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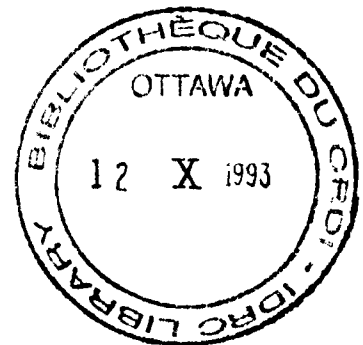
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**IDRC INFORMATION SCIENCE PROJECTS AND PRIORITIES IN SRI LANKA: A  
COUNTRYWIDE ASSESSMENT**

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and

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## PREFACE AND ACKNOWLEDGMENTS

This study was conducted in August-September 1989 by the two consultants in Sri Lanka but the writing was done subsequent to the first consultant's departure from Sri Lanka. The bulk of the writing was done by the first consultant who bears primary responsibility for the contents of this report. The sections 3.1 (part), 3.1.1, 3.1.2, 3.1.3, 3.3.1, 7.1.3 (part), 7.2.4, 7.2.5 (part) and the recommendation R6.0 were written primarily by the second consultant. Of course, the entire report has benefitted from the discussions between the two consultants. Except where specifically mentioned, the report reflects the views of both consultants.

The consultants are very grateful to the project directors, project leaders, users, and policy officials for their time and assistance in data-gathering. They went out of their way to help get this project completed under very difficult circumstances.

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# **IDRC INFORMATION SCIENCE PROJECTS AND PRIORITIES IN SRI LANKA: A COUNTRYWIDE ASSESSMENT**

## **1.0 INTRODUCTION**

### **1.1 OBJECTIVES**

This study seeks to assess the overall impact of the activities of the Information Sciences Division (ISD) of the International Development Research Centre (IDRC) in the past 11 years on the Sri Lankan scientific and technological information (STI) system in particular, and the Sri Lankan development process in general, including synergistic effects between projects. The study also seeks to assess Sri Lanka's priorities in ISD's fields of competence and make recommendations on future directions for ISD's activities in Sri Lanka.

The distinguishing characteristic of the study is its focus on the past, present, and future activities of a subject-based Division of IDRC in a single country. IDRC's project-development and funding procedures are similar to those of an academic grant-giving agency, in that the approval process is initiated by potential project leaders (IDRC Brochure, April 1989). Thus, there is no formal coordination between projects even within a single country. IDRC's subject-based organizational structure has tended to favour coordination between similar projects in different countries rather than different projects in the same country. There is a bias towards regional projects. Of course, these general propositions are modified in actual practice.

## 1.2 METHODOLOGY

The scope of this study (nine major and six minor projects and Sri Lankan information priorities) is very broad. The methodology has to be different from that of a conventional single-project evaluation for a number of reasons. First, no firm criteria exist by which the performance of a collection of projects approved over a long period can be usefully and fairly judged. Different projects have different criteria which cannot be applied across the board. It is not possible to derive some general criteria from project staff now at ISD, since ISD's criteria have been changing over the period in question. Synergistic effects cannot be captured by project-specific criteria since they are bigger than the individual projects by definition, and in many cases, are unintended consequences.

Second, time and resource constraints required modifications in methodology. The original terms of reference required the on-site interviews to be completed in 10 working days. Given the prevailing conditions of political uncertainty, the period was extended to 15 working days which was barely enough. Even in the best of conditions, one day per project does not allow intensive data gathering.

Third, this study attempted to go beyond the project leaders and records kept by them as the primary sources of data by conducting interviews with users. It was a challenge to combine an investigation of institutional factors through conventional documentary and interview research methods with an investigation of information needs and their fulfillment. The sense-making interview methodology (Dervin 1989b) that was used was a micro time line interview where a specific interaction between the user and the system was explored from the user's perspective in terms of the situation that caused the user to seek information, the gap the user wanted to bridge with the help of the system, what

help he/she actually got, and what help he/she wanted but did not get. The methodology is usually explained to the user at the outset and the user is asked to select an interaction to talk about. The open and non-adversarial nature of the interview methodology was particularly attractive. The sense-making approach has been described as simultaneously *ethnographic* because it allows respondents to define and anchor themselves in their own realities, *qualitative* because it is built on open-ended interviewing and reports findings primarily in qualitative terms, *quantitative* because procedures for quantitative analysis have been developed, and *systematic* because a general theory guides the approach to listening--a theory that is applicable to all situations but allows specificity in any situation (Dervin 1989a).

Clearly, there were benefits in doing both at the same time, but time constraints affected the depth of investigation. Difficulties of setting up in-depth interviews in conditions of high political uncertainty and disabled internal communication services, combined with the fact that the consultant conducting the user interviews was on the other side of the world in the period prior to the site-visits, necessitated some rough and ready sampling. In light of the overall breadth of the project and the assumptions and approximations found in most other methods (see, for example, the criticisms in Walsham, Symons, and Waema 1988), it was decided that in-depth, sense-making interviews even from an imperfectly assembled sample would be beneficial.

The sampling criteria were (a) the most recent user; (b) the most successful user in the project leader's opinion; and (c) least successful user, again in the project leader's opinion. The first criterion was an objective criterion while the other two were subjective criteria. Time constraints which had been set prior to the design of this component of the study and the determination that the actual user groups were relatively small contributed to the decision to conduct only three interviews. Sense-making interview methodology usually involves a pre-testing of the interview protocol and better sampling, usually on objective criteria. Given the inability to pre-test and spend ade-



quate time on interviews, as well as the fact that the user study was but a small part of a large study, it was decided to adopt the above sampling method. Difficulties in defining the user population for ISD projects was another factor. The relatively easily identifiable user population of the organization in which the ISD project is housed does not in most cases coincide with the user population of the ISD project since the totality of the activities of the organization are larger than those covered by the project.

Miscommunication between the consultants resulted in a different set of criteria being given in the circulated questionnaire. This, combined with the hesitancy of project leaders to make judgements on users and difficulties in arranging interviews in the highly unsettled situation in the country during the period in which interviews were conducted led to further deviations from the ideal. The findings on utilization reported below must be read in the context of the above shortcomings. What one gets from the sense-making interviews conducted in this particular study is a view of how users actually interact with information system and what use they make of it. It goes beyond equating the number of people using the system to the use made of the system. But it is not as systematic as could have been in less constrained circumstances.

The study was conducted during a difficult period of Sri Lanka's history. The Indo-Sri Lanka Accord signed in July 1987 to end the ethnic conflict in the North and East of the country, brought in Indian troops and fuelled a parallel wave of violence and counter-violence in the rest of the country. A major transportation strike and other forms of civil unrest and violence more or less shut down the country in the month of July 1989 in which the preparations for the study were done. The early part of the first consultant's visit to Sri Lanka was relatively peaceful, but a total of six (out of 15) working days, including the entire third week of the visit, were affected by work/transportation stoppages. Throughout the entire July-August period, the postal service and the

telecommunication system did not work properly, causing much difficulty for the second consultant who was setting up the site visits. On many occasions, difficulties were experienced in meeting officials or contacting them on the telephone since attendance at government offices was poor, and normal office hours were not being observed. In some cases, interviews had to be conducted in the homes of interviewees.

## 2.0 BACKGROUND

### 2.1 RELATION BETWEEN INFORMATION AND DEVELOPMENT

**2.1.1 Development:** Development is a contested concept in contemporary social science. Within the mainstream, the earlier faith in the GNP per capita as a solid indicator of development has been replaced by a variety of indicators, not excluding GNP per capita. The difficulty in the present formulations is that there is no consensus on the relative weights of different indicators. Underlying the lack of consensus are theoretical and ideological problems in defining the relation between growth and distribution of wealth (for a detailed discussion in a South Asian context see, Gunatilleke 1983).

Mission-oriented organizations such as the IDRC operate with rule-of-thumb formulations of development such as strengthening infrastructure (broadly defined) and having the rural or urban poor as beneficiaries. Their difficulties arise when resource limitations force a choice between different rules of thumb. For example, it is possible to fund information services for agricultural research scientists, contributing to the strengthening of the general infrastructure of agricultural activity, and extension services to agricultural producers (equating them with the rural poor) given adequate resources. It is when resources are limited that the organization must give priority to infrastructure at the expense of serving the rural poor, or vice versa. Contemporary

basic social science is unable to resolve such disputes conclusively. However, it is possible to derive some guidance from the literature.

The basic dispute with regard to development revolves around the question of growth versus redistribution. Definitions that give primacy to growth tend to yield operational strategies that favour infrastructural development, or the allocation of resources to productive uses. Definitions that give primacy to redistribution favour allocation of resources to meet basic needs, or to consumptive uses. In actual fact, one rarely sees the polar definitions or policies. Infrastructural development is justified in terms of benefits to the rural poor, and basic needs strategies are justified in terms of productive investments in human capital. The dispute appears to be over the balance between redistribution and growth (Samarajiva and Shields 1989).

The infrastructure versus basic needs debate has principally been fought out over agricultural and similar investments. The debate with respect to information has cropped up in isolated instances (e.g., Clippinger 1977; Olden 1987; Tiarniyu 1989). Unfortunately, little empirical work has been done on this question. One reason may be the difficulty of categorizing information. Are there basic, consumptive needs for information, as there are for food, shelter, etc.? Is all information essentially infrastructural? The above cited articles circumvent the problem by posing the question as one of beneficiaries: should information systems serve Third World elites or the poor? To the extent that the elite is considered part of the broadly defined infrastructure as it is in the trickle-down theory of development, the former becomes an infrastructural investment and the latter, a basic-needs strategy. The assumption in the basic-needs approach is that information, when provided to the poor, improves their lot and gives rise to development.

Research and experience have challenged the assumption of the efficacy of information for development. The unabashed enthusiasm for information/communication as a "magic multiplier" in the development process that characterized the communication and development literature of the 1950s, 1960s, and the early 1970s (e.g., Lerner 1958; Schramm 1963), has been replaced by a conception of information as complement (Hornik 1983; 1988; Parker 1978). Information, by itself, cannot yield development. It is efficacious as a complement to well-conceived rural-credit, inoculation, or other development activities. Another variant of the critique of the literature of the 1950s and the 1960s posits the further possibility that information may be anti-developmental in certain circumstances (O'Sullivan 1980; McAnany 1978). This critique emphasizes the need for structural change (e.g., land reform) as a precondition for effective use of agricultural information by the rural poor, a position supported by the research of Nobel laureate Theodore Schultz (1964) .

**2.1.2 Relation between Research Findings and Development:** Scholars such as Schultz (1964; see also, Hornik 1988) question the assumption that new techniques derived from research will be developmentally beneficial. They argue that incentives for adoption of new techniques are more important than campaigns for disseminating information about research findings. In this view, appropriate research and effective channels for disseminating research findings to producers are necessary conditions for development; in themselves they do not constitute sufficient conditions for development.

The above views contrast with a large body of literature on the diffusion of innovations in the Third World (for summaries, see Rogers and Shoemaker 1971) and a long-standing policy of promoting agricultural extension services by US agencies. The basic principle of agricultural extension, as developed in the US Midwest and applied

throughout the world, is that transmission of information from researchers to producers is the crucial and effective point of intervention. Schultz, et al. assign more modest roles to research and information campaigns. If the appropriate incentive structures exist, producers can be expected to seek out research findings that will increase their productivity. The weaknesses in this argument are its underlying information assumptions. The first is that the potential user of information is capable of rational calculation of costs and benefits of information use. The assumption here is of perfect information, an assumption that is patently unsupportable but quite common among economists. The second assumption is that new information can be used costlessly. Relaxation of these assumptions leaves room for useful work to be done in getting research results to producers in easily assimilable form. Of course, there is no need to deny or disregard the finding that incentive structures play a determining role in the adoption of research findings.

**2.1.3 Lessons from the Literature:** The multi-dimensional definition of development found in the contemporary social science literature makes it difficult to unequivocally identify the contribution made by information to development. The positive aspect of this situation is that those who seek to identify the contribution made by particular information activities to development are forced to justify their definitions of development in terms of explicit value choices since there is no "objective" definition.

The basic tension between growth and redistribution of wealth found in development theory and policy manifests itself in the form of a debate over funding infrastructure versus basic needs. The primacy of one or the other in the information field has not been subject to empirical investigation, though some polemical and theoretical writings exist. In information policy, the debate takes the form of a difference of opinion over the beneficiaries of information projects: Third World elites or the rural and urban poor. The

weakness of this formulation is that while the elite may be able to utilize the information in conjunction with other resources as their disposal, information in itself may not be directly useful to the poor.

The general consensus in the contemporary communication and development literature is that development information is effective only in conjunction with other development inputs and/or appropriate incentive structures. Development research, and the communication of development information resulting from research, constitute necessary, but not sufficient, conditions for development. Whether or not such information will have a positive impact depends on the particular configuration of incentive structures in effect. Understanding of the institutional structure would be even more important if one accepts the argument that external intervention can be positively harmful within certain incentive structures.

If the conclusion that information is, at best, a necessary condition for development is accepted, evaluation of the contribution made by information projects to a country's development becomes a complex task. Well-designed and perfectly-executed information projects may have no impact whatsoever (or even negative impact) on development because of the absence of other development inputs and/or incentive structures. Badly-designed and ill-executed projects may have positive impacts due to the serendipitous conjuncture of favourable external factors.

## 2.2 IDRC'S MISSION

The IDRC was established on the premise that development research can assist development (Lester Pearson and David Hopper quoted in Spurgeon 1972). The IDRC Act sets out its mandate:

[T]o initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means for applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions, and, in carrying out those objects

- (a) to enlist the talents of natural and social scientists of Canada and other countries;
- (b) to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems;

... (IDRC Act 1970: s. 4)

The mission is primarily that of fostering research into (a) problems of the developing regions, and (b) problems of applying the knowledge resulting from research. David Hopper, the first President of the IDRC, stated in his inaugural speech that " from among [the Centre's] corporate objectives the most significant is the charge . . . to 'assist the developing regions to build up research capabilities, the innovative skills and the institutions required to solve their problems (Hopper 1970).'" At the beginning, IDRC assigned priority to the building up of the infrastructure for research.

The current brochure of the Centre (1989 April) states that "IDRC favours experimental activities that do not focus on building infrastructure but, rather, on creating jobs; improving the living standards of the many, rather than the few; and helping to break the cycle of poverty." This statement, by itself, does not indicate a shift away from support for Third World research infrastructure, though there does appear to be a greater emphasis on the ultimate beneficiaries. The continued interest in strengthening research infrastructure is indicated by the selection criteria for proposals that include the question, "Is the project clearly designed to strengthen the capacity of the developing country institutions or groups involved?" However, the relative weight given this criterion depends on the program officer making the approval decision and cannot be discerned except by intensive interviews.

### 2.3 ISD'S MISSION

ISD was one of the four divisions established at the time of IDRC's founding. Perhaps because of its work on Minisis and Devsis and the inclusion of the library within it, ISD has been perceived by some as a service unit that does "not support research per se, but offer[s] elements indispensable to the research process" (*With our own hands* 1986: 30). However, examination of the list of projects funded by ISD (662 up to August 1989) and interviews with staffers clearly indicates that this perception is faulty and that ISD does fund research per se. It appears that rationale for research funding by ISD would come under the statutory mandate to "initiate, encourage, support and conduct research into . . . the means for applying and adapting scientific, technical and other knowledge to the economic and social advancement of [developing] regions" (IDRC Act 1970: s. 4). However, the service aspect is not altogether absent. This is partly due to historical reasons and partly to the above discussed characteristic of information as a complementary input to the development process.

ISD's 1989-1990 Program of Work and Budget (June 1989) states that the Division's work "continues to be directed towards improving the management and use of information for development research, decision-making, and change." Within the Division, there appear to be two conceptions of ISD's primary role. In the first, ISD projects improve information provided to development researchers. The direct effect is the strengthening of development research which indirectly contributes to development and the well-being of the desired ultimate beneficiaries, the rural and urban poor. In the second conception, ISD must strive to have a direct impact on development. Here, ISD projects are seen as improving access to the findings of development research by the ultimate beneficiaries. Both conceptions are based on assumptions. The former assumes causal links between better information and better development research and between



better development research and development. The latter assumes a causal link between better access by the rural and urban poor to development research findings and development. None of these assumptions are fully substantiated in the literature. The literature appears to suggest that in all these cases the efficacy of the information depends on contextual factors.

Discussions with project officers at the Ottawa headquarters indicated the existence of a lively tension between the conception of ISD's role as that of primarily strengthening the information resources of development workers, and that of directly taking information to the rural and urban poor. This type of tension and questioning is a sign of commitment to be valued in a development agency. But it raised the question whether there had been a fundamental shift in ISD's thinking. An attempt to answer to this question is found in the discussion of ISD's areas of competence in the Conclusion (7.2.3).

### 3.0 SRI LANKA'S DEVELOPMENT INFORMATION NEEDS AND PRIORITIES

The terms of reference of this study and the general project approval criteria contain reference to "current STI priorities within Sri Lanka" and "the development priorities of the country." Can a country, as an entity, have development or STI priorities? If so, what particular agency or agencies decide on these priorities and by what means? Can there be different priorities within one country? How can an external agency prioritize across different sets of priorities? Despite these reservations, this study interpreted the term "the country's development/STI priorities" as "the central government's priorities."

### 3.1 CENTRAL GOVERNMENT VIEW

Attempts by the second consultant to get senior officials in the Planning Ministry to identify information priorities in strict ranking order across economic sectors were unsuccessful. What follows is the first consultant's attempt to extract some information priorities from three important government documents, the *Action plan to implement the UNP manifesto (Action Plan)*, made available under the President's authority to all government ministries in April 1989; the *Public investment program 1988-92* (1988-92 PIP), published by the National Planning Division of the Ministry of Finance and Planning and constituting Sri Lanka's equivalent of a national plan; and the *Industrial policy statement of the Government of Sri Lanka (IPS)*, published by the Ministry of Finance and Planning in March 1987.

The Action Plan appears to carry a lot of weight in government. It is reported that the President repeatedly refers to it in meeting with officials. Specific actions are set out for every ministry in this detailed 31-page document. One could read an information element to any or all of these actions, but there are only two actual references (almost identical wording listed under two ministries) to information. The Action Plan enjoins the Ministry of Policy Planning and Implementation and the Minister of State for Science and Technology to

Promote the formulation and implementation of a science and technology policy addressing, among others, the issues of action-orientation, useful to the poor in their own self-development, strengthens bottom-up people based development and **develops vernacular knowledge-fields and systems** (p. 8 and p. 20, emphasis added.).

In addition, the Ministry of Agriculture, Food and Cooperatives is mandated to "implement a sound agricultural research and extension program" (13).

The 1988-92 PIP contains no specific references to information as such. Under the heading, Agriculture, it states:

[T]he review of the agricultural extension system . . . commenced recently with ADB assistance . . . is expected [to] . . . lead to the formulation of a project for improving the capability and effectiveness of the extension service and strengthening the ties between extension and research (¶ 2.80).

Under the heading of Industries, the 1988-92 PIP states:

The demand for R&D as well as extension services has begun to grow rapidly . . . [This has] brought in considerable pressure for re-orientation of R&D institutions. Far reaching demand oriented reorganisation has been planned for the CISIR [Ceylon Institute for Industrial and Scientific Research], the Sri Lanka Standards Institute as well as the National Engineering Research and Development Centre. Closer linkage of these institutions with industry is also expected to strengthen the financial self-reliance of the R&D institutions (¶ 3.51).

The Industrial Policy Statement (IPS) has a far narrower focus than the above documents. Again, there are no specific references to information policy, but there is recognition of the role of information in technology negotiations:

- (a) The primary role of the Government in the area of technology transfer will be to strengthen the hand of domestic industry in technology negotiations. In part, this will be done by strengthening the information base at the disposal of domestic investors. . . .
- (b) A Technology Transfer Unit . . . will be established to ensure the maximum flow of information in technology negotiations . . . . (¶ 12.4)

It is the conclusion of the second consultant that the recognition and weight given to the role of 'information' in the development process is still on a low key but a rising level of consciousness in this regard is discernible. This is exemplified in some pragmatic adaptations by the administration compelled by a recognition of the increasing difficulty in dovetailing (in the bureaucratic lingo-'coordinating') information from different sectors to accommodate the exponential trends of increasing complexity--the merging, interpenetration and overlapping of professions, even trades, which predicate that correct decision-making can no longer be intra-disciplinary but be dependent on inter-

disciplinary harmonisation, failing which mono-track decisions within a sector become increasingly counter-productive. At present, this adaptation mostly takes the form of ad hoc coordinating committees and the effort to construct a Social Accounting Matrix (SAM) which gives a static "snapshot" of the economy and the (usually quantitative) ratio relationships between sector variables at fixed points of time. The model is not dynamic. There does not seem to be any self-consistent pattern or any overall governing concept with regard to what Sri Lanka needs by way of development information. The lack of clarity at policy levels has made unavoidable the inclusion of conflicting views. There is no specific central government view of the country's development information needs. The genesis and progress of institutions which purport to advance these needs has been desultory and uneven.

A striking example of the acceptance legally of lateral communication, (i.e., between sectors at a middle level) skirting the "line communication" system, is the composition of the multidisciplinary committee legally sanctioned for the Central Environmental Authority set up by Act No. 47 of 1980. The Ministries represented in the committee are exhibited in Annexure V. A further example of attempted inter-disciplinary control is the Advisory Panel set up for the new Centre for Industrial Technology Information Service (CITIS), (an Industrial Development Board project described more fully in 6.3 below) on which the Ceylon Institute for Scientific and Industrial Research (CISIR), the National Engineering Research and Development Centre (NERD), the National Development Bank (NDB), the Sri Lanka Standards Institution and the National Designs Centre, among others, are represented. In the coming years this approach will undoubtedly deepen. At present, they are "flashes in the pan" and need to be extended to a higher interactive level.

**3.1.1 The Planning Ministry:** Over the period the IDRC has been active in promoting information services in Sri Lanka, the very structure of the planning Ministry has changed and consequently there has been a blurring of the outlines of responsibility for pace-setting in the field of development information. For instance, in the period 1970-1977, there existed a Ministry of Planning and Employment with emphasis on employment. From 1977 on there was a bifurcation of functions in that the Ministry of Planning was separated from the Ministry of Plan Implementation. In the second phase of the Jayawardena administration, following extensive changes resulting from the executive presidency, the Ministries of Planning and Plan Implementation have been brought together.

One of the outstanding opinions expressed by officials in the new ministry was that funding agencies ought to concentrate on "micro" applied areas rather than on "macro" overall policy since rapid changes in the structure of government and resultant changes in policy directions at the macro level have made it difficult to maintain a self-consistent line of information support activity. In contrast, activity in a micro or subsectoral area is relatively insulated from policy changes at the macro level.

The microcomputer-based planning information pilot project started in 1983 in the Kalutara district of Sri Lanka with support from ESCAP, UNESCO, and the French Government (Abayagunawardhana 1987; Guneratne 1986) may be the kind of micro-level project referred to by the planning officials.

**3.1.2 The Institute of Policy Studies:** The setting up of an institution to facilitate and undergird policy formulation, the Institute of Policy Studies (IPS), is the only exception to the general neglect of information by the Planning Ministry. This is

now a fully-fledged institution which is gradually building up its information storage and retrieval capabilities with advisory assistance from the Netherlands.

The IPS was incorporated by Act of Parliament (53 of 1988). It has a modest staff, mainly programming and secretarial/clerical and is at present technically supported by a consultant fielded by the ISS [Institute for Social Studies, The Hague]. It carries out its work largely by farming out assignments for research in specified fields to qualified researchers, both governmental and academic, without relying too much on in-house researchers whose services in any case would be difficult to obtain and more difficult to retain.

**3.1.3 The Centre for Development Information (CDI):** There is a move to upgrade the Centre for Development Information (CDI) as a support institution to the Planning Ministry and IPS. This Centre was originally set up with UNDP support in 1978 to serve researchers and policy framers in the Planning Ministry (and other ministries on request) with socio-economic data and information based mainly on journals (including A & I journals), relevant literature by local and foreign authors, locally produced studies and monographs including Ph.D. dissertations by Sri Lankan scholars, as well as development-related reports and monographs produced by local scholars, both within and outside government. Most of this documentation can be classified as unpublished "grey" literature. While there has been considerable progress in collection development, especially with regard to local material, the increasingly prohibitive costs of journals and books have retarded the functioning of this institution. At present, its outputs are confined to a union catalogue (UNIDEV) of the holdings of socio-economic literature in 22 libraries (with only 8-10 actively participating), the provision of SDI services now labelled "Development Highlights" which reviews recent literature and a "Current Contents" publication. The outreach of the latter is poor be-

cause of the lack of a specially targeted programme. Users have to do extensive "browsing." In addition, a directory of ongoing research is periodically produced (Karunanayake 1988).

### 3.2 NATIONAL SCIENCE POLICY

There has been much talk about science policy in Sri Lanka, but little of that has been translated into policy and mechanisms for implementing policy. Professor Cyril Ponnampereuma, a well-known professor of chemistry from the University of Maryland, was appointed Presidential Science Advisor during the Jayawardena administration. This appointment was supported by UNDP funds and a number of initiatives such as inviting international experts on science policy to Sri Lanka for consultations, the drafting of a national science policy document, etc. were undertaken. Strong opposition to the contents of the draft document spearheaded by the Sri Lanka Association for the Advancement of Science (the premier organization of scientists in the country), combined with the exigencies of the country's political crisis, led to the eclipse of the Ponnampereuma initiative. Professor Ponnampereuma, whose substantive position in Sri Lanka is that of the director of the Institute for Fundamental Studies (a new advanced research organization), was said to continue to hold the title of Presidential Science Advisor in the Premadasa administration. He was not interviewed in the course of this study.<sup>1</sup>

The organization that has formal responsibility for science policy in Sri Lanka is the Natural Resources, Energy, and Science Agency (NARESA), previously known as the

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<sup>1</sup> The information is based on the first consultant's first-hand knowledge gained during 1985-1987, as a Research Associate at the Institute of Fundamental Studies and the Arthur C. Clarke Centre, and as a member of the Sri Lanka Association for the Advancement of Science. An interview with Professor Ponnampereuma could not be fitted into the schedule of the present investigation because of the unsettled conditions in the country.

National Science Council. Mr L.C.A. de S. Wijesinghe, Additional Director General of NARESA, stated that the new Ministry of Science and Technology has an interest in formulating a science policy for Sri Lanka and that NARESA will work with a core group to draft it.<sup>2</sup> It is possible that the Ministry's interest derives from the President's Action Plan that sets it the task of formulating and implementing a science and technology policy. The Premadasa administration was the first to create a Ministry of Science and Technology which has under it many, but not all, the scientific and technological research agencies in the country. Key exceptions are the large number of agricultural research agencies that remain under the Ministry of Agriculture, the National Aquatic Research Agency (NARA) that remains with the Ministry of Fisheries and the Industrial Development Board that is with the Ministry of Small Industry. The Minister of Science and Technology is former Foreign Minister A.C.S. Hameed, who also holds the Higher Education portfolio. The present institutional configuration may be described as propitious for formulating and implementing a national science policy, if not for the high degree of political uncertainty enveloping the entire body politic. In the event the political crisis is resolved, Sri Lanka may yet see an implementable science policy.

However, at the present time, it appears that little guidance can be had from Sri Lanka's national science policy for setting priorities for ISD's future activities in Sri Lanka.

### 3.3 NATIONAL SCIENTIFIC AND TECHNICAL INFORMATION POLICY

NARESA, which has responsibility for scientific and technical information, has prepared a document entitled "National Scientific and Technical Information Policy for Sri Lanka." This document is the result of a process initiated by a UNESCO-NARESA national seminar

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<sup>2</sup> Interview, 21/08/89, Colombo.



on STI policy held in October 1986 in Colombo.<sup>3</sup> Following the seminar, NARESA delegated the task of preparing a national STI policy document to its UNISIST Working Committee (the country's apex STI policy committee).<sup>4</sup> The document prepared by the Working Committee in consultation with a number of other government agencies, and approved by all the working committees of NARESA, was adopted by NARESA in 1988. It was not yet official policy in August 1989, since it was being reviewed by the Ministry of Science and Technology and other ministries prior to submission for Cabinet approval. NARESA planned to disseminate the policy (once approved) through seminars and other means, and also to prepare an implementation plan for one element of the policy. There was no indication what this element would be, but it may be inferred that contribution to the President Premadasa's Janasaviya Program [the centrepiece of his election platform that promised significant assistance to a selected number of the country's poorest of the poor] would be a criterion.<sup>5</sup>

The "Policy," as approved by NARESA, is a brief five-page document. It comprises a short rationale for an STI policy and seven sections setting out objectives in education, agriculture and allied fields, industry, health, socio-economic development, personnel and infrastructure, and international cooperation. The language is very general and it is

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<sup>3</sup> *Report, UNESCO-NARESA national seminar on scientific & technical information policy, 21-21 October 1986, Colombo (Colombo: NARESA, 1986).* The first consultant was present at the seminar and participated in the formulation of its recommendations.

<sup>4</sup> It was in the early stages of these deliberations that the study on "Technological and institutional choices for the Sri Lankan STI system in a rapidly changing environment" was funded as an ISD-SSD DAP by the IDRC South Asia Regional Office. The report of that study conducted by the first consultant was submitted in September 1987 and was formally considered by the Committee at its meeting on 6 January 1988. The report was disseminated to all the STI libraries and information centers in the country.

<sup>5</sup> Interviews with Mr N.U. Yapa, Director--Information, NARESA and Secretary of UNISIST Working Committee, 17/08/89, Colombo; and with Mr L.C.A. de S. Wijesinghe, Additional Director-General, NARESA, 21/08/89, Colombo.

not possible to identify priorities among the sectors, audiences, or methods. For example, the section on health is as follows:

- (a) To make available to all citizens basic information on nutrition, health care and the prevention and cure of common diseases
- (b) To build up data bases on nutrition, health care, and the prevention and cure of diseases of relevance to Sri Lanka
- (c) To acquire and make available to medical scientists scientific and technical information relevant to the prevention and cure of diseases of relevance to Sri Lanka.

The only choice that appears to have been made is in favour of health information of relevance to Sri Lanka, as against irrelevant information.

Unsuccessful attempts were made through interviews with key STI policy decision-makers to clearly identify priorities, say, between providing specialized information to scientists, versus extension services, versus educating the public.<sup>6</sup> It may be that such priorities will be set in the next phase of preparing implementation plans.

Implicit STI policy in Sri Lanka appeared, in the main, to be based on the strategy of resource sharing set out in the Samarasinghe Report of 1969.<sup>7</sup> The creation of SLSTIC [Sri Lanka Scientific and Technical Information Centre], SLSTINET, and the various subnetworks such as AGRINET (agricultural information centres) and HELLIS (health research information centres), as well as the resources expended on union catalogues and lists fit within this strategy. However as with all implicit policies, there have been some aberrations such as the attempt by Professor C. Ponnampereuma to establish an on-line link for his research institute and the recent activity surrounding a national science

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<sup>6</sup> Interviews with Mr L.C.A. de S. Wijesinghe, Additional Director-General, NARESA, 21/08/89, Colombo; Dr G.C.N. Jayasuriya, Chairman, UNISIST Working Committee, 22/08/89, Colombo; Mr L.E. Samarasinghe, Member, UNISIST Working Committee, 24/08/89, Colombo.

<sup>7</sup> See discussion and further references in Samarajiva (1987: 7-9).

library, proposed by Professor M.U.S. Sultanbawa, one of Sri Lanka's distinguished scientists and a member of the UNISIST Working Committee. Professor Sultanbawa had made a plea for at least one repository for key scientific journals and publications at a ceremony where he was awarded a scientific honour by the then President, Mr Jayawardena. The President had instructed the National Library Services Board to prepare a project. Following a change of ministers, the project had been shelved. There had been no serious discussion of the implications of this proposal in the STI or scientific communities.

The National Library, administered by the National Library Services Board, is the other player in the Sri Lankan STI scene. In the past there had been some friction between the National Library and NARESA on responsibility for scientific information.<sup>8</sup> President Jayawardena's interest in a national science library created an opening for the National Library Services Board to reopen the jurisdictional issue. But the commissioning of Mr N.U. Yapa, Director-Information of NARESA, to prepare the project document appears to indicate that NARESA's position as the lead agency in the STI field is not being challenged.

Sri Lankan STI policy appears to be at a somewhat more advanced stage than Sri Lankan science policy, but there is little explicit guidance to be had on the question of what STI activities should be given priority. Policy formulation appears to be at a stage where all the desired objectives are listed without examining resource allocation issues, which would immediately require the setting of priorities. This may, in part, be due to the fact that the policy-makers have yet to get to the implementation stage. The absence of a coherent science policy, of which STI policy is a component, may be another reason.

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<sup>8</sup> Interview, Dr G.C.N. Jayasuriya, Chairman, UNISIST Working Committee and past Secretary-General of the National Science Council, 22/08/89, Colombo.

**3.3.1 Planning Ministry Response:** The second consultant was able to obtain details of the Planning Ministry's response to the National Science Policy draft circulated by NARESA. The gist of the response was that information systems existed in the agricultural, health and industrial sectors at an adequate level of development at focal points within these sectors but information inflow in the education sector may have suffered a setback due to University closure over the last 30 months. The Ministry view was that it was imprudent to disturb the existing infrastructure for information in the various sectors and consequently, the policy formulation should be modified to permit the existing information systems to continue, while attempts should be made to fill technological information gaps and avoid duplication. The Ministry of Higher Education, Science and Technology was advised that since well-equipped information and documentation institutions such as the Agricultural Research & Training Institute (ARTI), HELLIS (Health Sector), the Centre for Industrial Technology Information Services (CITIS) under IDB, as well as other as ST information units in libraries already exist, it may be both impractical and counter-productive for NARESA to attempt coordination in this vast area. It was also considered that duplication at present was minimal. Therefore, all that was necessary was for the Ministry of Higher Education, Science and Technology to get institutions under it to fill information gaps.<sup>9</sup>

The foregoing observations outline a characteristic response of administration to the demands of complexity and increasing interrelatedness of functional disciplines. But mere administrative arrangements to set up committees for decision making are only a

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<sup>9</sup> The foregoing paragraphs are paraphrased from Planning Ministry documentation and also further supported by discussions/consultations with senior officials of that Ministry. The documentation was scrutinised in confidence by the second consultant and cannot be formally listed.

beginning. The prime desideratum is the establishment of an information support-system which will ensure a continuous flow of related information to and from the various disciplines, thereby overcoming the opacity that now exists in the interfaces between sectors and between disciplines.

#### 4.0 THE SRI LANKAN STI SYSTEM

The Sri Lankan STI system is briefly described in this section to provide context for the ISD projects which form the subject matter of this study. Four DAPs with a bearing on the system as a whole are also discussed.

#### 4.1 OVERVIEW

The history of STI in Sri Lanka, in the commonly understood sense, goes back to the establishment of the botanical gardens in the early part of the nineteenth century. Agricultural research goes back many years in Sri Lanka and a number of STI libraries include among their holdings historically valuable material on the commercially important crops. The history of STI in Sri Lanka may be divided roughly into two periods: the period prior to 1968-69 during which there was not even a semblance of coordination between individual STI libraries and rudimentary bibliographic controls; and the period subsequent to 1968-69. The landmark events were the establishment of the National Science Council in 1968 and the Samarasinghe and Evans Consultancy Reports that led to the establishment of the National Library Services Board, the National Library, and the Sri Lanka Scientific and Technical Information Centre (SLSTIC) as part

of the National Science Council.<sup>10</sup> The Samarasinghe Report, though slow to be implemented, contained the basic elements of the policy of resource sharing and bibliographic controls that characterized the Sri Lankan STI system in the subsequent period. In 1977, SLSTIC was instrumental in establishing a semi-formal<sup>11</sup> network of STI libraries and information centres known as SLSTINET. In 1973, there were 23 libraries in SLSTINET. By 1987, the number had risen to 100 and essentially covered all STI libraries and information centres in the country. A number of subnetworks such as AGRINET, HELLIS, RERINET, and APINMAP function within SLSTINET at varying degrees of activity, funding, and institutional support. SLSTINET does not have a formal financial base. NARESA picks up the costs of coordination through SLSTIC. SLSTINET is connected to the UNISIST Working Committee (the apex policy committee) through SLSTIC and its Director, Mr N.U. Yapa, who functions as the coordinator of SLSTINET and as the secretary of the UNISIST committee.

An earlier study found that SLSTINET had brought the STI Centres and librarians together and significantly advanced the integration of the Sri Lankan STI system.<sup>12</sup> SLSTINET also serves important educational and standard-setting functions. The rapidity of the adoption of the mini/micro CDS/ISIS software as a de facto standard by Sri Lankan libraries illustrates this point.

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<sup>10</sup> Interview, Dr G.C.N. Jayasuriya, Chairman, UNISIST Working Committee and past Secretary-General of the National Science Council, 22/08/89, Colombo. For more details see, Samarajiva (1987: 7).

<sup>11</sup> There is no constitution or legal incorporation, and participation appears to depend on individual librarians, but the network has been functioning for over a decade now.

<sup>12</sup> Samarajiva (1987: 27-30).

#### 4.2 LIBRARY STANDARDS, SLSTINET AND THE IMPACT OF THREE DAPS (3-A-86-4911; 3-A-87-4904; 3-A-88-4801)

In November 1986, representatives of the General Information Program of UNESCO who had come to Sri Lanka for a regional meeting made a presentation on mini/micro CDS/ISIS to a gathering of SLSTINET librarians. Following discussions which indicated that a majority of developing countries in the Asia-Pacific region had already adopted mini/micro CDS/ISIS, SLSTIC agreed to become the national distribution centre for CDS/ISIS in Sri Lanka. SLSTIC received a micro computer from UNESCO for promotional work.<sup>13</sup> At this time, the ISD-funded DEVINSA project at the Marga Institute had considered, but rejected, CDS/ISIS in favour of the InMagic software. Following discussions with ISD's Regional Program Officer, Mr Clive Wing, who was an invited panelist at the CDS/ISIS presentation, SLSTIC applied for DAP funding for two CDS/ISIS training workshops early in 1988. This was the first DAP application approved by ISD in Sri Lanka.

The funds were received in April 1987 and the first workshop was held in June 1987. The principal resource person was Mr Abdul Gafoor, Head of the Computer Division at the Marga Institute, who had been trained in CDS/ISIS in Canada as part of the ISD-funded DEVINSA project. In July-August 1987, SLSTINET librarians responded to a questionnaire mailed out as part of another DAP, the study on technological and institutional choices for the Sri Lankan STI system. Of the 58 libraries responding,<sup>14</sup> ten had

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<sup>13</sup> N.U. Yapa, Computerization of scientific and technical information: NARESA's experience, paper presented at the National Workshop on Information Systems for Promotion and Utilization of Technology, 4-7 October 1988, Colombo.

<sup>14</sup> 100 questionnaires were circulated. Responses were received from 58 that included all the major STI libraries.

computers and 12 reported they would be receiving computers within the year. Of these, ten indicated that CDS/ISIS was their software of choice. Six indicated the software would not be CDS/ISIS, while six did not answer.<sup>15</sup> SLSTIC conducted two more CDS/ISIS workshops (one more than originally budgeted for) in December 1987 and July 1988. The Computer and Information Technology Council of Sri Lanka (CINTEC) and the newly established Institute for Computer Technology at the University of Colombo provided computers for the third workshop. These workshops were conducted by SLSTIC personnel who had learnt the software in the period subsequent to the UNESCO presentation.

By the third workshop, CINTEC, the apex body for computer policy in Sri Lanka, caught on to the de facto standardization process that was underway and decided to encourage it. In May 1988, ISD approved a third DAP for SLSTIC, this time to convert UNILIST (union list of STI serials) to CDS/ISIS so that diskettes could be provided to SLSTINET libraries. The project proposal was based on a recommendation of the Samarajiva Report (funded by ISD and the Social Sciences Division) that had been accepted by the UNISIST Working Committee. SLSTIC convened a CDS/ISIS Users' Group in September 1988. The users' group has had two meetings so far.<sup>16</sup> In late 1988, SLSTIC was approached by the University Grants Commission to conduct CDS/ISIS training workshops for university librarians. A fourth workshop was conducted in February 1989 with funds and equipment provided by the Grants Commission. The only library using a software

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<sup>15</sup> Samarajiva (1987: appendix IV).

<sup>16</sup> Micro CDS/ISIS users group meeting proceedings, 08/09/89 and 04/05/89. Colombo: NARESA.



package different from CDS/ISIS was Marga, and even they were said to be thinking of converting.<sup>17</sup>

The Chairman of the Computer and Information Technology Council, Prof. V.K. Samaranayake, brought up the subject of CDS/ISIS when IDRC was mentioned in a conversation and stated that IDRC was the catalyst in the adoption of CDS/ISIS as Sri Lanka's library software standard.<sup>18</sup> The factors that appear to have been crucial in the process were SLSTINET's role as an effective network for information flow from the software producer and SLSTIC to individual librarians, and for communication between librarians; small but strategically disbursed DAP funds; and the entry of other national agencies to maintain the momentum established by the DAPs. The flexibility and fast response time of the DAP approval process appeared to have played a significant role too. The total amount spent by ISD on the three DAPs amounted to C\$ 7,840 (approx. LKR 196,000).<sup>19</sup>

Interviews with attendees of the workshops indicated further synergistic effects. One of the enthusiastic adopters of CDS/ISIS was a librarian in charge of an agricultural library located in Kandy whose Master's degree in Library Science had been funded by IDRC. At the time of the interview she was attempting to organize a regional workshop on CDS/ISIS.<sup>20</sup>

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<sup>17</sup> Interview, Mr N.U. Yapa, 17/08/89, Colombo; and interview, Professor V.K. Samaranayake, Chairman, CINTEC, 21/08/89, Colombo.

<sup>18</sup> Interview, Professor V.K. Samaranayake, Chairman, CINTEC, 21/08/89, Colombo; and telephone conversation, 15/08/89.

<sup>19</sup> Conversion at LKR 25 = C\$ 1.

<sup>20</sup> Interview, Ms I. Mudannayake, Librarian, Post-Graduate Institute for Agriculture, 18/08/89, Peradeniya.

#### 4.3 SUBNETWORKS

The subject-oriented subnetworks are extremely important elements of SLSTINET. AGRINET, which brings together the libraries of the agricultural research organizations, and HELLIS, the network of health research organizations, are the most active.

Agricultural research is an important and relatively strong area of scientific research in Sri Lanka. Some of the libraries most active in SLSTINET and in networking activities such as contents-page dissemination and interlibrary lending are agricultural libraries belonging to AGRINET.<sup>21</sup> One weakness of AGRINET has been the lack of a proper coordinating agency with a budget for network maintenance. SLSTIC has performed the coordinator's function from the beginning despite periodic announcements that this or that agricultural library was going to take over coordination imminently. The fact that the agricultural libraries and information Centres came under a number of different departments and ministries,<sup>22</sup> and therefore had difficulty in contributing to, or administering a common fund, and delegating authority to a coordinating body, was perhaps the major reason for this weakness.

AGRINET is an important and relatively strong network despite the lack of a coordination mechanism. This may be why the UNISIST Committee decided that the network

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21 See, Samarajiva (1987).

22 The operational entities are the Department of Agriculture, Department of Minor Export Crops, Forest Department, Tea Research Institute, Rubber Research Institute, Coconut Research Institute, Sugar Research Institute, Veterinary Research Institute, National Aquatic Research Agency, and the Post-Graduate Institute of Agriculture. The ministries, at various times, have included the Ministry of Agriculture, the Ministry of Agricultural Research and Development, the Ministry of Plantations, the Ministry of Rural Industrial Development, the Ministry of Coconut Industry, the Ministry of Fisheries, the Ministry of Higher Education, and Lands and Land Development.

strengthening activities, including provision of SDI services, proposed for all SLSTINET libraries by the ISD-funded Samarajiva Report should be implemented for the AGRINET libraries.<sup>23</sup>

The government of Sri Lanka established a Council for Agricultural Research Policy (CARP) in 1987 with the strong encouragement of the World Bank. CARP is a lean operation which has as its missions the coordination of agricultural research conducted in the different research institutes and the provision of advice on all aspects of agricultural research policy to the Government.<sup>24</sup> It has funds for research meant for disbursement to researchers in the research institutes. Being a new organization, CARP has not yet specifically addressed information coordination issues, but its Senior Scientist acknowledged that information would be a logical area of activity for CARP.<sup>25</sup> The Additional Director-General of NARESA also identified CARP as a key agency in the implementation of the National STI Policy.<sup>26</sup>

Almost all member libraries of the HELLIS network (except for the university libraries) come under a single ministry--the Ministry of Health. As a result, HELLIS has an administrative structure and a budget, and is coordinated by the Deputy Director-General of Health. HELLIS has also been fortunate in having access to database searching and similar services through the WHO. The fact that ISD did not have any projects in the

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<sup>23</sup> Minutes of the Sri Lanka National UNISIST Committee, 06/01/88, Item 88-1-5, Recommendations 4, 5 and 8.

<sup>24</sup> For more information on the origins and rationale for CARP, see Mohideen and Jayasekera (1987).

<sup>25</sup> Interview, Dr U. Jayasekera, Senior Scientist, CARP, 22/08/89, Colombo.

<sup>26</sup> Interview, Mr L.C.A. de S. Wijesinghe, Additional Director-General, NARESA, 21/08/89, Colombo.

HELLIS libraries and the lack of time precluded investigation of HELLIS, but it obviously has potential as a point of effective entry.

#### 4.4 OTHER SLSTINET ACTIVITIES (3-A-88-4811)

SLSTIC has received DAP funding (C\$ 1,360) for a project to conduct a survey of geological and hydrogeological data centres in Sri Lanka (3-A-88-4811). The project had been suggested by a visiting ISD Program Officer. The Head of the Library Sciences Program at the University of Kelaniya had been commissioned to conduct the study.<sup>27</sup> This is a non-bibliographic information project that appears to mesh well with the publication of a hydrogeological atlas and related activities sponsored by NARESA, and could lead to the development of an interesting project proposal. It did not appear that the work was underway. Attempts to set up an interview with the project leader were unsuccessful.

Following a workshop on information systems for the promotion and utilization of technology co-sponsored by NARESA and the CISIR [Ceylon Institute for Scientific and Industrial Research] in collaboration with the Asia and Pacific Centre for Technology (APCTT) in October 1988,<sup>28</sup> SLSTIC appears to be initiating another subnetwork for technology information centres. The steering committee of the APCTT had given a grant to NARESA to promote technology information. Ms S.M. Wijewansa, Director (Information and Documentation) of the Sri Lanka Standards Institution, had been commissioned by NARESA to identify the centres. The original intention had been to

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<sup>27</sup> Interview, Mr N.U. Yapa, 21/08/89, Colombo.

<sup>28</sup> *Information systems for promotion and utilization of technology. Summary of proceedings of the National Workshop on Information Systems for Promotion and Utilization of Technology*, eds. N.U. Yapa and W. Ranasinghe (Colombo: NARESA, 1988).

conduct a user survey but this idea had been abandoned due to lack of money. Librarians likely to participate in this network were to meet in August 1989. One of the priorities was the building up of industry profiles. The SLSTIC Coordinator stated that in the same way that SLSTIC had started AGRIS and was willing to hand over its coordination to an interested and competent member, SLSTIC would start the technology network and hand over coordination functions to CITIS [Centre for Technology Information Services], the new information agency launched by the Industrial Development Board, if called upon to do so.<sup>29</sup>

#### 4.5 ASSESSMENT

The fact that SLSTINET and its subnetworks have functioned for a fairly long time despite the lack of a formal institutional structure, except for HELLIS, suggests that they serve a real need and constitute a permanent feature of Sri Lanka's STI environment. SLSTINET performs an important information dissemination function among Sri Lankan STI librarians, similar to that performed by professional associations in North America. All the librarians who were interviewed knew others in the network and also had extensive knowledge about the successes and failures of various activities at other libraries. For example, a number of librarians independently stated that the Coconut Information Centre was making the most effective use of the mini/micro CDS/ISIS software. As the principal medium through which librarians learn about innovations made by their peers, SLSTINET performs a "multiplier" function in the Sri Lankan STI system.

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<sup>29</sup> Interview, Mr N.U. Yapa, 17/08/89, Colombo.

ISD's activities to date have involved member institutions of SLSTINET, with the two exceptions of the Debt Recording and Management Software Project and the National Poisons Information Centre.<sup>30</sup> SLSTINET has provided the setting for ISD's projects in Sri Lanka. If one is looking for impacts greater than the sum of the individual ISD projects and synergistic effects, the path naturally leads to SLSTINET and its subnetworks.

ISD cannot take credit for SLSTINET and its subnetworks, except for the indirect contribution made through the strengthening of the Coconut Information Centre and the Central Library of the Department of Agriculture and the three DAPs. But SLSTINET has contributed to ISD's activities by serving as a conduit for relevant information ranging from creation of an awareness of ISD's existence and funding procedures among potential applicants for funds, to the sharing of experiences gained through projects and training. SLSTINET has also served ISD projects as a source of information on local inputs such as the micrographic services provided to the Coconut Information Center by SLSTIC.

## 5.0 BIBLIOGRAPHIC INFORMATION PROJECTS

### 5.1 COCONUT INFORMATION CENTRE (CIC) (3-P-77-0127)

**5.1.1 Institutional Factors:** The Coconut Information Centre of the Coconut Research Institute was the first Sri Lankan project to be funded by ISD. ISD's involvement has been long. The project leader underwent IDRC-sponsored training prior to approval of the First Phase of the Project in 1978. Originally the project was for a

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<sup>30</sup> It is noteworthy that Dr Ravindra Fernando, the Poisons Information Center's project leader, is invited to SLSTINET activities and attends them.

period of three years but was extended for a further two years. In 1985, ISD approved Phase II of the project which ended only in 1988. The CIC represents ISD's largest investment in a Sri Lankan institution, the two phases of the project amounting to C\$ 267,000 (approximately LKR 5,340,000), a major expenditure by Sri Lankan standards.<sup>31</sup>

The CIC was conceived of, and funded, as a specialized information analysis centre (SIAC). It was different from other agricultural SIACs funded by ISD because it was located at a national agricultural research centre rather than at an international centre. The proposal for Phase I of the project identified an "international clientele" as the audience at the outset.<sup>32</sup> This may have been the actual intention of the project leader at the time or it may have been an adaptation to the then priorities of ISD that favoured international SIACs. The contradiction between the host research organization's mission which is nationally defined, and that of the project's which is internationally defined, resulted in some difficulties in the early stages, but there appears to be a *modus vivendi* now.

The Asia-Pacific Coconut Community (APCC), which is the premier international/regional organization in the area of coconut, appeared to have had some reservations about the CIC on two grounds: first, that it was catering primarily to a national clientele and only secondarily to APCC's membership; and second, that the CIC had a bias towards coconut production and processing research to the detriment of marketing information.<sup>33</sup> The recommendations of the latest meeting of the APCC information spe-

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31 Conversion at LKR 20 = C\$ 1.

32 File 3-P-77-0127, p. 3.

33 These conclusions were drawn by the first consultant and are not those of any other individual affiliated with the CIC.

cialists, from which the project leader returned shortly before the consultants' visit, indicates that CIC is not accepted as the comprehensive coconut information centre for the region, but that it is clearly recognized as the regional centre for information on research and researchers. The document indicates that CIC has offered to process standardized data collected by the APCC Secretariat on " researchers, research projects and research and development institutes, comprising inputs from each national [coconut information] service, on all aspects concerning production, processing, and marketing." The document further recommends that the APCC Secretariat become a depository for the microfiche collections presently planned to be housed in Sri Lanka, the Philippines, and Fiji.<sup>34</sup>

The CIC and its head, Mr M.J.C. Perera, appear to be in excellent standing within the organization at the present time. The consultants were unable to meet the Director of the Coconut Research Institute, Dr Ranjith Mahindapala, because of a rescheduling of their visit to the Centre and unsettled conditions in the country. However, a previous meeting (August 1987); Dr Mahindapala's attendance at the Sri Lanka ISD Project Leaders' Meeting in April 1989;<sup>35</sup> and telephone conversations regarding the visit to CIC, all indicate a strong interest in the CIC and a commitment to its progress on the part of the Director. The commitment of the Coconut Research Institute's own funds for a computer for the exclusive use of the CIC is further evidence. The project leader appears to have considerably improved the position of the CIC within the host organization over the past few years. The demonstrated ability to attract external funds, good performance, and higher status indicated by invitations to foreign meetings may have contributed to this

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34 Recommendations, APCC meeting of information specialists, Jakarta, 14-16 August 1989: 4-5.

35 File 3-A-88-4823.



outcome, but the primary factors appear to be the project leader's commitment and perseverance.

The overall organization and morale of the CIC appeared excellent. There appeared to be a high degree of delegation of work and a high utilization of the computer by all library personnel (so much so that the project leader has access only in the early morning hours before others come to work), indicating effective personnel management policies. The satisfactory personnel situation is especially noteworthy since the CIC is located in a coconut estate distant from an urban centre. Libraries of other agricultural research centres that are similarly situated (Tea Research Institute, Talawakelle, and Rubber Research Institute, Agalawatte) visited by the first consultant in the course of the 1987 DAP complained of chronic problems in attracting and retaining library personnel. The project leader's strategy of hiring people from the adjacent area and providing good work conditions and encouragement for training appears to be very effective. In the course of the interview, the project leader mentioned the familiarity with mini/micro CDS/ISIS one of his assistants had picked up during a visit to Malaysia as the key to CIC's success with the software and repeatedly referred to the urgency of obtaining a fellowship for another of his assistants.

The CIC enjoys an excellent reputation within the Sri Lankan STI community. A number of librarians referred to the CIC as one place where the teething problems of CDS/ISIS had been overcome and the package was being used successfully. Perhaps the best indicator of CIC's standing was its choice as the first STI centre to be visited by the newly constituted National UNISIST Working Committee of NARESA as part of the Committee's program of gathering first-hand knowledge of the Sri Lankan STI system.<sup>36</sup>

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<sup>36</sup> Interview, Mr N.U. Yapa, 17/08/89, Colombo.

**5.1.2 Utilization:** The outputs of the CIC are (a) a regular bibliography; (b) subject bibliographies prepared on request and sometimes on basis of judgement of importance by librarian; (c) directory of researchers; (d) thesaurus; (e) three reviews on topics of interest to coconut researchers; and (f) current awareness service.<sup>37</sup> The newsletter used for current awareness has been replaced by a contribution to the APCC's bimonthly newsletter. Every newsletter devotes one page to new acquisitions by the CIC. The APCC newsletter appeared to be the main mode of communicating information regarding CIC's material and services to users outside the host institution. Responses to a questionnaire had indicated a high degree of user satisfaction with the present mode of current awareness information dissemination. Indonesia's coconut research organization routinely orders everything listed in the APCC newsletter.

Delays were reported in some of the other outputs. The reviews were still in process. The sending of microfiches of CIC holdings to regional distribution centres had been held up by delays at SLSTIC which was contracted to prepare them. The entire stock, weighing 16 kg, was with a freight forwarder in Colombo at the time of the interview.

The CIC caters to international and national users. It was not possible to obtain figures on the number of users. An assistant librarian had prepared a list of 50 users (national and international), but this was not a complete listing for 1988-89 nor was there a differentiation between visits, requests for references, and requests for document delivery. The list showed a wide range of users--researchers from Latin America & the

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<sup>37</sup> Interview, Mr M.J.C. Perera, Librarian, Coconut Information Centre, 29/08/89, Lunuwila.

Caribbean, North America, Europe, and the Asia-Pacific, as well as researchers and individuals (who appeared to be unaffiliated to institutions) from within Sri Lanka.

The difficulty of obtaining data on usage is common to most Sri Lankan STI centres.<sup>38</sup> The cause is the lack of incentives to compile data. Incentives may be provided by requirements to prepare periodic reports either by the home institution or by an external funding agency as a condition of funding. National bodies such as the UNISIST Working Committee, the Council for Agricultural Research Policy, or SLSTINET may wish to set reporting standards but it is difficult to envision widespread adherence in the absence of some material incentive. What is required is routine, systematic data compilation that will be of use in internal decision-making as well as in external studies such as the present one, not the special data collection activities now undertaken to satisfy specific external requests.

The project leader identified the audiences served as coconut researchers and producers. It appeared that the researcher audience could be divided into Coconut Research Institute researchers, coconut researchers outside Sri Lanka, and researchers in other Sri Lankan institutions. Researchers in the home institution were the primary audience of the Library of the Coconut Research Institute which houses the CIC. These researchers were provided with SDI [Selective Dissemination of Information] services based on the totality of library acquisitions including material acquired through the CIC. Other Sri Lankan researchers had been provided with SDI services in the past. At present, they would be served only on the basis of special requests. International researchers appeared to be served through the provision of information to foreign coconut information centres and responses to requests.

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38 See, Samarajiva (1987).

The Coconut Research Institute is responsible for serving producers with over 50 acres under coconut cultivation and processors. Smaller producers are served by the Coconut Cultivation Board. There is no formal rule which would exclude a small producer from the resources of the CIC, but the organizational structure makes access more conducive to large producers. The CIC, and the library within which it is housed, does not have an explicit extension function. Extension workers, as such, come under the purview of the Coconut Cultivation Board. They are trained at a separate centre in the Bandirippuwa estate where the CIC is located. Researchers from the Coconut Research Institute who are direct beneficiaries of the CIC's services lecture to the trainees, who thus receive the CIC information indirectly. When extension workers face problems they come to researchers at the CRI who may utilize the services of the CIC if necessary. The CRI has a separate Information Division which prepares and disseminates advisory leaflets for farmers, the *Coconut Bulletin*, and the *Cocos Journal*, aimed at progressively advanced audiences. The Information Division consults specialist researchers (who are served by the CIC) in the preparation of these publications. On special occasions such as a meeting of large producers convened by the CRI, the annual Coconut Day, or "field days," the library prepares information packages. Specialized bibliographies in English have been prepared for producers' meetings, and popular brochures (with no bibliographic information) in Sinhala for Coconut Days and field days.

At the outset, it was decided to limit the user study to national users given the impracticality of conducting in-depth interviews with international users. The project leader

was asked to name three national users for in-depth interviews according to specific criteria.<sup>39</sup> One outside user and two researchers from the CRI were interviewed.

The outsider nominated as the most recent user was a coconut fibre miller, who was also an office-bearer of an industry association, and a consultant to an ODA [Overseas Development Agency] project. The user had come to the CIC (which he knew about from previous use) with a very specific question relevant to export regulations. He had investigated the problem empirically at his mill and had come to the CIC to obtain information on previous research and on research methodology. On his first visit, he had consulted the librarian, looked up some text books and located references to two relevant research papers through search of the APCC literature. The user had only half an hour to spend on the first visit and was quite happy that the references had been located in that short time. On his second visit, on the day of the interview, the user had located the reports, examined them, and got them copied by the CIC's photocopy operator within an hour. The reported research was from Sri Lanka though accessed through the general CIC database. This user had come to the CIC with a specific problem, had that problem resolved in a timely and satisfactory manner, and was going back to his main activities as a coconut fibre miller/consultant. The actual time spent in CIC was very short, and the period between the first and second visits was three months. But the user was very happy about the length of time spent in the CIC and explained the gap between visits and even the fact that he had to come twice in terms of his own time limitations and priorities. In his view, he got what he wanted when he wanted it from the CIC. This very satisfied user had no suggestions on how he could be served better.

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<sup>39</sup> Serious time limitations caused by an incomplete work-transportation stoppage in the last week of the first consultant's stay in Sri Lanka necessitated deviation from the two subjective criteria. Three user interviews were conducted.

The scientists reported interactions with the library as a whole, not the CIC alone. In their view, the library was a seamless whole. In both cases, the interactions reported were of searches in areas peripheral to the researchers' main interests and expertise. The first point of contact was an assistant librarian who did the searches (perhaps on CIC databases, but the users did not know nor care). In one case the librarian found some material in the library and directly wrote the agencies described as data sources in the literature for the balance, after obtaining addresses through the US Information Service in Colombo. In the other case, probing revealed that the researcher's question was regarding oil palm, a subject that was not found in the CIC index. Following that discovery, the researcher found relevant information in a text book in the library. This user also recounted an incident where he had directed an estate superintendent to the CIC. This superintendent had come to coconut from tea, and was demanding a lot of information from the researcher who visited the estate on a field trip. The researcher answered as time permitted but directed the superintendent to the CIC. Later the researcher found the man to have become more knowledgeable about coconut estate irrigation than he was.

The general picture was of a set of users who wanted specific answers to specific questions very quickly and with the minimal expenditure of time on their part. They voiced appreciation of the SDI services and the "alert" services provided by the library. But it was clear they wanted the library to do more of their information work so they could get on with their research. In their view, the CIC resources should make the library more current and comprehensive but they were not particularly interested in direct use as long as the librarians served their needs using whatever available resources.

The CIC is a sophisticated information service serving a highly specialized group of users. The mandate of the CRI to primarily serve the needs of large coconut producers limits the accessibility of information to small producers. The location of the CIC in a

area dominated by large estates, its general ambience, and the fact that almost all the material is in English, militates against use by small producers. The institutional structure separates the functions of serving researchers (CIC), extension work for large producers (CRI Information Division), and extension work for small producers (Coconut Cultivation Board). The CIC did not at any stage claim to serve any but the researchers, and appears to be doing a good job at what it set out to do.

## 5.2 NATIONAL AGRIS CENTRE (3-P-81-0092)

**5.2.1 Institutional Factors:** The National AGRIS Centre at the Central Library of the Department of Agriculture in Gannoruva was the second ISD project to be funded in Sri Lanka. The project ran from 1982 to 1985 and ISD funding amounted to C\$ 175,600 (approx. LKR 4,025,000).<sup>40</sup> As with the CIC, the project had external and internal objectives. It was to supply the worldwide AGRIS network with Sri Lankan bibliographic data. The project was also intended to reorganize and activate the Central Library of the Department of Agriculture (CL), which had a significant collection (more than 10,000 volumes) but had not functioned as a proper library. The project included the stationing of an expatriate advisor at the CL for two years (accounting for 63% of the total ISD contribution), an unusual feature for an IDRC project. In addition to the funds directly allocated to the project, the original project leader (who died before the project was completed), the new project leader, and CL staff members received IDRC-funded fellowships and training. The new project leader's participation in a CARIS consultation and training program in Rome was funded as an ISD DAP (3-A-87-4910) in October 1987. A project proposal submitted by the project leader is under consideration by ISD at the present time.

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<sup>40</sup> Conversion at LKR 23 = C\$ 1.

Observations during two visits (1987 and 1989) confirmed the conclusions of the Project Completion Report<sup>41</sup> that the CL had been strengthened. The library was clearly no longer "a forgotten store." The assignment of a Librarian (Grade II) for AGRIS work on a full-time basis and the creation of a position of Head-Library Services (occupied by the project leader) in addition to that of the Chief Librarian indicates that the Department of Agriculture has committed some resources to the information activities started by the project. However, there have been no funds allocated for library acquisitions or for library services as such. The CL reports to the Deputy Director of Agriculture (Research), the head of the Central Agricultural Research Institute (CARI) where the CL is located.<sup>42</sup> The Deputy Director of Agriculture (Research) was not interviewed.

Though the CL is physically located inside the Central Agricultural Research Institute and reports to its director, the CL is not part of CARI. It is the central library of the Department of Agriculture of which CARI is only one small component. The CL has what may be described as "branch libraries" at research stations in various parts of the country and is mandated to serve all the researchers (and other employees) of the Department of Agriculture which is quite a large department. Its physical location in a rather inaccessible site and the absence of easy methods of communication (none beyond the postal system) make use by those not located in Gannoruva rather difficult.

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<sup>41</sup> File 3-P-81-0092; PCR dated 24/02/87, p. 3.

<sup>42</sup> Interview, Mr Y. Ratnavibhushana, Head-Library Services, Central Library of the Department of Agriculture, 18/08/89, Gannoruva.



The rather unusual institutional setting of the CL poses some problems. One problem is the ambiguity of supervisory and budgetary responsibility. The head of CARI has supervisory authority but the CL is not part of CARI. This arrangement carries potential for step-motherly treatment. As far as the consultants could gather, the CL does not have a budget of its own. The librarians and support workers are paid as Department of Agriculture employees and are provided with office supplies, etc., but there is no formal library budget. The CL does not have current subscriptions to journals, other than those received on an exchange basis. The paper used until very recently for photocopying was from the carefully husbanded stocks left from the AGRIS project. The photocopying machine which was obtained through that project is now out of commission. The project leader was hoping that an agency external to the Department of Agriculture, the Council for Agricultural Research Policy, would supply a photocopier. The coupons used for foreign interlibrary loan requests are, again, leftover stocks from the AGRIS Project. Retrospective searches of the AGRIS database, a key output highlighted in the PCR, have declined (see Table 1), because there is no budget to pay for any more than the 30 free searches.

The CL's users are scattered, physically and organizationally. This makes it difficult for the library personnel to establish strong relations with users. In practice, such relations exist only with physically proximate users, from CARI as well as other Department of Agriculture facilities such as the Plant Gene Resource Centre and the Veterinary Research Institute located in Gannoruva. There is no institutional mechanism for user involvement in the running of the library nor for regular contact between the library and the higher administration. The project leader has requested that a Library

Committee be set up, with the Deputy Director of Agriculture (Research) as chair, to remedy this problem.<sup>43</sup>

The CL continues to be an active member of AGRINET. However, the often mentioned takeover of the coordination of AGRINET by the CL has not happened yet. It is difficult to envision how the CL can perform the coordinating task unless it is provided with a budget.

**5.2.2 Utilization:** The principal outputs of the ISD-funded project were, of-line retrospective searches of the AGRIS database, manual searches of AGRINDEX, the national bibliography, and input of Sri Lankan references to AGRIS. The supply of Sri Lankan references to AGRIS appeared to be continuing satisfactorily. The national bibliography was prepared at the end of the project. There are no records of how frequently it is used or how well it is utilized. There is no data on manual searches of AGRINDEX. It was reported that about 90 per cent of the students of the Post Graduate Institute of Agriculture (PGIA) in nearby Peradeniya come to the CL to prepare bibliographies for their projects and use both the AGRINDEX and the collection of CAB [Commonwealth Agricultural Bureaux] abstracts received free by the CL.<sup>44</sup>

The project leader was able to supply data on retrospective searches of AGRIS conducted since the project started.

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<sup>43</sup> Interview, Mr Y. Ratnavibhushana, Head-Library Services, Central Library of the Department of Agriculture, 18/08/89, Gannoruva.

<sup>44</sup> Interview, Mr Y. Ratnavibhushana, Head-Library Services, Central Library of the Department of Agriculture, 18/08/89, Gannoruva.

**Table 1: AGRIS Retrospective Searches**

	1982	1983	1984	1985	1986	1987	1988	1989
Searches	47	115	7*	105	91	30	25	9

\* Records appear incomplete.

Source: National AGRIS Project (Sri Lanka), Lists of retrospective searches.

The records clearly show that the search facility has been used by a spectrum of researchers from a wide range of institutions. Users from universities, research institutes, and even unaffiliated individuals are listed in addition to those from the CL's primary clientele in the Department of Agriculture. Even within the Department, the range of institutions is impressive. Searches have been done for individuals located at regional agricultural research centres in the far corners of the country.

The impressively wide distribution of requests appears to be the result of the seminars conducted throughout the country by the CL staff during the Project period. The decline in the number of requests since 1986 appears to have been caused primarily by the imposition of a quota on free searches by the AGRIS Processing Unit in Vienna. However, it was also reported that no AGRIS seminars had been conducted since the termination of the Project.<sup>45</sup> It obviously makes sense not to advertise a service that can no longer be provided, but the momentum gained during the project is being lost as a result.

The AGRIS Centre project document indicates that this project had two different thrusts: the first was that of establishing bibliographic control over the Sri Lankan agricultural literature and supplying references to AGRIS; the second was that of strengthening the CL

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<sup>45</sup> Interview, Mr Y. Ratnavibhushana, Head-Library Services, Central Library of the Department of Agriculture, 18/08/89, Gannoruva.

and providing Sri Lankan agricultural scientists with better information including AGRIS output. The former is essentially a bibliographic task; there is no formal audience as such, though international and local users of AGRIS output would benefit by having Sri Lankan material included. It is the latter thrust that falls within the purview of the present investigation. The primary audience served by the project cannot be clearly identified from the project document alone. From the statement that strengthening the CL was the objective, the primary audience would appear to be the CL's clientele, the researchers and employees of the Department of Agriculture. However, the extensive outreach work done by the project leader and staff, and the records of offline AGRIS searches indicate that the CL has been very open to agricultural researchers outside the Department too. It does appear, however, that researchers have been the primary audience within the Department as well as outside. There has been no use by the Department's large body of agricultural extension workers. A search on the subject of agricultural films by an official of the Extension Division in Peradeniya in 1983 indicates that the existence of the AGRIS service was known to the Extension Division, but this solitary interaction does not count as a use by an extension worker or for extension purposes.<sup>46</sup>

In light of the difficulties of communicating with the CL, it would be fair to categorize the agricultural researchers at CARI and the adjacent research institutions affiliated with the Department of Agriculture as the primary audience of the CL. The secondary audience would be Sri Lankan agricultural researchers located outside Gannoruva. Foreign users of AGRIS who request Sri Lankan material may be described as the ter-

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<sup>46</sup> National AGRIS Project (Sri Lanka), List of retrospective searches, Search No. RETR/68/83.

tiary audience. The project leader stated that foreign document requests have been satisfied even after the CL photocopier broke down.<sup>47</sup>

In-depth interviews were conducted with three scientists from CARI. The scientists described their interactions with the library as a whole, but mentioned Project outputs too. The most recent user was familiar with online searching from his recent graduate school experiences but had not expected such services to be available in Sri Lanka. At the commencement of a project he looked through his division's collection of journals as well as those of the CL and wrote for reprints from a foreign research station. In the meantime, he learnt about the information services provided by the CL in an informal conversation with the project leader. A search was formulated at a 30 minute interview with the project leader. He received the printout much sooner than expected, and picked 10 items. One was available at the CL, nine were requested on interlibrary loan and two had been received to date (interview was conducted 4 1/2 months after search was conducted).<sup>48</sup> The user appeared satisfied, given the original low expectations. He noted that literature from Thailand and similar countries was available in AGRINDEX and not in other indexes. He was not interested in obtaining a large number of publications, preferring two good articles to ten. He indicated that abstracts would be useful for this selection process. This user saw the lack of journals and current text books as the most serious shortcomings of the library. Being new to the country, he had not been included in the contents-pages dissemination program at the time of the interview.

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47 Interview, Mr Y. Ratnavibhushana, Head-Library Services, Central Library of the Department of Agriculture, 18/08/89, Gannoruva.

48 There was some ambiguity as to how many interlibrary loan requests had been actually sent out.

The second user reported an information search process that had commenced in 1981-82, around the time the Project commenced. He was conducting a literature search in yearbooks, reviews, and journals when an AGRIS familiarization seminar was held at CARI in 1984. The IDRC advisor had volunteered to help with the search. The user asked for a ten-year retrospective search, was told only five years was possible, and received a 250 item printout after one month. This printout had some abstracts making the selection of material easier. He wrote directly to known authors and asked for other material through interlibrary loan. This user commented on the need to obtain information quickly. He was appreciative of the services provided by the CL especially because he had been stationed at the second largest agricultural research station of the Department of Agriculture at Maha Iluppalama for 10 years. He had not used a journal even once in that entire period.

The third user had been preparing for a seminar presentation when she went to the CL. She had names of specific journals she wanted to take home to read and wanted books too. She found that the books were too old. She borrowed some journals but did not do a search since she had adequate information. On another occasion, she had been directed to the microfiche reader to look at AGRINDEX but could not continue because the print was difficult to read and she felt nauseous. This user was not on the list of users of AGRIS retrospective searches.

CARI users seemed readier than their CRI counterparts to spend time on directly searching for information. Whether this was a consequence of the relatively lower level of SDI and alert services they received (understandable, since the CL has to serve a much larger clientele than the 29 CRI researchers served by the CIC which has received a significantly higher level of funding), a different incentive structure for the conduct of

research (the CRI researchers appeared to be competing for internal funds and being judged on their research proposals), or some other reason is not known.

There appears to be a demand for retrospective search services and associated document delivery services from within CARI as well as from outside. These services were provided during the Project based "mostly on goodwill."<sup>49</sup> As that goodwill and the supplies left over from the Project run out, the CL will become unable to provide the expected services. As the ability to provide the most desired service, retrospective searches, diminishes, it is likely that the CL will refuse requests from outside the Department of Agriculture with detrimental effects on the links established during the Project. The most serious problem of this project appears to be sustainability. The PCR suggests intervention with the FAO to obtain a waiver of charges for the CL. The lack of a response from the APU suggests either that IDRC has not made the intervention or that the FAO has refused. It may be necessary for the Department of Agriculture to make a direct request or investigate some other remedial action. The Department's credibility in this regard will be strengthened if it provides the CL with a budget for photocopying, document delivery, etc. The peculiar organizational structure of the CL may have to be restructured too. A project designed to make the CL more accessible, electronically or otherwise, to regional research stations and divisions of the Department of Agriculture may provide an opportunity for such a restructuring.

### 5.3 DEVINSA (3-P-85-0119)

**5.3.1 Institutional Factors:** The DEVINSA [Development Information Network for South Asia] project appears to be the largest single investment (C\$

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<sup>49</sup> File 3-P-81-0092; PCR dated 24/02/87, p. 3.

332,321) by ISD in Sri Lanka.<sup>50</sup> In actual fact, only about half that money was to be expended in Sri Lanka since DEVINSA is a regional project. The three-year project commenced in 1986 and is an active project. It appears that ISD has agreed in principle to fund Phase II of the project.<sup>51</sup>

The DEVINSA project is integrally connected to the activities of the Committee on Studies for Cooperation in Development in South Asia (CSCD). CSCD began in 1978 as a non-governmental initiative in South-South cooperation but due to the subsequent establishment of the South Asian Association for Regional Cooperation (SAARC), now essentially functions as SAARC's "think tank." From inception, the Marga Institute in Sri Lanka has functioned as the secretariat of the CSCD. According to the project document, the CSCD directors approved a proposal to collect and exchange among themselves South Asian economic and social development information, particularly grey literature, to support their collaborative research programs, in 1980.<sup>52</sup> In 1982, a workshop was convened at the Marga Institute to prepare a framework for a regional network based on DEVSIS, apparently funded by IDRC.<sup>53</sup> This was followed by travel to Bangkok for technical consultations by the Project Leader, again apparently funded by IDRC,<sup>54</sup> and then by visits to all the CSCD institutions, accompanied by ISD staff members.<sup>55</sup> This

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50 There are some minor discrepancies in the figures given in the project document (File No, 3-P-85-0019) and those given in L.N.T. Mendis and A. How, Development Information Network for South Asia (DEVINSA) project: Report of the evaluation mission, November 1988: 14-18.

51 Summary report, DEVINSA Phase II: Project Planning Meeting, Colombo, 16-17 June 1989: p. 1.

52 File no. 3-P-85-0119, p. 1.

53 File no. 3-A-82-4007.

54 File no. 3-A-83-4338.

55 File no. 3-P-85-0119, p. 2.



background shows that the project was conceived of as performing a service function to CSCD activities, that it was formulated from the beginning as a collaborative activity, and that IDRC was intimately involved in the project formulation process from the very early stages.

This investigation focussed only on DEVINSA's coordinating institution, the Marga Institute, unlike the previous Mendis-How study. The intricacies of collaborative governance of a regional information network such as DEVINSA are outside the scope of this study. The Mendis-How report which went into much greater depth identified a problem in the allocation of staff resources between DEVINSA and Marga's other non-CSCD related activities.<sup>56</sup> This problem was also discussed at the Project Planning Meeting for DEVINSA Phase II held in June 1989.<sup>57</sup> Marga is obviously strongly committed to CSCD and DEVINSA at the highest levels. But the fact remains that CSCD activities constitute but a small part of Marga's total workload. The library is seen by Marga researchers as a resource that must give priority to their needs, not those of the CSCD.<sup>58</sup> The general shortage of qualified staff in the library (accentuated by the resignation of the person designated as the project leader in the project document and the absence of her successor as Librarian on study leave) has resulted in a perception among Marga researchers that DEVINSA is a drain on their resources.

**5.3.2 Utilization:** DEVINSA output is primarily intended for the use of researchers engaged in CSCD sponsored projects.<sup>59</sup> The Mendis-How Report made a dis-

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<sup>56</sup> Mendis and How, Development Information Network: 24-25.

<sup>57</sup> Summary report: DEVINSA Phase II: p. 3.

<sup>58</sup> User interviews, 22/08/89, Colombo.

<sup>59</sup> File no. 3-P-85-0119, p. 3; Interview, Ms S. Naguleswaran, Acting Project Leader/Acting Chief Librarian--Marga Institute, 22/08/89, Colombo.

inction between information *on* CSCD projects and information *for* CSCD projects, and pointed out the need to reassert the importance of the latter.<sup>60</sup> Researchers engaged in CSCD projects may be classified as (a) researchers at Marga which is both the coordinating centre and the Sri Lankan focal point; (b) researchers at other focal points and affiliated institutions in the region; and (c) researchers at CSCD affiliated institutions in Sri Lanka (University of Moratuwa, Centre for Development Information, and the National Building Research Organization).<sup>61</sup> The project leader gave first priority to researchers in categories (a) and (b), and second priority to category (c). Other bona fide researchers were identified as a tertiary audience.<sup>62</sup> This identification is congruent with the project proposal and the ISD appraisal of the proposal at the time of approval.<sup>63</sup> It is only in the Terms of Reference of the Mendis-How mission and the present study that one sees users outside the CSCD system perceived as potential beneficiaries. The Mendis-How Terms of Reference asked as its second question, ". . . how many users beyond the host institutions use DEVINSA products and how satisfied are they with its services?"<sup>64</sup> This appears to be a manifestation of changes in ISD's priorities over the course of a project.

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60 Mendis and How, Development Information Network: 22-23.

61 Interview, Ms S. Naguleswaran, Acting Project Leader/Acting Chief Librarian--Marga Institute, 22/08/89, Colombo. Information on the membership of the Sri Lankan CSCD network is unclear. According to the project leader and the summary report of the DEVINSA Phase II project planning meeting (p. 12), Sri Lanka has only three institutions in the DEVINSA local network. The Project Proposal lists ten institutions (File no. 3-P-85-0119, Appendix I), none of which are given as local affiliates by the project leader.

62 Interview, Ms S. Naguleswaran, Acting Project Leader/Acting Chief Librarian--Marga Institute, 22/08/89, Colombo.

63 File no. 3-P-85-0119, p. 3 and p. ii.

64 Mendis and How, Development Information Network: 38.

The outputs of the project were identified as (a) biannual bibliographies with abstracts; (b) monthly bibliographies without abstracts; (c) retrospective searches on request; (d) document delivery; and (e) a newsletter.<sup>65</sup> The bibliographies and the newsletter are sent to the six focal points and the three local CSCD affiliates. A total of 40 subscribers (mostly from the South Asian region) receive bibliographies. Approximately two searches have been conducted for other focal points, approximately 25 for Marga researchers (working on CSCD projects as well as others), and approximately ten for other Sri Lankan institutions.<sup>66</sup> Data on document delivery are as follows:

**Table 2: DEVINSA Document Deliveries from Marga<sup>67</sup>**

	Up to August 1988	Aug 1988- Present
Bangladesh	14	08
Pakistan	02	43
Nepal	04	498 (pages)
India	-	not available
Sri Lanka	-	75*
Maldives	-	-

\* July 1987-July 1989.

Source: Mendis and How 1988: p. 21; Interview, S. Naguleswaran, 22/08/89.

Three users from Marga were interviewed. Time constraints and the situation in the country made it impossible to interview the non-Marga users identified by the project leader according to the selection criteria. The Marga users did not belong to the International Studies Division headed by Dr V. Kanesalingam (the CSCD/DEVINSA coor-

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65 Interview, Ms S. Naguleswaran, Acting Project Leader/Acting Chief Librarian--Marga Institute, 22/08/89, Colombo.

66 Interview, Ms S. Naguleswaran, Acting Project Leader/Acting Chief Librarian--Marga Institute, 22/08/89, Colombo.

67 It must be noted that this is an incomplete indicator of usage for the project as a whole since document deliveries are also made from other focal points--see data in Mendis and How, Development Information Network: 29-30.

dinator), which appeared to be in a period of high turnover of personnel. It was not possible to fit an interview with Dr Kanesalingam into the tight schedule. The interviews conducted at Marga may be taken as representative only of that particular category of users. Like the interviewees from the Coconut Research Institute and the Central Agricultural Research Institute, those from Marga did not distinguish between project outputs and library services in general.

The most recent user recounted an interaction with the library on a South Asian environment project not connected to the CSCD. She prefaced her remarks by stating that she never had the time to browse in the library, go through the card catalog, or go through the DEVINSA bibliography. The demands on her time made it necessary for her to work with knowledgeable librarians in relation to the specific requirements of the projects she was assigned. She also had vision problems that made library work difficult.

The environment project was assigned to her in April 1989. Immediately, she set up an appointment with a librarian she felt would follow up on her project. Her first request was broad; she asked for anything published in the area. The librarian gave her cards from the card catalogue. She excluded some, in the course of which the librarian understood the focus of her research. She left that meeting with a stack of periodicals from which she identified articles over the next two weeks. Then she asked for a DEVINSA printout on the environment. This was supplied after two to three days. She read the abstracts and marked up desired items. Items available in the Marga library were obtained directly. Others were requested on interlibrary loan. One urgent item was obtained by asking a Bangladeshi researcher coming for a meeting at Marga to bring it over. By the time the DEVINSA printout was obtained, she had gone to the NORAD [Norwegian aid agency] and CEA [Central Environmental Authority] libraries too. NORAD, being a funder of the project, provided her with photocopies of required mate-

rial. The CEA library had a printout that she used to order interlibrary loans through the Marga library. Because of these two sources of information, she did not need a lot of material from the DEVINSA list.

At the beginning of August 1989, the library had sent all researchers a form asking that topics of interest be identified. One or two weeks later, a library assistant came to her office with a printout (an extract from DEVINSA) prepared on the basis of her topics. She found this extremely useful. Another useful service provided by the library was the information on new acquisitions and references to selected articles from newly received journals included in the weekly in-house publication for researchers, *Friday File*. This was especially useful since cataloguing was backlogged. However, *Friday File* items were selected by a librarian and she could not be certain that everything relevant to her interests was included.

The second user questioned the basis on which material was selected for inclusion in the DEVINSA database. In the course of his research, he found that some 1983 studies on tourism in Sri Lanka were not included in the database while older material was included. He emphasized the need for more foreign grey literature in the database. He felt that other library activities such as MARDOC [a computerized bibliographic database of Marga research studies, seminar reports, etc.] had been put on the backburner because of the demands made by DEVINSA on the library staff.<sup>68</sup>

The third user knew of DEVINSA but had not made much use of it. He described an interaction with the library in relation to a project on South Asian investment, again on a

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<sup>68</sup> This interview could not be conducted according to the sense-making format. It is included because of the inability to conduct a planned interview in Peradeniya due to the work and transportation stoppage in the week of August 28.

project outside the CSCD program. From previous experience, he knew that IBRD/IMF and ADB [Asian Development Bank] publications were the best sources. He had the IBRD/IMF material in his personal collection. He asked a librarian to send him current ADB publications that had investment data for the region. He liked to work with experienced and committed librarians. He went to the library occasionally but preferred not to go through material himself since he wore bifocals. He has sometimes asked the library to prepare bibliographies for his projects. Sometimes this is done in about a week. He knew of the blue DEVINSA bibliographies and would use them if they were in his office. He suggested that Division Heads (he is one) be given copies. He felt that DEVINSA should include all research done in South Asia not only the CSCD material. This user also thought that DEVINSA was responsible for MARDOC becoming dormant. He shared the previous user's concerns about data input. Material he had given on trade policy three years ago was still not in the database. He would like to store papers brought back from foreign seminars in the library, but does not do so because the library is unlikely to be able to locate the material should he require them later.

The interviews brought out nuances of library usage that a quantitative study of usage would not have shown. These users cared about the library and were almost possessive about it. Yet they appeared to dislike going to the library and directly accessing the material. This could be due to deficiencies in the organization of the library, but the more likely explanation is that the incentive structures of Marga which is run on contract research work act against the investment of a senior researcher's time on information retrieval. The researchers' demand appears to be for more support from good information intermediaries.

The user interviews show that non-CSCD researchers at Marga have serious reservations about DEVINSA, partly on the quality and accessibility of the outputs, and partly on

the effect on general library services. It is almost certain that different responses would have been given by CSCD researchers at Marga. The perceived drain on general library services would not have played a role in the responses of non-Marga users. The concerns on quality of inputs and outputs, and "the lack of demarcation between conventional library responsibilities and those relating to DEVINSA in the Library of the CC," have been noted both in the Mendis-How Report and at the Project Planning Meeting for DEVINSA Phase II.<sup>69</sup> It is assumed that steps are being taken to remedy these problems.

The quantitative and qualitative indicators of non-CSCD usage of DEVINSA output are very low. However, it is difficult to fault the project personnel for this, since serving outsiders was not one of the original objectives. Most of their energies in the first three years appear to have gone into getting the input aspect organized. The emphasis being placed on usage by ISD has been noted by project personnel. The project leader stated that the library will seek to be proactive in DEVINSA Phase II.<sup>70</sup> The SDI service reported by the users appears to be evidence of this approach. What was interesting about the SDI service was the use of the DEVINSA system rather than a parallel system designed for Marga's needs (which are not identical to those of the CSCD). Such integration may be the key to resolving the tension between Marga and DEVINSA priorities.

#### 5.4 MAARIS (3-P-86-0052)

5.4.1 **Institutional Factors:** MAARIS [Marine Affairs and Aquatic Resources Information Service] is housed in library of the National Aquatic Resources Agency, a

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69 Summary report: DEVINSA Phase II: p. 3.

70 Interview, Ms S. Naguleswaran, Acting Project Leader/Acting Chief Librarian--Marga Institute, 22/08/89, Colombo.

relatively new research organization established in 1981. ISD outlay is C\$ 132,070. The three-year project was approved in 1986, but commenced in 1988, possibly necessitating an extension. The chief administrator of NARA at that time stated that the delay in getting the funds released had been caused by the inefficiency of a NARA administrative unit, not of the project leader.<sup>71</sup> The promise of obtaining supplementary funding from ICOD [International Centre for Ocean Development] in Halifax has been realized. The Publication Officer and Extension Officer associated with the project are paid for by ICOD.<sup>72</sup>

NARA now functions as the secretariat to the IOMAC [Indian Ocean Marine Affairs Council], and Dr Hiran Jayawardene, the Chairman, wishes to establish a MAARIS network in the Indian Ocean region with two other centres. A significant amount of documentation associated with IOMAC is processed by the Information Division headed by the project leader. One of the computers purchased as part of the project is linked via modem to the IOMAC network. The Information Division performs a number of other functions. One computer is used for preparation of reports by a typist. One Information Officer is responsible for desktop publishing.<sup>73</sup> The addition of a laser printer, scanner, and a desktop publishing package to the computer system purchased as part of Project (made possible by lower-than-expected prices), combined with the heavy-duty photocopier already in the library has given the Documentation Unit a complete documentation capability. Once commissioned, the offset printing machine that has been

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71 Interview, Dr G.C.N. Jayasuriya, Chairman, UNISIST Working Committee and past Director-General of the National Aquatic Resources Agency, 22/08/89, Colombo.

72 Interview, Ms K.L.R.D. Bandaranayake, Director-Information, NARA, 23/08/89, Colombo [interviewed at home where she was convalescing].

73 Interview, Ms K.L.R.D. Bandaranayake, Director-Information, NARA, 23/08/89, Colombo.



purchased from general UNDP funds and provided to the Information Division will further strengthen this aspect of the Information Division.<sup>74</sup>

When the project started, the project leader was the Chief Librarian and supervised two employees. Now, she is Director-Information and supervises 16 employees. Her division is made up of three units: Extension (one Extension Officer); Library (one Information Officer and two Library Assistants); and Documentation (one Publications Officer, one Information Officer, and one Data Entry Operator). The other employees in her division are minor employees. NARA appears to have problems in hiring and keeping personnel. When the positions associated with the Project were first advertised, the two individuals who were selected refused to accept the positions citing low salaries. The Documentalist for the Project had been hired away from Marga, but she resigned to emigrate to Australia. The NARA library was on the verge of losing the two staff members hired through the Project because government regulations prohibited temporary employees from being sent for training. The project leader had to engage in a protracted effort to change their status and get them into the permanent cadre. The advisory committee mentioned in the proposal has not been established yet.<sup>75</sup>

**5.4.2 Utilization:** Output from the ISD-funded project has not been used by anyone yet. The equipment and personnel resources have been applied to the preparation of the database and other products. One hundred and seventy citations are now in the database. The computer purchased through the project is attached to a CD-ROM reader

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74 Ms K.L.R.D. Bandaranayake, response to questionnaire.

75 Interview, Ms K.L.R.D. Bandaranayake, Director-Information, NARA, 23/08/89, Colombo.

and is used by NARA researchers to search the FAO/ASFIS database that has been provided to NARA on a CD-ROM.<sup>76</sup>

The database is considered an important output. Input of records is expected to reach 500 a year. It will include citations and abstracts of all Sri Lankan marine literature. Author addresses will also be included as required by ASFIS. MAARIS will function as a national ASFIS centre enabling NARA to receive the print output of ASFIS. No material has been contributed to ASFIS yet. The database will be used to produce two issues of a bibliographic publication per year, with a cumulative index at the end of three years. The database will also be used for retrospective searches as required by researchers. NARA researchers are the primary audience for the database and associated print products. Other Sri Lankan researchers are the secondary audience. Foreign users were not mentioned in the original project document but they may be provided access in the context of the Chairman's plan to establish a MAARIS network. Bibliographies will be sent to Sri Lankan universities.

Two directories, one on research projects in Sri Lanka, and the other on researchers, will be prepared. The questionnaire has been formulated but has not been sent out yet. NARA will keep a copy in the library for general use. Those on the mailing list for the *NARA Journal* (75 in Sri Lanka, and some foreign subscribers) will receive copies. The private sector may obtain copies by request.

Information packages are the third output. Three packages will be prepared in the course of the project. Each will be about 5-6 pages and will be in all three national languages. One subject such as oysters will be covered. Each will include a description

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<sup>76</sup> Ms K.L.R.D. Bandaranayake, response to questionnaire.

and a bibliography, among other things. The audience is broad. The extension unit will disseminate packages.

The fourth output is leaflets in all three national languages. Work has started on two leaflets but they have yet to be printed. The subjects are ecosystems and fisheries. A leaflet will comprise one A4 sheet, folded in two. The audience is school children. The assistance of the Ministry of Education will be sought for dissemination.

The fifth output is do-it-yourself manuals. A folder of material was originally planned but the present plan is to print a leaflet similar to that described above. The leaflet will refer readers to the appropriate division at NARA. Two leaflets on prawns and identification of fresh fish have been printed but not distributed. The primary audience was thought of as entrepreneurs, but the new minister wishes to directly serve fisherfolk. Thus, the change in format.

The *NARA Journal* was given as a sixth output even though it was not part of the original project, since the project computer is used in its preparation.<sup>77</sup>

No user interviews were conducted since there are no users of ISD-funded output.

The MAARIS project has gone through many vicissitudes. The institutional setting of the project appears have had positive and negative effects. The positive aspect is that the NARA is not burdened with too stolid an institutional culture. It appears to be results-oriented and aggressive in the pursuit of a higher international profile and research

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<sup>77</sup> Interview, Ms K.L.R.D. Bandaranayake, Director-Information, NARA, 23/08/89, Colombo.

funds. The negative aspect is that its ambitions and growth place too great a burden on its organization and personnel. It appears that there is a shortage of efficient employees--"lots of equipment but no people," in the words of the project leader. Those employees capable of producing some results appear to be overburdened with many different tasks.

The broad scope of the project appears less of a weakness once placed in the context of NARA's organizational structure which groups the library, documentation, and extension together. But one wonders what kind of extension work can be done with one extension officer. The comment by the former Director-General of NARA that NARA research officers are always in the field unlike at other research institutions and that they all perform extension functions may be in point here. He also mentioned that NARA planned to reach the craft-level audience (fishermen and small entrepreneurs) through publication of booklets as part of an ADB-funded fisheries extension service project under the Ministry of Fisheries.<sup>78</sup> This matter may be clarified in the course of negotiations over extending the project. It appears that some of the objectives and timelines may have to be modified.

## 5.5 WASSDOC (3-P-86-0108)

**5.5.1 Institutional Factors:** The 1980s is the International Water Supply and Sanitation Decade. The WASSDOC project had its beginnings in the heightened awareness of water supply issues and increased coordination between organizations active in this area. The National Water Supply and Drainage Board (NWS&DB) undertook

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<sup>78</sup> Interview, Dr G.C.N. Jayasuriya, Chairman, UNISIST Working Committee and past Director-General of the National Aquatic Resources Agency, 22/08/89, Colombo.

to coordinate the sharing of information between organizations engaged in water supply activities through the setting up of the WASSDOC project. Around 30 NGOs active in water supply work had formed a coordinating body called the NGO Water Supply and Sanitation Decade Service (Decade Service). This body and twelve government and university libraries and information centres constitute the WASSDOC network established in April 1985, prior to the approval of funds. These and other organizations (a total of 18) were involved in the project planning and were instrumental in commissioning a user-needs survey prior to submission of the project proposal.

The C\$142,550 grant for the project was approved by IDRC in October 1986; the agreement between NWS&DB and IDRC was signed in February 1987; and the funds received in March 1987. The project is scheduled to end in 1990. The ISD appraisal refers to a number of related water supply and sanitation projects in Asia, but links with those centres were not mentioned in the interview with the project leader and the project director.

This is a smoothly operating project. The only difficulty has been in the area of personnel. The project director and leader have been unable to fill some of the project positions because of the inability to get approval from the Ministry responsible for the NWS&DB. Plans to hire a science graduate as a documentalist had to be changed because graduates found the temporary nature of the position unattractive. As a result, the union list of water and sanitation documents has had to be postponed.<sup>79</sup>

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<sup>79</sup> Interview, Mr H. Pinidiya, Chief Engineer (Designs) and Project Director, and Ms L. Somaratna, Librarian, NWS&DB and Project Leader, 21/08/89, Ratmalana.

**5.5.2 Utilization:** The NWS&DB is large organization employing 240 engineers and numerous support staff throughout the country. It also works with foreign organizations such as the ADB, DANIDA and FINIDA. Work is also contracted out to local and foreign firms. NGOs and aid organizations are engaged in small-scale water supply and sanitation activities throughout the country. The WASSDOC project serves to collect and make available material generated by these different entities. It also attempts to make available foreign material relevant to Sri Lankan water and sanitation activities, but the emphasis is very strongly on Sri Lankan material. Selection is done by the project leader. All the material that is indexed is available at the NWS&DB library. Each record contains bibliographic data and 4-5 descriptors, but no abstracts.<sup>80</sup> As at March 1989, the database included 2,000 records.<sup>81</sup>

The original project document proposed distribution of quarterly abstract bulletins and annual cumulations generated from the database.<sup>82</sup> This appears to have been modified since no abstracts are being input. The quarterly bibliographies will include 250-300 references. Publication has not commenced yet. However, a similar function is performed by the bimonthly current contents bulletin and the *Links* newsletter. The bulletin is sent to all WASSDOC institutions and department heads within NWS&DB. The *Links* newsletter is published by the NGO Decade Service. WASSDOC project funds are provided for translation into Sinhala and Tamil on condition that WASSDOC news and new acquisitions are included in the newsletter. Five such issues have been published to date. One issue that was made available to the consultants contained a list of 51 new acquisitions.

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<sup>80</sup> Interview, Mr H. Pinidiya, Chief Engineer (Designs) and Project Director, and Ms L. Somaratna, Librarian, NWS&DB and Project Leader, 21/08/89, Ratmalana.

<sup>81</sup> *Links*, Newsletter of the NGO Water Supply and Sanitation Decade Service and WASSDOC, No. 15, March 1989: p. 7.

<sup>82</sup> File no. 3-P-86-0108, p. 2.

tions. The circulation is 250 in English, 100 each in Sinhala and Tamil, but reach is larger since the newsletter goes to organizations. WASSDOC's services are also advertised in the "Jalaya" [Water] news-sheet issued by the Public Relations Unit of the NWS&DB. Another output is the directory of water and sanitation researchers and consultants. Questionnaires for the directory have been circulated.<sup>83</sup>

In a somewhat cryptic note given to the second consultant after the departure of the first consultant from Sri Lanka, the project leader reported that 340 documents were issued to 200 internal users in January 1989; 380 documents issued to 215 internal users in July 1989; and 150 documents issued to 30 non-NWS&DB users between August 1988 and August 1989.

The primary audience of the Project is made up of the engineers and support staff of the NWS&DB. Agencies connected to NWS&DB such as DANIDA are considered part of NWS&DB. The secondary audience is made up of the personnel of the 13 member institutions of the WASSDOC network. Individuals were said to have done searches on subjects such as effluents. The NGO Decade Service functions as a conduit for all NGOs.<sup>84</sup> The work-transportation stoppage in the week of 28 August prevented an interview with officials of the NGO Decade Service.

The project managers answered questions regarding the accessibility of WASSDOC material to the general public by referring to a translation program done by the Library and Information Unit, but funded by the International Resource Centre on Community

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<sup>83</sup> Interview, Mr H. Pinidiya, Chief Engineer (Designs) and Project Director, and Ms L. Somaratna, Librarian, NWS&DB and Project Leader, 21/08/89, Ratmalana.

<sup>84</sup> Interview, Mr H. Pinidiya, Chief Engineer (Designs) and Project Director, and Ms L. Somaratna, Librarian, NWS&DB and Project Leader, 21/08/89, Ratmalana.

Water Supply and Sanitation of the Netherlands (IRC). A list of 19 publications that had been translated into Sinhala was provided. Most were foreign documents, but two had been specifically written for Sri Lankan conditions by Mr Pinidiya, the Project Director. It was reported that these translations had been made available to schools and that the NWS&DB had received responses from teachers.<sup>85</sup>

Only two interviews were conducted since the NWS&DB was closed in the week of August 28th. The most recent user's interview could not be done. The second user had been at the NWS&DB for eight years. He was interested in computers and was one of the NWS&DB officers who helped with the computer installation in the WASSDOC project. He reported an interaction with the library in relation to the drawing up of the terms of reference for a water resources consultancy. He phoned the librarian and asked for material and was provided with very old material and some unknown new material. He selected good items and brought them up to his office. He did not know whether the database had been used in this particular instance. On another occasion, he noticed a very interesting article on software for water resources management in the current contents bulletin. He had not known that that particular journal was in library. He needed non-bibliographic information such as the expertise of various companies and what prices had been quoted for projects.

The third user had started work at a project office of the NWS&DB located about 2 km away from the head office where the library is located, after graduate study in the US. The task he was assigned in February 1989 was preparation of a plan for community involvement in water supply projects. He had the assistance of some health profes-

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<sup>85</sup> Interview, Mr H. Pinidiya, Chief Engineer (Designs) and Project Director, and Ms L. Somaratna, Librarian, NWS&DB and Project Leader, 21/08/89, Ratmalana.



sionals, but they were not knowledgeable about water. He went to the library and was directed to World Bank material by the librarian. He had looked at the current contents bulletin that was available in his office, but felt it was not comprehensive enough. He went to the library again in March and asked for conference proceedings since what he wanted was not theory but other people's experiences and returned with a list of World Bank and IDRC documents. He selected about five documents and went back. The librarian pulled them out in a matter of minutes. He found papers on experience in community involvement in Lesotho and the Philippines. The plan was prepared and was being tested at the time of the interview. The documents were not referenced since all the user needed was some assurance that he was on the right track.

Speaking off the time line, the user said that he would like direct access to a computer database since he finds it difficult to clearly express what information he wants and because that way he would stumble into good material. When he writes articles on water quality for publication, he goes to the Medical Library since he thinks the material there is of a more academic nature.

The user interviews did not yield a clear picture of the usage of WASSDOC products because the librarian had interpreted WASSDOC usage as equivalent to library usage. However, the interviews did show a high awareness of WASSDOC, easy accessibility of the current contents bulletin and a general feeling that the library was capable of satisfying specialized information needs regarding water and sanitation. It was unfortunate that an interview could not be arranged at the NGO organization, but a conversation with an official of Plan International, an NGO that does some water and sanitation work, re-

vealed that WASSDOC was known in the NGO community.<sup>86</sup> The overall impression was of a narrowly focussed, well thought-out, and quite well implemented project.

## 6.0 NON-BIBLIOGRAPHIC INFORMATION PROJECTS

### 6.1 THE DEBT RECORDING AND MANAGEMENT SYSTEM (CS-DRMS) (3-P-84-0304)

**6.1.1 Introduction:** The testing of the Commonwealth Secretariat Debt Recording and Management System (CS-DRMS) was a unique project. The software package that was first tested in Sri Lanka had been developed by the Commonwealth Secretariat and ISD was brought in to partially fund the testing of the prototype. This was the first non-bibliographic project funded by ISD in Sri Lanka. The project involved the processing of primary data for the use of a very small number of decision-makers within government and international organizations. ISD's outlay was C\$ 83,000; that of the Commonwealth Secretariat, C\$ 47,470; and that of the Recipient, C\$ 106,583. The two-year project was approved in February 1985 and commenced in April 1985.

The Project, which has had more than its share of teething problems, has been thoroughly evaluated.<sup>87</sup> Therefore, this study focussed on insights, including those on institutional arrangements, that may be gained by looking at the ways in which the project output was being used.

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<sup>86</sup> Conversation with Mr M. Samaraweera, Colombo Liaison/Administrative Officer, Plan International Sri Lanka, 23/08/89, Nugegoda.

<sup>87</sup> An evaluation study of the Commonwealth Secretariat Debt Recording and Management System Project in Sri Lanka, Evaluation study no. 12, May 1989. See also, the PCR dated 24/05/88, File no. 3-P-84-0304.

**6.1.2 Utilization:** The Project had two objectives. The first was the testing of CS-DRMS in a real life situation. The second was "to provide Sri Lanka with a centralized, comprehensive, and accurate record of all foreign aid grants and external liabilities incurred by both its public and private sectors," in the process of testing the package. Thus the project had two sets of beneficiaries: the first being future users of CS-DRMS who would get a better product because of the lessons learnt in Sri Lanka; and the second being users of CS-DRMS output in Sri Lanka. This study excludes the first set of beneficiaries for obvious reasons.

The CS-DRMS package has two different aspects. The first aspect is reflected in the term, "recording," and the second in the term, "management." They utilize the same database, and thus require proper entry of accurate data, etc. The difference is in what is done with the data. In the first aspect, the output products are various reports detailing how much debt there is, its composition, etc. In the second aspect, the output products are debt management policies based on generating various scenarios and testing various assumptions. This study confirms the finding of the previous evaluation mission that "it does not appear that CS-DRMS is currently being actively used in Sri Lanka to analyse the various financial opportunities which are available in managing their debt or in the formulation of debt policy, and a debt management strategy."<sup>88</sup>

The perception of certain senior officials (and possibly politicians too) that Sri Lanka's debt load and composition do not justify allocation of resources to developing sophisticated debt management strategies may be a cause. It may also be that the operators of the

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<sup>88</sup> Evaluation study of the Commonwealth Secretariat Debt Recording and Management System Project: ¶ 62, p. 28.

CS-DRMS and the users of its output must first become comfortable with the data input and report generating aspects before they begin to use the system's more advanced features. The interview with the project leader indicated that she and a number of users were approaching this point in the learning curve.<sup>89</sup> Should the need for sophisticated debt management strategies arise (a possibility since Sri Lanka has gone in for more short-term commercial borrowings in the past two years), it will take little effort to utilize the debt management functions of the CS-DRMS. In fact, all that may be required is the assignment of an officer with the qualifications listed in ¶ 56 of the Evaluation Report. This is, of course, subject to the resolution of the problems still remaining in the CS-DRMS package used in Sri Lanka.

The overall question whether the debt recording functions of the CS-DRMS has been integrated into the relevant administrative structures can be answered affirmatively. The Director of External Resources of the Ministry of Finance stated that when he is asked for information on the total indebtedness of the country by the Prime Minister (as he had been shortly before the interview) he answers based on information provided by the CS-DRMS. With respect to debt data, he is confident that the answer is accurate, plus or minus 1%.<sup>90</sup> Another indication of the integration of the system is the discontinuation of the "Monthly Bulletin of External Debt" formerly manually prepared by the Department of Public Debt of the Central Bank of Sri Lanka.<sup>91</sup> The CS-DRMS has become an indispensable part of the everyday machinery of the Central Bank and the Ministry of Finance.

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<sup>89</sup> Interview, Ms D. de Silva, External Debt Monitoring Unit, 22/08/89, Colombo. The project director, Ms S.L. Kuruppu, was out of the country and unavailable for interview.

<sup>90</sup> Interview, Mr A. Mohamed, Director of External Resources, 22/08/89, Colombo.

<sup>91</sup> Ms S.L. Kuruppu and Ms D. de Silva, External Debt Monitoring Unit, response to questionnaire.

Three user interviews were conducted. Since the number of users is so small, the users will be identified. These users wished to communicate certain information to the project funders and generally responded outside the framework of the sensemaking interview.

Dr P.B. Jayasundara, a senior official at the Central Bank's Economic Research Division, is a regular user of CS-DRMS output. He has statutory responsibility to provide information on the stock of debt at any given time, and the movement of debt. He must report this information to the management of the Central Bank and to the public through designated channels and recommend policies. His source of data is the Department of Public Debt (DPD), another division of the Central Bank, which has the statutory responsibility to monitor debt. Formerly, the DPD recorded debt on a date-of-entry basis that did not correspond to the actual date of disbursement. For example, a loan approved in 1986 but not disbursed until 1988 will be listed as a 1986 debt.

Following the introduction of the CS-DRMS and discontinuation of the manual recording system at the DPD, debt is recorded on a date-of-disbursement basis. This may be more accurate for certain purposes, but is a negative development from Dr Jayasundara's perspective. As a result of this change, the debt stock figures that he reports (among other places, in the Annual Report of the Central Bank), are always floating and provisional. When the debt stock figures for particular years change with every Central Bank Report, the credibility of the statutory reporting system is threatened. The previous system had an error in that the numbers did not reflect money actually coming into the country within a particular year, but the lag could be assumed to be constant across the years, and the debt stock figures could be relied on. They reflected debt liabilities. It is not that the date-of-disbursement system should be scrapped since it serves useful purposes. It is that records should also be maintained on the basis of date-of-entry.

Discrepancies between the two can be studied, and those findings may prove useful too. The system must be utilized to generate more accurate information and to present it better. It should not result in degradation of the quality of information previously generated manually. The system should be restructured to provide high quality information for different purposes. He also had concerns regarding the debt flow data. There were discrepancies arising from the manner in which the rupee depreciation/appreciation is built into the calculation. His concerns had been communicated to an expert from the Commonwealth Secretariat.

Dr Jayasundara reported a high level of responsiveness from the EDMU personnel to his requests for information, within the constraints of the system as set up. Mrs de Silva generates summaries and reports promptly and is willing to experiment and innovate. However, he feels that given the allocation of statutory responsibilities the proper location for the CS-DRMS is the Department of Public Debt in the Central Bank.<sup>92</sup>

Mr A.J.M. Zuhair, Superintendent of Public Debt at the Central Bank, expressed overall satisfaction with the CS-DRMS and stressed that his department was the major user of its output. He raised a question regarding the ability of version 5 of CS-DRMS (that they were expecting) to meet the changed reporting requirements of the World Bank. At present, his Department has to retype some of the CS-DRMS output. The other major concern was regarding dependence on the EDMU. They have been extremely cooperative but he feels that the Department of Public Debt must have the capability to develop new reports, manipulate the data in new ways, and troubleshoot when things go wrong. At present, the DPD is provided the data in computer-readable form periodically and

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<sup>92</sup> Interview, Dr P.B. Jayasundara, Economic Research Division, Central Bank of Sri Lanka, 30/08/89, Colombo.

generates reports inhouse, but must rely on the EDMU for troubleshooting and anything beyond routine output. A training course for DPD employees would be a good idea.<sup>93</sup>

Mr W.M. Hemachandra, Senior Economist, DPD, and Mr H.D.A. Jayasingha, his assistant, were the officers of the DPD who actually use the CS-DRMS software package. They obtain diskettes from the EDMU, normally once a month, but more frequently when IMF/IBRD missions are in the country. A recent interaction with the system was described. In early August 1989, a visiting IMF mission had requested certain data. Mr Hemachandra phoned EDMU immediately since that particular report could not be generated from what was installed on the DPD computer. EDMU indicated that they could not respond promptly since they had some high-priority work and that in any case the computer was in use. He understood that the Treasury got priority over the Central Bank. The diskettes with the desired report were delivered five days later. The report could not be installed by itself and the whole set had to be installed. There was a problem in generating the report and the EDMU had to be consulted on the phone. It takes 36 hours for one run, even though the DPD computer is faster than the EDMU machine. By the time the report was produced the IMF representatives had left.

The CS-DRMS system allows for generation of new information. For example, grant elements and internal rates of return were not calculated before, but are now. There were concerns over the change from the date-of-entry system to the date-of-disbursement system but Mr Hemachandra felt that the present system was more accurate. He is beginning to get requests for projections based on the data. The Economic Research Division recently asked for debt projections to 1998 for use in negotiations with the

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<sup>93</sup> Interview, Mr A.J.M. Zuhair, Superintendent of Public Debt, Central Bank of Sri Lanka, 23/08/89, Colombo.

IMF. He provided the data but there were many variables such as disbursements, repayments, service payments and exchange rates that could yield different scenarios.

Mr Hemachandra's unit (five persons in all) is responsible for estimating all public debt, domestic as well as foreign. CS-DRMS is used only for the foreign debt. dBase is used for estimating local debt. The capability to handle domestic debt has not been developed in CS-DRMS and, in any case, there is concern that processing will be slowed down even further. The DPD has two micro computers, one of which is dedicated to database, spreadsheet, and CS-DRMS applications. It is used to generate weekly treasury-bill information so CS-DRMS does not have priority. The introduction of CS-DRMS has almost eliminated overtime work that used to be a regular occurrence during IMF missions and during preparation of the national budget.<sup>94</sup>

Mr Lal Seneviratne, Additional Director of External Resources, stated that his department is the official agency for negotiating and signing loan agreements. The Central Bank is responsible only for subsequent administrative arrangements. On the question of utilizing CS-DRMS for debt management, Mr Seneviratne pointed out that Sri Lanka's total foreign debt is close to \$ 6 billion, and the debt service ratio is around 30%. This must be seen in relation to the 400% debt service ratios in Latin America. Sixty to 65% of Sri Lanka's debt had been obtained on concessional terms. It is when commercial borrowings form a larger proportion of the total debt that there would be a need for debt management information. Sri Lanka is not involved in rescheduling or restructuring its

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<sup>94</sup> Interview, Mr W.M. Hemachandra, Senior Economist, and Mr H.D.A. Jayasingha, Department of Public Debt, Central Bank of Sri Lanka, 23/08/89, Colombo.



debt. There is no expertise in, or need for, using the currency markets to manage the debt load.<sup>95</sup>

Before a recent trip to Washington D.C. to attend a seminar on debt management and rescheduling, Mr Seneviratne had asked EDMU for a report on the structure of Sri Lanka's debt and was given a 60-70 page report in about two hours. He found the CS-DRMS a valuable facility. Its utility will increase over time as the debt service ratio goes up.

Fourteen potential users were identified by the Sri Lanka CS-DRMS Evaluation mission.<sup>96</sup> This study provides an in-depth view of how the major users at the present time actually use the system and the problems they face. The answer to the question whether CS-DRMS output is being used and with what effect is evident from the information given above. Obviously, its output can be used by more users and more can be made of its output. However, the need for negotiating information does not appear to be as important at the present time as implied in the project documents and appraisals. Use in project monitoring appears to be a stronger need.

In all these cases, there are different assumptions built into the processing and reporting. If the Commonwealth Secretariat has already looked at the bases of different reporting formats, they may be able to respond to the concerns expressed by thoughtful users such as Dr Jayasundara. It also appears that the problem of unacceptably long

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<sup>95</sup> Interview, Mr L. Seneviratne, Additional Director of External Resources, 25/08/89, Colombo.

<sup>96</sup> Evaluation study of the Commonwealth Secretariat Debt Recording and Management System Project: ¶ 82, pp. 36-37.

processing runs, referred to in the Evaluation Report,<sup>97</sup> has not been remedied. The effect of Version 5 on processing time should be monitored and appropriate remedial measures taken.

The question of the appropriate location for the CS-DRMS is essentially a matter to be negotiated between the Treasury and the Central Bank. This is not a "turf war" but a serious and substantive question, evidenced by the personal opinion expressed by the project leader that the Central Bank may be the appropriate location. It would appear that there is a case for having two customized CS-DRMS facilities at the Department of External Resources and at the Department of Public Debt in the Central Bank. The former can emphasize the debt management features and the latter the debt recording features. The willingness expressed by the project leader to train the Public Debt personnel in CS-DRMS suggests a good starting point. It will still be necessary to centralize data input, but there is no reason why data output cannot be completely separated. A dedicated data link between the two institutions, or at least the installation of modems to facilitate daily data transfers, combined with training for Public Debt personnel could eliminate many of the present delays. Given the fact that the Sri Lankan project served as a prototype from which valuable lessons were drawn for other countries, it would seem appropriate that one or both of the funding agencies should encourage further improvement and restructuring by providing some assistance with hardware.

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<sup>97</sup> Evaluation study of the Commonwealth Secretariat Debt Recording and Management System Project: ¶¶ 31-32, p. 12.

## 6.2 NATIONAL POISONS INFORMATION CENTRE (3-P-85-0290)

**6.2.1 Institutional Factors:** The Sri Lanka National Poisons Information Centre (NPIC) was funded as the result of an unsolicited proposal. It was the first of a number of events that started off a major IDRC initiative in the area of poisons information.<sup>98</sup> The total IDRC outlay of C\$ 92,700 was split equally between ISD and Health Sciences, with ISD as the lead division.

The three-year project commenced in August 1986, with the hiring of personnel and their training. This project also experienced difficulties in hiring and then in sending the hired person for foreign training due to government regulations which precluded temporary personnel from being sent for training. The project leader had to make 30-40 trips to the Ministry of Teaching Hospitals to obtain the necessary authorizations.<sup>99</sup> In January 1988, the NPIC formally went into operation with a news conference to inform the medical profession and the general public about the new service. Since then, the NPIC has generally functioned on a 24-hour basis, with calls being handled by Centre personnel during regular hours and by medical officers from the Emergency Treatment Unit of the Outpatient's Department of the Colombo General Hospital outside regular hours. The Centre is located adjacent to the Emergency Treatment Unit.<sup>100</sup> It comes under the administrative authority of the Director of the General Hospital. The salaries of its personnel are paid by the Ministry of Health. The project leader is a

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<sup>98</sup> Interview, Ms F. Delaney, ISD Program Officer, Ottawa, 08/08/89.

<sup>99</sup> Interview, Dr R. Fernando, Senior Lecturer, University of Colombo and Project Leader, 14/08/89, Colombo.

<sup>100</sup> National Poisons Information Centre, General Hospital, Colombo, *Annual Report*, 1988.

faculty member at the University of Colombo and thus belongs to a different ministry. However, he has been given an honorary appointment as Head, NPIC.<sup>101</sup>

The physical location of the NPIC and the position of the project leader appeared somewhat problematic at first glance. The project leader's response to the first question was that physical location was not important in the case of a telephone-based service and that in any case poison victims tended to come through the Outpatient's Department, more than through the Accident Ward, which was the other possible location.<sup>102</sup> The question of the project leader being a non-Health Ministry employee, does not appear to a problem at all at present. Actually, there appear to be some advantages in the present arrangement whereby the formal and informal resources of two ministries are available to the NPIC. It is likely, however, that the present project leader will be succeeded by a physician attached to the General Hospital.

The project leader has been extremely successful in mobilizing outside organizational and financial resources for activities connected to the NPIC. The Pesticides Association of Sri Lanka, a trade organization of pesticide suppliers, has published a booklet written by him on *Management of pesticide poisoning in Sri Lanka*. This book has been distributed free-of-charge to all doctors in the country. The Friedrich-Ebert-Stiftung has funded the preparation of brochures in all three languages, as have individual drug companies such as Mackwoods-Winthrop.

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<sup>101</sup> Interview, Dr R. Fernando, Senior Lecturer, University of Colombo and Project Leader, 14/08/89, Colombo.

<sup>102</sup> Interview, Dr R. Fernando, Senior Lecturer, University of Colombo and Project Leader, 14/08/89, Colombo.

**6.2.2 Utilization:** The project document identified medical and paramedical personnel as its audience.<sup>103</sup> The project leader estimates that there are around 3,000 MBBS doctors, registered medical practitioners, and apothecaries in the country. These users have been informed of the services of NPIC through the inaugural news conference, mailed brochures and telephone stickers, and the booklet. There has been a considerable amount of coverage given by the press and the project leader has contributed an editorial to the *Ceylon Medical Journal*.<sup>104</sup> Though not specifically mentioned in the project proposal, the NPIC has also informed the public of its services. Sri Lanka's telephone directories list the NPIC telephone number in their "Action Line" pages. There have been a number of newspaper articles on the NPIC that included the telephone number.

The NPIC is unique among the Sri Lankan ISD projects in its attention to data gathering and documentation. The project proposal included a baseline study; a knowledge, attitudes and practices survey among medical practitioners; and an ongoing follow-up survey of all enquiries. In addition, an annual report of the Centre's activities in its first year of operation has been prepared. This document provides a surfeit of information on usage. Three hundred and fifty three enquiries had been received in 1988, 305 being telephone calls, 9 written enquiries, and 39 in-person visits. Thirty seven per cent had been on pesticides, with drugs and therapeutic agents accounting for 20%. The enquiries are classified by source (i.e., base hospital, general practitioner) and by geographical area. A majority of the enquiries had come from the large government hospitals and from the Colombo district. Data on circumstances of poisoning, age and sex of victims, and outcome of poisoning are provided. Self-poisoning accounts for 53% of the cases. Forty seven per cent of victims belonged to the 19-40 year age group. Males

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<sup>103</sup> File no. 3-P-85-0290, p. 6.

<sup>104</sup> Poisoning in Sri Lanka (editorial), *Ceylon Medical Journal*, 33, 1988: 39-41.

and females were more or less equally represented. Sixty two per cent of the victims survived.

In-depth interviews were conducted with three doctors. Because of the more or less total shut-down of medical facilities in the Colombo area by the Deshapremi Janata Vyaparaya, the armed opposition group, the selection criteria could not be followed. All three doctors were interviewed in their residences.

The first user was a doctor attached to a general medical ward of the Colombo General Hospital. She was usually the first doctor to examine a patient to be admitted to her ward. She stated that "everyone knows about the Poisons Information Centre." The booklet was available in her ward and the telephone sticker was pasted on a glass cupboard near the phone (but she knew the number by memory since it was the general number for the hospital). This user's first contact with the NPIC had been as a student at the Colombo medical faculty, where she had taken a course from the project leader.

The first user described an interaction with NPIC where a domestic servant had been admitted with a history of inhaling a plant food known as Hyponex. The doctor diagnosed organo-phosphate poisoning from the symptoms, but referred to the green book [the booklet authored by the project leader and published by the Pesticides Association] and phoned the NPIC to get information on Hyponex. The telephone call was made within 5 minutes of admission. Treatment was prescribed on basis of clinical diagnosis and was administered within 10 minutes of admission, but the prompt response from NPIC that Hyponex was not a poison was helpful. Blood from the patient was analyzed at the Department of Community Medicine in the University a day later through an informal arrangement. Original diagnosis was confirmed. The specific antidote for organo-phosphate poisoning was unavailable at the General Hospital and was borrowed from the

NPIC, again informally. If the patient showed signs of strong poisoning the doctor would have wanted management information from NPIC, but in this particular case all she wanted to know were the constituents of the reportedly ingested matter. The patient in question survived. The user was happy with NPIC services.

The second doctor too was a junior physician attached to a general medical ward. She did not know anyone personally at NPIC. Her degree was from the University of Peradeniya. She learnt about NPIC from other medical officers. She had also heard the project leader present a paper on organo-phosphate poisoning at the Sri Lanka Medical Association sessions.

The second doctor recounted her first interaction with the NPIC. Two unconscious prisoners were transferred from the Prisons Hospital to her ward. The doctor there suspected some tablets had been taken but there was no history since the patients were unconscious and there were no bystanders. She treated them symptomatically but was unable to do a stomach wash since the patients were unconscious. She telephoned the NPIC after about eight hours since their condition was deteriorating. In making the call, she identified herself and described the symptoms and her diagnosis. They repeated some questions. She had to speak slowly. It appeared they were writing down what she was saying. In this case, the NPIC said the call would be referred to the project leader. About an hour later the project leader phoned the ward. When the symptoms were described, he said it could be Phenothyzine and that he would come to the ward to take a blood sample. A hour later he arrived and took a blood sample. The previous treatment was continued. The following day, NPIC phoned and said the poison had been identified as a compound of Phenothyzine. There was no special antidote and the previous treatment was continued. The patients died.

The second doctor said that there were 2-3 poison cases in each of the 16 general medical wards on any day. It would be good if a physician who specialized in poisons could come by the ward every day and advise on management. She was under the impression NPIC could do analysis, but later found it did not have a lab of its own. Regarding the phone calls to NPIC, she thought it might be a good idea to tape the calls and take down information later. NPIC usually follows up an enquiry with about two calls. NPIC has provided an important antidote called PAM when it was unavailable elsewhere. It could be source of last resort for antidotes. The NPIC makes a difference. Even in the case where the patients died, she was greatly assisted by them. Without them she could not have given a cause of death.

The third doctor was a specialist in dermatology attached to a teaching hospital in the greater Colombo area. He was a senior physician who was holding office in a medical association. He described himself as a low user. He had the brochure in his consulting room and the NPIC sticker was on his telephone at the hospital. He knew of the first workshop held in connection with NPIC.

The interaction he described involved an unusual case of a patient with a gangrene of the top of the fingers of one hand. The patient recounted a problem with a pesticide sprayer on the day before the symptoms appeared. The patient brought a sample of the pesticide labelled EPA 3,4. The doctor knew nothing about this and phoned NPIC. They wrote down the patient's history. Since he was going by the General Hospital, he said he would visit the NPIC. The woman in charge was very helpful and looked up information in books. There was no mention of side-effects. He spoke to the project leader but they both could not establish a connection between the gangrene and the pesticide. Both doctors are monitoring the patient. The interviewee felt that the NPIC can become a repository of



medical histories. It could gather information on incidences of poisoning and compare medical reports.

Recalling his telephone enquiry from NPIC, the doctor said he had the impression two people were working to provide answers to his questions. The speed of response was good, but could be better. He felt NPIC should primarily cater to peripheral doctors, not to specialists like him.

The interviewee recalled two other instances involving poisons, one before NPIC was established, and one after. In the first case, a large number of patients were admitted to hospital with histories of drinking alcoholic beverages from the same tavern. The medical staff attempted to get a sample analyzed at the Government Analyst's Department, but they were closed for the day. The analysis was done two days later, but in the meantime the symptoms had been treated based on a guess by the House Officer that the poison was methyl alcohol. If prompt analysis was available, more lives could have been saved.

The second case involved employees of a packing materials factory who reported peeling skin, burning eyes, etc. on the same day. He visited the factory and found that a new shipment of solvent was suspected. Since the chemical had been used earlier without any problem, an impurity was probably the cause. The NPIC could not help him identify the impurity through their database. He took samples and gave them to the project leader who informed him he did not have the facilities to analyze them. The CISIR asked for LKR 5,000 (app. C\$ 200) so he had to get it done elsewhere, since neither the company nor the workers were willing to pay. There must be a place where these tests could be done free.

All three users appear to desire more than simple information services from NPIC. They seem to find the structured form of the telephone interview a little irritating, but appear on the whole to be extremely pleased with NPIC. It is clearly of utility to the doctors interviewed. But the overall effectiveness will be known once the promised studies are completed. The overall usage figures are respectable, but could be higher. The project leader had noticed a negative correlation between usage and peaks of violence. If this hypothesis is correct, lower usage in times of turmoil is caused not only by problems with the telephone system but by the postponing or avoiding of enquiries by doctors and other users.

### 6.3 INFORMATION SERVICES - INDUSTRIAL DEVELOPMENT BOARD (3-P-87-0117)

**6.3.1 Institutional Factors:** This is the last major project approved by ISD in Sri Lanka. The financial outlay was C\$ 176,715 over a period of three years. The project officially commenced in January 1988 but due partly to the original project leader's departure from the Industrial Development Board (IDB) and partly to a major reorganization within the host institution, the project has not really gotten off the ground. The present project director and leader state that work commenced on 10/05/89, but most of the work appears to lie ahead.

The project has been affected by a number of factors. From its inception the Industrial Development Board was responsible to the Minister of Industries. In the 1986-87 period, when the project was being formulated and approved, a major shift occurred with its transfer to the Ministry of Rural Industrial Development headed by Mr S. Thondaman, the powerful leader of Sri Lanka's plantation workers and of Sri Lankan Tamils of recent Indian origin. The transition was rather smooth but it may be assumed that some fundamental realignments would occur when the emphasis is moved away from

industries as such to rural industrial development. This shift was compounded by the inclusion of the subject of industrial extension work, especially pertaining to small and medium sized industries, in the list of powers jointly exercised by the central and provincial governments in the constitutional changes following the Indo-Sri Lanka Accord of July 1987. The effect of devolution on the IDB is strong because Minister Thondaman is committed to decentralization of power more than most other ministers, partly because of his political position and partly because his political constituency is concentrated in the Central Province where his political party has a significant presence in the Provincial Council. The impression given by the meeting at the IDB was that the ramifications of these structural changes are yet in the process of being worked out. The IDB Information Services project is the only ISD-funded Sri Lankan project to be so strongly affected by political factors.

The IDB has launched a major new initiative called CITIS [Centre for Industrial Technology Information Services] apparently with a very broad mandate that includes information services as well as testing, certification, assistance in preparation of project proposals, etc. The Cabinet Paper on CITIS sets out the following broad objectives:

1. Promotion of linkages between industrial development and scientific organizations promoting industry.
2. Networking with other organizations concerned especially with small industry.
3. Collaboration with information resource centres in order to assist IDB to acquire information on medium technology.
4. Selecting suitable medium technology for dissemination within Sri Lanka.
5. To determine mechanisms for smooth and speedy technological transfer.<sup>105</sup>

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<sup>105</sup> Interview, Mr N. Senanayake, Director, CITIS / Project Director; Ms Wickramasinghe, Acting Director - Industrial Information; and Ms S.M. Tennakoon, Librarian, Information Division; 17/08/89, Colombo.

The shifting of the Industrial Information Division of the IDB from the Katubedda location where the Head Office is located to Wellawatta (more than a half-hour's drive away) appears to be connected to the establishment of CITIS, though the benefits of physical separation of information activities from the other activities of the IDB are not immediately apparent. The move has contributed to delays in the project. For example, certain computer facilities that were used by the Industrial Information Division, but were not formally purchased through its budget, have not been released by the divisions that formally own them. The IID has had to look for additional funds to purchase these systems. The original proposal was prepared and approved on the assumption that Ms I. Unamboowe, a highly respected senior information professional, would be its project leader. Ms Unamboowe's departure from the IDB has had a major impact on the project.

The IDB Information Services project appears to require a thorough reevaluation. It appears that the original proposal will have to be modified in light of the major changes affecting the host institution. The consultants were asked about changes to the hardware configuration in the proposal. It appears that the proper response is a detailed reevaluation of the whole project by ISD's regional programme officer and the current project managers, including an examination of the possibilities of coordinating with SLSTIC's proposed technology information network. In light of this recommendation, there is no need for a detailed discussion of products, audiences, or usage.

In conclusion, it must be emphasized that industrial extension appears to be a government priority (see references above to the Public Investment Programme 1988-92 and the Industrial Policy Statement). Continued central government control over the head-office functions of the IDB with the regional offices passing under the control of the respective provincial councils offers an extraordinary opportunity for the ISD to establish working relations with non-central government entities in Sri Lanka.

## 7.0 CONCLUSIONS

### 7.1 HAS ISD MADE A DIFFERENCE?

7.1.1 **Context:** ISD's impact on Sri Lanka's development may be assessed at a number of different levels. ISD's total investments in Sri Lanka amount to C\$ 1,411,156 disbursed for projects and DAPs, a further unknown sum expended on fellowships and training, and expenditures associated with project development, approval and monitoring, including the costs of this study. Since some of the projects such as DEVINSA, CIC, and CS-DRMS served constituencies outside Sri Lanka a portion of the total project outlays may be subtracted. Assuming that these two unknown amounts more or less cancel each other out, we may round out ISD's total investment in Sri Lanka at C\$ 1.5 million over a period of approximately 10 years, giving an average annual expenditure of C\$ 150,000 or LKR 3.8 million, spread over a number of projects.<sup>106</sup> This must be placed in perspective. The annual average ISD outlay in Sri Lanka is just over three times as large as the 1986 books and periodicals budget of the country's leading scientific and technical information library, the CISIR library;<sup>107</sup> 7.7% of the average annual foreign component of one ongoing project to improve the research infrastructure in agricultural research institutes;<sup>108</sup> and 1.2% of the average annual foreign contribution to the Medium Term Investment Program-State (MTIP) to improve produc-

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106 Conversion LKR 25 = C\$ 1.

107 Samarajiva (1987: 11).

108 Agricultural research project, 1986-1991. Total expenditure of LKR 791 million, made up of an LKR 592 million foreign component and an LKR 199 million local component--1988-92 PIP, p. 167.

tivity of tree crops (tea, rubber and coconut), strengthen the management and financial controls of the corporations, and improve the health and welfare of plantation workers.<sup>109</sup> At a national, or even a sectoral level, ISD's investment is very small in relation to other ongoing investments. The search for national level impact and contribution to development must be conditioned by this understanding.

*7.1.1.1 The Example of Coconut Information:* The difficulties of assessing the contribution of ISD activities to development may be illustrated in relation to the Coconut Information Centre, ISD's first and largest project. In terms of results that can be perceived by visiting the site and talking to users, it is also one of the most successful projects. An investment of C\$ 264,460, supplemented by a local contribution of C\$ 65,935 and some additional training funds, has yielded an information centre recognized by the relevant regional organization as a useful service,<sup>110</sup> and as a model STI centre by the local STI community. The Centre appears well run, morale is high, and usage is satisfactory in quantitative and qualitative terms. The question is, was this an adequate return for C\$ 264,460 plus? It is clear from the theoretical issues raised by Machlup (1983) and Flowerdew and Whitehead (1983), and the finding of the user interviews that users of STI do not relate value of information services to frequency or duration of interactions with STI systems, that one cannot answer this question by calculating the cost per library visit, search, or whatever.

It appears that evidence of impact must be sought in a frame that is bigger than the information system itself. Given adequate resources, it is possible to design a study that

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<sup>109</sup> 1988-92 PIP, p. 169.

<sup>110</sup> Recommendations, APCC meeting of Information Specialists, Jakarta, 14-16 August 1989, pp. 4-5.

examines the correlation between investment in STI and research productivity at an institution like the Coconut Research Institute (CRI). This would require special attention to the question of determining the direction of causality of the relation between STI and research productivity. Even if this study were done for the CRI, the question as to the contribution the investment in STI had made to development would still remain. It is possible for excellent research, inefficient coconut plantations, and poor plantation workers to co-exist. What is the impact ISD investments have had on the coconut industry and on the lives of plantation workers in the past decade? Data is available on the performance of the coconut industry, though not of impact on the life conditions of plantation workers.

2.18 . . . The performance of the coconut sub sector is even more disappointing. The production of coconut has exceeded 3000 million nuts, a figure achieved in the mid 1960s, only once since then. The 1987 production of 2300 million nuts was severely affected by drought.

2.19 Some of the reasons for the stagnant or declining output in the tree crops sector are due to external factors such as declining profitability due to low commodity prices, but some are clearly attributable to domestic factors. . . .

2.22 . . . In coconut, the current average yields are in the region of 4900 nuts per hectare whereas there is potential to achieve yields of 7400 nuts per hectare. . . .

2.37 The total production of coconut in 1987 is estimated to be around 2300 million nuts which represents a 25% decline from the output of 3040 million nuts achieved in 1986. . . . 111

The coconut industry seems to be in bad shape despite the existence and good performance of the CIC. One may infer from the data on industry performance that the conditions of the plantation workers and smallholders (the ultimate beneficiaries) have not improved over the relevant period. The general contribution made to the country as a whole

through employment creation, budgetary contributions, etc. may also be assumed to have stayed constant or declined.

The above discussion does not suggest that the investments in the CIC were counterproductive or wasteful. What is shown is the difficulty of establishing direct causal links between information and development. So many other factors such as declining prices in the world market, changes in land ownership and management, drought, fertilizer pricing policies (all applicable to the Sri Lankan coconut industry in the relevant period) are at work, that whatever effect information has is washed out by these larger processes. The complex and multi-step process whereby coconut information contributes to coconut industry productivity also militates against the establishment of causal connections.

**7.1.2 Individual Projects:** Given the intractability of the cost-effectiveness question, it may be wise to concentrate on the manageable indicators of effectiveness such as whether the project has produced the promised output in the promised time frame, whether there are users, and whether the users are satisfied. On these counts, most of the ISD-funded projects appear successful. There appear to be serious, but remediable, problems with the Information Services project at the Industrial Development Board and the MAARIS project at the National Aquatic Research Agency. The DEVINSA project may be put in the same category if assessed as a national project, but the project document suggests that it was primarily intended to serve the information needs of the Committee for Studies for Cooperation in Development in South Asia (CSCD). Thus, its success or failure cannot fairly be judged on the criteria applicable to a national project. Only some of the output of the Debt Recording and Management System (CS-DRMS) project appears to be utilized, which may exclude it from the successful category. But, again, it may well be that Sri Lanka does not require those particular fea-



tures at the present time. If the management functions are excluded, CS-DRMS can easily be classified as a successful project. The DAP on Technological and Institutional Choices for the Sri Lankan STI System, carried out by the first consultant in 1987 appears to have been only partly successful in terms of yielding major STI policy decisions, though successful in narrow terms in that the promised output was produced on time and a number of conference papers and publications (e.g., Samarajiva 1988a; 1988b; 1989) have come out of the study. The National AGRIS Centre project appears successful in terms of strengthening the Central Library of the Department of Agriculture and providing input to AGRIS. However, the offline AGRIS searches extolled in the PCR as a key service provided by the project appear to be slowly dying. The outreach program appears to be dying with it. This project suffers from serious sustainability problems, at least from the Sri Lankan usage aspect. It is too early to judge the success of the DAPs on UNILIST conversion and the survey of hydrogeological and hydrology data centres. The other projects appear to be successful.

**7.1.3 Synergistic Effects:** Synergistic effects are necessarily more difficult to establish. However, the intuition that having nine major projects and six DAPs in a small country would have synergistic effects appears correct. The role played by the three DAPs funded at SLSTIC in establishing both a de facto library micro computer standard and an internal momentum for mini/micro CDS/ISIS training exemplifies the synergistic effects that well placed seed money can have. However, it must be noted that this particular outcome does not appear to have been in anyone's calculations at the beginning. The role played by the CIC as a model CDS/ISIS library and the initiatives of librarians who had been trained with IDRC funds are further evidence of synergistic effects.

Synergistic effects may also be seen in the creation and maintenance of AGRINET as one of the most active subnetworks within SLSTINET. ISD funding to the CIC and the Central Library of the Department of Agriculture strengthened the two libraries as well as the network as a whole. These two libraries and the library of the Post-Graduate Institute for Agriculture (PGIA), funded by USAID, anchor the AGRINET network. The PGIA library is now headed by a librarian who received her MLS under an IDRC fellowship. They were the most active in terms of interlibrary loans and were the principal suppliers of documents within the network in 1987.<sup>112</sup> The synergistic effect would have been even more obvious if coordination of AGRINET had been taken over by the Central Library of the Department of Agriculture as was expected in 1988-87.

The utilization of ISD funded personnel by different projects may also be described as a synergistic effect. The CDS/ISIS expert trained as part of DEVINSA has been called upon by SLSTIC and MAARIS. There may be other unrecorded cross-over effects, not all positive. The hiring away of a Marga documentalist (it was not confirmed whether this person was involved with DEVINSA) by MAARIS suggests that ISD projects may exacerbate personnel retention problems. Given the complaints voiced by a number of project leaders regarding the hiring and retention of personnel, it may be advisable for the UNISIST Committee of NARESA to investigate the problem and implement remedial policies. ISD may wish to assist NARESA if such an initiative is taken, or to build in some safeguards in future projects. It is the first consultant's opinion that utilization of national languages in information work as done in Thailand and other countries will alleviate, if not solve, the personnel problem which is really not a shortage of information workers, but a shortage of information workers capable of working in English.

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<sup>112</sup> Research by first consultant that was not included in Samarajiva (1987).

The second consultant wishes to note that synergies broader than the individual projects have emerged from the IDRC projects on relatively minimal investment which has included, specially in the training components and the DAPS, low cost high value effects. These have been realized with hardly any resident advisory inputs. The most valuable synergistic effect is the general improvement in information processing abilities and more especially in attitudinal changes towards "information for development." In this respect, the IDRC projects though less spectacular than mega-funded projects of other agencies have assumed a high visibility in the country's thrust towards better information flow for use in development. IDRC has, very definitely, acted as a catalyst to create a higher level capability in information processing and technology. This judgement, necessarily subjective, is nonetheless backstopped by ten years of work in large intergovernmental agencies, notably UNDP and UNESCO, where the budgets bulge at the seams with provision for expatriate expertise. The second consultant is in a position to assess that the returns from IDRC's mini-investment are quite high on a rough dollar for dollar cost-benefit.

Synergistic effects imply communication linkages between individual projects; that they constitute, or belong to, a system at least in a loose sense. With the exception of CS-DRMS and, to a certain extent, the National Poisons Information Centre (NPIC), ISD's Sri Lankan projects belong to the system known as SLSTINET. The agricultural projects, the single most important focus of ISD investment, belong to AGRINET within SLSTINET. Thus, the media for synergistic effects are these networks. It may be useful for ISD to make some investments in the networks themselves and/or build in network-supportive components to future projects. The networking need not necessarily be limited to information interchange, inter-library loaning and other typical activities of networking such as union catalogues, etc. It is possible to gradually build up the networks to a stage where they can function organically and produce a new synthesis of perceptions more

adaptable to problem solution than the present modes. This will raise networking to a new level of dynamic integration of information systems.

The above approach is given powerful support by general systems theory and cybernetics. Stafford Beer, a lineal intellectual descendent of Norbert Wiener, the founder of cybernetics, made the following points in an address to the US House of Representatives

Committee on Science and Astronautics on 27/1/70:

1. All Systems, whether metallic, biological or social, obey natural laws governing the behaviour of large interactive systems. An economy consisting of sectors is such a system.
2. The structure of these systematic wholes includes the movement of information by way of negative or positive feedback loops, which inform the system to adapt and make it stable.
3. Large Systems are composed of sub-systems. (In cybernetics, the large system is a metasytem). These sub-systems may themselves be stable but in their relation to the larger metasytem they cause high instability. The greater the stability of sub-systems, the higher the degree of oscillation and instability of the governing metasytem. The inducement of quiescence in the metasytem is achieved by changes within the sub-systems and their interactive behaviour with the metasytem (Beer 1975).

The entire address related to the role of information in the dynamic governance of a metasytem. Beer said: "Outcomes are latent in the dynamic structure of systems we have or may adopt; they will inexorably emerge." He also quotes Dennis Gabor (professor of Electron Physics at the Imperial College of Science, UK) as saying that "we must invent the future; if we do not, the future will happen to us. And we will not like it."

Some relevant considerations for information as referred to in the above address have been referred to by the second consultant in a study on DEVSIS.<sup>113</sup> This perception remains true today and now appears to be more urgently necessary for application by

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<sup>113</sup> L.N.T. Mendis, Observations on DEVSIS ,IDRC O65e, cited by W.O. Aiyepoku, International socio-economic systems, IDRC TS43e, (Ottawa: IDRC, 1983): 12.

information science because of the observable heightening of restiveness and instability in the Third World, not excluding Sri Lanka. A funding agency seeking to be of genuine assistance in the information arena has no option but to move forward in a new dimension towards more effective networking of STI information units, thereby aiming at higher levels of interaction and better outcomes in decision making.

**7.1.4 Summary:** ISD's activities in Sri Lanka have had an impact. Direct, measurable impact on development is hard to demonstrate. This is partly because of the elusiveness of the concept of development, partly because of the indirect and complex links between information and development howsoever defined, and partly because of the relative smallness of ISD's intervention. These difficulties are not unique to information, but are perhaps exacerbated by its intangible nature. Increased food crops may actually widen income differentials and thus increase human unhappiness, but an outside observer is easily mollified by figures of increased food production. Increased access to good information does not have this appeal to common sense judgement. Yet, the literature does see benefits, however qualified, flowing from better provision of information; there appears to be a demand for information; the ISD is good at helping people get access to good information; and there are not too many other organizations giving that specialized help. These seem reasons enough to continue with information activities.

Can the provision of information be done better than has been done in the projects so far? Yes, but these projects have not done too badly either. The Coconut Information Centre, the National Poisons Information Centre, WASSDOC, and the mini/micro CDS/ISIS DAPs have set out to achieve very specific objectives in specialized information fields and they have succeeded. There have been some delays and shortcomings, and like any other human endeavour they all have room for improvement. But on the whole, these projects have been very successful.

The National AGRIS Centre, the Debt Recording and Management System, DEVINSA, and the Technological and Institutional Choices DAP have achieved major objectives, but have some significant shortcomings as seen from the 20/20 hindsight of today. The shortcomings are defensible. Were not the principal objectives of the AGRIS project, the input of national data to the AGRIS system and the organization of the Department of Agriculture library achieved, despite the unsustainability of other very attractive features of the project? Perhaps Sri Lanka does not yet need a sophisticated debt management software package. DEVINSA's failure to serve outside researchers does not seem a true failure in the context of the original project design that sought only to serve a specialized set of researchers in a limited number of institutions.

MAARIS and the IDB Information Services projects require attention by the regional program officers and by the project managers. The problems appear remediable and in both cases appear to have been caused principally by external causes, though the breadth of the project objectives may have contributed to the difficulties. It is too early to judge the DAPs on UNILIST conversion and hydrogeology data centres.

Has there been an impact bigger than the sum of the individual projects? Yes. The impact in the area of library standardization with regard to mini/micro CDS/ISIS provides the best illustration. ISD may also take some of the credit for the generally high level of activity in AGRINET, the network serving the sector of the Sri Lankan economy that has received the bulk of ISD's investment. The linkages between all the projects, except CS-DRMS and the Poisons project are strong, and it is possible that there are some other synergistic effects in the SLSTINET system that are not documented here.

## 7.2 ISD'S FUTURE PRIORITIES IN SRI LANKA

There are three principal approaches to the identification of ISD's future priorities in a country. The first is to identify the country's information priorities and their overlap with ISD's areas of competence. The second approach is to ask some wise men or women to identify that country's information priorities and again see where there is overlap between them and ISD's areas of competence. This approach becomes relevant if there is no empirical method by which the country's information priorities can be identified. The third approach is to extrapolate from previous experience in the country. The first two approaches are deductive, moving from macro-level social priorities to micro-level project priorities. The third approach is inductive, systematizing and building upon previous experience.

The second consultant attempted to follow the first approach. His interviews with Planning Ministry officials and the first consultant's analysis of government policy documents yielded the conclusion that the central government does not have formal information priorities. The documentary research suggests certain areas such as science and technology policy, and agricultural and industrial extension, but they are defined very broadly. Attempts to enter at mid-level by identifying the priorities set by science policy or by STI policy also proved rather fruitless. In any case, the STI policy frame would have pre-judged the question since non-STI information projects such as CS-DRMS and NPIC would be excluded. Another weakness of these government-centred approaches is that they assume that the central government, and particularly its bureaucracy, speaks for the country as a whole. This is a strong assumption in the best of times. In present-day Sri Lanka, a society in the midst of a serious political crisis and at the point of transition from an extremely centralized form of government to a federal

form, the assumption becomes nothing short of heroic. There is no easy answer to Carl Sandburg's question:

Who shall speak for the people?  
Who has the answers?  
Where is the sure interpreter?  
Who knows what to say? (*The People, Yes*)

The second approach could not be used since it appeared to be outside the terms of reference. In any case, there were no oracles handy.

That left the option of approach three, blending in whatever insights gained in the unsuccessful pursuit of the first option. The third approach has a built-in bias. It is an incremental approach that maintains continuity with past actions. Thus, there is a bias against entirely new areas of action.

There are a number of components to this approach. The most important is identification of the strengths of past projects and the areas that need further consolidation. This flows from the assessment of projects. Another is examination of ISD's present and potential client groups in Sri Lanka. This is important because ISD's funding process is triggered by an application for funding from a Third World Institution. Another component is identification of ISD's areas of competence. Given the pervasiveness of information in all social processes, ISD may theoretically fund anything. However, being a prudent organization that is subject to a number of constraints, it is assumed that ISD will limit its projects to its areas of competence. Finally, there is the match with institutional opportunities and national priorities.

**7.2.1 Strengths of Previous Activities:** What can be extrapolated from the experience of ten years of ISD activity in Sri Lanka; from nine projects and six



DAPs? A large proportion of ISD funds (88%) were invested in institutions belonging to SLSTINET. Given the existing evidence of, and even greater potential for, synergistic effects and the relatively small amounts disbursed by ISD, it may be advisable to keep investing in key institutions belonging to SLSTINET. The large payoff from the small investments made in the CDS/ISIS training workshops indicates that ISD may get "more bang for its buck" by paying more attention to the STI networks. If synergistic effects are desired, it may be better to fund projects designed to enhance the effectiveness of SLSTINET and/or its subnetworks or projects beneficial to all the members of the network such as personnel retention and improvement activities, standardization initiatives, and national-language information processing techniques, rather than invest in isolated projects that do not have established linkages. Obviously, giving priority to SLSTINET projects does not preclude exploitation of opportunities such as the poisons information centre proposal. There will always have to be flexibility to accommodate innovative projects and new areas. But that is different from assigning priority to such projects.

Within the set of SLSTINET-related projects, 46% of funds have gone to agricultural projects (41% of total disbursements). Starting with the Coconut Information Centre in 1978, ISD has spent C\$ 574,050 on agricultural information in Sri Lanka. ISD has been responsible for the strengthening of two of the anchor institutes of AGRINET, the Coconut Information Centre and the Central Library of the Department of Agriculture-National AGRIS Centre.

The basic principle underlying the CIC, the National AGRIS Centre, and WASSDOC is the systematization of information that is essentially not generated in the developed West, but is of significant value within Sri Lanka. In the first two cases, supply of this information to the outside world was also an objective. It may be that this is an area of

strength. The systematization of locally important, locally generated information may be chosen as a theme for ISD's future work in Sri Lanka. The expertise developed in the past and current projects, enhanced perhaps with national language information storage and retrieval capabilities, may be fruitfully and cost-effectively applied to new areas such as indigenous medicine, land use planning, environment, etc.

The National Poisons Information Centre has opened up a new area of information work in Sri Lanka. It may be possible to extend the notion of supplying useful information over technological systems to large numbers of people. One can think of a whole series of information hotlines covering subjects such as consumer information, referral services, and perhaps even crisis lines. Given the low telephone penetration rate, it will be necessary to design non-telephonic systems or telephonic systems that primarily cater to intermediaries, as the NPIC does.

**7.2.2 ISD's Clientele In Sri Lanka:** Examination of ISD's activities in Sri Lanka in the past decade clearly shows that the library/information science community constitutes ISD's primary clientele. Only two projects coming from outside this group have been approved.<sup>114</sup> In the case of the CS-DRMS, the initiative came from the Commonwealth Secretariat. The fact that no other projects have been forwarded from the finance and planning community in the years following ISD's involvement in CS-DRMS suggests that this group of potential clients does not yet see ISD as a natural source of assistance. The NPIC proposal appears to have been directed to IDRC without any prior contact or knowledge on the part of the project leader following a negative response from WHO's New Delhi office and on the strength of a suggestion of an officer

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<sup>114</sup> Data on rejected proposals would be relevant to the question of identifying ISD's present clientele and groups that are becoming aware of ISD's work and thus have the potential of becoming future clients.

from the Department of External Resources.<sup>115</sup> Whether or not ISD is now seen as a potential funding source by the health community remains to be seen. The submission of a proposal related to HELLIS in 1989 does not, by itself, indicate an increased awareness in the health community since HELLIS members are active members of SLSTINET who see themselves as librarians more than as health workers.

Within the STI community that constitutes the primary client group, ISD appears to have the best contacts with key library and other officials in the agricultural information sector, of whom many have attended meetings under ISD sponsorship and some have received graduate training through IDRC grants.

Identifying the present state of, and future trends with regard to, ISD's clientele has an important bearing on the question of ISD's future priorities in Sri Lanka. Unless there are people who are aware of ISD's mission and resources in the areas that ISD wishes to move into, ISD will not get project proposals from those areas. If proposals are not received, the whole question of a shift in focus becomes moot.

At the present time ISD appears to have an established client group in the STI community. The possibilities of opening up new client groups in the finance/planning/administration, health, and computer/communication communities exist. The latter, evidenced by the interest displayed by the Chairman of the Computer and Information Technology Council (CINTEC),<sup>116</sup> is partly a result of CDS/ISIS activity. In all these areas, ISD will have to make a concerted effort to make itself known before proposals are generated.

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<sup>115</sup> Interview, Dr R. Fernando, 14/08/89, Colombo.

<sup>116</sup> Interview, Professor V.K. Samaranayake, Chairman, CINTEC, 21/08/89, Colombo.

**7.2.3 ISD's Areas of Competence:** The mission statements and organizational structure of the ISD give a broad idea of ISD's areas of competence. However, the sense conveyed by the Ottawa staff that there was a shift of, or at least a debate on, priorities suggested a need for further investigation. The abstracts of the projects funded by ISD in 1988-89 were analyzed to identify the intended primary and secondary audiences, and the frequency of subjects listed in the project descriptions was calculated.

The former analysis, admittedly a rough and ready one, was done to see whether there was a shift away from support to libraries or information centres, to extension or public-library-type activities, both of which require different types of expertise.

**Table 3: Audiences Served by ISD's 1988-89 Projects**

	Primary Audience	%	Secondary Audience*	%
Info. Workers	40/55	72.7	10/60	16.7
Educated Intermediaries	15/55	27.3	40/60	66.6
Non-elite end-users	00/55	0	10/60	16.7

\* Five projects appeared to have two sets of secondary audiences.

Source: IS Projects Appropriated in FY 88/89, computer printout generated on 05/05/89.

The findings may be taken only as suggestive given the crudity of the analysis. They suggest that ISD's broad area of competence is still library/information science. That a significant number of projects appear to cater to educated intermediaries as a primary audience, and a majority have educated intermediaries as their secondary audience, is suggestive of an ongoing movement towards extension-type activity. Stronger conclu-

sions may be drawn by identifying audiences more precisely, and by looking at changes over time.

Table 4 shows data generated by analyzing the frequency of subject descriptors in project abstracts for 1988-89. The subject descriptors were taken as relatively objective indicators of ISD expertise. The 55 project abstracts contained a total of 149 descriptors.

**Table 4: Most Frequent Subject Descriptors (Top 20)**

Descriptor	Frequency	As Percentage of Total Projects (55)
Information services	17	30.9
Information systems	9	16.4
Information dissemination	9	16.4
Data bases	9	16.4
Institution building	7	12.7
Research capacity	6	10.9
Systems design	5	9.1
Industrial information	5	9.1
Information networks	5	9.1
Information exchange	5	9.1
Automation	3	5.5
Information needs	3	5.5
Documentation	3	5.5
Resources management	3	5.5
Technical cooperation	3	5.5
Agricultural extension	3	5.5
Organization of research	3	5.5
Training	3	5.5
Training courses	3	5.5
Training assistance	3	5.5

Source: IS Projects Appropriated in FY 88/89, computer printout generated on 05/05/89.

Again, the analysis is too crude to yield answers that are more than suggestive. The top four descriptors suggest a strong emphasis on conventional library/information science. The fields of information that appear are those of industry (industrial information, 9.1% of projects), agriculture (agricultural extension, 5.5%), and resources management (5.5%). These are the only three categories, and perhaps the category of in-

formation needs, that suggest a reach beyond formal library-type information systems. Again, it is possible that a larger set of abstracts, perhaps analyzed over a number of years, may yield stronger findings. However, it is vital to substantiate the assumption that the subject descriptors are more or less objective indicators of project foci.

**7.2.4 Planning Ministry Priorities:** The priorities indicated by Planning Ministry officials, both from discussions with the second consultant and from documentation can be summed up as:

1. Physical infrastructure development.
2. Social infrastructure advancement in health, education and housing.
3. Studies in employment structure.
4. Special attention to environment.
5. Furtherance of agriculture, food and nutrition strategy.

Of these, item 1 is mega-funded by the IBRD. Information centres under Item 2 exist, except in low cost housing, which is a possible candidate for ISD consideration. Item 3 is not an appropriate intervention for IDRC. The Planning Ministry and Central Bank should have capacity for this exercise. Therefore, Items 4 and 5, Environment and Food and Nutrition, respectively, remain for IDRC consideration.

The second consultant has identified a number of new points of entry, based on the principle that the information nodes set up and material carried would retain their utility despite serious oscillations in government policies. These are:

1. Environment

2. Social overheads--health,<sup>117</sup> education,<sup>118</sup> and low-cost housing.<sup>119</sup>
3. Nutrition policy
4. Centre for Development Information in association with the Institute of Policy Studies.<sup>120</sup>

In all of these, a backdrop of internationally accepted data, techniques and standards is vital. Within the time horizon of the next 3-4 years, these are the fields where, with linkages to institutions already funded, maximum impact on socio-economic development can be achieved through information assistance.

**7.2.4.1 Environmental Information.** It must be noted that the environment, by definition, is multidisciplinary and organically relates to the following project areas, *already funded by IDRC* namely, CIC (mixed farming under coconut and biological control of pests), AGRIS (the pollution of soil/streams by pesticides and fertilizer), NPIC (popular poisons are man-killing and nature-killing), MAARIS (pollution of mangrove swamps and estuaries and reduction of marine biomasses), WASSDOC (rural water supply and pollution of traditional water supply sources), and CITIS/IDB (industrial air pollution). These constitute five out of the nine ISD-funded projects which can feed information to, and network with, a Central Environmental Information Unit (CEIU). This may require only participatory funding by IDRC, as other international agencies, apart from the UNEP [United Nations Environmental Program], have shown interest.

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117 Health is included because there is a project in the IDRC pipeline.

118 No specific information requirements under education have been identified.

119 Low cost housing falls well within the approved government policy of inducing self-reliance and self-employment--the Janasaviya or Poverty Alleviation Programme (PAP).

120 This is specifically supported by Secretary, Policy Planning & Implementation, who has commissioned a special Project Study on CDI.

The other areas of networking for the CEIU are indicated in Annexure V. More can be added.

**7.2.5 Institutional Opportunities:** Government priorities will be subsumed under this heading. The primary areas of institutional opportunity discernible at the present time are agricultural research information, industrial extension, science and technology policy, environmental information, development information for planning and policy, and the Janasaviya program.

Agriculture is a key sector of the Sri Lankan economy.

Agriculture still contributes approximately 28% to Gross Domestic Product and makes up 60% of total export earnings. It generates 15% of government revenue and provides employment for about 45% of the labour force.<sup>121</sup>

Agriculture is an area that has priority in the eyes of the government, as evidenced by the Action Plan and the 1988-92 PIP. But the primary reason for selecting agricultural research as the most important institutional opportunity is the establishment of the Council on Agricultural Research Policy (CARP). CARP has been established to coordinate agricultural research. It would be natural to extend that to agricultural research information. CARP can overcome the fragmented nature of the Sri Lankan agricultural information system that precluded a strong administrative structure for AGRINET. With its resources, CARP can even establish STI funding outside the separate administrative hierarchies, parallel to its nascent research grant scheme.

If CARP can do all these things, why should ISD get involved? The problem is that CARP does not have information at the top of its agenda. Seed money from ISD and

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121 1988-92 PIP, ¶ 2.01, p. 37.



"consciousness raising" on the part of the active members of AGRINET may be necessary to elevate agricultural information on CARP's agenda.

The agricultural sector offers additional advantages. There are a number of major non-information projects underway in the agriculture sector such as the Medium Term Investment Programmes for the State Plantations and the Small-holder Sector.<sup>122</sup> Information programs that are operated in conjunction with other measures to increase productivity or living standards have a better chance of yielding results, according to the literature. There is, of course, the question whether these other interventions are positive or negative in true developmental impact, but that can only be answered in relation to specific situations and specific programs.

The creation of CITIS [Centre for Industrial Technology Information Services], and the various references in the cited policy documents, appear to indicate an institutional opportunity in industrial extension. At the present time, there is inadequate information on CITIS, its structure, and its relations with other information agencies, but this appears to be worth following, especially in light of the need to modify and proceed with the IDB project.

The excellent relations ISD enjoys with NARESA/SLSTIC, the establishment of a Ministry of Science and Technology headed by the Minister in charge of Higher Education, and the apparently high priority given to science and technology policy in the President's Action Plan point to science and technology policy as another institutional opportunity. The new allocation of ministerial responsibility that for the first time brings most of the key science and technology institutions under one ministry offers an opportunity similar to

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<sup>122</sup> 1988-92 PIP, ¶7.18, p. 120.

that offered by CARP. However, the political crisis enveloping the present government and the ephemeral nature of ministerial responsibilities in present-day Sri Lanka make this a risky opportunity.

Environmental information has been identified as a promising area for entry by Planning Ministry officials. It is a multidisciplinary subject that has natural connections with a number of projects already funded by the ISD in Sri Lanka. The present administration appears to place high value on the environment as indicated by environmental impact being listed as one of ten general criteria/objectives set out for all ministries in the Action Plan.<sup>123</sup> The Ministry of Policy Planning and Implementation (a presidential portfolio) is enjoined to take a range of environmental actions (12 out of a total of 25).<sup>124</sup> The facts that the Central Environmental Authority was under President Premadasa's ministry during the previous administration, and the extremely influential position occupied in the present administration by Mr K.H.J. Wijayadasa, the then head of the Central Environmental Authority, may have some bearing on the present high profile of the environment.

The recent establishment of the Institute of Policy Studies and the experience gained from the Centre for Development Information offer another significant institutional opportunity. Planning information, if properly used, can have a tremendous impact on the entire development process.

The last institutional opportunity is highly political. The present President came to power on a platform that included a promise to invest relatively large sums of money

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123 Action Plan: 6.

124 Action Plan: 8-9.

(approximately C\$ 1,000 per family) in selected families from the poorest sections of society in the hope of making them self-supporting, productive economic units within two years. This is a controversial proposal, both in terms of its break from the conventional notion of welfare and in terms of its inflationary impact. This program, known as Janasaviya [strength of the people], is the centrepiece of the President's political and economic program. This may offer opportunities for getting development information to the poorest of the poor. But again, the risks are very high.

### 7.3 RECOMMENDATIONS

In light of the complexity of the considered issues and the difficulties experienced in coordinating the views of the two consultants across two oceans, the recommendations are given in the form of options. The two consultants are in agreement on the need to strengthen networking. It is emphasized that the options given below are not mutually exclusive, cast-iron alternatives, though ISD will have to make choices in light of limited resources.

R1.0 If ISD wishes to optimize its investments by consciously seeking to achieve synergistic effects as well as direct effects; and if ISD wishes to build on its central areas of competence and on the present client base in Sri Lanka: It is recommended that funding be concentrated within the SLSTINET system. The second consultant fully associates himself with this recommendation to concentrate networking under SLSTINET. This recommendation does not conflict with the idea of setting up a CEIU, because such a unit falls squarely within STI concerns and could easily network under SLSTINET. But first the threads of inter-disciplinary connection to Environment must be catered for. Similarly, all the areas

of focus for IDRC attention noted in 7.2.4 above fall four square within SLSTINET.

R1.1 More specifically, priority should be given to network strengthening activities such as improved communication between STI libraries (Lynch and Brownrigg 1986; Oeffinger 1987), effective document delivery systems (Agha 1987; Samaha 1987), sharing of computer and other resources, personnel development, etc. The recommendations of the 1987 Samarajiva Report may be worth a second look in this regard.

R1.2 Within SLSTINET, the greatest potential appears to lie with AGRINET. The newly instituted Council on Agricultural Research Policy (CARP) is of vital importance in coordinating the agricultural information centres and ensuring the sustainability of projects. The network-strengthening measures suggested in R1.1 above may be first applied in AGRINET.<sup>125</sup> The rescue and rejuvenation of the dying offline search service started up during the National AGRIS Centre project may constitute an important element of such activities. Network enhancing activities can draw on the strengths of ISD's ITM Program that have not been utilized in Sri Lanka and have novelty.

R2.0 If ISD wishes to take research information to endusers directly involved in development activities as producers; build on the base of specialized

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<sup>125</sup> NARESA's UNISIST working committee, in its response to the Samarajiva Report (3-A-87-4904), recommended that, it is more effective to organize SDI services for a particular subject area. It was decided to select agriculture, including animal husbandry, fisheries, and forestry, as [the] priority area for organizing SDI services. Cooperation of the libraries participating in the Agricultural Information Network (AGRINET) should be sought for the project proposal.

[Minutes of the Sri Lanka National UNISIST Committee, 06/01/88.]

information projects funded so far; and utilize its strengths in agricultural extension, information networks, and information dissemination: It is recommended that funding be concentrated on agricultural extension services.

R2.1 More specifically, efforts can be focussed on the Department of Agriculture and the coconut industry where successful STI projects have been completed. In the former, the first step may be the effective linking up of the various research stations of the Department of Agriculture. Once that is done, mechanisms may be devised to connect the research system to the large extension service. In the case of the coconut industry, translating the information resources of the CIC into forms useful for extension workers and the building of institutional linkages between the CIC and the Coconut Cultivation Board's extension staff will be required. In both cases, coordination with larger programs such as the ADB study on increasing the effectiveness of the agricultural extension service and the medium term investment programmes will be important. Effective use of research findings by extension workers requires information in national languages. If computer applications are planned, it may be necessary to purchase/develop national language interfaces.<sup>126</sup>

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126 The second consultant wishes to express his reservations on this option: "IDRC may burn its fingers if it extends its intervention reach into extension activities. I speak from hard experience."

**R3.0** If ISD wishes to achieve the objectives listed in R2.0, but by venturing further into a relatively new area: It is recommended that resources be directed to industrial extension.

**R3.1** The institutional opportunity created by CITIS is the principal reason for this recommendation. ISD has experience in industrial extension work elsewhere that can be applied to Sri Lanka. The joint central-provincial jurisdiction over industrial extension would be a novel and interesting feature.

**R4.0** If ISD wishes to venture out into new subject areas, drawing on the local expertise built up in past projects: It is recommended that projects that systematize locally-generated, locally-relevant information be encouraged, drawing on the experience of CIC, WASSDOC, AGRIS, etc. Again, national language interfaces should be considered if the objective is to get closer to the enduser.

**R5.0** If ISD wishes to consolidate previous projects: It is recommended that

**R5.1** The Central Library of the Department of Agriculture be strengthened to serve the needs of researchers and departmental employees in remote locations.

**R5.2** Further assistance be provided to the Treasury and the Central Bank to establish parallel specialized CS-DRM systems drawing on a common database.

**R5.3** The National Poisons Information Centre be further expanded, perhaps taking it out to the provinces, and perhaps by building in an analytical capability in collaboration with HSD or WHO.

**R5.4** Making WASSDOC more accessible to field workers.

**R6.0** If ISD wishes to act on the principle that the information nodes set up and material carried would retain their utility despite serious oscillations in government policies, the following areas should be funded:

**R6.1** Environment

**R6.2** Social overheads--health, education, and low-cost housing.

**R6.3** Nutrition policy

**R6.4** Centre for Development Information in association with the Institute of Policy Studies.

**R7.0** Generally,

**R7.1** ISD should include personnel as one of the key criteria in the project formulation and approval processes. Attention should be paid to the availability of qualified personnel, impact on other projects, and the implications of temporary employment. A policy study may be in order, if NARESA's UNISIST committee wishes to examine the overall STI personnel situation.

**R7.2** All projects should have routine record-keeping and reporting features built into them on the lines of the National Poisons Information Centre.

#### **7.4 A FINAL COMMENT**

Questions have been raised about the advisability of continuing existing projects or starting new ones in the present political climate in Sri Lanka. The breadth of the formal terms of reference precludes a lengthy or exhaustive response to this question. It is true that Sri Lanka is at the moment in the throes of the worst political crisis in her post-independence history. It is also true that the violence affects all aspects of life, particularly the functioning of government institutions. This has resulted in a high

degree of uncertainty, drastically lower productivity, and delays. Further violence will accelerate the emigration of skilled personnel from the country.

It is reasonable to think that resolution of the fundamental problems pertaining to decentralization of power, management of relations with India, and the rebuilding of social consensus will take at least a decade, even if the present crisis is overcome. It is not possible to forecast the outcome or the duration of the present crisis which is a struggle for state power by the Janata Vimukti Peramuna / Deshapremi Janata Vyaparaya, the Liberation Tigers of Tamil Eelam, and the Eelam People's Revolutionary Liberation Front (now in control of the administration in the Northeastern Province).

If the present level of violence continues for more than another year, the Sri Lankan economy will suffer serious damage, leading to serious political consequences. At this point, development aid will probably become ineffective. But the catastrophe point may be brought closer by cessation of aid projects. Premature action may also damage painstakingly built up institutions and relationships.

It must always be remembered that "the propensity to violence and rapid discontinuous change is inherent in the process of development." (Gunatilleke, Tiruchelvam and Coomaraswamy 1983: 131) To paraphrase the late Mao Zedong, development is not a tea party.



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ANNEXURE I- FINANCIAL DATA

PROJECT	IDRC Contribution	Recipient Contribution	Total
DAP 1: CDS/ISIS Workshops	1865	815	2680
DAP 2: Tech & Inst Choices	4200		4200
DAP 3: CARIS Consultation	1920		1920
DAP 4: UNILIST Conversion	1775	685	2460
DAP 5: Geology Data	1360		1360
DAP 6: Project Leaders' Mtg	320		320
Coconut Information Centre-I	202000	33480	235480
Coconut Information Centre-II	62460	32455	94915
National AGRIS Centre	175600	12800	188400
DRIMS Software	83300	106583	189883
DEVNSA	332321	208079	540400
National Poisons Info Centre	92700	35205	127905
MAARIS	132070	108265	240335
WASSDOC	142550	51225	193775
IDB Information Services	176715	252260	428975
TOTAL	1411156	841852	2253008
SLSTINET PROJECTS	1234836	700064	1934900
AGRICULTURAL PROJECTS	574050	187000	761050
DAPs	11440	1500	12940
BIBLIOGRAPHIC PROJECTS	1047001	446304	1493305
NON-BIBLIOGRAPHIC PROJECTS	352715	394048	746763
SLSTINET PROJECTS AS % OF TOTAL	88	83	88
AGRICULTURAL PROJECTS AS % OF TOTAL	41	22	34
DAPs AS % OF TOTAL	1	0	1
BIBLIO PROJECTS AS % OF TOTAL	74	53	66

## ANNEXURE II: PERSONS INTERVIEWED

1. Paul McConnell, Deputy Director, Information Sciences Division, IDRC, Ottawa.\*
2. Kerry Broadbent, Associate Director, Science and Technology Information Systems and Networks, Information Sciences Division, IDRC, Ottawa.\*
3. Frances Delaney, Senior Program Officer, Health and Population, Information Sciences Division, IDRC, Ottawa.\*
4. Pauline Oswitch, Senior Program Officer, Information Science Education, Regional Networks, and National/Sub-National Level Systems, Information Sciences Division, IDRC, Ottawa.\*
5. Rizwan, Senior Program Officer, Development Economics, Foreign Debt and Trade, Labour and Employment, Information Sciences Division, IDRC, Ottawa.\*
6. Yong-Ja Cho, Senior Program Officer, Earth and Marine Sciences, Information Sciences Division, IDRC, Ottawa.\*
7. Pat Thompson, Program Officer, Agricultural Information, Information Sciences Division, IDRC, Ottawa.\*
8. Capt. A.G. Devendra, Chairman, Industrial Development Board, Moratuwa, Sri Lanka.\*\*
9. Dr L.S. Fernando, State Secretary, Ministry of Policy Planning and Implementation, Colombo.\*\*
10. Mr Godfrey Gunatillake, Executive Director, Marga Institute, Colombo.\*\*
11. Mr S.A. Karunaratne, Director, National Planning and National Project Coordinator, Macro Planning Division, National Planning Department, Colombo.\*\*
12. Mr. Faiz Mohideen, Deputy Director, National Planning (in charge of Agriculture, Food & Nutrition Policy Programme).\*\*
13. Dr R.H. Wickremasinghe, Working Director, Central Environmental Authority (CEA), Colombo.\*\*
14. Mr Tilak Hewawasam, Research Assistant, Central Environmental Authority (CEA), Colombo.\*\*
15. Mr. C. Chanmugam, Director, Institute of Policy Studies (IPS), Colombo.\*\*

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\* Interviewed by first consultant alone.

\* \* Interviewed by second consultant alone.

16. Dr Ravindra Fernando, Senior Lecturer, University of Colombo, and Head, National Poisons Information Centre, General Hospital, Colombo.
17. Mr N.U. Yapa, Director--Information, Natural Resources, Energy and Science Authority of Sri Lanka (NARESA), Colombo.
18. Mr Nanda Senanayake, Director, Centre for Industrial Technology Information Services (CITIS), Colombo.
19. Ms Wickremasinghe, Acting Director, Industrial Information Division, Industrial Development Board, Colombo.
20. Ms S.M. Tennakoon, Librarian, Industrial Information Division, Industrial Development Board, Colombo.
21. Mr Yalith Ratnavibhushana, Head-Library Services, Central Library of the Department of Agriculture, Gannoruva.
22. Dr Gerry Jayawardana, Director, Plant Gene Resources Centre, Gannoruva.
23. Ms I. Mudannayake, Assistant Librarian, Post-Graduate Institute for Agriculture, Peradeniya.
24. Mr H. Pinidiya, Chief Engineer (Designs), National Water Supply and Drainage Board, and Project Director, WASSDOC, Ratmalana.
25. Ms L. Somaratna, Librarian, National Water Supply and Drainage Board, and Project Leader, WASSDOC, Ratmalana.
26. Mr L.C.A. de S. Wijesinghe, Additional Director-General, NARESA, Colombo.
27. Professor V.K. Samaranayake, Chairman, Computer and Information Technology Council of Sri Lanka (CINTEC), Colombo.
28. Dr G.C.N. Jayasuriya, Chairman, UNISIST Working Committee; past Secretary-General of the National Science Council; past Director-General, Industrial Development Board; and past Director-General, National Aquatic Resources Agency, Colombo.
29. Ms S. Naguleswaran, Acting Project Leader DEVINSA / Acting Chief Librarian--Marga Institute, Colombo.
30. Dr Upali Jayasekera, Senior Scientist, Council on Agricultural Research Policy, Colombo.
31. Mr Akhiel Mohamed, Director of External Resources, Department of External Resources, Colombo.
32. Ms Dayanthi de Silva, Project Leader CS-DRMS / Assistant Director, External Resources Department, Colombo.
33. Ms Lalitha Bandaranayake, Project Leader MAARIS / Director--Information, National Aquatic Resources Agency, Colombo.

34. Mr A.J.M. Zuhair, Superintendent of Public Debt, Central Bank of Sri Lanka, Colombo.\*
35. Mr W.M. Hemachandra, Senior Economist, Department of Public Debt, Central Bank of Sri Lanka, Colombo.\*
36. Mr L.E. Samarasinghe, Member, UNISIST Working Committee (former official of General Information Programme, UNESCO, Paris), Colombo.
37. Mr L. Seneviratne, Additional Director of External Resources, Department of External Resources, Colombo.\*
38. Mr M.J.C. Perera, Project Leader, Coconut Information Centre, and Librarian, Coconut Research Institute, Lunuwila.
39. Dr P.B. Jayasundara, Senior Economist, Economic Research Division, Central Bank, Colombo.\*

Fourteen additional user interviews were conducted by the first consultant.

**ANNEXURE III: ADDITIONAL MATERIAL EXAMINED BY SECOND CONSULTANT**

1. **Public Investment - 1988-1992. May 1987.**
2. **Public Investment - 1989-1993. August 1988.**
3. **Industrial Policy Statement, Government of Sri Lanka. March 1987.**
4. **National Food, Nutrition & Agricultural Strategy - 1984.**
5. **National Science Library of Sri Lanka--Objectives, Policies and Services, by N.U. Yapa, June 1988.**
6. **Annual Report 1986 - Central Environmental Authority. September 1987.**
7. **National Environmental Act, No. 47 of 1980.**







**ANNEXURE V: COMMITTEE NETWORK OF CENTRAL ENVIRONMENTAL AUTHORITY**

<b>Ministry</b>	<b>Subject</b>
1. Local Government	Sanitation, water supply, health, water-borne disease
2. Planning	Financing--canvassing foreign aid; incorporation of Environmental impact assessments into projects before approval.
3. Lands	Land-use, land allocation for public purposes, land development and soil conservation.
4. Health	Sanitation--public health, pesticide/weedicide poisoning, water and air pollution, radiation hazards, etc.
5. Industries	Effluent and air pollution control, storage of poisons, chemicals, etc.
6. Transport	Control of atmospheric pollution by discharge of burnt fuel residues particularly sulphur dioxide and CO <sub>2</sub> .
7. Power & Energy	Thermal pollution, discharges of oil, coal-fired burnt fuel from thermal power stations, control of radio-active wastes, maximum exploitation of renewable energy sources.
8. Highways	Reduction of traffic densities to reduce air pollution intensity, planning of road construction to minimise forest depletion.
9. Agriculture	(Control/licensing of weedicides, pesticides and proper use of fertilizer to prevent eutrophication of inland waters, wild-life conservation, protection of plant-genetic resources for ecological diversity, reforestation, agro-forestry and timber exploitation.
10. Labour	Industrial hygiene, protection of workers from hazardous industrial waste, poisoning from industrial effluents and gas discharges.
11. Tourism	Control of resorts to prevent pollutive practices. Co-operation in conservation of natural preserves (fauna and flora) by sportsmen and through dumping of non-biodegradable waste.
12. Fisheries	Control of inland waters to protect fishing grounds, conservation of mangrove swamps, brackish waters and estuaries, protection of marine life within declared marine territorial zone limits, prevention of overfishing and co-operation in prevention of ocean pollution from chemical effluents from industrial wastes and fertilizers.

- 13. Textile industry**                      **Prevention of discharges from bleaching chemicals, dyes and sizing chemicals, treatment of waste from textile plants).**
- 14. Plantation industry**                **Intercropping to reduce soil washaways and increased soil fertility for reduction of fertilizer use. Substitution of biological pest control for chemical-control as feasible.**
- 15. Foreign Affairs**                      **Negotiation and agreement with neighbouring countries and intergovernmental bodies on pollution emanating from outside territorial waters and airspace.**
- 16. Education**                            **The dissemination of knowledge on ecology and ecosystems, tree planting campaigns and nature protection through the school system.**
- 17. Greater Colombo  
Economic Commission.**                **Same as for industry.**

## ANNEXURE VI: TERMS OF REFERENCE OF FIRST CONSULTANT

Under this contract, the services that are required of you are as follows:

- a) to review background information on ISD-supported activities in Sri Lanka, this information to be obtained from IDRC project files (including project summaries, project completion reports, and other documents) and from meetings and/or correspondence with ISD program staff;
- b) to design a study on different target groups of end-users and beneficiaries (actual and potential) to assess the contribution, relevance, and impact of ISD-supported activities in meeting information needs in Sri Lanka;
- c) to travel to Sri Lanka to carry out the study noted in (b), using interviews, questionnaires, and correspondence as appropriate;
- d) to meet with project personnel, government officials, and others in Sri Lanka to assess the broader context and impact of ISD-supported activities;
- e) to visit IDRC-Ottawa en route to Sri Lanka to gather information and to discuss the survey and other aspects of the consultancy;
- f) to liaise closely with Mr Lyn Mendis in coordinating the division of tasks, planning your travel to Sri Lanka, undertaking interviews, and drafting the final report to IRDC;
- g) to submit a detailed and satisfactory joint report of the work accomplished to the Director of the Information Sciences Division of the Centre by 15 September 1989. The final report will (i) identify current priorities in Sri Lanka concerning information management and utilization for development; (ii) describe the extent to which ISD-supported activities have been related to these priorities; (iii) assess the qualitative and quantitative benefits derived from ISD-supported activities at the level of target groups of end-users and beneficiaries, as well as at the macro-level (i.e. the broader development of information infrastructure, systems, and services); and (iv) make recommendations to ISD on the identification, design, and implementation of relevant, well-managed, applied information activities in keeping with the development priorities of Sri Lanka and the nature of IDRC's mandate;
- h) to visit IDRC-Ottawa at a mutually convenient date to review the final report and its implications for ISD.

ANNEXURE VII

Terms of Reference for Mr. L.N.T. Mendis

Under this contract, the services that are required of you are as follows:

- a) to review background information on ISD-supported activities in Sri Lanka, this information to be obtained from IDRC project files (including project summaries, project completion reports, and other documents) and from meetings and/or correspondence with ISD program staff;
- b) to review documents and interview or correspond with officials, information practitioners, and others in Sri Lanka and report on (i) the recognition and weight given to the role of information in the development process, (ii) the changes taking place over the last 10-15 years concerning the establishment of integrated information systems, policies, and plans; and (iii) the current priorities concerning issues of information management and utilization for development in Sri Lanka;
- c) to meet with project personnel, government officials, and others in Sri Lanka to assess the broader context and impact of ISD-supported activities;
- d) to liaise closely with Prof Rohan Samarajiva in coordinating the division of tasks, planning local travel arrangements in Sri Lanka, undertaking interviews, and drafting the final report to IDRC;
- e) to submit a detailed and satisfactory joint report of the work accomplished to the Director of the Information Sciences Division of the Centre by 15 September 1989. The final report (i) will identify current priorities in Sri Lanka concerning information management and utilization for development; (ii) will describe the extent to which ISD-supported activities have been related to these priorities; (iii) will assess the qualitative and quantitative benefits derived from ISD-supported activities at the level of target groups of end-users and beneficiaries, as well as at the macro-level (i.e. the broader development of information infrastructure, systems, and services); and (iv) will make recommendations to ISD on the identification, design, and implementation of relevant, well-managed, applied information activities in keeping with the development priorities of Sri Lanka and the nature of IDRC's mandate.