funding due to disputes regarding the BENEFIT

audit procedures. This resulted, for example, in two independent audits being conducted of the BENEFIT Programme in 1999 (Ernst & Young 1999; Price Waterhouse Coopers 1999) without satisfactory resolution between the involved parties concerning grounds for the underlying problems. The Panel proposes that the parties cooperate to ensure that agreed standards for such specifications exist and are known by all concerned including the auditors.

Most technical inputs to the BENEFIT Programme from Norway have originated from IMR. In view of the ever-widening perspective of the Programme, other types of expertise than those found at IMR will be relevant to the Programme. Cooperation with other Norwegian research institutions representing relevant expertise should therefore be actively explored to ensure that opportunities for collaboration are fully exploited.

GTZ acts on behalf of the Ministry for Economic Cooperation and Development (BMZ) and its support to BENEFIT focuses on environment-related projects. The contribution is made to three budget components in the Programme. Firstly, to the core expenses for the Secretariat, which are based on the annual budget proposal, taking into consideration other donor and member state contributions. Secondly, to project work on environmental issues as specified by the Environmental Working Group. Thirdly, the Programme makes use of the capacity of the GTZ Regional Office (Windhoek, Namibia), which provides services as a procurement agent for major purchases/procurements for project activities, or for any other matters, as necessary (e.g. consultant contracts, subcontractors, ship charter). The costs for the various project activities are advanced by the Programme and reimbursed by GTZ upon presentation of the receipts. This allows a regular monitoring of the money spent, and also indicates to a certain degree the progress made in the various projects. Funds for the Secretariat and for environment-related project activities are channelled through SADC directly to the Secretariat. The system appears very much driven by the member states, and gives the Secretariat a degree of autonomy to facilitate the needs of the various activities. It should be noticed as mentioned before, that the much appreciated cooperation with the German research institutes, in particular ZMT and IOW, is not a regular input of the German contribution to the Programme. This complementary work is based on proposals made by universities or other institutions in their own interest

for strategic research and seeking cooperation with the coastal states. The cooperation is based on good personal collaboration at the institutional levels, with a mutual understanding of the persons involved and objectives. It is desirable for this complementary work to be more along the line of medium to long-term commitments in order to provide BENEFIT with greater planning security.

SADC

The Southern African Development Community (SADC) serves as an umbrella providing the Programme with a legal identity and thus as an entry point for funding and project agreements (Anon. 1999). Authority has then been delegated to the Secretariat in separate agreements. Given that SADC aims at the development of marine fisheries in the region, it was initially thought that SADC would intervene also on the substance and regional promotion of the Programme according to its strategy document from 1995 (SADC SCU 1999), including notably marine resources and marine fisheries training, the major points of focus relevant to the BENEFIT Programme. However, due to shortage of appropriate personnel in the SADC MFR Sector Coordinating Unit (SCU), SADC's role in the Programme has essentially been limited to serving as the legal basis for the Programme and facilitating procedures in handling the German Study and Expert Fund as part of the contribution of Germany. SADC has also assisted in the evaluation of achievements on particular occasions, such as workshops and the current review mission. This role of SADC has served its purpose and may be considered adequate. The Programme has managed to develop its own regional network, and regional policy decisions are being taken at the policy level of the Programme.

The partner countries: Angola, Namibia and South Africa

When viewing the three partner countries, it has to be taken into consideration that they have very different histories regarding marine research in general and research in the Benguela Current in particular. While South Africa has a long track record in Benguela Current research (e.g. Benguela Ecology Programme, BEP), this type of work has only recently been initiated in Namibia through several bilateral technical-cooperation programmes. In Angola there existed very little to base Benguela Current research upon. Thus all

three countries had significantly different starting points at the beginning of the Programme.

In a north-south direction the Benguela Current System (BCS) extends for more than 1500 nm and, besides traversing from the rather cool waters of the tip of South Africa to the tropical waters of the Angolan coast, its oceanographic and environmental features vary widely. The BCS can be roughly divided into three major regimes that are each especially typical for one Programme partner. The South African part of the BCS is a typical northward flowing current system, with at times high productivity at local upwelling cells in coastal areas. The Namibian part of the BCS in the south is dominated by the Lüderitz upwelling cell and the northern Namibia cell and the transport of cool surface water to the north where it forms the Angola - Benguela frontal zone with the warm coastal Angolan water. Wind and upwelling events in the southern and central system greatly influence primary production as well as fish larvae transport and recruitment of commercial species, thus underlining its importance for South Africa and Namibia. As a consequence of the varied environmental conditions, the ecosystem displays pronounced latitudinal differences. The majority of the Angolan coastal waters is no longer part of the BCS, but is typically tropical. This rather unbalanced 'ownership' of the three Programme partners in the BCS has not adequately been taken into account so far regarding the needs of the Angolan partner and the thrust of the work on environmental and fisheries issues. As a result, major research activities have been in an "off-shore direction" and the active participation of Angolan working groups as a whole has been rather limited (see list of environmental projects in **Table 2**).

Given that the three partners participate to varying degrees in the Benguela Current ecosystem, both in terms of utilization of its marine resources as well as in terms of coastline extension, their interests in the system are driven very much by "regionality". On the basis of this "regionality", research projects and issues relevant to the Programme are being addressed. This mode of selection, for instance in research topics, inevitably has also lead to a certain imbalance in the participation and short-term gains of one partner. For example, in all the environmental projects, in which more than 20 scientists are conducting cooperative work only one Angolan scientist is included.

The three partner countries and the national partner institutions have a very different background in terms of recent history and resources available to them. As a consequence, there is considerable difference in their possibilities of participating in and contributing to different aspects of the Programme and priorities will also vary for this reason. This is further discussed in Section 4.3.2.

4.2 Science and component projects

4.2.1 Structure and implementation

Under the overall responsibility of the MAC, three standing Working Groups, a Task Group, and two Steering Groups have been established. The following provides an overview of the responsibilities and remits of these entities in the BENEFIT structure. Information concerning the progress of the science in the areas of fishery resources and the environment is provided in Sections 4.2.2 and 4.4.

Fishery Resource Working Group and Environmental Working Group

An underlying principle of BENEFIT is the need to enhance the knowledge and scientific capacity required for the management and optimal sustainable utilization of the Benguela ecosystem's living resources. From a research perspective this infers the need to understand the dynamics of important commercial stocks and the factors that influence such dynamics. The fishery resource research programme, guided by the Fishery Resource Working Group (FRWG), is intended to supplement the national and international activities in these areas, and to encourage a regional approach to research, including improving the local capacity to conduct such research. The FRWG comprises two senior researchers from each Partner State. Specific ToRs have been drawn up for the FRWG.

Members of the BENEFIT Evaluation Panel attended the business session of the FRWG at the 2001 BENEFIT Forum. Individual members of the Panel held interviews with the Chair and some of the members of the FRWG.

Three principles underlie the role of the environment in the BENEFIT programme: high natural environmental variability in the Benguela Current ecosystem; the absence of a broadly based environmental monitoring programme in the region; and despite advances in the understanding of environmental effects over the past two decades,

and an increase in the environmental data base, the level of understanding is inadequate to use environmental information in fisheries resource management. The environmental monitoring activities of BENEFIT are aimed toward these needs, guided by an Environmental Working Group (EWG). The EWG comprises two senior researchers from each Partner State. Specific ToRs have been drawn up for the EWG.

Members of the BENEFIT Evaluation Panel attended the business session of the EWG at the 2001 BENEFIT Forum. Individual members of the Panel held interviews with the Chair and some of the members of the EWG.

Training Working Group

BENEFIT is dedicated to the sustainable management of the living resources of the Benguela Current region. It is considered that this mandate will best be accomplished through regionally integrated research and capacity development activities. The need for training/capacity development has been fundamental to the establishment of BENEFIT. Accordingly, the Training Working Group (TWG) was established to develop and oversee training and capacity building in the Programme. Specific ToRs have been drawn up for the TWG.

Members of the BENEFIT Evaluation Panel attended the 'report back' session of the TWG at the 2001 BENEFIT Forum. Individual members of the Panel held dialogue meetings with the Chair and some of the members of the TWG.

Remote Sensing Task Group

The Remote Sensing Task Group (RSTG) was established to coordinate and strengthen satellite derived marine remote sensing activities (e.g. sea surface temperature, ocean colour, wind stress, sea surface height) amongst BENEFIT regional partners (Angola, Namibia, South Africa) at research institutions, educational centres and appropriate private companies. Specifically, the RSTG is to liaise between the BENEFIT partner countries and the scientific community to facilitate planning and implementation of mutually beneficial activities, especially by promoting information exchange, collaborative research, technology transfer and capacity development. The RSTG will plan these activities in a way that national and international activities and funding are supporting and/or complementing the BENEFIT

programme. Specific ToRs have been drawn up for the RSTG.

International Scientific Advisory Panel

An international Scientific Advisory Panel (ISAP) composed of internationally recognized scientists/trainers, serves as an external review board to advise on ways and means of retaining high standards in BENEFIT's programmes. ToRs have been prepared and approved for the ISAP. The ISAP meets occur at least once yearly, and facilitates the promotion of BENEFIT in international circles. The members of ISAP serve for a term of three years, two members rotating off annually. ISAP makes recommendations to the MAC as to replacement nominees, keeping in mind the need to balance the membership between resource scientists and oceanographers. However, the MAC reserves the right to appoint members of its own accord.

Members of the current Evaluation Panel attended the business meeting of the ISAP on Tuesday 3 April 2001 at the BENEFIT Forum. An opportunity was also presented to the Panel at the end of the meeting to hold a dialogue with the ISAP on its work and related matters. The Evaluation Panel also scrutinized the draft Minutes from the 6 April 2000 meeting of ISAP. Individual members of the Panel held dialogue meetings with the Chair and some of the members of ISAP.

The Evaluation Panel notes that that the ISAP is expected to assume a stronger role in reviewing progress of BENEFIT research and related training activities, as such reviews are particularly useful, and in some cases obligatory, for donors. As yet, this has not occurred in a formalized manner, apparently due to the perceived infancy of the scientific projects in BENEFIT and the current lack in the production of scientific progress reports by the component projects of the Programme. In order to help clarify the process involved, BENEFIT has produced 'Guidelines for Submission of Proposals and Project Evaluation' (BENEFIT 2001b). The Panel underlines the importance of the work of ISAP in conducting peer review and providing feedback based on the belief that projects that have been in existence for about 18 months should be able to provide written reports. BENEFIT and ISAP will face the challenge of devising a fair and constructive project review-process in the light of the differing starting points for scientific development represented in the Programme. Further, the Panel queries

whether ISAP is able to adequately perform its various tasks given that it so far has only met once annually since its establishment.

While not questioning the high-standing scientific expertise of ISAP, the Panel believes that the composition of ISAP should be enhanced to further cover matters such as development and management expertise, and socioeconomics. Although ISAP's reports are reviewed by the MAC, relatively little emphasis has been given to actively distributing the contents of these reports and the enclosed advice to the BENEFIT community on an official institutional basis. The individual members of ISAP are highly motivated in providing advice and help to the individual scientists in the Programme by circulating in the margins of the annual Forum meeting. However, the Panel proposes that consideration be given to establishing a presentation slot for ISAP at the annual Forum to provide focused guidance and feedback to the whole BENEFIT scientific community.

Steering Committees

Where deemed important, Steering Committees reformed between BENEFIT (e.g. scientists from working groups and the MAC) and representatives from donor countries to promote institutional linkages and cooperation, e.g. the BENEFIT/Nansen Steering Committee and the BENEFIT Committee for German Cooperation (BCGC). One of the main practical tasks of the Steering Groups has been to facilitate planning and collaboration regarding activities and possible new projects.

Members of the BENEFIT Evaluation Panel attended the business sessions of the BENEFIT/Nansen Steering Committee and the BCGC at the 2001 BENEFIT Forum. Individual members of the Panel held interviews with the Chair and some of the members of the two Steering Groups.

The Evaluation Panel noted that the Steering Groups act as a forum between *inter alia* the promotion and critique of scientific proposals for funding and their possible approval and adoption by BENEFIT and its donors. Accordingly, care must be taken to ensure that proper procedures occur for determining where the dividing line is drawn between these activities.

Role of the National Laboratories

IIM

As already mentioned, the major activities of the Angolan laboratory are focused on fish processing and quality control. Given that for Angola resources management is a major issue, the Angolans have taken part in several of the resources-related projects. Currently the Chair of the FRWG is an Angolan, and Angolans have formulated their own projects focusing on resources of major Angolan interest, e.g. (biology and fishery of *Dentex sp.*). As a reflection of the Angolan interest in resources assessment, Angolan scientists and trainees have taken active part in several cruises of the RV 'Fridtjof Nansen'. The participation of Angolan scientists in the activities of the EWG is only marginal. At present only one Angolan participates in the respective environmental research activities. Angola has though expressed its interest in the environmental issues, with particular reference to the Namibe Monitoring Line. However, this activity is still hampered by technical constraints, but may become more prominent in the future with the anticipated functioning of the laboratory and thus constitutes a major activity of IIM also in this field.

NatMIRC

It is probably correct to state that the Research Centre in Swakopmund constitutes the major active 'work force' and the focal point of the Programme when considering both the resource-related and the environmental aspects of the Programme. The NatMIRC resources group is large (ca. 45 persons) of which about half are employed in a research capacity. It has had the biggest input in the formulation and execution of the resources-related projects under the FRWG. Aside from its scientists participating on all cruises of RV 'Fridtjof Nansen' in Namibian waters, NatMIRC also operates its own research vessel (RV 'Welwitchia') dealing with resources-related and environmental issues.

Namibian scientists of NatMIRC are well represented in the EWG, although one major focus in this group is presently on satellite imagery, an area that despite being of high interest for Namibian scientists is not strongly represented in terms of active personnel. Yet it should be stated that the whole 'Environment Subdivision' of NatMIRC (ca. 10 scientists) is, in one way or another, involved in BENEFIT activities: in planning as well as in execution. A major proportion of the daily work of the members of the EWG in NatMIRC actually goes into BENEFIT activities.

MCM and UCT

Marine and Coastal Management (MCM), under the DEAT, is heavily involved in fishery-related as well as environmental-related projects. In the fishery-related activities, MCM is mainly involved in the collection of data for management purposes. Several senior scientists of the MCM (e.g. the Chair of the EWG is from MCM) are working on environmental issues related to effects on recruitment processes of commercially important finfish and shellfish.

UCT has a strong group in fishery resources science and modelling that works to develop multispecies and multi-factor management models in fisheries and has taken a conceptual lead in this part of the BENEFIT Programme, i.e. stock assessment and related issues. In addition, one major activity from UCT scientists is in satellite imagery and the relationship of satellite data to primary production issues and potential linkage to recruitment processes of living resources. This group is strong in terms of development perspectives and applied aspects of satellite data evaluation.

4.2.2 *Quality and quantity of scientific outputs and their integration*

Following the overall goal of the Programme, the development of the science capability was essential for improving the knowledge and understanding of the dynamics of the commercial fish stocks in relation to the environment. The achievement of this goal is built on carrying out research projects with emphasis on either the resources or the environment. During the BENEFIT Forum (Swakopmund, 2-6 April 2001), the Panel had the opportunity to follow the scientific presentations of both the FRWG and the EWG. The Panel recognizes that the presented research conducted in the framework of the Programme is generally of high quality in both the marine resources and the environmental fields. For an appreciation of the research work conducted in the framework of the Programme it is worth mentioning that the BENEFIT community contributed some 30 scientific presentations (papers and posters) at the Southern African Marine Science Symposium (SAMSS) held in November 1999 in South Africa. At this stage, the Panel refrains from conducting a 'peer review' of the scientific work conducted in the framework of the BENEFIT Programme, on the grounds that it is

the task of the ISAP to review and ensure the quality of science within the Programme activities.

A list of the current research projects of the Programme is given in **Table 2**.

In addition to specific research projects, the Programme has a strong focus on workshops during which relevant topics in the respective fields are brought forward or treated in depth, thereby serving at the same time as a training tool. Thus in the framework of the Programme several workshops have been conducted with the emphasis on:

- International Workshop on Zoo-Ichthyoplankton Monitoring in the Benguela Current System off Namibia (February 1999, Swakopmund, co-hosted with IOC and MFMR);
- International Workshop on Monitoring of Anaerobic Processes in the Benguela Current System off Namibia (March 1999, Swakopmund, co-hosted with IOC and MFMR);
- BENEFIT Planning Workshop (March 1999, Swakopmund);
- Zooplankton Sampling and Processing (September 1999, Swakopmund);
- Distance Sampling (March 1999, December 1999, Cape Town);
- Satellite-Tracked Drifters (January 2000, Swakopmund);
- Horse Mackerel Ageing (June 2000, Cape Town);
- Ichthyoplankton Identification (August - September 2000, Bremen, Germany);
- Survey Design (August 2000, Swakopmund);
- Stock Assessment (November 2000, Cape Town);
- Survey Error (December 2000, Cape Town);
- Environmental Monitoring Cruise (February - March 2001, on board R/V 'Welwitschia').

The formal workshops were supplemented by several additional shipboard training activities that served jointly as training and as research activities.

Fishery resources related research projects

The projects presented focused on research on the biology and population dynamics of hake, horse mackerel and other species as well as on stock assessment methods (e.g. survey design and error, target strength and identification, gear performance). In total seven research projects were presented at the 2001 BENEFIT Forum, although

almost 20 research activities are presently being conducted in the FRWG (see **Table 2**). Some of the presentations had been conducted in the framework of thesis work and were presented by the respective students. The majority of the presented work was management related, with an applied focus.

Environment-related research projects

The project list of the EWG is less diverse than that of the resources-related topics. There are only eight activities in total (see **Table 2**). It was only in the 1999 Fiscal Year that the first of a series of environmental projects could be started, but even then there still remained a number of delays due to budget constraints. Some of the present projects could only be started in the 2000 Fiscal Year. Thus from the point of judging the scientific and applied quality of these projects, the time chosen for current BENEFIT evaluation may have been somewhat premature given that only some 18 months have elapsed since project initiation. Despite the short active life-time of some projects, all were presented during the 2001 BENEFIT Forum, allowing the Panel to gain valuable insight into the type of work and—to a limited extent—also into some aspects of the scientific performance various projects.

It appears that the EWG-related research had been focused on technically rather demanding approaches such as satellite imagery, the use of ADCP data for fisheries management, drifter studies relevant to fish recruitment questions or the employment of automatic monitoring devices (buoys) for environmental monitoring.

The Panel believes that the quality of the scientific results presented was generally high. In addition, the projects generally kept a strong focus on their connection to fishery resources-relevant questions, such as retention, transport and circulation patterns (relevant for larval recruitment), primary production and upwelling (relevant for larval growth and mortality), oxygen depleting processes (survival of juvenile hake in low-oxygen environments). As an activity of general interest for all projects, the installation of the five monitoring lines, including the attempts to install routine automatic systems (Elands Bay buoy), has made considerable progress and will help to understand environmental effects on recruitment processes in the BCS better. Several of the contributions and research work presented at the 2001 BENEFIT Forum had been prepared as a collabo-

orative effort with scientists from overseas laboratories, and as such were in the process of being published in international journals, thus emphasizing their good scientific quality.

Possibly as a consequence of the technical scientific demands of such work, the participation of Angolan scientists in the projects run by the EWG is still quite limited. As already mentioned, there is only one Angolan scientist actively involved in the research work of the EWG. The Panel hopes that this situation will improve in the future, given the mounting interest of the Programme membership in questions related to coastal processes.

Linkage between fishery resources and environment

As stated in the goals of the Programme, linkage between the two work aspects is crucial in order to really understand the effects of environmental factors and fishing on recruitment and stock development of commercial species. Although there was only one presentation on multispecies modelling which tried to bring the two aspects together, the Panel acknowledges and encourages these attempts and is aware of the fact, that only recently (March 2001) a workshop on 'linkages' has been conducted in the framework of the Programme with the aim to further stress these aspects in future work and to actively incorporate environmental issues into resource management.

The Panel realizes also that under the present funding scheme (NORAD funds fishery resources-related research, GTZ funds environmental-research) a collaborative approach to solving questions arising between the two issues has been prevented, since neither funding agency has hitherto felt responsible for the support of 'mixed' projects.

4.3 Capacity building

4.3.1 Training by participation

The most important means of capacity building in the Programme are the opportunities for 'hands on' training which takes place through participation in Programme activities including projects, workshops and the annual BENEFIT Forum. Such Programme activities can give junior staff a direct insight into all the basic skills of research including project planning and logistics, sampling design, sample processing, data analysis, writing reports and publications and presenting results at conferences. It is also the participation in the dis-

cussions concerning Programme planning and interactions with the users of research results which form the best means to get an understanding of the relationship between research and—in this case—management of living resources exploitation.

It is clear that the projects include young staff, and students are in many projects a core resource. It has also been noted that the workshops generally have provided a very good opportunity for junior staff to experience the work with associated design and analysis, and discuss and learn from senior colleagues, both from the region and including international peers as in some of the workshops. A considerable group of young researchers are presently involved in this process. These individuals have not yet got to the point where they play a prominent role in terms of having responsibility for projects and presenting results in public. It is apparent that, although previously disadvantaged groups and women are now participating in project activities, they still represent a minority at the annual Forum and they have a low profile when it comes to presentations and business matters.

4.3.2 Formal training and education

Human capacity building is also taking place through formal training funded by the Programme. To this end, the Programme has developed a Training Plan (BENEFIT 2000b) that *inter alia* provides information on the current training capacity of the states. **Table 3** provides a list of all students who received formal university training within the Programme.

Selection of candidates for bursaries is done by the Secretariat and approval sought from the MAC. The criteria include scientific performance in graduate studies and seem also to have included socio-political criteria to provide opportunities for previously disadvantaged groups. As can be seen from the student list (**Table 3**) bursary holders are coloured, black and/or females. The socio-political criteria have however not been formalized and there is no formal monitoring in this respect.

Angola

Angola's Agostino Neto University does not offer a degree in marine science. Although a number of scientists in the (now) Instituto de Investigação Marinas (IIM, formerly Instituto de Investigação Pesqueira IIP) have post-graduate degrees in ma-

rine science from overseas universities, most are graduates of the Agostino Neto University in Luanda. It appears that in Angola (IIM) for the time being the greatest efforts in terms of human capacity building are being invested in 'fish processing' and 'quality control' in order to comply with the rules and regulations for quality assurance for Angolan fish exports (half of the IIM staff).

Training in environmental issues and general marine biology is still under-represented in the IIM. From the three (M.Sc.) bursary holders who conduct their studies in South Africa (UCT) and one (Ph.D.) in Germany (IOW), only one student is working on environmental issues. The Panel also recognizes that there is an urgent need to improve proficiency in the English language, given that the majority of communication within the Programme occurs in English. Considering this, the review mission appreciated the fact that the head of BENEFIT's FRWG is an Angolan, who in this position will be able to collect valuable experience from the national and international scientific arena. The Panel is aware that, in view of the hitherto rather short operational period of the Programme (less than two years), progress in the evolution of capacity may as yet not be readily visible.

In addition to formal university training, general technical training is one of the top priority training areas as there is a dire shortage of oceanographic and electronic technicians. Training is particularly needed in the fields of oceanography, fisheries biology, gear technology and electronic instrumentation.

Namibia

In Namibia the largest body of marine research staff is found in NatMIRC, which currently employs a research staff of about 35 persons. The NatMIRC staff are generally well qualified, but many have limited working experience. On appointment, few have specific training as marine scientists and have to undergo further training for post-graduate degrees in South Africa or overseas. Since its inception, the Programme has provided seven bursaries for NatMIRC personnel, largely for M.Sc. studies at UCT (plus one Ph.D. as well as one local bursary at the Polytechnic of Namibia). Both environmental and fishery resources studies are represented.

Recently UNAM has instituted a B.Sc. in Natural Resources that includes courses in physical and chemical oceanography and fisheries science. To the knowledge of the Panel, none of the bursaries have as yet taken advantage of these courses.

As is the case in Angola, a particular problem is the shortage of qualified technicians to maintain and develop the specialized equipment needed for research.

South Africa

South Africa apparently is the strongest of the three partners in terms of educational facilities and training. This is reflected in the personnel set-up of the MCM (formerly SFRI) in the DEAT. The MCM has a research establishment of some 140 scientific and technical staff that have been generally well educated at local or overseas universities or in the Cape Technikon. The Department publishes the internationally renowned *South African Journal of Marine Science*, in which much of the work on the Benguela Current in the past 25 years has been brought to the attention of the international scientific community. It has a close working relationship with the South African universities (UCT, UWC, Rhodes, UPE) supervising their graduate students in marine sciences.

Despite this apparent strength, marine science officials in South Africa consider that there is still a need to expand the knowledge base in order to keep at the 'cutting edge' of science in order to remain compatible. This is in particular true for the efforts in population dynamics and stock assessments based on mathematical models regarding the management of offshore fish resources.

The Programme has provided five bursaries to South African students for M.Sc. and Ph.D. (1) studies on resources and environmental issues. The bursaries are attached exclusively to persons from socially disadvantaged groups, i.e. black Africans or women for studies inside the country (UCT, Cape Technikon). As is true for the other bursaries of the Programme, all bursaries are currently ongoing.

4.3.3 Institutional

Regional institutional networking

All the cooperating institutions emphasize that the Programme has been crucial in establishing contact and cooperation between the three partner

countries after a long period where such contact was impossible and where there was considerable skepticism between the partners. It is emphasized by all partners that the cooperation has contributed to building confidence, exchange of experiences, development of sensitivity and understanding to conditions in the other countries and access to extensive international resources (e.g. international peers, vessels), that would have been impossible to get access to individually for the partners. These results are regularly highlighted as the main and very important outcome of the BENEFIT Programme.

The cooperation is at this stage still limited to research and training, as is the remit of the Programme. The cooperation through the Programme has, however, undoubtedly been instrumental in creating a basis of personal contact between key persons in the fisheries administrations and understanding between institutions that is a prerequisite in order to move into regional management of shared resources in the future. A kind of virtual management cooperation is already developing insofar as the advice given to national management authorities is given by national institutes which now are aware of the conditions in the system at large, although shared assessments of common stocks still have to be developed. The Programme has done the right thing—by starting regional cooperation on the level where this is easiest to establish, in research and training—and thus creating the conditions for the more difficult steps in terms of management cooperation. The assessments and advice on hake is moving in this direction. The longer-term perspective that the Programme cooperation may be preparing for is the establishment of a Benguela Current Fisheries Commission (see Section 6.1), although the establishment of such a commission is beyond the remit of the current Programme.

Angola

As previously noted, the IIM holds a relatively small share of the Programme, given that the majority of its natural resources are not part of the Benguela Current System. The major activity of the IIM is in the field of fish processing. This is not directly related to the BENEFIT objectives as explained above.

Angola is—due to the ongoing war conditions—not yet in a position to implement fisheries management to any extensive degree on the basis of its own resources, and implementation is even dif

difficult with considerable external assistance. Participation in regional fisheries research and training activities should therefore not be evaluated on the basis of its direct impact on the support presently given from IIM to fisheries management. Angola has received considerable bilateral support to institutional capacity development in fisheries management through the Nansen Programme outside the BENEFIT context, but the BENEFIT Programme has been crucial in assisting Angola in getting international contacts. The integration of IIM into the Programme has been an important means for contact with the international fisheries research and management community and important neighbours. The Programme has enabled the Angolan partner institution to develop regional cooperation. This has increased the professional capacity of IIM to participate in international forums and to relate technical issues to management, and has been of assistance by building confidence.

One of the main objectives of the Programme was to make Angolan marine research at the northern boundary of the system in the Namibe Institute operational, both in terms of equipment and personnel. For this purpose, the Namibe Institute has been refurbished by Angola and equipped by the Programme with basic equipment, necessary to conduct marine research and monitoring, as specified in the Programme's monitoring activities (Namibe monitoring line).

Although the laboratory equipment (e.g. microscopes, oceanographic equipment, plankton sorting utensils, glassware) has been delivered as planned, work in the Namibe Institute appears still very much hampered by several constraints. On the occasion of the visit of two members of the Panel at the laboratory, there was neither electricity nor running water. Apparently this situation had prevailed for several weeks and has repeatedly occurred in the past. Thus no work was possible. The impression of the Panel members was that the laboratory up to this point in time has not been extensively used, except for the occasions of the visit of the BENEFIT working groups.

Currently the human capacity of the Namibe Institute appears to be quite weak, consisting of a Director, one graduate in physical engineering, 3 largely untrained technicians and 2 other personnel. The Panel believes that the physical facilities of the Namibe Institute, once functioning properly (e.g. with electricity and water), would provide a

valuable addition to the infrastructure for monitoring work to be conducted in the framework of the Programme. However, it is currently necessary to invest major efforts both for infrastructure and personnel training in order to make it a valuable contribution to the Angolan marine science capacity. At present ICEIDA provides technical support to train personnel in basic biological oceanography.

Namibia

NatMIRC has, similarly to the other partners, emphasized the regional cooperation as forming an important capacity development contribution from the Programme. The institute is now in a better position to produce relevant stock assessments and provide advice on exploitation and to analyze processes in the ecosystem. The development of activities has been such that NatMIRC's present resources are fully mobilized and used within the BENEFIT Programme and to serve national needs. It is a major task at this point to prioritize participation in Programme activities in relation to the need for capacity building. NatMIRC is presently undertaking a strategic planning exercise to guide this process.

South Africa

The MCM sees the collaboration between the three countries as the main capacity development result from the Programme. The Programme has also been very important in maintaining and developing research capacity internally in South Africa by providing support and political credibility to marine and fisheries research at a time when the research environment was under strong pressure. The Programme with its cooperation with Namibia and Angola fits well with aspirations to address redistribution and restructuring in South African policy and the Programme is in this way important in MCM's work to address these matters. However, coastal resources are important in relation to the redistribution of fisheries access and the Programme does not presently include these resources.

The MCM (formerly SFRI) has been dominated by an ageing scientific population and there have been concerns that the MCM may be facing a capacity problem in the future as a result. The Panel understands that there has been recruitment of younger staff that is now in the process of building professional capacity.

There is presently a move towards creating an agency-related status for the MCM and possible outsourcing of MCM's tasks. This raises concerns regarding the well-known possible effects of outsourcing for institutions responsible for administration of specific policies. Concerns regarding institutional capacity are relevant in relation to the BENEFIT Programme. Outsourcing of major or important parts of the production of the knowledge base for management may expose MCM to the risk of losing capacity to control these processes. The specification of needs and the required approach and quality control will remain a core responsibility of MCM. It is crucial that MCM retains capacity that can take on these responsibilities and at least match the capacities of external partners to which tasks have been outsourced. In the longer term, institutional memory may be lost thereby eroding the institutional capacity for such specification and control tasks.

4.4 Information dissemination

The dissemination of information and results is a vital aspect of any programme that has a wide stakeholder base. The Panel believes that effective information dissemination in BENEFIT requires a concerted action plan as part of an 'outreach' strategy aimed at achieving maximum contact and understanding amongst the various groups of stakeholders.

4.4.1 Public awareness

The Programme produces a newsletter. The Programme maintains a website www.benefit.org.na presenting the mission, the training and research agendas (including project lists and descriptions) and the newsletter. These are useful means of communication within the Programme and to close associates, but will mainly reach a wider audience indirectly by being picked up by interested media.

The Programme has until now mainly been in contact with the general public through newspapers, which regularly report on BENEFIT activities. There appears to be a need to highlight the Programme more to gain political appreciation of its objectives and achievements. As the projects are now starting to produce research results, the time appears to be appropriate to start communicating these results to a wider audience.

4.4.2 Institutional stakeholders

The Programme produces a range of regular reports:

- Annual reports targeting partners and donors. Such reports have been produced since 1998;
- Reports from committees presented at the Annual BENEFIT Forum;
- Reports from projects presented at the Annual BENEFIT Forum: as from the 2001 Forum most of these are available in writing;
- Workshop reports.

These reports are mainly for internal consumption within the Programme.

The BENEFIT Annual Report (c.f. 1999 Annual Report, BENEFIT 2000c) should be a key instrument to provide overview and reporting to donors and for partners to get an overview over activities beyond their immediate field. To serve this purpose the Annual Report still needs further development to include a systematic overview of activities, achievements, participants and use of resource. It is assumed that the 2000 Annual Report will move in this direction.

Communication of achievements to institutions responsible for management is provided on a bilateral national basis between the national research institutions and their line Ministries. This communication is at this stage beyond the scope of the Programme as BENEFIT does not have a regional management advisory remit. However, these Ministries are directly involved in the Programme through the Ministerial Board and through their participation in the MAC. The Ministries seem to be well-informed through this channel. One possible exception is Angola, where the MdPA does not participate in the MAC. It appears that Angolan participation in the Programme is currently exclusively through IIM.

4.4.3 International scientific community

Links to other marine science institutions inside SADC

BENEFIT scientists and trainees contributed about 30 scientific presentations at the 1999 SAMSS meeting in South Africa. The presentations were in general linked to shipboard training activities, where in 1999 a total of 59 trainees from SADC countries (including Kenya) had received shipboard training on South African and German research vessels.

Links to other marine science institutions outside SADC

The Norwegian technical assistance is based on a partnership between the Nansen Programme and institutions in the three BENEFIT countries. The link between especially IMR and partner institutions is thus an integral part of this assistance. Cooperation has been within survey methodology, especially acoustic methodology, stock assessments and to a lesser extent oceanography. The provision of a large part of the available survey time of RV 'Fridtjof Nansen' reinforces this partnership that has been crucial in initiating the BENEFIT Programme and providing essential research vessel access. Other Norwegian research institutions are invited to participate in BENEFIT activities including the annual Forum. The cooperation has, however, been dominated by IMR.

Aside from having formal relations to the Institute of Baltic Research Warnemünde (IOW, Germany) through a research/training cruise of RV 'Meteor' conducted in Namibian waters in October - November 2000, BENEFIT participants of the EWG took part in the bilateral GTZ financed activities between NatMIRC and the IOW in the form of travel and training at IOW. This activity is ongoing until the end of 2001. In addition to this, participants in the cruise had the opportunity to contact scientists from the Plymouth Marine Laboratory (PML, United Kingdom), the Institute for Marine Research (IFM) in Kiel (Germany), and other German scientists directly on board RV 'Meteor'. The Panel encourages participants of the Programme to establish and maintain links to foreign scientists for the purpose of broadening their scientific perspectives.

Links to other programmes

ENVIFISH

A major programme in the region is the European initiative (ACP-EU Fisheries Research Initiative) ENVIFISH that focuses on a retrospective analysis of fisheries, satellite, oceanographic and meteorological data (mainly sea surface temperature) in the Benguela Current and Angolan waters covering the last 15 years. Partner countries are Angola, Germany, Italy, Namibia, Norway, South Africa and the United Kingdom. The main objective of ENVIFISH is to develop appropriate methodologies for improving the sustainable management of small pelagic fish based on the identification and quantification of key environmental conditions that influence fluctuations in

their recruitment and distribution in the Benguela and Angolan systems. The Environment Working Group of BENEFIT is primarily involved in this exercise. ENVIFISH activities also relate to the GLOBEC and SPACC programmes of IOC/UNESCO.

BCLME

There is an ongoing effort to establish a World Bank/UNDP Global Environmental Facility (GEF)-funded study of the Benguela Ecosystem, known as the Benguela Current Large Marine Ecosystem (BCLME) Programme. A first planning workshop for the BCLME was held in Cape Town, while the second was held in Okahandja, Namibia in April 1999. BENEFIT responded to these activities by issuing a policy statement regarding the prospective relationship between the two programmes, in the sense, that major parts of the BCLME activities were complementary to the present activities of BENEFIT. The interest of BCLME in BENEFIT was further underlined on the occasion of the BENEFIT Forum April 2001 in Swakopmund, with the definition, that BENEFIT could be the 'technical arm' of BCLME activities, given that several activities of the BCLME programme will be complementary to BENEFIT. Further information on this topic is provided in Section 6.1.

GLOBEC

The GLOBEC (Global Ocean Ecosystem Dynamics) Programme provides a framework that encourages the fullest participation of national, multinational and regional scientific efforts but does not impose a rigid template. Countries fund their own research programmes but gain from the international context of GLOBEC. Thus, GLOBEC adds to the scientific value of a programme by providing complementary information, promoting rapid communication of ideas and results and facilitates the establishment of working links with other relevant international programmes or studies. GLOBEC has a very broad scope for small scale National Activities to Regional Programmes covering ocean basins. Some GLOBEC programmes are not solely national activities but cover sufficient geographical area to be large enough as to be considered regional programmes. Multinational programmes consist of several countries working together on a specific aim or area. These jointly funded multinational programmes are a vital part of GLOBEC. At present GLOBEC consists of three multinational sub-

programmes. The BENEFIT Programme is one of them, the others are LIFECO and TASC. As a Programme initiative, the Panel appreciates that BENEFIT has been listed in detail in the recent

5 DEVELOPMENT IMPACTS

The development objective of the BENEFIT Programme has not been clearly stated as such in the Science Plan as discussed in Section 3. However, the Science Plan indicates that the development objective is “*optimal and sustainable utilization of living resources of the Benguela ecosystem*” and that the main means to this end is to develop science capacity.

Immediate or short-term impacts regarding capacity building and production of knowledge have been discussed in Section 4.

The Programme has not been active for a sufficiently long for the impacts of the longer term development objective to be fully evaluated. It is currently only possible to try to judge to which extent the activities in the Programme are targeting the development objective and can be expected to contribute to this.

5.1 Management of the exploitation of living marine resources

The Programme has initiated and implemented research and development activities that are of high relevance to management of the exploitation of living resources in the Benguela current ecosystem. These activities include studies of population dynamics, stock distribution and stock identification, as well as evaluations and developments of tools such as survey techniques and ageing. The projects are supplemented by workshops that so far have included workshops on ageing, survey errors and stock assessment evaluation. All economically important stocks in the offshore areas have been targeted by one or more projects or workshops. The work undertaken is generally of good quality.

The Programme has thus addressed the full range of technical issues of management relevance in relation to important stocks in the region. The knowledge produced by some of these activities has been translated into national fisheries management measures.

In relation to development, the main issue is to ensure that research in the longer term is directed to and utilized in fisheries management. Further,

publication *GLOBEC Special Contribution No. 4* (GLOBEC 2001), thus facilitating communication with the international scientific community.

the aim is to ensure that that the types of knowledge produced are the most appropriate for the specific management needs both in terms of addressing pertinent issues and in terms of providing answers on the basis of the financial, infrastructure and personnel resources which are available to the institutions involved. However, the Panel is not convinced that the activities within the Programme are guided by a thorough understanding of the interrelationship between the fisheries, the fisheries management system and the supporting research base.

The management of living marine resources and the environment is a practical, societal activity that builds on a basis of knowledge. The underlying reason for stock assessment and the associated research is to contribute to this knowledge base and to serve a practical purpose for society, so that assessment methodologies must be chosen on their merits as being relevant for the specific situation. Criteria for relevance include that the methodologies are appropriate for the specific management system and fisheries, that they provide an understanding of the resource system that is considered valid by stakeholders and that their implementation must be within reach of the human and economic resources of the country. Methodologies must be selected on the basis of relevance, acceptability, cost and ownership. The precision and accuracy of stock assessments can always be increased, but the costs for this must be balanced against other needs and considerations. Fisheries management systems, of which stock assessment is a part, must be robust, cost-effective and sustainable and stock assessment methodologies must contribute to this.

There is a need to make an analysis which evaluates management options available to the various fisheries in the three countries, identifies the advisory output needed for these management options and on this basis evaluates stock assessment methodologies on the foundation of their ability to produce the required advisory input, the costs and resource demands involved and the accessibility of the methods for the stake holders in terms of acceptance and ownership. An example of this relationship can be given by contrasting industrialized fisheries with few operators which can be monitored (as is basically the situation for most fisheries in Namibia) with industrialized

fisheries with a complex fleet structure or coastal fisheries—such as is the case in Angola and for some South African fisheries—where monitoring of catches may be impossible or very costly. A total allowable catch (TAC) system based on annual catch prognoses may be appropriate in the former case whereas it may be entirely inadequate in the latter because TACs are impossible to implement and because an annual catch prognosis will require good estimates of present stock and exploitation levels which will be impossible without reasonable catch records. The costs involved in producing data for stock assessments and data analysis must also be balanced against the value of the fisheries.

Capacity building for stock assessments must contribute to robustness, cost effectiveness and sustainability of fisheries management by being based on an understanding of the specific needs in relation to the management systems in each of the three countries, as well as the character of the stocks and the fisheries. The human, technical and financial resources available in the national research and management institutions must not be overlooked. There is an urgent need to establish such an understanding and to prepare a capacity development plan on this basis.

The research undertaken within the Programme has been initiated and driven by a natural science interest in the ecosystem and the management of its resources. The development utility of the outputs of the Programme would be higher if the prioritization of research projects and capacity building was guided by a better understanding of the linkages between management institutions, fisheries systems and the knowledge base for management. There is a real need to assist participants and partners in the Programme in understanding these linkages. This could include an interdisciplinary study with participation of social scientists of the management systems and associated knowledge needs in the three countries, to form the basis for a Programme document and workshop where these issues are discussed and disseminated among partners. In order to emphasize and develop the linkage and relevance of the Programme to the specific management systems, it appears logical to consider whether the Programme in the longer term should be expanded to include issues relating to management institutions and governance.

5.2 Description and understanding of the BCS

The Programme addresses issues relating both directly to the fisheries resources and to the environment producing them. It is important that the Programme includes a balanced continuum of research projects addressing both matters of immediate management relevance and the longer term needs to understand the basic dynamics of the ecosystem. The Panel appreciates the efforts made to cover this continuum and to develop linkages between various components, especially between the fisheries resources and the environment. The Panel recognizes that it is a major challenge to establish linkages that will be of direct use in fisheries management. Thus, the Panel considers it important that the Programme maintains high awareness of the needs and potentials in relation to fisheries - environment linkages while accepting that direct management benefits may not materialize within the Programme's lifetime. The Panel is encouraged that awareness is maintained through workshops following up on the workshop held in 2001 and that project opportunities emerging from these are pursued. It is in this connection important that mechanisms are identified to ensure that such projects are caught by the BENEFIT Steering Committees, if necessary by sharing funding and responsibility. It is promising that some proposals with considerable potential to demonstrate linkages on a small scale are now emerging.

The Programme has, via the research conducted in the EWG, considerably expanded the knowledge base of the BCS. Although the choice of topics in the working group was driven by the desire to employ technically complicated systems (i.e. satellite imagery, ADCP current measurements, drifter studies), studies were always designed in order to gain insight into system-relevant processes related to natural resources generation. In this respect, satellite imagery studies help to identify sites of important primary production relevant for (fish) larval growth and survival, while drifter and ADCP studies helped to identify ways of larval transport for better understanding and linking recruitment processes to environmental variables, thus moving towards the possibility of making forecasts.

The installation of a monitoring system in the BCS is an additional tool for the understanding of the functioning of the system. Monitoring data enable one to "hindcast" events in order to gain insight into past processes and their effects on

fish communities and the overall ecosystem. This forms a valuable tool for future management and resource utilization activities in the region.

As already mentioned, linking the environmental variables to fishery resources and management issues will ultimately provide enhanced understanding of the BCS. Unfortunately, this is a formidable task that has not been fully accomplished in other sea areas, some of which are the most intensely studied (e.g. North Sea). Nevertheless, the drive for the discovery of these linkages may lead to a better comprehension of the system and its sustainable use. Thus for the future of BENEFIT, these hidden linkages should be looked for in more detail and with more efforts than has been done previously.

The Panel believes that the BENEFIT Programme has provided a general widening of perspectives and experience for the involved scientists from all three partner countries. This has been confirmed by individual scientists on several occasions, who stressed the importance of the Programme in view of the experience gained from contacts with overseas working groups and the sharing of views with fellow scientists. Although the work in BENEFIT may be an additional burden (i.e. training efforts) to the respective scientist, this burden is gratefully accepted since the longer term gains from working within the Programme are considered substantial. The anticipated widening of the scope of the Programme (e.g. BCLME, Humboldt Current Initiative) gives an additional initiative for all the Programme members involved, which is anticipated to eventually contribute to the understanding of the BCS.

From the impression gained during the 2001 BENEFIT Forum, the Panel realizes that the scientific work conducted in the EWG is evidently aware of the necessary close connections to be made with resources-related questions (i.e. linkage). This has resulted in a multitude of resources-related studies, particularly in the field of remote sensing, which are potentially valuable in the understanding of fluctuations in the system that may ultimately lead to 'cause and effect' knowledge concerning the observed recruitment variability in various fish species.

Although, as already mentioned, the time available for conducting in-depth studies of the BCS has been rather short, the Panel gained the impression that the endeavours of the EWG have already convinced decision-makers in the Minis-

tries that environmental aspects should be increasingly taken into account when making fisheries management decisions. Although it may still be a long way off before one is able to 'put numbers' on the effect of the environment on recruitment and stock development, the Annual Report of the Namibian Ministry of Fisheries routinely makes mention of the key environmental factors which may be responsible for an improvement or a deterioration of the TACs for the commercially fished species. Thus, for the time being it is encouraging that the role of natural environmental variability is being given greater emphasis.

5.3 Building human and material capacity for marine science and technology in the countries bordering the Benguela ecosystem and contributing to socio-political aspirations

The impacts in terms of capacity development including socio-political issues have been discussed in Section 4.3.

5.4 Regional cooperation

The increase in all Programme partners' understanding of the functioning of a marine ecosystem will contribute to the prudent and sustainable management of their marine resources. This is in particular true for those partners having a rather short history of marine and environmental research, where the understanding of ecological processes is less firmly embedded in the public and scientific mind. One of the outstanding impacts within the Programme is the friendly scientific cooperation between the three partner countries. The necessity to take into consideration the other partners needs—in the case of straddling and highly migratory stocks—has and will continue to contribute to closer national cooperation in the region.

Already now, even for the occasional visitor as represented by the Panel, the personal and scientific ties between all partners are clearly visible. Mutual planning of future research projects, working together as in Programme workshops or during training cruises/courses, has contributed to increased levels of mutual understanding and to increased awareness of other partner needs in the widest sense. As a long-term goal, the joint management of the shared resources in the Benguela system is envisaged. The Programme has so far helped to prepare the way for future mutually beneficial initiatives in relation to shared responsibility for the Benguela ecosystem which may

eventually lead to a regional management commission for the Benguela system.

6 RESEARCH AND DEVELOPMENT COLLABORATION POTENTIALS IN THE REGIONS

The Panel views that the most relevant aspects of research and development collaboration-potentials are related to the BCLME Programme and continued collaboration in the SADC framework.

6.1 Benguela Current Large Marine Ecosystem

The overall goal of the BCLME Programme is the integrated management, sustainable development and protection of the Benguela current ecosystem. The primary focus of the BCLME Programme is on multisectoral management and policy relating to transboundary issues.

The main BCLME policy actions are:

- Sustainable management and utilization of living marine resources;
- Management of mining and drilling activities;
- Assessment of environmental availability, ecosystem impacts and improvement of predictability;
- Management of pollution;
- Maintenance of ecosystem health and protection of biological diversity;
- Capacity strengthening.

It is intended that the goals and objectives of the BCLME Programme will be facilitated through the establishment of an Interim Benguela Current Commission (IBCC). Such a commission would function for the management of transboundary fisheries (e.g. TACs and quotas for straddling and highly migratory stocks according to UN protocols) and environmental (e.g. pollution) issues, including implementation of the UN Code of Conduct on Responsible Fisheries.

The Panel understands that, based on the special BENEFIT/BCLME session at the 2001 Forum (presentation by Dr V. Shannon), the following is likely to apply to potential linkage between the BCLME and BENEFIT Programmes:

“BENEFIT will serve as the science arm of the BCLME project, consistent with the scope of BENEFIT. BENEFIT can be awarded those contracts for which it is judged to be the most competent executing authority. In such cases,

BENEFIT will call for proposals or subcontract out sub-components and/or projects and play an integrating /coordinating role in the process. While BCLME will retain overall control, specify tenders etc, BENEFIT expertise and structures will be used to provide the necessary scientific/technological guidance and quality control, and provide for independent peer review. This would mean that the project/activity will be regarded as a BENEFIT one, but with legal contractual aspects handled directly between BCLME and the contracting party (individual, group, organization etc.). This approach will be taken consistent with the recognition that there may be changes in the current BENEFIT Terms of Reference. To the extent that such changes in the Terms of Reference for BENEFIT result in its ability to execute and increased number of BCLME activities, increases in the executing role of BENEFIT for such activities will be considered.”

As already underlined under Section 4.5.3, it is likely that there will be far reaching links between BENEFIT and the BCLME Programme, once the BCLME initiative gains momentum. BENEFIT could definitely serve as 'the technical arm' of BCLME as envisaged in the above-mentioned special session at the 2001 BENEFIT Forum, while making use of BENEFIT's excellent track record as an existing, effective regional organization in the field of marine science and technology. Both Programmes can be considered as being complementary in the sense that BENEFIT is essentially a scientific R & D programme while BCLME may be viewed as the means to make this operational for the purpose of management application within the context of a possible Benguela Current Commission.

BCLME could profit from the strong links developed by BENEFIT to other Programmes and regional administrative bodies as well as international donor countries and agencies. A major feature likely to make BENEFIT a truly sought after partner for BCLME is access to research vessels, both national and international. BENEFIT in turn is likely to profit from the enlarged funding through the BCLME Programme, given that funding through BENEFIT alone is relatively small in view of the large size of the ecosystem and the scope to be tackled within the Programme.

The Panel, however, is concerned that the personnel involved in the BENEFIT Programme are al

ready overstretched workwise before possible extra commitments occur in the form of BCLME-related collaboration. It can be anticipated that the hiring of additional expert assistance (e.g. consultants) will be required. Such expertise should be identified and carefully managed by those directly involved in the BENEFIT collaboration, e.g. national laboratories. Furthermore, there will be an overhead cost involved for the national institutions already working within BENEFIT that must be covered by the BCLME if BENEFIT Programme is not to suffer.

6.2 South African Development Community

The programme of the SADC Sector for Marine Fisheries and Resources aims at the development of marine fisheries in the SADC region (BENEFIT 1999b). Marine fisheries constitute an important economic and socioeconomic factor for all coastal member countries of SADC in terms of national and regional food supply and security, employment and a source of foreign currency income. It has been estimated that the catch from the sea in the SADC region can be increased from the current 1.7 million tonnes, up to a level of ca. 2.7 – 3.0 million tonnes per year (FAO sources, quoted in BENEFIT 1999b). The bulk of the increase will be derived from low-value fish (e.g. small pelagics) that will benefit the poorer part of the SADC population. Future development action is focused on the assessment of this potential and realization of its sustainable exploitation. Up to 90% of the total catch of the SADC coastal countries are landed in Angola, Namibia and South Africa.

The marine fisheries and resources sector aims to increase fish as food in the diet of people and to earn foreign revenue through exports of high-value fish. The sector aims to:

- develop the assessment of regional resources;
- develop the management of surveillance systems;
- promote labour intensive and value-adding technologies and industries;
- develop mariculture;
- develop internal and external markets.

Currently there are six projects approved under the SADC Fisheries Programme of Action. Four of the ongoing projects are in Monitoring, Control and Surveillance (MCS) of fishing activities, marine fisheries information systems, assessment of marine fisheries resources of the SADC region

and support to the SADC Fisheries Coordination Unit (SCU). Other areas of major constraints from the region are:

- marine fisheries training;
- collection and dissemination of data on marine fisheries;
- marine fisheries policy analysis and review.

Within the BENEFIT activities, in 1999 SADC made use of opportunities for other SADC member states, particular under the heading of the 'marine training' issue with the training cruise on RV 'Africana', which was sponsored by the AfDB, World Bank, GTZ, South Africa's MCM, Namibia's MFMR and Angola's Ministry of Fisheries & Environment. During this training cruise, 59 trainees from eight SADC states (including Kenya) participated in the training programme.

On the 'collection and dissemination of data' the ongoing project 'Regional Fisheries information System' (RFIS) aims to facilitate the development and exchange of information between maritime member countries of SADC concerning all aspects of marine fisheries management and research relevant to marine fish stocks. The SADC SCU plans to become involved in the harmonization of fisheries policy with particular reference to marine fisheries laws concerning straddling stocks.

Although until now the active involvement of SADC in the BENEFIT Programme has been confined to the above-mentioned activities, SADC has expressed its interest to members of the Panel to become more actively involved in the day-to-day work of BENEFIT, including in particular future planning of training and resources-related issues. SADC's role in the Programme has been limited to serving as the legal basis for the Programme in facilitating procedures for the handling of German funding (Expert Fund) as part of the contribution of the Federal Republic of Germany. However, SADC anticipates becoming more involved in the steering and evaluation of achievements of the Programme for the forthcoming phase. This new role of SADC will have to be considered with care from the side of BENEFIT, as currently the Programme has managed to develop its own regional network and regional policy decisions are being taken up within the policy level of the Programme.

7 PREPARING THE NEXT PHASE

7.1 Issues to be considered in preparing for the next phase

During the evaluation mission, the Panel was informed that all partner countries still consider the goals of BENEFIT relevant to their sector development policies. All three countries formulate in unison as their major objective the development of the sustainable use of their natural resources through the building of human capacity in the region, particular with respect to improving resource management. This applies in particular to activities aiming at the development, enhancement and maintenance of national and regional infrastructure to support fisheries-related technology and management capabilities. This is to eventually make the countries in the region—and the region as a whole—more self-sufficient in marine science and technology, so that the living resources of the Benguela ecosystem will be managed nationally and regionally on a sustainable basis for the benefit of all bordering coastal nations.

The Programme continues to take these priorities into account, in particular through its important training and capacity building component, which is considered to be of great consequence for the three partner countries.

The chief driving force to maintain BENEFIT is the obvious need for the member states to have a reliable information database for the BCS, to optimize the use of the shared aquatic resources. There is a noticeable tendency of other existing institutions (e.g. universities, BCLME, IBCC) to rely on the work of BENEFIT leading finally to a sustainable institutional set-up, driven by the needs of the three partner countries.

To ensure complementary and synergistic effects in the continuation of the BENEFIT Programme, the Panel would like to emphasize the need for a coordinated approach to Phase II, which should lead to an approved workplan incorporating all activities of BENEFIT and thereby being accessible for all stakeholders and participants. It is also suggested that the Goals and Objectives be reformulated in a distinct hierarchical order and that indicators for monitoring purposes be devised and applied. As already mentioned in this report, the Panel has identified the need to insure that linkages between resources-oriented and environmental-oriented projects are actively promoted

and implemented without being blocked because they do not clearly belong to the remit of any of the donors (i.e. ‘fall between two chairs’).

7.2 Phase two proposals for GTZ assistance

As laid down in the ToRs of the Panel, the GTZ consultants were to conduct a planning workshop for the next phase of the Programme and prepare a proposal for future GTZ assistance.

This is in accordance with GTZ procedures in its implementation of technical cooperation measures, including that a measure must:

- contribute to sustainable resource utilization and management;
- contribute to poverty alleviation;
- dedicate specific attention to promote the female part of the target group(s);
- not create separate bodies of implementation, yet should strengthen the existing national institutions that are technically and socially best prepared to achieve the project purpose.

On the occasion of the GTZ-Project Planning Workshop (ZOPP 5, held from 25-26 April 2001 in Swakopmund), the continued relevance of the BENEFIT goals was in essence confirmed by the participants from the BENEFIT community. Further details concerning the workshop are given in **Annex 4**. For the planning purpose the development goals for the Programme were interpreted as:

- *The living resources of the Benguela Current (Eco-) System are optimally and sustainably utilized.*

The project purpose referring to the German contribution that consequently contributes to the development goal was formulated as:

- *The science capability required for the optimal and sustainable utilization of the living resources of the Benguela Current is developed to understand the structure and functioning of the ecosystem.*

The Panel notes that the *development goal* and *project purpose* of the Programme still correspond with the development policy objectives of Germany in relation to sustainable management of natural resources and their conservation, as well as a strategy to build local know-how for the optimal use of national and regional resources. The strong cooperative aspect in the Programme

(e.g. common training measures, common use of data for management purposes), in particular, meets the German development policy regarding national and sectoral cooperation in developing countries.

In addition, the project purpose aims to take into consideration the need for stronger links between the work conducted by the EWG and the FRWG than has occurred in the past.

Under the German development scheme the following results will be considered for funding:

Result 1: The training plan drawn up by the Training Working Group in phase one is implemented.

Result 2: The ability to predict fluctuations in marine resources in relation to environmental variability is improved.

Result 3: An environmental monitoring programme is in place, standardized to internationally agreed guidelines (in cooperation with FIS [DFID/SADC] and FSP).

Result 4: Studies on causal linkages between fish stock dynamics and environmental parameters are jointly planned by BENEFIT and interested donors (e.g. GTZ, Nansen Programme).

Result 5: Regional and international communities are informed about BENEFIT activities and results.

8 LESSONS LEARNED, CONCLUSIONS AND RECOMMENDATIONS

This section provides the equivalent of an Executive Summary of the Evaluation Panel's review of the BENEFIT Programme.

8.1 Goals of the programme and achievements

Since starting in operations in 1998, the Benguela Environment Fisheries Interaction and Training (BENEFIT) Programme has made significant progress towards achieving its goals as outlined in the December 1997 Science Plan:

- To develop the enhanced science capability required for optimal and sustainable utilization of the Benguela ecosystem's living resources by

- Improving knowledge and understanding of the dynamics of important commercial stocks, their environment, and linkages between environmental processes and stock dynamics, and
- Building appropriate human and material capacity for marine science in the countries bordering the Benguela ecosystem.

The main partners in this collaboration have been the three coastal countries in the Benguela region (Angola, Namibia and South Africa), and Germany (GTZ) and Norway (NORAD/Nansen Programme).

The Evaluation Panel (GTZ Consultant and Senior Planning Officer, and two NORAD Consultants) notes that the overall goal of the Programme has from the outset been stated as to '*develop the enhanced science capability required for optimal and sustainable utilization of the Benguela ecosystem's living resources*'. The means to achieve this have been described as improving knowledge of the stocks and their environment and building appropriate human and material capacity for marine science and technology. The framework activities for capacity development include human capacity with emphasis on areas in greatest need and greatest historical disadvantage. Other activities are development, enhancement and maintenance of infrastructure and cooperation to support fisheries related science and technology. Further the intention is to make the countries and the region more self-sufficient in marine science and technology to support sustainable national management of the marine living resources.

These goals are still considered valid by the regional and international partners in the Programme as confirmed by the members of the Management Action Committee (MAC) and by representatives for NORAD and GTZ. These goals may therefore be maintained into a new phase of the Programme.

During the review of the Programme, it became apparent that the fisheries management system in the three countries and the institutions involved in fisheries management will be under strong and increasing pressure in the future arising from the new socio-political situation in the region. This pressure varies between the countries: from *South Africa* where there is a strong urge to redistribute access to fisheries resources and where the research institute will need to mobilize new talent from previously disadvantaged groups if it is to

maintain its capacity for research and advice, over to *Namibia* where there still is a need to improve the capacity and profile of less disadvantaged groups in the government institutions, on to *Angola* which is disadvantaged as a country as it has never had a chance to rise to new challenges from the colonial past due to the ongoing war situation. It is apparent that there is an urgent need to address these problems if the Programme is to maintain and develop scientific quality and relevance in the future. It has been emphasized from the national representatives in the policy and management level in the Programme that there is an urgent need to address socio-political goals related to these problems through and within the project and that capacity building therefore should emphasize opportunities for the integration of disadvantaged groups. This is in accordance with the policies of both NORAD and GTZ, and there is thus agreement between both regional and international partners on this point. The need to address socio-political issues has been recognized by Programme participants on the implementation level but the prioritization of these issues has not been entirely clear as the allusion to this in the original science and training plan was weak and clear guidance has been lacking. The lack of clarity of the status of this goal within the Programme has therefore caused some cases of miscommunication and confusion and members of MAC have expressed concern about slow progress in this area. In order to prevent future uncertainty about the status of such goals the Panel **recommends** that the policy and the management level in the Programme produce guidelines that include socio-political goals within the Programme goals and that a set of criteria is established for implementation of such guidelines. The Panel also **believes** that socio-political goals not only would have implications for the Programme on the human resources level but also on the subject matter and methodologies within the Programme as explained below. The Panel furthermore **recommends** that the objective hierarchy as stated in the Science Plan of 1997 is clarified so that this hierarchy is clear and that a distinction is made between objectives and means.

The BENEFIT programme has made substantial progress since its conception and inauguration in 1998. After about two years of collaborative efforts in the field of living marine resources management of the Benguela Current System (BCS), the three partners South Africa, Namibia and Angola can be proud of the achievements reached in

a relative short time span of actual work. Apart from an impressive list of ongoing high quality research projects on issues in stock assessment and management (fish and crustaceans), marine environmental issues relating to oceanography, coastal processes and applied satellite imagery in relation to natural marine resources, the Programme has contributed to a better understanding of the BCS through the development and installation of permanent monitoring lines throughout the system. This will give better insight into processes and their relation to environmental features and the marine living resources for future initiatives in the region.

In addition to fostering high-quality applied research in the partner countries, the BENEFIT programme activities have focused on conducting collaborative work between at least two and in many cases all three partners. This approach has given the participants opportunities to work in different socio-political environments and thereby strengthen the mutual understanding and priority setting of the partner countries in many respects. This aspect of the Programme was underlined by the execution of various supra-regional workshops relating to topics of resource management, methodology (resource assessment, satellite imagery) and general marine biology. In addition to bringing experts from various culture and background together, the workshops functioned as forums for the development of mutual research projects and inspiration for less experienced research teams.

Besides implementing common research interests and projects, the human resources development component in the Programme leads to further strengthening of the ties between the people and the institutes of the region working in the marine environment. The Panel acknowledges the efforts of the stronger marine institutions of the region to assist the weaker partners through training courses, incorporation into mutual research ('hands-on' training) and partaking in national research projects with the aim of improving scientific and management capacity. It is worth mentioning here that dealing with affairs of common interest did not just lead to mutual projects, but has at the same time created friendship among members of societies that formerly had little or even antagonistic contact. This regional contact on both the scientific, institutional and the personal level is a very significant achievement

During the course of only about two years, an organizational structure for managing the science and administration of the Programme has been established, including the staffing and housing of a Secretariat. As a result of the Programme, it is clear that confidence building in the region is moving forward due to the development of a culture of friendship, support and trust between these three countries throughout the organization. A large amount of information has been collected and the Programme has produced many publications, of which higher level scientific ones are clearly emerging. So far, 17 students taking university degrees at the Diploma, Bachelor Honours, M.Sc. and Ph.D. levels have been funded by the Programme. In addition, many people have taken part in training schemes for capacity building at the technical level.

In addition to these positive findings, the Panel makes proposals that are offered to further strengthen the Programme to achieve its ultimate goal.

8.2 Management and knowledge basis

8.2.1 Achieving both relevance and quality

Defining quality

The partners in the programme have specific goals in terms of resources management, capacity development and socio-political issues. These goals can only be achieved by aiming at adequate quality, whereby the quality of products is a means to achieve objectives. The quality goals for products and processes must be defined in terms of the efficacy to contribute to these objectives.

Appropriate methodology

The management of living marine resources and the environment is a practical, societal activity that builds on a basis of knowledge. The underlying reason for stock assessment and the associated research is to contribute to this knowledge base, and to serve a practical purpose for society, so that assessment methodologies must be chosen on their merits as being relevant for the specific situation. Criteria for relevance include that the methodologies are appropriate for the specific management system and fisheries, that they provide an understanding of the resource system that is considered valid by stakeholders and that their implementation must be within reach of the human and economic resources of the country. Methodologies must be selected on the basis of relevance, acceptability, cost and ownership. The

precision and accuracy of stock assessments can always be increased, but the costs for this must be balanced against other needs and considerations. Fisheries management systems, of which stock assessment is a part, must be robust, cost-effective and sustainable and stock assessment methodologies must contribute to this.

The Panel **believes** that there is an urgent need to identify methodologies and approaches that are appropriate for the various management systems and fisheries of the region according to such criteria. The Panel draws attention to this because it is not convinced that such reflections have been given appropriate emphasis so far based on the situation in Angola where industrialized fisheries do not figure as prominently and where implementation of management measures in relation to both coastal and industrialized fisheries may not be fully implemented due to cost and accessibility reasons. There is a need to make an analysis which evaluates management options available to the various fisheries in the three countries, identifies the advisory output needed for these management options and on this basis evaluates stock assessment methodologies on basis of their ability to produce the required advisory input, the costs and resource demands involved and the accessibility of the methods for the stake holders in terms of acceptance and ownership. An example of this relationship can be given by contrasting two extremes: on one side industrialized fisheries with few national operators that can be monitored (basically the situation for most fisheries in Namibia) and on the other side coastal fisheries (which are important for Angola and for some social groups in South Africa) where monitoring of catches may be impossible or very costly. A TAC system based on annual catch prognoses may be appropriate in the former case whereas it may be entirely inadequate in the latter both because TACs are impossible to implement and because an annual catch prognosis will require good estimates of present stock and exploitation levels which will be impossible without reasonable catch records. The costs involved in producing data for stock assessments and data analysis must also be balanced against the value of the fisheries.

The Panel **believes** that capacity building for stock assessments must contribute to robustness, cost effectiveness and sustainability of fisheries management by being based on an understanding of the specific needs in relation to the management systems in each of the three countries, the

character of the stocks and the fisheries and the resources available in the national research and management institutions. There is an urgent need to establish such an understanding and to develop a capacity development plan on this basis.

Needs for understanding fisheries management institutions and systems

The Programme has been initiated and driven by a natural science interest in the ecosystem and the management of its resources. It has produced important results of high quality within this domain. The utility of the outputs of the Programme would be higher if the prioritization of research projects and capacity building was guided by a better understanding of the linkages between management institutions, fisheries systems and the knowledge base for management. The need for a clarification and definition of criteria to select appropriate assessment models is an example of this. The Panel **recommends** that activities be initiated to assist participants and partners in the Programme in understanding these linkages. This could include an interdisciplinary study including social scientists of the management systems and associated knowledge needs in the three countries to form the basis for a Programme document and workshop where these issues are discussed and disseminated among partners. In order to emphasize and develop the linkage and relevance of the Programme to the specific management systems it should be considered whether the Programme in the longer term should be expanded to include issues relating to management institutions and governance. Another option would be to address these issues through other means, outside the Programme. However, the main point to be made in connection with the Programme is that an understanding of these management linkages is a prerequisite for prioritization and identification of methodologies and that the Programme therefore should start activities to produce such an understanding if no other means are available.

Recognizing regional similarities and differences

The Programme uses regionality as a criterion to select research projects and issues to be addressed. The natural science drive of the Programme has led to 'regionality' being defined on the basis of features of the shared resource system. However, there are important problems which are common to all the three countries and which may be addressed in a cooperative programme even though the communality of the

problems is related to the fisheries systems rather than to the resource system. An example is the management of coastal fisheries which represent an important challenge in both Angola and South Africa and which are also of local relevance in Namibia. There is a need to maintain regionality while recognizing differences within the region in terms of dissimilarity in the marine environment, of resources exploited, of the fisheries, the management systems and between the research and management institutions in the countries. All problems addressed will be seen from different viewpoints and have different implications between the partner countries. Projects must accommodate this diversity, not by ignoring it but by addressing the specific needs of the various partners within a project.

Achieving scientific balance and linking fisheries and environmental issues

The Programme addresses issues relating both directly to the fisheries resources and to the environment producing them. It is important that the Programme includes a balanced continuum of research projects addressing both matters of immediate management relevance and the longer term needs to understand the basic dynamics of the ecosystem. The Panel appreciates the efforts made to cover this continuum and to develop linkages between various components, especially between the fisheries resources and the environment. The Panel recognizes that it is a major challenge to establish linkages that will be of direct use in fisheries management. Thus the Panel **believes** that it is important that the Programme maintains high awareness of the needs and potentials in relation to fisheries - environment linkages while accepting that direct management benefits may not materialize within the Programme's lifetime. The Panel is encouraged that awareness is maintained through workshops following up on the workshop held in 2001 and that project opportunities emerging from these are pursued. It is in this connection important that mechanisms are identified to ensure that such projects are caught by the steering committees, if necessary by sharing funding and responsibility. It is promising that some proposals with considerable potential to demonstrate linkages on a small scale are now forthcoming.

8.2.2 Achieving socio-political balance

The Namibian waters are entirely within the BCS that also dominates the western coast of South Africa. The greatest parts of the Angolan coastal

waters are in reality not any more part of the BCS, but are typically tropical. This rather unbalanced 'ownership' of the three Programme partners in the BCS has not adequately been taken into account as yet regarding the needs of the Angolan partner and the thrust of the work on environmental and fisheries issues. The Panel **recommends**, that more emphasis should be placed on proposals with a focus in Angolan waters.

The Programme has addressed issues relating to a range of stocks including hake in Namibia and South Africa, horse mackerel in all three countries, ageing of sardine relevant to all countries, *Dentex* in Namibia and Angola, Anchovy in the Southern Benguela and pelagic goby in Namibia. The 2000 assessment workshop dealt with Namibian hake and South African rock lobster. The balance between the interests of partner countries in the selection of stocks appear reasonable overall given that the workshop stocks were selected to provide examples for general evaluation. However, imbalances arise from the overall prioritization within the Programme that lead to a bias for industrialized fisheries and the emphasis of methodology that may not be appropriate to all situations as discussed in relation to the assessment methodology.

8.3 Capacity Building

8.3.1 *Building relevant management and research capacity*

Human capacity building is central to the objectives of the Programme and may not only be looked upon as a task for the donor driven programme, but should also be taken up from within the three countries inasmuch as the more advanced partner should exercise help in the direction of the disadvantaged ones.

Needs, planning and implementation

The 2001 BENEFIT Forum noted the challenge in the speech of the Namibian Minister stating that each of the three countries involved in the programme needs 40 qualified marine scientists to assure that the management of the Benguela fisheries resource could be based on sound research. The Panel also acknowledges the efforts made by the Programme regarding training, both as practical training on board research vessels and in various workshops, as well as by granting a number of bursaries/scholarships to students of all the countries. The ambitious number quoted not only indicates the need for qualified persons but also

indicates the requirement for associated employment commitments for the human output in the government and the fishing industries.

The principal document originally determining the need for capacity building is the 1997 Science Plan for the Programme. It describes goals, stakeholders and the general needs before it focuses on the activities to be initiated. On the common understanding for having a regional approach to set up a management plan for sustainable fisheries in the upwelling area of the Benguela current, a workshop in which the three countries participating took place in order to determine the major lines of research thought to be necessary to achieve the goal. While this workshop identified the research to be done to obtain the information and the understanding for a regional fisheries management approach, very little had been said about the level defining the minimum standard to which the research should be driven. The initial planning was not based on an inventory of existing resources and the specific needs of the three countries involved. Although being very much aware that there is a considerable difference in institutional and scientific capacity, this was not specifically attended to in the planning session. Goals to overcome this have not been determined. The whole process was very much driven by the feeling that the overall goal could be achieved if only the necessary biological information was in place and scarcely acknowledged that sustainability can only be reached when both socio-political and institutional issues are considered. A Training Plan was subsequently established to determine the sectors where training opportunities had been identified, manifesting the subjects for training, and how it might be achieved on the short- to long-term. The 2000 Training Plan does not yet indicate priorities for specific training, and says very little about the methodologies and the strategy for its implementation. Simultaneous training activities took place onboard vessels and students from all the countries were funded for M.Sc. studies abroad.

The BENEFIT Programme attracts a number of other research activities, e.g. the German institutes ZMT and IOW that became involved and provided training and research opportunities related to the Programme. Based on the documents and discussions with the various participants, country representatives and Principle Investigators of the projects, the Panel noticed some shortcomings in a systematic and holistic approach in the needs assessment with respect to specific re

gional requirements for research and the necessary level of scientific output, planning procedures which did not reach the level for determining firm objectives and milestones/indicators, and lacked socio-political perspectives. Priorities for action were not indicated for implementing training for the disadvantaged groups of students, technicians and scientists working within the Programme. A regular monitoring and evaluation system has not yet been put in place. The Panel **recommends** that the needs from each of the three countries should be formulated with regard to the numbers of persons requiring trained, and the levels of the training and methods used. Based on clear guidelines, the training should be conducted in a goal-oriented manner, including using all available training opportunities to achieve such goals in a 'fast track' approach.

Quality and relevance of the capacity

In view of the different environmental situations in the national waters of the partner countries, management and research requirements for the commercially important fish stocks are different for the respective partners. The Panel **believes** that a uniform approach like the one evaluated in the 2001 assessment workshop may not be relevant to all fisheries in the region and that it may especially not be relevant for the present needs of Angolan marine resource managers. This is further underlined when noting that some of Angola's resources of interest are near coastal fish and crustaceans that require different management procedures, which may also be applied to the respective Namibian resources (i.e. rock lobster, line fish). The present disparity in the educational background of the partner countries in this field precludes the possibility of creating a relevant management capacity in Angola with the tools presently employed in the framework of the Programme (i.e. workshops on population dynamics and stock management). Thus, the Panel **recommends** that a revised training programme is established for this purpose, that not only takes the above-mentioned matters into consideration but also the language difficulties experienced in the communications between Angola and the other two partner countries.

Inasmuch as there exists a proven fisheries management capacity in South Africa (MCM) and Namibia (NatMIRC) there also exist research capacities of rather high standard in these same countries (MCM, UCT, NatMIRC). The Panel followed the presentations during the BENEFIT

Forum at Swakopmund in April 2001 and confirms that the presented research conducted in the framework of the Programme was of high quality in both the marine resources and the environmental sectors. Again it was noticeable that major research focus was directed towards the southern Benguela, i.e. South Africa and Namibia. Nevertheless, the research capacity in Angola is presently being built up with the help of the Programme partners, particularly making use of the Namibe Institute (c.f. commencement of the Namibe Monitoring Line). The installation of the Namibe Monitoring Line will make a significant contribution to the overall goal of the Programme in fostering the understanding of coastal processes, while at the same time featuring as an activity for 'hands-on' training. Given the present situation of a research entity that is still in its infancy, work done in Namibe by the Angolan partner remains quite basic (e.g. plankton taxonomy, CTD-profiling, biology of *Dentex*) in employing 'classical' tools for the study of marine ecology. It appears necessary, in the mutual interest of all partners in the Programme, that the apparent disparity in scientific standards should be speedily reduced. The Panel **encourages** Angola to seek additional (bilateral) support for the further strengthening of its research capacity, which could then directly feed into the BENEFIT Programme.

Developing management and research institutions

Institutional capacity is built through the combination of individual training and human resource development that is prioritized to the needs of the institution and the development of organizational structures and tools as required for the tasks. The development of appropriate linkages between the various organizations within the management system is also an important aspect of overall capacity for fisheries management. The capacity needs of the institutions and the overall management and research system must be a reflection of the tasks and problems to be addressed. Relevant capacity can only be developed if these tasks and problems have been identified. There is a need to produce a development plan for the core partner institutions which, based on an identification of tasks and an inventory of present capacity, indicates the areas for which capacity development is needed and the required nature of this capacity development. This must be an adaptive process as the external situation changes over time and as experience is accumulated.

For the institutions within the fisheries management system, capacity development must relate to approaches that are relevant both in relation to the specific management system, the fisheries, and the resources available to the institutions. The development of linkages between research and management organizations that can communicate policies, needs and advice is also an important aspect of institutional capacity.

Angola is in a special situation because of the relative isolation of the country and the perceived difficulties in attracting technical assistance to the country. The Panel **emphasizes** that there is a need to strengthen Angola's position within the Programme, both in terms of its possibilities to initiate relevant activities within the Programme and to benefit from these. This must largely be addressed through an improvement in internal procedures that strengthens the policy direction, clarifies such procedures and responsibilities and improves transparency as discussed elsewhere in the evaluation. A supplementary measure could be to support Angola with technical assistance within its transect system to provide technical guidance in relation to Programme inputs and participation and to assist in capacity development. The Programme cannot initiate such a position but the donors on a bilateral level may consider this.

Scientific and training capacity

The BENEFIT Training Plan (BENEFIT 2000b) has provided an inventory of existing training capacity in the region. It has been stated, that training capacity in the region will be developed through the sharing of expertise wherever possible. For this purpose in the region, several institutions capable of providing mainly academic training have been identified, notably three in Angola, five in Namibia, and eight in South Africa. Aside from general technical training in oceanography, fisheries biology, gear technology and electronic instrumentation, specialized courses are offered during workshops on stock assessment, statistical analysis and biostatistics, modelling, ecosystem analysis, environmental monitoring (remote sensing) and language education (emphasis on Angola). The Panel notes that already today the potential for formal academic and technical training in the region is adequate for the needs of the Programme. The present bursaries that have been and are being handed out by the Programme and which make primarily use of

the particular institutions underline this situation. Of the current 15 bursaries that are paid out by the Programme, only one is implemented in Germany (IOW). All other studies are conducted in South Africa.

It was generally agreed within the Programme that 'on-the-job-training' would have to be given particular importance. From interviews with several Programme participants, the Panel is aware that this type of training has been conducted on several occasions, i.e. in Angola on the occasion of the shipboard work at the Namibe monitoring line, on board of several research vessels, the German RV 'Poseidon', South African RV 'Africana' and 'Agulhas' and the Namibian RV 'Welwitschia' in 1999 and the German RV 'Meteor' during her Cruise No. 48 to the southeast Atlantic in October - November 2000. Due to the lack of available documentation, the Panel could not ascertain the total amount of this type of activity. However, the Panel encourages these types of activity, which may be used to build scientific capacity in the region. Likewise the start-up training projects in the region, which are laid down in the 2000 BENEFIT Training Plan, as well as the presentations and the documentation of the past research projects of the Programme (although not complete), are an encouraging demonstration of the growing scientific capacity of marine science in the region, which has been achieved with the help of the BENEFIT Programme.

8.3.2 Balancing capacity related to socio-political targets

Supporting disadvantaged groups

Capacity building forms an important part of the BENEFIT Programme as emphasized by Angola, Namibia and South Africa, as well as the donors GTZ and NORAD. The Review Panel notes that capacity building is considered to be of particular importance for disadvantaged groups (e.g. ethnic peoples and women) in the above-mentioned countries. The Programme has addressed this issue through the direct training component of the Programme as the training that has taken place through the Programme has exclusively targeted previously disadvantaged groups and women. However, it appears that previously disadvantaged groups and women are still underrepresented when it comes to taking or getting independent responsibility within the Programme, for instance as being in charge of projects or presenting progress in public. The Panel therefore **believes** that the aim of benefiting the disadvan

taged groups, although making progress, is being sub-optimally manifested within the Programme so far. The Panel firmly **emphasizes** that there is a need for more focused actions to occur in favour of disadvantaged groups and that such actions must be clearly manifested (i.e. be seen to occur and be broadcast) than hitherto in all kinds of activity in the Programme. This should be based on formalized criteria and monitored.

Steps for affirmative action

The Panel **recommends** that collaborative steps be taken by all the main entities in the structure of the Programme to identify ways and means by which affirmative action can be applied at all levels of operations, e.g. via greater awareness and results applied by inter alia the MAC, ISAP, the working groups and the projects. In the view of the Panel such affirmative action should include establishing and implementing targets to ensure that all opportunities are fully used in all parts of the Programme. Affirmative action should be applied, for example, in terms of both the proportion and numbers of bursaries/scholarships and places on training activities that are reserved for disadvantaged groups. Once such target levels have been set, careful and regular monitoring of the situation should occur via the MAC, the Secretariat and the Training Working Group with a view to continuously improving the results achieved by the Programme in this direction.

8.4 Balancing relevance, quality and socio-political goals

This review is based on the understanding that ensuring relevance and inclusion of disadvantaged groups is a prerequisite for quality assurance. Relevance and quality are often perceived as being conflicting goals in research. In the BENEFIT environment this perception has even become more aggravated by the added need to integrate disadvantaged groups into the research and management process and the institutions. However, these are perceptions that fail to understand that the issue of balancing relevance, quality and integration basically is a question of balancing short-term losses against long-term gains. The pressures on economic resources and political attention in all the three countries are such that failure to ensure relevance of the research and management activities will lead to longer-term loss of economic and political support.

Failure to include disadvantaged groups in the programme will not only lead to loss of credibility

but will also result in inability to attract sufficient human resources to replace existing but ageing talent in the institutions. Mobilization and integration of disadvantaged groups may be a shorter-term social objective but is on the longer term the only way sufficient talent can be recruited to maintain or develop quality. The major institutions in the Programme will in the longer term find it impossible to maintain quality if relevance is not secured and if disadvantaged groups are not mobilized to contribute fully to research and management.

There may be a short-term loss of quality in a period where considerable attention must be given to redirection of research into relevance and development of research and management capacity concerning disadvantaged groups. It is a challenge to the Programme leadership to minimize these losses while paying full attention to the long-term needs to ensure quality, relevance and social objectives in concert.

8.5 Building appropriate structures and functions to achieve goals

8.5.1 *Setting goals and priorities, and providing guidance*

The role of the MAC and other entities in the process

The Panel **underlines** that the MAC has the overall responsibility for providing direction from above regarding goals and priorities, and providing guidance. The MAC should be seen to apply both short-term and long-term management aims. It should not function simply to provide *pro forma* approval ('rubber stamping') of initiatives ('decisions') from the grass roots.

In accord with approved policy and the directions provided by the MAC, the setting of goals and priorities, and the provision of guidance should also occur in other appropriate parts of the structure. Besides holding meetings and producing Minutes it is important that key matters arising are easily identifiable and transmitted for actions to be taken within appropriate parts of the system. In order to achieve focus and results related to management and policy matters in a given time frame, the Panel **recommends** that Terms of Reference (ToRs: actions to be carried out and work to be done and reported back on to other specified entities in given time frames) be prepared for a number of entities in the organization for a future period. Such ToRs should be prepared in consul

tation between the involved entities to avoid possible 'top down' and 'bottom up' divergences.

8.5.2 Clarifying responsibilities and procedures

Structure, function, good order and efficiency

The Panel encourages openness and transparency in the Programme as this builds confidence arising from improved communication and understanding. The Programme has also developed an organizational structure and in some cases has embarked on the process of defining the responsibilities and remits of the various entities in the structure. The Panel supports this. However, it notes that there is significant uncertainty within the Programme membership and the principle foreign sponsors (GTZ and NORAD/Nansen Programme) as to the identity (e.g. names and affiliations) of the office holders and membership in the various organizational entities, and details related to procedures governing the manner in which office holders are nominated and appointed (e.g. letter from an approved Ministry notifying the Chief Executive of the Programme), the duration of the term for which members or their alternates and office holders sit, and procedures for holding possible elections.

The Panel notes from the approved organogram for the structure of the Programme that this is *de facto* hierarchical and is intended to manifest a reporting process upwards from the Working Group level to the Ministerial Board level. Such a system is intended to provide a system of 'checks and balances' via a vertically orientated (i.e. between levels) review and approval process ending in the MAC. Unfortunately, the Panel **does not believe** that the structure as indicated in the organogram is fully working in accord with intentions. This is due, for example, to the mixing of activities in the process of making proposals or producing reports, the review of these and finally approval. While welcoming and encouraging openness and inclusion in the Programme, the Panel emphasizes the importance of being able to easily recognize and understand the capacity in which persons attend the business sessions of the organization. Thus, it is vital that one can distinguish between, for example, the official membership and observers in the process of dialogue and eventual decision-making, and should particular persons have to wear 'several hats' one must be able to know in what capacity they are working at the various levels. The Panel emphasizes that the organizational system is intended to be fair and equitable, and to ensure good order and ethics.

The Panel **believes** that the business process in submitting project proposals, and reviewing and approving these is both lengthy and cumbersome. The Panel notes the importance of the annual BENEFIT Forum for not only reporting and debating science but also many aspects of business. It **believes** that extending the Forum to cover five days with carefully scheduled business meetings during this time will produce greater efficiency in handling annual proposals (e.g. for projects) and dealing with other matters of business leading at least to *pro forma* approvals towards the end of the Forum.

Budgets and accounts

BENEFIT is a multi partner programme both in terms of funding and implementation and it is crucial to maintain good cooperation that resource use is accounted for in a transparent and orderly manner. As the Programme does not currently have a Finance Committee, the Panel **recommends** that the MAC assumes the responsibility of a Finance Committee whose task *inter alia* is to critique the documents prepared, examines and seeks clarification from the Secretariat on the various budget and accounting lines, and finally approves various Budgets and Accounts. The funding agencies (GTZ and NORAD) should receive copies of all these documents and be able to attend the Agenda Item of the MAC meetings concerning the submission and approval of the Budget documents. Further, quarterly accounts for income and expenditure balances regarding scientific project funds, should be prepared by the Secretariat for the Principal Investigators for information and checking purposes. This whole process should build confidence and consensus amongst the various involved parties (i.e. countries, Secretariat, sponsoring agencies and Principle Investigators).

Rules of procedure

The Panel **recommends** that the Programme establishes Rules of Procedure for the main entities and functions in the organizational structure. These Rules should describe remits and mandates, possible election procedures and the duration of appointments etc., and they should be compiled into a single document where the various Rules are numbered. This task should be completed as soon as possible under the direction of the MAC.

Agendas and reports

To continue the process of communication and understanding, the Panel **believes** that all entities within the organization should produce draft Agendas and circulate these in good time prior to meetings, and that draft Minutes from these meetings be prepared and issued for comment and approval within an appropriate deadline. These should be brief but follow the main points of dissention and agreement and indicate decisions made and needs for follow-up. The approved reports or documents should be widely available to all persons to whom they are relevant, and passed in a timely manner to other appropriate entities in the structure for review and decisions related to matters arising. Likewise, feedback from the reviewing entity to that originally producing the report should occur in a timely manner and possible dissention resolved in a productive way.

The Panel **recommends** that an inventory and numbering of the various documents originating from the particular entities of the Programme be produced and that the documents be made as widely available as possible to approved persons (e.g. via password protected entrance) on the Programme website.

The Secretariat

The Secretariat serves as the facilitator of the Programme and the mediator of the relationship between the partners. It has generally contributed well to the necessary development of the Programme from a somewhat diffuse science driven initiative into a regional Programme that combines the informality needed at the science level with the formal requirements required to link the Programme to governmental policies and structures and to ensure transparency and efficiency. Further, initiatives in this direction are definitely required as recommended earlier by the Panel. The Secretariat has taken some initiatives already and appears prepared to pursue this route further.

The functions of the Secretariat have quickly been built up to a satisfying standard, given the complexities in establishing regional cooperation on this scale of challenges, and a high degree of motivation and enthusiasm is obvious among the staff. The Secretariat promotes good teamwork among the working groups and contributes to the overall good reputation of the Programme. Attempts are being made to attend to the specific needs of the partners and respect for each other's work. The Panel commends the strategy to bring

the various partners towards a teambuilding process, emphasizing scientific matters. The process has been developed remarkably considering historical constraints.

By acknowledging the need for such a strategy, the Panel **recommends** that for the next phase of the Programme, the focus of the Secretariat's activities should be directed more towards equity of the three partners in the capacity to plan activities and promote the capability of the disadvantaged partners to express their needs in the underlying social and political aspects of the Programme.

As originally conceived, the Secretariat should be composed of the Chief Executive Officer, a full time Administrative Assistant and a full time Office Manager. In order to solve administrative tasks and liaise with partners, the Secretariat employed more people, notably one Technical Assistant (half time) and one Office Assistant (half time). The premises of the Secretariat in the former building of the Fisheries Observers in Swakopmund, adjacent to the NatMIRC building, also harbour a Technical Assistant working on a separate project to build up a Fisheries Information System. An additional associate of the Secretariat, a Technical Assistant (part time), is based in Namibe, Angola, providing logistic support for the Angolan partner.

In addition to mediating between the partners, the responsibilities of the Secretariat encompass liaising between the Programme entities (Ministerial Board, MAC, ISAP, Steering Committees) and ensuring the flow of information between the latter and the Working Groups and their Principle Investigators. A major part of the Secretariat's work (via the Office Manager) is concerned with budgeting and financial affairs related to the project funds provided by NORAD and GTZ (through SADC). These activities include *inter alia* the purchase of equipment, making travel arrangements and yearly accounting of expenditures. The Office Manager is also meant to keep other files, such as records of bursaries, project lists, and a general follow-up of project documents arising from meetings (e.g. MAC, ISAP). The tasks of the Secretariat are described in more detail in the Work Plan 1999-2002.

A Technical Assistant supports the Chief Executive Officer. This post was originally created on the initiative of the South African partners to address the need to coordinate and liaise with the

many and diverse South African institutions involved. The present tasks relate to scientific and technical Programme matters including planning and preparation of workshops, and follow-up of internal Programme matters such as the writing of Minutes and conceptual planning. The involvement from this post in all levels of the Programme, including bodies responsible for decisions, has created some consternation due to the lack of clarity in distinguishing between purely Secretariat services and participation in decisions. The Panel **recommends** that the functions for this post should be limited to activities relating to facilitation of technical cooperation such as workshop facilitation, liaison with projects, and methodological and logistic assistance. The post should not take on a Principle Investigator role in relation to research projects in the strict sense, but may take on this role in relation to workshops and training.

In view of the heavy workload of the office personnel, it is quite surprising, that the presently vacant position (since September 2000) of the Administrative Assistant has not yet been filled. The Panel suggests that this position be filled as soon as possible in order to reduce administrative constraints. The new incumbent could then take over those functions to support decision-making bodies that up to now have been covered by the Technical Assistant.

The professional level posts in the Secretariat are important in terms of both liaison and capacity building for the particular incumbent. These aspects will be best served if the holders of posts to be filled by locally recruited staff are recruited from partner institutions including line agencies, universities and other research institutions in the partner countries. However, other considerations such as technical expertise for technical support functions or the need to find candidates that are neutral by not originating from regional partner institutions will also be part of the criteria for candidates which may lead to international recruitment such as is the case for the CEO. The Panel **recommends** that the MAC develops guidelines for recruitment to the Secretariat's professional posts.

In view of the overarching socio-political goals of the partner countries and the recent history in the region, the Panel **believes** it to be crucial that the Secretariat is sensitive to its own representation in the decision processes and ensures balanced link-

ages to partners of all backgrounds, both between and within the partner countries. A clarification of the role of the Technical Assistant and filling of the Administrative Assistant post with a candidate from Angola is expected to contribute to this.

Modes of international cooperation

The two major donors, the Norwegian NORAD and the German Technical Cooperation (GTZ), implement different approaches to cooperation in the Programme that basically reflect the division of labour between the two agencies within the Programme. GTZ assists in research and capacity development in relation to environmental matters. German technical assistance and research vessel access (e.g. RV 'Meteor') is based on a direct cooperation between German research institutions and the Programme, where the research institutions provide their personnel inputs on the basis of internal funding and on the basis of an interest in the research issues within the cooperating research institutions. NORAD assists in fisheries-related issues with an emphasis on the development aspects of the Programme. Norwegian technical assistance and research vessel access (RV 'Fridtjof Nansen') can as a consequence not be based on 'free' delivery of personnel from research institutions which do not have a development oriented mandate but must be based on full cost recovery from the Programme. This difference has implications for the setup of the two support lines: the NORAD line must be geared to identify activities on basis of development goals and to define ToRs for Norwegian technical assistance and vessel use on this basis as an ongoing process. The German line must be geared to facilitate contact to German research institutions but is not involved in the details of the contents of the resulting cooperation as the personnel costs of Technical Assistance are put at disposal by the cooperating institutions based on research interests.

GTZ acts on behalf of the Ministry for Economic Cooperation and Development (BMZ), and focuses on the environmental aspects of the Programme. The principal guidelines to grant technical assistance, namely poverty alleviation and sustainable resources management, are in line with the goals and objectives of the BENEFIT Programme. Further restrictions for the use of GTZ/BMZ funds apart of those laid out by the BENEFIT Programme itself do not exist. The contribution is made to three budget components in the Programme. Firstly, to the core expenses

for the Secretariat that is based on the annual budget proposal and taking into consideration other donor's and member states' contributions. Secondly, contributions/funding of those projects working with environmental issues. The contributions are made on the basis of a formalized proposal, provided that the MAC has granted approval. Thirdly, the Programme has made use of the capacity of the GTZ regional office, which provides services as a procurement agent if major purchases/ procurements for the Secretariat, projects, or for any other matters, as necessary (consultant contracts, subcontractors, ship charters etc.). The costs for the various project activities are advanced by the Programme and reimbursed by GTZ upon presentation of the receipts. This allows a regular monitoring of the money spent, and also indicates the progress up to a certain degree. The annual report of the BENEFIT Secretariat sums up the progress made in the various projects and the achievements made towards the overarching development goal. This is the basis for GTZ to report to BMZ. The system appears very much driven by the Member States and gives the Secretariat a degree of autonomy to facilitate the needs of the various activities, while the use of the money is closely monitored.

It should be noticed as mentioned before, that the much appreciated cooperation with the German research institutes, in particular ZMT and IOW, is not a regular input of the German contribution to the Programme. This complementary work is based on proposals made by universities or other institutions in their own interest for strategic research and seeking cooperation with the coastal states. The cooperation is based on good personal collaboration at the institutional levels, with a mutual understanding of the persons involved and objectives. It is desirable for this complementary work to be more along the line of medium to long-term commitments in order to provide BENEFIT with greater planning security.

The Norwegian funding to the Programme targets the various project activities relating directly to fisheries resources and core funding to the Secretariat. The Norwegian assistance has been highly appreciated by all partners as instrumental in getting the Programme started and as essential to the progress of the Programme.

The funding agency (NORAD) is only indirectly involved in the implementation of projects as the Norwegian support is embedded in the cooperation between Norway and the three countries through the Nansen Programme. This setup is a

result of the overall approach to the Programme (see the section on Modes of international cooperation above) which necessitates a technical input to facilitate the ongoing identification of activities on basis of development goals and to define ToRs for Norwegian Technical Assistance and vessel use on this basis. The Nansen Programme is located in the Institute of Marine Research (IMR) and provides support to the development of fisheries management and research institutions through cooperation between Norwegian institutions and institutions in the region. Thus the Nansen Programme is thus in the risk to be perceived by partners as being in the dual role of being a research and development partner while at the same time managing donor funds. This role has assets and deficiencies. Among the assets are that development cooperation with Norwegian institutions is simplified, that the Nansen group can provide the necessary technical input to the planning and prioritization of activities within development goals which could not be provided by an administrative body, and that a closer cooperation including planning and follow-up is possible. The role of the Nansen Programme input in maintaining development goals has also been noted by members of MAC as being instrumental in raising specific development issues relating to socio-political targets that might otherwise have received lower attention in the Programme. The deficiencies are that a perception of a dual role can create confusion in the decision-making process both in relation to the responsibility of the Nansen Programme in a specific situation, and in relation to the objectives of the cooperation. By being in the role of a twinning partner, which is a partnership between equal partners where both partners have a full right and responsibility to exert their influence, while at the same time being perceived as a donor where recipient responsibility would apply, the Nansen Programme is put in a difficult situation. The Panel **believes** that the cooperation between the Nansen Programme and the BENEFIT Programme generally has been very good but that problems have arisen recently, in some cases including some lack of clarity relating to the development objectives and the responsibilities of the Nansen Programme to ensure that these are being addressed in the Programme. The only way to mediate this situation is to ensure that the cooperation is based on an open discussion on basis of clear and agreed goals, both in relation to science and development.

The Panel has earlier recommended that the socio-political objectives of the Programme and guidelines for their implementation be clarified and developed. The Panel further **recommends** that these guidelines be followed-up by a modification of the guidelines for cooperation between the Nansen Programme and the BENEFIT Programme to reflect the various aspects of socio-political goals at the project level. This should enable deliberations and prioritizations within the Programme to be based on an open discussion on the basis of transparent and shared goals between equal partners.

There has also been some uncertainty and delay of funding due to disputes regarding the audit procedures and reporting format. The Panel **recommends** that the parties cooperate to ensure that agreed standards for such specifications exist and are known by all concerned including the auditors.

Most technical inputs to the BENEFIT Programme from Norway have originated from IMR. In view of the ever-widening perspective of the Programme other types of expertise than those found at IMR will be relevant to the Programme. The Panel proposes that the Programme should actively open up for more cooperation with other Norwegian research institutions representing relevant expertise. This should ensure that opportunities for collaboration are fully exploited.

SADC

The Southern African Development Community (SADC) serves as an umbrella providing the Programme with a legal identity and thus as an entry point for funding and project agreements. Authority has then been delegated to the Secretariat in separate agreements. Given that SADC aims at the development of marine fisheries in the region, it was initially thought that SADC would intervene also on the substance and regional promotion of the Programme according to its strategy document from 1995. These include notably marine resources and marine fisheries training, the major points of focus relevant to the BENEFIT Programme. However, SADC's role in the Programme has been limited to serving as the legal basis for the Programme and facilitating procedures in handling the German Study and Expert Fund as part of the contribution of the Federal Republic of Germany. SADC has also assisted in the evaluation of achievements on particular occasions, such as workshops and the review mis-

sion. This role of SADC may be considered to have served its purpose and may be considered adequate. The Programme has managed to develop its own regional network and regional policy decisions are being taken in the policy level of the Programme. Should SADC wish to play a more prominent role to support the regional cooperation within the BENEFIT Programme in the future, SADC should formulate its intentions regarding the Programme.

8.5.3 Ensuring follow-up and monitoring progress

To ensure that all planned activities and actions will be adequately attended and the lessons learned cycled back into the process to achieve the project goal, it is necessary that the knowledge, experience and information gained, will be made available in due time to all relevant partners in the Programme. Also the administration should consider keeping track of all the activities concerning institutional building, training and social-political aspects to be followed up by the Secretariat.

Considering the matters to be followed up, the amount of information and data coming from the projects and the need to keep track on overall Programme progress, it does not appear to be possible to monitor the progress of the project without having a comprehensive monitoring system in place. The Panel **recommends** that a system is established for distributing the task to the various partners in the Programme and enables the Secretariat to report the progress of the Programme and the financial status of the sub-activities regularly and in a timely manner. Such a system not only enables the Secretariat to keep close track of the progress of the various activities in the Programme, it also records experience, information and lessons learned, and allows the dissemination of the results to recycle it into the ongoing work. It should also cater for track keeping on socio-political performance indicators, to ensure a balanced implementation of institutional building measures, capacity building as well as financial contributions to the three countries and its participants/institutes in the Programme.

8.5.4 Achieving consistency between policy and internal programme operations

It is important that the overarching policy of the Programme is recognized, fully understood and accepted at all levels in the organization. The Panel notes that there must be consistency be

tween policy and the manner in which the Programme operates, and it emphasizes the importance of the MAC in ensuring that policy is interpreted correctly and enacted appropriately within the whole Programme, e.g. the integration of scientific relevancy and quality with regard to the socio-political goals of capacity building. To this end, the Chief Executive and the whole Secretariat will play an important role in actively support the MAC in the further communication process.

The Panel notes that the organization of the annual BENEFIT Forum is currently focused on both science and business sessions. It **recommends** that the MAC considers how the Forum may be further shaped and organized in order to *inter alia* allow for presentations concerning the integration of policy and internal programme operations. This could include opening for special sessions involving the MAC, and allowing a greater degree of human diversity (women, younger scientists, ethnic groups) to be more manifested than previously during the Forum. However, the Panel underlines that the BENEFIT Forum should continue to have a strong emphasis on science and business matters.

8.6 Planning the next phase

The joint NORAD/GTZ Evaluation Panel can conclude that the BENEFIT Programme has made impressive progress during the past period in achieving the great majority of its goals. Accordingly, the Panel **recommends** to both NORAD and GTZ that continued funding occur for the next phase of the Programme.

A GTZ Planning Workshop (see Section 7.2), as a contribution to preparing for a future phase of the BENEFIT Programme, was held in Swakopmund from 25-26 April 2001. As such, it is logical that

support continues from GTZ and from NORAD for the environmental-related and fishery resource-related scientific projects, respectively. As highlighted in the goals of the Programme, linkage between the two work aspects is crucial in order to understand the effects of the environment on the living marine resources and associated fisheries and *vice versa*. Unfortunately, this aspect of the BENEFIT Programme has received relatively little attention so far, partly due to a lack of parental ownership for this area of 'bridging' between the NORAD and GTZ funding 'pillars', as well as the difficulty of the scientific challenge in approaching such an interdisciplinary integration. The Panel **recommends** that, in reaffirming their commitment to BENEFIT, NORAD and GTZ hold joint consultations taking account of relevant information arising from appropriate bodies in the Programme, as to ways and means by which the desired linkage and integration may be advanced in the next phase in terms of the involved science and its funding.

9 ACKNOWLEDGEMENTS

The members of the Evaluation Panel wish to thank NORAD and GTZ for having engaged them in the challenging and interesting task of reviewing the BENEFIT Programme. The Panel is indebted to all those persons connected with the BENEFIT Programme who kindly collaborated by sharing their knowledge concerning the organization and function of the Programme during the information gathering process that formed the basis for the current review.

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11 ACRONYMS AND ABBREVIATIONS

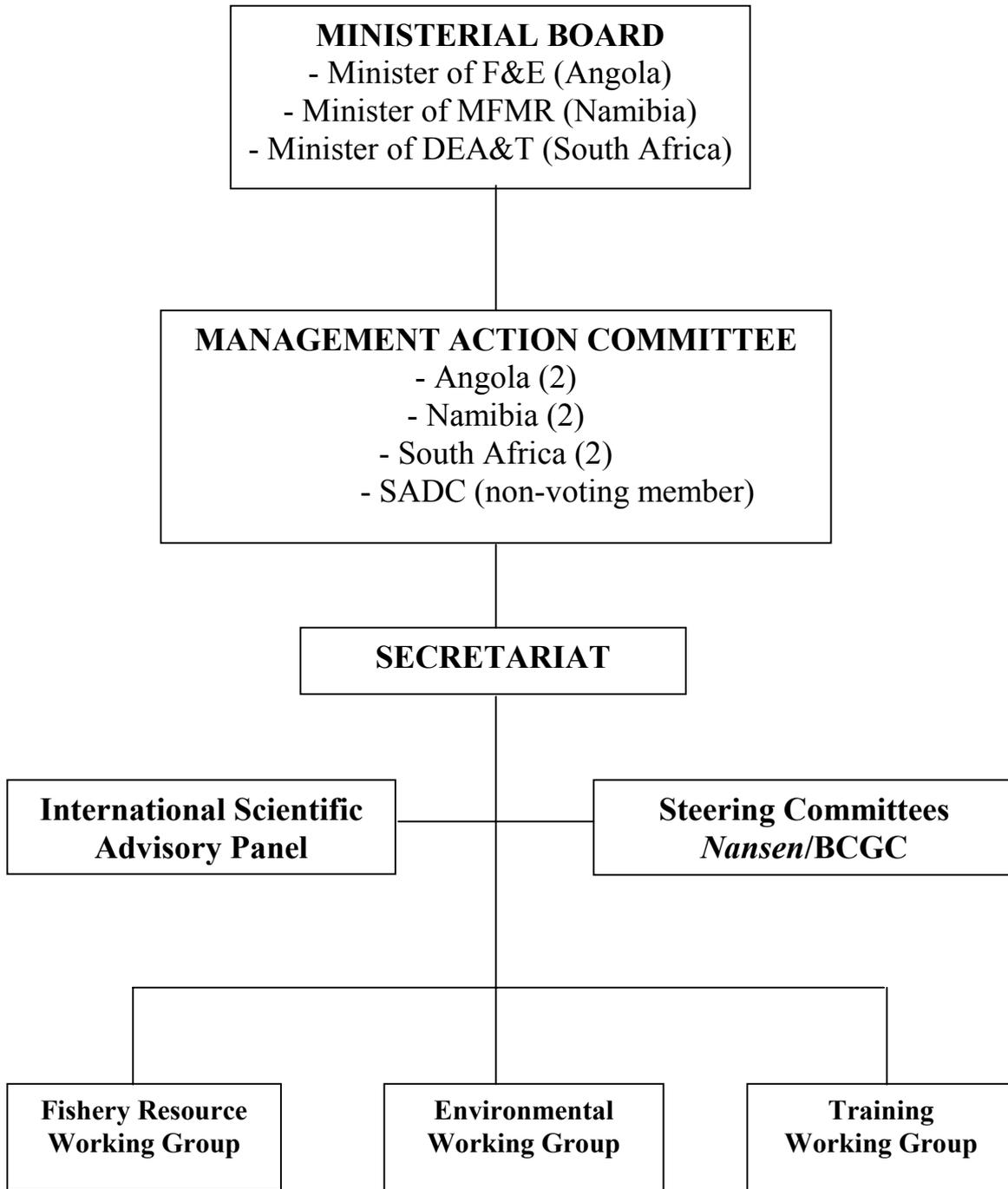
ACP	African Caribbean Pacific - EU Programme
ADCP	Acoustic Doppler Current Profiler
BCS	Benguela Current System
AfDB	African Development Bank
BCLME	Baltic Sea Large Marine Ecosystem (Programme)
BCGC	BENEFIT Committee for German Cooperation
BCS	Benguela Current System
BENEFIT	Benguela Environment Fisheries Interaction and Training
BEP	Benguela Ecology Programme (South Africa)
BMFT	Bundesministerium für Forschung und Technologie (Ministry of Education Science and Technology, Germany). Now BMBF, Bundesministerium für Bildung und Forschung (Ministry of Education and Research)
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung/Federal Ministry for Economic Cooperation and Development (Germany)
CECAF	Fishery Committee for the Eastern Central Atlantic (FAO)
CEO	Chief Executive Officer
CTD	Conductivity, Temperature, Depth.
DFID	Department for International Development (United Kingdom)
ENVIFISH	Environmental Conditions and Fluctuations in Distribution of Small Pelagic Fish Stocks (Programme)
EU	European Union
EWG	Environmental Working Group (BENEFIT)
FIS	Fishery Information System
FRWG	Fishery Resource Working Group (BENEFIT)
FSP	Fond de solidarité prioritaire (France)
GEF	Global Environment Facility
GLOBEC	Global Ocean Ecosystem Dynamics (Programme)
GTZ	Deutsche Gessellschaft für Technische Zusammenarbeit (GTZ, German Technical Cooperation)
IBCC	Interim Benguela Current Commission
ICEIDA	Icelandic International Development Agency
IIM	Instituto Investigação Marinas (IIM, formerly IIP; Institute of Marine Research, Angola)
IIP	Instituto de Investigação Pesqueira (Institute of Fishery Research, Angola)
IFM	Institut für Meereskunde (Institute of Marine Research, Kiel, Germany)
IMR	Institute of Marine Research (Norway)
IOC	Intergovernmental Oceanographic Commission of UNESCO.
IOW	Institute of Baltic Research Warnemünde (Germany)
ISAP	International Scientific Advisory Panel (BENEFIT)
LIFECO	Linking hydrographic Frontal activity and ECOSystem dynamics in the North Sea & Skagerrak: Impact on fish recruitment (GLOBEC)
MAC	Management Action Committee (BENEFIT)
MCM	Marine and Coastal Management, Department of Environmental Affairs & Tourism (South Africa)
MdPA	Ministerio das Pescas e Ambiente (Angola)
MPI	Max Planck Institute (Germany)
MFMR	Ministry of Fisheries and Marine Resources (Namibia)
MRAG	Marine Resources Assessment Group (United Kingdom)
NatMIRC	National Marine Information and Research Centre (Namibia)
NORAD	Norwegian Agency for Development Cooperation
PIs	Principal Investigators
PML	Plymouth Marine Laboratory (United Kingdom)
PPR	Project Progress Reviews (GTZ)

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RFIS	Regional Fishery Information System (SADC)
RSTG	Remote Sensing Task Group (BENEFIT)
SADC	Southern African Development Community
SAMSS	South African Marine Science Symposia
SANCOR	South African Network for Coastal and Oceanic Science
SCU	Sector Coordinating Unit (SADC)
SFRI	Sea Fisheries Research Institute (South Africa). Now MCM.
SPACC	Small Pelagic Fish and Climate Change (GLOBEC)
TAC	Total Allowable Catch
TASC	Translatitudinal Studies of Calanus (GLOBEC)
TWG	Training Working Group
ToR	Term(s) of Reference
UCT	University of Cape Town (South Africa)
UNAM	University of Namibia
UNDP	United Nations' Development Programme
UNESCO	United Nations' Educational Scientific and Cultural Organization
UPE	University of Port Elizabeth (South Africa)
UWC	University of the Western Cape (South Africa)
VIBES	Variation of exploited pelagic fish resources in the Benguela ecosystem in relation to Environmental and Spatial aspects (Programme)
ZMT	Centre for Tropical Marine Ecology (Germany)

12 FIGURES

12.1 Figure 1. Functional organizational structure in the BENEFIT Programme.



13 TABLES

13.1 Table 1. Overview of funding of the BENEFIT Programme – 2001 budget.

Table 1a. Budget (1,000 NAM\$) for BENEFIT for Fiscal Year 2001, inclusive of both donor funds and cash/in kind contributions of the BENEFIT partner countries. The donor funds are detailed in table 1b.

ITEM	TOTAL 2001 BUDGET	DONOR BUDGET	PARTNER BUDGET	ANGOLA	NAMIBIA	SOUTH AFRICA
A) Planning & Policy Activities						
MAC	140.0	40.0	100.0	40.0	30.0	30.0
EWG	160.0	90.0	70.0	20.0	20.0	30.0
FRWG	130.0	60.0	70.0	30.0	20.0	20.0
TWG	188.9	88.9	100.0	20.0	30.0	50.0
BENEFIT/Nansen Steering Committee	85.0	50.0	35.0	15.0	10.0	10.0
BENEFIT Forum 2000	400.0	230.0	170.0	50.0	60.0	60.0
BENEFIT/GLOBEC	90.0	30.0	60.0	10.0	20.0	30.0
Scientific Advisory Panel	80.0	80.0	-	-	-	-
TOTAL OF A	1.273.9	668.9	605.0	185.0	190.0	230.0
B) Research Activities						
B1) Fish Resources						
1. Ageing study	147.0	126.0	21.0	3.0	8.0	10.0
2. Horse mackerel distribution	79.0	61.0	18.0	10.0	8.0	
3. Horse mackerel behaviour	82.0	64.0	18.0		10.0	8.0
4. Horse mackerel ID	219.0	201.0	18.0	10.0	8.0	
5. Horse mackerel recruitment	103.6	85.6	18.0	8.0	10.0	
6. Hake/environment	49.0	31.0	18.0		8.0	10.0
7. Dentex distribution	65.6	47.6	18.0	10.0	8.0	
8. Survey error	156.8	128.8	28.0	8.0	10.0	10.0
9. Acoustic target identification	112.0	94.0	18.0		8.0	10.0
10. Shallow-water acoustics	24.0	6.0	18.0		10.0	8.0
11. Jellyfish acoustics	47.4	29.4	18.0		8.0	10.0
12. Survey design	95.0	74.0	21.0	3.0	10.0	8.0
13. Gear performance	205.0	87.0	118.0		8.0	110.0
14. Stock assessment workshop	227.0	206.0	21.0	3.0	10.0	8.0
15. Demersal survey coordination	64.0	44.0	20.0		10.0	10.0
16. Deep-sea crab	42.0	24.0	18.0	10.0	8.0	
17. Goby	56.0	38.0	18.0		8.0	10.0
18. Seal research	269.0	251.0	18.0		8.0	10.0
19. Environmental linkages	90.0	60.0	30.0	10.0	10.0	10.0
20. Multi-species modelling	99.0	81.0	18.0		8.0	10.0
Subtotal of B1	6.696.8	* 6.203.8	493.0	75.0	176.0	242.0
<i>NOTE: *budgets include ship time</i>		4.430.0				
B2) Environmental Studies	280.5	280.5				
1. ADCP	18.0		18.0		8.0	10.0
2. Drifters	18.0		18.0		8.0	10.0
3. Seaways	18.0		18.0		8.0	10.0
4. Remote sensing	1.105.0	1.080.0	25.0	5.0	10.0	10.0
5. Monitoring lines	24.0		24.0	8.0	8.0	8.0
6. Inshore monitoring	16.0		16.0		8.0	8.0
7. Central Benguela sediments	20.0		20.0		10.0	10.0
8. N. Benguela plankton dynamics	35.0		35.0	25.0	5.0	5.0
9. Equipment replacement/ maintenance	297.6	297.6				
	1.834.1	1.658.1	174.0	38.0	65.0	71.0
TOTAL B1 & B2	* 8.528.9	*7.861.9	667.0	113.0	241.0	313.0

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C) Capacity build./Training						
Research Stipends	343.0	263.0	80.0	30.0	10.0	40.0
Trainee Stipends	1.060.0	1.0.0	60.0	20.0	20.0	20.0
Direct training measures	281.0	131.0	150.0	50.0	50.0	50.0
Research capacity development	70.0	70.0				
TOTAL OF C	1.754.0	1.464.0	290.0	100.0	80.0	110.0
D) Secretariat Activities	1.642.3	63.3	1.579.0	679.0	600.0	300.0
Salaries	598.0	598.0				
Supplies/General Expenses	8.0	8.0				
Office and Equipment	13.0	13.0				
Insurance	12.0	12.0				
Equip/Vehicle Maintenance & Operations	17.9	17.9				
Travel	44.5	44.5				
Communications/printing	5.0	5.0				
Internal studies	90.5	90.5				
TOTAL OF D	2.431.2	852.2	1.579.0	679.0	600.0	300.0
GRAND TOTAL (A+B+C+D)	*13.988.0	*10.847.0	3.141.0	1.077.0	1.111.0	953.0
NOTE: *budgets include ship time	RV NANSEN					

Table 1b. Donor budget (1.000 NAM\$) for BENEFIT for Fiscal Year 2001 (Based on the following exchange rates as of 31 August 2000: ¹DM 1 = NAM\$ 3.20; ²NOK 1 = NAM\$ 0.778; ³USA 1 = NAM\$ 7.00; ⁴FF 1 = NAM\$ 0.94. Based on current projections. donor contributions will be matched in cash to a level of NAM\$ 1.579.0 in FY 2001 (Namibia =600.0; Angola =679.0; and South Africa =300.0)

ITEM	FY 2001 DONOR BUDGET	¹ GTZ	² NORAD	³ FAO	⁴ FSP (France)	AfDB
A) Planning & Policy Activities						
Policy Committee Meeting	40.0	20.0	20.0			
Environmental Monitoring WG	90.0	90.0				
Fish Resource WG	60.0		60.0			
Training WG	88.9	60.0	28.9			
BENEFIT/Nansen Steering Comm.	50.0		50.0			
BENEFIT Forum 2000	230.0	40.0	190.0			
BENEFIT/GLOBEC	30.0		30.0			
Scientific Advisory Panel	80.0	70.0	10.0			
TOTAL OF A	668.9	280.0	388.9	0	0	0
B) Research Activities						
B1) Fish Resources						
1. Ageing study	126.0		126.0			
2. Horse mackerel distribution	61.0		61.0			
3. Horse mackerel behaviour	64.0		* 64.0			
4. Horse mackerel ID	201.0		201.0			
5. Horse mackerel recruitment	85.6		* 85.6			
6. Hake/environment	31.0		31.0			
7. Dentex distribution	47.6		47.620			
8. Survey error	128.8		* 128.8			
9. Acoustic target identification	94.0		* 94.0			
10. Shallow-water acoustics	6.0		6.0			
11. Jellyfish acoustics	29.4		* 29.4			
12. Survey design	74.0		* 74.0			
13. Gear performance	87.0		* 87.0			
14. Stock assessment workshop	206.0		206.0			
15. Demersal survey coordination	44.0		44.0			
16. Deep-sea crab	24.0		24.0			
17. Goby	38.0		38.0			
18. Seal research	285.490		285.490			
19. Environmental linkages	60.0		60.0			

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20. Multi-species modeling	81.0			81.0		
<i>NOTE: *budgets include ship time</i>	<i>RV</i>		4.430.0			
	<i>NANSEN</i>					
Subtotal of B1	6.203.420		*6.122.840	81.0		
B2) Environmental Studies						
1. ADCP	280.5	280.5				
2. Drifters		To be				
3. SeaWIFs		Distributed				
4. Remote sensing	1.080.0	Amongst all			1.080.0	
5. Monitoring lines		Projects				
6. Inshore monitoring						
7. Central Benguela sediments						
8. N. Benguela plankton dynamics						
9. Equipment replacement/ maintenance	297.6	297.6				
Subtotal of B2	1.658.1	578.1	0	0	1.080.0	
TOTAL B1 & B2	7.861.9	578.1	6.122.8	81.0	1.080.0	
C) Capacity build./Training						
Research Stipends	263.0		263.0			
Trainee Stipends	1.0.0	500.0				500.0
Direct training measures	131.0	131.0				
Research capacity development	70.0				70.0	
TOTAL OF C	1.464.0	631.0	263.0	0	70.0	500.0
D) Secretariat Activities	63.3			13.290	50.0	
Salaries	598.0	148.0	350.0			100.0
Supplies/General Expenses	8.0	5.0	3.0			
Office and Equipment	13.0	5.0	8.0			
Insurance	12.0	5.0	7.0			
Equip/Vehicle Maintenance & Operations	17.9	11.0	6.9			
Travel	44.5	30.5	14.0			
Communications/printing	5.0	5.0				
Internal studies	90.5	90.5				
TOTAL OF D	852.2	300.0	388.9	13.3	50.0	100.0
GRAND TOTAL	*10.847.0	1.789.1	* 7.163.6	94.3	1.200.0	600.0

13.2 Table 2. List of research projects funded under the BENEFIT Programme as of April 2001.

A) Fisheries resources projects funded by NORAD and partner countries.

1. Validation of sardine and horse mackerel ageing methods in the Benguela system
2. Distribution and stock exchanges of horse mackerel
3. Dynamics of the Horse mackerel, *Trachurus* spp.: Diel behaviour in the Benguela Current system in relation to environmental parameters
4. Identification of horse mackerel acoustic targets in Angola/ northern Namibia
5. Horse mackerel, *Trachurus trachurus capensis* and *T. t. trecae* recruitment surveys
6. Cooperative research on behavioural and physiological response of hake to environmental perturbations in the Benguela Region
7. Distribution and movement of *Dentex macrophthalmus* in the northern Benguela area
8. Analysis of errors in survey estimates
9. Identification of acoustic targets
10. Acoustic assessment of fish in shallow water
11. Abundance and distribution of jellyfish in the northern Benguela
12. Improvement in the design of resource surveys (On hold)
13. Performance of research bottom trawls
14. Regional stock assessment workshop
15. Coordinated demersal surveys of Namibian and South African coasts
16. Distribution and population structure of deep-sea red crab off Namibia and Angola
17. Biology and ecology of the pelagic goby
18. Monitoring distribution of seals at sea, and potential for interaction with commercial fishing operations
19. Investigation into resource/environmental linkage assessment

B) Environmental projects funded by GTZ and partner countries

1. Implementation of effective ADCP data collection and management for oceanographic and fisheries research in the SE Atlantic
2. Birthdate distributions and growth rates of juvenile and adult anchovy in the southern and northern Benguela
3. Monitoring and process studies of hydrographic and biological variables in the Northern Benguela upwelling system
4. Proposal to manage the physical oceanographic data collected during BENEFIT
5. Continuity and mesoscale patterns of circulation in the Benguela upwelling system
6. Ground-truthing of remotely sensed ocean colour
7. Phytoplankton community dynamics of the northern Benguela current
8. Application of remote sensing in the Benguela ecosystem
9. Monitoring the Environment with ship-based transects
10. Capacity building and training within BENEFIT: Shipboard training

11. Impact of the environment on zooplankton dynamics and fish larval survival in the northern Benguela Current region
12. An Integrated Environmental Monitoring system for the Benguela Region
13. The coupling of benthic boundary layer (BBL) dynamics and biogeochemical processes in recent sediments on the Namibian Shelf in order to understand their impact on the variability of fisheries habitat suitability

Projects 3, 7, 11 were combined into a single “Northern Benguela Project”

Project 2 was referred to the Resources Working Group

Project 10 was considered to be integrated into a number of the approved activities, thus a dedicated budget was not approved for FY 2000

Project 4 was rejected in favour of a DFID activity

C) Other BENEFIT activities funded by other sources

1. FAO/JAPAN : Trophic interactions in the Benguela ecosystem and their implications for multispecies management of fisheries
2. FRANCE : Sustained management of marine resources and protection of the marine environment.
3. AFRICAN DEVELOPMENT BANK: Shipboard research training
4. ICEIDA : Capacity development, particularly related to the Namibe laboratory

13.3 Table 3. List of student bursaries connected with the BENEFIT Programme

NAME	RACE	SEX	NATIONALITY	DEGREE	INSTITUTION	FUNDING SOURCE	AWARD DATE
C. Batholomae	Caucasian	M	Namibian	M.Sc.	University of Cape Town	France	1999
D. Mouton	Coloured	M	Namibian	M.Sc.	University of Cape Town	France	2000
Feroza Albertus	Coloured	F	South African	M.Sc.	University of Cape Town	GTZ	2001-2002
Quilanda Fidel	Black	M	Angolan	M.Sc.	University of Cape Town	GTZ	2000-2001
Aina Iita	Black	F	Namibian	M.Sc.	University of Cape Town	GTZ	2001-2002
Antonio Jose da Silva	Black	M	Angolan	Ph.D.	Institute of Baltic Sea Research in Rostock-Warne-münde	GTZ	2000-2001
Pedro Tchikalanga	Black	M	Angolan	M.Sc.	University of Cape Town	GTZ	2002-2003
Graca d'Almeida	Black	F	Namibian	Ph.D.	University of Cape Town	NORAD	2001-2002
Agostinho Duarte	Black	M	Angolan	M.Sc.	University of Cape Town	NORAD	2000-2001
Charlene Rogers	Caucasian	F	South African	Diploma	Cape Technikon	NORAD	2000-2001
N.N.	Black		Angolan		University of Cape Town	GTZ	2002-2003
Victor Hashoongo	Black	M	Namibian	Diploma	Polytechnic of Namibia	GTZ	2000
Nkosi Luyeye	Black	M	Angolan	M.Sc.	University of Cape Town	NORAD	2000-2001
Marianne Balarin	Caucasian	F	South African	Ph.D.	University of Cape Town	GTZ	2000-2001
Benedict Dundee	Black	M	Namibian	Honours	University of Cape Town	GTZ	2001-2002
Justice Matshili	Black	M	South African	M.Sc.	University of Cape Town	NORAD	1999-2001
Elliot Weni	Black	M	South African	M.Sc.	University of Cape Town	NORAD	2000-2001
Margit Wilhelm	Caucasian	F	Namibian	M.Sc.	University of Cape Town	NORAD	2000-2001

14 ANNEXES

14.1 Annex 1. Terms of reference for an appraisal mission with SADC- Partners responsible for the BENEFIT Programme, for a routine review by a joint Norwegian and German mission.

1. Background

The Benguela Environment Fisheries Interaction and Training Programme (BENEFIT) is a regional program of the three Southern African Development Community (SADC) countries Angola, Namibia and South Africa. These member states bordering the Benguela Current, utilize the rich fisheries resources of this ecosystem, stretching from southern Angola in the north along the west coast of Namibia to the tip of South Africa. The program is to create the basis for long-term cooperation between the three countries in the areas of management and protection of the marine resources, which they share in part, through building regional capacity and technical skills.

The overall goal of the BENEFIT-Programme, as outlined in the Science Plan, is:

- to develop the enhanced science capability required for optimal and sustainable utilization of the Benguela ecosystem's living resources by:
 - improving knowledge and understanding of the dynamics of important commercial stocks, their environment, and linkages between environmental processes and stock dynamics, and
 - building appropriate human and material capacity for marine science and technology in the countries bordering the Benguela ecosystem.

The programme was officially inaugurated in 1997 as an adopted SADC project (Project AAA 4.11) and its first main funding phase started in 1998. The two major donors for the programme are Norway (through NORAD) and Germany (through GTZ), but other donor organizations also contributed substantially to the programme.

With the first main funding period-of the planned total life span of the programme of 10 years-coming to an end in 2001, both major funding agencies, NORAD and GTZ, decided to have the programme reviewed and evaluated in April 2001 before the planning and funding of the second promotion phase could be approved (GTZ).

During consultations between the two major donors, NORAD and GTZ, it was agreed that NORAD would support all activities related to fisheries and applied fisheries biology whereas GTZ would focus on promoting activities and training programmes pertaining to marine environmental monitoring and ecosystem research related to the development and behaviour of fish stocks.

As both agencies are contributing to the achievements of the same overall goal and objectives of the BENEFIT-Programme with minimum overlap in funded field activities, it was agreed upon by NORAD and GTZ to join their forces for the evaluation of the present organization and management as well as policy and strategy of the programme.

2. Terms of Reference of the GTZ Mission

The evaluation of the German supported research and training activities shall be based upon the project agreement concluded with the partner organizations and be undertaken in accordance with the specific needs, rules and guidelines for project evaluations/reviews as stipulated by GTZ. The review will be carried out by two consultants who will be supported by counterparts from the respective partner organizations.

The Consultants shall, but not necessarily restrict themselves to:

- determine the level of achievement of the project purpose and the planned results of German funded field activities;
- identify possible deviations/delays and their reasons;
- submit relevant proposals/recommendations for future activities to correct those deviations/ delays;

- assess further needs for continued technical assistance to the region in relation to the contributions made by other donors and local contributions from the participating countries;
- submit proposals for a next promotion phase based on this needs analysis;
- carry out a project evaluation in accordance with the present GTZ rules and regulations based on the original project offer to the BMZ and the signed project agreement with SADC;
- determine changes and developments of the frame conditions within the region and the participating countries and analyze their positive and negative impact on the German funded project measures;
- organize and carry out a planning workshop with the respective counterparts for a next funding phase, if justified.

More specifically the marine biology consultant and acting head of the German mission is expected to fulfill the following tasks:

- participation in the joint review/analysis of the organization and management of the programme;
- evaluation of all German funded/promoted field activities;
- assessment of further need of technical assistance to the environmental sector of BENEFIT;
- preparation of an executive summary of mission results (in cooperation with the Norwegian consultants);
- coordination of all review results with all team/mission members and the regional counterparts/key role players of BENEFIT;
- preparation of a final evaluation report in close cooperation with the other mission members;
- participation in the planning workshop for the next promotion phase of the German assisted components as a resource person;
- elaboration of a German draft project offer for a next funding phase based on the workshop.

The Marine Fisheries consultant is expected to fulfill the following tasks:

- participation in the joint review/analysis of the organization and management of the programme;
- participation-under the chair of the marine biologist-in the evaluation of the German funded components of the programme;
- review of present donor coordination and cooperation (together with Norwegian consultants) in overlapping as well as complementary activities;
- organization and moderation of a planning workshop for further assistance to the German funded components ("environmental monitoring and ecosystem research"; the BENEFIT Secretariat will assist in the organization);
- preparation and submission of the Planning Workshop Report;
- participation in preparing the Executive Summary as well as the Final Review Report and the Draft Project Offer to BMZ ("Angebot") for a next promotion phase of BENEFIT.

3. Terms of Reference of the GTZ Mission

The evaluation of the Norwegian supported activities related to fisheries and applied fisheries biology shall be based upon the project agreement concluded with the partner organizations and be undertaken in accordance with the specific needs, rules and guidelines for project evaluations/reviews as stipulated by NORAD. The review will be carried out by two consultants who will be supported by counterparts from the respective partner organizations.

The Consultants shall, but not necessarily restrict themselves to:

- determine the level of achievement of the purpose of funding and the planned results of Norwegian funded field activities;
- identify possible deviations/delays and their reasons;
- submit relevant proposals/recommendations for future activities to correct those deviations/delays;
- assess further needs for continued technical assistance to the region in relation to the contributions made by other donors and local contributions from the participating countries;
- give recommendations for a future phase based on this needs analysis;

- carry out an evaluation in accordance with the present NORAD rules and regulations, re. handbook on "Evaluation of Development Assistance", based on the original project and as a component of the Nansen Programme;
- determine changes and developments of the frame conditions within the region and the participating countries and analyze their positive and negative impact on the Norwegian funded project measures;
- assess the commitment of the member states and the political priority of the Programme;
- assess the coherence of reporting structure to the stakeholders and the decision making procedures of the programme, and specifically with regard to the Nansen Programme support and the role of the Steering Committee and the Annual Meeting between Namibia and Norway; and
- assess the relevance and importance of the research vessel Fridtjof Nansen for both past and future activities of BENEFIT.

Under the above tasks more specifically include the questions/tasks below:

- whether, and to what extent, the BENEFIT programme has brought, or is likely to bring in the near future, new knowledge on the fishery resources and the marine environment that are of relevance to fisheries management; identify research areas that are believed to be important but are not sufficiently or satisfactorily dealt with by the programme;
- to what extent the programme has contributed to increased regional cooperation in fishery and environmental research; identify major bottlenecks and propose tools/mechanism for improved future regional cooperation;
- the Secretariat's efficiency in planning and coordinating projects; provide possible suggestions for improvement in relation to donor requirements, particularly as regards:
- routines of project implementation and responsibility for utilization of approved funds,
- how the Secretariat complies with obligations as facilitator for the Nansen Programme Steering Committee,
- the Secretariat reporting routines,
- adequacy of routines as regards management and disbursement of funds;
- the mechanisms used at present for awarding scholarships, with special reference to whether scholarships are awarded consistently with donor development objectives, i.e. providing opportunities to students from previously disadvantaged groups, providing opportunities to female candidates and giving priority to scientists from local institutions.

4. General Terms of Reference for the Joint Mission

After the assessment of the German supported research and training measures and the Norwegian supported measures related to fisheries and applied fisheries biology, the German and Norwegian Consultants shall undertake jointly the following tasks:

- attend the BENEFIT Forum 2001 (from April 2 to April 6 2001) as a source of information about the present state of all programme activities;
- analyze and evaluate the success of the programme on the basis of progress made so far and assess the degree of the achievements of the overall goal and project purpose as planned;
- review the project executing agencies of the three participating countries Angola, Namibia and South Africa and assess their need and capacity for regional cooperation in the fisheries sector and their need for further assistance within the BENEFIT Programme;
- discuss the preliminary assessment of project performance on the political level with the three member countries Angola, Namibia and South Africa, and SADC, and determine, if the goals and objectives are still in line with their national policies and expectations;
- assess and discuss the influence of any upcoming BCLME/GEF programme for the same countries/institutions/region, and any consequences for BENEFIT;
- clarify the present and future role of SADC for/in the BENEFIT Programme;
- analyze and evaluate the present organizational structure of the programme and assess its appropriateness for achieving its goals;
- analyze and evaluate the present management system of BENEFIT and its performance, including the performance of the BENEFIT Secretariat;

- submit a detailed report containing a comprehensive analysis about the present state of the project focusing on the views of the three member states on the policy level, the performance of the management and organizational structure, and specifying results/progress so far achieved, and identify constraints and problems encountered on all management and administrative levels - if any; and
- recommend possible organizational and institutional changes, based on consultations in the region including the Policy Committee of BENEFIT.

The purpose of the detailed report prepared jointly by the German and Norwegian Consultants is to:

- provide all stake holders in the BENEFIT Programme with a comprehensive evaluation/analysis on the performance of the present organization and management of the BENEFIT Programme specifying progress, constraints and problems encountered during the first funding phase (from the establishment of the BENEFIT-Secretariat until present) and, if necessary, and;
- advise the decision makers of the BENEFIT Programme/give recommendations on how to improve the performance of the organization and management system of the programme as well as the cooperation between the partners during a next envisaged promotion phase.

5. Organization of the Mission

5.1. Participants

The joint mission will be comprised of two German consultants and two consultants assigned by Norway and if possible one counterpart from each participating country of the Benguela Region, still to be named.

The German consultants will be: Dr. Hein von Westernhagen acting as head of the German mission and as a specialist on marine biology and Dr. Uwe Lohmeyer, fisheries biologist from GTZ Headquarters.

Norway will assign the following consultants: Dr. Poul Degnbol, Institute of Fisheries Management, Denmark, and Professor Christopher C.E Hopkins, AquaMarine Advisers, Denmark.

5.2. Timing and organization

The Norwegian assigned consultants and the counterpart consultants will work together from 27 March in preparing the mission and covering the NORAD specific tasks.

The full mission will commence its work during the first week of April 2001 as observers/participants of the 2001 BENEFIT Forum in Swakopmund. They will thereafter analyze, assess and evaluate the German and Norwegian supported project measures and activities separately.

During the following two weeks the German and Norwegian Consultants will jointly review the programme organization and management system and performance as well as the review of the project executing agencies. The review will include short trips to Luanda/Namibe, Windhoek and Cape Town. The results will be presented in the detailed report prepared jointly by the German and Norwegian Consultants.

After completion of the reviews, the German team will in close cooperation with the programme management, organize and hold a short planning workshop for designing the next three years promotion phase for the marine environmental monitoring and ecosystem research and related training activities with relevant key role players in the programme and the participation of Norwegian assigned persons/consultants.

A preparatory meeting for the German consultants will be held in GTZ Headquarters prior to the commencement of the mission. The same will take place in NORAD, Norway or the Norwegian Embassy, Pretoria for the Norwegian assigned consultants.

A joint Draft Review Report will be submitted to NORAD and GTZ five weeks after conclusion of the work in the region for comments to be given within four weeks, and the final Review Report to be submitted two weeks after having received comments.

5.3. Expected Outputs

Evaluation of the BENEFIT Programme

- Handing over of an executive summary of the mission to the project executing agencies and Policy Committee members in the English language stating major results and recommendations of the evaluation jointly prepared by the German and Norwegian consultants;
- Submission of a joint final evaluation report of the BENEFIT Programme including a short sector analysis, an analysis of the project executing agencies, an analysis of the organizational and institutional set up, and of the role of SADC within the Programme;
- Drawing up of a project proposal/draft project offer for a next German promotion phase for the environmental components of the Programme based on the results of the joint planning workshop.

14.2 Annex 2. Terms of Reference requested by SADC to be added to the BENEFIT Evaluation Mission.

Overall progress and relevance

- Review and assess to what extent the programme is achieving or is likely to achieve its objectives.
- Evaluate the relevance of the science and training programme with emphasis on the suitability of the research focus, i.e. which stocks are being targeted and on the appropriateness of the training.

Inputs and outputs

- Review the financial reporting and the method employed in accounting of all donor funds by the Secretariat, preparation of accounts, justifications of expenses, production of documentation, receipts etc.
- Review and assess the appropriateness and conformity to transparency of the procedures used by the programme in the award of contracts to consultants; research funding; and other financial assistance.

Relationship and impacts on cooperating organizations and other bodies

- Assess the impact that the training elements have had on increasing capacity in the 3 research organizations (IIP, NatMIRC and MCM) and related organizations at different levels of skills.
- Review the relationship and cooperation between BENEFIT and SADC Marine Fisheries and Resources Sector Coordinating Unit (SCU) and assess the level of ownership by SADC and the commitment of the programme to SADC and the Sectors objectives. Suggest mechanisms to enhance and ensure integration into the SADC SCU and to clearly outline where the responsibilities lie.

14.3 Annex 3. Travel, meetings/interviews and activities conducted by the Evaluation Panel.

Date	Travel, meetings and interviews
23 March	Briefing of NORAD appointed members of Panel in Bergen (Norway) by Nansen Programme staff.
28-30 March	Start of mission. In Windhoek & Swakopmund (Namibia): preparation by joint Panel of draft schedule for meetings & questions for interviews with BENEFIT officials and persons connected with BENEFIT.
30 March	<ul style="list-style-type: none"> • Meeting with MFMR (Dr Burger Oelofsen, Dr Hashali Hamukuaya) in Windhoek. • Meeting with SADC SCU (Ms Hilda Khoëses, Ms Unda Tjihuiko, Ms Sandy Davies) in Windhoek.
31 March	In Swakopmund: attend official dedication of new BENEFIT Secretariat Offices by Hon. Minister Abraham Iyambo (Namibia) including meeting BENEFIT's Chief Executive Officer (Prof. Charles Hocutt) & Minister Iyambo.
1 April	<ul style="list-style-type: none"> • Meeting with BENEFIT's Chief Executive Officer. • Meeting with Dr Victoria de B. Neto (Chair of MAC, Angola) and Dr Hashali Hamukuaya (MAC member, Namibia).
2 – 4 April	<ul style="list-style-type: none"> • Attendance at Opening & Scientific Sessions of 2001 BENEFIT Forum. Actively followed all sessions including 'report back' from: Workshops, TWG & Shipboard Research Training Programme, Steering Groups (BCGC, BENEFIT/ Nansen), current resource projects and environmental projects and FRWG and EWG, new initiatives, and a special session on Strengths & Weaknesses of BENEFIT Programme and possible collaboration with the new BCLME Programme. Meetings held in the margins with chairs and individual members of Working Groups (FRWG, EWG, TWG) & ISAP. • Dialogue meeting held with Angolan representatives (Dr Victoria de B. Neto, Ms Filamina Vaz-Velho, Dr Pedro Barros).
5-6 April	<ul style="list-style-type: none"> • Followed business sessions of Forum, including BCGC meeting, BENEFIT/Nansen Steering Committee. • Dialogue Meeting held with South African representatives (Mr Horst Kleinschmidt, Dr Johann Augustyn). • Dialogue meeting held with the MAC (Dr Victoria de B. Neto, Chair – Angola; Mr Horst Kleinschmidt, Mr Johann Augustyn - South Africa; Dr Hashali Hamukuaya – Namibia).
7 – 8 April	<ul style="list-style-type: none"> • Dialogue meeting held with representatives of NatMIRC. • Panel <i>in camera</i> reviews findings so far & prepares draft of Executive Summary.

Annex 3 continued.

Date	Travel, meetings and interviews
9 April	<ul style="list-style-type: none"> • Meetings held with individual staff of BENEFIT Secretariat (CEO, Office Manager – Mrs Petro Rabe, Technical Assistant – Mr Ian Hampton). • Continued preparation of preliminary draft of Executive Summary.
10 April	<ul style="list-style-type: none"> • Continued preparation of draft of Executive Summary. • Travel to Windhoek.
11 April	Verbal Presentation, with paper copy, of draft Executive Summary (ES) to SADC SCU in Windhoek with observers from Namibia and GTZ. Electronic transmission of copy of ES to Angola & South Africa.
12 - 17 April	<ul style="list-style-type: none"> • Dialogue meeting in Windhoek (12 April) with local GTZ office head Dr. Jörn Fitter (GTZ appointed members of Panel). • Continued preparation of draft final report in Windhoek.
18 April	Travel to Cape Town & Dialogue meeting with Dr. Johann Augustyn (DEAT) and PIs of MCM.
19 April	Travel to Windhoek
20 April	Travel to Namibe, Angola. Visit to Namibe laboratory. Dialogue meeting with members of the Namibe laboratory (Ms Margarida Souza) and a representative of the IIM (formerly IIP) Ms Domingas Paim.
21 April	Travel to Windhoek.
22-23 April	Continued preparation of draft final report.
24 April	Travel to Swakopmund.
25-26 April	BENEFIT Planning Workshop with members of all partner countries and representatives of NatMIRC.
27 April	Travel to Windhoek. End of mission.
28 April to 14 May	Continued preparation of draft final report.
15 – 16 May	Joint meeting of Evaluation Panel in Hirtshals (Denmark) to complete Evaluation Report.

14.4 Annex 4. Results of the GTZ 'BENEFIT Goal Oriented Planning Workshop' (Swakopmund, 25-26 April 2001).

Project Planning Matrix

The **Development Goal** has been formulated as:

The living resources of the Benguela Current (Eco-) System are optimally and sustainably utilized

Indicator: The formally depleted stocks show signs of recovery by the end of the project

The **Project Purpose**, which has to contribute to the development goal, was formulated as:

The science capability required for the optimal and sustainable utilization of the living resources of the Benguela Current is developed to understand the structure and functioning of the ecosystem

Indicators

- 80% of research and technical posts are filled with adequately trained nationals within 5 years;
- training opportunities have been provided;
- a functional integrated standardized regional environmental monitoring programme is in place after 3 years;
- environment/resource indices have been formulated and environmental considerations are submitted to and considered by the decision makers on TACs.

Under the heading of the above-formulated **development goal** five results have been developed to contribute to the achievement of the **project purpose**.

Result 1: The training plan drawn up by the Training Working Group in phase one is implemented.

Indicators

- A Strategic Action Plan is drafted April 2002; finalized 2002 and annually reviewed 2003/4 and implemented;
- Twenty persons have received qualified training.

Result 2: The ability to predict fluctuations in marine resources in relation to environmental variability is improved.

Indicators

- The influence of environmental factors is taken into account in the setting of TACs in the region by the end of phase two.

Result 3: An environmental monitoring programme is in place standardized to internationally agreed upon guidelines (in cooperation with RFIS (DFID/SADC) and FSP).

Indicators

- A manual for technical guidelines for environmental monitoring is produced by January 2002;
- Regular monitoring is implemented after three years;
- Regular reports and scientific papers are published.

Result 4: Studies on causal linkages between fish stock dynamics and environmental parameters are jointly planned by BENEFIT and interested donors (e.g. GTZ, NORAD/Nansen Programme).

Indicators

- Minutes of the meetings are available.

Result 5: Regional and international communities are informed about BENEFIT activities and results.

Indicators

- BENEFIT has organized or taken part in an international symposium on the Benguela Current;
- BENEFIT website is permanently updated;
- - A regular newsletter is continued to be produced (every half year, "From A to B to Sea").

Plan of Operation

Activities

1.1 Strategic action plan is drafted by April 2002 and finalized by July 2002

1.1.1 Technical training

- electronics (technical);
- equipment calibration;
- general taxonomy;
- equipment operation;
- processing and statistical analysis of data;
- computer training in software and operating systems;
- numerical expert in fisheries (co-op SADC);
- training in implementation and developing appropriate stock assessment models;
- environmental monitoring including remote sensing
- training in modelling techniques (Stella etc.).

1.1.2 Training of inspectors and observers

- collection of biological and catch data (cooperation with SADC).

1.1.3 Transdisciplinary education for fisheries managers

- regular seminar.

1.1.4 Individual training on requests

1.1.5 Language training

1.2 Organize workshop on scientific writing

1.3 Organize workshop on analytical techniques

1.3.1 Standardization of methodologies and analyses

2.1 Investigate the natural environmental variability of the key systems (Benguela/Angola Front, upwelling cells, Angola dome) in relation to fish stocks (in cooperation with BCGC and FSP)

2.2 Study of upwelling and associated productivity influencing commercial fish stocks

2.3 Investigate the development and impact of specific environmental parameters on key indicator species

- study of low O_2 on key resource species;
- study on the generation and impact of H_2S (in cooperation with MPI and IOW);

- 2.4 Organize and undertake resource oriented process studies (in cooperation with BCLME)
- 2.5 Undertake comparative studies on environmental impacts on fish resources in other upwelling systems with emphasis on Humboldt Current (in co-operation with University of Concepcion and GTZ bilateral project PN: 97.2248.9-00100)
 - 3.1 Plan and co-ordinate the execution of monitoring activities and environmental working group and BCGC meetings
 - 3.2 Standardize and calibrate equipment and conduct quality control
 - equipment compatibility;
 - training procedures.
 - 3.3 Results/findings from environmental monitoring activities are presented as scientific publications
 - 3.4 Monitoring data are made available to target groups (e.g. politicians, industries, scientists etc.)
 - 3.5 Methods and data base are standardized
 - 4.1 Planning, preparation and holding of joint meetings
 - 4.2 Identification and execution of joint projects
 - 5.1 Revise, update, upgrade and maintain web site
 - 5.2 News letter is updated