

ESTABLISHING A NATIONAL HYDROGRAPHIC SERVICE WITH UNITED NATIONS TECHNICAL CO-OPERATION (*)

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ABSTRACT

The Report of the Group of Experts on Hydrographic Surveying and Nautical Charting, published by the United Nations Economic and Social Council in 1978 [1], advised developing countries to examine the need for hydrographic services and to ascertain what aid they could expect from the United Nations in establishing a national hydrographic service.

This paper deals with certain aspects of the Report, explains, in general terms, the financial and technical assistance which may be provided and the United Nations agencies which may be involved.

The concept of a UN-assisted project is discussed and its application in the planning of a hydrographic project is explained. A case study of a hydrographic project with United Nations Technical Co-operation, in which the author is involved, is presented to give some indication of the time scale involved, the problems which may be encountered and methods of solving them.

The paper begins with the assumption that the Government of a developing country has realised the need to establish a hydrographic service and has identified

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the department to run it. It presents no arguments for or against such a decision but aims to give some insight into the formulation of a hydrographic project with United Nations Technical Co-operation.

INTRODUCTION

The need to establish hydrographic services in developing countries has been recognised at various United Nations Regional Cartographic Conferences held during the 1960's and 1970's in Europe, Asia, Africa and Latin America.

At the 1977 Conference held in Bangkok, a recommendation was made to convene a meeting of hydrographic experts in consultation with the International Hydrographic Organisation. The meeting was held in New York in December 1977 and was followed by publication of "The Report of the Group of Experts on Hydrographic Surveying and Nautical Charting" [1] in May 1978.

In the Report, the experts considered the current status of world-wide hydrographic surveying and charting, the establishment of immediate and long-term hydrographic requirements of developing countries and formulated justification and guidelines for establishing or strengthening hydrographic services in developing nations.

The Report, which is a valuable document for any government considering establishing a national hydrographic service, is very concise and deals with all aspects in a non-technical style. In the Report, the experts advised governments to ascertain what assistance was likely to be available from the United Nations under the United Nations Development Programme.

UNITED NATIONS TECHNICAL CO-OPERATION

Most developing countries will have, already in existence, a Development Programme consisting of various individual projects which, collectively, aim to achieve the ultimate national development objectives of independence and self-sufficiency. A country's Development Programme will, almost certainly, include a strong input from various United Nations specialised agencies and there will be a government department assigned to liaise on United Nations projects.

A government wishing to establish a Hydrographic Service will, therefore, probably have the necessary administrative department in place for making an approach to the United Nations for assistance, which, in the case of a straight-forward civilian hydrographic project, would be directed to the appropriate regional office of the United Nations Development Programme (UNDP).

The Resident Representative of the UNDP regional office acts as a field representative for the UN Department of Technical Co-operation for Development (UN/DTCD), which operates projects in developing countries that are financed by UNDP.

The distinction between these two agencies is not always clear to the layman as they will both be closely involved in certain projects. The distinction may be drawn by considering UNDP as the financial and field administration agency and UN/DTCD as the technical support and advisory agency. The headquarters of both agencies are located in New York.

Having received a request for technical assistance and co-operation, the UNDP Resident Representative will, in close consultation with appropriate government officials and technical experts from UN/DTCD, prepare a project document which details how the project would be implemented and executed with appropriate budgets and time scale. This document has to be agreed by the government, UN/DTCD and UNDP before the project may proceed and would probably be preceded by a feasibility study.

Financial Assistance

The amount of financial assistance which may be available from UNDP is governed by what is known as the "Indicative Planning Figure" or "IPF" for the country concerned. The IPF is prepared by the UNDP and takes into account a number of parameters, including population, per-capita income, total funds available, etc. The IPF indicates the maximum amount of financial assistance available from UNDP for any year or number of years. In most cases, the IPF will be insufficient to cover a country's development programme projects and the shortfall may be made up by government funds under cost-sharing arrangements. (In 1981 the worldwide figure for UNDP-financed projects was 42 % UNDP input and 58 % recipient government input [2]. Figures for individual countries may differ considerably from the average).

The funding of a project tends to be a complicated matter and, in some cases, may include bi-lateral or multi-lateral aid from other agencies outside the UN system.

Technical Co-operation

The technical co-operation available from UN/DTCD includes the following :

1. Expert advisory services, comprising technical advisors for assignments of one or two years, consultants for shorter periods and UN volunteers.
2. Equipment procured in support of project activities, including scientific instruments, computer equipment, vehicles, geophysical survey and marine equipment.
3. Contracted firms to augment the skills of international experts and national personnel. This may include such aspects as aerial photography and mapping, geophysical surveys, oceanographic studies, etc.
4. Training to help develop the government's own technical skills and managerial capabilities — a key element in all UN/DTCD activities. Training components

would include on-the-job training, group training in the country or region and individual overseas fellowships.

5. Fellowships are available to nationals of developing countries for long or short term courses of study outside the country or region. Fellowships are designed to broaden the professional knowledge and experience of nominees and to increase their ability to solve technical problems on returning home [3].

UN/DTCD does not have a permanent staff of hydrographic experts but through its Natural Resources and Energy Division maintains close links with the International Hydrographic Organization and is able to recruit the necessary experts through the UN/DTCD Technical Assistance Recruitment Service.

THE CONCEPT OF A UNITED NATIONS TECHNICAL CO-OPERATION PROJECT

Such a project is essentially an undertaking of the government of the country concerned, which initiates it and retains responsibility for it, but at the same time seeks assistance from the United Nations system in formulating and implementing it. Such a project is not to be considered a closed entity but a means of achieving a broader, related development objective of the government.

A project to establish a National Hydrographic Service would, for example, be a means towards ensuring the safety of marine transport, the management of offshore resources, the provision of primary data for effective coastal zone management and prevention of pollution or minimising of its effects.

The project design follows the logic of inputs, activities and outputs which are needed to achieve its immediate objectives. A schematic representation of project design is given in figure 1 [4].

By working backwards from the Development Objective, the various components are formulated and agreed, thus forming the details of the Project Document.

An indication of the type of components which make up a project to establish a National Hydrographic Service would be as follows :

1. Development Objective

To provide the nation with the capacity to survey and chart the sea areas under its jurisdiction in order to assist other national agencies concerned with the management of marine resources, safety of marine transport and environmental protection.

2. Immediate Objective

To establish a national Hydrographic Service.

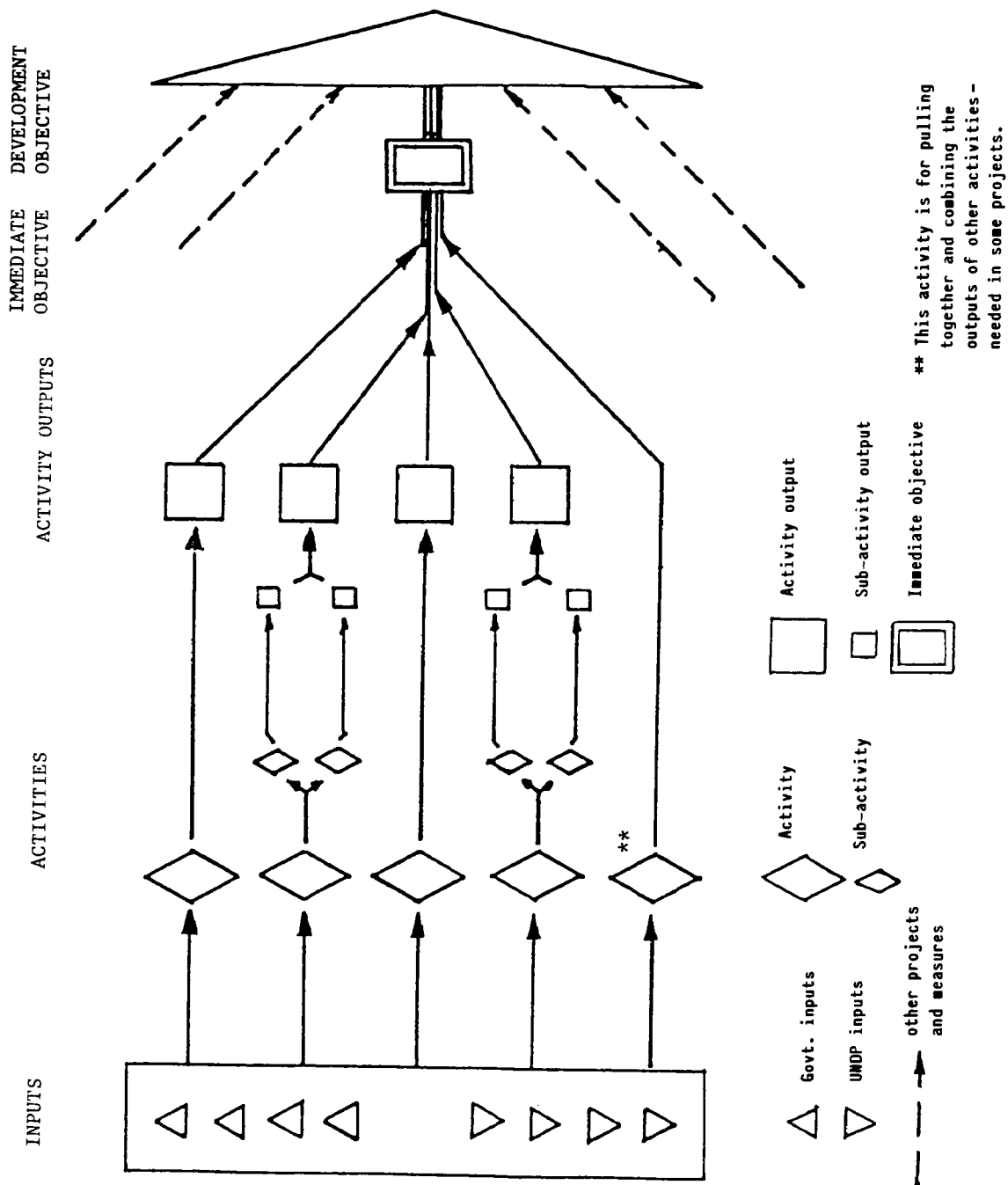


FIG. 1. — Graphic illustration of project design.

3. Outputs

- Trained technical personnel.
- A long-term work programme.
- An established national Hydrographic Service, equipped and provided with means to carry out, effectively, the production, updating and distribution of nautical charts and publications.

4. Activities

- Prepare organisational chart, job descriptions, etc.
- Recruit staff.
- Establish and outfit office accommodation.
- Prepare and implement staff training programme.
- Prepare and implement equipment procurement plan.
- Evaluate survey vessel operation — hired vessels or purchase.
- Assemble reference data.
- Undertake technical missions (i.e. survey activities).
- Liase with national and international agencies.

5. Inputs

a) *Government*

- National staff — technical, administrative and support.
- Salaries and wages of staff.
- Office buildings, furniture, telephones, etc.
- Expendable supplies.
- Transport (i.e. field survey vehicles).
- Maintenance of survey vessels and equipments.
- Printing facilities.

b) *United Nations*

- Internationally recruited staff such as : Chief Technical Adviser and Technical Consultants.
- Training (local and overseas fellowships).
- Survey equipment (echo sounders, electronic position-fixing equipment, tide gauges, radios, optical instruments, reference and library materials, etc.).
- Survey Vessel. (This would represent the most expensive single item of equipment and a thorough evaluation of existing government vessels, hire vessels, suitable design, etc., would be completed before a decision to purchase is made).

The precise nature of each component would vary obviously according to the scope of the project and the division between Government and United Nations inputs may differ from the example given above. The UN inputs would, however, generally include technical advice, survey equipment, training and fellowships.

PHASED DEVELOPMENT OF THE HYDROGRAPHIC SERVICE

It is the author's opinion that development of a new national Hydrographic Service should be planned in distinct phases.

Initial phase

This would cover the UN assistance period and would develop the hydrographic service from its first inception up to an ability to carry out surveys and to chart ports, harbours and their approaches and inner coastal areas.

Close attachment to another government department (marine or survey) would be necessary during this phase to assist and support the new service.

The number of staff would, probably, be quite small (as low as six persons) at the start of this phase, and personnel would receive basic training on-the-job and attend short-term training courses at establishments overseas.

Intermediate phase

This would develop the service up to an ability to carry out surveys and chart outer coastal waters and offshore areas and produce relevant nautical publications.

During this phase the new service should plan to relinquish its close attachment to the supportive department and stand alone as an independent government department.

The number of staff would increase as field survey teams were strengthened, cartographic personnel were employed and administrative services fully established.

Selected technical staff would receive more advanced training by attending long-term training courses overseas with a view to obtaining an appropriate qualification. Managerial training for senior staff would be incorporated.

Final phase

This would consolidate the hydrographic service up to a full capability for undertaking oceanic surveys including elements of geophysical and oceanographic data gathering.

There would probably be a further increase in the number of technical staff and increased commitments in terms of vessel(s) and equipment would be necessary.

It is possible that certain hydrographic services may never develop to this degree of expertise because there may be no requirement to do so or because co-operation from a developed country may be available for oceanic surveys.

The time scale for each phase will depend on many factors, the most influential of which will be the pace of staff recruitment and training. It is the author's opinion that a minimum of three years each is required for the initial and intermediate phases.

It can be seen that the period of United Nations Technical Co-operation forms a relatively short span when considering the continuing, on-going development of a new hydrographic service. The government of a developing nation must appreciate that if the foundation laid during the period of co-operation is to be built on effectively, there must be a continued commitment of funds for recurring and capital expenditure and further continued support during the formative years.

Progress during the period of technical cooperation is monitored regularly by means of semi-annual progress reports and tri-partite meetings as required (Government, UNDP and UN/DTCD). Project revision or revisions may be required from time to time to bring budgets into line, amend certain components, extend or re-phase time scales.

The Chief Technical Adviser is in contact with his local counterpart, government and United Nations officials on a daily basis. Through his various technical reports, advice and progress meetings, the project is steered along the intended track.

CASE STUDY OF A HYDROGRAPHIC PROJECT WITH UNITED NATIONS TECHNICAL CO-OPERATION

The author is involved as Chief Technical Adviser with a UN-assisted hydrographic project in a developing country and certain aspects of the implementation of the project are discussed with the intention of providing an insight into problems which may arise. It is the author's hope that similar projects in the future may benefit from what is discussed here.

Realisation of the Need for a Hydrographic Service

It is not clear when, precisely, the need to establish a national Hydrographic Service was first realised. Various government officials from different disciplines, including Land Surveying, Coastguard and Marine Affairs, began to feel the need for such a service and a committee was formed to discuss its formation.

Surveys of local waters carried out by a developed nation had ceased some years previously. Certain new ports had been established, others redeveloped,

offshore exploration for energy resources was expanding; there was concern over marine pollution, coastal erosion, accretion and protection; there were plans to up-grade marine navigation aids and it was desirable to establish agreed maritime boundaries with neighbouring States.

The first recorded intentions to establish a Hydrographic Service were made about five years before the start of the project. During those five years various discussions took place between concerned officials, the matter was discussed by the Cabinet, UNDP was approached for assistance and a Project Document drawn up.

The project commenced five months after the Project Document was agreed and signed by all parties.

Implementation Process

Implementation began with the recruitment of the Chief Technical Adviser (CTA), his arrival in the country and the nomination of a local counterpart of the CTA.

An organisational structure for the new hydrographic service was prepared and office space requirements were drawn up within a few days of the CTA's arrival.

The technical staff positions (hydrographic surveyors, assistants, etc.) were, of course, totally new categories as far as the country was concerned and did not appear on the Civil List. This was to prove a major problem and a source of serious delay in staff recruitment.

Various government departments had to approve the organisational structure, the duties of individual staff positions, the creation of new, permanent staff positions, fixing of salary levels and advertisement, before recruitment could commence. Cabinet approval was required also at various stages.

It is to be expected that the establishment of a new organisation, in a discipline not existing elsewhere in the country, will be treated cautiously by those responsible for its approval. In particular, the fixing of salary levels is a delicate matter which must be so as not to cause too much unrest amongst other civil service categories.

However, it is the author's opinion that in this particular case, the time taken to obtain the necessary approvals could have been reduced considerably if the various government departments concerned had been given specific directives to treat the matter urgently and had been forewarned about the project.

As an interim measure, before all the necessary approvals had been obtained, a small number of existing staff with land survey and cartographic experience was transferred from another government department to enable practical training to commence. These personnel were not all transferred at the same time because of their existing commitments and there was, for example, a period of nine months between the transfer of the first person and the fourth person. This presented some problems in scheduling training sessions, which were conducted by the CTA and repeated as necessary when newcomers were transferred.

Training was carried out in accordance with the training programme and syllabus drawn up by the CTA. Contacts with overseas hydrographic training establishments were made and the availability of places and administrative procedures were determined as a preliminary to nominating persons for fellowships.

Equipment and instruments required to commence survey activities were determined by the CTA and his local counterpart. Specifications were prepared and tenders invited in the early stages of the project. In addition, the CTA prepared a ten-year equipment procurement plan and budget which gave details of replacements and additions required for phased development of the new service.

A survey programme was prepared after discussing the individual requirements of Port Authority, Coastguard, Defence Force, Institute of Marine Affairs, Harbour Master, etc.

The survey programme incorporated a "nursery area" for field training of staff and boat's crew.

Officials from the various agencies just mentioned were somewhat reticent in suggesting which areas they would like surveyed during the initial discussions. However, once the first surveys were completed and printed copies were distributed, the newly established hydrographic service was called upon repeatedly for surveys and assistance of various kinds and was able to respond positively.

The requirements for a survey vessel were evaluated by the CTA following a study of existing government-owned vessels which could possibly be utilised. Two vessels were identified as being suitable for short-term use and, indeed, one of these was made available as soon as it was required, providing the means of executing the first hydrographic surveys. For long-term requirements the CTA recommended a dedicated vessel, prepared a full specification and tenders were invited.

The availability of suitable printing facilities was determined during the implementation process and the new hydrographic service was fortunate in having ready access to a print shop familiar with printing topographic maps. (This type of facility may not be available in other developing countries). Trials were put in hand to test the printing of a navigational chart to IHO specifications and are continuing. Surveys completed to date have been reproduced as survey plans by dyeline printing.

The establishment and outfitting of office accommodation was a key activity in the implementation of the project. Provision of office space was a government input but there were no funds for building new offices, so space in a suitable, existing building had to be identified. There was, again, some caution on the part of occupants of offices to release space to the new hydrographic service. This was to be expected and some delay was experienced in obtaining official sanction to release all the space required.

During the implementation process regular progress meetings were held (about every two weeks) with the officials concerned to keep everyone informed and to identify and resolve problems. On a number of occasions the direct assistance and support of the government Minister of the implementing agency was required to clear bureaucratic "blockages" which were impeding progress.

In addition, the CTA and his local counterpart maintained dialogue and

liaison with those government agencies which would be making use of data to be supplied by the hydrographic service. International charting agencies were contacted (those which published charts of the area) and links with IHO were established.

Consolidation Process

When all the implementation activities were in hand and hydrographic survey operations had commenced, it was possible to move on to what could be considered as consolidation activities to establish the new service, quite firmly, as the national authority for hydrography.

A method of initiating notices to mariners to cover both local and international requirements was discussed with a view to implementation by the new hydrographic service.

Representation was sought on maritime boundary committees which gained added importance following the signing of the United Nations Convention on the Law of the Sea.

An input into decisions on foreshore reclamation schemes was obtained.

Discussions were held with local university staff of the inclusion of a strong hydrographic element in a new Land Survey degree course which was about to commence.

A standard letter was sent out to all agencies, both public and private, which were associated, in some way, with maritime affairs. The letter informed recipients of the establishment of the hydrographic service and requested anyone who knew of any activities or works at sea or on the sea bed to forward details to the hydrographic service.

These and other activities assisted in spreading the word that the hydrographic service was established.

OBSERVATIONS ON A UNITED NATIONS TECHNICAL CO-OPERATION HYDROGRAPHIC PROJECT

It is the author's opinion that before an approach is made to UNDP for assistance, the advisory service now available from the International Hydrographic Organisation should be requested by the developing country. This would entail a visit to the country by an IHO representative with the intention of helping to identify the appropriate government department and generally advise on how to start things moving.

Provided with this advice, the government may then approach UNDP with more definite proposals and with the added weight of IHO's recommendations.

It is regrettable that in a developing country with urgent needs to improve housing, hospitals, schools, agriculture etc., a proposed hydrographic project may

stand a very slim chance of being included in successive five-year Development Programmes.

Once a United Nations Technical Co-operation project has been established, however, it is prudent for the government concerned to consider what will happen when the UN assistance terminates. There is at present a definite "cut off" point when United Nations involvement ceases and the new hydrographic service must stand alone. At this point, the number of national staff in the hydrographic service may still be quite small, the head of the service may be the only qualified person in the country to run the service and his/her age will generally be much younger than a similar position in a developed country. There is a risk that, should that person decide to leave (for whatever reason), the hydrographic service would be in danger of collapsing or stagnating.

It is the author's opinion that instead of a sudden "cut off" point when all United Nations Technical Co-operation ends, there should be a gradual "phasing-out" process. This could entail the return of the international experts for shorter periods spread over a number of years and a continued UN input for training. This would ensure continued stimulation and interest in the hydrographic service.

CONCLUSIONS

There is no doubt that funds made available by UNDP and technical expertise provided by UN/DTCD can assist a developing country in establishing its own hydrographic service.

The implementation process may be made much easier and quicker if all government departments involved are kept fully informed on what the government's intentions are concerning the establishment of a new unit.

The government must consider carefully, and make provision for, a continued commitment of funds for the on-going operation of the hydrographic service, including training and professional development of personnel.

It is quite probable that the output in terms of surveys and charts will be quite small during, say, the first three years, and the government should not see this as a reason for withdrawing support.

Membership of the International Hydrographic Organization is recommended strongly, as this puts the developing country in touch with what is happening on the international hydrographic scene and contacts with overseas hydrographers can be made directly.

The government must not lose sight of the fact that, to obtain the full benefit of its hydrographic activities, the information obtained must be made available to the international maritime community as well as local users. Once the flow of information has commenced, the developing country can take its place, rightfully, in the growing, world-wide, hydrographic fraternity.

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