Indian National Information Programme for Marine Science

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*Explains the steps to be taken for a better utilization and management of information resources available in institutions concerned with marine sciences in India. The role and the services and facilities of the NIO Library are described.*

1 INTRODUCTION

India is one of the fortunate countries to have a long coastline. Waters of the Arabian Sea and the Bay of Bengal wash its shores on its west and east respectively. These waters of tropical belt, being highly productive, keep the country’s living resource potential in the green. Over the last few years, non-living resources - minerals, oils and gas - also are being exploited at some places well confined to the Exclusive Economic Zone (EEZ). Availability of such consistent wealth be living or non-living, has undoubtedly made a considerable impact on the country’s economy. This, in turn acted as a catalyst for the proliferation of number of institutions for research and developmental (R&D) activities and higher education in the field of marine science (as a part of human resources development) during the post-independence era. A detailed account of the history of these developmental activities have been documented in the form of comprehensive review\(^1\). As of now a sizable number of trained personnel in the field of science and technology (S&T) could be identified in the marine science discipline in India. So far, 86 institutions have been identified till to-date\(^2\) situated mostly along the east and west coasts of India (figure 1), engaged in specific or multidisciplinary branches of marine sciences (table 1). This table does not take into account the large scale efforts in the field of exploration, preservation, canning and export of the marine (living) resources by the business house in the private sector.

Exchange of information amongst these institutions helps in bettering the expected output and in reducing the duplication of research efforts. In a way, information science as such has its’ role to play to meet the above requirements. However, the procurement of the required major and subsidiary research material (dealing with the developmental activities) in the form of information is quite expensive.

The generation and dissemination of information is the principle scien

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tific aspect that one is confronted with today. In the developed nations this problem is not serious as they are the main sources of generation of information and they also exploit fully the latest technological advancements in communications systems available for dissemination purposes. While this is the situation in general, the field of marine sciences is no exception to this. It may not be very much our of the place to mention that the R & D studies in marine sciences occupy a special and unique status as far as expenditure are concerned. Logically so, is the marine science information component. In India, around 1 to 2 % of the total institutional budget is spent on information related activities. Considering the prevailing inflationary trend, this percentage has hardly any meaning. It affects the users of multidisciplinary institutions more as their store houses - the libraries - can not do justice for any singular discipline. Coming to the educational institutions, I reserve my comments as they need no further appraisal.

Over and above the problems of funding, the accessibility and awareness of the available information would have their impact in contributing to the quality and quantity of research output. thus, funding and management of the available resources need consideration at this stage.

Funding, as we all know, for the development of a strong information base at any institutions depends on several external factors. The library and information professionals (LIP) have a significant role to play for better utilization of the available resources.

This paper attempts to address some of the steps proposed to carry out the task of better utilization and management of information in the marine based institutions in India. These include mainly:

1. Survey of available resources from the region,
2. publicizing the information available at the house to the prospective user(s)/organizations(s), and
3. development to network.

The final stage of the proposal deals with the service component. These various steps suggested, could be executed in the assigned order or simultaneously depending on the availability or trained personnel.

A case study has also been made following these steps. The results of which are highlighted to support the functional aspects of the said proposal.

2 PROPOSAL
21 Survey

Personal visits to user organizations in a way door-to-door complaining is proposed for information collection on the infrastructure, resources, skills and user communities. These visits also provide an opportunity for detailed discussions with the heads of different institutions as well as the LIP. and for identify-
ing contact persons for liaising. The advantages of closer cooperation among such centres, the mutual benefits that could be accrued as a result of sharing and exchange of resources, information, databases and expertise would then be spelt out. In addition this would also cultivate the utilization of available information resources at specified laboratories and finally lead to getting them admitted to the network - a next stage of this proposal. This aspect would illuminate the needs for infrastructure development, training requirements, etc., at one or more centres. Modalities to meet such needs based on priorities identified could then be formulated to seek further support from user organizations of other funding agencies.

All the above efforts (groundwork) would strengthen the activities of the coordinating centre. The overall architecture of the system could then be well framed. The major institutions with their resources would act as nodal points, support mutually either on sharing/participating basis and extend the facilities (assist) to those with weaker information base.

22 Information Awareness Programme.

Based on the experience gained so far, the following are some of the significant points that need to be detailed to underline the importance of this stage:

1. Unawareness: Majority of the users express difficulty in getting exposure of the available, large marine science literature,

2. Information professionals: Inadequate availability of trained personnel to handle information dissemination and other relevant/associated/affiliated tasks.

3. Modes of information dissemination using modern tools, and

4. Need to make users aware that the literature they publish could well be publicized through relevant data bases.

221 Modus operandi

While on the job of information collection through direct or indirect means, the personnel would pass on the handouts - bouchers, pamphlets, etc., projecting the strength of the collections, different services that NIO library could offer; lecture and demonstrate the utility of the data base searches. They would ascertain the information requirements of the prospective users and think on possible solutions. The users - who are in-a-way information generators - would also be informed about the importance of inclusion of their publications in the databases - national and international.

23 Network Development

The structural aspects of the network would be finalized after identifying the definite user organizations. The network formation would help in:
1. developing and maintaining union catalogues of documents available at all the centres under this framework;

2. promoting the use existing standards, modalities (techniques, designs, etc.) in the information handling;

3. the use of contemporary technological advances: computer-based methods, microcomputers, database design, telecommunication/satellite networks, etc.;

4. developing and maintaining a national database of import to the national programmes and R&D in these areas;

5. making information services tailor made to user organizations;

6. sharing and utilizing resources at optimum level;

7. ensuring optimum capture of information on published/unpublished literature in various branches of study and its' input to databases-national and international; and

8. acting as a strong resourceful unit for international associations.

24 Services

There would be certainly and increasing demand for the services mainly in the form of literature search and document delivery after practicing first two stages of the proposal. The literature searches could be done on national and international data bases using - Compact Disc technologies or on-line facilities. On-line searches are again dependent on the availability of funds. The problem of document delivery is rather crucial. to make document delivery service effective, it would be necessary to develop contacts with other information centres of relevant discipline, spread all over the world to capture required and unavailable literature within this country. Even if free availability of documents may not always be possible, the cost of such facility on the basis of mutual cooperation would certainly be less than that of commercial services.

3 CASE STUDY

The library of the National Institute of Oceanography (NIO) is one of the largest libraries in the field of marine sciences in India housing a collection on all multidisciplinary areas of this subject. The overall growth is shown in figure 2. The increase in the collection of this library is three fold during the last fifteen years. In recent past, however, owing to the limited funds available, the acquisitions show a decreasing rate of growth. The collection is always being referred by various users. Over 10,000 annual borrowings by 400 users are recorded at the circulation counter of the library. One of the reasons for significant use of the collection by the in-house user community could be envisaged in the efforts made in: i) display of the latest acquisitions, and ii) circulation of new arrivals lists. The frequent short duration visits of the students and research scholars
from various Indian universities for literature survey, studies etc., to NIO library also reflect sufficiently on the collection and facilities offered.

31 Resource Sharing

To a limited extent the libraries of NIO and Goa University share their collections. This has helped in reducing the expenditures to the tune of Rs.75,000/- at each institution annually. Within the institute (including it’s three regional centres), similar practice has contributed to a saving of Rs.1,00,000/-

32 Computerization

The library is equipped with modern tools for information dissemination like microcomputers handling national and international databases. The staff has been sufficiently trained, in India and abroad, in modern information handling techniques. Under the modernization programme, the library has also computerized some of its’ housekeeping operations by developing software tuned to the local needs.

33 Awareness on Modern tools of information handling

When the library introduced the ASFA database on compact disc (CD-ROM), a series of demonstration programmes for the in house users were organized. Table 2 provides it’s increasing use over the years. The success of this experiment underlines the need for launching an information awareness programme outside this institute to increase its utility to the maximum.

34 International Participation

341 Cooperative Information System

The library is also participating in the international information dissemination activities. With it’s merits it has recently been recognized as the National Input centre for Aquatic Sciences and Fisheries Abstracts - a cooperative international information system’s database, managed by mainly United National agencies like FAO, IOC, UNEP, etc., in the field of study with a designated role in capture and transfer of bibliographic data pertaining to marine science literature published in India.

342 Document Delivery

The library routinely supplies photocopies of the documents required by other institutions on receipt of requests since last many years. During 1990, the library has also gained an experience in document delivery at national and international level. The Inter-Governmental Oceanographic Commission of the United Nations’ project: Regional cooperation in Scientific Information Exchange in Western Indian Ocean (RECOSSCIX - WIO) at Kenya has recognized this library as the cooperating institution in providing the required literature.
The recent report of the project highlights the fact that during 1990, the major share 35% of their requests for copies of documents are met by NIO in shortest possible time and at nominal charges. While the rest was met by 17 other cooperating institutions.

343 Networking Efforts

During 1990, efforts were also made to organize a workshop, with a view to bring together LIP from various Indian institutions dealing with marine science studies, as one of the strategies to fulfill the aim envisaged in the above proposal. However, this exercise did not yield any encouraging results.

4 CONCLUSION

A scheme for collection and dissemination of information to various user organizations has been proposed considering the dwindling funding from the principle sources. The activities, on aspects of collection, handling and dissemination of information pertaining to marine sciences, covering this proposal have been put to practice at the laboratories of NIO with the limited staff members, trained in India and abroad. This exercise yielded satisfying results. Encouraged by the success of the experiment, a proposal has been submitted for consideration at the national level.

REFERENCES

Table 1. Type of organizations studying specific/all subjects in marine sciences in India

<table>
<thead>
<tr>
<th>Type</th>
<th>Bio/Ecol Fish</th>
<th>Chem</th>
<th>Phys</th>
<th>Geol/Geop Tech/Engg</th>
<th>Gen</th>
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<tbody>
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<td>Govt</td>
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<td>7</td>
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<tr>
<td>Main labs</td>
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<td>2</td>
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<tr>
<td>Auxiliary</td>
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<tr>
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<td>4</td>
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Table 2. Number of ASFA searches carried out since commissioning

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Searches for NIO users</th>
<th>NIO users Non-NIO users</th>
<th>Total</th>
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<tr>
<td></td>
<td>NIO users</td>
<td></td>
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<tr>
<td>1988-89*</td>
<td>54</td>
<td>146</td>
<td>39</td>
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<tr>
<td>1989-90</td>
<td>47</td>
<td>421</td>
<td>142</td>
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<tr>
<td>1990-91</td>
<td>95</td>
<td>435</td>
<td>169</td>
</tr>
</tbody>
</table>

* = from 18 October 1988
LOCATION OF ORGANISATIONS IN INDIA DEALING WITH MARINE SCIENCE ASPECTS

G: Govt. Depts., Survey Organisations.
C: Core (marine science) laboratories
R: Non-core laboratories
U: Academic Institutions
LIST OF INSTITUTIONS IN FIGURE 1

Andamans
G1 Fsi, Port Blair
G2 Zsi, Port Blair

Andhra Pradesh
C1. Nio, Rc Waltair
C2 Cmfr, Rc Waltair
C3. Cift, Rc Kakinada
C4 Nstl, Waltair
C5. Cifnrt, Waltair
C19 Gsi, Waltair
R1. Ngri, Hyderabad
R2. Nrs, Hyderabad
U1. Andhra Univ., Waltair
U2. Sv, Kavali

Delhi
G3. Min. Agri Fish Div.,
N Delhi
G4 Dod, N.deli
G5. Imd, N.deli
U3. Jnu, N. Delhi
U4. Univ. Delhi, Delhi
U5. Iit, Delhi
U6. Jmi,n. Delhi

Goa
C6. Cift, Panaji
C7. Nio, Dona Paula
C6. Dir. Fish, Panaji
G7. Fsi, Margao
U7. Goa Uni, Bomboli

Gujarat
C8. Csmcri, Karwar
C11. Cmfr, Mangalore
C9. Gujarat Fish. Aduat Sci,
R3. Prl, Ahmedabad
Port Okha
R4. Sac, Ahmedabad

Karnataka
10. Cmfr Karwar
C11. Cmfr, Mangalore
G8. Gsi, Mangalore
R5. Isro(nnrms) Bangalore
U8. Krec, Suratkal
U9. Fish. Col., Mangalore
U10. Mangalore Univ.
U11. Karnataka Univ. Pg Centre Kodibag
Mangalore
Kerala

C12. Cmfri, Cochin
C14. Cmfri Cizhinjam
C16. Nio, Cochin
C18. Cift, Calicut
G10. Gsi, Cochin
R7. Idrb Trichur
R9. Gsi, Cochin
U13. Cochin Univ., Cochin
U15. Kerala Agri. Univ.

Velanikkara

Lakshaweep

C20. Cmfri, Minicoy

Maharastra

C21. Cmfri, Bombay
C23. Cift, Bombay
G11. Fsi, Bombay
R10. Barc, Bombay
U16. Inst Of Sci, Bombay
U18. Marathwada Univ.

Aurangabad

Orissa

C31. Cift, Sambalpur

Tamil Nadu

C27. Ciba, Madras
C29. Cmfri, Mandapam
G13. Fsi, Madras
G20. Bobp, Madras
U23. lit, Madras

U27. Berhampur Univ., Nerhampur
C28. Cmfri, Tuticorin
C30. Cmfri, Madras
G14. Zsi, Madras
U20. Cas Bot., Madras
U22. M.k. Univ., Madurai
U24. Tamil Nadu agric. Univ. Fish Col. Tuticorin
Uttarpradesh
G15. Naval Hydroger Office, Dehra Dun
R12. Kdmip (onge), Dehra Dun

West Bengal
G16. Gsi, Calcutta
G18. Zsi, Calcutta

G17. Cpt Calcutta
U25. Iit Kharagpur