

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

1995/07/02

Hon. Minister of Science, Technology &
Human Resources Development,
Ministry of science, Technology and
Human resources Development,
320, T.B. Jaya Mawatha
Colombo 10.

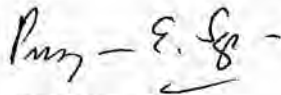
Dear Sir,

Annual Report of the Natural Resources, Energy & Science Authority of Sri Lanka for the Period 1st January to 31st December 1992

In terms of Section 16 (III) of the Natural Resources, Energy & Science Authority of Sri Lanka act No. 78 of 1981 and section 14(2) of Finance Act No 38 of 1971, 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 1992 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 sincerely,



Prof. Priyani E. Soysa
Director General
Natural Resources, Energy & Science
Authority of Sri Lanka

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ANNUAL REPORT 1992

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

1.1 Board Members from 01st January 1992 - 17th April 1992

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
Miss A. Sabanayagam

1.2 Board Members from 18th April 1992 - 31 December 1992

Prof. Priyani E. Soysa
Prof. Senaka Bandaranayake
Prof. C. Dahanayake
Prof. N. Kodagoda
Prof. R. Ramasamy
Miss A. Sabanayagam
Dr D.J.T. Siyambalapitiya
Mr W.K. Wickramarachchi

2.0 PRINCIPAL STAFF

Director General

Dr R.P. Jayewardene
(From 01-01-92 - 17-04-92)

M.D., F.R.C.P.(Lond).D.Sc.

Prof. Priyani E. Soysa
(From 18-04-92 - 31-12-92)

M.D., D.Sc., F.R.C.P., D.C.H.

Deputy Director General
Mr M.A.T. de Silva

B.Sc.(Lond), M.Sc.(Lond)

Directors Scientific Affairs

Mr. D.E.F. Fernandez
Mrs. S.P. Prelis
Mr M. Watson

B.Sc.(Lond), M.Sc.(Wales)
B.SC.(Hons) (Cey), M.Sc.(S.L)
B.Sc.(Cey), M.Phil(Lond)

Director Information

Mrs L.D. Bandaranayake B.Sc(Cey), ASLLA

Assistant Directors Scientific Affairs

Mr D.P. Athulathmudali B.Sc (S.L.), M.Phil (S.L)

Mr R.M.W. Amaradasa B.Sc (S.L.), M.Sc. (S.L)

Scientific Officers

Miss H.A.U. Amarasinghe B.Sc.(S.L) [on study leave]

Mr B.M.C.K. Basnayake B.Sc.(S.L)

Miss J.D.S. Dela B.Sc.(S.L)

Mr A.W.J. Karunasinghe B.Sc(S.L) [on study leave]

Mrs W.R.M. Sandanayake B.Sc. (S.L) M.Sc.(S.L)

Mrs S.L. Tillekeratne B.A. (Cey)

Mrs G.N. Ulluwishewa M.Sc(U.S.S.R.), M.Sc(Japan)

Mrs S.I. Wickramasinghe B.Sc(Hons) S.L), M.Sc.(S.L)

Mrs C.G. Yapa B.Sc.(Hons)(S.L)

Mr W.B. Yapa B.Sc(S.L) [on study leave]

Documentalists

Miss R.P. Hathurusinghe B.Sc(S.L)

Miss V.N. Perera B.Sc(S.L)

Miss A.A.A. Vijayanthi B.Sc(S.L)

Mrs R. Wijeratne B.Sc(S.L)

Assistant Administrative Secretary

Mr S.P. Dissanayake B.Sc(B.Adm.)(S.L)

Accountants

Miss K.C.J.T.K. Fernando A.C.M.A

Mr M.H.M.S. Hameed

Mrs S. Udugama B.Sc.(S.L)

Confidential Secretaries

Mrs. C. Fernandez

Mrs. S. Ratnayake

Mrs S.P. Wijesinghe

Staff Assistant (Adm.)

Mr S. Galketiya

Printing Superintendent

Mr K.P. Senanayake

When more than one officer is listed under a designation,
the names appear in Alphabetical Order

3.0 MEASURES FOR ENHANCING SELF-RELIANCE IN SCIENCE AND TECHNOLOGY

Avenues for Training in Scientific research

Under the NARESA research grant scheme 17 young graduates were awarded research assistantships to assist recipients of research grants, and thereby receive a training in scientific research. Recipients of foreign-funded research grants, have recruited 9 research assistants to assist in their research programmes. Among these research assistants 15 have registered for post-graduate degrees.

Seminars and Workshops

The following workshop and seminars were held during the year 1992, to share experiences and update knowledge, as part of the organisations effort to enhance self-reliance.

A seminar on "Curd Production" was held at the Veterinary Research Institute, Gannoruwa, to review the progress of three research grants awarded under the NARESA-SAREC Buffalo Research Programme. The Seminar which was attended by 25 participants, provided a forum for the grant recipients as well others to interact and sharpen the focus on the issues concerning traditional as well as modern methods for curd production.

A seminar to review progress of the Coastal Ecology Research Programme was organized by NARA in September 1992. 75 scientists including 6 research collaborators from Sweden participated in this two day seminar.

The final review seminar for the CIDA funded Potash Fertilizer Research Programme was held as a residential meeting at the Tangerine Beach Hotel, Kalutara from 6-8 May 1992. During the seminar 22 research papers were presented by grantees. The seminar was attended by 35 participants which included invited guests and consultants.

Medical Ethics

NARESA co-ordinated activities in formulating ethical aspects in medical research by organizing a workshop in November 1992. Many eminent personalities were invited from medical organizations, universities and the Ministry of Health to present views of the different aspects of medical ethics. The objective of this workshop was to draw up guidelines for practice. Three groups discussed the subject and the findings of these groups culminated in formulating guidelines.

4.0 SPONSORSHIP FOR SCIENTIFIC RESEARCH

As has been done in the past, applications were invited for research grants by advertisement in the National Press. The details regarding these, and present status of research grants are summarized in Tables 1, 2 and 3.

5.0 RESEARCH AND CO-ORDINATION ACTIVITIES NARESA- SAREC Research Co-operation

The Research and Advisory Committees for the Buffalo Research Programme and the Coastal Ecology Research Programme continued to co-ordinate and administer successfully the two multi-disciplinary, inter-institutional research programmes funded by SAREC. The Advisory Committee for the Buffalo Research Programme continued to assist in maintaining the upgraded Mawela Research farm at the University of Peradeniya. The Committee also in collaboration with the National Livestock Development Board, continued to maintain and run the Narangala Model Buffalo Research Station at Kuliyaipitiya.

Environmental Education

Phase II of an environmental education project, carried out in collaboration with March for Conservation, a university based NGO, was initiated during 1992. Under this project, a training workshop for teachers on effective teaching of environmental topics and four workshops for teachers at Sinharaja and Horton Plains are to be held. Other activities envisaged under this project are the production of a poster on coral reefs, to be distributed to schools, and production of seven pictorial booklets on environmental topics.

Under the NARESA - March for Conservation educational project, study material on environmental topics were distributed at two workshops held at the Tea Research Institute by the Hill Country Environmental Association, and at Trinity College Kandy, by the Natural History Society of Trinity College.

Flora of Ceylon Project

At present 9 Sri Lankan and 11 foreign botanists are engaged in the revision of the flora of Sri Lanka. A total of over 750 species are being studied by these botanists.

During the year 1992, manuscripts have been finalized for the printing of volume 8 in the Flora of Ceylon series. This volume is now with the printers in India. Volume 7 of Flora of Ceylon has already been published. Completed manuscripts of about 33 families have also been handed over, and are being checked by the editor and the Advisory Committee. These will be included in volume 9. In addition to these, draft manuscripts of 7 families consisting of about 100 species have also been received by the editor. It is planned to finalise the editorial work connected with these manuscripts during 1993.

6.0 ACTIVITIES RELATING TO SCIENCE INFORMATION Library Resources Development

The following were added to the library collection:

Books	154	Issues of periodicals	415
Pamphlets	52	Bound volumes of periodicals	119
Reprints	22		

SLSTINET

At a special meeting of the SLSTINET librarians, an introduction to Electronic Mail & Information Transfer was provided by Dr S.A. Induruwa, Head, Computer & Engineering Sciences Division, University of Moratuwa. A demonstration of electronic mail transfer was also provided.

Documentation & Information Services

a) UNILIST

A union list of Scientific and Technical periodicals in Sri Lanka upto 1987, was generated by the Data Base set up for this purpose. This 500 page document is now available for reference in the library.

b) Inter Library Loans

Though lending facilities were curtailed for six months on the recommendation of the Board of Survey, inter-library loan facilities were made available to the NARESA staff and the grantees.

c) Document Procurement Service

Photocopies of articles from periodicals not available in Sri Lanka were obtained, on request:

- from the British Library Document Supply Centre
 - from the National Library of Australia
 - by requesting reprints from individual authors
- Local articles obtained : 08
Foreign articles obtained: 11

d) Literature Searches

Literature searches were undertaken on request on specific subjects using the centre collection, the Science Citation Index, NARESA Data Base and other local Data Base. In 1992, 56 successful searches were done.

Data Base.

In order to provide information on S & T, three data bases were maintained.

a) **UNICAST** - Union Catalogue of Scientific & Technical Books.

Maintained with the co-operation of the libraries of the SLSTINET Libraries. The 1988 - Vol 12. annual output was printed and distributed to the net-work libraries

b) **SLSA** - Sri Lanka Science Abstracts

The Sri Lanka Science Index was broad based to include an abstract & author affiliations in order to facilitate literature searches. The new output is named the Sri Lanka Science Abstracts.

c) **SLIC** - Data base of the Information Centre Collection

Indexing of the Centre collection including all final reports, thesis, technical reports, pamphlets and reprints was commenced, using ASFIS & IAEA Thesauri for key words. This data is maintained for electronic searching and net-working at a later stage, while the card catalogues are also maintained for manual searching.

CDS/ISIS Activities:

Distribution and assistance in the setting up of data-base using UNESCO CDS/ISIS software package was provided to 22 institutions.

Training:

A training programme was conducted at NARESA for 16 participants in the use of CDS/ISIS package in setting up of bibliographic data bases.

Publicity:

A new activity initiated during 1992 was the convening of media briefing meetings on specific issues of significance to the general public as well as for policy makers. The following topics were presented and discussed at these press briefing meetings.

- (a) "Access mobility in Industrial Location", based on the work of Dr N. Jayawardena
- (b) "Landslides of Sri Lanka," based on the work of Dr U. Weerakkody
- (c) Performance of Coastal Structures Armoured with Natural Rock and Concrete Armour Units, based on the work of Dr S.S.L.Hettiarachchi and Dr W.P.S.Dias
- (d) Biological Control of Salvinia
- (e) The Buffalo Research Programme

7.0 REPORTS, PUBLICATIONS AND PROGRAMMES OF NATIONAL INTEREST

Contributions to Janasaviya Programme

The Science bulletin "Vidyawen Apata' No" 2 was compiled and published, producing 25,000 copies in Sinhala and 7500 copies in Tamil. A major portion of this publication was handed over to the Janasaviya office for distribution. Copies were also distributed at the Gam Udawa and Presidential Mobile Service exhibitions.

Exhibitions:

NARESA participated in the following exhibitions

- (i) Gam Udawa 1992 at Buttala
- (ii) 'Presidential Mobile Service at Kalutara (January 1992), Vavuniya (May 1992) and Kandy (September 1992)
- (iii) Environlanka '92 in Colombo (November 1992)
- (iv) Science Exhibition, Sangabodhi Vidyalaya Nittambuwa (February 1992)
- (v) Jeewa '92 in Kandy (December 1992)

Publications

- Journal of the National Science Council - Volumes 19(1), 19 (2), 20(1) and 20(2) were published in 1992
- Vidurawa - volumes 13(1), 13(2), 13(3), 13(4) and 14(1) in Sinhala, and volumes 13(3), 13(4) and 14(1) & 14(2) in English were published
- Science Education Series - SES No: 30 on the title "Paddy Pests in Sri Lanka" was published
- Science Investigations - No. 6 was completed
- NARESA Newsletter - The first issue of the NARESA Newsletter was published and issued in December 1992
- Sri Lanka Journal of Social Sciences - Volumes 11 (1 & 2), 12 (1 & 2) and 13 (1 & 2) were published and distributed
- Proceedings of the "Seminar on Energy Efficiency in Transport" held in 1991 at NARESA, was published

Under Phase IV of the study programme on Science Statistics and Indicators, Part III of Sri Lanka Science and Technology Indicators was published. Copies of this report has been issued to relevant government, non governmental organisations and international agencies.

Reports

Copies of the following final reports resulting from the research grant scheme have been forwarded to H.E. the President.

- (a) Access Mobility in Industrial Location by Dr N. Jayawardene
- (b) Assessment of Availability and Quality of Ground Water in Sri Lanka by Dr H.C. Kariyawasam

8.0 AWARDS FOR SCIENTIFIC ACHIEVEMENTS

TWAS/NARESA Prizes for Young Scientists

The Third World Academy of Sciences - NARESA prizes for 1991 were awarded to two young scientists, Dr R. Senaratne and Mr K.P.S. Chandana Jayaratne for Biology and Physics respectively. The prizes consisting of a certificate and a cash award of the equivalent of US \$ 500 were awarded to each winner at a meeting of the Authority.

Dr J.M.H.U.L.B. Jayasinghe has been selected for the 1992 TWAS/NARESA Prize for Young Scientists, in the field of Chemistry.

9.0 INTERNATIONAL SCIENTIFIC ACTIVITIES

SAREC

The Swedish Agency for Research Co-operation, continued to support two major research programme (Buffalo Research Programme, and Coastal Ecology Research Programme), a fund for international contacts and periodicals for Universities. It also continues to arrange for acquisition of urgent spare parts for scientific equipment.

CIDA

The CIDA funded Potash Fertilizer Research Programme which commenced in 1984, was concluded in 1992 with a final Review Seminar in May 1992.

Arrangements were made to compile a book on the "Use of Potash Fertilizer in Sri Lanka " Dr U. Pethiyagoda was identified as the consultant to prepare the text.

Third World Academy of Sciences

An inventory of Centres of Excellence is being completed by TWAS. Based on the response to a circular from various institutes, the following were submitted for inclusion in the inventory:

- (i) Rubber Research Institute of Sri Lanka - for rubber research
- (ii) Faculty of Medicine, University of Colombo - for research in Malaria (Dr Kamini Mendis)
- (iii) Institute of Fundamental Studies - for research in malaria (Prof. R. Ramasamy)
- (iv) Tea Research Institute - for research in tea
- (v) Institute of Computer Technology, University of Colombo for Computer Science (Prof. V.K. Samaranayake)

Visits of Foreign Scientists

- (1) Dr Afzal Sher, Research Officer, SAREC
- (2) Dr C.G. Thornstrom, Co-ordinator SAREC
- (3) Mr Anders Wijkman, Director General, SAREC

10.0 STAFF PAPERS AND REPORTS

1. Amaradasa, W. and Kolongahapitiya, I.D. - Influence of Provision of School Books Free of Charge and Provision of Meals on School Attendance in Rural Sector Schools. *Proceedings Sri Lanka Associ. Adv.Sci.* Part I, p136, (1992)
2. Amaradasa, W. and Weerasekera, D.S. - Impact of Manpower Development on Research Output of Researchers in Scientific Research. *Proceedings, Sri Lanka Associ. Adv. Sci.* Part I, p139-140 (1992)
3. De Silva, M.A.T. Scientific and Technical Human Resource Potential of Sri Lanka. Paper presented at the ASCA Seminar on Human Resource Development in Science and Technology", held in Tokyo from 3-6 February, (1992)
4. De Silva, M.A.T., Wijetileka, K.K.G.V., Wettasingha, N.S. Ameen, M.Z.M.F. and Fouz, O.A. - *Sri Lanka Science & Technology Indicators. Part III -Scientific and Technoeconomic Perspectives for Technological and Industrial Policy Planning*, 130 pages, NARESA, Dec. 1991.

5. Mathes A.P. Karunasinghe A.W.J. and Gunewardene H.D. "Air Pollution caused by Vehicle Emissions" Conference Proceedings (Vol.1) of the International Conference and Workshop on Environmental Protection and Control Technology, held in Kuala Lumpur from 27-31 Oct. 1992, pp 261-281.

11.0 SUMMARY REVIEW OF SIGNIFICANT RESEARCH FINDINGS

* **Farmer need identification: A prime factor for farming system research (RG/90/Ag/1)**

This study was carried out in Matara, a southern rice growing district of Sri Lanka. One of the main objectives was to protect the rice cultivation in coastal agro-ecological zone from frequent flood damage. The study implies that the farmers in a particularly large area can be categorized under three production conditions according to different agro-ecological environments viz. cropping pattern, water management and appropriate rice varieties. The study discusses the use of identification of above mentioned factors along with other factors, to avoid frequent flood damages.

(Dr Mahinda Wijeratne and Dr Oscar Amarasinghe)

* **The effect of legume and N rate on the soil N and crop yields in cornlegume intercropping systems (RG/89/Ag/1)**

Corn and legume intercropping system has shown that legume can extract nitrogenous compounds which supplement the N requirement of non legume if grown in an association. The legume will deplete the source of mineral N giving necessary conditions to enhance N fixation by rhizobium - legume symbiosis. Since both corn and legume require high amounts of N, if N is applied as a fertilizer, it would inhibit N fixation of the legume and promote the competition for N between corn and legume. A compromise should therefore be found to improve the efficiency of N fertilizers. This study was conducted to determine

- (a) level of soil N maintained by common legumes
- (b) the time at which N is released to the soil by common legumes and
- (c) the N requirement which should be supplemented with fertilizers in order to improve the productivity of corn-legume inter cropping systems

The experiments were conducted in Dambulla, Pelvehera and the results have been discussed in the final report (Dr S.L. Ranamukarachchi)

* **Incorporation of selected annual medicinal crops to the existing cropping patterns in different agroecological regions in Sri Lanka (RG/90/Ag/2)**

A study is being carried out at rural areas like Girandurukotte, Dodangolla and Makandura with annual medicinal crops namely *Solanum Xanthocarpum* (Katuvembatu) *Piper longum*, (Tippili), *Vigna anguiculata* (Kollu) and *Cassia angustifolia* (Senehekola) to encourage the rural farmers to incorporate medicinal plants into their cropping systems. This will also help a) save foreign exchange and explore the potential of exporting quality medicinal herbs b) increase and sustain the agricultural resource utilization and farm productivity and c) encourage the entrepreneurs to start industries based on annual medicinal crops. Some useful and significant results have been obtained so far. (Mr H.H. Ratnayake)

* **Feasibility study of using Castor oil as an illuminant (RG/91/EP/02)**

The project was carried out at the Department of Chemical Engineering, University of Moratuwa.

The physical properties vapour pressure, flash and fire points, viscosity and luminosity of castor oil and kerosene were compared. As the viscosity of castor oil is lower than kerosene the rising rate of castor oil along the wick was very slow. For Castor oil lamps wicks have to be made of asbestos, cotton wicks cannot be used. The luminosity of castor oil lamp is very low. It was concluded that castor oil cannot be used as a direct substituent for kerosene in common bottle lamps.

It was found that there was complete miscibility of the two oils in all proportions tested. The blends of the two oils have shown an improvement in the flash fire points, vapour pressure and viscosity. However the use of these blends in a common bottle lamp was not feasible. (Mr. H.D.J. Silva and Mr S.A.S. Perera).

* **Design improvement of the bottle-lamp (RG/91/EP/01)**

Under this project an improved lamp was designed with greater efficiency and safety when compared with the common bottle lamp. (Mr G.K. Upawansa)

* **Sedative/Analgesic effect of Rempun Domesedan and Combelene in Buffaloes (SAREC/09/BF-34)**

The study revealed that the dose rate of Domosedan at (0.2ml) per 100 kg) is desirable for mild sedation while (0.4 ml/100 kg) is desirable to produce deep sedation of buffaloes. The latter dose rate would be used to immobilize the animals and to produce additional analgesic action for surgical procedures. (Dr D.D.N. de Silva)

* **Study of the grazing behaviour and forage utilization of free range buffalo herds (SAREC/09/BF-35)**

The study revealed that animals spent more time on grazing during the wet season than the dry season. It also shows a positive relationship between the quality of

pastures and the behaviour of animals under free range situation. As the animals have to utilize their energy to select and digest the available low quality feeds in the free range system, animal production could be lowered. (Dr H. Peiris)

* **Management and productive efficiency of buffalo rearing systems in Sri Lanka (SAREC/09/BF-41)**

The study on management efficiency of the cattle and buffalo farms revealed that there are different types of cattle and buffalo farms in the Kandy, Matara, Hambantota and Polonnaruwa districts. They are:

- (1) Backyard farms using indigenous cattle (*Bos taurus*) and indigenous buffaloes (*Bubalis carabanensis*) for milk and draught
- (2) Backyard farms using crossbred cattle and buffaloes for milk and draught
- (3) Backyard farms with crossbred/indigenous cattle and crossbred/indigenous buffaloes

It was observed that the majority of the cattle and buffalo farms do not operate even within 10% of their potential production as indicated by their low technical efficiencies.

The total milk production from cows varied from 768 litres in Kandy to 5270 litres per farm in Hambantota annually. The average milk production from buffalo cows ranged from 624 litres in Kandy to 10670 litres per farm annually in Hambantota. The cost of milk production from cows differed from Rs. 730/farm in Matara to Rs.4134/farm in Kandy district. The variation of buffalo milk production costs was from Rs.250/farm in Kandy to Rs.15338/farm in Hambantota. The dairy cattle milk marketable surplus was from 5.7 litres/farm in Polonnaruwa to 26 litres/farm in Hambantota. The price for dairy milk ranged from Rs.7.10/litre in Polonnaruwa to Rs.4.70/litre in Hambantota. The variation of daily marketable surplus of buffalo milk was from 21.3 litres/farm in Polonnaruwa to 67.4 litres/farm in Hambantota districts. In addition milk curd was produced in Matara and Hambantota districts. In Kandy the total net income from cattle and buffaloes amounted to Rs.7418/farm (19.5% of total farm income); as compared to Rs.6488/farm (84% of total farm income) in Matara: Rs.71630/farm in Hambantota (84% of total farm income) and Rs.6814/farm in Polonnaruwa (25% of total income).

The majority of the animals are indigenous and hence the potential of improving milk productivity is limited. Majority of farmers opted for natural services since the artificial insemination services are not satisfactory.

The feeding practices adopted by majority of the farmers in these three districts were poor. Majority depend on common property resources for roughage which were relatively poor in nature. The usefulness of urea treated straw to feed animals is less known in the districts.

The pricing of milk is measured on the basis of the cost of production of milk in farm. The results indicated the importance of a proper pricing mechanism. (Dr C. Bogahawatte)

* **Blood Cholinesterase activity, insecticide concentrations in water buffaloes exposed to the organophosphate monocrotophos (SAREC/09/BF-48)**

The study revealed that the cholinesterase enzyme activity in buffalo blood was lower compared with that of the dog but higher than that of goats. Buffalo calves showed a slightly higher activity of the enzyme compared to adults suggesting that the young ones may metabolize and handle the organophosphorous compounds rather efficiently than adults if the metabolizing enzymes in the liver have also developed.

It was also revealed that the enzyme activity of Lankan water buffalo was significantly decreased with the increase of organophosphate concentrations in the reactor mixture.

The results showed that both cholinesterase enzyme activity was increased by low doses of the organophosphate which was later decreased to normal blood levels. Also higher dose of organophosphate (15 mg/kg) produces typical signs of organophosphate toxicity in animals.

In contrast, it has been observed that, in river buffaloes the maximum inhibition of the cholinesterase enzyme occurs after 24 hours of the monocrotophos treatment. Results obtained from the studies provide base level information about enzymes in Sri Lankan water buffaloes. It is also apparent that, both cholinesterase and serum alkaline phosphatase enzymes were inhibited by low levels of organophosphates and the same levels however, slightly induced the activity of serum acid phosphatase enzyme, and thus tolerance mechanisms are not as developed as in the case of riverine species and other domesticated animals. Furthermore, unlike those species the Lanka buffalo developed toxicologic manifestations earlier after administration of the chemical including the major effects on plasma and cellular cholinesterase enzyme. (Dr S. Jayasekera)

* **Virus associated diarrhoeas of buffalo calves (SAREC/09/BF-49)**

Details of faecal samples collected from buffalo calves and results of testing them for coronaviruses and rotaviruses by the ELISA test and SDS-PAGE shows that the (Optical Density) values of samples were positive for coronavirus antigen. In addition, the results of examining 33 faecal samples collected from neat cattle calves for coronavirus and rotavirus by the ELSIA were observed. Samples extracted from Buffalo calf faeces which had shown dsRNA banding patterns similar to group A rotavirus were also compared with faecal extracts of human, bovine and tissue culture fluid extracts of SA II, bovine and porcine group A and C rotavirus dsRNA patterns. Faecal samples collected from 105 diarrhoeic and 35 non diarrhoeic buffalo calves were examined for the presence of coronavirus antigen in them. Fourteen out of 105 of diarrhoeic were positive for coronavirus ELISA screening test. Four out of 33 neat

cattle calves were also positive for coronavirus antigen ELISA screening test. Faecal samples collected from 140 diarrhoeic and 35 non diarrhoeic buffalo calves were examined for the presence of rotavirus antigen in them by ELISA screening test and

SDS-PAGE. Twelve of diarrhoeic buffalo calves and one non diarrhoeic buffalo calf were positive for rotavirus group A antigen by ELISA and these 14 positive samples were electrophoresed. 8 of these diarrhoeic and 1 non diarrhoeic positive samples gave the electropherogram similar to group A rotavirus by SDS-PAGE. None of them had mixed infections of corona and rotavirus by ELISA. Only 4 of the neat cattle serum samples gave the positive results in ELISA antibody screening test. The electrophoretic pattern of human and buffalo rotaviruses vary between the migratory pattern of DsRNA bands within the class. In the class I human dsRNA bands migrate further than buffalo dsRNA. In the class II bands, human dsRNA bands lie closer together than that of buffalo dsRNA. In class III the three bands of buffalo dsRNA separate more clearly than that of human dsRNA. In class IV there was no difference in the migratory pattern of the band number 10 of both human and buffalo dsRNA but band number 11 of buffalo dsRNA migrated more distally than that of human dsRNA. In the study of comparison of the migratory patterns of human, buffalo, SAII, porcine and neat cattle it was observed that the migratory pattern of group A rotaviruses dsRNA changed with the classes whereas in group C rotaviruses the migratory patterns of dsRNA changed between the classes. (Dr S. Mahalingam)

* **Meat production potential of local buffaloes (SAREC/09/BF-50)**

The study revealed that the percentage of people consuming buffalo meat decreases with increasing income level. The percentage of people that eat meat increases with the increasing educational level. However, it has been reported that very low percentage of people consume buffalo meet in all educational levels. (Dr H.W. Cyril)

* **Devolution of power and the local authorities of Sri Lanka: the legal context: a comparative study (RG/88/SS/11)**

In this project an attempt has been made to identify the methods of devolving power to the local government institutions and how far this has been achieved through the Pradeshiya Sabhas and Provincial Councils. The brief report based on this work makes a detailed presentation of the evolution of the local government system up to the setting up of these two establishments and also the outcome expected from these new organizations of local government.

(Dr Shirani Bandaranayake)

- * **Study of traditional craft villages and families descended from traditional craftsmen in Sri Lanka (RG/90/SS/01)**

In this research project an attempt has been made to carryout a historical and sociological survey of craft villages and traditional craft families. Apart from names, addresses and particulars of the crafts engaged in by nearly 550 craftsmen the research report gives specific information relating to the villages of craftsmen and a considerable amount of genealogical information. (Prof J. Thilakasiri)

- * **Filariasis the socio economic and environmental determinants of Matara district (RG/90/SS/05)**

In this project social factors which influence Filariasis in Sri Lanka, the field pattern of its socio-economic and environmental determinants and any specific causes for the diseases occurring in certain areas and during certain periods have been examined. Short term, medium term and long term solutions to the problems of combatting the disease have also been indicated.

- * **The influence of study habits on enrichment of educational performance (RG/90/SS/07)**

This research project was carried out together information on study habits of secondary school children in Sri Lanka. Based on the data collected, observations leading to the formulation and improvement of desirable study habits have been made (Dr Sylvia Senadheera)

- * **Problems in Regional Development Planning in Sri Lanka (RG/91/SS/11)**

Through this research project the regional development problems of the Hambantota District have been examined. In the research report the physical and socio-economic conditions of the area obstacles to development, programmes that are already being implemented, conclusions that have been reached through the study and problems and suitable remedial actions too have been suggested. (Mr M. Ratnayake)

- * **An evaluation of the effect of professional training on the effectiveness of the teaching function (RG/91/88/10)**

In this research project, issues such as the meaning of the term "effective teaching", the experience of foreign countries relating to the impact of professional training on the teaching function, and the current teacher training curriculum in Sri Lanka have been discussed. To assess the effect of training on the imparting of education, a comparative assessment of teaching by trained and untrained persons has been carried out. Proposals relating to the type of training and other factors which would be conducive to effective education have been presented. (Mrs M.S. Pelpola)

* **The status of agricultural insurance schemes in southern Sri Lanka : A case study of the agricultural insurance schemes in the Matara district**

This research study on Agricultural Insurance makes a useful contribution to understanding the factors bearing on the success or failure of agricultural insurance in the country.

The main objectives of the study were to find out the risks that the state sponsored agricultural insurance scheme intended to cope with , the extent of spread of the agricultural insurance market, the effectiveness of the present agricultural insurance scheme, and the facts influencing supply and demand for agricultural insurance.

The study has revealed that farmers are aware of the insurance scheme and are interested in it because of the prevalence of farming risks and that only a few farmers have presently insured their crop. It has been revealed that most farmers have given up the scheme mainly due to dissatisfaction with compensation coverage.

The remedial measures proposed by the researchers deriving from the farmers' suggestions are, a well developed extension service, increased coverage, timely payment of indemnities and improving farmers knowledge of the insurance scheme. Also recommended as alternatives for paddy insurance are subsidised prices for inputs, credit and improved farming practices.

(Mr Mangala de Soysa and Dr Oscar Amarasinghe)

* **Isolation, identification and characterization of thermophilia and thermotolerant yeast from natural habitats in Sri Lanka (RG/90/B/2)**

This study was carried out at the Department of Botany, University of Sri Jayewardenapura. A total of 40 high-temperature tolerant yeast strains were isolated from some fruits and local wines of Sri Lanka. All these grew well at 40°C while some grew even at 45°C. These were screened for their ability to ferment glucose and sucrose to ethanol at 40°C. Only 6 strains produced high alcohol yields with both glucose and sucrose. The two strains which gave higher alcohol yields with glucose and sucrose were identified as strains of *Saccharomyces cerevisiae* but were significantly different from other brewing strains of yeasts held in the National Collection of Yeast Culture (NCYC) in Norwich UK. These were accessioned into the NCYC after assigning the numbers NCYC 2401 and NCYC 2402. Among the strains isolated, strain NCYC 2401 could be regarded as the best strain for production of alcohol at higher temperature, based on parameters such as carbon dioxide productivity, final ethanol concentration, yield efficiency and maximum cell growth rate. The results suggest that above strains of *S. cerevisiae* are efficient high temperature ethanol producing yeast which may perform well in the fermentation of molasses at high temperature (40°C) (Dr S.C. Wijeratne)

* **The effect of fenthion (Bayatex EC) spraying on the mosquito populations in urban areas (RG/91/B/2)**

This study is being carried out at the Zoology Division, Open University. The work carried out so far has shown that fenthion (Baytex EC) sprayed once a week will only be effective until the 6th day after spraying. Hence the spraying should continue regularly once every week for successful control of *Cx quinquefasciatar*. (Dr Thusitha Pieris).

Monitoring and control of some insect pests on major crops in Sri Lanka utilizing Pheromones and other natural secretions (attractants and defensive secretions respectively)

This project consisted of two approaches of insect pest control via natural products

- (a) Investigations on the host attractants of two local pests, viz *Rhynocophorus ferrugineus*, a pest on coconut and *Leptocorisa oratorius*, a pest on rice
- (b) Investigations on the defensive secretions of *Cordius janus* and *Leptocorisa oratorlus* as possible toxicants/deterrents to other insect pests

The study has shown that coconut bark produced a volatile multicomponent attractant for *Rhynocophorus ferrugineus*, one of the major pests of coconut palm. This attractant consists of long and short range active compounds. Ethyl alcohol can act as a short range attractant for this pest. Rice plant, *Oriza sativa*, produces a volatile attractant for *Leptocorisa oratorius*, (Hemiptera : coreidae), the key pest responsible for half-filled rice grains in Sri Lanka. From the three stages of developing rice grains, above attractant is produced only at the milk producing stage of the rice grain.

Investigations have shown that the defensive secretion of *Cordius janus* (Hemiptera : Pentatomidae) consists of two major volatiles, viz t-2-hexenal and n-tridecane comprising 90% of the volatiles. This secretion could be considered as a potent toxicant for *Sitotroga Cereallella* and *Culex quinquefasciatus* having LC₅₀ values of 0.003 and 0.002 ppm respectively. Two major volatiles are mainly responsible for toxic properties of this secretion.

* **Ecological studies in pine plantations (RG/EN/88/01)**

This study was conducted as an extension to the ecological studies conducted earlier at Wewaltalawa. An examination of nutrient pool and litter dynamics in an age-series of *Pinus carbaea* was carried out in comparison to a local natural forest and an unforested grassland.

The results showed that a substantial accumulation of nutrients takes place in Patana grassland above ground as a result of reforestation with *Pinus*. After 11 years the *Pinus* plantations contained a total above ground nutrient level on the soil surface, which was higher than in the unforested grassland due to heavy accumulation of *Pinus* tree biomass, especially foliage and branches, while soil nutrient concentrations remained unaltered as a result of reforestation on the soil surface. There were also no signs of an increase in soil activity.

There were also no signs of different litter decomposition rates between the natural forest, pine or grassland, but *Pinus* litter decomposed at slower rate in comparison to natural forest litter and grass litter, and took about 5 months to attain a 50% decomposition level.

A study of post fire recovery of the understorey vegetation in a 10-year old *Pinus caribaea* stand for 2 years, in which resulting floristic composition was compared with the pre-burn conditions and also the adjacent unforested fire-climax grassland, showed that the seedbank in upper soil layers was depleted severely by the burning.

Grass cover had increased by 30% after burning and tree species regenerated poorly, dominated by sprouters. There was increased dominance by shrubs and depletion of trees in the post-fire understorey, and was similar to unforested grassland, but different from pre-burn understorey. Fire had thus reversed plant succession in reforested sites.

TABLE I : GRANTS SPONSORED BY NARESA
Status Summary During 1992

Discipline Status	Agriculture & Animal Husbandry	Biological Science	Chemical Sciences	Energy	Information Sciences	Medical & Veterinary Sciences	Physical & Engineering Sciences	Social Sciences	Biotechnology	MAB Committee
Total No. of grants operating during 1992	07	24	28	02	03	25	24	38	02	04
Grants Awarded - 1992	04	11	10	-	-	11	09	16	02	-
Amount allocated for 1992 (New and ongoing Rs.)	584,549.00	1209,010.00	1377,805.00	-	53,731.00	1311,319.60	682,796.00	658,971.00	205,000.00	-
Grants completed - 1992	03	02	07	01	-	07	09	09	-	01
Grants withdrawn - 1992	-	00	-	-	-	-	-	-	-	-
Grants terminated - 1992	-	03	01	-	-	02	01	01	-	-
RA's appointed - 1992	04	04	03	-	01	-	04	04	01	-
Registered for PG - 1992	01	02	-	-	-	-	-	02	01	-
Thesis PG - 1992	01	-	02	-	-	02	01	-	-	-
Communications & Publications 1991	-	03	01	-	-	11	01	-	-	-
New Applications - 1993	11	06	-	-	-	14	-	01	06	-
Funds requested for 1993 (Rs.)	550,000.00	-	-	105,500.00	-	-	-	762,385.00	1044,863.00	-

TABLE II - GRANTS SPONSORED BY FOREIGN AGENCIES

Status Summary during 1992

Foreign Agency/ Discipline	SAREC Buffalo Research Programme	SAREC Coastal Ecology Research Programme	Zoology Survey of Sri Lanka	CIDA Fertilizer	UNESCO Mangroves	US-AID	ODA - Flora of Sri Lanka Project
Status							
Total No. of grants operating during 1992	32	06	01	25	02	03	-
Grants awarded - 1992	-	-	-	-	-	-	-
Amount allocated for 1992 (new & ongoing Rs.)	5,208,000.00	3,293,000.00	-	No new allocations	-	-	-
Grants completed - 1992	-	-	-	25	-	02	-
Grants withdrawn - 1992	-	-	-	-	-	-	-
Grants reinitiated - 1992	-	-	-	-	-	-	-
RA's appointed - 1992	02	05	-	-	-	02	01
Registered for PG - 1992	05	02	-	-	-	-	-
Thesis PG - 1992	-	-	-	-	-	01	-
Communications & Publications - 1992	05	09	-	-	-	01	-
New Applications 1993	25	06	-	-	-	-	-
Funds requested for 1993 (Rs.)	10,356,344.00	7,140,480.00	-	-	-	-	-
Grants approved for 1993	25	06	-	-	-	-	-

Table III - New Grants Awarded in 1992

Discipline - Agriculture and Animal Husbandry

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/92/Ag/1	Dr. O. Amarasinghe Mr. J.W.Rupasinghe Dept. of Agric. Economics, Fac. of Agriculture University of Ruhuna, Mapalana	The profitability of the new fish catching technology 2 years	Rs. 127,000.00
RG/92/Ag/2	Dr G.A. Dayatileke Dept. of Agronomy, Fac. of Agriculture University of Ruhuna, Mapalana	Studies on seed viability & vegetative propagation of cinnamon (<i>Cinnamomum Zeylanicum</i>) 1 year	Rs. 58,849.00
RG/92/Ag/3	Dr(Mrs) D. Kumaragamage Prof. M.W. Thenabadu Dept. of Social Science Fac. of Agriculture Univ. of Peradeniya	Comparison of different methods in evaluating available phosphorus status in different soils of Sri Lanka 2 years	Rs. 257,200.00
RG/92/Ag/4	Dr. W.W.D.A. Gunawardena Dept. of Animal Science Fac. of Agriculture University of Ruhuna Mapalana	Rabbit breeding: Improve productivity through selection & cross breeding 2 years	Rs. 113,000.00

Discipline - Biological Sciences

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/92/B/01	Dr (Mrs) M. Hettiarachchi Department of Zoology University of Kelaniya	Culture of <i>Monodactylus argenteus</i> (Linnaeus, 1758) an expensive ornamental fish in brackishwater ponds in Negombo 2 years	Rs. 225,000.00
RG/92/B/02	Mrs A.M. Karunarathne Department of Botany University of Peradeniya	Improving Storage Quality of Papaya (<i>Carica papaya</i> L.) 2 years	Rs. 171,200.00
RG/92/B/03	Dr. Y.N.A. Jayatunga Department of Zoology Dr S.A. Fernando Department of Chemistry University of Colombo	Investigation of the accumulation of selected heavy metals in sediments and biota of the Kelani River 2 years	Rs. 221,000.00
RG/92/B/04	Dr M.H.A. Tissera Mr H.A.S. Ariyawansa Inst. of Indigenous Medicine Univ. of Colombo, Rajagiriya Mr. G. de Silva Bandaranayake Ayu. Research Institute Nawinna	The identification and confirmation of 'Dasamoola' used in Sri Lanka 1 year	Rs. 24,600.00

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/92/B/05	Dr (Mrs) J.P. Edirisinghe Department of Zoology University of Peradeniya	A survey of aphids and their natural enemies on economic and other plants 3 years	Rs. 234,500.00
RG/92/B/06	Prof. S.A. Kulasooriya Department of Botany University of Peradeniya Mr S.G. Ginige. Mr J.P.Padmasiri Mrs W.D. Manohari National Water Supply & Drainage Board, No.66A, Riverdale Road, Kandy	Studies on algal growth in Tisawewa and methods for their removal 2 years	Rs. 174,150.00
RG/92/B/07	Prof. S.N. Arseculeratne Dept. of Microbiology Prof. U. Samarajeewa Faculty of Agriculture University of Peradeniya	Investigations on the mechanism of aflatoxin accumulation in cultures of aspergillus flavus and the toxicity of aflatoxin-silica mixtures on rodents. 2 years	Rs. 140,000.00
RG/92/B/08	Dr S.U.K. Ekaratne Dept. of Zoology University of Colombo Colombo 3.	Ecophysiology of molluscs inhabiting satuaries along the western coast of Sri Lanka 1 year	Rs. 223,360.00

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/92/B/09	Dr Manthri S. Ramasamy Prof. Ranjan Ramasamy IFS, Hantana Road, Kandy	Studies on <i>Anopheles tessellatus Plasmodium falciparum</i> interactions 2 years	Rs. 70,000.00
RG/92/B/10	Ms E.S. Nathanael IFS Hantana Road, Kandy	Life - history strategies of three cichlid species colonized in the Victoria Reservoir, Sri Lanka 1 year	Rs. 38,000.00
RG/92/B/11	Dr P.A.J. Yapa Dept. of Botany Univ. of Sri Jayewardenepura Nugegoda	Extraction and purification of quebrachitol from <i>Hevea latex</i> serum 2 years	Rs. 75,800.00

Discipline - Biotechnology

Grant No.	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/92/BT/1	Dr (Mrs) S.I. Abeygunawardene Prof. G.S. Widanapathirana Dept. of Microbiology Univ. of Kelaniya kelaniya	Investigation of the biotechnologically important Bacillus species from different environments 3 years	Rs. 287,500.00
RG/92/BT/2	Dr W.K. Hirimburegama Dr K. Hirimburegama Dept. of Botany Univ. of Colombo Colombo 3	Preliminary study on the viability of using Azolla in Sri Lanka 1 year	Rs. 55,000.00

Discipline - Chemical Sciences

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
RG/92/C/01	Dr A.S. Amarasekera Dept. of Chemistry, Univ. of Colombo, Colombo	Studies on the use of aryl hydrazones as 1-Axa dienes in the [4+2] cyclo addition 2 years	Rs. 161,000.00
RG/92/C/02	Dr N.E. Gunawardhana Department of Chemistry University of Kelaniya, Kelaniya	Investigation on the field use of natural attractants for <i>Lucinodes orbonalis</i> and Rhynocophorous ferugineous 1 year	Rs. 45,000.00
RG/92/C/03	Dr J.M.J.K. Jayasinghe Mushroom Dev. & Training Centre Rajamawatha, Ratmalana Dr Arthur Bamunuarachchi Univ. of Sri Jayewardenepura	Manufacture and marketing of processed mushrooms 1 year	Rs. 110,000.00
RG/92/C/04	Dr. R.M.G. Rajapakshe Dr A.D.L. Chandani Department of Chemistry University of Peradeniya	Investigation of the electrochromic properties of conducting polymers 3 years	Rs. 235,000.00
RG/92/C/05	Dr J. Wimalasena Department of Chemistry University of Sri Jayewardenepura	A complete kinetic study of the iodide catalyzed reaction between Ce (IV) and As (III) for the determination of trace amounts of iodide and iodine 1 year	Rs. 62,000.00

Grant No:	Name of grantee & Institution	Project title & Duration	Total Allocation
RG/92/C/06	Dr H.M.K.K. Pathirana Dept. of Chemistry University of Ruhuna Matara	Photodegradation of organic pollutants by semi-conductors 3 years	Rs. 376,000.00
RG/92/C/07	Dr A. Wickramasinghe Dept. of Chemistry University of Peradeniya Peradeniya	Insecticidal and other bioactive compounds from the Thymelaeaceae of Sri Lanka	Rs. 200,000.00
RG/92/C/08	Prof. O.A. Illeperuma Department of Chemistry University of Peradeniya Peradeniya	Development of solar cells based on sensitized colloidal TiO ₂ films. 3 years	Rs. 341,000.00
RG/92/C/09	Prof. G.P. Wannigama Department of Chemistry University of Peradeniya Peradeniya	Chemical investigation of Bio-active extracts of plants of the Rubiaceae 2 years	Rs. 184,000.00
RG/92/C/10	Prof. A.M. Abeysekera Department of Chemistry University of Sri Jayewardenepura	Standardization of Ayurvedic Drugs-Impact of processing on levels of bioactive compounds 3 years	Rs. 141,000.00

Discipline - Medical & Veterinary Sciences

Grant No:	Name of Grantee & Institution	Project Title & Duration	Total Allocation
RG/92/V/1	Dr H. Abeygunawardena Dept. of Vet. Clinical studies Dr M.W.A.P. Jayatilaka Dept. of Agric. Econ. Ext Univ. of Peradeniya	Assessing the productivity reproductive efficiency and management systems in the zebu cattle farming systems in Sri Lanka 1 year	Rs. 94,500.00
RG/92/V/2	Dr R. Wickremasinghe Dr S.N. Kodituwakku Veterinary Research Institute Gannoruwa	Laboratory and field study on the keeping quality and efficacy of Newcastle disease and fowl pox vaccines 3 years	Rs. 218,120.00
RG/92/M/1	Dr(Mrs) N.R. de Silva Dr H.J. de Silva Dept. of Parasitology Faculty of Medicine University of Peradeniya	Pathogenicity and zymodeme patterns of Entamoeba histolytica isolates in the Central Province 1 year	Rs. 65,000.00
RG/92/M/2	Dr Asoka Ratnayaka 207/8, Dharmapala Mawatha, Colombo 7 Dr H.W.M. Cooray 75/1, D.S. Senanayake Mawatha Colombo 8	Study of General Dental Practice patterns in Sri Lanka 3 months	Rs. 700.00

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
RG/92/M/3	Prof. B.R.R.N. Mendis Dr (Ms) V. Navaratna Dept. of Oral Pathology Faculty of Dental Science Univ. of Peradeniya	The Induction of Odontogenic Tumours, tumour like lesions and other body Tumours in the Sprague Dawley rat injected with a single dose of N-Methylnitro sourea (MNU) 1 year	Rs. 54,000.00
RG/92 M/4	Ms.Pushpa L. Jayawardena Dept. of Community Medicine Faculty of Medicine Univ. of Peradeniya	Occupational Health Hazards of Brass workers in and around Gadaladeniya 1 year	Rs. 140,680.00
RG/92/M/5	Prof. Lalitha Mendis Dr Channa Sennayake Dept. of Microbiology Prof. Eric Karunanayake Dept. of Biochemistry Fac. of Medicine, Colombo	Typing of Herpes simplex viruses (HSV) isolated from genital and non genital lesions in Sri Lanka 1 year	Rs. 155,989.60
RG/92/M/6	Dr W.R. Wimalasiri Dept. of Biochemistry University of Peradeniya Peradeniya	The bioavailability of dietary Iron, Copper and Zinc and its relationship to the phytate, Tannin and Calcium concentration 3 years	Rs. 271,000.00
RG/92/M/7	Dr Tara de Mel Prof. Rezvi Sheriff Faculty of Medicine Kynsey Road, Colombo 08	Testing the efficacy of organ preservation solutions using metabolic function tests on stored tissue 2 years	Rs. 186,400.00

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
RG/92/M/8	Dr D.J Somasundaram Head Dept. of Psychiatry Dr R. Sivshankar Dr S. Demian Dept. of Psychiatry University of Jaffna	Post traumatic stress disorders 3 years	Rs. 398,400.00
RG/92/M/9	Prof. L.G. Chandrasena Faculty of Medicine University of Kelaniya	Persons with Glucose-6-phosphate dehydrogenase (G6PD) deficiency are more susceptible to cataract formation than those with normal G6PD. However if low G6PD levels are associated with diabetes mellitus, such persons are less susceptible to osmotic cataract formation 2 years	Rs. 314,800.00

Discipline: Physical, Engineering and Mathematical Sciences

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
RG/92/P/01	Dr P. Dewundage Dept. of Meteorology Colombo 07.	Development of objective analysis technique for National Meteorological Centre (N.M.C.) Sri Lanka 1 year	Rs.52,800.00
RG/92/P/02	Dr T.R. Ariyaratne Dept. of Physics University of Colombo Colombo	Construction of a Mass Spectrometer to measure molecular weights of bio-molecules using time of flight technique 1 year	Rs. 90,000.00
RG/92/P/03	Mr E.M.S. Wijeratne Dr N.P. Wijayananda NARA, Crow Island	Model study - wave as a energy source 6 months	Rs.40,000.00
RG/92/P/04	Mr K.P.S.C. Jayaratne Dept. of Physics University of Colombo	Measurement of air-earth conduction current density (in Sri Lanka) and the study of its relationship to Global Electric Circuit 2 years	Rs. 62,500.00
RG/92/P/05	Mr. K. Arulanathan Dr N.P. Wijayananda NARA Crow Island	Investigation of the Hydrological processes in the Wellgama Bay. 2 years	Rs.110,400.00

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
RG/92/E/01	Dr J. Katupotha Dept. of Geogrphy Univ. of Jayewardenapura Nugegoda	"Evolution and the geological significance of Late Pleistocene fossil shell beds on the Southern Coastal Zone of Sri Lanka" 1 year	Rs. 59,496.00
RG/92/E/02	Mr B.P.S. Peiris Dept. of Materials Eng. Univ. of Moratuwa	"Heat treatment of gems with special emphasis on stones belonging to the corundum family" 1 year	Rs. 60,000.00
RG/92/E/03	Dr U.C. de S. Weerakkody Dr L.A. Peinadasa Dept. of Geography Univ. of Ruhuna Matara	"A study on sediment yield of rivers and lagoons of SW Sri Lanka with special emphasis on Beach Feeding Capacity" 1 year	Rs. 66,600.00
RG/92/E/04	Dr P.R.P. Hoole Faculty of Engineering Univ. of Peradeniya	"Tropical lightning radiated fields, correlation with environmental change and interaction with electric energy systems" 3 years	Rs. 142,000.00

Discipline : Social Sciences

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
RG/92/SS/1	Miss D.A.L. Ranasinghe No.27 "Saman" Dematagoda Place Colombo 9	Evaluation of school clusters (Sri Lanka-1981) through pilot projects 1 year	Rs.8,000.00
RG/92/SS/2	Mr Godwin Kodituwakku 75A, Senarathgama Katugastota	A research study on perceptions of students, principals, teachers and parents on private tuition in comparison with formal education in schools in Sri Lanka 1 year	Rs.18,960.00
RG/92/SS/3	Mrs. M.S. Pelpola Hapitigama College of Education, Meerigama	A study of the Dhamma school activities in the Sashanaarakshaka area of Mirigama 2 years (in Sinhala)	Rs.10,000.00
RG/92/SS/4	Dr(Mrs) S. Senadheera Dept. of Education Univ. of Peradeniya	Development of a curriculum model for the secondary schools in Sri Lanka 1 year	Rs.12,000.00
RG/92/SS/5	Mr Arjuna de Zoysa Div. of Computer Studies Open University	Technology -social interaction in industrial development 1 year	Rs. 57,000.00

Grant No:	Name of Grantee & Institution	Title & Duration	Total Allocation
RG/92/SS/6	Mr S.W. Amarasinghe Dept. of History & Sociology, Univ. of Ruhuna	Feasibility of women's participation in rural development - Matara district	Rs. 27,380.00
RG/92/SS/7	Prof. C. Bogahawatte Dept. of Agric. Economics Univ. of Peradeniya	Marketing Institutions for Coastal fishing in Sri Lanka 2 years	Rs. 137,200.00
RG/92/SS/8	Mr S.M.P. Senanayake Dept. of Economics Fac. of Arts, Univ. of Colombo	Contract Farming and Outgrower schemes in Sri Lanka 1 year	Rs. 60,000.00
RG/92/SS/9	Mr P.S. de Silva Consultant Dept. of Labour Colombo 5.	Employment Generation and Poverty Allevia- tion in the Rural Sector of Sri Lanka 1 year	Rs. 31,700.00
RG/92/SS/10	Dr Mahinda Wijeratne Univ. of Ruhuna Kamburupitiya	An evaluation of an Institutional Innovation: farmers Pension and Social Security, Benefit scheme of Sri Lanka 1 year	Rs. 65,000.00

Grant No:	Name of grantee & Institution	Project title & Duration	Total Allocation
RG/92/SS/12	Mr A. Lagamuwa NCP National Affiliated University College Anuradhapura	The Archaeology of the Ola-leaf manuscripts art in Sri Lanka 3 years	Rs. 44,000.00
RG/92/SS/13	Miss K. V. D. Edirisooriya Sabaragamuwa A. U. C. College Lecturer Belihuloya	Recreational potential of Belihuloya-Pambahinna area: A study of the Rational Allocation of geographical resources 01 year	Rs. 69,031.00
RG/92/SS/14	Mrs C. Samarasinghe N.I.E. Maharagama	Preparation and standardization of a set of evaluation sheets for the purpose of developing, measuring and evaluating the pre-reading abilities of Year I students 1 year	Rs. 37,400.00
RG/92/SS/15	Miss Indrani Fernando Kotalawala Defence Academy Kandawela Estate Ratmalana.	Geographical Aspects of the Military Manoeuvres in Northern and Eastern Regions of Sri Lanka 1985-1991 1 year	Rs. 42,000.00
RG/92/SS/16	Dr J. Pinikahana Dept. of History & Sociology Ruhuna University Matara	Some Social and Psychological Dimensions of Suicide in Southern Sri Lanka 1 year	Rs. 64,500.00
RG/92/SS/17	Dr Premadasa Liyanaarachchi Dept. of Geography Univ. of Ruhuna Matara	Human Adjustment to flood Hazard in Kaluganga Basin 1 year	Rs. 57,000.00

Discipline: SAREC Coastal Ecology Research Programme

Grant No:	Name of grantee & Institution	Project title & Duration	Total Allocation
SAREC/19/CE-07	Dr (Mrs) Pauline Dayaratne NARA, Colombo 15	Study of the Puttalam Mundal estuarine system and associated coastal and estuarine 3 years	Rs. 1,656,000.00
SAREC/19/CE-08	Mr Arjan Rajasuriya NARA, Colombo 15	Studies of Coastal Reefs of Sri Lanka 3 years	Rs. 971,280.00
SAREC/19/CE-09	Dr Padmini de Alwis NARA, Colombo 15	River inputs of pollutants to coastal systems 3 years	Rs. 792,000.00
SAREC/19/CE-10	Dr(Miss) P.R.T. Cumaratunga Dept. of Zoology & Fisheries Biology, Univ. of Ruhuna	Recruitment and Distribution of <i>Anguilla bicolor</i> and <i>Anguilla nebulosa</i> in Sri Lanka 3 years	Rs. 2,860,800.00
SAREC/19/CE-11	Dr J. Jinadasa Dept. of Zoology Univ. of Sri Jayawardenapura	Migration and population of penaeid prawns in the Bolgoda and the Negambo Lagoons 3 years	Rs. 708,600.00
SAREC/19/CE-12	Dr J. Jinadasa Dept. of Zoology Univ. of Sri Jayawardenapura	Biology and distribution of clams in the Negombo Lagoon 3 years	Rs. 151,800.00
SAREC/09/BF-61	Dr Indira D. Silva Fac. of Vet. Medicine Univ. of Peradeniya	Observations on Intermittent agalactia milking buffaloes 2 years	Rs 49,200.00
SAREC/09/BF-62	Dr Indira D. Silva Faculty of Vet. Medicine, Univ. of Peradeniya	Bactericidal Activities of Buffalo Neutrophils for Mammary Pathogens 2 years	Rs. 223,200.00

Grant No:	Name of grantee & Institution	Project title & Duration	Total Allocation
SAREC/09/BF-63	Dr(Mrs) T.G. Wijewardena Veterinary Research Inst.	Incidence of leptospirosis in buffaloes and its importance as a zoonotic disease in Sri Lanka 3 years	Rs. 505,440.00
SAREC/09/BF-64	Prof. S.G. de S. Wettimuny Dr N.U. Horadagoda Univ. of Peradeniya	Aetiopathology of Buffalo calf mortality 3 years	Rs.107,640.00
SAREC/09/BF-65	Dr V. Y. Kuruwita Dr H. Abeygunawardena Dept.of Vet.Clinical Studies University of Peradeniya	Use of artificial insemination technique to upgrade indigenous buffalo population 3 years	Rs.236,640.00
SAREC/09/BF-66	Dr H.Abeygunawardena Dr V.Y. Kuruwita Fac. of Vet. Medicine Univ. of Peradeniya Dr H. Peiris Dr A.D.N. Chandrasiri, VRI	Further studies on reproduction in buffaloes: Study of productive, reproductive and draught traits of cross-bred buffaloes and development of management systems for optimum reproductive efficiency 3 years	Rs. 826,080.00
SAREC/09/BF-67	Dr(Mrs)E.R.K. Perera Dept. of Animal Science Univ. of Peradeniya	Heat stress Alleviation in Water Buffalo (Bubalus bubalis) 3 years	Rs.215,520.00
SAREC/09/BF-68	Dr(Mrs) S. Premaratne Dept. of Animal Sciences Univ. of Peradeniya	Development of Systems of supplementary feeding for Buffaloes in Sri Lanka 3 years	Rs. 169,800.00
SAREC/09/BF-69	Dr Nimal Perera Dept.of Animal Science Univ. of Peradeniya	Evaluation of non traditional feeds for supplementation in buffalo diets under intensive or semi intensive feeding system 3 years	Rs. 359,280.00

Grant No:	Name of grantee & Institution	Project title & Duration	Total Allocation
SAREC/09/BF-70	Dr M.W.A.P. Jayatilaka Ms. Shirani Gunasekera Univ. of Peradeniya	Identification of constraints for multipurpose utilization of buffalo in rural farming systems 3 years	Rs.90,240.00
SAREC/09/BF-71	Dr S.S.E. Ranawana, VRI Dr A.A.J Rajaratne Univ. of Peradeniya	Supplementation to meet mineral element deficits in dairy/draught buffaloes reared intensively or semi-intensively 3 years	Rs.161,760.00
SAREC/09/BF-72	Dr H. Peiris, VRI Dr R. Nimalasuriya, VRI Dr D.H.A. Subasinghe Dr H. Abeygunawardena Dr M.W.A.P. Jayatilaka University of Peradeniya	Development of suitable intensive management systems optimize the productivity of water buffaloes in Sri Lanka 3 years	Rs.1,021,440.00
SAREC/09/BF-73	Dr R. Sivakanesan Fac. of Medicine Univ. of Peradeniya	Lipoprotein cholesterol metabolism in buffaloes and its importance to Ovarian function. Phase I: Relationship between plasma lipoprotein cholesterol and progesterone secretion and its implication on reproductive status 2 years	Rs.223,104.00
SAREC/09/BF-74	Dr H. Peiris, VRI Dr(Mrs)E.R.K.Perera Univ. of Peradeniya	Effect of supplementary feeding on puberty of buffaloes 3 years	Rs.275,520.00

SAREC/09/BF-75	Dr(Mrs) D.D.N. de Silva Dr V.Y. Kuruwita Dr (Mrs) I.D. Silva Fac. of Vet Medicine Univ. of Peradeniya	Physiological adjustment in indigenous buffaloes and their crosses in relation to the working ability 2 years	Rs.273,840.00
SAREC/09/BF-76	Dr A.A.J. Rajaratne Dept. of Physiology University of Peradeniya Dr S.S.E Ranawana Veterinary Research Ins.	Study on the thermoregulation of buffaloes at work 2 years	Rs.166,800.00
SAREC/09/BF-77	Dr S. Jayasekera Dr H.B.S. Ariyaratne Dr G.P. de S. Gunawardena Fac. of Vet. Medicine Univ. of Peradeniya	Studies on the relationship between draught capacity anaerobic threshold and glucose metabolism in Lanka Buffaloe 3 years	Rs.195,600.00
SAREC/09/BF-78	Mr S.K. Seneviratne Dept. of Mech. Engineering Dr S. Jayasekera Fac. of Vet. Medicine Dr D.N. Jayatissa Dept of Agric. Eng. Univ. of Peradeniya	Comparative study on work performance of indigenous and crossbred buffaloes 3 years	Rs. 215,040.00

Grant No:	Name of Grantee & Institution	Project title & Duration	Total Allocation
SAREC/09/BF-79	Prof. S.T. Fernando Fac. of Vet. Medicine Univ. of Peradeniya	Incidence and prevalence of Helminth parasite of buffaloes. Life-cycles of the important paramphis tomes and their transmission 3 years	Rs.223,440.00
SAREC/09/BF-80	Dr Indira Abeygunawardena Fac. of Vet. Medicine Univ. of Peradeniya Dr. D.J. Weigama Veterinary Research Inst.	Studies on <i>Gigantocotyle explanatum</i> . infection in buffaloes and cattle; Development of serodiagnostic test and control measures of the infection 3 years	Rs.184,800.00
SAREC/09/BF-81	Dr S. Mahalingam Fac. of Vet. Medicine University of Peradeniya	Viruses associated with diarrhoeas in buffalo calves 3 years	Rs.584,000.00
SAREC/09/BF-82	Dr. H.W. Cyril Dept. of Animal Science Univ. of Peradeniya	Meat and Carcass quality of Buffaloes 3 years	Rs.173,640.00
SAREC/09/BF-83	Prof. K.K. Pathirana Fac. of Agriculture Univ. of Ruhuna Dr(Mrs) C.P. Kodikara Dept. of Microbiology Univ. of Kelaniya Dr S.S.E. Ranawana Veterinary Research Ins.	Production Systems of Ruhunu Curd 1 year	Rs.452,640.00
SAREC/09/BF-84	Dr V.Y. Kuruwita Dr H. Abeygunawardena Fac. of Vet. Medicine Univ. of Peradeniya	Development of buffalo research farm Mawala 3 years	Rs.148,400.00

TABLE IV - PARTICIPATION AT CONFERENCES, SEMINARS AND WORKSHOPS OVERSEAS - DURING 1992

ON THE NOMINATION OF NARESA

Subject and Period	Awarding Agency	Nominee
1. ASCA Seminar on Human Resources Development in Science and Technology Tokyo, Japan 3-6 February 1992	Science and Technology Agency of Japan	M.A.T. de Silva
2. Planning Meeting on Biodiversity Genetic Resources Networks, London, 16-19 June 1992	Commonwealth Science Council	D.B.Sumithrarachchi, Director, Royal Botanic Gardens, Peradeniya
3. Planning Meeting on the Proposal for a Regional Co-operation Research Programme on Ecosystems Rehabilitation in South and Central Asia, Bangalore, India 7-13 November 1992	UNESCO	Mr K.P. Sri Bharathi, Conservator of Forests
4. The Second International Symposium on New Genetical Approaches to Crop Improvement, Karachi, Pakistan 15-20 February 1992	USAID	Dr R. Pathirana, Under Research Grant No:RG/AID10
5. International Weed Control Congress Melbourne, Australia, 17-21 February 1992	USAID	Prof. J.P.N.R. Chandrasena Under research grant No: RG/AID/11
6. Scientific visit to Sesame Research Projects in Thailand, 3-15 August 1992	USAID	Dr R. Pathirana , Under research Grant RG/AID/10
7. Integrated Weed Management of Paddy and Aquatic Weeds, Tsukuba, Japan, 19-25 October 1992	USAID	Prof. J.P.N. Chandrasena Under Research Grant No. RG/AID/11
8. The Eighth Meeting of Directors on Medical Research Councils or Analogous bodies in Bangkok, 3-6 November 1992	WHO	Prof. Nandadasa Kodagoda) on behalf of the) Director General) NARESA)
9. Meeting of High Level Officials in S & T Co-operation in Asia Pacific Region (ASCA) in Sydney , 8-12 November 1992	ASCA	Prof. Ranjan Ramassamy)))
10. Managing Research Systems in Developing Countries in Hanoi Vietnam 8-10 Dec. 1992	STEPHAN	Prof. Ranjan Ramassamy

NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA

Balance Sheet as at 31.12.92

As at 31.12.91				
853,281.74	<u>Funds Employed</u>			
200,000.00	NARESA Fund			
42,250,000.00	Add Drawings from Treasury	40,172,739.91		
43,303,281.74	Valuation of Assets (Land)	400,000.00	40,572,739.91	
3,130,541.83	Less Excess of Expenditure over Income		<u>46,077,504.74</u>	(5,504,764.83)
40,172,739.91				
4,512,214.40	<u>Documentation Unit Capital Fund</u>	5,317,693.23	6,417,693.23	5,401,119.53
1,250,000.00	Add Drawings from Treasury	<u>1,100,000.00</u>	<u>1,016,573.70</u>	
6,062,214.40	Less Net Expenditure - Note 1.1			
744,521.17				
5,317,693.23				
5,310,150.86	<u>Research Grants Fund</u>	5,419,556.94	11,544,556.94	6,166,850.00
3,660,000.00	Add Drawings from Treasury	<u>6,125,000.00</u>	<u>5,377,706.94</u>	
8,970,150.86	Less Net Expenditure - Note 1.2			
3,550,593.92				
5,419,556.94				
1,709,421.84	<u>Man & the Biosphere Fund</u>	1,884,262.82	1,934,262.82	1,902,562.57
300,000.00	Add Drawings from Treasury	<u>50,000.00</u>	<u>31,700.25</u>	
2,009,421.84	Less Net Expenditure - Note 1.3			
125,159.02				
1,884,262.82				

664,134.02	Miscellaneous Fund	1,156,018.37			
<u>1,380,000.00</u>	Add Drawings from Treasury	<u>1,150,000.00</u>			
2,044,134.02					
888,115.65	Less Net Expenditure - Note 1.4				1,265,163.78
<u>1,156,018.37</u>					
153,497.94	Scientific Manpower Project Fund	153,497.94			
<u>153,497.94</u>	Add Drawings from Treasury				
153,497.94	Less Expenditure				153,497.94
891,083.32	Working Committees Fund	1,010,622.36			
300,000.00	Add Drawings from Treasury	<u>175,000.00</u>			
<u>3,364.00</u>	Money received from other sources				
1,194,447.32					
<u>183,824.96</u>	Less Net Expenditure - Note 1.5				
<u>1,010,622.36</u>					1,016,145.68
40,333,127.82	Foreign Aid Fund	46,290,824.29			
13,272,727.27	Add Drawings from Treasury		5,345,830.00		
1,571,227.47	Treasury Deposit		16,619,696.98		
	Foreign Aid held by NARESA		2,812.00		
	Funds received by other sources (Asset)				
<u>14,000.00</u>		<u>21,968,338.98</u>			
55,191,082.56	Less Net Expenditure - Note 1.6				
<u>8,900,298.27</u>	Capital Reserves				
46,290,824.29					60,800,761.58
					42,250,000.00

	<p><u>Current Liabilities</u></p> <p>Creditors Accrued charges Provisions Store -Keepers refundable security deposit Tender Deposits</p>					
	<p>351,107.16 1,074,297.30 3,598,286.48 4,000.00 <u>10,000.00</u> 5,037,690.94 <u>106,442,906.80</u> *****</p>					

NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA

Balance sheet as at 31.12.92

As at 31.12.91	Represented by	Cost as at 01.01.92	Additions Disposals	Accumulated Depreciation	Net Balance
	<u>Fixed Assets</u>				
42,250,000.00	Land	42,250,000.00	6,400.00 (650.00)	-	42,256,400.00
1,300,345.37	Buildings	2,893,620.87	53,031.32	1,739,925.50	1,206,076.69
1,043,553.03	Office Equipment & Furniture	3,777,572.03	(3,000.00)	3,231,156.00	885,661.03
2,194,532.32	Motor Vehicles	5,674,379.53	342,245.00	4,267,670.21	1,456,709.32
134,628.18	Motor Bicycles	294,139.18	-	199,450.00	94,689.18
3,784.50	Bicycles	11,795.50	(3,360.00)	5,872.00	2,523.50
-	Sports Equipment	1,504.00	-	1,504.00	-
45,380.30	Accessories & Miscellaneous	177,690.35	(2,300.00)	154,772.05	48,342.30
1,318,040.11	Library Books	1,318,040.11	8,900.85	-	1,326,940.96
15,598,365.31	Scientific & Laboratory Equipment out on Loan	31,422,083.81	(41,900.00)	18,687,349.50	14,505,852.41
1,210,956.62	Documentation Equipment	4,705,492.62	1,813,018.10	3,778,404.00	961,773.62
65,099,285.74	Telephone Installation	92,526,238.00	(10,000.00)	32,066,103.26	62,694,969.01
13,933.64		2,234,834.27	44,725.00		13,933.64
65,113,539.38	<u>Current Assets</u>				
571,475.20	Stocks			589,720.93	
2,300,830.50	Debtors			2,035,004.28	
898,578.67	Prepayments			775,613.33	
36,109.45	Deposits			41,109.45	
26,316,904.31	Treasury Deposit			42,936,601.29	
7,435,946.66	Balance at Bank A/C No. 4530800224		2,611,592.63		
3,793,805.86	" " " 4530800232		2,564,596.39		
-	" " " 4530801514		-		
10,000.00	Petty Cash		10,000.00		
1,716.77	Cash in Hand		4,824,138.27		
4,000.00	National Savings Bank A/C		5,613.41	10,015,940.70	
41,329,367.42					56,393,989.96
106,442,906.80					119,102,912.63

Director-General
Natural Resources, Energy &
Science Authority of Sri Lanka
175, Maitland Place

NATURAL RESOURCES ENERGY & SCIENCE AUTHORITY OF SRI LANKA

Income & Expenditure A/C for the year ended 31st December 1992

As at 31.12.91				
7,980,000.00	Drawings from Treasury			8,610,000.00
90,049.52	<u>Income for the year</u>			
11,164.80	Interest received		96,602.15	
198,229.05	Sundry Income		30,707.90	
11,181.05	Sale of publications		216,920.18	
16,036.40	Photocopy receipts		22,780.50	
-	Receipts from printing out side jobs		2,231.50	
	Profit on sale of fixed assets		12,205.00	
<u>1,327,272.73</u>	10% Foreign aid administration cost		<u>534,583.00</u>	
9,633,935.55			<u>916,030.23</u>	
	<u>Less: Expenditure for the year</u>			
30,810.80	Authority Expenditure	24,300.00		
<u>15,288.85</u>	Travelling & allowances for Authority members	<u>16,905.25</u>		
46,099.65	Entertainment		41,205.55	
4,357,781.08	Staff Emoluments	4,171,983.74		
541,192.90	Salaries & Allowances	585,587.20		
107,597.99	Employees Provident Fund	117,170.55		
173,127.50	Employees Trust Fund	155,247.50		
173,636.42	Retiring Gratuity	124,803.93		
-	Provisions for retiring gratuity	508,296.57		
	Incentive	184,722.98		
211,915.38	Overtime	<u>39,402.38</u>		
<u>57,802.57</u>	Holiday Payment		5,887,214.85	
5,623,053.84				

<u>Office Administration</u>			
Travelling (Official)	1,347.35		3,030.25
Stationery & Consumables	442,739.17		335,567.12
Electricity	150,000.00		250,548.53
Telephone	255,460.04		222,276.40
Postage	85,905.25		75,007.61
Audit fees	42,735.00		90,000.00
Legal fees	-		16,250.00
Bank charges	12,873.98		15,308.39
Medical expenses	15,568.39		17,515.95
Advertising	238,040.00		132,980.00
Maintenance of motor vehicles	221,337.66		-462,107.63
Maintenance of Office equipment & furniture	114,921.32		188,943.63
Maintenance of Building	52,846.85		53,131.25
Staff Welfare	10,000.00		20,000.00
Insurance	82,213.74		33,391.90
Water Consumption charges	60.00		51,040.00
Security Services	186,783.84		202,338.43
Depreciation	4,555,637.00		4,687,188.00
Sundry Expenses	134,280.15		235,423.87
SAREC/GEN, CIDA/GEN, SAREC/19/GEN, SAL/GEN - 42,278.46 + 147,679.16 + 1,616	127,297.70		191,373.62
Gumudawa	101,606.28		114,508.94
Unusable items	414.80		-
	<u>6,835,268.72</u>		<u>13,326,549.92</u>
	12,504,422.21		(3,800,519.69)
	(2,870,486.66)		42,276,985.05
	260,055.17		
Excess of expenditure over Income			
Add: Prior year adjustment (Net)			
	<u>3,130,541.83</u>		<u>46,077,504.74</u>
		7,398,129.52	

Fund Flow Statement

SOURCES

External Sources

Contribution from Government		9,000,000
Grants from Foreign Agencies	22,500,110	
<u>Less: 10% Administration cost</u>	<u>534,583</u>	21,965,527
Foreign aid held by NARESA		<u>2,812</u>
		30,968,339

Add Adjustments for items not involving movement of fund

Depreciation	4,687,188	
Net decrease in provision	(127,195)	
Disposal of fixed assets during 92	61,210	
<u>Less depreciation written off</u>	<u>47,737</u>	<u>13,473</u>
		<u>4,573,466</u>
		35,541,805

APPLICATION

Excess of expenditure over income	3,675,716	
Adjustments in respect of previous years	(61,942)	
Acquisition of fixed assets	2,294,469	
Expenditure re. Research Grants	<u>15,182,824</u>	<u>21,091,067</u>
		<u>14,450,738</u>

Change in working capital

	<u>Increase</u>	<u>Decrease</u>	
1. Stocks	18,246		
2. Debtors	-	265,826	
3. Prepayments	-	82,965	
4. Deposits	5,000		
5. Treasury Deposit	16,649,697		
6. Creditors	-	65,900	
7. Accrued charges	-	423,727	
8. Provisions	-	127,195	
9. Other Liabilities	2,937	-	
10. Cash & Bank balances	-	<u>1,229,529</u>	
	<u>16,645,880</u>	<u>2,195,142</u>	<u>14,450,738</u>

NOTES ON ACCOUNTS - 1992

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	44,725.00
2. " Maintenance & Repairs	112,912.93
3. " Books & Periodicals	174,357.48
4. " In House Printing & Binding	222,736.08
5. " Consumables	240,870.96
6. " Miscellaneous	15,178.90
7. " Services	19,933.33
8. " Publications & Publicity	228,772.25
9. Mini Micro CDS /ISIS	<u>5,520.00</u>
	1,065,006.93
Less: Cost of Documentation Equipment & Library Books (44,725 + 8452)	<u>53,177.00</u>
	1,011,829.93
<u>Add:</u> Prior year adjustments	<u>4,743.77</u>
	<u>1,016,573.70</u>

1.2 Research Grants Expenditure

Actual Expenditure for the year	3,882,800.90
<u>Less:</u> Cost of Scientific Equipment acquired during the year	<u>42,289.45</u>
	3,840,511.45
<u>Add:</u> Provisions for balance funds	<u>2,242,199.10</u>
	6,082,710.55
<u>Less:</u> Prior year adjustments	<u>705,003.61</u>
	<u>5,377,706.94</u>

1.3	<u>Man & the Biosphere Expenditure</u>	
1.	MAB/86/01	32,948.76
2.	MAB National Committee	<u>2,246.00</u>
		35,194.76
	<u>Less: Prior year adjustments</u>	<u>3,494.51</u>
		<u>31,700.25</u>
		=====
1.4	<u>Miscellaneous Fund Expenditure</u>	
1.	Awards for outstanding Research Work	80.00
2.	Participation in International Scientific Work	55,529.33
3.	Seminars & Symposias	230,000.00
4.	Subscription to International Scientific Unions	663,635.50
5.	<u>Special Research Projects</u>	
	Mangrove Commission	225.00
	UNESCO/86/PP/01	40,587.10
6.	Janasaviya	<u>86,965.00</u>
		1,077,021.93
	<u>Less: Prior year adjustments</u>	<u>36,167.34</u>
		<u>1,040,854.59</u>
		=====
1.5	<u>Working Committees Fund Expenditure</u>	
1.	Agricultural & Animal Husbandry S/C	4,954.00
2.	Biological Sciences S/C	16,201.00
3.	Chemical Sciences S/C	3,838.00
4.	Ethical Review S/C	12,845.88
5.	Editorial S/C	7,658.50
6.	Genetic Resources S/C	3,045.93
7.	Medical & Vet. Sciences S/C	19,168.37
8.	Natural Resources S/C	6,857.00
9.	Physical & Engineering Sciences S/C	4,756.00
10.	Social Science Research S/C	44,433.00
11.	Science Education Research S/C	29,200.00
12.	Science Information S/C	5,350.00
13.	Steering Committee on Bio - Technology	6,775.00
14.	Steering Committee on Energy	<u>4,644.00</u>
		169,726.68
	<u>Less: Prior year Adjustments (Net)</u>	<u>250.00</u>
		<u>169,476.68</u>
		=====

1.6 Foreign Aid Expenditure

1. Advisory & Buffalo Research W/C	23,532.48
2. ACIAR Project Expenditure	1,815.20
3. CIDA Expenditure	1,700,776.35
4. RG/87/AG/03 Expenditure	1,467.67
5. RG/AID Expenditure	2,052,755.21
6. RG/MAN/ UNESCO Expenditure	21,510.00
7. SAREC Expenditure	5,452,343.60
8. UNESCO/86/PP/01 Expenditure	<u>40,104.38</u>
	9,294,304.89

<u>Less:</u> Cost of Scientific Equipment	
1,177,098.32 + 235,909 + 357,721.33	<u>1,770,728.65</u>
	7,523,576.24

<u>Less:</u> Prior year adjustments	<u>11,514.35</u>
	7,512,061.89

<u>Less:</u> Money received from sale of Buffaloes	<u>53,660.00</u>
	<u>7,458,401.89</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	2,054,955.85
Less: Provision for Doubtful debts	<u>19,951.57</u>
	<u>2,035,004.28</u>

3. Liabilities

3.1 Creditors

Creditors amount to Rs. 417,006.73 represents monies held by NARESA on behalf of 10 projects given below;

1. Sundry Creditors	10,035.51
2. Genetic Resources CSC	104,815.00
3. RG/89/IS/03	7,500.00

4.	SLATAI	7,780.00 /
5.	APCTT Steering Committee A/C	15,046.50 /
6.	Suspense A/C	29.50 /
7.	STEPAN Workshop A/C	97,937.21 /
8.	TWAS Contribution A/C	739.50 /
9.	Workshop on Tropical Forests & Coral Reefs	16,077.40 /
10.	Flora Project	35,370.04 /
11.	CSC A/C	<u>121,676.07 /</u>
		<u>417,006.73</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.

4. Publications for the value of Rs. 1,642,244.00 (valued at selling price) is available with us.

Schedule No.01

Provisions

1. Provisions for Research Grants	Rs. 2,242,199.10
2. Provisions for Retiring Gratuity	<u>1,483,282.50</u>
	Rs. <u><u>3,725,481.60</u></u>

Schedule No. 02

Accrued Charges

1. Audit fees 86 & 92	Rs. 99,170.00
2. Water Consumption charges	2,440.00
3. Gratuity - G.R.Gunawardene	270.31
4. SAREC '91	.82
5. Salaries & Allowances A/C - Sick leave	234,025.37
6. Maintenance of Motor vehicles	20,102.45
7. Maintenance of Office Equipment	1,942.50
8. Incentive	508,296.57
9. Medical & Vet. Sciences W/C	112.50
10. Telephone	18,241.15
11. Holiday payment	1,484.04
12. Water Consumption charges Nov.& Dec. '92	10,493.00
13. Staff Welfare	20,000.00
14. SLSTIC Maintenance & Repairs	4,970.35
15. UNESCO/86/PP/01	1,939.65
16. SAREC Expenditure	13,792.08
17. Research Grants Expenditure	<u>560,744.05</u>
	Rs. <u><u>1,498,024.84</u></u>

Schedule No.03

Stocks

1. Stationary & Consumables (Stores)	Rs. 556,237.18
2. Stationary & Consumables (Printing Dept)	33,108.75
3. Stamps	<u>375.00</u>
	Rs. <u><u>589,720.93</u></u>

Schedule No. 4

Sundry Debtors

1.	Research Grants Cash Imprests	(Schedule No.4.1)	28,715.10
2.	SAREC	" " (Schedule No.4.2)	646,987.06
3.	RG/AID/	" " (Schedule No.4.3)	5,153.30
4.	CIDA	" " (Schedule No. 4.4)	3,468.00
5.	MAB	" " (Schedule No. 4.5)	2,000.00
6.	Miscellaneous	" " (Schedule No. 4.6)	144,870.04
7.	SERC	" " (Schedule No. 4.7)	1,573.00
8.	<u>Loans to Staff</u>		
1.	Bicycle loans	(Schedule No. 4.8)	6,451.00
2.	Motor Bicycle Loans	(Schedule No. 4.9)	122,274.00
3.	Festival Advance	(Schedule No. 4.10)	27,600.00
4.	Distress Loans	(Schedule No. 4.11)	725,951.00
9.	Sundry Debtors		<u>339,913.35</u>
			2,054,955.85
	<u>Less:</u> Provisions for doubtful debts		<u>19,951.57</u>
			<u>2,035,004.28</u> =====

Schedule No. 5

Prepayments

1.	Insurance charges for Motor Vehicles	36,579.30
2.	Miscellaneous & Accessories	4,725.00
3.	Subscriptions for CSC	352,662.00
4.	SAREC	180,898.00
5.	Research Grants	56,211.30
6.	Franking Machine deposit balance	97,125.89
7.	Subscriptions SLSTIC Periodicals & Newspapers	12,564.50
8.	Stall charges paid for 93 Gam Udawa	13,200.00
9.	SLSTIC - Services	1,666.67
10.	Service Agreement Charges for Office Equipment	<u>19,980.67</u>
		<u>775,613.33</u> =====

Schedule No. 6

Deposits

1. Govt. Publication Bureau	929.45
2. Ceylon Oxygen Ltd	4,000.00
3. Felix Perera & Son	28,000.00
4. Post Master General	1,730.00
5. Ministry of Industries	1,000.00
6. Director of Telecommunication	450.00
7. Telecom	5,000.00
	<u>41,109.45</u>
	=====

Schedule No. 7

Depreciation

1. Building	5%	147,300.00
2. Office Equipment & Furniture	20%	500,137.00
3. Miscellaneous & Accessories	20%	23,859.00
4. Motor Vehicles	20%	787,823.00
5. Motor Bicycles	20%	39,939.00
6. Bicycles	25%	1,261.00
7. Scientific Equipment out on Loan	10%	2,892,961.00
8. Documentation Equipment	10%	293,908.00
		<u>4,687,188.00</u>
		=====

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Telephone } 691151

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පැස් ශ්‍රී.ව.
Fax No. } 697451

මගේ අංකය
எனது இல.
My No. } EC/R/NARESA/FA/92

ඔබේ අංකය
உமது இல.
Your No. }



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නිදහස් වතුරමුදා, කොළඹ 7, ශ්‍රී ලංකාව

கனகசபையவர்கள் தலைமையாக அகிர்ப்புறு திணைக்களம்,

சதநிற சதுக்கம், கொழும்பு 7, இலங்கை

AUDITOR-GENERAL'S DEPARTMENT
INDEPENDENCE SQUARE, COLOMBO 7, SRI LANKA

15 March 1994.

දිනය / திகதி / Date :

Director General,
Natural Resources, Energy and
Science Authority of Sri Lanka.

Report of the Auditor General on the Accounts
of the Natural Resources, Energy and Science
Authority of Sri Lanka for the year ended
31 December 1992 in terms of Section 14(2)(c)
of the Finance Act No. 38 of 1971.

The audit of accounts of the Natural Resources, Energy and
Science Authority of Sri Lanka for the year ended 31 December
1992 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 Director General of the Authority on 20 September 1993.

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 appearing 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 a 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 six Special Fund Accounts. According to the accounts presented, the operating result of the General Fund of the Authority for the year ended 31 December 1992 was a deficit of Rs. 12,410,520 before taking into account the Government Grant for recurrent expenditure as compared with the corresponding deficit of Rs. 10,850,487 for the preceding year.

After taking into account the Government Grant of Rs. 8,610,000 received for recurrent expenditure for the year under review, the deficit for the year was reduced to Rs. 3,800,520. After taking into account the Government Grant of Rs. 7,980,000 for the preceding year, the deficit for that year had reduced to Rs. 2,870,487.

The operating results of the special Funds, before taking into account the Government Grant for Special Fund activities was a surplus of Rs. 1,527,795 as against a deficit of Rs. 12,803,882 for the preceding year. The surplus, after taking into account the Government Grant of Rs. 13,945,830 received during the year under review for Special Fund activities amounted to Rs. 15,473,625. After taking into account the Government Grant of Rs. 20,462,727 received in the preceding year for Special Fund activities deficit for that year was converted into a surplus of Rs. 7,658,845.

2:2:1 General Fund

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

	<u>Year ended 31 December</u>			
	<u>1992</u>		<u>1991</u>	
	Rs.	Rs.	Rs.	Rs.
<u>Income</u>				
Receipts on account of Foreign Aid Administration Cost	534,583		1,327,273	
Sale of Publications	216,920		198,229	
Interest on Loans	96,602		90,049	
Provision of Printing Services to Outside Parties	2,232		16,038	
Photocopy Receipts	22,780		11,181	
Sundry	30,708		11,165	
Profit on Sale of Fixed Assets	<u>12,205</u>	916,030	<u>-</u>	1,653,935
<u>Expenditure</u>				
Office Administration	7,398,130		6,835,269	
Staff Salaries	5,887,215		5,623,054	
Board of Control	<u>41,205</u>	<u>13,326,550</u>	<u>46,099</u>	<u>12,504,422</u>
Deficit before taking into account the Government Grant		(12,410,520)		(10,850,487)
Less: Government Grant for Recurrent Expenditure	-	<u>8,610,000</u>		<u>7,980,000</u>
Deficit for the year		(3,800,520)		(2,870,487)
Fund balance brought forward	40,172,740		43,303,282	
Adjustments in respect of previous year	(42,276,985)		(260,055)	
Grant received from Treasury	<u>400,000</u>	<u>(1,704,245)</u>	<u>-</u>	<u>43,043,227</u>
Fund balance carried forward		<u>(5,504,765)</u> =====		<u>40,172,740</u> =====

Contd...../4

2:2:2 Special Funds

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

	<u>Year ended 31 December</u>			
	<u>1992</u>		<u>1991</u>	
	Rs.	Rs.	Rs.	Rs.
<u>Research Grants Fund</u>				
Government Contribution	6,125,000		3,660,000	
Less: Expenditure	<u>5,377,707</u>		<u>3,550,594</u>	
Surplus		747,293		109,406
<u>Documentation Unit Capital Fund</u>				
Government Contribution	1,100,000		1,550,000	
Less: Expenditure	<u>1,016,574</u>		<u>744,521</u>	
Surplus		83,426		805,479
<u>Foreign Aid Fund</u>				
Government Contribution	5,345,830		13,272,727	
Treasury Deposits	16,619,697		1,571,227	
Foreign Aid retained	2,812		-	
Receipts from other Sources	-		<u>14,000</u>	
	21,968,339		14,857,954	
Less: Expenditure	<u>7,458,401</u>		<u>8,900,258</u>	
Surplus		14,509,938		5,957,696
<u>Man and Biosphere Fund</u>				
Government Contribution	50,000		300,000	
Less: Expenditure	<u>31,700</u>		<u>125,159</u>	
Surplus		18,300		174,841
<u>Miscellaneous Funds</u>				
Government Contribution	1,150,000		1,380,000	
Less: Expenditure	<u>1,040,855</u>		<u>888,116</u>	
Surplus		109,145		491,884
<u>Working Committee Fund</u>				
Government Contribution	175,000		300,000	
Receipts from other Sources	-		<u>3,364</u>	
	175,000		303,364	
Less: Expenditure	<u>169,477</u>		<u>183,825</u>	
Surplus		5,523		119,539
Net surplus from Special Funds		<u>15,473,625</u>		<u>7,658,845</u>
		=====		=====

2:3 Financial Structure

According to the accounts presented, the financial structure of the Authority as at 31 December 1992 as compared with that as at 31 December 1991 is given below.

	<u>As at 31 December</u>	
	<u>1992</u>	<u>1991</u>
	Rs.	Rs.
<u>Resources</u>		
Capital Reserve	42,250,000	-
General Fund of the Authority	(5,504,765)	40,172,740
 <u>Special Funds</u>		
Foreign Aid Fund	60,800,761	46,290,824
Research Grants Fund	6,166,850	5,419,557
Documentation Unit Capital Fund	5,401,120	5,317,693
Man and Biosphere Fund	1,902,563	1,884,263
Miscellaneous Fund	1,265,164	1,156,018
Working Committee Fund	1,016,146	1,010,622
Scientific Manpower Project Fund	153,498	153,498
	<u>113,451,337</u>	<u>101,405,215</u>
	=====	=====
 <u>Utilization</u>		
Fixed Assets (at written down value)	62,708,923	65,113,539
Net Current Assets	<u>50,742,414</u>	<u>36,291,676</u>
	<u>113,451,337</u>	<u>101,405,215</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.
<u>Source</u>			
Deficit of the General Fund for the year			(3,800,520)
Less : Adjustments in respect of items and inventory movement of funds			
Depreciation	4,697,120		
Provision for Pension Gratuity	17,704		
Profit on sale of Fixed Assets	(12,205)		
Adjustments for Special Funds	(173,274)		
			<u>621,825</u>
			820,493
Add : Adjustments in respect of previous year			<u>26,985</u>
			347,478

Other Sources

Government Grant for Capital Works	14,345,830		—
Foreign Aid receipts for Research Works	16,622,509		
Amount received from sale of Fixed Assets	<u>25,677</u>		<u>30,994,016</u>
			31,841,494

Application

Increase in Fixed Assets	2,296,044		
Expenditure on Research Works	<u>15,094,712</u>		<u>17,390,756</u>
			14,450,738
			=====

Effect on Working Capital

	<u>Increase</u>	<u>Decrease</u>	
	Rs.	Rs.	
Treasury Deposits	16,619,697	-	
Stock	13,246	-	
Deposits	5,000	-	
Tender and Security Deposits	2,937	-	
Cash in Hand	4,822,421	-	
Bank balance	-	6,051,950	
Accrued Expenses	-	423,727	
Debtors	-	265,826	
Provisions	-	127,195	
Prepayments	-	82,965	
Creditors	-	65,900	
	<u>21,468,301</u>	<u>7,017,563</u>	<u>14,450,738</u>
	=====	=====	=====

2:5 Comments on Accounts

2:5:1 Accounting Policies

- (a) When books are purchased, the amounts paid for orders had been treated as assets before the books are physically received.

- (b) Adjustments relating to the previous year had been directly adjusted to the accumulated fund.

2:5:2 Accounting Deficiencies

The following accounting deficiencies were observed.

- (a) Expenditure of Rs. 24,610 on employees' uniforms had been brought to account as sundry expenses whilst Rs. 5,454 recoverable from officers on account of no pay leave had been brought to account as debtors.

- (b) The land owned by the Authority had been assessed at Rs. 42,250,000 and credited to the Waresa Fund Account. In transferring this value to a Capital Reserve in the year under review, the prior year adjustment account, instead of the Waresa Fund Account, had been utilized resulting in this capital value being debited to the Income and Expenditure Account.

2:5:3 Lack of Evidence for Audit

The following instances of lack of evidence were observed.

- (a) A physical verification of fixed assets aggregating Rs. 18,269,946 had not been carried out whilst confirmations had not been furnished in respect of creditors aggregating Rs. 417,006.

- (b) Particulars required in respect of travelling performed had not been furnished on two foreign travelling claims aggregating Rs. 40,535 whilst goods received notes in respect of purchase of goods valued at Rs. 66,061 had not been furnished to audit.

Contd.../8

2:5:4 Non-compliance with Laws, Rules,
Regulations and Management Decisions

Non-compliances observed are given below.

<u>Reference to Laws, Rules, Regulations etc.</u>	<u>Particulars</u>
(a) Finance Act Section 13(5)(d)	The Authority had not prepared a minimum Internal Audit Programme in consultation with the Auditor General.
(b) Financial Regulations 1645 and 1646	Daily Running Charts and monthly performance summaries in respect of 15 vehicles had not been furnished for audit.
(c) Treasury Circular No. EPD 8/52 of 16 June 1989	The Board of Directors of the Authority had not been informed by a Board Paper before inclusion in the accounts of prior year adjustments aggregating Rs. 26,985.

Contd...../9

3. Financial and Operating Review

3:1 Financial Results

According to the accounts presented, the working of the Authority for the year under review had resulted in a deficit of Rs. 3,800,520 as compared with a deficit of Rs. 2,870,487 for the preceding year, thus indicating an adverse variance of Rs. 930,033. This adverse variance can be analysed as shown below.

	<u>Variance</u>		Rs.
	<u>Favourable</u>	<u>Adverse</u>	
	Rs.	Rs.	
<u>Income</u>			
Receipts on account of the Cost of Administration of Foreign Aid	-	792,690	
Sale of Publications	18,691	-	
Interest on Loans	6,553	-	
Provision of Printing Services to outside Parties	-	13,806	
Photocopy Receipts	11,599	-	
Miscellaneous	19,543	-	
Profit on Sale of Fixed Assets	12,205	-	
Government Grant for Recurrent Expenditure	630,000	-	
	<u>698,591</u>	<u>806,496</u>	(107,905)
	=====	=====	
<u>Expenditure</u>			
Office Administration	-	562,861	
Staff Salaries	-	264,161	
Board of Control	4,894	-	
	<u>4,894</u>	<u>827,022</u>	(822,128)
	=====	=====	
Net Adverse Variance			<u>930,033</u>
			=====

Contd.../10

3:2 Idle Assets

Stocks of stores materials valued at Rs. 27,418 had not been made use of for a period of 5 years.

3:3 Exceptional Transactions

The following assets of the Authority valued at Rs. 2,007,652 had been released for use of the Ministry of Industries, Science and Technology and the maintenance expenses of such assets had also been borne by the Authority.

- (a) Two motor vehicles valued at Rs. 1,380,123.
- (b) Three air conditioners valued at Rs. 102,090
- (c) Cameras, cassettes, video and television sets valued at Rs. 248,567.
- (d) Office equipment valued at Rs. 276,872.
- (e) The first floor of the Main Building comprising about 5520 Square feet. The Authority had also borne the costs of electricity and water consumed, telephone and building maintenance.

Contd...../11

3:4 Cost of Personnel

Particulars of staff of the Authority, total salary cost and the cost per employee for the year under review as compared with the previous year are given below.

Category of Staff	Number	Salary Cost		Salary Cost per Employee			
		Normal Time	Overtime	Normal Time	Overtime		
		1992	1991	1992	1991		
		Rs.	Rs.	Rs.	Rs.		
Executive	30	1,656,010	1,413,370	55,200	54,360	1,313	* 2,223
Clerical and Allied Grades	42	1,702,720	1,631,532	40,540	35,468	2,028	2,902
Minor Employees	17	562,928	600,111	33,113	31,584	5,853	4,125

* Holiday Pay

3:5 Vehicle Utilization

The Authority had a fleet of 26 vehicles during the year under review. Two vehicles had been released to the Ministry of Industries, Science and Technology, whilst particulars relating to seventeen vehicles had not been furnished to audit. Some of the significant data relating to the utilization of 9 vehicles are given below

(a) Distance performed

Petrol	-	Kilometres	41,622
Diesel	-	Kilometres	84,288

(b) Fuel consumed

Petrol	-	had not been furnished
Diesel	-	to audit.

(c) Total expenditure on fuel

Petrol	-	Rs.	161,765
Diesel	-	Rs.	102,974

(d) Total expenditure on repairs

Petrol	-	Rs.	102,926
Diesel	-	Rs.	162,824

(e) Average expenditure on repairs per Kilometre

Petrol	-	Rs.	2.47
Diesel	-	Rs.	1.93

(f) Average expenditure on fuel per Kilometre

Petrol	-	Rs.	3.89
Diesel	-	Rs.	1.22

Contd..../13

4. Systems and Controls

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

- (a) Petty cash
- (b) Stocks
- (c) Accounting
- (d) Stale and unrealised cheques.

(S.M. SABRY)
Auditor General.

/mt. 940516

Comments on the Audit Report for the financial year ended 31.12.92

2:5 Comments on Accounts

2:5:1 Accounting Policy

- a) In future payments for the purchase of library books will be shown in a separate account and once the publications are received the relevant amount will be transferred to our library books account.
- b) The practice at NARESA had been to charge all prior year adjustments to the prior year adjustment account at the end of the year. Now we are maintaining separate prior year adjustment accounts.

2:5:2 Deficiencies in Accountinting

- a) For the past several years we have been debiting the cost of uniforms to our Sundry Expenses account and NARESA staff debtors to Sundry debtors account. In future we will maintain separate accounts for the uniforms and for NARESA staff debtors.

2:5:3 Lack of Evidence for Audit

- a) We have conducted a Asset/Stock verification by a Board of Survey appointed by the Director General. Now we have received the report. Accordingly we have done a complete verification of the following---

1. Office Equipment & furniture
2. Motor vehicles
3. Motor Bicycles
4. Bicycles
5. Sports Equipment
6. Accessories & Miscellaneous
7. Documentation Equipment
8. Stores Items

A sample check has been done for the following.

1. Library books
2. NARESA Publications

Scientific Equipment out on loan

We forward Annual Renewal Issue order forms to grantees and obtain their confirmation to ensure that the equipment issued to the grantees in respect of their research grants are available with them in good order as at 31st December each year.

- b) J.V 301 - Rs. 17,638.23 Both these vouchers are in settlement of
J.V 304 - Rs. 22,897.67 cash advances granted for foreign travel. Details of the travel, places visited and the amount are stated in the travelling forms attached to the Journal Vouchers.

Rs. 66,061

We have introduced the Goods Receiving Note only in June 1992. The purchases referred to in the report have been made prior to June 1992.

2:5:4 Non Compliance with Laws, rules, regulations & Managerial Decisions

- a) Action will be taken regarding this matter after the proposed reorganisation of this Institution. ---
- b) The auditors wanted the relevant information of these vehicles within a weeks time. It was not ^{possible} to provide them for the audit as the vehicles were in outstations. However the necessary information have been collected for inspection.
- c) Now we are following the reported procedure.

3:2 Idle Assets

These items ^{are} all consumables. Items for the value of Rs. 13,206.26 could be used in the future. Appropriate action will be taken regarding the other items.

3:3 Exceptional Transactions

Arrangements are being made to finalise this matter.

3:5 Use of Vehicles

This is relevant to the query 2:5:4 (b). The Auditors wanted the relevant information of these vehicles within a weeks time. Therefore it was unable to provide them for the audit ^{as the} vehicles were in outstations. However the necessary information have now been collected for inspection. Out of the 17 vehicles 02 vehicles have been given to the Ministry of Science & Technology. The quantity of fuel consumed with regard to the 09 vehicles have been provided for the Audit.

04 Systems and Control

The systems and controls are maintained satisfactorily with the resources personnel and time factor available at the disposal of the Institution.



Prof. Priyani E. Soysa

Director General

Natural Resources Energy & Science Authority of Sri Lanka