SILVER JUBILEE ANNIVERSARY

1968 - 1993

A MEMOIR OF CONTRIBUTIONS TO SCIENCE AND RESEARCH CAPABILITY BUILDING IN SRI LANKA

BY

NATURAL RESOURCES, ENERGY AND SCIENCE AUTHORITY OF SRI LANKA

OCTOBER 1993

NATURAL RESOURCES, ENERGY AND SCIENCE AUTHORITY OF SRI LANKA

1968 - 1993

A Historical Narration
To Commemorate The Twenty-Fifth Anniversary

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FOREWORD

The future belongs to science. With this in mind, dynamic policies must develop a better nation - a better people. To quote Jawahalal Nehru who did much to develop science policy in India, 'Science alone can solve the problems of poverty'.

Science & Technology are thus important tools for the development of the country. Production has to be increased; the standard of life must be raised, social inequity must be reduced; inborn decay removed and then expectation of sustainable development becomes more realistic.

To this end, we have the new act which has evolved mostly from the Report of the Task Force on Science Policy.

The Ministry of Industries, Science and Technology will be able to plan the future of all the scientific institutions working directly under that Ministry.

It is important that planning in all areas has a new focal point in NASTEC - under the Minister of Industries, Science and Technology. The new policy of S & T must be free from bureaucratic controls and constraints giving scientists more freedom.

Policy has to be redefined concerning the exchange of scientific thought nationally and internationally. Science education must filter from primary and secondary education to the promotion of scientific awareness among the general public. This will be a function that needs resurgence in the new science foundation (NSF). With the high rate of literacy in the country, building a base of scientific literacy in our community should not be difficult. Thus teaching of S & T will be a major contribution to capacity building in improving the status of S & T in the country. Knowledge must be select and accurate. All students must be engaged in real scientific work applying appropriate technology in everyday life. Thus science education must percolate from early life to adulthood. This life long learning is necessary for a dynamic society. Scientific awareness means that the public must know how science works.

There must be a sense of urgency in this resurgence of education. This new media instruction must develop a special technology to change human behaviour. Social scientists and psychologists would have to be involved in this process.

The issues of basic versus applied research must be minimised by encouraging interaction between the basic and applied sciences.

Universities must have more flexibility in dealing with scientists. Research must be encouraged actively in promotions and appointments to university posts.

A strong and open peer review system must be established in monitoring and evaluating research to improve the quality of research.

The tools for raising research standards must come mainly from the institutions. Otherwise research grants have to escalate to provide more equipment and better laboratories. Presently, these are available for scientists funded by foreign grants. NSF will have to shop around for more like these. However, the Ministry will then have to help in linking with countries that are ready even now to establish such collaboration or support. Constraints such as lack of resources and irregular budgetary allocations will necessarily cause institutional instability.

Library support and other documentation and reference support must be further developed in the new set up. NARESA has information links which NSF can inherit and develop further.

The scientists in Sri Lanka voiced the need for the National Science Council and it was constituted, though not in the exact form that it was created.

In undergoing this evolution to the National Science Foundation (NSF), one expects that the scientist's hopes will be furthered in the future.

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Natural Resources, Energy and Science Authority of Sri Lanka

A Historical Narration (1968-1993)

The Backdrop

In January 1968, as a prelude towards the establishment of the necessary administrative machinery to co-ordinate and plan scientific activities in Sri Lanka, the Government created a Ministry for Scientific Research and Housing. It is recorded (1) that this move in retrospect, was the result of a long drawn out agitation of the scientific community through its representative body, the Ceylon Association for the Advancement of Science (CAAS), for the creation of an independent autonomous National Research Council for Sri Lanka.

Historical records show that the CAAS was never in favour of a Ministry for Scientific Research, as an alternative to a National Research Council. Subsequently in mid 1968, in deference to the needs and aspirations of the scientific community of the country, the Government created the National Science Council of Sri Lanka (NSC) by the NSC Act No.9 of 1968, as a statutory body within the Ministry of Scientific Research and Housing. This organization which began functioning in May 1968, however, fell short of the expectations of the scientific community which had hoped for an autonomous scientific body, shorn off of the usual administrative and financial bottlenecks. Nevertheless, the creation of these two institutions have been considered epoch-making events in the organisation of science planning in Sri Lanka(1).

The inaugural function for the establishment of the National Science Council took place on May 28 1968, with the Head of State (Hon Prime Minister) as the Chief Guest. Among the other distinguish personalities present were the Minister of Scientific Research and Housing, Minister of Agriculture and Food, Minister of Industries and Fisheries, Minister of Land and Land Development, Minister of Education, a number of Members of Parliament and the Diplomatic Corp. This meeting presided over by Sir Nicholas Attygalle, the first Chairman of the Council, was addressed by all the Cabinet Ministers present on the occasion.

It is remarkable that apart from issues concerning scientific research, all the guest speakers drew the attention of the new Council, of the need to formulate a Science Policy for the country. It is significant that Mr D.P.R. Gunawardene, Honourable Minister of Industries and Fisheries, in his discourse, not only drew attention to the scientific and technological strides made by India after independence, he went on to elaborate the "Scientific Policy Resolution" placed before the Indian Parliament, ten years earlier on March 4 1958, by Shri Jawaharalal Nehru, the then Prime Minister of India.

Obviously inspired by these sentiments, the newly appointed Council at its very first meeting held on May 29, 1968, established a sub-committee to prepare a draft statement on Science Policy, which was to be the basis for the first seminar to be organized by the National Science Council (2).

The Functional and Structural Orientation of the Organization - 1968 - 1992

The Act of Incorporation of the National Science Council describes the functions of the Council in the following terms:

(1) to advise the Minister on -

(a) the application of science and scientific research to problems of national importance for the general benefit of the community;

(b) the co-ordination of research in the various fields of scientific work with a view to directing scientific work into channels vital for national development;

(c) the steps that should be taken to maintain an adequate supply of scientific and technical personnel, having regard to the country's need, from, time to time, for such personnel; and

(d) matters of scientific policy including the allocation of funds for scientific research and any other such matters as the Minister may refer to the Council for its advice;

(2) to initiate, promote and intensify fundamental and applied research with a view to developing the economic resources of the country and promoting the welfare of the people;

(3) to collect and disseminate information relating to scientific and technical matters, and to publish reports, periodicals and papers on matters scientific and technical;

(4) to establish and maintain liaison with scientific institutions and scientific workers in other countries in matters relating to science and scientific research; and

(5) to do such other things as may be necessary for the advancement of science and scientific research in Ceylon.

The clauses 6 and 7 of this Act lays down the composition of the Council, as well as the appointments to the posts of chairman and vice chairman of the Council as follows:-

Clause 6

(1) The Council shall consist of twenty-one members all of whom shall be appointed by the Minister from among persons

(a) who possess recognized scientific qualifications; or

(b) who, in the opinion of the Minister, have rendered distinguished service to science or have made contributions to scientific knowledge

(2) In making the appointments under sub-section (1), the Minister shall ensure that at least one person engaged in or closely associated with each of the following categories of research is appointed as a member of the Council:-

(a) Physcial Science Research
(b) Biological Science Research
(c) Agricultural Research
(d) Industrial Research
(e) Medical Research
(f) Social Science Research

Clause 7

(1) The Minister shall appoint one of the members of the Council to be the Chairman of the Council

(2) The members of the Council shall from amongst their number elect the Vice-Chairman of the Council (2)

It is clear from the above that the Council consisted of 21 members appointed by the Minister one of whom was named as the Chairman of the Council. It is however, significant to note that with reference to the Chief executive of the Council, the Clause 18 of the Act stipulates that,

> "The members of the Council shall in consultation with the Minister, elect from amongst their number, a Secretary General, who shall be the Chief Executive of the Council, and who shall be a whole-time officer of the Council"(3)

Although these provisions were there in the first NSC Act that was enacted on 28 February 1968, an amending clause was introduced subsequently by NSC Amendment Act No. 44 of 1968, to repeal clause 18, and substitute it with the following clause:-

> "The Council shall in consultation with the Minister, appoint a person to be the Secretary General, who shall be the Chief Executive Officer of the Council, and also shall be a whole-time officer of the Council. The Secretary General shall be employed on such terms and conditions as shall be determined by the Minister in consultation with the Minister of Finance" (4)

In brief therefore, it is clear that from the very inception it was realized that the procedure for appointing the Chief Executive of the new organization was inappropriate and impracticable, and hence needed an immediate amendment.

In fact it is recorded that at the first meeting of the Council, a request by the Chairman for volunteers for the post had a negative response. Subsequently on a formal proposal, Mr B.J.P. Alles was elected as Acting Secretary General. This was essentially an interim measure, since during the very same meeting, the Council resolved that an amending Act should be instituted to provide for a full time Secretary General whose emoluments ..... "should not be less than the highest grade of chief executive officer in the Public Sector" (2). This meant that the post should be on par with the Permanent Secretary of a Ministry.

Accordingly Mr B.J.P. Alles held office on a part time basis until first September 1969, when Dr C.R. Panabokke took over office as the first full time chief executive of NSC after the Amendments to the Act were approved by Parliament. Dr Panabokke was succeeded by Late Dr G.C.N. Jayasuriya in March 1971, who held the post of Secretary General for 7 years.

The first Council appointed by the Minister of Scientific Research and Housing comprised of the following:

1. Sir Nicholas Attygalle - Chairman
2. Dr G. Ponnamperuma
3. Mr A.N.S. Kulasinghe
4. Mr L.J.D. Fernando
5. Dr P.P.G.L. Siriwardene
6. Prof. S.W. Bibile
7. Dr Charles St. George
8. Dr S. Gnanalingam
9. Prof. E.O.E. Perera
10. Mr B.J.P. Alles

11. Dr J.W.L. Peries
12. Dr V. Appapillai
13. Dr R.P. Jayewardene
14. Prof. B.A. Abeywickrema
15. Prof. H. Crusz
16. Mr D.B. Rampala
17. Prof. A.S. Dissanayake
18. Dr E.F.L. Abeyaratne
19. Mr W.D.V. Mahatantile (Permanent Secretary - Ministry of Scientific Research & Housing)
20. Dr Gamini Corea (Permanent Secretary - Ministry of Planning and Economic Affairs)
21. Mr B. Mahadeva (Permanent Secretary - Ministry of Agriculture & Food)

Sir Nicholas Attygalle held office for 18 months and was succeeded by Mr A.N.S. Kulasinghe. Although the NSC Act stipulated a membership of 21 for the Council, so as to provide a comprehensive coverage of scientific disciplines, due to frequent resignations, most of the time there was a lesser number in office.

In the absence of a professional staff in the Secretariat, the Council largely operated through *ad hoc* Committees, the first of which was the sub-committee of the Council to draft a Science Policy statement for the country. Subsequently in October 1968, the Council making use of certain provisions of the Act, appointed a sub-committee for establishment matters, comprising of the Chairman, Vice Chairman, Secretary General and the Ministry Representative. In April 1969, in response to an application received from Prof. FSCP Kalpage for a research grant, the Council set-up another committee called the Research Grants Committee, to evaluate and make recommendation on such research proposals. The following Terms of Reference were drawn up for this Committee.

"(1) As far as possible identify those competent and interested in Scientific research;

(2) Prepare a budget for research grants and pursue action to secure funds

(3) In the context of funds obtained, determine priorities and make recommendations to the National Science Council and

(4) Award research Grants and establish procedures for the follow-up including financial follow up of research grants". (5)

In November 1969, in response to a communication from the Ministry of Scientific Research and Housing, the Council nominated a team of Council members to what was called the Research Board (6). The main functions of the Research Board were to evaluate and recommend applicants for studentships and fellowships offered by foreign sponsoring agencies.

Unlike the sub-committee appointed for drafting a Science Policy statement, the Establishment Committee, the Research Grants Committee and the Research Board functioned more or less on a permanent basis.

It is also significant to note that within the first year of operation, the Council had recognised that within its mandatory framework, the organization did not have the capacity to achieve the goals of effective co-ordination of various sectors of research activity in the country. Accordingly, consequent to a discussion with the new Minister of Industries and Scientific Affairs, a memorandum was prepared and submitted to the Cabinet for the reorganisation of the Council (7,8). In the meanwhile, the three committees of the Council continued to function with one difference, i.e. the Research Board being renamed as the Scholarship Board.

In 1972, following the re-constitution of the Council, the Cabinet made the following observations:

- "The Cabinet agreed that the Council had not been able to carry out its major functions effectively, primarily due to the fact that the Council as a whole had no direct links with the Ministries under which the major scientific activities in the country were carried out. The National Science Council had therefore tended to work in isolation.

- To achieve greater co-ordination among the various sectors of research activity presently carried out in various departments, research institutes and Universities, it was suggested that the Ministries having related functions should be grouped in such a manner as to make possible the implementation of research and development activities pertinent to that group of Ministries.

- It was proposed that a Standing Research Committee should be set up for each group of Ministries. The Chairman of such a Committee appointed in consultation with the particular Minister concerned will be appointed as a member of the National Science Council by the Minister of Industries and Scientific Affairs.

- These members would thereby be in a position to transmit to the National Science Council, the scope and range of research activities in the different Ministries. This would assist the National Science Council to formulate an overall policy for scientific research (9)."

In consideration of these observation of the Cabinet, the Council proposed the following Standing Research Committees for which Chairmen were appointed in consultation with the Ministries concerned.

Group 1	-	Ministry of Agriculture and Lands Ministry of Irrigation, Power and Highways (Irrigation Section)
Group 2	-	Ministry of Fisheries
Group 3	-	Ministry of Foreign and Internal Trade
Group 4	-	Ministry of Plantation Industry
Group 5	-	Ministry of Irrigation, Power and Highways (Power and Highways Section) Ministry of Communications Ministry of Posts and Telecommunications
Group 6	-	Ministry of Housing and Construction
Group 7	-	Ministry of Health
Group 8	-	Ministry of Education
Group 9	-	Ministry of Planning and Employment
Group 10	-	Ministry of Finance
Group 11	-	Ministry of Industries and Scientific Affairs (9)

During 1972 the Council also, through the recommendations of a special sub-committee of the Council drafted and submitted a Bill to amend the NSC Act of 1968. This draft bill was discussed by the Minister of Industries and Scientific Affairs, and after considering the observations of the Ceylon Association for the Advancement of Science, Cabinet approval was obtained. During 1973 draft legislation was prepared, and in August 1975 the National State Assembly sanctioned its enactment as the National Science Council of Sri Lanka, Law No: 36 of 1975. The Law however, become operative only on the first of January 1976, more than five years after the Council had initiated steps to rectify the defects in the first Act of Incorporation of the NSC.

The new Act widened the scope of work of the Council with emphasis on planning and policy development for science and technology. In particular the Act empowered the Council to study and report on:-

"(a) the effective utilization of the available scientific and technical personnel in Sri Lanka;

(b) the future scientific and technical manpower requirements for the effective implementation of the science policy of Sri Lanka; and

(c) the steps to be taken to provide adequate training facilities to meet future scientific and technical manpower requirements" (10).

The composition of the Council according to the new Act consis ted of seven appointed members and six *ex officio* members, making in all a 13-member Council. It is significant to note that not only was the membership of the Council reduced from 21 to 13, but was also to comprise of two categories of members. The "appointed" members comprised of hand-picked persons who have distinguished themselves in any field of science and technology and therefore were considered to represent the scientific community of the country. On the other hand, the *ex officio* members as would be seen from the following extract of the Act represented officials who would facilitate in "achieving greater co-ordination among the various sectors of research activity carried out in various departments, research institutes and universities" (9, 10).

The following were the *ex officio* members of the Council:

(i) the Secretary-General of the Council

(ii) The Secrtary to the Ministry in charge of the Minister to whom the subject or function of Industries and Scientific Affairs has been assigned or a representative of the Ministry nominated by the Secretary

(iii) the Secretary to the Ministry in charge of the Minister to whom the subject or function of Planning has been assigned or a representative of the Ministry nominated by the Secretary

(iv) the Secretary to the Ministry in charge of the Minister to whom the subjects or function of Finance has been assigned or a representative of the Ministry nominated by the Secretary

(v) the Secretary to the Ministry in charge of the Minister to whom the subjects or function of plantation Industries has been assigned or a representative of the Ministry nominated by the Secretary; and

(vi) the Secretary to the Ministry in charge of the Minister to whom the subject or function of Foreign and Internal Trade has been assigned or a representative of the Ministry nominated by the Secretary.

The Chairman of the new Council was appointed by the Minister from among the appointed category of members. The other new features of the Act was the powers vested in the Council to delegate specified authority that may be considered necessary for the effective transaction of its business, to the Secretary General, or to the Executive Committee comprising of the Chairman of the Council, the Vice Chairman, the Secretary General, and the *ex-officio* member representing the Ministry of Industries and Scientific Affairs.

The Act also permitted the Minister on the recommendation of the Council to appoint Working Committees, deemed necessary to assist the Council in the performance of its duties. Thus there were several major changes in the structural and organisational framework of the Council. The drastic reduction in the number of Council members was obviously linked to two major constraints - (a) the rapid turnover of members and the difficulty of finding substitutes. (b) the difficulty in planning and steering a programme of work, with an unenviable diversity of interests and views.

The idea of an Executive Committee had both merits and defects. The usefulness of the Executive Committee was that it could meet more frequently and oversee the implementation of programmes more conveniently. It also facilitated the process of decision-making. On the other hand it was found that there was considerable over-lap in the duties and function of the Exco and the Council, with the latters main role being to endorse the actions of the Exco. In the actual operation of the system, it became clear, therefore that an Executive Committee was superfluous, when a competent professional staff was manning the Secretariat.

In November 1979, a further amendment was introduced to the NSC Act No.36 of 1975, whereby the clause dealing with the appointment of Council members was repealed and a new clause substituted. The legal effect of this amendment was to provide for the appointment of eight members by the Minister, and to limit the number of *ex-officio* members to three comprising of the Secretary General, a representative from the Ministry of Industries and Scientific Affairs and a representation from the Ministry of Finance.

The reasons of this change is obviously the ineffectiveness of the earlier scheme, where it was contended that representation from all Ministries concerned with Science and Technology would facilitate co-operation for co-ordinated action. It was clear that as long as NSC remained as a corporate body within a ministry, inter-ministerial co-operation at corporate or formal level would only be a theoretical concept. Thus just within a decade of its existence, the NSC had to go through a number of changes, most of which were in the organisational framework. What is significant is that from a Council comprising of 21 members, at the commencement of the NSC the membership dropped to 13th 1976 and to 11 in 1979.

The final outcome of these reforms was a reasonably good institutional setup, with operational flexibility as well as with meaningful provisions for co-ordination and co-operation in scientific and technological work. However, the Government's concern for appropriate action in the fields of natural resources, and energy, necessitated further expansion and exploitation of the scientific skills of the country. Hence it was conceived that the National Science Council, which had now matured into a productive and popular enterprise, should be appropriately restructured to push forward the new policy objectives of the Government. Accordingly, in 1982 action was taken by the Government to re-constitute the Council as the Natural Resources, Energy and Science Authority of Sri Lanka by Act No.78 of 1981, and place it directly under the Presidential Authority. The new Authority which had a broader field of operation was also in a unique hierarchical position to carryout its duties and functions effectively. Like the previous National Science Council, the new Authority had 11 members of whom one was a representative from the Ministry of Finance (11). The mandate of the Authority specifically included action on aspects of natural resources development, and investigations on energy-related issues (11). In practise however, the need to use the Presidential authority for its mandated operations rarely rose, mainly because of the reputation and stature it had painstakingly established locally and internationally during the quarter century of its existence, first as the National Science Council and later as the Natural Resources, Energy and Science Authority of Sri Lanka.

Finally in 1989, with a change of Government, the Natural Resources, Energy and Science Authority was transferred from the President's office to the Ministry of Industries, Science and Technology and the new project Ministry for Science and Technology.

Progress in Scientific and Technological Activities 1968-1993

As indicated earlier, one of the very first tasks, undertaken by the National Science Council was the preparation of a draft statement on Science Policy, which was to be the basis for a seminar to be organized by the Council(2). Accordingly a sub-committee comprising of Dr G. Ponnamperuma, Dr Gamini Corea, Dr. S. Gnanalingam, Prof. B.A. Abeywickrema and Mr B.J.P. Alles was appointed to draft the Science Policy Statement. While the sub-committee was preparing the statement, a decision was taken by the Council to draw up six sectoral panels for the following areas, Agriculture, Agro-industries, Fisheries, Industries, Construction and Animal Husbandry, for the purpose of developing the policy issues in respect of these areas.

In July 1969 the draft National Science Policy Statement drawn up by the Sub-committee was edited to be submitted to the Government. However, since this document was lengthy, a decision was then taken to prepare a brief statement.

Finally by August 1969, two documents were finalized - the shorter note was called the "National Science Policy Statement" and the other document was referred to as "Aspects of National Science Policy". Finally by a letter dated 30 September 1969, the Council forwarded copies of these two documents to the Ministry of Scientific Research and Housing.

The National Science Policy Statement was essentially the basic framework for the preparation of an action plan for science and technology and in a way, was comparable to the Indian Science Policy Statement of 1958. The second document titled "Aspects of National Science Policy," spelt out the principles, scope, methodologies and initiatives that were required for formulation and implementation of a National Science Policy.

Although these documents were taken up for discussion with the Minister of Industries and Scientific Affairs, who succeded the previous Minister of Scientific Research and Housing there is no evidence of any further actions by the Ministry. The Council however, proceeded with the sectoral studies with the assistance of the sectoral panels, and took steps to organize a seminar. In January 1970, capitalizing on an invitation by the Board on Science and Technology for International Development (BOSTID) of the US National Academy of Sciences, for scientific collaboration, the Council proceeded to organize a colloquium with a visiting team of US Scientists. This was to be followed up with a National Seminar on Science Policy in June-July 1970 and an international seminar in October 1970.

Records show that although the colloquium on "Organisation and Management of Scientific and Industrial Research" took place as planned, the proposed national seminar and the international seminar never materialized, and the subsequent activities on science policy were limited to the sectoral studies undertaken by the Panels.

The National Science Council during the initial formative stages also undertook two other major activities, namely the award of grants for scientific research and the studentships and fellowship scheme for scientists. The most important of these was the Research Grants Scheme. Although the Ministry immediately after its creation in 1968 had invited applications for research grants, the initiative for drawing up a scheme by NSC came only after receiving an application from Dr F.S.C.P. Kalpage for a research grant in April 1969.

The Council at this stage felt that a Research Grants Committee must be appointed to consider applications of this nature, and accordingly appointed a six-member Committee with Mr L.J.D. Fernando as Chairman. It has to be recognised that the National Science Council did not have a budget of its own during 1968-1969, and all expenditure was met directly by the Ministry on the recommendation of the Council, from allocations set apart for this purpose by the Ministry.

The Research Grants Committee at its first meeting in May 1969, agreed that the applications received during the previous year (1968) were out of date and decided to call for fresh applications through the Ministry. The Ministry which called for applications for research grants in late 1969 received 59 applications, which were scrutinized by the Research Grants Committee during January-February 1970. Finally 23 applications were recommend for which the Council sought Rs.395,000/- from the Ministry. However, for some unknown reason the Ministry imposed *adhoc* cuts on these recommended applications, and decided to re-evaluate the rejected applications on its own, to which the Council took strong objections. The following extract from the Minutes of the Council Meeting of 3 May 1970, shows the concern expressed by the Council on this matter.

"(ii) Mr L.J.D. Fernando, Chairman of the Research Grants Committee, expressed his grave concern and dissatisfaction of the Ministry's action in not having even attempted to solicit the views of either the Council, or the Research Grants Committee, prior to the Ministry making its own independent decision to impose arbitrary cuts on the recommendations that had been forwarded by the National Science Council. He could not, he said, by any measure of reasoning, condone this action of the Ministry and that in such circumstances he personally found it extremely difficult to continue as a member of the National Science Council. The Council was also of view that the action that had been taken by the Ministry in not only reducing the quantum of grants that had been recommended by the Council, but also its corresponding attempt to allocate the savings realized from such reductions to applications for grants that had already been rejected after careful evaluation by the Research Grants Committee, was indeed improper both in spirit and in rectitude.

The Council agreed that since it was extremely difficult to obtain a date for an interview with the Hon. Minister, it should address a letter to him outlining the reasons for the Council's dissatisfaction in respect of action that had been taken by the Ministry on this matter of Research Grants."(12)

Subsequently in response to a letter sent by the Council, the Minister made the following observations by letter dated 8 May 1970:

"I acknowledge receipt of your letter dated the 10th April 1970 requesting that a date be given for a delegation of the Council to see me regarding the recommendations of the Research Grants Committee.
I regret it will not be possible for me to give a date before the general elections. However, I have been able to ascertain the views of the Council in regard to this matter.

As you are aware funds have not been voted this year as grants to the National Science Council, and the Ministry is responsible for the allocation of grants for research projects. The Ministry has, however,consulted the Council and obtained its recommendations before any grants were allocated. The 43 applications that have not been considered by the Council were also re-examined by my Permanent Secretary and the Director, C.I.S.I.R., and some of the applicants were also interviewed with a view to making grants where projects are considered to be of national interest or important.

My Permanent Secretary will further examine the recommendations sent by the Council and if necessary additional grants will be made in respect of research grants recommended by the Council for the purchase of equipment, etc. after certain clarifications have been made."

I shall be glad if you will bring to the notice of my Permanent Secretary if there are any matters that have to be clarified, and he will take necessary action."

In view of the above situation, the Council decided to strike a low profile on this matter for the time being. However, after the General Elections, the Council was able to confer, with the newly appointed Minister of Industries and Scientific Affairs, who was sympathetic towards the basic needs of the Council. Until 1973, the funds for approved research projects were disbursed by the Ministry of Industries and Scientific Affairs, to the institutions where the grant recipients were employed. After 1973 however, the funds allocated for the Research Grants Scheme were transferred to the Council, which then disbursed the funds through the respective institutions. However, in January 1975 considering the foreign exchange difficulties in the country and the inability to exercise control on the movement of funds, the Council took a major policy decision to disburse funds directly to the grantees. This enabled the Council to monitor closely both the progress of research as well as the flow of funds (13).

The second major activity initiated by the NSC was the scheme for award of studentships and fellowships, for which a committee called the Research Grants Board was appointed by the Council in November 1969. The Board was to award three categories of scholarships, namely, Advanced Course Studentships, Research Studentships and Fellowships. This Board could not function effectively until a very comprehensive set of rules and regulations were prepared and approved by the Ministry. In the meanwhile, the Council decided to rename the Board as the Scholarships Board, and the first three research studentships were awarded in October-November 1971. In 1973, considering

the fact that there was considerable overlap in activities between the Research Grants Committee and the Scholarships Board, the Council decided to amalgamate the two bodies and call it the Research Grants and Scholarships Board (14).

Other major activities launched by the National Science Council up to 1975 included the following:

1971 - Appointment of a National Committee for the UNESCO- sponsored Man and the Biosphere Programme, and awarding of multidisciplinary research grants in the broad areas of Taxonomy, Ecology, Natural Resources, and Pollution.

1972 - Accepting the preproposal to set up a National Scientific and Documentation Centre and taking necessary steps to obtain assistance from UNDP for the establishment of the Centre.

1972 - A survey of Scientific and Technological Manpower Potential of Sri Lanka (1971-1972).

1972 - Taking membership in the following international scientific organisations,

(a) Commonwealth Scientific Committee (later known as Commonwealth Science Council),

(b) International Council of Scientific Union (ICSU),

(c) International Union of Radio Science.

1972 - Formation of the Ceylon National Committee for Radio Science, Aeronomy and Space Science.

1973 - Appointment of the Editorial Board to publish a Scientific Journal, and the publication of the inaugural issue (Vol 1. No.1) of the Journal of the National Science Council of Sri Lanka, in August 1973.

1974 - Taking membership in (a) Association for Science Co-operation in Asia (ASCA) and (b) International Union of Physiological Sciences (IUPS)

1974 - Formation of the National Committee for UNISIST (1974)

1974 - Taking membership in (a) International Foundation for Science (IFS) and (b) International Union of Nutritional Sciences (IUNS).

As mentioned earlier, the National Science Council was re-structured in 1975 with the implementation of the NSC Act No.36 of 1975. Apart from the general organisational changes in the Management Council and the appointment of an Executive Committee, the new Act made provision for the appointment of Working Committees where necessary, to assist the Council in the performance of its duties. These Committees were appointed for 2 years, by the Minister on the recommendation of the Council. However, except for the specific reference to the formulation of a science policy, there was no major deviation in the functions of the Council by the new Act. In January 1976, when the new Act became operative, therefore for the first time Working Committees were constituted by the Minister on the recommendation of the Council. The first statutory Working Committees to be formed, were in the fields of Science Policy Research, Science Education Research, Science and Technology Information, Research Grants, Environment and Social Science Research (15). The working Committee on Research Grants was the successor to the former Research Grants and Scholarship Board.

By this time the importance of the research grants scheme of the Council was becoming increasingly important, with over 240 research grants awarded during the period 1970-1975, disbursing over Rs.3.0 million. In fact NSC became the chief funding agency to the universities in the country. Fifteen post graduate degrees were awarded to research grantees during the first six years of operation of the scheme. The Research Grant Board functioned through the guidance of specialist Panels on different subject ares, appointed by the Research Grants Board itself (15). The Science Policy Research Committee appointed in May 1976, had as its main task to encourage research in Science Policy, and thereby formulate a National Science Policy for Sri Lanka (15). The Science Education Research Committee was to fulfil a long felt need for research work in science education. The initial thrust of this Committee was a co-operative research programme with the Ministry of Education, on 30 high priority areas on science education. The other statutory working committees became functional in 1977. The other major activities undertaken by the National Science Council from 1976 to 1981 are summarized below, and also in Annexes I, II, III and IV.

1976 - NSC was named by the Minister of Industries and Scientific Affairs as the National Co-ordinator for the Indo-Sri Lanka Scientific and Technological Co-operation Programme for the Period March 1976 to February 1978.

1976 - Exploratory discussions with a SAREC representative were held to establish a research fund for (a) purchase of scientific equipment, (b) International travel to attend scientific meetings (c) exigency purchases of spare parts for scientific equipment.

1976 - NSC's nomination of Dr R.O.B. Wijesekera for the Guinness Award for Scientific Achievements (GASA) received acceptance, and was one of the three recipients from Developing Countries to win the prestigious award in 1976

1976 - "Vidurawa" the science news bulletin of the NSC was launched as a multi-lingual quarterly publication for dissemination of current information

1977 - The proposal of the Social Science Working Committee to establish a Social Science Research Centre at NSC was accepted in 1977 and finally established in 1978.

1977 - A recommendation by the Social Science Working Committee to launch a Journal of Social Sciences was approved by the Council in 1977 and the first issue, Volume No.1 was released in June 1978.

1977 - Award of six scholarships tenable at the Post-graduate Institute of Agriculture under the Scientific Manpower Training Programme of NSC followed by 5 fellowships to the RRI during 1977 to 1983 were instituted.

1977 - Under the Indo-Sri Lanka Scientific and Technological Programme two study tours were undertaken by Sri Lankan Scientists and one Indian Scientist spent three weeks in Sri Lanka to study low-cost housing.

1977 - The first SAREC grant of Sw Kr 800,000 was approved for three projects, namely, Liver Diseases Project to be undertaken by the Medical Faculty, Peradeniya Campus, Ecology and Environmental Study Project to be undertaken by the Botany Department, Colombo Campus, and the Plant Virology Projet to be undertaken by the Central Agricultural Research Institute, Gannoruwa.

1977 - Launched three scientific surveys on (a) Expenditure on R & D, (b) Scientific instrumentation, and (c) Scientific and Technical Personnel.

1977 - A major development in scientific information was the establishment of the Sri Lanka Scientific and Technical Information Centre (SLSTIC) with wide-ranging activities on acquisition and dissemination of scientific information. With its establishment SLISTIC commenced compilation and publication of a Union catalogue of periodicals and a Union Catalogue of books, a photocopying service and a national depository of scientific and technical reports.

1977 - Designation of NSC as the focal point for the preparation of Sri Lanka National Paper for the United Nations Conference on Science and Technology for Development.

1978 - The draft statement on Science and Technology Policy for Sri Lanka was ratified by the Council and accepted by H.E. President, and finally promulgated in December 1978 at the inaugural session of the Sri Lanka Association for the Advancement of Science.

1978 - Provided funds for organizing a Diploma Course in Microbiology at the University of Kelaniya, and conducting an MSc Course in Plant Pathology at the University of Colombo.

1979 - As National Member of the Commonwealth Science Council, NSC agreed to participate and be in the International Steering Committee for the Commonwealth Regional Asia/Pacific Rural Technology Programme.

1980 - The Council established the Solar Energy Group (SEG) on a recommendation made by specialist panel on Physical and Engineering Sciences.

1980 - On the advise of the SLSTIC the Council established the Renewable Energy Resources Information Service (RERIS) to help scientists and technologists to obtain current information on solar, wind, biomass, and OTEC energy resources.

1980 - Conducted a full time Training Course on Science Education Research Planning, Methodology and Report writing, in December 1980.

1981 - The Science Education Research Committee initiated a new publication called the Journal of Science Investigations, the first issue of which was released during 1981.

1981 - The first two numbers in the Science Education Supplementary Reading Material Series were published and distributed in 1981.

1980 - Under the Programme for "Demarcation and Maintenance of a MAB Reserve", a field research station was constructed in the Sinharaja Forest Reserve.

1981 - The Solar Energy Group appointed a sub-committee to examine the project on "A Feasibility Study on OTEC for Power Generation". This sub-committee assessed the material and financial resources available for the study, and quotations were invited from foreign suppliers for necessary equipment, in order to prepare an estimate for the project.

1981 - Under the UNDP Sponsored Programme for S & T Information, seven photocopying machines were acquired and issued to the main library and medical library of the University of Colombo, the main library, medical library and engineering faculty library of the University of Peradeniya, main library of Sri Jayewardenapura University and the National Museum Library. The Council also acquired an off-set printing system, a microfiche system, an audio-visual pool and a computer system to strengthen NSC's role in S and T information dissemination.

1981 - The Sri Lanka National Paper for the Second Conference of Ministers Responsible for the Application of Science and Technology for Development, and Those Responsible for Economic Planning in Asia and Oceania (1982) CASTASIA II, was prepared by the Council for UNESCO.

In June 1982, as mentioned earlier a major structural change took place in the National Science Council, with the operation of the Natural Resources, Energy and Science Authority of Sri Lanka Act No: 78 of 1981, which replaced the NSC Act No 36 of 1975. The new organization referred to by the acronym NARESA, was brought under the purview of the Presidential Secretariat. Under the provisions of this Act, the six Statutory Working Committees and the six specialist panels of the former Council were replaced with ten statutory Working Committees for the following subject areas: Chemical Sciences, Biological Sciences, Engineering and Physical Sciences, Agriculture and Animal Husbandry, Medical and Veterinary Sciences, Social Sciences, Natural Resources, Energy, Science Education Research, and Scientific and Technical Information. In this re-organization process, the Research Grants Board and the Science Policy Research Committee were discontinued, since it was conceived that the functions of these bodies would be served by the new committees.

With the widening of the scope of activities of NARESA, it was inevitable that the organisation should play a more dynamic role in initiating and co-ordinating scientific research. This is well reflected in the number of multidisciplinary, Inter-

institutional research programmes developed and executed by the organization from 1982 onwards. These include the Inland Fishery Research Programme, the Water Buffalo Research Programme, the Zoological Survey of Sri Lanka, the Potash Fertilizer Research Programme, the Water Weeds Study Programme, the Mangroves Study Programme and the Coastal Ecology Research Programme. Most of these programmes received substantial foreign funding, and hence were co-ordinated and monitored by Scientific Advisory Committees, outside NARESA's long standing research grants scheme, which received assistance from Government's consolidated Fund.

The other major programmes of work undertaken by the newly constituted Authority, from 1982 to 1993 are summarized below and also in annexes I, II, III and IV.

1982 - The National Science Council and its successor the Natural Resources Energy and Science Authority instituted for the first time a scheme of National Awards for Scientific Achievements to be award once in three years. The first award made in 1982, was won by the 5 member research team (Dr H. Weeraratne, Dr. Senadira, Mr M.P. Dhanapala, Mr. C. Kudagamage and Mr C.A. Sandanayake) which pioneered research into high yielding paddy varieties (the BG Series), during the 1960's.

The second prize referred to as the National Science Council Award was shared by Prof. S.N. Arseculeratne, Dr S. Gnanalingam, Mr M. Nadarajah, Dr O.S. Peries and Dr C.R. Panabokke (16)

1982 - For the first time NARESA was invited by USAID to co-ordinate and assist in the selection of R & D Projects for fuding by USAID.

1982 - On the invitation by SAREC, NARESA agreed to function as the focal point in Sri Lanka for research co-operation with SAREC. Apart from the first three projects funded by SAREC, it agreed to support the Buffalo Research Programme the Inland Fishery Research Programme and the Scientific Capacity Building Programme comprising the strengthening of the Electronic Equipment Repair Facility at the University of Peradeniya, the Glass-Blowing Facility at the University of Colombo, and the Glass Blowing Facility at the University of Moratuwa.

1983 - SAREC agreed for the first time to award a sum of Rs.300,000/= for research in social sciences and humanities.

1983 - On the invitation of the Canadian International Development Agency, NARESA agreed to co-ordinate and administer the research component of the Canadian Potash Grant to Sri Lanka. Accordingly applications were called and the first set of 11 grants were awarded in 1983.

1983 - An agreement was signed in 1983 with USAID in-terms of which a grant of US $ 117,704 was to be made by USAID to finance the following projects

(a) Improving nitrogen Fixation in grain legume
(b) Collection, introduction and characterisation of important root and tubercrops
(c) Biological control of insect pests of vegetables

1983 - Following an offer from IBM World Trade Corporation (Sri Lanka), NARESA instituted a prize for Achievements in Technological Research and Development, comprising of a cash award of Rs.50,000/-. The nomination submitted by the Ceylon Tobacco Company consisting of a facility to manufacture coir-fibre briquettes using solar energy, was awarded the prize.

1983 - The year 1983, marked the further expansion of activities of NARESA, with the construction of a well equipped, air-conditioned auditorium and an additional wing to the main building at a cost of over Rs. 4.5 million. This enabled NARESA to expand its services in the field of S & T information, and also its printing and publishing activities.

1983 - With the establishment of the SARRC Technical Committee on Science and Technology, NARESA was designated the focal point for co-ordination of all activities of this Committee.

1984 - On the initiative of the Working Committee on Science Education, NARESA sponsored the establishment of Association of Science and Mathematics Education (SLASME), and the inaugural meeting was convened in December, 1984

1984 - On the invitation of the Energy Committee, a demonstration was organized for energy-saving fuelwood cookers developed by various institutions. Based on this exercise, the models developed by CISIR and Sarvodaya were recommended to Ministry of Power and Energy. Subsequently, from the findings of a CISIR standard cooking test, in which it was shown that the highest fuelwood saving was by the IDB model, IDB was awarded a grant for further experimental work and field testing of its stove.

1984 - The National Consultative Committee on New and Renewable Sources of Energy of the Ministry of Power and Energy, sought the advice of NARESA on three project proposals. The Energy Committee's recommendations on the proposals were submitted by the Authority to the Ministry of Power and Energy.

1984 - NARESA established a well equipped printing facility, which not only facilitated the publication of the Journal of the National Science Council of Sri Lanka, and other important reports and documents within the secretariat, but also offered its services for other scientific institutions at reasonable costs.

1984 - NARESA initiated the Zoological Survey of Sri Lanka research programme with six research projects, to study the distribution and intensity of faunal species in Sri Lanka. The six projects covered freshwater fish, birds, amphibians, marine invertebrates, parasites and plant nematodes. Three of these projects received SAREC funding.

1985 - NARESA assumed Chairmanship of the SAARC Technical Committee on S & T for 1985 to 1986.

1985 - NARESA received UNESCO assistance to initiate the first phase of the Science Indicators and Statistics study programme, which involved a country-wide study of financial resources, physical infra-structure and high level human resource devoted to scientific work in Sri Lanka.

1985 - The Authority approved a scheme for making awards to scientists for research work of outstanding merit.

1985 - For the first time National Awards for distinction in the Teaching and Learning of Science was made. The presentation was made by the Minister of Education.

1985 - Following joint consultations between NARESA and the National Livestock Development Board (NLDB), an agreement was signed for the establishment of a Research Farm for Buffalo Research at Narangalla Estate, Kuliyapitiya.

1985 - On a request by the Presidential Secretariat, NARESA organized the following activities in connection with the International Youth Year.

(a) Posters on the Mangrove Ecosystem, Coral Reefs, Marine Ecosystems, Indigenous Fauna and the Shrinking Natural Habitats of Sri Lanka

(b) Video films on Sinharaja National Heritage, Mangrove Ecosystems, and on Environment, Man and Industrialization

(c) A Central Exhibition on Science and Technology in collaboration with the University of Colombo.

1986 - NARESA approved the Sri Lanka - Australian Project for the Biological Control of Salvinia under which A $ 75,400 was to be provided to NARESA to co-ordinate and implement the R & D Programme.

1986 - Issue of four postage stamps, a poster competition for schools in Negombo and the publication of an illustrated booklet were some of the activities organized to create an awareness and understanding of the importance of conserving Mangroves.

1986 - National Awards for Scientific Achievements were awarded for the second time in 1986. The Presidents Award was won by the team of scientists led by Prof M.U.S. Sultanbawa for "Achievements in Scientific Research towards Harnessing Natural Product Resources of Sri Lanka and Development of a Centre of Academic Excellence in Natural Product Chemistry at the University of Peradeniya". The NARESA Award was shared by Dr R.L. Wickremasinghe for "A Miscellany of Contributions to Science in Sri Lanka" and the team of entomologists led by Dr H.E. Fernando for their "Concerted Scientific Effort to Save the Coconut Industry from an Introduced Pest *Promecotheca Cumingii.*"

1987 - A series of workshops were held in all disciplines to compile a list of priority areas for Research.

1987 - On a recommendation by the National Mangrove Committee, the ownership of three small mangrove islands in Kadolkelle, Negombo were transferred to NARESA by the Land Commissioners Department, to establish a National Mangrove Park.

1987 - A Wang microcomputer system was installed to assist the Sri-Lanka Scientific and Technical Information Centre (SLSIC) to establish data bases on UNICAST, UNILIST and SLSI. It was also used to test and develop the CDS/ISIS Library software package, for which SLSTIC - NARESA was designated the distribution centre by UNESCO.

1989 - Under a programme sponsored by the British Council, NARESA organized and co-ordinated a workshop at CISIR to train technicians on use, maintenance and repair of analytical instruments. The final Training workshop for technicians was conducted in August 1990.

1989 - The preparation of a Natural Resources Profile of Sri Lanka was undertaken by NARESA with financial support and collaboration from USAID. The project which commenced in November 1989, was completed during 1990.

1990 - NARESA contributed Rs.100,000/= towards the construction of a new research hut, to be built at Horton Plains Wild Life Reserve, by the Department of Wild Life.

1990 - NARESA became a participating agency in the Natural Resources and Environmental Policy Project (funded by USAID) for the establishment of a Natural Resources Information Centre.

1990 - The Authority initiated its second major multidisciplinary research project titled, the Coastal Ecology Research Programme, to be funded by SAREC.

1991 - NARESA in collaboration with the NGO March for Conservation and the National Institute of Education conducted three workshops at the Provincial level to identify the effectiveness of environmental/ conservation education at school level. As an outcome of these workshops a report giving recommendations to improve the level of environmental education in schools has been submitted to the relevant authorities.

1991 - National Awards for Scientific Achievements were awarded for the third time in 1991, and was shared by Prof C.B. Dissanayake of the Institute of Fundamental Studies, Prof. K.A.A.P. Warnakulasuriya from the University of Peradeniya and the 12 - member research team from the Rubber Research Institute headed by Dr A.De.S. Liyanage.

1992 - A new activity initiated during 1992, was the convening of media briefing meetings on specific issues of significance to the general public as well as policy makers. Such press conference were held on the following research programmes (a) Access Mobility in Industrial Locations (b) Landslides of Sri Lanka (c) Performance on Coastal Structures Armoured with Natural Rock and Concrete Armour Units (d) Biological Control of Salvinia and (e) the Buffalo Research Programme.

1993 - Construction of a mezzanine floor in the library to make optimum use of space, and thereby expand the service facilities of the Information Centre.

In concluding the section, it is necessary to state that what has been presented here is a summary of the organisations activities set out in an historical perspective. Except for the prestigious research grants scheme, which will be reviewed in some detail in the final part of this report, this presentation is not intended to evaluate the role played by the National Science Council or its successor the Natural Resources, Energy and Science Authority during the 25 years of its existence. However, it is to be noted that apart from the special publications and reports listed in Annexes 2 and 3, the organisation has published 21 volumes of the internationally recognized Journal of the National Science Council of Sri Lanka, 16 volumes of the Sri Lanka Journal of Social Science - the only regular periodical on Social Science in Sri Lanka, 15 continuous volumes of the Bulletin "Vidurawa", 19 bulletins on fauna and flora checklists under the Man and the Biosphere Programme, 34 numbers for the Science Education Series

Programme and six issues of the "Science Investigations" series. It is obvious that the impact of these as well as of the large number of training courses, seminars and workshops conducted by the organisation, and the awards schemes for Scientific achievements, cannot be measured, evaluated and reported in a short presentation of this nature.

Twenty two years of Research Sponsorship

As mentioned earlier, in 1970 the National Science Council, initiated one of its most ambitious schemes, to award grants for creative, curiosity oriented scientific research. It was indeed the first time that any such scheme covering all fields of science was initiated by any institution in Sri Lanka. This research grant scheme continued to function almost in its original form under NARESA which replaced the NSC in 1982.

Under this scheme grants for research in the fields of agriculture, biology, chemistry, medicine & veterinary sciences, physical and engineering sciences, and social sciences are awarded annually. Applications for grants are invited by advertisement in national news-papers annually during the month of June, for grants to be awarded from the 1st of January the following year. Applications received are screened and evaluated by specialist committees appointed for each of the above subject areas. These committees which are constituted as statutory working committees, function for a period of 2 years.

The grants awarded are monitored regularly through progress reports submitted at half-yearly intervals and through progress review seminars. Once the research programme is completed, a final report is submitted by the grantee, which is evaluated by the specialist panel. The evaluation takes into account any postgraduate degrees awarded to personnel associated with the project and also the intrinsic scientific contributions made towards widening the horizons of knowledge and/or application of science and technology for development.

In awarding research grants regularly, the National Science Council and its successor the Natural Resources, Energy and Science Authority had as their main objectives, (a) providing opportunities for Sri Lankan scientists to engage in both applied and curiosity-oriented "expedient basic research" in any field of science, (b) the enhancement of research capability, both of the recipient and of his laboratory, (c) providing opportunities for promising young scientists to obtain postgraduate degrees and be in productive employment and (d) offering an opportunity for foreign trained Sri Lankan scientists to re-orient towards the national research needs of the country. Accordingly, in evaluating the research output, consideration had to be given to the extent to which the primary objectives have been achieved. It has to be commented that although this organisation's financial contribution amounted to less than 5 percent of the total research budget

in the country, it was the key scientific organization which supported curiosity-oriented research in all scientific disciplines, including social sciences. This grant awarding scheme with its non-restrictive and open-ended policy, has thus been a strong and positive path-finder for the research orientation of the country's viable research community.

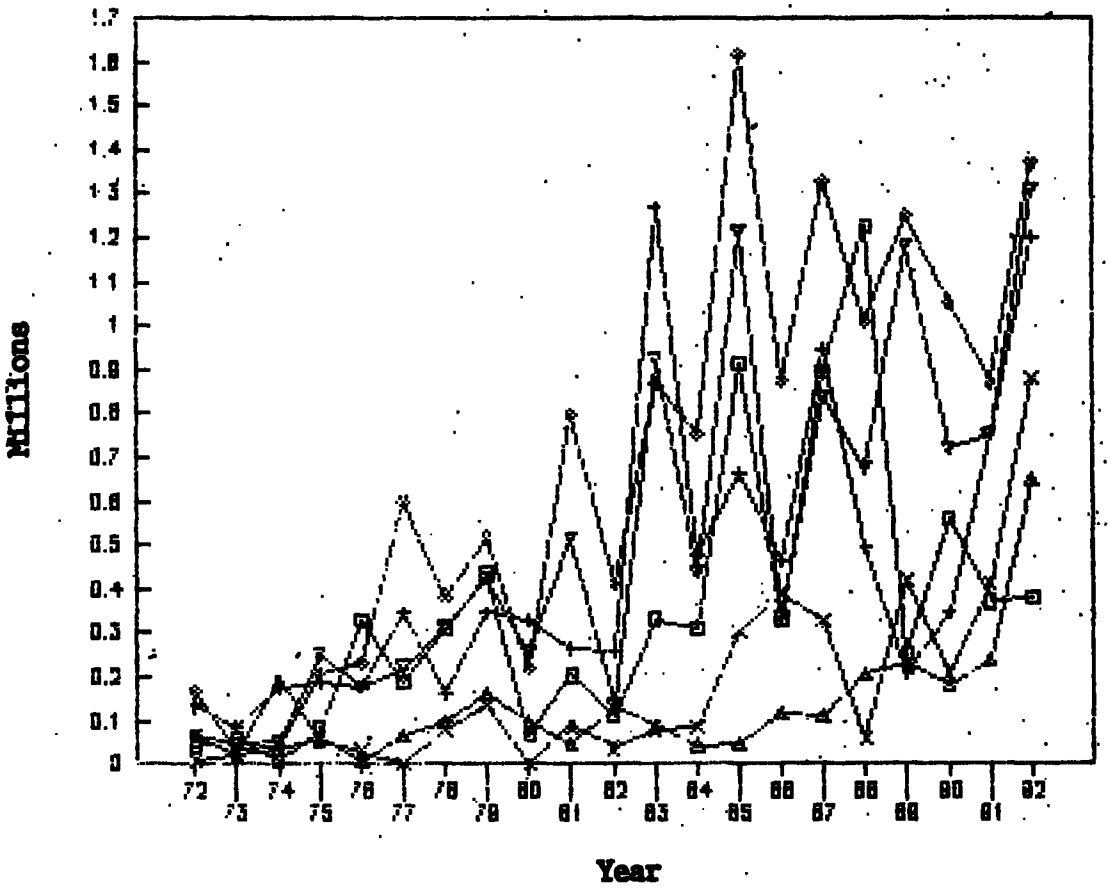
The data presented in figure I illustrates the manner in which funds have been allocated to the major subject areas over a period for 22 years (1970-1992). It is to be noted that despite the fact that the government's grant to the organization for scientific research had remained virtually constant over the period, and hence substantially declined in value in real terms, it has been possible to maintain the momentum in research activity over the years.

Chemical Sciences, Medical and Veterinary Sciences and Agricultural Sciences continued to make the biggest demand on funds. Table I summarizes the status of research grants awarded during 1970-1992. No attempt has been made to deflate the expenditure to constant prices as comparisons are made between subject areas over the identical period. It is to be noted that although Social Sciences have received the highest number of grants (25 percent), this subject area needed the least amount of funding (5% of total). The hard sciences, especially Chemical Sciences (with 27.6%), made the greatest demand on funds, mainly due to the need for equipment and costly consumables. It is significant that Agricultural Sciences have seen relatively more successes, in terms of completed grants, and also had on an average, received bigger allocations per grant. The overall average success rate of 57 percent for the 1119 research grants awarded by this organization over 22 years, can be considered most gratifying by any standard, since a success rate of 40 percent is generally considered highly fruitful.

A significant feature of the research grants scheme is its productivity in terms of postgraduate degrees and scientific publications. This is reflected in the data summarized in Table 2. In all 207 Masters degrees and 33 doctoral degrees were produced during its 22 year history of research sponsorship.

The overall cost of a postgraduate degree (row 8 of Table 2) has been computed on the basis of the expenditure involved in those grants which resulted in a postgraduate degree during the period 1970-1992. The amounts which range from around Rs.39,000 to about Rs.54,000, for medical and hard sciences, includes the expenditure on equipment, consumables, travel, living allowances of the research assistants and any other labour costs, but does not include the costs of bench space or payments to supervisors. In social sciences the postgraduate degrees awarded were mostly in the field of education, and since the research grantee himself was the recipient of the degree, the expenditure involved was only in respect of travel and stationery. These figures show that at least in terms of human resource development, how profitable the research grants scheme had been. Its significance becomes more evident when one surveys the positions occupied by some of these beneficiaries, and contributions made by them in key public sector institutions, as well as in the academe.

Allocation of funds according to discipline by year (1972-1992)



□ Agricultural

\+ Biological

O Chemical

V Medical & Veterinary

X Physical & Engineering

▲ Social Sciences

TABLE 1: SUMMARY INFORMATION ON THE NARESA RESEARCH GRANTS SCHEME

1970 - 1992

Subject area	Total No. of grants allo-cated	As per-cent total No. of grants	Total sum alloca-ted Rs. ($x10^3$)	As per cent of total allo-cation	Average alloca-tion per grant Rs. ($x10^3$)	Total No. of grants comple ted	Per cen-tage of grant comp-leted
Agricul ture & Animal Husbandry	100	8.9	10097	19.8	101.0	74	74.0
Med/Vet	260	23.2	9050	17.7	34.8	117	45.0
Biological Sciences	198	17.7	10804	21.2	54.6	112	56.7
Chemical Sciences	199	17.8	14072	27.6	70.7	122	61.3
Physical and Engineer-ing Sciences	77	6.9	4367	8.5	56.7	49	63.4
Social Sciences	285	25.5	2646	5.2	9.3	110	38.6
Total	1119	100	51036	100	--	584	--

TABLE 2: OUTPUT OF THE RESEARCH GRANTS SCHEME IN TERMS OF POSTGRADUATE DEGREES AND SCIENTIFIC PUBLICATIONS

1970-1992

Subject area / Parameters	Agri.& Animal Husbandry	Biological Sc.	Chemical Sc.	Medical & Vet. Sc.	Physical & Eng. Sc.	Social Sc.
No.of completed grants	74	112	122	118	49	110
Total expenditure (Rs.x10^3)	4565	5744	9781	5582	2482	1666
Expenditure on equipment (Rs.10x^3)	473	311	640	319	231	0
Percentage spent on equipment	10.4	5.4	6.5	5.7	9.3	0
Master's degrees	12	47	45	31	14	58
Doctorates	01	03	09	14	03	02
P.G. degrees as a percentage of the No.of grants	17.6	47.6	44.3	38.1	34.7	55.5
Overall cost of a postgraduate degree (Rs.)	53728	39270	52639	46181	50120	4550
Publications in international Journals	08	18	78	19	27	3
Publications in local journals	19	27	43	39	08	38
Scientific Communications	24	67	192	59	22	8

The research grants scheme had also resulted in the publication of 327 scientific papers of which a little under 50 percent were in internationally recognized refereed journals. This is indeed a tribute to the ingenuity and quality for our scientific personnel, who when offered the opportunity and facilities have been able to display their true capabilities. It is also significant to note that 51 percent of scientific papers contributed to international journals and 26 percent of the papers contributed to local journals came from chemical science grants.

It has to be noted that what has been presented here reflects only funds allocated to NARESA from the national budget. Over the past 10-12 years NARESA has been receiving increasingly significant amounts of funds from international agencies such as SAREC, USAID, CIDA and AIDAB for sponsored research. This is again a reflection of the acceptance and satisfaction of NARESA's research grants scheme by international funding agencies.

Research sponsorship is one of the major functions of NARESA. As pointed out earlier the objective of NARESA's research sponsorship scheme is multi-dimensional and not confined to be totally objective-oriented. In this respect the performances have been more than what could be expected, especially considering the enormous constraints in trying to over-come delays caused by bureaucratic administrative and financial procedures, which tends to hinder the type of open-ended scientific work that NARESA has supported , and which is most eagerly sought by those patronising the scheme.

And now what of the outcome of research? In the past, when a research project is completed and a final report has been submitted, as a matter of policy, these reports were not released for two years, unless otherwise requested by the researcher. In fact, some researchers have refused to submit comprehensive accounts of their research findings, because of the fear that the information may be reproduced by unscrupulous persons for their personal benefit. Such incidents have in fact occured in the past, as there were no guarantees for protection of such material. However, with certain types of precautions, taken by NARESA, the research findings are now made available to genuine users which include government departments and institutions, with due acknowledgement to the authors. More recently, in order to create an awareness in the work done by research scientists under NARESA's research grants scheme, regular meetings with media personnel were initiated, which have no doubt helped the organisation to be more visible and take its rightful place in the scientific and technological progress of the country.

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Annex I

SEMINARS AND MEETINGS HELD DURING 1968 TO 1992
(Excludes routine progress review seminars for grantees and routine training workshops)

Year	Title	Sponsors
February 1970	Organisation and Management of Scientific and Industrial Research	NSC/M/I&ST US-NAS
July-August 1972	Workshop on the Early Evaluation of Life	NSC-UNESCO
December 1974	UNISIST Meeting of Experts on Regional Information Policy Development in South Asia	NSC-UNESCO
June 1975	Workshop on Natural Products	NSC-UNESCO
1975	Meeting on the Present Role of Universities in Scientific Development	NSC - COSTED University of Sri Lanka
January 1976	Seminar on Science Policy and Planning (Guest Speaker Prof.M.Moravesik)	NSC-USIS
March 1976	Seminar on Man & His Environment (Guest Speaker: Dr Hansjorg Oeltzchner)	NSC - German Cultural Inst.
May 1976	Seminar on Sun Drying Methodology	NSC - Australian High Commission
Nov/Dec. 1976	9th Biennial Meeting of the Commonwealth Science Committee	NSC - on behalf of the Govt. of Sri Lanka
15-26 Aug. 1977	Workshop on Scientific Research and Methodology	Sc.Edu. Committee of NSC
Dec. 1977	Seminar on Access to Literature on Science Education	Sc. Edu.Commi- ittee of NSC
Feb. 1977	3rd Asian Symposium on Medicinal Plants and Spices	NSC - SLFI
May 1977	Workshop on Scientific and Technical Information for Mid Level Library Personnel	NSC
Dec. 1977	Seminar for Heads of Commonwealth Geological Surveys in the Asian Region	NSC - Dept. of Geological Surveys

Year	Title	Sponsors
June 1978	National Workshop on the Application of Science and Technology for Development (to review the draft National paper for UNCSTED)	NSC
August 1978	Seminar on the Role of Tourism in Social and Economic Development of Sri Lanka	Social Sc. Research Centre/NSC
September 1978	International Symposium on Information Analysis and Consolidation	UNESCO/NSC
1978	Seminar on Science Investigations in Schools	NSC
March 1979	A Workshop on the Use of Science Citation Index	SLSTIC/NSC
February 1979	A User Seminar to Introduce NTIS Services	USIS/NSC
November 1979	Seminar on Sources of Scientific Information for Research Assistants of NSC Research Grantees	NSC
November 1979	Workshop on Demonstration Experiments in Physics	NSC/SLFI/ COSTED
April 1979	Steering Committee Meeting of the Commonwealth Metrology Programme for Asia - Pacific	CSC/NSC Dept.of Inter nal Trade
Jan.1980	Workshop on Citation Index	NSC
February 1980	A Workshop on Post Harvest Food Losses.	NSC/US-NAS/ SLFI
March 1980	Seminar on University Education	NSC
August 1980	A User Seminar on NTIS Services	NSC
May 1980	Regional Meeting of Experts on Follow-up Action on the UN Conference on Science and Technology for Development	NSC
Dec. 1980	Full-time Training Workshop on Science Education	SERC/NSC
1980	Planning Meeting for the Project on Cultivation and Processing of Medicinal Plant, of the Commonwealth Asia/Pacific Rural Technology Programme	CSC/NSC

Year	Title	Sponsors
1980	Planning Meeting for the Project on Organizing the Traditional Light Engineering Industry, of the Commonwealth Asia/Pacific Rural Technology Programme	CSC/NSC/NERD Centre
1980	Planning Meeting for the Project on Development of Inland Fisheries of the Commonwealth Asia/Pacific Rural Technology Programme	CSC/NSC/ Ministry of Fisheries
January 1981	Seminar on Sources of Scientific Information for NSC Research Grantees and Research Assistants	NSC
March 1981	Seminar on Periodicals Management for Library Personnel	NSC
July 1981	National Workshop on Library and Information Science for Science Information Personnel	NSC/UNDP
June 1981	Second Programme Review Meeting on Management of Water Hyacinth Under the Commonwealth Regional Rural Technology Programme	NSC/CSC
February 1982	International Workshop on Resistance to Insecticides Used in Public Health and Agriculture	NSC/FAO/WHO ADAB/Centre for Overseas Pest Research
March 1982	Workshop on Index Medicus for Medical librarians	NARESA
June 1982	National Workshop on Library and Information Science for Librarians	NARESA
July 1982	Workshop on R and D Activities in Relation to Aquatic Resources of Sri Lanka	NARESA/NARA
February 1983	The Final Review Meeting on the Commonwealth Regional (Asia/Pacific) Rural Technolog Programme	NARESA/CSC
March 1983	An International Seminar on Land and Marine Plants of Potential Medicinal value	NARESA/CSC
September 1983	Seminar on Standards for Editing and Publishing Scientific Journals	NARESA/COSTED/Asian Science Communications Organization

Year	Title	Sponsors
October 1983	Seminar on Presentation of Scientific Papers for Research Grantees and Research Assistants	NARESA
November 1983	6th General Conference of the International Federation of Social Science Organisations (IFSSO)	NARESA/IFSSO
April 1984	International Workshop on Integrated Energy Systems for Rural Development	NARESA/CSC
May 1984	Seminar on Minerals and Mineral Resources, Research and Development in Sri Lanka	NARESA
December 1984	Seminar on Bibiliographic Data Bases at SLSTIC	NARESA
April 1985	Seminar on Archaeology - Past, Present and Future	NARESA
May 1985	Seminar on Role of Judiciary in the Protection of Fundamental Rights in Sri Lanka	NARESA
July 1985	Workshop on the Use of Statistics in Research for Grantees and Research Assistants	NARESA
October 1985	Meeting of the SAARC Technical Committee	NARESA/Min.of Foreign Affairs
November 1985	Seminar on Methods of Chemical Analysis in Research	NARESA
April 1986	Seminar on Resource Allocation for Social Science Research in Sri Lanka	NARESA
July 1986	A Seminar on Landslides - Causes and Prevention	NARESA
October 1986	Meeting of the SAARC Technical Committee	NARESA/Min. of Foreign Affairs
October 1986	Seminar on Carbohydrates for Grantees and Research Assistants	NARESA
October 1986	Seminar on Phytochemical and Biological Investigations on Medicinal Plants	NARESA/SLAAS/ SCAMAP
October 1986	UNESCO-NARESA National Seminar on Scientific and Technical Information Policy	NARESA/ UNESCO
October 1986	Regional Seminar on National Information Policy and Transborder Data Flow	NARESA/ UNESCO
October 1986	4th ASTINFO Consultative Meeting	NARESA/ ASTINFO
November 1986	Seminar on Further English for Junior Scientists	NARESA

Year	Title	Sponsors
November 1986	Regional Symposium on New Perspectives in Research and Management on Mangrove Ecosystems	NARESA
January 1987	Seminar on Investigational work by Students (Medical)	NARESA
March 1987	Seminar on Impact of New Technologies on Society	NARESA
March 1987	International Workshop on Management and Evaluation of Multidisciplinary Research	NARESA/CSC
March 1987	Regional Training Workshop on the Ecology and Conservation of Humid Tropical Forests of the Indo-Malayan Realm	NARESA/UNESCO World Heritage Conservation/ USAID
June 1987	Workshop on CDS/ISIS Software	NARESA/IDRC
October 1987	Seminar on Sampling for Quantitative Analysis for Senior and Junior Scientists	NARESA
October 1987	Regional Meeting of the National Co-ordinators of the Regional Information Network of South and Central Asia (RINSCA)	NARESA/UNESCO
February 1988	Seminar on Natural Products Chemistry - Biologically Oriented Research Projects	NARESA
February 1988	Seminar on Integrated Research Programmes on Mangrove Ecosystems in the Negombo Lagoon	NARESA
February 1988	Seminar on Evaluation of R & D Efforts	NARESA
March 1988	Workshop on Soil Biology of Natural and Cultivated Ecosystems	NARESA/Univ. of Kelaniya
May 1988	Regional Workshop on Conservation Methodology	NARESA/CSC Dept. of Agric.
May 1988	Seminar on Botanicals as Pests and Disease Control Agents	NARESA
June 1988	Seminar on Collection and Presentation of Research Materials in Social Sciences	NARESA

Year	Title	Sponsors
October 1988	National Workshop on Information Systems for Promotion and Utilization of Technology	NARESA/CISIR/ Asia Pacific Centre for Transfer of Technology
March 1989	Development of Practical S & T Indicators for Economic Development	NARESA/STEPAN
March 1989	Workshop to Identify Priorities for Long Term Research in Tropical Forests and Coral Reef in Sri Lanka	NARESA/USAID
1989	Regional Seminar on Buffalo Research	SAREC/NARESA
September 1989	SAARC Training Course in Lowcost Housing	Foreign Ministry NARESA/NERDC
February 1990	Seminar on Conservation of Genetic Resources in Sri Lanka	NARESA
February 1990	A Seminar for Senior Officers of the Departments of Agriculture Irrigation and Agrarian Services, to Provide Factual Information on the Biological Control of Salvinia	NARESA
March 1990	International Symposium on Ecology and Landscape Management in Sri Lanka	NARESA/UNESCO
April 1990	Seminar on Social Change in Sri Lanka during the Past Two Decades	NARESA
May 1990	Training Workshop on CDS/ISIS Library software	NARESA/CINTEC
June 1990	A Conference on the Use of Organic Matter in Agriculture in Sri Lanka	NARESA
July 1990	SAARC Seminar on Biomass Gasification	Foreing Ministry NARESA/NERDC
August 1990	Seminar on Problems and Issues in Higher Education	NARESA
August 1990	Seminar on Conservation/Management of Ritigala Kanda, Horton Plains and Peak Wilderness	NARESA/Dept of Wild Life Conservation
1991	Seminar on Contribution of Social Sciences to the Development of Human Resources	NARESA
February 1991	Seminar on Energy Efficiency in Transport	NARESA
June 1991	Workshop on Role of Information in Technology Development	NARESA/Centre for Industri- al Technology Inf. Services

Year	Title	Sponsors
July 1991	Seminar on Strategy for Developing Bio-active compounds from Sri Lankan Plants	NARESA
July 1991	Seminar on Graphite	NARESA/State Mining and Mineral Dev.Corp
Septem-ber 1991	Workshop on Scientific Writing	NARESA
October 1991	Training Workshop on Wetlands	NARESA
April 1992	Pan-Commonwealth Workshop on Mathematical Modelling in Circuit Design.	NARESA/CSC/ Univ. of Peradeniya
May 1992	The Final Review Seminar on CIDA- funded Potash Fertilizer Research Programme	NARESA/CIDA
October 1992	Seminar on Curd Production - Buffalo Research Programme	NARESA/SAREC
November 1992	A Workshop on Medical Ethics, to Formulate Ethical Aspects in Medical Research	NARESA

Annex 2

GENERAL PUBLICATIONS PRODUCED DURING 1968 TO 1992

(Excludes all NARESA Journals and regular publications under the Man and the Biosphere Programme, Science Education Publication Series, and Library Bulletins and news letters)

Year	Title	Sponsor/ Publisher
1974	Directory of Scientific Research Projects in Sri Lanka	CISIR/NSC
1974	Director of Scientific and Technical Personnel in Sri Lanka	NSC
1976	Proceedings of the Workshop on Natural Products held in June 1975	US-NAS
1977	Bibiliography of Scientific Publications Relating to Sri Lanka 1960 - 1976 by N.A.W.A.T. Alwis	NSC
1977	The first issue of the Sri Lanka Science Index	NSC
1977	The first issue of the Current Science Bulletin	NSC
1978	An Introduction to the National Archives in Sri Lanka by K.D.C. Wimalaratne -	SSRC/NSC
1978	The Future of Shanty Towns by K.R. Peiris and Charles Doidge	SSRC/NSC
1978	Seminar Report on the Role of Tourism in Social and Economic Development in Sri Lanka	SSRC/NSC
1979	A Union List of Periodicals on Social Science and Humanities in Sri Lanka by Daya de Silva	SSRC/NSC
4979	Report on the Proceedings of the Internal Seminar on the NSC Research Grants Scheme	NSC
1979	Corporate Plan of NSC for 1980-1984	NSC
1980	Medical Research in Sri Lanka - A Bibliography of Publications on Western Medicine, 1950-1975 by (Mrs) K.S. Peiris	NSC

Year	Title	Sponsor/ Publisher
1980	Medicinal Plants of Sri Lanka by D.M.A. Jayaweera, Volume I and III	NSC
1980	Unesco Study of an International Information System Relating to New and Renewable Sources of Energy - Report of a Field Study by M.A.T. de Silva and Nimala Amarasuriya	NSC
1980	A preliminary Report on the Feasiblity of Ocean Thermal Energy Conversion (OTEC) Power for Sri Lanka	Solar Energy Group/NSC
1980	Proceedings of a Workshop on Post-harvest Food Losses, sponsored jointly by NSC, US-NAS and SLFI	
1981	Medicinal Plants of Sri Lanka by D.M.A. Jayaweera Volume II	NSC
1981	Sri Lanka National Paper for CASTASIA II Meeting in Jakarta, was prepared by L.C.A. de S. Wijesinghe and Mr M.A.T. de Silva	NSC
1981	Proceedings of the Seminar on University Education in Sri Lanka	SSRC-NSC
1982	A Compendium of Research and Development Projects in Sri Lanka, on Energy Related Problems 1981 by M.A.T. de Silva	NSC
1982	Medicinal Plants of Sri Lanka by D.M.A. Jayaweera Volume IV	NARESA
1982	A Bibiliography on Rubber Research in Sri Lanka by N.A.W.A.T. Alwis	NARESA
1983	Medicinal Plants of Sri Lanka by D.M.A. Jayaweera Volume V	NARESA
1983	Proceedings of the International Workshop on Resistance to Pesticides used in Agriculture and Public Health	NARESA
1983	Proceedings of the Seminar on Social Science Research Methodology, compiled by the Social Sciences Working Committee	NARESA
1984	Seminar Report on Standards for Editing and Publishing Scientific Journals	NARESA
1984	A Bibiliography of Siddhayurveda by S. Murugaveil	NARESA
1984	An illustrated Booklet on "Mangroves of Sri Lanka" by L. Pinto	NARESA

Year	Title	Sponsors/ Publishers
1984	International Co-operation in Science and Technology - A Study of an R & D Programme on Rural Technology in the Asia - Pacific Region by M.A.T. de Silva	Common-wealth Science Council
1987	The Hydrogeochemical Atlas of Sri Lanka - by C.B. Dissanayake and S.V.R. Weerasuriya	NARESA
1987	Sri Lanka Science and Technology Indicators - Part I. Organizational Structures and the Status of National Efforts in Science and Technology - by S. Liyanage and M.A.T. de Silva	NARESA
1987	Proceedings of the Regional Training Workshop on Ecology and Conservation of the Tropical Humid Forests of the Indo-Malayan Realm	NARESA/ UNESCO
1988	Sri Lanka Science and Technology Indicators. Part II. Diffusion and Assimilation of S & T Knowhow in the Agricultural Sector of Sri Lanka - by S. Liyanage, M.A.T. de Silva and D.V. Chandraratne	NARESA
1988	Inventory on Mollusca - by H. Crusz	NARESA
1988	Freshwater Fauna and Fisheries of Sri Lanka by C.H. Fernando	NARESA
1988	National Status Report on Conservation of Genetic Resoures of Sri Lanka	NARESA
1989	A Compendium of Energy Related Technologies	NARESA
1989	Biological Conservation in Sri Lanka - A National Status Report by L.C.A. de S. Wijesinghe et al	NARESA
1990	The first issue of "Vidyawen Apata", a news magazine to disseminate information on basic technologies under the Janasaviya Programme	NARESA
1991	Natural Resources of Sri Lanka - Conditions and Trends (16 Contributors)	NARESA/ USAID
1991	Sri Lanka Science and Technology Indicators Part III. Scientific and Tehno-economic Perspectives for Technological and Industrial Policy Planning by M.A.T. de Silva et al	

Year	Title	Sponsor/ Publisher
1991	A Bibiliography on Medical Parasitology by J.S. Edirisinghe	NARESA
1992	Flora of Ceylon Volume 7	
1992	Proceedings of the Seminar on Energy Efficiency in Transport	NARESA
1992	Access Mobility in Industrial Locations by N. Jayawardena	NARESA
1992	Assessment of Availability and Quality of Ground Water in Sri Lanka - by H.C. Kariyawasam	NARESA
1992	Pan-Commonwealth Workshop on Mathematical Modelling in Circuit Design - The pre workshop Resource Manual	NARESA/CSC

Annex 3

REPORTS ON SPECIAL SUBJECTS (1968-1992)

Year	Title	Purpose
1969	National Science Policy Statement	To sensitize the government
	Aspects of National Science Policy	To sensitize the government
G973	A Report on Environmental Management in Sri Lanka	Advisory report to the Min.of Planning & Eco. Affairs
1977	Checklists of Liverworts, Mosses and Parasitic Fungi of Sri Lanka	MAB Programme
1977	A Hand book of Birds of Sri Lanka	MAB Programme
1979	A Report on Post-graduate Training of Scientists, to His Excellency the President	Element of Science Policy
1979	A Report on Upgrading of Science Education in Rural Schools (A Report prepared on the request of the Ministry of Industries and Scientific Affairs)	Element of Science Policy
1980	The Solar Energy Group (SEG), prepared a report on the Pattiyapola Rural Energy Centre on the request of the Minister	To advise the Minister on the current status
1980	The Solar Energy Group responding to a request by H.E. The President, submitted a Report on the Feasibility of Ocean Thermal Energy Conversion (OTEC) for Sri Lanka	To advise His Excellency of present state of knowledge & feasibility
1980	A Committee comprising of representati-ves from the Sri Lanka Association for the Advancement of Science, National Academy of Sciences Sri Lanka and the National Science Council submitted to the Ministry of Scientific Affairs, a Cabinet paper for the establishment of a National Science Centre	Establishment of a National Science Centre
1981	The Science Policy Research Committee prepared a memorandum on the UNDP-sponsored project for the Transfer of know-how through Expatriate Nationals (TOKTEN), strongly recommending the Utilization of local experts whenever available	To address the relevant Minister on this subject

Year	Title	Purpose
1981	Published the following reports under the MAB Programme, (a) Monitoring of the Environment Impact of the Mahaweli Project (b) Socio-economic Survey in the Mahaweli Area	To advise the relevant authorities
1981	Checklists of Mosquitoes and Amphibia of Sri Lanka	MAB Programme
1982	A Report on the salaries of graduate science teachers was prepared by the Science Education Research Committee for consideration by the Salary Review Committee of the Education Ministry	Element of Science Policy
1982	A Report on Energy Production from Agro-Products, based on a proposal by the Ministry of Agricultural Devlopment and Research submitted to the Cabinet Sub-committee on Economic Development	Position paper for the Cabinet Sub committee on Economic Development
1982	The Report on the Proposal to Use Atomic Energy for the Generation of Electric Power in Sri Lanka (Prepared on a Presidential directive)	To resolve a controversy following the grant of cabinet approval for a proposal
1982	A Hand Book on Soil Fungi	MAB Programme
1982	A Hand Book on Families of Flowering Plants of Sri Lanka	MAB Programme
1982	A Checklist of mammals of Sri Lanka	MAB Programme
1983	A Report on A National Computer Policy was submitted to the Presidential Secretariat. This was accepted by the Govt. and a bill to establish a National Computer Policy Advisory Committee was passed in parliament	An element of science policy
1983	A Hand book of Fungi Associated with Insects of Sri Lanka	MAB Programme
1983	A Checklist of Land Snails of Sri Lanka	MAB Programme
1984	A memorandum on "A National Energy Policy for Sri Lanka was submitted to H.E. the President. The report was accepted by the government	An element of science policy
1984	A memorandum to constitute the Royal Botanical Gardens as a separate department was submitted to H.E. the President	To advice government
1985	A memorandum on the National Telecommunication system was submitted to the Presidential Secretariat	To advise the government

Year	Title	Purpose
1985	Memoranda were submitted to the Presidential Secretariat on the following topics (a) Special allowance to scientists (b) additional allowances to Heads of Technical Departments, (c) Foreign experts, and (d) housing for scientists	Elements of science policy
1985	Memorandum prepared by a special committee, on the "Felling of Forests in the Upper Montane Region, " was submitted to the Presidential Secretariat	To advice the government
1986	The recommendations of a Seminar on Reforestation, was submitted to the Presidential Secretariat	To advice the government
1986	The observations on the National Science and Technology Policy documents published by the Ministry of the Plan Implementation were submitted to the Presedential Secretariat	S & T Policy advice
1986	Observations on the Forestry Master Plan were submitted in a memorandum to the Ministry of Lands and Land Development and the Directorate of the Forest Resources Development Project	To Advise the Government
1988	A memorandum was submitted to H.E. the President on Strengthening Quarantine Control of Plants and Animal	To advice the Government
1988	A Report prepared by Prof. S.S. de Silva based on the findings of Inland Fishery Research Programme, titled, "Preliminary Recommendations on the Establishment of a Subsidiary Gill Net Fishery for Exploitation of Minor Cyprinid Resources in Reservoirs", was submitted to Ministry of Fisheries for necessary action . Subsequently the Ministry appointed a Committee to workout a programme to implement the proposals contained in the Report	
1989	The National Status Report on Conservation of Genetic Resources of Sri lanka, was published and distributed to relevant institutions	Create an awareness and public interest
1990	The Submissions on Land alienation, and criteria for land alienation, were made by NARESA to the Presidential Task Force on National Land Utilization and Distribution	To advise Government
1991	A memorandum titled Scientific and Technological Information in a National Science and Technology Policy, was submitted to the Presidential Task Force on Science and Technology Development	As advice on science policy

Year	Title	Purpose
1991	A note to the Presidential Task Force on Science and Technology Development by the Authority, on matters of concern on science policy	As advice on science policy
1991	A memorandum on Science Education Policy was submitted to the Presidential Task Force on S & T Development	As advice on science policy

Annex 4

SPECIAL PANELS/COMMITTEES (1968-1992)

Year	Title	Purpose
1969	NSC Sub-committee to draft the National Science Policy Statement	To be submitted to Government
1970	Appointment of specialist panels for Food and Natural Resources	To prepare reports & make recommendations
1974	Sub-committee to study and prepare a memorandum on "Brain Drain" to be submitted to the Cabinet Sub-committee on Brain Drain	To be submitted to the Cabinet Sub Committee
1980	Establish the Solar Energy Group (SEG) on a recommendation by the Specialist Panel on Physical and Engineering Sciences	To bring together scientists involved in the study of alternate sources of energy
1980	In response to a Presidential directive the Council appointed a Committee to inquire and report on the Use of Atomic Energy for Electricity Generation in Sri Lanka	To study and report on the possibility of using Atomic Energy for Electricity Generation
1981	A special committee of the Council was appointed to examine and review all research grants of Rs.20,000/= and over	To consider the proposal to have a contractual agreement
1983	A special committee chaired by Dr Mohan Munasinghe was appointed to draft proposals on "National Energy Policy Guidelines"	For guidance of national policy makers
1984	A special committee was appointed to update the NSC Report on OTEC submitted to government in 1980	To advise government on the present status of OTEC
1984	A special committed was appointed to draft a memorandum on establishing a reliable telecommunication system for Sri Lanka	To advise government on the subject
1984	A special committee was appointed to monitor the progress on the proposed Sri Lanka - Australia Research Project for the Biological Control of Salvinia	To advise the Authority on the outcome of research
1985	Special Committee was appointed to examine the nominations for the Presidential Awards for Science	To select an outstanding scientist for the award

Year	Title	Purpose
1986	NARESA appointed a committee on Adaptation of National Languages in Information Technology	To study and identify problems in the use of national scripts
1988	A new Technical Committee on Conservation of Genetic Resources, was appointed	To co-ordinate R & D and other activities

PAST CHAIRPERSONS

Sir Nicholas Attygalle	April 1968 - January 1970
Dr A.N.S. Kulasinghe	February 1970 - February 1972
Prof. Osmund W. Jayaratne	March 1972 - February 1977
Prof. E.O.E. Pereira	October 1977 - May 1992
Dr R.P. Jayewardene	June 1982 - April 1992
Prof. Priyani E. Soysa	May 1992

PAST CHIEF EXECUTIVES

Mr B.J.P. Alles	Secretary General (Part-time) April 1968 - August 1969
Dr C.R. Panabokke	Secretary General (On secondment) September 1969 - February 1971
Dr G.C.N. Jayasuriya	Secretary General March 1971 - September 1978
Dr R.P. Jayewardene	Secretary General November 1978 - May 1982
Dr R.P. Jayewardene	Director General June 1982 - April 1992
Prof. Priyani E. Soysa	Director General May 1992

NARESA STAFF DURING 1993

Prof. Priyani E. Soysa, MD, DSc, FRCP, DCH - Director General

Professional Staff

Mr M.A.T. de Silva, B.Sc(Lond), MSc(Lond)	Deputy Director General
Mr D.E.F. Ferdinandez, B.Sc(Lond), MSc(Wales)	Director, Scientific Affairs
Mrs S.P. Prelis, B.Sc(Hons)(Cey), MSc(SL)	Director, Scientific Affairs
Mr M. Watson, B.Sc(Cey), M.Phill(Lond)	Director, Scientific Affairs
Mrs L.D. Bandaranayake, B.Sc(Cey)	Director, Information
Mr D.P. Athulathmudali, B.Sc(SL), M.Phil(SL)	Assistant Director
Mr R.M.W. Amaradasa, B.Sc(SL), M.Sc(SL)	Assistant Director
Mrs W.R.M. Sandanayake, B.Sc(SL), M.Sc (SL)	Assistant Director
Mrs. C.G. Yapa, B.Sc(Hon) (SL)	Scientific Officer
Miss J.D.S. Dela, B.Sc(SL)	Scientific Officer
Miss H.A.U. Amarasinghe, B.Sc(SL)	Scientific Officer
Mr B.M.C.K. Basnayake, B.Sc(SL)	Scientific Officer
Mrs S.L. Tillekaratne, B.A.(Cey)	Scientific Officer
Mr A.W.J. Karunasinghe, B.Sc(SL)	Scientific Officer
Mr W.B. Yapa, B.Sc (S.L)	Scientific Officer
Mrs G.N.Ulluwishewa, B.Sc(Hons)(USSR), MSc(Japan)	Scientific Officer
Mrs S.I. Wickramasinghe, B.Sc(Hon)(SL), M.Sc(SL)	Scientific Officer

Finance and Administration Staff

Miss K.C.J.T.K. Fernando, ACMA	Accountant
Mr M.H.M.S. Hameed	Accountant
Mr S.P. Dissanayake, B.Sc(B.Adm) (SL)	Asst. Administrative Secretary
Mr A.C.M. Daniel	Accountant
Mr S. Galketiya	Staff Assistant (Adm)
Mrs S. Ratnayake	Confidential Secretary
Mrs C. Fernandez	Confidential Secretary
Mrs S.P. Wijesinghe	Confidential Secretary

Information and Publication Staff

Mr K.P. Senanayake	Printing Superintendant
Mrs. R. Hathurusinghe, B.Sc(SL)	Documentalist
Mrs R. Wijeratne, B.Sc(SL)	Documentalist
Miss A.A.A. Wijeyanthi, B.Sc(SL)	Documentalist
Miss V.N. Perera, B.Sc(SL)	Documentalist
Mrs W.J. Weeratunga	Library Assistant
Mrs V.N. Dharmaratne	Library Assistant
Mr J.A.D.G. Felician	Camera Operator
Mrs L.S.P. Fernando	Litho Artist
Mr R.P.D.T. Rajapakse	Litho Machine Operator
Mr. T.A. Pathmasiri	Off-set Machine Operator
Mr K.A. Andrayas	Book Binder
Mr B.G. Seneviratne	Book Binder
Mr S.M. Amarasinghe	Camera Operator
Mrs T.K.A. Perera	Steno/Typist
Miss R.P. Hettiarachchi	Steno/Typist
Miss K.J.M.C.N. Kulasena	Steno/Typist
Mr. K.D. Mithrasena	Library Attendant

Supporting Staff

Mr. D.W. Wickramarachchi	Book-keeper
Mrs Y.J. Pathirana	Book-keeper
Mr E.P. Jayasena	Accounts Clerk
Mr R.P.D. Premaratne	Accounts Clerk
Mr M.G. Dynis	Accounts Clerk
Mrs P.N.K. Wickramarachchi	Accounts Clerk
Mrs H.A.K. Ranasinghe	Accounts Clerk
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Mrs A.V.B. Rajapakse	Accounts Clerk
Mr H.M.C. Basnayake	Accounts Clerk
Mrs. N.R. Mapatuna	Accounts Clerk
Mr H.W. Piyasena	Accounts Clerk
Mr L. Ekenayake	Accounts Clerk
Mr G. Munasinghe	Accounts Clerk
Miss H. Siriwardena	Accounts Clerk
Mr M.K. Ratnaweera	Clerk/Typist
Mrs N.D. Somawathie	Clerk/Typist

Miss P.A.Palihawadana	Steno/Typist
Mrs P.I. Premalatha	Steno/Typist
Mrs W.J.P.C.U. Wijetunga	Steno/Typist
Miss H.A. Kanthi	Steno/Typist
Miss P. Samarasinghe	Steno/Typist
Mrs S.C. Vithanage	Steno/Typist
Miss N. Paranavidana	Steno/Typist
Mr S.M. Ariyaratna	Store-Keeper
Mrs W.D. Kusumawathie	Asst. Store-Keeper
Miss S. Weeraratna	Clerk
Mrs P. Scharenguival	T.O/Receptionist

Mr K.K. Asoka	Messenger
Mr B.D. Nandasena	Driver
Mr K. Ratnapala	Driver
Mr E.G. Dharmadasa	Driver
Mr H.R.B. Ranaweera	Driver
Mr D.D. Siripala	Driver
Mr. M.D. Wajira	Driver
Mr. A.A. Dias	Driver

Mr R.P.M. Perera	K.K.S
Mr C. Atapattu	K.K.S
Mr R.P.D. Sunil	K.K.S

Mr K.G. Karunashantha	Labourer
Mr W. Somadasa	Labourer
Mr K.A. Ranatunga	Labourer
Mr M.L. Cooray	Labourer
Mr B.H. Perera	Labourer