

Natural Resources, Energy & Science Authority
47/5, Maitland Place
Colombo 7.

Hon. Minister of Industries Science & Technology
Ministry of Industries, Science and Technology
48, Sri Jinaratana Road
Colombo 7.

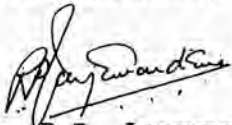
Dear Sir,

**Annual Report of the Natural Resources, Energy & Science Authority of
Sri Lanka for the period 1st January to 31 December 1989**

In terms of Section 16 (111) of the Natural Resources, Energy & Science Authority of Sri Lanka Act No. 78 of 1981, I have the honour to submit the Annual Report of the Natural Resources, Energy and Science Authority of Sri Lanka for the period 1st January to 31st December 1989 together with

- (a) A copy of the Audited income and Expenditure Account
- (b) A copy of the Audited Balance Sheet
- (c) Auditor General's Report

Yours obediently



(Dr. R.P. Jayewardene)

Director General

NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY

C O N T E N T S

1.0	MEMBERS OF THE NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA DURING THE YEAR 1989	02
2.0	PRINCIPAL STAFF	02
3.0	MINISTERIAL VISITS	04
4.0	COLLABORATION WITH LOCAL & FOREIGN AGENCIES	04
5.0	REPORTS ON SUBJECTS OF NATIONAL INTEREST	08
6.0	ACTIVITIES RELATING TO SCIENCE INFORMATION	09
7.0	AWARDS FOR SCIENTIFIC ACHIEVEMENTS	11
8.0	PROGRAMMES OF NATIONAL INTEREST	11
9.0	MEASURES FOR ENHANCING SELF RELIANCE IN SCIENCE & TECHNOLOGY	12
10.0	RESEARCH & COORDINATION ACTIVITIES IN THE NATURAL RESOURCES	13
11.0	RESEARCH & COORDINATION IN THE ENERGY SECTOR	14
12.0	SPONSORSHIP FOR SCIENTIFIC RESEARCH	15
13.0	STAFF PAPERS PRESENTED OR PUBLISHED	15
14.0	POLICY MATTERS	15
15.0	CONDOLENCES	15
16.0	SIGNIFICANT RESEARCH FINDINGS	15

TABLES

TABLE I	GRANTS SPONSORED BY NARESA	23
TABLE 11	GRANTS SPONSORED BY FOREIGN AGENCIES	24
TABLE 111	NEW GRANTS AWARDED IN 1989	25
TABLE IV	PARTICIPATION AT CONFERENCES, SEMINARS & WORKSHOPS OVERSEAS ON THE NOMINATION OF NARESA	44
	FINAL ACCOUNTS	45
	AUDITOR GENERAL'S REPORT	59
	OBSERVATION ON THE AUDITOR GENERAL'S REPORT	70

ANNUAL REPORT 1989

1.0 MEMBERS OF THE NATURAL RESOURCES, ENERGY & SCIENCE AUTHORITY OF SRI LANKA DURING THE YEAR

1.1 Board Members from 1st January 1989 - 16th April 1989

Dr R.P. Jayewardene (Director General, NARESA)
Dr S.L. Amarasiri
Prof S. Balasubramaniam
Prof V. Basnayake
Prof H. Cruz
Dr R.L. de Silva
Dr E.R. Jansz
Dr (Mrs) S. Jayaweera
Prof N.S. Karunaratne
Dr D.T. Wettasinghe
Mr L.C.A. de S. Wijesinghe (Addl. Director General, NARESA)

1.2 Board Members from 17th April 1989 - 31st December 1989

Dr R.P. Jayewardene
Prof S. Balasubramaniam
Prof V. Basnayake
Prof W.R. Breckenridge
Prof P.C.B. Fernando
Prof S.A. Gunasekera
Dr S.D.I.E. Gunawardena
Dr E.R. Jansz
Prof N.S. Karunaratne
Dr A.M. Mubarak
Prof H. Sriyananda

2.0 PRINCIPAL STAFF

Director General Dr R.P. Jayewardene	-	M.D., F.R.C.P. (Lond), D.Sc.
Additional Director General Mr L.C.A. de S. Wijesinghe	-	B.Sc (Cey), M.A. (Oxon)
Deputy Director General Mr M.A.T. de Silva	-	B.Sc. (Lond), M.Sc. (Lond)
Director Scientific Affairs Mr D.E.F. Fernandez	-	B.Sc. (Lond), M.Sc. (Wales)
Asst. Director Scientific Affairs Mrs S.P. Prelis	-	B.Sc. (Hons)(Cey), M.Sc. (Sri Lanka)
Mr M. Watson	-	B.Sc (Cey), M.Phil (Lond)

Scientific Officers

Mr D.P. Athulathmudali	-	B.Sc (Sri Lanka), M.Phil (Sri Lanka)
Mr R.M.W. Amaradasa	-	B.Sc (Sri Lanka), M.Sc (Sri Lanka)
Miss H.A.U. Amarasinghe	-	B.Sc (Sri Lanka)
Mr J.A. Chandrasiri	-	B.Sc. (Sri Lanka), Dip. Stat.
Miss J.D.S. Dela	-	B.Sc. (Sri Lanka)
Miss C.G. Perera	-	B.Sc. (Hons) (Sri Lanka)
Mrs W.R.M. Sandanayake	-	B.Sc. (Sri Lanka), M.Sc. (Sri Lanka)
Mrs S.L. Tillekaratne	-	B.A. (Cey)

Staff Assistants (Scientific)

Mr B.M.C.K. Basnayake	-	B.Sc. (Sri Lanka)
Mr A.W.J. Karunasinghe	-	B.Sc. (Sri Lanka)
Mr W.B. Yapa	-	B.Sc. (Sri Lanka) (on study leave)

Director Information

Mr N.U. Yapa	-	B.Sc. (Cey), A.L.A., A.S.L.L.A., M.L.S. (W.Ont)
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Asst. Director (Publications)

Mrs N.R. Amarasooriya	-	B.Sc. (Cey), A.L.A.
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Documentalists

Mr W.R. Jayakody	-	B.Sc. (Cey)
Mr B.G.N. Kumarasinghe	-	B.Sc. (Cey)
Mrs S.R. Sri Nammuni	-	B.A. (Cey), A.S.L.L.A.
Mrs W.G.S. Wimalasena	-	B.A. (Sri Lanka), A.S.L.L.A.

Administrative Secretary

Mr M.A.P. Mudannayake		
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Accountants

Miss K.C.J.T.K. Fernando		
Mr M.H.M.S. Hameed		
Mrs K. de Silva		
Mrs S. Udugama		

Confidential Secretary

Mrs S. Ratnayake		
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Repographic Technician

Mr S.R.U. Silva		
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Establishment Assistant

Mr S. Galketiya		
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Printing Superintendent

Mr A.A.A. Ranasinghe		
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When more than one officer is listed under a designation, the names appear in Alphabetical order

3.0 MINISTERIAL VISITS

The Hon. A.C.S. Hameed, Minister of Higher Education, Science and Technology, and the Hon. Paul Perera, Minister of State for Science and Technology, visited NARESA on 06th April 1989. There was a pictorial display of NARESA's work set-up for the ministerial visit.

Subsequently, on 10 May, the Hon. Paul Perera visited NARESA to discuss the activities of the institution with the senior officers.

4.0 COLLABORATION WITH LOCAL & FOREIGN AGENCIES

Local Collaboration

At present NARESA has coordinated with libraries in the country through the Science and Technology Information Centre under their programmes of Sri Lanka Scientific and Technical Information Network (SLSTINET), Agricultural Information Network (AGRINET), Renewable Energy Resources Information Network (RERINET), Technology Information Network (TECHNINET), Health Science Literature, Library and Information Network (HELLIS).

Sri Lanka Scientific and Technical Information Center (SLSTIC)

Science and Technology Information

On the recommendation of the NARESA/CISIR/APCTT National Workshop on "Information Systems for Promotion and Utilization of Technology" (4 - 7 October 1988) and on the request of the Working Committee on S&T Information, the Authority appointed a Steering Committee to study and report on promotion of technology information systems in Sri Lanka. The major activity of this Committee was the establishment of a Technology Information Network (TECHNINET). Fourteen organizations initially and three subsequently were invited to join the network.

SLSTINET

The Annual Meeting of the SLSTINET librarians was held on 27-01-89. The meeting discussed the progress of UNICAST I and UNICAST II. The member libraries were requested to provide statistics relating to S & T Information and Documentation (STID).

AGRINET

Meetings of the AGRINET librarians were held on 27-01-89 and 07-11-89. The progress of AGRINET was reviewed at the meetings. Member libraries were requested to send information to SLSTIC to update the current list of Agricultural Periodicals (UL/AGRI) as well as information relating to UL/AGRI titles for the compilation of the Selective Dissemination of Contents Page (SDCP) Service. The revised SDCP scheme was circulated among the AGRINET libraries. The scheme includes 445 titles of agricultural journals required by 293 users in 19 libraries.

HELLIS

SLSTIC participated in the meetings of the HELLIS network organized by the Ministry of Health.

Foreign Collaboration

Apart from the above, the institution has extensively collaborated with the following international organizations in order to receive funds for scientific research and development and matters relating to developing Natural Resources, Science and Technology in the country.

- * United Nations Educational Scientific and Cultural Organization (UNESCO)
- * Commonwealth Science Council (CSC)
- * Swedish Agency for Research Co-operation with Developing Countries (SAREC)
- * Third World Academy of Sciences (TWAS)
- * International Foundation for Science (IFS)
- * United States Agency for International Development (USAID)
- * Canadian International Development Agency (CIDA)
- * Australian Centre for International Agricultural Research (ACIAR)
- * International Union for Conservation of Nature (IUCN)
- * Association for Science Cooperation in Asia (ASCA)
- * Regional Network for the Exchange of Information and Experience in Science & Technology in Asia and the Pacific (ASTINFO)

* US-AID

Preproposals for US-AID grants were invited from scientists in relevant institutions. Fourteen (14) preproposals were received and screened by the Working Committees. Twelve (12) were selected for forwarding to US-AID.

* TWAS

On the recommendation of the Working Committee on Biological Sciences, Dr N.B. Adikaram was selected for the 1988 prize in Biology for his work on the Extent and cause of post harvest losses in Fruit Crops with special reference to Avocado, Mango, Papaw and Wood-apple .

* US-Israel CDR Programme

Letters calling for preproposals for consideration under the above programme were sent to relevant institutions. Two (2) preproposals were received and forwarded to US-AID.

* International Foundation of Science

Under the above programme, fifteen (15) applications were received. Nine (09) applications were approved by IFS during the year 1989.

* ASCA

"Establishment of a Technical Co-operation programme in connection with Product Testing"

The ASCA expert group meeting on the above subject held in March in Malaysia requested NARESA to send information on (a) Test houses availability (b) Training (c) Calibration and (d) Consultancy.

The requested information collected from the local focal points, CISIR and SLSI were sent to Malaysia.

Dr S.R. Tittagalla, Senior Lecturer in the Dept. of Mechanical Engineering of the University of Moratuwa, was nominated to attend the ASCA seminar on 'Welding, Casting and Metal Forming' to be held from March 6 - 9, 1990, in Japan.

Mr G.T. Dharmadasa, Deputy Director (Hydrology) of the irrigation Dept., was nominated to participate in the ASCA Seminar on 'Mitigation Technology of Storm and Flood Disasters' - Tsukuba (Japan) 7 - 10 March, 1989.

* SAREC

Water Buffalo Research Programme

SAREC approved 32 new grants under the first two year programme of the second phase of the Buffalo Research Programme.

NARESA jointly with the National Livestock Development Board established a buffalo research station in a 200 acre coconut estate at Kuliypitiya with a financial contribution from SAREC.

Presently the farm consists of a circuit bungalow cum research laboratory, worm free cattle shed, limited amount of improved pasture and a small reservoir. The facilities at the farm are now available for scientists working on buffalo research.

An information centre with a collection of literature on buffalo, for the use of scientists working on buffalo research, was set up at the Veterinary Research Institute, Gannoruwa.

Zoological Survey of Sri Lanka

The Zoological Survey which was initiated to study the distribution and intensity of faunal species in Sri Lanka was carried out in respect of different faunal groups such as Freshwater Fish, Birds, Amphibians, Marine Invertebrates, Parasites, & Plant Nematodes by zoologists in universities and other institutions. The survey on Amphibians was completed and final report received.

Under this programme, the preparation of A catalogue of the mosquitoes (Diptera: culicidae) of Sri Lanka was completed by Dr F.P. Amarasinghe.

The Advisory Committee of ZSSL decided to prepare an inventory of specimens of faunal species presently available in scientific and other institutions in Sri Lanka for the benefit of scholars; students and teachers.

* ASTINFO

The ASTINFO Document Delivery Pilot Project was started in 1989. As the coordinating body of ASTINFO in Sri Lanka, SLSTIC/NARESA has undertaken to procure photocopies of articles from the National Library of Australia.

* Science Statistics and Indicators Project

The phase III (Constraints to Scientific Research) and IV (Industrial Indicators for Sri Lanka) of the S&T Indicators project could not be completed due to transport difficulties during the latter half of the year. Further both phases were widened in their scope of activities, chiefly due to availability of additional funds from the Commonwealth Science Council and UNESCO. The final draft report of the phase II (Diffusion and Assimilation of S & T Knowhow in the Agricultural Sector of Sri Lanka) was type-set and published.

* SAARC Programme in Science and Technology

The SAARC training course on 'Low cost Housing' was held at the NERD Centre from 20 - 29 September 1989. Seven delegates from member countries Bangladesh, India, Nepal and Pakistan and 15 local participants attended the course which was inaugurated by Hon. Paul Perera, Minister of State for Science and Technology.

* SAARC Workshop on Biofertilizer, Nepal

Mr K.H.A. Kendaragama, Dept. of Agriculture was nominated to attend the Workshop held in September.

* Visits of foreign delegates

1. Dr C.G. Thornstrom - SAREC
(Senior Research Officer)
2. Mr Liu Menglong - Deputy chief, Ministry of Forestry (Chinese Delegation) - Peoples republic of China
3. Prof R.J. Soper (Research Monitor) - CIDA
4. Dr Patrick Dugan, (Co-ordinator, Wetlands programme) - IUCN
5. Mr Vitus Fernando - IUCN

5.0 REPORTS ON SUBJECTS OF NATIONAL INTEREST

- * The preparation of bibliographies on Paediatrics and Parasitology were completed.
- * The faunal publications inventory on "Mollusca" compiled by Prof H. Cruz was completed.
- * The printing of the book on "Freshwater Fauna and Fisheries of Sri Lanka" by Prof C.H. Fernando was underway.

- * Inventory on "Minerals" was in progress
- * The preparation of Manuscripts on "Water resources and Climate" was in progress.
- * The National Status Report on "Conservation of Genetic Resources of Sri Lanka" was published and distributed among universities, relevant institutions and persons.

* Science Education Publications

Under the supplementary Science Education Series five books were printed.

- * Soil and Soil Conservation in Sri Lanka
- * Limestone Industry in Sri Lanka (Sinhala)
- * Perfumes (Sinhala)
- * Night sky (Sinhala)
- * The Sri Lanka Water Buffalo

* Journal of the National Science Council

National Science Council of Sri Lanka - volume 15 (2), Volume 16 (1), Volume 16 (2) were printed and distributed locally and abroad.

* Vidurava

Following vidurava issues were published and distributed locally among schools and libraries.

- * Vidurava vol 9 (1) "Kadolana" (Sinhala & English issues)
- * Vidurava vol 10 (1) "Adulteration of Food" (Sinhala & English issues)

6.0 ACTIVITIES RELATING TO SCIENCE INFORMATION

- * SLSTINET newsletter Vol 8 (1) was published and distributed.
- * Science news bulletin Vol 1 (1) including the activities of 6 scientific organizations in Sri Lanka was compiled.
- * Compilation of the computerized union catalogue (UNICAST) was confirmed with the coordination of SLSTINET libraries. 2033 entries were received from 5 libraries. UNICAST II was initiated using micro CDS/ISIS package.
- * The conversion of the union list of S&T periodicals to micro CDS/ISIS format was carried out with financial support from IDRC, for training and database creation.

- * The preparation of a Cooperative Aquisition Plan for chemical periodicals by scientific libraries in Sri Lanka was undertaken.
- * During 1989, 128 reports were added to the National Scientific Reports Collection making the total reports in the collection, 4797.
- * 56 issues of local journals as well as selected articles from local newspapers were indexed for inclusion in the Sri Lanka Science Index -SLSI.
- * Two issues of the current contents bulletin, of the Renewable Energy Resources Information Network (RERINET) compiled from renewable energy journals were compiled and distributed to the network libraries.
- * SLSTIC served as the coordinating centre for inter-library loans by channelling requests to appropriate libraries. 43 requests were received and 34 sent in 1989.
- * 43 books locally, and 11 books from foreign sources were ordered. 25 local periodicals and 9 foreign journals were ordered in 1989.

* Technical Services

* Bureau services for microfiche making and duplication were provided.

* 63 jobs for printing 99,660 impressions were executed using the RICH0 offset machine.

* Services were offered for printing scientific publications at the NARESA press.

* SLSTIC functioned as the national distributing centre for micro CDS/ISIS software package.

During 1989, 15 copies were provided to institutions. NARESA provided resource personnel to two workshops organized to train librarians in the use of the package.

The Micro ISIS User Group in Sri Lanka published the first issue of ISIS/UG Newsletter in July 1989.

Consultation services were provided by NARESA to solve software problems encountered by the users. UNICAST, UNILIST and SLSI database were maintained in the WANG MVP 2200 microcomputer. Print outs for offset printing of database products were obtained.

* A pool of AV equipment including video, films, slides, overhead projectors, video camera, projection systems and conference communication systems were maintained for hiring out to scientific organizations and for providing AV facilities to the programmes held at the NARESA Conference Hall.

7.0 AWARDS FOR SCIENTIFIC ACHIEVEMENTS

Merit Awards

The following were selected for merit awards on the basis of their research carried out on NARESA grants concluded in 1987/1988.

- (a) Prof K. Tennekone (Physical & Engineering Sciences)
- (b) Dr B.M.R. Bandara (Chemical Sciences)

National Awards for Scientific Achievements (NASA)

Nominations for the above awards were invited through advertisement in the national newspapers. Nine (09) nominations were received covering the following fields: Geology, Engineering, Energy, Medicine, Chemistry, Technology and Humanities. A Committee comprising four members were appointed to examine the nominations and make its recommendations.

8.0 PROGRAMMES OF NATIONAL INTEREST

- * The man and Biosphere National Committee functioning as a watch-dog organization on the environment, took part in the analysis of the environmental impacts resulting from the implementation of the proposed Forestry Master Plan and the Muthurajawela Marsh Development Plan. Also, it was decided to commence a research programme to study the forest die-back in the Horton Plains region.
- * Two films in Sinhala and English on the Biological Control of Salvinia were prepared and telecast over Rupavahini.
- * In view of the appointment of a Task Force on National Land Utilization and Distribution by the President, the recommendations of the Inter Ministerial Study Group on Soil Conservation, and the criteria used for alienation of land, were studied jointly by the Natural Resources and Man and Biosphere Committee.

- * The Director General and Additional Director General actively participated in a seminar on the theme "Global Warming - Global Warning"

- * Poverty Alleviation Programme

Two projects were initiated to give scientific and technological support to the poverty alleviation programme. "Vidya-ven Apata" - Arrangements were made to publish a news magazine in sinhala and tamil, on technologies which could be used by PAP beneficiaries to increase their productivity, promote self employment and improve their quality of life.

The NARESA S&T Information unit to be used for channelling inquiries on technological matters from PAP beneficiaries to the proper sources.

9.0 MEASURES FOR ENHANCING SELF RELIANCE IN SCIENCE AND TECHNOLOGY

- * Avenues for training in scientific research

A few advanced level students were able to receive a formal training in the field of Ecology, under the supervision of a university Professor. Twenty one (21) young graduates were awarded Research Assistantships under the NARESA Research Grant Scheme to obtain research training in the fields such as Agriculture and Animal Husbandry, Biological Sciences, Chemical Sciences, Medical & Veterinary Sciences, Physical and Engineering Sciences, Social Sciences and Mangroves. Seven (7) graduates were awarded Research Assistantships on grants funded by foreign agencies. Eight (8) Research Assistants registered for Post graduate degrees in the university. Post graduate degrees were awarded to 8 students in the fields of Social Sciences, Chemical Sciences, Physical & Engineering Sciences and Biological Sciences.

- * Training of Technicians

A workshop was held at CISIR to train technicians on the use, maintenance and repair of analytical instruments. Eighteen (18) technicians from thirteen (13) institutions participated. This workshop is part of the programme of training of laboratory technicians sponsored by the British council. The technicians Association is coordinated by NARESA.

- * Seminars and Workshops

Following workshops and seminars were held during the year 1989 in order to share and update new findings and enhance self reliance.

- Potash Fertilizers in Agriculture
- Aquaculture & Fisheries
- Buffalo Research
- Designing & Feasibility of Production of Toys to teach Scientific Concepts to children
- Low cost housing
- Development of Practical S&T Indicators for Economic Development
- On going research in Physics & Engineering
- On going research in the fields of Medical & Veterinary Sciences

Other Seminars / Workshops are included under appropriate headings.

10.0 RESEARCH AND COORDINATION ACTIVITIES IN NATURAL RESOURCES

Conservation and Management of Mangroves in Sri Lanka

A project proposal titled Conservation and Management of Mangroves in Sri Lanka was drawn up and submitted to International Union for Conservation of Nature (IUCN) for funding. The implementation work with regard to the project to establish a National Mangrove Park in Kadolkelle, Negombo, with the idea of preservation and conservation of mangroves continued.

Conservation of Genetic Resources

A programme of work on conservation education including preparation of posters on endangered habitats and a workshop for teachers to identify problems and constraints in teaching environmental education at school level were carried out in collaboration with March for Conservation.

In collaboration with Commonwealth Science Council, manuscripts for two training modules on Conservation Methodology were prepared. Also the National Status Report on Biological Conservation in Sri Lanka was published and distributed.

A USAID funded workshop to identify priorities for long term research in Tropical Forests and Coral Reefs in Sri Lanka, was held in March. Two papers, were finalised during workshop discussions and were presented at the Regional Workshop held in Bangkok by Prof (Mrs) C.V.S. Gunatilleka, and Dr S.U.K. Ekaratne, at which Sinharaja and Peak wilderness Forests were identified as priority sites for international funding of research in Tropical Asia.

Man and Biosphere Programme

Under the Botanical Survey Programme, the floral survey was revised.

Two projects partly funded by UNESCO to study the vegetation at the Sinharaja Forest Reserve, were commenced.

Two projects to prepare a list of endangered plants of Sri Lanka and to survey the medicinal Plants found at Sinharaja, to rehabilitate them using local inhabitants, were commenced.

A Chinese delegation consisting of foresters and forest conservationists visited Sri Lanka to study our forestry and conservation programme, timber technology and utilization and ecodevelopment of the agriculture project areas of the Mahaweli.

Natural Resources Profile of Sri Lanka

The preparation of a document on the Natural Resources and Environment of Sri Lanka was undertaken. The document will provide factual information on the trends in the exploitation or management of the Natural Resources of the country, human impact on the Natural Resources, the environmental effects of past and present practices in the exploitation or use of Natural Resources and sustainability of present forms of resource use.

11.0 RESEARCH AND COORDINATION IN THE ENERGY SECTOR

Improved sawood cooker

This cooker was designed by IDB and performance was evaluated in collaborative tests at CISIR. Field evaluation was carried out in randomly selected households in Ranmuthugala. Firewood savings of 30-40% were obtained with these stoves compared with the traditional 3 stove open hearth.

A compendium of Energy related Technologies was published, in order to make available the information on these technologies to potential users.

Oil producing Plants

The project to investigate the suitability of Jatropha curcas oil as a substitute for kerosene for lighting continued. Trials on the cultivation of Jatropha were carried out with the assistance of the Forest Dept.

12.0 SPONSORSHIP FOR SCIENTIFIC RESEARCH

In accordance with the normal practice, applications were invited for Research Grants, by advertisements in the National press. Details regarding these and the present status of the research grant scheme is given in Tables 1,2 & 3.

13.0 STAFF PAPERS PRESENTED OR PUBLISHED

De Silva, M.A.T. (1989) Science Planning. The Sri Lankan Perspective. Science and Public Policy 16, (1).

Liyanage, S., De Silva, M.A.T. and Chandraratne, D.V. (1988) Sri Lanka Science and Technology Indicators, Part II: Diffusion and Assimilation of S&T know how in the Agricultural Sector of Sri Lanka. NARESA, Colombo.

Wijesinghe, L.C.A. de S. (1989) Biomass fuel and its utilization SLEMA Journal, 2, 3, 8-18.

Wijesinghe, L.C.A. de S. et al (1989) Biological Conservation in Sri Lanka - A National Status Report. Natural Resources, Energy & Science Authority, Colombo 07.

14.0 POLICY MATTERS

Science Education :- The Working Committee on Science Education studied recent local documents on science education and prepared an in-house document to guide its own interests and activities in the field of science education.

15.0 CONDOLENCES

To convey condolence at the death of Prof H. Cruzs, past member of the Authority and the late Scientific Coordinator of the NARESA/SAREC Zoological Survey of Sri Lanka.

16.0 SIGNIFICANT RESEARCH FINDINGS

- * In a study carried out in the Negombo Lagoon, 62 juvenile fish species and 20 crustacean species were identified, from the seagrasses and mangroves. A number of fish and crustacean species have high aquaculture potential. Among the fish, 16 species occurred only in the mangroves, 6 species only in the seagrasses and 40 common to both habitats. Seagrasses yielded higher biomass of fish and crustaceans than mangroves. The fish biomass increased during the N.E. monsoon and crustacean biomass increased during the S.W. monsoon. During the N.E. monsoon, the number of individuals and species also increased.

- * The results obtained from a study carried out in the Mahaweli system C pointed out that in dry zone small farms, utilization of animal draught in the form of both buffaloes and neat cattle should be encouraged for agriculture to be economically viable.

A study on microeconomics showed that indigenous buffalo for draught alone was not profitable under rural farming conditions of Sri Lanka. Therefore the farmers should be encouraged to use the buffalo as a draught and milk animal rather than draught only animal.

A draught measuring device was designed to compare draught capabilities of buffaloes. This will be useful to select best draught animals for the breeding programme.

- * A grant was awarded to Prof Sena de Silva of the Univ. of Ruhuna in 1984 to study the possibilities of increasing inland fish production by exploiting hitherto untapped resources of minor cyprinid species. This project was completed in May 1989. Based on the research findings of this project, a document entitled "Preliminary recommendations on the establishment of a subsidiary gillnet fishery for exploitation of minor cyprinid resources in reservoirs" was forwarded to the Ministry of Fisheries.

Subsequently a meeting was held at the Ministry of Fisheries to evaluate this document. On the basis of the discussion, it has been decided to introduce a commercial scale fishery in selected reservoirs in the southern and north central provinces of Sri Lanka.

This project has clearly shown that a new fishery could be established, possibly leading to a three fold increase in inland fish production if properly managed and executed.

In addition, the project has enabled two junior scientists (Mr H.K.G. Sirisena & Miss N. Wijegoonawardena) to obtain post-graduate degrees and participate in international conferences.

- * Tissue culture studies of Veronia cinerea revealed the presence of alkaloids, flavanoids and an aroma constituent. Further studies are needed, to investigate the possibility of the potential of aroma constituent as a flavour compound in the food industry.

- * Anti tumour studies on the extracts of Cassine balae of family Celastraceae suggested that the three new 14(15)-ene-quinone-methides isolated from the extracts are fairly potent cytotoxic agents. Further studies with more sophisticated test systems are warranted prior to making any firm conclusions.
- * One of the compounds isolated from Euphorbia antiquorum L. "Friedelin" is considered important because it has been reported that this compound is an antifeedant to Spodoptera littoralis larvae (army worm - a rice pest).
- * A study on sensitized liquid junction and solid state solar cells showed that a thin layer of dye, sandwiched between p-CuCNS deposited on copper substrate and n-SnO coated transparent glass, yielded photocurrents resulting from light absorption in the dye.

A hetero-junction of CuS/CuCNS photocathode, where the outer film of CuCNS is sensitized with rhodamine B is found to have a higher quantum efficiency than CuCNS or CuS surface sensitized with the same dye. The enhanced photocurrent quantum efficiency is attributed to the presence of a strong space charge electric field that assists charge separation.

- * A two year research project was carried out to investigate the effects of incorporating saw dust, coir dust and paddy husks on N & P availability in soils.

The findings of this research may broadly be summarised as follows. Coir dust, saw dust and paddy husks, all agricultural waste products have very high water retention capacities. Even with very high C:N ratios resulting from the incorporation of these waste products to soil, no remarkable immobilisation of N and P was observed, possibly due to the better moisture conditions created by their additions. Coir dust and paddy dust did not inhibit nitrification in the sandy clay soils whereas saw dust did. The incorporation of these materials with soil did not harm the nutrition of plants growing in them. As such they could be used for mulching to increase moisture retention and as a soil ameliorant.

A post graduate student working on the project obtained a M.Sc. degree.

* In a study on the aspects of the ecology of Udawalawe National Park, it was found that remote sensing methods in general and aerial photographic interpretation in particular are the most feasible methods for the identification and location of habitat types. 13 land use / habitat categories were identified. It was determined that the extent of tall forests in the park has been reduced from 85% of the park area in 1956 to 9% in 1982. Coupled with this was the increase in grasslands and barren lands from 1% to 54% of the park area, between the years 1956 - 1982. It was also noticed that grasslands of the park have a very low species diversity. Only 4 species were detected.

* A study was carried out to assess the possible role of traditional therapists in the field of psychiatry in providing systematic care.

An initial survey was carried among the public and families attending various treatment facilities in order to determine which practices to study. It was found that about 85% of those interviewed said they preferred "Western" treatment for obvious mental illnesses or psychoses. For problems corresponding to minor psychiatric illness or neuroses,

Western treatment was the first choice for less than 10% of the sample.

Eight treatment centres were selected for detailed study, on the basis of popularity shown in the survey. A group of 200 patients from these different centres were assessed and followed by a mail questionnaire. It was found that over two thirds of subjects reported improvement in the short term. Follow up visits at the subjects homes are planned, on an extension of this study, in order to minimise bias due to selective drop-outs.

Contrary to expectation, Ayurvedic treatment was found to cause relief in psychoses - which are generally amenable to pharmacological treatments. The models used by Ayurvedic practitioners do not include a recognition of the possibility of physical symptoms being purely the presentation of social or psychological distress. This is unfortunate as Western Medicine too deals with this group of patients ineffectively.

* Under the Buffalo Research Programme an experiment was carried out to determine the efficiency of different hormones to improve reproductive efficiency of buffaloes. The results indicated that reproductive efficiency of Lankan buffaloes could be improved by hormonal treatments.

Groups of animals were studied under different suckling regimes at Narangalla Farm. Results from clinical and hormonal changes during the postpartum period showed that restricted sucking can improve reproductive performance of Lankan buffaloes, provided climatic and nutritional stress are not too severe.

Results of a study to determine the mineral status of buffaloes showed that inadequacies of the minerals P, Na, Cu, Zn and Se are widespread among indigenous buffaloes. To overcome these mineral deficiencies, a relatively cheap and easily prepared mineral brick that uses cement as a hardener and contains minerals likely to be deficient was developed. These studies were funded by SAREC.

* Studies were undertaken with a view to promoting neem as a natural pesticide.

Neem kernel volatile was rich in organosulphur compounds. The constituents were similar to that found in onion flavour. The major sulphur compounds were dimethyl thiophenes and cis / trans 3,5-Diethyl-1,2,4-trithiolanes. The medicinal and bactericidal properties associated with neem oil can be partly attributed to these compounds.

Expelling of oil removed little azadirachtin from the kernel. The residual cake which is enriched with azadirachtin found to be a better source for insecticide formulation than the fresh kernel. Neem oil, though contained substantial quantities of salannin, will be of limited use as an insecticide due to its extreme sensitivity to light.

The local commercial neem products, neem oil and neem cake were unsuitable for insecticidal formulations. Neem oil was heavily adulterated with coconut oil and neem cake had low levels of azadirachtin probably due to high temperature processing associated with screw expellers.

An integrated neem seeds processing scheme consisting of decortication and expelling the kernels with chekku at the collection sites, and processing the enriched cake at a central facility to insecticidal formulations and animal feed appears to be a viable industry.

* A study was carried out with the aim of identifying biologically active compounds (anti-bacterial, anti-fungal, insecticidal, cytotoxic) from Sri Lankan marine organisms. In this study the chromatographic separation of the MeOH-CHCl₃ (1 : 1) extract of the soft coral Sinularia crista collected at Unawatuna yielded 1-O-octadecyl glycerol (batyl alcohol) which showed potent anti-bacterial activity against Pseudomonas sp. A specimen of Sinularia abrupta afforded two bio active constituents. A diacyl glyceryl ether which was active against both Staphylococcus aureus and Pseudomonas sp and a furano-sesquiterpene which showed anti fungal activity against Cladosporium cladosporidae. Activity directed fractionation of the CHCl₃ extract of an unidentified sponge collected at Wellawatta, furnished two furano sesquiterpenes (Variabilin and a compound closely related to variabilin) which showed strong anti-bacterial activity against staphylococcus aureus.

* In a study on the Collection, classification and evaluation of Dioscorea yams, 356 accessions of mainly cultivated species and varieties of the genus Dioscorea were examined.

Keys for the identification of the species grown in Sri Lanka and separate supplementary keys for the identification of the distinct cultivars of the three species, viz., D. alata, D. bulbifera and D. esculenta, were prepared based on the morphological characters of tubers, stems, leaves and flowers.

Studies on rapid vegetative propagation techniques showed that the use of mini setts (weighing 15g) and the use of partially woody vine cuttings of about 4 nodes are potential techniques that could be used for seed tuber production. This study was funded by USAID.

* An investigation to culture leaf tissues of coconut was conducted with the prime objective of developing a viable technique for clonal propagation.

Leaf explants produced globular structures in culture, but attempts to achieve sustained growth and germination of these structures were unsuccessful. However significant progress has been achieved in the methodology of developing technologies for clonal propagation of coconut, and work is being continued at the Coconut Research Institute on the institute's own research budget. The project was funded by USAID.

- * Studies were carried out to identify the nature of problems encountered in the storage of rice bran. A literature survey revealed that lipase and peroxidase enzymes present in bran are primarily responsible for the deterioration of rice bran during storage. The reaction of bran oil with moisture in the bran is catalysed by these enzymes to form fatty acids and glycerol. The fatty acids so formed imparts undesirable flavour and odour to rice bran, thus lowering the quality of bran.

A mathematical model developed under this project is a very useful tool for the prediction of the rate of formation of free fatty acids in bran as a function of temperature and time. A pilot plant for stabilisation of bran was designed for experimental purposes. This was constructed, installed, commissioned and tested. Even though the pilot plant makes use of electricity as the heat source, heating chamber may be modified to incorporate a heat exchanger for indirect heating of air by steam or flue gases from combustion of a fuel such as paddy husk or LP gas.

- * A research project was carried out to study the causes and remedial treatment measures for an active landslide in the Nawalapitiya region. The observations over a period of 650 days showed good correlation between the rate of land subsidence, fluctuation of the water table and the rainfall. The average rate of land subsidence is in the range of 40mm/year - 60 mm/year. The increase in the rate of subsidence from dry season to wet season is about 2-5 fold. The results also demonstrated that the slope is now stable, undergoing only creep deformations. Stability studies illustrated that the slope has been stabilised by the construction of the retaining walls close to the river. Only minor remedial measures in drainage control and avoidance of new construction on the slope is necessary to maintain the stability now.

- * In the salvinia control programme, distribution of insects to salvinia infested areas continued. A high success rate of salvinia clearance using the weevil Cyrtobagous salviniae was noted. The Gammanpila tank, Medagama tank, Gonaduwa canal and Bolgoda canal were seen to be completely clear of salvinia. Within the Mahaweli area, NDK and Muthukandiya tanks were fully cleared and some tanks at Girandurukotte partially cleared. The Kesbewa tank is fully cleared. A field culture of the bio-control agent was set up at the Rice Research Station, Bentota to maintain a weevil population in the field.

- * In the Biological Control of Water Hyacinth Project, quarantine tests confirmed that the proposed bio-control agent for water-hyacinth - Neochetina eichhornea could be released freely into field sites.

It was clearly shown that Neochetina eichhornea is specific to water hyacinth and could feed on, but not multiply on Monochoria vaginalis and M. hastata. Although slight feeding on a single horticultural cultivar of Canna sp. was observed, no plant of economic importance was observed to be endangered by the insect. Tests were carried out to ascertain the effect of the bio-control agent on water hyacinth plants. In order to increase the effectiveness of the bio-control agent, the water hyacinth plants were to be weakened with a herbicide and a fungus. Tests revealed that the herbicide had no adverse effect on the weevil. Screening of the insect against the fungus continued.

TABLE I : GRANTS SPONSORED BY NARESA

Status Summary During 1989

DISCIPLINE STATUS	Status Summary During 1989										
	Agriculture & Animal Husbandry	Biological Sciences	Chemical Sciences	Energy	Medical & Veterinary Sciences	Natural Resources	Physical & Engin- eering Sciences	Science Education	Social Sciences	Biological Control of Aquatic Weeds Water Hyacinth	Mangroves
Total No. of grants operating during 1989	15	35	39	01	29	01	18	02	37	02	04
Grants awarded - 1989	02	03	09	-	09	-	07,50	01	09	-	-
Amount allocated for 1989 (New and ongoing Rs.)	665,425	750,000	1,043,020	-	700,000	75,000	4 25,500	52,000	200,000	55,000*	268,773 (on going)
Grants completed - 1989	03	08	14	-	08**	01	06	-	06	01	01
Grants withdrawn - 1989	-	-	-	-	-	-	-	-	04	-	-
Grants terminated - 1989	-	-	01	-	01	-	-	-	01	-	01
RA's appointed - 1989	01	02	08	-	05	-	02	-	02	-	01
Registered for PG - 1989	-	-	02	-	02	-	-	-	04	-	-
Thesis PG - 1989	-	02	01	-	-	-	01	-	04	-	-
Communications & publications - 1989	01	02	35	-	03	-	18	02	-	-	-
New Applications - 1990	16	16	13	-	09	-	11	01	14	-	-
Funds requested for 1990 (Rs.)	350,340	2,200,000	987,730	-	1,200,000	-	649,590	21,250	533,301	-	-
Grants approved for 1990	03	03	07	-	03	-	06	01	07	-	-
Amount approved for 1st year (1990) for new grants (Rs.)	257,340	220,700	418,850	-	198,500	-	247,590	5,000	151,350	-	-
Total amount approved for new grants - 1990 (Rs.)	559,380	373,600	1,053,075	-	363,000	-	256,940	5,000	183,450	-	-

** Includes one WHO grant.

* Period 4-4-89 - 1-4-90

TABLE II : GRANTS SPONSORED BY FOREIGN AGENCIES
Status Summary during 1989

STATUS	FOREIGN AGENCY DISCIPLINE	ACIAR Bio-control of Aquatic weeds (Salvinia)	CIDA Fertilizer	CSC Univ of Exeter	UNESCO Mangroves	US-AID	NARES-SAREC Buffalo Research Programme	Research Inland Fishes Programme	Co-operation Zoological Survey of Sri Lanka
Total No. of grants operating during 1989		03	27	01	-	09**	12	01	06
Grants awarded - 1989		-	02	-	02	01**	32	-	-
Amount allocated for 1989 (new & ongoing Rs.)		- *	1,297,762	354,000	565,335 New	-	5,283,550	-	127,320***
Grants completed - 1989		01	-	-	-	03	02	-	02
Grants withdrawn - 1989		-	-	-	-	-	-	-	-
Grants terminated - 1989		-	-	-	-	-	-	-	-
RA's appointed - 1989		-	01	-	-	04	01	-	01
Registered for PG - 1989		-	-	-	-	-	-	-	-
Thesis PG - 1989		-	-	-	-	-	-	01	-
Communications & Publications - 1989		-	02	-	-	03	18	02	-
New applications - 1990		-	-	-	-	-	-	-	-
Funds requested for 1990 (Rs.)		-	9,747,813	-	-	-	-	-	58,000
Grants approved for 1990		-	-	-	-	-	-	-	-
Amount approved for 1st year (1990) for new grants (Rs.)		-	-	-	-	-	-	-	-
Total amount approved for new grants 1990 (Rs.)		-	-	-	-	-	-	-	-

* Rs.1,424,100 has been allocated for 3 grants for 1985-1990
** Includes one (01) US-AID/HARVARD grant
*** NARESA allocation

TABLE III :- NEW GRANTS AWARDED IN 1989

AGRICULTURE & ANIMAL HUSBANDRY

Grant No. & Year of Award	Name of grantee & Institution	Title & Duration	Total Allocation
RG/89/Ag/1 1989	Dr S.L. Ranamukarachchi Dept. of Crop Science Fac. of Agriculture Univ. of Peradeniya Peradeniya.	The effect of legume and N fertilization on the N availability and crop yields in corn-legume inter-cropping systems 2 years	Rs. 191,325/=
RG/89/Ag/2 1989	Dr S.G.J.N. Senanayake Dr Rohan Rajapakse Dept. of Agronomy Univ. of Ruhuna Mapalana Kamburupitiya.	Study of the resistance of traditional, old improved and new improved rice varieties to ragged stunt virus disease 1 year	Rs. 32,000/=

Biological Science

Grant No. & Year of Award	Name of Grantee & Institution	Title & Duration	Total Allocation Rs. Cts.
RG/89/B/01 1989	Dr(Miss) A. Pathiratna Dept of Zoology Univ. of Kelaniya Dr(Mrs) N.E. Gunawardena Dept of Chemistry Univ. of Kelaniya	Investigations on the toxic, antifeedent and repellent properties of defence secretions of <u>Coridius janus</u> and <u>Leptocorhiza acuta</u> 1 year	67,000.00
RG/89/B/02 1989	Dr. A.M.T. Saverimuttu Dept of Botany Univ. of Jaffna	Drought and salinity tolerance of certain crops in the dry zone 1 year	71,300.00
RG/89/B/3 1989	Dr T. Jayasingham Dept of Botany Eastern University	Early performance of selected native and exotic species with afforestation potential in the dry zone (eastern province) of Sri Lanka 3 years	51,000.00
RG/89/B/4 1989	Dr R.B. Dissanayake Institute of Indigenous Medicine Univ. of Colombo Dr A.H.M. Jayasuriya National Herbarium Peradeniya	Identification of the species of 'Bevila' to be used in the formulation of Ayurvedic preparations 1 year (with effect from 01/07/1989)	8,500.00

Chemical Sciences

Grant No. & Year of Award	Name & Institution	Title & Duration	Total Allocation Rs.
RG/89/C/1 1989	Dr A.M. Abeysekera Dept. of Chemistry Univ. of Sri Jayewar- denepura	Extraction and Utilisation of furfural from Rice Hull and Bagasse 3 years	121,500.00
RG/89/C/2 1989	Dr (Mrs) D.N. Karunaratne Dept. of Biochemistry Prof. P.A.J. Perera Dept. of Biochemistry Univ. of Peradeniya	Structure analysis of the capsular polysaccharide from <u>Escherichia coli</u> <u>K45*</u> 1 year	32,000.00
RG/89/C/3 1989	Dr (Mrs) G. Ravindran Dept. of Food Science & Technology Univ. of Peradeniya	Nutritional and sensory evaluation of <u>Idli</u> prepared from millet-rice-black gram blends. 2 years	118,560.00
RG/89/C/4 1989	Prof. G.P. Wannigama Dept. of Chemistry Univ. of Peradeniya	Chemistry and bio-activity of Sri Lankan plants of the Menispermaceae and Rubiaceae 3 years	222,420.00
RG/89/C/5 1989	Mr D.T. Jayamanne Div. of Occupational Hygiene 97, Jawatte Road Colombo 05	Determination of air borne concentration of lead in lead based industries 1 year	8,500.00
RG/89/C/6 1989	Dr N.L.V.V. Karunaratne Prof. A.A.L. Gunatilaka Dept. of Chemistry Univ. of Peradeniya	Synthesis of Juvabione, a sesquiterpene of biological importance 3 years	200,500.00

Grant No. & Year of Award	Name & Institution	Title & Duration	Total Allocation Rs.
RG/89/C/7 1989	Dr W.H.M.W. Herath Dr L.B. de Silva Medical Research Inst. Colombo 8	Phytochemical studies of endemic medicinal plants with bio assays of constituents 3 years	203,300.00
RG/89/C/8 1989	Dr (Mrs) L.S.R. Arambewela CISIR Colombo 7	Studies on the development of value added products from commercially important medicinal plants of Sri Lanka 3 years	87,500.00
RG/89/C/9	Dr J.A.P. Mathes Dr H.D. Gunawardhana CISIR Colombo 7 Dept. of Chemistry Univ. of Colombo	Ambient air quality study by measuring pollutants emitted mainly from vehicles moving in the city of Colombo 3 years	250,000.00

Medical & Veterinary Science

Grant No. & Year of Award	Name of Grantee & Institution	Title & Duration	Total Allocation Rs. Cts.
RG/89/M/01 1989	Dr. A. Ratnayake Dr. H.M.M. Cooray	Delivery of oral health care in General dental practice and hospital dental practice - a study 1 year	2,800.00
RG/89/M/03 1989	Dr. K.A.A.S. Wannakulasuriya Dept of Oral Medicine Prof. P.A.J. Perera Dept of Biochemistry Univ. of Peradeniya	An experimental study of bioavailability of fluoride from tea, in man 6 months	27,730.00
RG/89/M/04 1989	Dr.(Mrs) M.C. Attapattu Medical Research Institute	Investigation of pulmonary disease for mycotic disease with special reference to histoplasmosis 3 years	107,000.00
RG/89/M/05 1989	Dr. C.P.D.W. Mathew Mrs. M.S.S. Wijesundera Dept of Biochemistry Univ. of Colombo	Purification and characterization of regulatory enzymes of the glycolytic path in <u>Setaria digitata</u> 3 years	114,034.00
RG/89/M/06 1989	Dr. K.S.A. Jayasinghe Faculty of Medicine Dr.(Mrs) K.H. Tennekoon Dept of Physiology Univ. of Colombo	Further studies on the hypoglycaemic action of <u>Momordica charantia</u> evaluation of the mode of action 3 years	208,880.00
RG/89/M/01 1989	Prof.(Mrs) V.K. Gunawardana Dr. V.Y. Kuruwita Dr. H. Abeygunawardana Faculty of Vet. Medicine Univ. of Peradeniya	Studies on embryo transfer in buffaloes 3 years	75,350.00

Grant No. & Year of Award	Name of Grantee & Institution	Title & Duration	Total Allocation Rs. - Cts.
RG/89/V/02 1989	Prof. S.G.de S. Wettimuny Faculty of Medicine Univ. of Peradeniya	A study of cerebrospinal nematodiasis (CSN) in sheep and goats (goat paralysis) 3 years	152,584.00
RG/89/V/3 1989	Dr H. Abeygunawardena Dept of Vet. Clinical Studies Univ. of Peradeniya Dr M.W.A.P. Jayatilaka Dept of Agric. Econ. Extension Univ. of Peradeniya	Assessing the productivity, reproductive efficiency and management systems in the zebu cattle farming systems in Sri Lanka 3 years	198,390.00

Physical & Engineering Sciences.

Grant No. & Year of Award	Name & Institution	Title & Duration	Total Allocation Rs.
RG/89/P/1 1989	Dr B.S.B. Karunaratne Dept. of Physics Univ. of Peradeniya	Mechanical properties and microstructure of ceramic materials 2 years	74,000.00
RG/89/P/2 1989	Dr M.A. Careem Dept. of Physics Univ. of Peradeniya	Study of electrical conductivity and phase transition of solid electrolytes suitable for solid state device applications 2 years	69,000.00

Grant No. & Year of Award	Name & Institution	Title & Duration	Total Allocation Rs.
RG/89/E/1 1989	Mr L.L. Ratnayake Dept. of Civil Eng. Univ. of Moratuwa	Determination and suitable remedial treatment methods for accident prone locations (black spots) in the city of Colombo 1 year	40,500.00
RG/89/E/2 1989	Dr S.S.L. Hettiarachchi Dr W.P.S. Dias Dept. of Civil Eng. Univ. of Moratuwa	Investigations on the performance of coastal structures armoured with natural rock and concrete armour units 2 years	141,000.00
RG/89/E/3 1989	Dr J. Katupotha Dept. of Geography Univ. of Sri Jayewardenepura	Geomorphic surfaces of river basins in the Western and Southern parts of Sri Lanka 2 years	63,050.00
RG/89/E/5 1989	Mr S. Weerawarnakula Dr P.G.R. Dharmarathne Dept. of Mining & Minerals Eng., Univ. of Moratuwa	Geological exploration for alluvial gold deposits and their probable sources in the area around Kaltota and Weli Oya off Balangoda-A case study 1 year	90,500.00
RG/89/E/6 1989	Mr Upali Weerakkody Dept. of Geography Univ. of Ruhuna	Geomorphological Evolution of the Southwest Coast of Sri Lanka. An Inquiry into Holocene and Present Coastline changes	45,250.00

SOCIAL SCIENCE

Grant No. & Year of Award	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/89/SS/1 1989	Miss R.M.S.K. Ratnayake Research Student Dept. of Geography Univ. of Peradeniya	Assessment of the socio-economic impact of crop diversification programme in coconut lands in the Kurunegala district 1 year	Rs.23000/=
RG/89/SS/2 1989	Ven. Tumbulle Seelakandha Univ. of Pali & Buddhist Studies Vidyalankara Inst. Kelaniya.	The lineage of Asgiri Maha Vihara and affiliated education 1 year	Rs.10000/=
RG/89/SS/3 1989	Ms. Podimenuke Pathirage Dept. of Economics Univ. of Kelaniya.	Rural unemployment in Sri Lanka (with special reference to experiences in a few selected rural areas) 1 year	Rs.8800/=
RG/89/SS/4 1989	Dr.M. Wijaya A.P. Jayatilaka Dept. of Agriculture Economics & Extension Fac. of Agriculture Univ. of Peradeniya.	Occupational aspirations and attitudes towards agricultural employment among youth in Sri Lanka 10 months	Rs.45500/=
RG/89/SS/5 1989	Mr.R.K.L.M. Dharmasiri Dept. of Geography Univ. of Kelaniya.	The location of service facilities affiliated to planned settlements: A comparative study with reference to Mahaweli 'H' and 'C' areas 3 years	Rs.26800/=

Grant No. & Year of Award	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/89/SS/6 1989	Dr. Rohana Ulluwishewa Dept. of Geography Univ. of Sri Jayewardenepura	Development planning and gender inequality: A case study in Lunugamvehera Development Project 1 year	Rs. 10400/=
RG/89/SS/7 1989	Dr.S.P.F. Senaratne 18, Palmyrah Ave., Colombo 3.	The analysis of the health seeking behaviour of a fishing village in the Negombo region through an investigation of the societal foundations of this behaviour 2 years	Rs.70000/=
RG/89/SS/8 1989	Ven.Kadurugamuwe Nagitha Dept. of Linguistics Univ. of Kelaniya.	A linguistic analysis of the tamil dialect used in the upcountry plantation areas in Sri Lanka 2 years	Rs.11265/=
RG/89/SS/9 1989	Prof. G.L. Peiris Vice-chancellor Univ. of Colombo.	Drug laws in the south and south-east Asian regions with particular reference to Sri Lanka 1 year	Rs. 18000/=

Science and Technology Information

Grant No.	Name of the Grantee & Institution	Title of Duration	Total Allocation
RG/IS/89/02	Mr. L.A. Jayatissa Univ. of Kelaniya	A survey of Geological and Hydrological Data Centres 1 year	Rs. 36,000/= (IDRC funds)
RG/IS/89/01	Miss. C.L.M. Nethsinghe CISIR	Creating a Database on on-going research and Sri Lankan publication on medicinal and asomatic plants 3 months.	Rs. 8,000/=
RG/IS/89/03	Mrs. S.M. Wijewansa SLSI	Survey of technology information in libraries in Sri Lanka 3 months.	Rs. 8,000/=

MAB AND BIOSPHERE

Grant No. & Year of Award	Name of the Grantee & Institution	Title & Duration	Total Allocation
UNESCO/MAB/86/1 1989	Prof. B.A. Abeywickrema Botany Department Univ. of Colombo Colombo.	'The Threatened Plants of Sri Lanka'	Rs. 59400/=
MAB/UNESCO/3 1989	Dr. (Mrs.) S. Gunatillake Dept. of Botany Univ. of Peradeniya Peradeniya.	'Demographic studies of some Dipterocarp species in the Sinharaja Forest'	Rs. 98000/=
MAB/UNESCO/4 1989	Prof. S. Balasubramaniam Dept. of Botany Univ. of Peradeniya Peradeniya. Dr. A.H.M. Jayasuriya National Herbarium Dept. of Agriculture Peradeniya.	'Preparation and Compilation of a Floristic Inventory of the Sinharaja Forest'	Rs. 64200/=
MAB/11(WWF) 1989	Prof. S. Balasubramaniam Dept. of Botany Univ. of Peradeniya Peradeniya. Dr. A.H.M. Jayasuriya National Herbarium Dept. of Agriculture Peradeniya.	'Conservation of Indigenous Medicinal Plants WWF Project 3320'	Rs. 26210/=

Mangroves

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/MAN/UNESCO/01	Mrs Mala Amerasinghe NARA, Kalpitiya	Investigations of litter production, litter decomposition and associated fungi in the Mangrove Communities of Negombo Lagoon - 1½ years	Rs.576828.00
RG/MAN/UNESCO/02	Dr J.I. Samarakoon University of Kelaniya	Experimental studies on the mangrove based brush pile fishery - Sep. 1990	Rs.235540.00

US-AID Programme

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/AID/12 (subgrant from Harvard Univ.)	Prof C.V.S. Gunatilleke Prof I.A.U.N. Gunatilleke Dept. of Botany Univ. of Peradeniya	Understanding the maintenance of tree species richness for silvicultural and conservation management. 3 years	US\$ 87000

Buffalo Research Programme

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation Rs.
SAREC/09/BF-28	Dr P. Abeynayake Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Studies on Cytogenetics of Lanka Buffaloes 2 years	145,000/-
SAREC/09/BF-29	Dr N.U. Horadagoda Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Haematological and biochemical profiles of Lanka buffalo 2 years	208,000/-
SAREC/09/BF-30	Dr Indira de Silva Fac. of Vet. Medicine & Animal Sci Univ. of Peradeniya	Studies on Phagocytic efficiency of buffalo neutrophils for common mammary pathogens 2 years	301,000/-
SAREC/09/BF-31	Dr Preeni Abeynayake Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Pharmacokinetic studies of some antibiotics in Lanka buffalo 2 years	200,000/-
SAREC/09/BF-32	Prof S.T. Fernando Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	The incidence and occurrence of helminth species of the classes Trematoda, Cestoda and Nematoda of swamp and other exotic buffaloes 2 years	292,400/-
SAREC/09/BF-33	Prof S.G. de S. Wettimuny Dr N.U. Horadagoda Dr M.S. Gomis Fac. of Vet. Medicine & Animal Sci Univ. of Peradeniya	Aetiopathology of buffalo calf mortality	224,400/-

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation Rs.
SAREC/09/BF-34	Dr (Mrs) D.D.N. de Silva Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Sedative/Analgesic effects of Rempun Domesedan and Combelene in buffaloes 2 years	151,050/-
SAREC/09/BF-35	Dr H. Peiris Dr A.B.P. Jayawardena Veterinary Research Inst.	Study of the grazing behaviour and forage utilization of free rangé buffalo herds 2 years	88,200/-
SAREC/09/BF-36	Dr D.J. Weiligama Veterinary Research Inst.	Impact of parasitism on bos indicus cattle and on local buffaloes 2 years	164,400/-
SAREC/09/BF-37	Dr A.A.J. Rajaratne Fac. of Medicine Univ. of Peradeniya	Body fluid compartments and electrolyte balances in indigenous buffaloes 2 years	170,000/-
SAREC/09/BF-38	Dr E.F.A. Jalatge Dr A.D. Nimal Chandrasiri Veterinary Research Inst.	A study of the growth, adaptability and the economics of the crossbred buffaloes in Sri Lanka 2 years	194,300/-
SAREC/09/BF-39	Prof K.K. Pathirana Fac. of Agriculture, Univ. of Univ. of Ruhuna Dr (Mrs) C. Kodikara Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya Dr S.S.E. Ranawana Veterinary Research Inst.	Production systems of Ruhunu curd 2 years	263,600/-

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation Rs.
SAREC/09/BF-40	Dr Rohana Ulluwishewa Dept. of Geography Univ. of Sri Jayewardenepura	Economics of buffalo management for curd production under small farm conditions in Sri Lanka : A case study in Hambantota district 2 years	106,900/-
SAREC/09/BF-41	Dr C. Bogahawatta Dept. of Agric. Economics Univ. of Peradeniya	Management and productive efficiency of buffalo rearing systems among small holders in Sri Lanka 2 years	233,900/-
SAREC/09/BF-42	Prof A.S.B. Rajaguru Dr H.W. Cyril Prof U. Samarajeewa Fac. of Agriculture Univ. of Peradeniya	Preliminary studies on curd products and curd industry in Sri Lanka 2 years	246,000/-
SAREC/09/BF-43	Dr S.S.E. Ranawana Veterinary Research Inst. Dr A.A.J. Rajaratne Fac. of Medicine Univ. of Peradeniya	Nutritional studies on the indigenous buffalo in relation to selected micronutrients 2 years	302,400/-
SAREC/09/BF-44	Prof W.I. Siriweera Dr P.V.J. Jayasekera Dept. of History Mr M.D. Nelson Dept. of Geography Mr Vijitha Nanayakkara Dept. of Sociology Univ. of Peradeniya	A comparative study of the buffalo dairy industry in Sri Lanka and India 2 years	269,400/-

Grant No.	Name of Grantee & Institution	Project Title & Duration	Total Allocation Rs.
SAREC/09/BF-45	Dr Nimal Perera Dept. of Animal Science Fac. of Agriculture Univ. of Peradeniya	Evaluation of availability, nutritive value and botanic composition of forages grazed by buffaloes in natural grazing-lands and other lands of Sri Lanka 2 years	268,000/-
SAREC/09/BF-46	Dr V.Y. Kuruwita Dr H. Abeygunawardena Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Development of buffalo research farm, Mawala 2 years	249,000/-
SAREC/09/BF-47	Dr A.M.W.A.P. Jayatilaka Dept. of Agric Economics Ms Shirani Gunasekera Dept. of Food Science Univ. of Peradeniya	Study of the seasonal and ecological variations in the contribution made by the buffalo farms to the rural economy and food systems in Sri Lanka 2 years	194,000/-
SAREC/09/BF-48	Dr Sunil Jayasekera Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Blood cholinesterase activity, insecticide concentrations in water buffaloes exposed to the organophosphate, monocrotophos 2 years	256,400/-
SAREC/09/BF-49	Dr S. Mahalingam Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya	Virus associated diarrhoeas of buffalo calves 2 years	364,000/-
SAREC/09/BF-50	Dr H.W. Cyril Dept. of Animal Science Univ. of Peradeniya	Meat production potential of local buffaloes 2 years	301,900/-
SAREC/09/BF-51	Dr (Mrs) E.R.K. Perera Dept. of Animal Science Univ. of Peradeniya	Effect of improved protein and energy nutrition on growth performance, ovarian and pituitary hormones in buffalo heifers 2 years	251,400/-

Grant No.	Name of Grantee & Institution	Project Title & duration	Total Allocation Rs.
25. SAREC/09/BF-52	Dr A.R. Mohamed Veterinary Research Inst.	A study of the effect of work on the reproductive performance of the Lankan buffalo 2 years	318,000/-
SAREC/09/BF-53	Dr D.H.A. Subasinghe Dept. of Animal Prod. & Health Univ. of Peradeniya Dr H. Abeygunawardhana Univ. of Peradeniya Dr W. Jayatilaka Fac. of Agriculture Univ. of Peradeniya Dr S.S.E. Ranawana Veterinary Research Inst.	Development of suitable intensive management systems to optimize the productivity of water buffaloes in Sri Lanka 2 years.	1,012,400/-
SAREC/09/BF-54	Dr M.C.L. de Alwis Veterinary Research Inst. Dr N.U. Horadagoda Fac. of Vet. Medicine & AnimalSci. Univ. of Peradeniya	Further studies on the carrier status in HS in buffaloes 2 years	138,600/-
SAREC/09/BF-55	Dr H. Abeygunawardhana Dr V.Y. Kuruwita Fac. of Vet. Medicine & Animal Sci. Eastern University Dr V. Mohan Eastern University	Comparative study of reproductive traits in Lankan, Indian and Indian x Lankan cross bred buffaloes 2 years	454,400/-
SAREC/09/BF-56	Dr V.Y. Kuruwita Dr H. Abeygunawardhana Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya Dr V. Mohan Dept. of Animal Science Eastern University	Further studies on post-partum ovarian activity and the effects of suckling on resumption of ovarian activity in Lankan buffaloes	436,400/-

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation Rs.
SAREC/09/BF-57	Dr V.Y. Kuruwita Dr H. Abeygunawardhana Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya Dr V. Mohan Dept. of Animal Sci Eastern University	Preliminary studies on artificial insemination (A.I.) in water buffaloes in Sri Lanka 2 years	434,400/-
SAREC/09/BF-58	Dr H Abeygunawardhana Dr V.Y. Kuruwita Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya Dr V. Mohan Dept. of Animal Sci. Eastern University	Induction of ovarian activity in post-partum anestrus buffaloes	294,400/-
SAREC/09/BF-59	Dr D.H.A. Subasinghe Dept. of Animal Prod. & Health Dr H. Abeygunawardhana Dr V.Y. Kuruwita Fac. of Vet. Medicine & Animal Sci. Univ. of Peradeniya Dr M.C.L. de Alwis Dr S.S.E. Ranawana Veterinary Research Inst.	SAREC/NARESA/NLDB Buffalo Research Station - Narangalla 2 years	560,000/-

Coastal Ecology Research Programme

Grant No.	Name of Grantee & Institution	Title and Duration	Total Allocation Rs
SAREC/19/CE-01	Dr Pauline Dayaratne National Aquatic Resources Agency Crow Island Colombo 15	Studies on the Puttalam/ and Negombo Estuarine Systems and Associate Coastal and Estuarine Waters 2 years	1,482,000/-
SAREC/19/CE-02	Dr Ajantha de Alwis National Aquatic Resources Agency Crow Island Colombo 15	Studies of Coastal Reefs of Sri Lanka 2 years	1,072,500/-
SAREC/19/CE-04	Prof Sena S. de Silva Dept. of Zoology & Fisheries Biology Univ. of Ruhuna	Recruitment and Distribution of <u>Anguilla bicolor</u> and <u>Anguilla nebulosa</u> in Sri Lankan Estuaries and River Systems 2 years	1,200,000/-
SAREC/19/CE-05	Dr J. Jinadasa Dept. of Zoology Univ. of Sri Jayewardenepura	The Significance of Estuaries for the Recruitment of Freshwater and Marine Prawns 2 years	513,500/-
SAREC/19/CE-06	Dr J. Jinadasa Dept. of Zoology Univ. of Sri Jayewardenepura	Studies on the Biology and Distribution of Clams in the Negombo Lagoon 2 years	206,500/-

TABLE IV PARTICIPATION AT CONFERENCES, SEMINARS AND WORKSHOPS OVERSEAS DURING 1989
ON THE NOMINATION OF NARESA

Subject and Period	Awarding Agency	Nominee/s
1. First Plenary Session Consultative Committee, UNESCO Silk Road Project, China 24 - 30 April 1989.	UNESCO	Dr. R.P. Jayewardene Director-General
2. Small Industry Information Management Philippines, 11 Sept - 10 Nov. 1989.	Netherlands Govt.	Mrs. W.G.S. Wimalasena Documentalist
3. Experts & Users Group Meeting on Mino CDS/ISIS Library Software under ASTINFO at AIT, Bangkok, 2 - 6 Oct. 1989.	UNESCO	Mr. N.U. Yapa. Director Information
4. SAARC Technical Committee on S & T Dhaka, 22 - 24 Oct. 1989.	SAARC	Mr. M. Watson Asst. Director Scientific Affairs

NATIONAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA

Balance Sheet as at 31.12.89

As at 31.12.88					
7,915,541.33	<u>Funds Employed</u>				
1,000,000.00	<u>NARESA FUND</u>				
8,915,541.33	Add: Drawings from Treasury	500,000.00	5,727,014.59	6,027,014.59	
3,188,236.74			<u>500,000.00</u>	3,335,172.59	
5,727,014.59	Less: Excess of Expenditure over Income				2,691,842.00
1,429,015.94	<u>Documentation Unit Capital Fund</u>				
1,750,000.00	Add: Drawings from Treasury	1,500,000.00	2,864,628.75	4,364,628.75	
500,000.00	Treasury Deposit		<u>1,500,000.00</u>		
3,679,015.94	Funds received from UNEP/CC & SAREC				
814,387.19	Less: Net Expenditure - Note 1.1				735,208.13
2,864,628.75					3,629,420.62
4,398,412.73	<u>Research Grant Fund</u>				
4,375,000.00	Add: Drawings from Treasury	1,151,000.00	4,434,790.21	5,585,790.21	
8,733,412.73	Treasury Deposit		<u>1,151,000.00</u>		
4,298,822.22	Less: Net Expenditure - Note 1.2				509,372.73
4,434,790.21					5,076,417.48
1,175,819.96	<u>Man & the Biosphere Fund</u>				
400,000.00	Add: Drawings from Treasury	200,000.00	1,573,798.23	1,852,761.73	
144,756.20	Funds received from other sources	58,963.30			
	Treasury Deposit		<u>296,963.30</u>		
1,720,576.16	Less: Net Expenditure - Note 1.3				198,266.65
146,177.93					1,634,495.08
5,313,983.23	<u>Total C/F</u>				13,032,173.18
11,500,231.18					

14,000,231.78	Total B/F				13,032,173.18
796,240.61	Miscellaneous Fund				
800,000.00	Add: Drawings from Treasury	825,000.00			
<u>1,596,240.61</u>	Treasury Deposit				
881,171.48	Less: Expenditure - Note 1.4				
715,069.13					645,592.49
153,497.94	Scientific Manpower Project Fund				
<u>153,497.94</u>	Add: Drawings from Treasury				
	Treasury Deposit				
	Less: Expenditure				
<u>153,497.94</u>					153,497.94
741,707.34	Working Committees Fund				
400,000.00	Add: Drawings from Treasury	290,000.00			
<u>1,141,707.34</u>	Treasury Deposit				
240,341.06	Less: Expenditure - Note 1.5				
901,366.28					
25,043,813.81	Foreign Aid Fund				
7,629,964.10	Add: Drawings from Treasury	9,040,000.10			
<u>223,127.60</u>	Treasury Deposit				
31,193,909.31	Foreign Aid held by NARES A	6,986,103.53			
<u>3,292,636.28</u>	Less: Net Expenditure - Note 1.6				
25,897,867.23					
42,266,032.34	Total C/F				36,070,467.17
					52,798,570.19

42,268,032.34	Total B/F	32,799,370.19
130,698.27	<u>Current Liabilities</u>	
402,733.07	Creditors	381,461.79
3,383,901.06	Accrued Charges	972,813.36
23,346.00	Provisions	1,654,792.06
50,000.00	Endowment Fund	26,622.80
1,750.00	Refundable Deposit	50,000.00
<u>17,950.00</u>	Stom-keepers Refundable Security Deposit	3,070.00
<u>4,210,292.40</u>	Tender Deposit	<u>12,300.00</u>
46,478,624.74		<u>3,101,060.23</u>
		<u>25,999,608.44</u>

NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA

Balance Sheet as at 31st Dec. 1989

As at 31.12.88	Represented by	Cost as at 01.01.89	Additions (Disposals)	Accumulated Depreciation	Net Balances As at 31.12.89
1,290,160.56	Fixed Assets				
577,923.68	Buildings	2,427,842.56	55,158.93	1,505,325.50	1,453,444.99
977,000.45	Office Equipment & Furniture	2,082,139.88	48,408.99	1,783,494.00	770,666.03
30,676.00	Motor Vehicles	2,521,173.18	1,582,222.61	2,040,052.32	1,670,570.50
2,333.00	Motor Bicycles	96,415.00		69,833.00	26,582.00
	Bicycles	7,460.00	(750.00)	5,443.00	1,267.00
	Sports Equipment	1,504.00		1,504.00	
27,215.65	Accessories & Miscellaneous	102,694.89	55,488.99	91,512.00	48,344.99
1,222,268.57	Library Books	1,222,268.57	23,793.66		1,246,062.23
13,318,444.99	Scientific & Laboratory equipment out on loan	21,625,025.49	2,837,623.31	10,435,081.50	13,596,815.74
1,390,293.48	Documentation Equipment	3,824,430.48	580,422.99	2,792,284.00	1,687,156.22
16,804,046.78	Telephone Installation	33,910,954.01	2,575,195.61	18,634,629.32	20,681,320.30
45,532.45	Work in Progress				13,993.64
18,864,132.87					20,865,473.94
440,846.22	Current Assets				
1,660,462.33	Stocks		378,498.36		1,660,462.33
5,006,309.34	Debtors		2,138,208.72		5,006,309.34
57,295.45	Prepayments		2,870,996.01		57,295.45
17,411,336.31	Deposits		77,350.45		17,411,336.31
2,482,655.94	Treasury Deposit		26,056,403.36		2,482,655.94
511,295.16	Balance at Bank A/C No. 4530800224	(417,181.80)			511,295.16
10,000.00	Balance at Bank A/C No. 4530800232	648,419.41			10,000.00
9,681.12	Petty Cash	10,000.00			9,681.12
23,561.00	Cash in Hand	3,242,590.17			23,561.00
750.00	Fixed Deposit	26,822.80			750.00
27,614,491.87	National Savings Bank A/C	3,070.00	3,513,510.28		27,614,491.87
46,478,024.74					46,478,024.74

M. P. Perera
 Director General
 Natural Resources, Energy &
 Science Authority of Sri Lanka,
 47/5, Maliland Place, Colombo 7

NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA

Income & Expenditure A/C for the year ended 31st December 1989

AS at 31.12.88				
4,750,000.00	Drawings from Treasury			3,880,000.00
17,249.23	Income for the year			
132,260.46	Interest received			32,596.17
92,039.70	Sundry Income			19,440.93
6,328.15	Sale of Publications			101,267.26
89,929.82	Photocopy receipts			10,323.45
9,021.00	Receipts from printing out side jobs			92,165.02
901,818.00	Profit on sale of fixed assets			234,153.93
1,328,646.36	10% foreign aid administration cost			904,099.00
	Less: Expenditure for the year			1,328,646.36
29,251.00	Council Expenditure			7,274,596.26
12,214.70	Travelling & allowances for Authority members	24,419.00		
41,469.70	Entertainment	14,880.65		39,299.65
3,217,526.72	Staff Emoluments			
516,926.63	Salaries & allowances	4,064,142.32		
91,902.40	Employees Provident Fund	591,987.65		
7,672.50	Employees Trust Fund	114,794.78		
450,209.76	Retiring Gratuity	9,630.00		
127,162.44	Provisions for retiring gratuity	151,183.50		
4,411,402.47	Overtime	72,776.73		3,027,316.98
10,291.57	Office Administrations			
163,015.15	Travelling (official)	3,492.92		
162,253.80	Stationary & Consumables	302,872.61		
152,776.25	Electricity	191,597.60		
488,266.77	Telephone	129,245.97		
	Total C/F	627,209.10		5,066,816.63

488,298.77	Balance B/F:	627,509.10	7,274,356.26
46,391.96	Postage	37,834.14	
42,625.00	Audit Fees	42,625.00	5,066,816.63
5,287.47	Banking Charges	3,896.05	
15,971.97	Medical Expenses	5,195.09	
74,660.00	Advertising	104,165.00	
159,226.43	Maintenance of Motor Vehicles	121,474.54	
52,131.84	Maintenance of Office Equipment & Furniture	71,568.67	
71,171.39	Maintenance of Office Building	255,668.19	
408.00	Staff Welfare	5,000.00	
193,898.07	Insurance	36,314.25	
1,000.00	Water Consumption charges	443.80	
-	Bad debts	-	
-	Provisions for doubtful debts	-	
2,743.00	Loss of Fixed Assets	-	
-	Loss of Stocks	-	
116,764.00	Security Services	134,268.00	
3,360,266.00	Depreciation	3,918,296.00	
75,703.70	Sundry Expenses	47,950.35	
-	Custom Duty & BTT	-	
-	SAREC/VEN - Subsistence and Overtime	6,159.82	
-	Qum Ulewa	90,662.22	
-	Jansaviya	<u>3,640.00</u>	
4,635,659.00			10,601,688.05
3,009,681.41			3,327,132.59
178,842.33	Excess of Expenditure over Income		<u>8,040.00</u>
3,188,226.74	Add Prior year adjustment (Net)		<u>3,325,172.59</u>
			5,354,672.22

Fund Flow Statement

SOURCES

External Sources

Contribution from Government		4,266,000.00
Grants from Foreign Agencies	18,590,067.00	
<u>Less 10% Administration Cost</u>	<u>904,091.00</u>	17,685,976.00
Funds received from other sources		<u>388,112.00</u>
		22,340,088.00

Add Adjustments for items not involving

Movements of funds

Depreciation	3,918,296.00	
Net increase in provisions	1,929,109.00	
Disposal of fixed assets during 89	447,866	
<u>Less Depreciation written off</u>	<u>389,974</u>	<u>57,892.00</u>
		<u>5,905,297.00</u>
		28,245,385.00

APPLICATION

Excess of expenditure over income	3,175,949.00	
Adjustments in respect of previous year	(18,719.00)	
Acquisition of fixed assets	6,023,062.00	
Expenditure re. Research Grants	<u>10,580,429.00</u>	<u>19,760,721.00</u>
Increase in working capital as analysed below		<u>8,484,664.00</u>

Change in Working Capital

	Increase	Decrease	
1. Stocks	-	62,348.00	
2. Debtors	477,746.00		
3. Work in Progress	-	45,532.00	
4. Prepayments	-	2,135,313.00	
5. Deposits	20,144.00	-	
6. Treasury Deposit	8,645,067.00	-	
7. Creditors	-	250,764.00	
8. Accrued charges	-	570,080.00	
9. Provisions	1,929,109.00	-	
10. Other liabilities	1,267.00	-	
11. Cash & Bank balances	<u>475,368.00</u>	-	
	<u>11,548,701.00</u>	<u>3,064,037.00</u>	<u>8,484,664.00</u>

NOTES ON ACCOUNTS - 1989

1. General Accounting: The financial statements have been prepared in accordance with generally accepted accounting principles on a historical cost basis. The fundamental accounting assumptions and policies relevant in accounting have been adhered to on a consistent basis as in the previous year.

The ten percent of foreign donor funds received, which is for covering overheads, has been taken credit in the Income and Expenditure statement.

1.1 Documentation Unit Capital Fund Expenditure

1. SLSTIC Equipment	Rs.	916,308.74
2. Books & Periodicals		204,323.32
3. In House Printing & Binding		165,986.36
4. Consumables		132,297.03
5. Miscellaneous		38,226.00
6. Services		9,813.60
7. Publications & Publicity		77,967.00
8. Maintenance & Repairs		130,388.48
9. Expenditure out of UNESCO funds		<u>44,206.00</u>
	Rs.	1,719,516.53
<u>Less: Cost of Documentation Equip. & Lib. books</u>		<u>984,308.40</u>
916,308.74 + 44,206.00 + 23,793.66		
	Rs.	<u>735,208.13</u>

1.2 Research Grants Expenditure

Actual Expenditure for the year	1,235,583.64	
<u>Add: Expenditure on grants terminated and completed before 1989</u>	<u>9,094.35</u>	1,244,677.99
<u>Less: Cost of Scientific Equipment acquired during the year</u>		<u>102,135.04</u>
		1,142,542.95
<u>Less: Net prior year adjustments</u>		<u>633,170.22</u>
	Rs.	<u>509,372.73</u>

1.3 Man & Biosphere Expenditure

1. MAB/81/02	Rs.	10,056.00
2. MAB/85/01		3,681.42
3. MAB/85/02		6,000.00
4. MAB/86/01		66,406.22
5. MAB/88/01		3,525.00

6. MAB/UNESCO/86/01	Rs.	7,300.00
7. MAB/UNESCO/03		33,133.72
8. MAB/UNESCO/04		21,725.57
9. MAB/National Committee		<u>46,820.02</u>
	Rs.	198,647.95
Less: Net prior year adjustments		<u>379.30</u>
	Rs.	<u>198,268.65</u>

1.4 Miscellaneous Fund Expenditure

1. Awards for outstanding Research Work	Rs.	8,075.00
2. Participation in International Scientific work		103,193.13
3. Seminars & Symposias		4,150.00
4. Subscriptions to International Scientific Unions		455,865.00
5. <u>Special Research Projects</u>		
1. SAREC/11, SAREC/11/ZSSL/2,3,4,8	166,660.12	
2. Mangrove Commission	9,320.70	
3. UNESCO/86/PP/01	<u>118,599.69</u>	Rs. 294,580.51
		Rs. 865,863.64
<u>Add: Net prior year adjustments</u>		<u>28,913.00</u>
	Rs.	<u>894,776.64</u>

1.5 Working Committees Fund Expenditure

1. Agriculture & Animal Husbandry W/C	Rs.	14,198.00
2. Biological Sciences W/C		19,572.30
3. Chemical Sciences W/C		8,513.85
4. Editorial Committee		1,254.00
5. Medical & Vet. Sciences W/C		16,963.15
6. Natural Resources W/C		10,030.80
7. Physical & Engineering Sciences W/C		8,768.00
8. Social Sciences Research W/C		75,097.25
9. Science Education Research W/C		127,412.50
10. Science Information W/C		6,083.00
11. Working Committee on Energy		<u>5,334.00</u>
	Rs.	<u>293,226.85</u>

1.6 Foreign Aid Expenditure

1. Advisory & Buffalo Research W/C		Rs.	43,681.66
2. ACIAR Project Expenditure			156,041.30
3. CIDA			2,038,632.60
4. SAREC			2,256,033.91
5. RG/AID			3,642,738.74
6. RG/87/AG/03			360,123.69
7. RG/87/NORAD/SS/08			1,160.00
8. Symposium on Buffalo Research in Sri Lanka			258,525.14
9. RG/MAN/UNESCO Grants			156,545.82
10. Natural Resources Profile A/C			<u>843.00</u>
		Rs.	8,914,325.86
<u>Less</u> Cost of Scientific Equipment & Motor vehicles Acquired during 89		Rs.	<u>3,023,010.22</u>
			5,891,315.64
<u>Less</u> Prior year adjustments	45,091.26		
Money received from sale of products	<u>3,700.00</u>	Rs.	<u>48,791.26</u>
		Rs.	<u>5,842,524.38</u>

2. Assets & the basis of their valuation

Depreciable assets & Depreciation:

Depreciation has been provided on original cost or at valuation on a straight line basis consistent with that of the previous years and is calculated to write off the assets over their estimated useful lives.

2.1 Debtors

Total Debtors	Rs.	2,163,986.29
Less: Provision for doubtful debts		<u>25,777.57</u>
	Rs.	<u>2,138,208.72</u>

3 Liabilities & Provisions

3.1 Creditors

Creditors amount to Rs. 381,461.79 represents monies held by NARESA on behalf of 15 projects given below.

Creditors

1. CANLIT	Rs.	5,843.25
2. Minor Micro CDS/ISIS Workshop		10,909.16

3. COSTED/01	Rs.	7,880.00
4. Sundry Creditors		5,159.07
5. Reserves for NTIS Lending of books programme		597.37
6. NTIS Creditors		4,235.75
7. RINSCA Meeting		17,929.87
8. SLATAI		6,080.00
9. UNILIST/ISIS workshop		26,115.00
10. APCTT		20,916.50
11. Suspense A/C		778.00
12. Genetic Resources		102,379.24
13. Workshop on Tropical Forests & Coral Reefs		23,148.77
14. STEPAN Workshop		97,977.31
15. RG/89/IS/02		31,642.00
16. TWAS Contribution A/C		<u>19,870.50</u>
	Rs.	<u>381,461.79</u>

These sums will be expended as the programme advance.

3.2 Employees' Benefit

All employees are covered by EPF and ETF except the National Apprenticeship Board Trainees. An approved medical scheme is provided in addition to the normal welfare facilities available.

3.3 Retiring Gratuity

Provision has been made in the accounts in respect of liability for retiring gratuity.

Schedule No. 1

Provisions

1. Provision for Research Grants	Rs.	509,258.58
2. " for Retiring Gratuity		<u>1,145,533.50</u>
	Rs.	<u>1,654,792.08</u>

Schedule No. 2

Accrued Charges

1. Audit fees 85,86,87,88 & 89	Rs /	138,325.00
2. Water Consumption Charges 87,88,89		2,440.00
3. Gratuity (G.R. Gunawardene		270.32
4. Charges for supplying flowers		1,000.00
5. Buffaloe Research Symposium		520.00
6. Maintenance of Building		13,570.30
7. Electricity		143,683.20
8. Telephone		56,076.90
9. Sick leave		272,464.81
10. Cost of fuel		10,100.95
11. Bank Charges		425.00
12. E.P.F.		44,377.10
13. E.T.F.		42.00
14. National Awards		4,000.00
15. Gamudawa		9,092.94
16. Janasaviya		2,625.00
17. SSR W/C		8,820.00
18. Cost of perimeter wall		24,264.78
19. SAREC Expenditure		6,494.58
20. CIDA "		3,276.44
21. RG AID "		122,653.60
22. Research Grants Expenditure		23,141.87
23. ACIAR Project "		589.77
24. RG/87/AG/03 "		16,868.96
25. UNESCO/86/PP/01 "		20.06
26. MAN/UNESCO "		<u>67,670.00</u>
	Rs.	<u>972,813.58</u>

Schedule No. 03

Stocks

1. Stationary & Consumables	Rs.	366,375.38
2. Stamps		375.00
3. Printing Papers		<u>11,748.00</u>
	Rs.	<u>378,498.38</u>

Schedule No. 04

Sundry Debtors

1. Research Grants Cash Imprest	(Schedule No. 4.1)	Rs.	133,710.26
2. SERC	(" No. 4.2)		2,755.00
3. MAB	(" No. 4.3)		61,350.00
4. Miscellaneous	(" No. 4.4)		41,723.00
5. SAREC	(" No. 4.5)		1,174,805.17
6. CIDA	(" No. 4.6)		138,513.00
7. RG/AID	(" No. 4.7)		95,415.48
8. ACIAR	(" No. 4.8)		5,000.00
9. <u>Loans to Staff</u>			
1. Bicycle Loans	(" No. 4.9)		23,700.00
2. Vehicle Loans	(" No. 4.10)		21,143.00
3. Motor Bicycle Loan	(" No. 4.11)		141,045.00
4. Festival Advance	(" No. 4.12)		24,900.00
5. Distress Loans	(" No. 4.13)		186,233.00
6. Flood Advance	(" No. 4.14)		1,200.00
10. Sundry Debtors			<u>112,493.38</u>
		Rs.	2,163,986.29
<u>Less:</u> Provisions for doubtful debts			<u>25,777.57</u>
		Rs.	<u>2,138,208.72</u>

Schedule No. 05

Prepayments

1. Insurance premiums paid for M. vehicles	23,446.64
2. Fire Insurance premiums for building	32,877.78
3. Maintenance of Office Equipment and Furniture	11,858.31
4. SLSTIC Maintenance & Repairs	5,404.10
5. Maintenance of Motor vehicles	15,550.00

6. SLSTIC Books & Periodicals	Rs.	8,736.90
7. Subscription to Inter. Scientific Unions CSC		207,749.50
8. Balance as at 31.12.89 Franking Machine		3,312.19
9. Office Equipment		582,265.00
10. Telephone (Rental for 90)		7,600.00
11. Rental for Telegraphic Address		500.00
12. Research Grants		6,940.00
13. SAREC		1,820,200.00
14. ACIAR Project		3,030.00
15. RG/AID		140,025.59
16. RG/87/AG/03		<u>1,500.00</u>
	Rs.	<u>2,870,996.01</u>

Schedule No. 06

Deposits

1. Sri Lanka Ports Authority	Rs.	44,230.00
2. Govt. Publications Bureau		929.45
3. Ceylon Oxygen Ltd.		4,000.00
4. Cargo Boat Despatch Co. Ltd.		200.00
5. Felix Perera & Sons		25,000.00
6. Post Master General		1,730.00
7. Ministry of Industries (Telex)		1,000.00
8. Director of Telecommunication		<u>450.00</u>
	Rs.	<u>77,539.45</u>

Schedule No. 07

Depreciation

1. Building	5%	Rs.	136,941.00
2. Office Equipment & Furniture	20%		293,148.00
3. Motor Vehicles	20%		659,192.00
4. Bicycles	25%		1,266.00
5. Accessories & Miscellaneous	20%		17,066.00
6. Scientific & Lab Equipment out on loan 10%			2,349,717.00
7. Documentation Equipment	10%		447,872.00
8. Motor Bicycles	20%		<u>13,094.00</u>
		Rs.	<u>3,918,296.00</u>

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- 59 -



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නිදහස් චතුරග්‍රය, කොළඹ 7, ශ්‍රී ලංකාව

கணக்காய்வாளர் தலைமை அலுவலகம்

சுதந்திர சதுரக்கம், கொழும்பு 7, இலங்கை

AUDITOR-GENERAL'S DEPARTMENT

INDEPENDENCE SQUARE, COLOMBO 7

SRI LANKA (CEYLON)

දිනය/நிகதி/Date. **March 14** , 1991.

Director General,
Natural Resources, Energy and
Science Authority of Sri Lanka,
Maitland Place,
Colombo 07.

Report of the Auditor General on the accounts of the
Natural Resources, Energy and Science Authority of
Sri Lanka for the year ended December 31, 1989 in terms
of Section 14(2)(c) of the Finance Act, No.38 of 1971.

The audit of the accounts of the Natural Resources, **Energy** and
Science Authority of Sri Lanka for the year ended December 31,
1989 was carried out under my direction in pursuance of
provisions in Article 154(1) of the Constitution of the Democratic
Socialist Republic of Sri Lanka read in conjunction with
Section 13(1) of the Finance Act, No.38 of 1971. My observations
which I consider should be published with the annual report
of the Authority in terms of Section 14(2)(c) of the Finance Act
appear in this report. A detailed report in terms of
Section 13(7)(a) of the Finance Act was furnished to the
Authority on November 13, 1990.

1:2 Scope of Audit

Audit opinion, comments and findings in this report are based
on a review of the financial statements presented to audit and
substantive tests of samples of transactions. The scope and
extent of such review and tests were such as to enable as wide
an audit coverage as possible within the limitations of staff,
other resources and time available to me. Sub-sections (3) and
(4) of Section 13 of the Finance Act give discretionary powers
to the Auditor General to determine the scope and extent of
the audit.

Contd .. 2

2. Accounts

2:1 Opinion

Subject to my comments in this report, I am of opinion that the accounts presented have been satisfactorily prepared on the basis of generally accepted accounting principles applied on the basis consistent with that adopted in the preceding year.

2:2 Financial Results

The activities of the Authority are operated under a General Fund and a Special Fund. According to the accounts presented, the operating result of the General Fund of the Authority for the year ended December 31, 1989 was a deficit of Rs.3,327,133 as compared with a corresponding deficit of Rs.3,009,681 for the preceding year. The operations under the Special Funds for the year under review had resulted in a surplus of Rs.13,566,711 as compared with a corresponding surplus of Rs.4,842,510 for the preceding year.

Contd .. 3

2:2:1 General Fund

A summary of the financial results for the year under review and the preceding year is given below.

<u>Income</u>	<u>Year ended December 31,</u>				
	Rs.	<u>1989</u>	Rs.	<u>1988</u>	Rs.
Interest			32,596		117,249
Sale of Publications			101,587		92,040
Receipts on account of the cost of Administration of Foreign Aid			904,091		981,818
Photocopy Receipts			10,523		6,528
Profit on sale of Fixed Assets			234,154		9,021
Provision of Printing Services to Outside Parties			92,164		89,930
Other Income			19,441		132,261
			<u>1,394,556</u>		<u>1,328,847</u>
 <u>Less : Expenditure</u>					
Staff Emoluments	5,027,517			4,411,402	
Office Administration	5,534,872			4,635,660	
Council Expenditure	<u>39,300</u>	<u>10,601,689</u>		<u>41,466</u>	<u>9,088,528</u>
Deficit before Government Grant			(9,207,133)		(7,759,681)
<u>Less:</u>					
Government Grant for Recurrent Expenditure			<u>5,880,000</u>		<u>4,750,000</u>
Deficit			<u>(3,327,133)</u>		<u>(3,009,681)</u>
			=====		=====

Contd .. 4

2:2:2 Special Funds

The following statement gives the financial results of each Special Fund for the year under review and the preceding year.

	<u>Year ended December 31,</u>			
	Rs. <u>1989</u>	Rs.	Rs. <u>1988</u>	Rs.
<u>Documentation Unit</u>				
<u>Capital Fund</u>				
Government Contribution	1,500,000		1,750,000	
'UNESCO' and 'SAREC' Grants	-		<u>500,000</u>	
	<u>1,500,000</u>		2,250,000	
<u>Less: Expenditure</u>	<u>735,208</u>		<u>814,387</u>	
Surplus		764,792		1,435,613
<u>Research Grant Fund</u>				
Government Contribution	1,151,000		4,375,000	
<u>Less: Expenditure</u>	<u>509,373</u>		<u>4,298,623</u>	
Surplus		641,627		76,377
<u>Man and Biosphere Fund</u>				
Government Contribution	200,000		400,000	
Other Income	<u>58,963</u>		<u>144,756</u>	
	258,963		544,756	
<u>Less: Expenditure</u>	<u>198,268</u>		<u>146,778</u>	
Surplus		60,695		397,978
<u>Miscellaneous Funds</u>				
Government Grants	825,000		800,000	
<u>Less: Expenditure</u>	<u>894,776</u>		<u>881,171</u>	
Deficit		(69,776)		(81,171)
<u>Working Committees Fund</u>				
Government Contribution	290,000		400,000	
<u>Less: Expenditure</u>	<u>293,227</u>		<u>240,341</u>	
Surplus/(Deficit)		(3,227)		159,659
<u>Foreign Aid Fund</u>				
Government Contribution	9,040,909		7,625,964	
Treasury Deposits	8,586,103		-	
Other Income	<u>388,112</u>		<u>523,728</u>	
	18,015,124		8,149,692	
<u>Less: Expenditure</u>	<u>5,842,524</u>		<u>5,295,638</u>	
Surplus		<u>12,172,600</u>		<u>2,854,054</u>
Net Surplus from Special Funds		<u>13,566,711</u>		<u>4,842,510</u>

2.3 Financial Structure

The financial structure of the Authority as at December 31, 1989 as compared with that as at December 31, 1988 is given below.

	<u>As at December 31,</u>	
	<u>1989</u>	<u>1988</u>
	Rs.	Rs.
<u>Resources</u>		
General Fund of the Authority	2,691,842	5,727,015
Special Funds :		
Documentation Unit Capital Fund	3,629,421	2,864,629
Research Grants Fund	5,076,417	4,434,790
Man and Biosphere Fund	1,634,493	1,573,798
Miscellaneous Fund	645,293	715,069
Scientific Manpower Project Fund	153,498	153,498
Working Committees Fund	898,139	901,366
Foreign Aid Fund	38,070,467	25,897,867
	<u>52,799,570</u>	<u>42,268,032</u>
	=====	=====
 <u>Utilization</u>		
Fixed Assets (at written down value)	20,865,474	18,864,133
Net Current Assets	31,934,096	23,403,899
	<u>52,799,570</u>	<u>42,268,032</u>
	=====	=====

Contd .. 6

2:4 Source and Application of Funds

The following statement shows the source and application of funds of the Authority during the year under review.

	Rs.	Rs.	Rs.
General Fund deficit for the year			3,327,133
<u>Add: Profit from sale of fixed assets</u>			<u>234,154</u>
			3,561,287
<u>Add: Adjustments in respect of the preceding year</u>			<u>8,040</u>
			3,569,327
<u>Less: Adjustments in respect of items not involving movement of funds</u>			
Depreciation			<u>3,918,296</u>
			348,969
<u>Other Sources</u>			
Capital Grants to the General Fund from the Government		300,000	
<u>Surplus from Special Funds :</u>			
Documentation Unit Capital Fund	764,792		
Research Grant Fund	641,627		
Man and Biosphere Fund	60,695		
Foreign Aid Fund	<u>12,172,600</u>	13,639,714	
Proceeds from Sale of Fixed Assets		<u>337,579</u>	<u>14,277,293</u>
			14,626,262
<u>Application</u>			
<u>Deficit from Special Funds</u>			
Miscellaneous Funds	69,777		
Working Committees Fund	<u>3,227</u>	73,004	
Purchase of Fixed Assets		<u>6,023,061</u>	<u>6,096,065</u>
Increase in Working Capital as analysed below			8,530,197
			=====

Contd .. 7

	<u>Effect on Working Capital</u>		
	<u>Increase</u>	<u>Decrease</u>	
	Rs.	Rs.	Rs.
Stocks	-	62,348	
Debtors	477,747	-	
Prepayments	-	2,135,313	
Deposits	25,526	-	
Treasury Deposits	8,645,067	-	
Cash and Bank Balances	469,986	-	
Creditors	-	250,764	
Accrued Expenses	-	570,080	
Provisions	1,929,109	-	
Donations Fund	-	3,063	
Deposits Payable	4,330	-	
	<u>11,551,765</u>	<u>3,021,568</u>	<u>8,530,197</u>
	=====	=====	=====

2:5 Comments on Accounts

2:5:1 Omissions in the Accounts

- (a) Balances as at the end of the year in respect of stock of publications, stationery, other consumables and work in progress had not been valued and included in the accounts.
- (b) The value of the land at 47/5 Maitland Place, Colombo 07 donated to the Authority by the Government on which the building of the Authority is situated had not been included in the accounts as an asset of the Authority.

2:5:2 Erroneous Accounting

- (a) A sum of Rs.1,350 received during the year under review from sale of fixed assets had been credited to the Income and Expenditure Account as sundry income.
- (b) Profit from sale of assets had been understated by a sum of Rs.30,757 due to the write off of a sum of Rs.30,757 being to book value of assets donated to the Peradeniya and Jaffna Universities against the profit from sale of other fixed assets. The value of assets donated had not been shown separately in the accounts.

2:5:3 Understatements in the Accounts

Accrued liability in respect of gratuities had been understated by a sum of Rs.11,350 due to an error in computation.

2:5:4 Overstatements in the Accounts

Although the Pajero Jeep No. 32 Sri 1451 purchased for Rs.192,949 had been transferred to the University of Ruhuna, its value continued to be shown in the accounts of the Authority as a fixed asset.

2:5:5 Evidence for Audit

Payments aggregating Rs.8,507 shown in the accounts could not be satisfactorily vouched or accepted in audit in the absence of acknowledgements.

2:5:6 Receivables

- (a) Deposits receivable aggregating Rs.77,539 had not been confirmed by the parties concerned whilst the Authority had not called for confirmations in respect of prepayments aggregating Rs.2,814,672.
- (b) Out of receivables aggregating Rs.1,765,765 a sum of Rs.149,366 had been outstanding for over one year.
- (c) Petty Cash Imprests aggregating Rs.1,500 relating to Research and Donations had remained unsettled for a period of four years.

2:5:7 Verification of Physical Assets

The value of physical assets which had not been confirmed by physical verifications aggregated Rs.19,334,450.

2:5:8 Non-Compliance with Laws, Rules, Regulations, etc.

- (a) The final accounts had not been rendered to the Auditor General before the end of four months after the close of the financial year in terms of Section 13(6) of the Finance Act, No.38 of 1971.
- (b) The draft annual report had not been rendered in terms of Section 14(1) of the Finance Act, No.38 of 1971.

- (c) Although the Seal of the Authority had to be affixed in the presence of two members in terms of Section 6(3) of Natural Resources, Energy and Science Authority Act, No.78 of 1981, it had not been done so.
- (d) Although all petty cash imprests where no expenditure whatsoever had been incurred within three months should be settled in full in terms of NARESA Circular No.A/04, such petty cash imprests remaining unsettled aggregated Rs.321,189.

3. Financial and Operating Review

3:1 Financial Results

According to the accounts, the deficit in the General Fund for the year under review amounted to Rs.3,327,133 as compared with a corresponding deficit of Rs.3,009,681 for the preceding year thus disclosing a deterioration of Rs.317,452 in the financial result. This adverse variance can be analysed as follows.

	<u>Favourable</u> Rs.	<u>Adverse</u> Rs.
Increase in Income	65,709	-
Increase in staff emoluments	-	616,115
Increase in Office Administration Income	-	899,212
Decrease in Council Expenditure	2,166	-
Increase in Government Grant for Recurrent Expenditure	<u>1,130,000</u>	<u>-</u>
	1,197,875	1,515,327
<u>Less: Favourable Variance</u>	<u>1,197,875</u>	<u>1,197,875</u>
Net Adverse Variance		317,452 =====

3:2 Research Projects

The Authority provides grants to individuals and institutions for its research activities and the particulars of research activities carried out during the year under review and the preceding year are given below.

	<u>1989</u>	<u>1988</u>
Number of ongoing researches as at the beginning of the year	156	167
Number commenced during the year	<u>41</u>	<u>44</u>
	197	211
Number completed during the year	<u>44</u>	<u>55</u>
Number of ongoing researches as at the end of the year	153	156
	===	===

Out of the 153 ongoing researches as at the end of the year under review 12 researches represented those not completed on the due dates. The delays in completion of these varied from one year to five years. The expenditure incurred up to the end of the year on these delayed researches aggregated Rs.684,585.

3.3 Transport Fleet

The Authority had a fleet of 11 vehicles during the year under review. Some of the significant data relating to the utilization of these vehicles are given below.

Total performance as per Daily Running Charts - Kilometres	105,544
Total quantity of fuel consumed - Petrol litres	4,157
Diesel fuel litres	6,825
Total expenditure on fuel	Rs.141,546
Total expenditure on repairs	Rs.191,749
Average performance per litre of fuel	

	<u>Kilometres</u>
Jeeps	8.27
Cars	6.53
Wagon	10.17
Vans	11.34

Average expenditure on fuel per Kilometre

	Rs.
Jeeps	1.21
Cars	2.53
Wagons	1.44
Vans	0.86

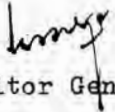
Average expenditure on repairs per Kilometre

	Rs.
Jeeps	4.25
Cars	1.41
Wagons	2.47
Vans	0.29

4. Systems and Controls

Deficiencies observed during the course of audit were brought to the notice of the Director General by my detailed report furnished on November 13, 1990 in terms of Section 13(7)(a) of the Finance Act. Special attention is needed in respect of the following areas of control.

- (a) Budgetary Control
- (b) Assets Control
- (c) Researches
- (d) Library Books.


Auditor General.

M.N./91312

Comments of the Authority on the Audit Report of the Accounts ending 31st December 1989

2:5:1 Commission in the Accounts

- a) The publications of our Institution have been printed at our premises and the relevant cost incurred have been charged to the various research grant accounts over the years or charged to the expenditure account in the year it was incurred.

The selling price of these publications has been fixed nominally as our motive had been to advance knowledge gained in the field of Science and Technology in the interest of the country and not to make profit.

A physical account of unsold publications have been maintained and the income derived from the sale of these publication annually had been accounted as sundry income in the Income and Expenditure Account over the years.

The value of stationery, consumables and work in progress lying in the printing section at the end of the year amounting to Rs. 502,873/= this year were not considered for adjustment in account in order to maintain consistency with previous accounting years.

However in view of the query this will be considered for inclusion as an item of Closing stocks in accounts relating to future years.

- b) The action instituted in valuing the said land had been completed only on 31st January 1991. The value fixed for the premises in extent 187.81 had been Rs. 42,250,000/=. The necessary action had been taken to include the value of the land in the accounts for the year ending 31.12.91.

2:5:2 Erroneous Accounting

- a) The proceeds realized at a public auction on the sale of a used and condemned Knapsack Sprayer for Rs. 1,350/= along with the other items sales proceeds had been erroneously shown in the Income & Expenditure Statement under sundry income and not under profit on sale of fixed asset.

The cost of this Knapsack sprayer purchased in 1984 was Rs. 1500/= and depreciation at 10% per annum for 5 year amounted to Rs. 750/=. The required adjustment in respect of cost in the fixed asset account and the accumulated depreciation had been made in 1989, vide our Journal voucher no. 286 and 287.

b) The cost of assets transferred to Universities amounting to Rs. 43,938 and the accumulated depreciation Rs. 11,181/= has been deleted from the asset and the accumulated depreciation account and transferred to the disposal of asset account.

The net of this amounting to Rs. 30,757/= being the book value has been incorrectly set off in the disposal account against the profit realized on auction sale Rs. 264,910/=.

2:5:3 Understatement in the Accounts

The understatement of Rs. 11,350/= had occurred in computing the total provisions for gratuity amounting to Rs. 1,145,533.50 due to incorrect salary particulars relating to two employees being considered in the computation.

2:5:4 Overstatement in the Accounts

Although action had been initiated around in 1985 to hand over the Mitsubishi Pajero Jeep No. 32 Sri 1451, purchased at Rs. 192,949 for the research project SAREC/10/IF/2 & 3 to the University of Ruhuna the value of this asset had continue to be shown in our ledger since the Ruhuna University had not submitted its official acceptance document. Further the personnel, who initiated this transfer had left service without leaving proper instructions. However the grantee concerned had been during stock verification purposes confirming incorrectly in the annual renew issue order form submitted to us by him that this asset is held by him.

Now that we are aware that this vehicle is in the possession of the University of Ruhuna, action has been instituted to delete from our ledger the relevant cost and depreciation whilst calling for official acceptance from the University of Ruhuna.

2:5:5 Lack of Evidence for Audit

The relevant receipt for payments amounting to Rs. 5,740/= is available with us namely from

M/s. Hayleys Photo print Ltd.	Rs. 4,235.50
Ceylon Leather Products Corp.	591.50
Brown & Co. Ltd.	913.00

The relevant receipts for the balance payment amounting Rs. 2767.90 from the following two suppliers is being followed up;

<u>Voucher No.</u>	<u>Supplier</u>	<u>Amount</u>
435	Arundisil Ltd.	Rs. 1,505.80
436	Lake House Bookshop	1,262.50

2:5:6 Receivables

An amount of Rs. 25,000/= paid as deposit to the Petrol dealer is now confirmed.
The balance is due mostly from Government organizations as follows:

Sri Lanka Ports Authority	Rs. 44,230.00	
Govt. Publication Bureau	929.45	
Post Master General	1,750.00	
Ministry of Industries - Telex	1,000.00	
Director of Telecommunication	<u>450.00</u>	48,359.45
Ceylon Oxygen Ltd.	4,000.00	
Cargo Boats Despatch Co. Ltd.	<u>200.00</u>	<u>4,200.00</u>
		<u>52,559.45</u>

The prepayments are in respect of purchases and services relating to the ensuing year. These adjustments were effected by Journal entries and as such no confirmations were obtained.

- b) The aggregate of Rs. 1,765,765/= is made of sundry debtors amounting to Rs. 112,495/= and petty cash imprest advanced to grantees amounting to Rs. 1,653,272/=.

The amount of Rs. 149,366/= is recoverable and is made of sundry debtors over one year amounting to Rs. 13,956/= and petty cash imprest advanced to grantees over one year amounting to Rs. 135,410/=.

- c) After much correspondence the grantee of our Research Grant RG/75/8/10 has settled Rs. 500/= in March 1991/..

The research grantee in our grant no. RG/83/80 has migrated to Australia and his sister on hearing from him has agreed to settle Rs. 500 in February 1991.

The cash imprest of Rs. 500/= given to grant no. RG/83/46 has been written off as the grantee has retired from Govt. service and our correspondence remained unanswered.

2:5:7 Verification of Physical Assets

The Scientific and Laboratory equipment released to various Govt. institutes for research activities by our grantees amounting to Rs. 13,569,616/= has not been physically verified annually. Only a letter is obtained annually from the institution or the grantee confirming the assets are available in the institution and is in good working condition.

The library books and office equipments amounting to Rs. 2,016,758/= were subjected to a random sample verification by the Board of Survey. The value of assets verified amounted to Rs. 83,623.62 and no deficit or excess was detected.

The balance assets being Motor vehicle Rs. 1,870,370/= Motor cycles Rs. 26,582/= Bicycles and Sports equipment Rs. 1,267/=, Documentation Unit Equipment Rs. 1,887,136/= and accessories and miscellaneous amounting to Rs. 46,345/= were subjected to physical verification as in previous years and this is in consistency with previous accounting practice.

2:5:8 Non Compliance with laws, rules and regulations etc.

- a) The submission of accounts was delayed by 1½ months due to many reasons. The one month concession leave granted to public officers in addition to their irregular attendance during the transport strike period and the other leaves availed by our staff contributed to the delay whilst the Ministry of Science & Technology requisitioned some of our staff. Moreover this year we did not allow any overtime to our accounting staff for the preparation of the final accounts.
- b) The draft annual report of the authority was also presented after 1½ months delays mainly as it had to contain the annual accounts.
- c) The Administration Section would take the necessary action in the future to place the seal of Authority in the presence of two Authority Board members as required by the NARESA Act Section 6(3)
- d) The total petty cash imprest advanced to research grantees to ease the financial straits for the year ending December 1989 amounted to Rs. 1,653,272/=. Of this amount Rs. 1,332,083/= was within the limit of 3 months. The others amounting to Rs. 321,189/= have not adhered to the NARESA circular no. A/04

which instructs any unspent cash imprest availed by the research grantees should be returned in full if it had remained unutilized for a period of 3 months. Since then many research grantees have settled or sought renewal of the cash imprest or have had submitted supporting bills in respect of the cash imprest availed by them.

3 Financial and Operating Review

3.1 Financial Results

The deficit in the General fund for year under review amounted to Rs. 3,327,133/= as compared with a corresponding deficit of Rs. 3,009,681/= for the preceding year is after taking into account the notional expenditure relating to depreciation for the year 1989 Rs. 3,918,296/= compared with Rs. 3,380,266/= for the year 1988.

3.2 Research Projects

The working committees, who help us to guide and monitor research projects have looked into details of these 12 research projects costing Rs. 684,585/= and have had valid reasons for the said delays. Most these projects are now completed.

4 Systems & Controls

a. Budgetary Control

The budget is used as an effective measure of control. The low scale activity especially in the foreign funded projects due to the unsettled condition in the country may be attributed to the variances. However, these projects which are not completed will be carried forward to the future and the monies will be incurred once these projects are in progress.

b) Assets Control

The system in force is effective at the levels of resources available at our disposal.

The assets released for research activity at various Govt. Institutions is not subjected to physical verification annually. But a letter accepting confirmation from those in charge of such assets is obtained annually as it is considered the cheapest mode to maintain satisfactory levels of control.

c) Research Grants

The research grants are monitored and the activities are controlled by the working committees set up for the purpose.

d) Library Books

The existing rules are being reviewed and suitable measures are being envisaged to eliminate the shortcomings mentioned.

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