M.S. SWAMINATHAN
Chairman

25 September 1992

MSS/RU/

Dr. Marie Bystrom
Natural Resource Management Division
Swedish International Development Authority
S 10525 Stockholm, Sweden

Dear Dr. Bystrom:

As per our agreement on SIDA support to the N.I. Vavilov Research and Training Centre for Community Involvement in the Conservation and Sustainable Management of Biodiversity, I enclose a report on the activities carried out and the results achieved. A statement on the utilisation of the Swedish contributions is being sent separately. This programme is proceeding well. I once again thank you and SIDA for your generous support to this important project. I am looking forward to welcoming you to Madras in April 1993, when you review the progress.

With warm regards.

Yours sincerely,

M.S. Swaminathan

Enclosures

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AGREEMENT ON SWEDISH SUPPORT TO THE N I VAVILOV RESEARCH AND TRAINING CENTRE FOR COMMUNITY INVOLVEMENT IN THE CONSERVATION AND SUSTAINABLE MANAGEMENT OF BIODIVERSITY, OF THE M. S. SWAMINATHAN RESEARCH FOUNDATION

The following agreement has been reached between the Swedish International Development Authority, (hereinafter called SIDA), and the N. I. Vavilov Research and Training Centre for Community Involvement in the Conservation and Sustainable Management of Biodiversity, of the M. S. Swaminathan Research Foundation (hereinafter called the Vavilov Centre).

1 The Programme

The main objectives of the Vavilov Centre will be;

- to promote and strengthen community involvement in the conservation and sustainable utilisation of biological diversity,

- to organize "Trainers' Training Programmes" on the conservation of biological diversity and to train community conservation workers, particulary women, in the art and science of genetic selection in major crop plants,

- Conservation Monitoring by school children and local communities through Bio-indicators,

- Organisation of networks of non-governmental and grass-root level organisations for generating convergence and synergy in the activities of governmental and non-governmental agencies and academic and research institutions,

- Information Centre and Computerised Data Bank on grassroot level conservation activities and on genetic resources for sustainable agriculture and for adaptation to climate change,

- Linking conservation with sustainable utilization.

The SIDA support shall be utilized towards the achievements of these objectives, including the necessary infrastructure development, as specified in annex 1 (specification of aims and objectives).

2 Budget and disbursement of funds

SIDA shall make available to the M. S. Swaminathan Research Foundation for the Vavilov Centre an amount not exceeding SEK four million (4 000 000) during the fiscal years 91/92 - 94/95 starting January 1st 1992.

Each fiscal year a sum according to the budget (below) will be made available after SIDA's approval of the workplan. The contribution will be disbursed in one instalment annually upon request from the Vavilov Centre.

91/92	1.5 millions SEK
92/93	2.0 millions SEK
93/94	0.25 million SEK
94/95	0.25 million SEK

Any accrued interest on these funds shall be used for the same purpose as the main contribution. Any unspent funds will at the end of the period be repaid to SIDA within three months.The Vavilov Centre shall give SIDA access to its audited accounts and on request submit audit reports.

3 Work plan

The Vavilov Centre will present to SIDA not later than 30 September each year a workplan, including a proposed budget, to be carried out with SIDA support within the above mentioned programme during the financial year.

4 Report

The Vavilov Centre will submit a report to SIDA not later than 30 September each year on the utilization of the Swedish contribution and a report on the activities carried out and the results achieved, in relation to the goals stated.

The Vavilov centre shall give SIDA all information on the use of the resources that SIDA may reasonably request in addition to the information contained in the reports, and enable representatives of SIDA to visit and study the activities of the Vavilov centre.

5 Evaluation

An evaluation of the achievements of the Vavilov Centre shall be carried out in the beginning of the fiscal year 94/95.

6 Representatives

In the implementation of this Agreement SIDA shall be represented by the Head of Natural Resources Management Division and the Vavilov Centre by the Chairman of the M. S. Swaminathan Research Foundation.

7 Applicable Law and Settlement of Disputes

Swedish law is applicable to this Agreement. Disputes concerning the content or interpretation of the Agreement or the parties' rights and obligations under it shall be settled in accordance with the Swedish Arbitration Act, 1929. The arbitration shall be performed in accordance with UNCITRAL association rules. The appointing authority shall be the Arbitration Institute of the Stockholm Chamber of Commerce. One sole arbitrator shall be appointed.

8 Effectiveness

This Agreement shall become effective retroactively from 1992-01-01, and shall remain in force until both parties have fulfilled their obligations. It may be terminated by either party on the provision of six month's written notice to the other party.

This Agreement has been drawn up in two originals of which the parties have taken one each.

date.. January 31, 1992 ..... February 15, 1992

For The Swedish International Development Authority (SIDA)

For the N. I. Vavilov Research and Training Centre for Community Involvement in the Conservation and Sustainable Management of Biodiversity, of the M. S. Swaminathan Research Foundation.

..... M. S. Swaminathan .....

CHAIRMAN,
M. S. SWAMINATHAN RESEARCH FOUNDATION
14, II Main Road, Kotturpuram,
MADRAS-600085.
INDIA.

Annex 1

N.I. Vavilov Research and Training Centre for community involvement in the Conservation and Sustainable Management of Biodiversity.

Aims and Objectives

The aims include:

(a) applied and action orientated research, particulary of a participatory nature including local women, men and children.

(b) training, including trainers' training programmes for students, community teachers, women seed selectors and school teachers.

(c) awareness generation, through mobile educational camps, involvement of local communities in establishing genetic gardens for sustainable agriculture and publications and audio-visual material.

(d) Information Centre and computerised Data Bank on grassroot level conservation activities and on genetic resources for sustainable agriculture and for adaption to climate change.

(e) linking conservation with sustainable resource utilisation.

(f) organising Networks of grassroot level conservation organisations.

(g) Providing facilities for young scholars and scientists in different parts of the world to work at the Vavilov Centre, in order to increase the exchange of results from research and development in this field.

Work done during 1991-92
(April 1991-March 1992)

A. Conservation

i) A Mangrove Genetic Resources Centre was established in a 100 ha area provided by the Government of Tamil Nadu at Pichavaram, near Chidambaram, Tamil Nadu.

ii) Steps were taken to establish a Genetic Garden at Kattupakkam, Tamil Nadu, in collaboration with the Tamil Nadu Veterinary and Animal Sciences University.

B. Training

i) A Training programme for promoting the conservation and sustainable management of Mangrove Ecosystems will be conducted from March to May, 1992.

ii) A Training Programme for school and college teachers in the use of bioindicators in monitoring threats to biodiversity will be organised in March - April 1992.

C. Awareness Generation

November 24, 1991 was observed as the Biodiversity Day and school children and teachers were introduced at Pichavaram to the importance of conserving Mangroves and seagrasses in the interest of the ecological health and productivity of coastal areas.

D. Project Design Workshop

A Workshop for designing Genetic Gardens for Sustainable Agriculture was held at Madras on November 22-23, 1991.

E. Visiting scholars from abroad:

Prof. S. Jana, Professor of Genetic Resources, University of Saskatchewan, Canada.

Miss Mara Myers, Oxford University, UK.

Work plan for 1992-93

Research:

1. Identification of sources of propagating material of endangered plant species, listed in Red Data Books and standardisation of methods of propagation of material both through conventional and tissue culture technique.

2. Standardisation of bioindicators for different ecosystems.

3. Study of community approaches to the conservation of genetic variability in economic plants in cooperation with local organisations.

4. Study of sacred groves and their cultural and biological significance in local communities.

5. Standardisation of methods of stopping genetic erosion in medicinal plants in eastern and western Ghats (to start with at Agastya Malai).

Training:

a. Trainers' Training and Mobile Training Programmes in a replicable manner on methods of genetic conservation in the district of Chengalpattu - MGR, Thanjavur Pondicherry and Kodaikanal.

b. Training of rural women in seed technology.

c. Training members of the community biodiversity conservation corps of WWF-India.

d. Continuation of training programmes in the use of bioindicators and bio-monitoring techniques.

Information systems:

Development of data bases of grassroot level conservation organization and of "hot spot" locations from the point of view of anthropogenic pressures on genetic wealth.

Awareness generation:

Continuation of awareness generation programme through folk media, films and television.

Networking:

Establishing linkages with NGOs, academic institutions and centres abroad. Indian institutions will include WWF-India, the NGOs supported by the Tamil Nadu Social Forestry Reseach and Development Society (SIDA-funded) and the members of the Honey Bee Network (coordinator : Prof Anil Gupta).

Visiting scholars

The centre will continue its scientific exchange through visiting scholars. The visiting scholars 1992-92 will include:

Prof A W Rao of the Singapore National University

Dr. Åke Nilsson of Swedforest

M.S. SWAMINATHAN RESEARCH FOUNDATION

M.S. SWAMINATHAN
Chairman

5 October 1992

Dr. Marie Bystrom
Natural Resource Management Division
Swedish International Development Authority
S 10525 Stockholm
Sweden

Dear Dr. Bystrom:

I hope you received my letter of 25 September 1992, together with a report on the work done under the SIDA project during April to September 1992.

I enclose a statement on the utilisation of SIDA contributions up to 30 September 1992. Our Auditing year is from 1 April to 31 March and hence we shall send you the audited statement for the period 1 April 1992 to 31 March 1993 in May of 1993.

With warm personal regards,
Yours sincerely,

M.S. Swaminathan

M.S. Swaminathan

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M.S. SWAMINATHAN RESEARCH FOUNDATION

N.I. Vavilov Research and Training Centre for Community Involvement in the Conservation and Sustainable Management of Biodiversity. Utilization of the Funds provided by the Swedish International Development Agency

Financial Statement — For the period April-September 1992

Amount Received — 15,00,000/- SEK

71,00,000/- INR

Details of expenditure

I.	Infrastructure development for Research and Training		
	Pile Foundation	=	36,32,146.48
	Glass house	=	2,59,754.50
	Mist chamber	=	5,18,881.00
	Total	=	44,10,781.98
II.	Training Programmes	=	68,000.00
	TOTAL		44,78,781.98 Indian Rupees

M. S. Swaminathan

5 october, 1992.

M.S. Swaminathan Research Foundation

N.I. Vavilov Research and Training Centre for Community Involvement in the Conservation and Sustainable Management of Biodiversity

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Report on work done during January 1 to September 30, 1992

to

The Swedish International Development Authority

M.S. Swaminathan Research Foundation

N.I. Vavilov Research and Training Centre for Community Involvement in the conservation and sustainable management of Biodiversity

Report to the Swedish International Development Authority (SIDA) on the work done from January 1, 1992 to 30 September, 1992

The following are the highlights of the work done during January 1 to September 30, 1992 with generous support from SIDA

[I] Infrastructure Development:

This project envisages the construction of the essential infrastructure for organizing training programmes, preparation of course ware and development of data bases. Construction of a Research and Training Building was started early in 1992 in land kindly made available by the Government of Tamil Nadu in the Taramani Institutional area in Madras. The work on the pile foundation was completed by December 1991, and the construction of the main building started in January 1992. The design of the building is based on ecological principles.

The entry to the building will be through a SIDA-funded glass house where the endangered plant species of Tamil Nadu (cited in Red Data Books) will be maintained and multiplied. A mist propagation chamber is also being constructed to multiply endangered plants, and plants to be propagated in Sacred Groves. A brief description of the building is given in the Annual Report for 1991-92 (Annexure 1).

The formal dedication of the Research and Training Building will take place in April 1993. On that occasion, an International Dialogue on Ecotechnology and Rural Employment will be held (Annexure 2). From April 1993, SIDA supported research and training activities will all take place in the Centre's own building (currently they are being undertaken in rented buildings).

[II] Research and Training:

1. Standardisation of Bioindicators to monitor ecosystem health.

Biological samples, since they are the ultimate targets of all human-induced stresses they can serve as reliable indicators of ecosystem health. They are also less expensive, less energy consuming and could be precise in predicting potential threats. Such biological samples are tolerant to a particular pollutant-stress, but are at the same time sensitive to it and exhibit certain well-defined morphological changes. Samples that exhibit conspicuous changes are often chosen, since they can be easily identified in a vast ecosystem and they may be easily amenable for laboratory analysis.

Under the SIDA programme, a study on bioindicators has been initiated in the Mangrove ecosystem of Pichavaram since Mangrove ecosystems must be protected to prevent any further loss of biological diversity. After several surveys it was found that even though considerable reduction in the area and species diversity has occurred over several decades, there has been no record of incidence of pollution in the area. All the observed degradation seems to be due to anthropogenic factors like clear felling of trees for timber and fuel, and grazing due to animals. Based on the assumption that the remaining areas of these Mangroves can be maintained as protected areas, we have identified a few lichen species as indicators of air quality. Lichens are unique plant species consisting of algal cells embedded in fungal mat inhabiting extremes of climatic conditions. The order of their sensitivity to pollutants like SO2 is as follows:

Fruticose lichens are the most sensitive followed by Foliose and Crustose lichens and this fact has been established very well.

After conducting periodic surveys we have identified the occurrence of a fruticose lichen Roccella montagneii, a foliose lichen Pyxine cocces, three more species of crustose lichens, constantly occurring on Rhizophora species. Since Mangroves can be affected by pollutants from the sea water, we are studying the use of some plant species as useful indicators of marine pollution. We are making a comparative study of the highly degraded Mangrove patches at Ennore at Madras and Adyar river estuary. At Ennore which is an industrial area, the stunted growth (3 ft.) behaviour of A. marina is under investigation since the same species could reach upto 30 ft. in other places. This could serve as a useful indicator to measure the impact of industrial pollutants. Further, studies are in progress to identify the use of some micro-algae as indicators of marine pollution.

It is proposed to popularize the bioindicator technology in South India as this part of the world is endowed with rich biological reserves and diversity. The use of bioindicators by rural people and school children will be emphasized. Bioindication technology is simple and low cost.

2. Training on the application of Bioindicators in the conservation of Biodiversity:

A senior level training programme was organised in Madras from May 4 - 22, 1992 as per details given in Annexure 3. This training programme will result in:
(a) the organisation of a Research Network on Bioindication technology.
(b) a training manual for use in future courses.

The demand for training in this field is very high and it is proposed to repeat this course early next year. Also, it is proposed to organise a course for School Teachers from selected schools in Tamil Nadu and Kerala on the mapping of ecosystem health by school students using appropriate bioindicators.

3. Saving endangered species:

The Botanical Survey of India (BSI) has prepared and published Red data books in three volumes (1987, 1988 and 1990) for endangered species and also those which are on the verge of extinction. This contains a list of over 800 species listed as:
(1) Extinct (2) Partially extinct (3) Endangered and (4) Vulnerable. Of these 123 species are known to occur in Tamil Nadu State alone indicating the gravity of the problem.

BSI has also indicated 26 centers of endemism which are under threat and considered as 'hotspot areas' where focus is not on individual species but on the entire ecosystem thereby requiring special efforts to conserve "IN-SITU" plant communities. The notable areas in Peninsula India are Tirupati hills, Kandla range, Agumbe, Silent Valley, Nilgiris, Wynaad, Anamalai hills, Palani-Yercaud, Agastyamalai and Kalakad.

A network of protected areas comprising biosphere reserves, national parks and sanctuaries, is one big step in "IN-SITU" conservation. Due to local initiatives sacred groves have been identified in Pudukottai, Ayyanar koil, St. Thomas Mount, Vellodu and Non-Governmental organisations like Four Eyes Foundation, ESM, WWFI, SEVA, have taken up the task of protecting and conserving them. Further location and listing of sacred groves to bring them under protection network and study of their cultural and biological significance to local communities will be undertaken.

In the biosphere reserves national parks and sanctuaries, our best "IN-SITU" conservation areas, the current problems like repeated ravaging fires and over grazing have been taken up for study by an NGO Organisation (Ramanathapuram Wildlife Sanctuary, Rajapalayam).

Among the hotspot areas, Agastyamalai has been selected as the area for the commencement of the programme for collection of seed/vegetative material for propagation of endangered plants. After infrastructural laboratory and mist house

facilities are established in the Foundation, standardisation of methods of propagation of material by conventional or tissue culture techniques will be commenced. At present, the work is being done with the active collaboration of the Tropical Botanic Garden and Research Institute, Thiruvananthapuram (TBGRI), considering its strategic location near Agastyamalai and their commitment to this aspect of biodiversity conservation programme. Seeds and planting material of rare and endangered plants have already been collected by the scientists of TBGRI and they are being germinated and reared in the mist houses and glass houses of TBGRI. Two of these plants viz Humboldtia decurrens and Gluta travancorica were brought to our centre in Madras and planted.

A young biosystematist Mr. N. Anil Kumar who has rich practical experience in taxonomy, has been appointed and his services are utilised for collection of rare and endangered plant material from hotspot areas. The access forms designed for this work for development of data base on endangered plants and hotspot areas is given in Annexure 4. He has undertaken his first expedition of Agastyamalai on 7/9/92 and will be out in the field for ten days. He will be repeating this visit and covering the other hotspot areas also in a systematic manner in the future.

The planting material he is collecting with the help of local women will initially be stored and nurtured in TBGRI availing the infrastructural facilities obtained there, till mist house and glass house facilities are developed in the building complex of M.S. Swaminathan Research Foundation.

4. Community Participation:

The main aim of the Vavilov Research and Training Centre is to promote Community involvement in the Conservation and Sustainable Utilisation of Biological Diversity. To secure this objective a list of environmentally oriented Non-governmental organisations in Tamil Nadu and Kerala was prepared with the help of the local chapter of WWF and PRADAN in Madurai, and KFRI, Peechi. A two day training workshop was organised on 9th and 10th July, 1992 to orchestrate a Non-governmental network. 29 representatives from various NGOs in Kerela and Tamil Nadu and 13 scientists from MSSRF participated in the workshop and deliberated on the design of institutional devices and framework to promote community participation in Conservation and sustainable management of biodiversity (Annexure 5).

To focus on the themes and relevant issues, papers were written by the Chairman Dr. M.S. Swaminathan and Mr. S. John Joseph, Coordinator of this workshop. These papers laid special emphasis on community approaches to the conservation of genetic variability in economic plants in cooperation with local organisations and were circulated among the participants with other background material including the text of the Global Biodiversity Convention signed by many nations at Rio de Janeiro in June, 1992.

The outputs of this workshop are:

1. Formation of a "Biodiversity Forum" comprising of Non-governmental organisations, professionals and policy makers.

2. Initiation of a Non-governmental appraisal of the management of sanctuaries and national parks which are under stress due to anthropogenic pressures.

3. Study of deforestation as linked with livelihood needs of people for fuel and fodder and the role of interface forestry in stabilising forest ecosystem.

4. Awareness and Education programmes like creating biodiversity societies and villages, holding biodiversity contests and organising padayatras (marching on foot by people).

5. Federal Governmental Action by adopting biological diversity conservation as the theme for 1992-93 for the National Environmental Awareness Campaign.

6. Organising a media committee for undertaking preparation of educational tools and material, film cassettes, scripts for puppetry, etc.

5. Training for Women:

A well conceived and planned training programme for rural women in seed technology and "IN-SITU" conservation of genetic diversity of economically useful plants is well on the way. These programmes have to be necessarily in villages and rural centres. The process of identifying trainers for running the programme well, has been initiated and is being done with the help and cooperation of rural based NGOs located near biodiversity rich areas. It is proposed to give a week's theory cum practical training to the selected trainers in the first week of November at RUHSA, Vellore. A curriculum committee sat on three sessions to work out the curriculum and structure for the trainers course together with faculty. This trainers' course is to be followed by a course for local rural women organised by the respective NGOs in their areas. Ms. Shylaja Rao has been appointed as a training specialist and is coordinating the various functions and activities to run these programmes.

6. Design of Genetic Gardens for Sustainable Agriculture:

A workshop was held in Madras in November 22-23, 1991, in collaboration with the SIDA supported society for Social Forestry Research and Development, Tamil Nadu, for designing specialised genetic gardens for sustainable agriculture (Annexure 6).

During the workshop, an agreement was signed for collaboration with the N.I. Vavilov Institute of Plant Industry, St. Petersburg, Russia (Annexure 7). The proceedings of this workshop will be published by MacMillan India in November 1992.

In August 1992, an agreement was signed with the Tamil Nadu Veterinary and Animal Sciences University at Madras for organising Genetic Gardens for Sustainable Agriculture and for Sustainable Soil Health Management. The University has agreed to provide 10 hectares of land at their farm in Kattupakkam, near Madras, for this purpose.

The Genetic Garden for Sustainable Agriculture will comprise material conferring resistance to biotic and abiotic stresses as well as nitrogen fixing shrubs and plants. Another Genetic Garden will provide biological software for sustainable soil health management. The details are given below:

Biological Software for Sustainable Soil Health Management:

A coordinated network is being organised for assembling products and processes which can help to maintain/enhance soil health and productivity. The software would include items which can help improve the chemical, physical and microbiological aspects of soil fertility maintenance.

Some examples of such software are:

(a) Earthworm and Vermiculture

(b) Nitrogen fixing trees and shrubs including stem nodulating species.

(c) Rhizobial cultures, Azolla, Blue green algae.

(d) Tree species like Neem whose seed cake promotes slow release of applied Urea

(e) Plants which help to control nematodes and soil pathogens.

The Sustainable Soil Health Software library would provide the most appropriate material to users, depending on the nature of the soil and farming system.

Material for these specialised Genetic Gardens is being collectged from all over India and from the Nitrogen Fixing Tree Association, Hawaii. During 1993, training courses will be held at these Genetic Gardens for rural non-governmental organisations so that they can establish similar gardens in villages both as a source of useful genetic material and as educational aids.

7. Environmental Awareness Campaign and Workshop for Policy Makers:

The Ministry of Environment and Forests of the Government of India has accepted our proposal to declare "Conservation and Sustainable Management of

Biological Diversity" as the focal theme for the national environmental awareness campaign for 1992-93. The Vavilov Centre has been invited to organise a workshop for Policy Makers on Biodiversity in December, 1992. This workshop will be attended by all the State Secretaries of Environment and chief conservators of forests from all parts of India.

This will be the first Workshop for Policy Makers dealing with biodiversity in all its aspects. The implications of the Global Biodiversity Convention for action at the local, state and national levels will be explained.