

NATIONAL COUNCIL OF UNIVERSITY RECTORS
OFFICE OF HIGHER EDUCATION PLANNING

Committee of University Vice-Rectors for Research

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ESTA OBRA ES PROPIEDAD DE LA
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POSITION PAPER AND PROPOSAL OF STATE UNIVERSITIES
FOR THE COSTA RICA-HOLLAND AGREEMENT

LIST OF POSSIBLE PROJECTS TO EXECUTE

August, 1993



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1. Universidad de Costa Rica (Vice-Rectory for Research)

PROJECTS SET BY AREA IN ACCORDANCE TO
THE SUSTAINABILITY AGREEMENT

Agricultural Sector, Agroindustry and Territorial
Plannification

- . Biological Pesticides Production for the Agricultural Sector.
 - School of Microbiology, Department the Chemical Engineer and Natural Product Research Center
- . Technology generation for the sustainable management of vegetable garden and fruits cultivation.
 - Agronomical Research Center and Experimental Station "Fabio Baudrit Moreno."
- . Rural agro-ecosystems development through the usage of improved seeds of roots and tubers for small farmers.
 - Agronomical Research Center
- . Plant improvement of Sorgo Negro Forrajero (Sorghum Almun).
 - Dairy Experimental Station
- . Improvement of Quality and Productivity Project in Rural Cheese Manufacturing Sector.
 - Food Technology Research Center
- . River Contamination elimination in banana producing areas by using non-exportable fruit.
 - Food Technology Research Center
- . Strategy for the classification of Territories in Golfito Area.
 - Environmental Pollution Research Center, Department of Geography and the SIRECO Program.
- . Geophysical effects of the 22nd. april 1991 earthquake in the Atlantic coast line of Costa Rica.
 - Center of Geophysics Research
- . Trade opening and economic integration: conservation for the agricultural sector in Costa Rica.
 - Social Research Center

- . Usage of bristle in food for beef cattle.
 - Research Center for Animal Nutrition

Natural Resources, Management and Conservation Hydric Resource, Forest, Coastal-marine Resources, Biodiversity, Environmental Impact and Others

- . Developing and testing a site Quality Assessment Methodology for Tropical Forest Ecosystems.
 - Department of Biology and SIRECO Program
- . Tropical Pre-mountainous Moist Forest Restoration in Costa Rica.
 - Department of Biology and SIRECO Program
- . Recovery project of High Basin in Picagres River Puriscal Cantón.
 - Department of Biology and SIRECO Program
- . Molecular Taxonomy Module (Natural Resources Management and Sustainable Development Area).
 - Department of Biology and SIRECO Program
- . Limits definition and Management Plan of Juan Castro Blanco National Park and its buffer area.
 - Environmental Pollution Research Center, Department of Geography and the SIRECO Program.
- . Golfito XXI Program: Design and Implementation of a program for sustainable development in Golfito, Puntarenas, Costa Rica.
 - Vice-Rectory for Research
- . Environmental Sciences Masters Integrated Program.
 - Vice-Rectory for Research
- . Environmental Action Plan.
 - Vice-Rectory for Research
- . Recovery and management of Nicoya Golf: Interdisciplinary Proposal for Sustainable Development.
 - Department of Biology, CIMAR, CIGEFI, CICA and Department of Geographic.
- . Program: Rural Development for Costa Rica and Central America.
 - Institute for Social Research

- . Issues: Environment and Rural Development.
 - Institute for Social Research
- . Tendencias and analysis perspectives of the environmental issues in Central America.
 - Institute for Social Research
- . Agricultural modernization in Costa Rica and its impact on the environment.
 - Institute for Social Research
- . Education for conservation and environmental protection.
 - Institute for Social Research
- . Study of the socio-economic characteristics of the impact on the environment of Arenal Tempisque Irrigation Project in Palo Verde National Park.
 - Institute for Social Research
- . Modernization of the Information System of the Forest Products Laboratory of the University of Costa Rica.
 - Institute for Engineering Research.
- . Development of an Axial Turbine for Micro an Mini Hydroelectrical Centers.
 - Institute for Engineering Research.
- . Equipment and strategies to operate micro and mini hydroelectrical centers.
 - Institute for Engineering Research.

Contamination: Production, Waste and By-product Management

- . General Management of Solid Waste.
 - Environmental Pollution Research Center, School of Microbiology, Department of Mechanical Engineer and Department of Chemical Engineer.
- . Integral system of liquid waste treatment of Coffee.
 - Environmental Pollution Research Center, School of Microbiology, Department of Mechanical Engineer and Department of Chemical Engineer.
- . Chemical and Biotechnology Processing Pilot Plant.
 - Department of Chemistry
- . Contamination, Solid Waste Treatment and Drinking Water Sources Study.
 - Environmental Pollution Research Center, Department of Geography and the SIRECO PROGRAM

- . Transportation and disposal of solid waste.
 - Department of Civil Engineering.
- . Pesticides and heavy metals Residues Evaluation in Fresh vegetables and Irrigation Waters in Costa Rica.
 - Environmental Pollution Research Center, Department of Civil Engineering and Electro-chemistry and Chemical Energy Center.
- . Study on the level of residues of heavy metals and aromatic polycycle hydrocarbons in the metropolitan area, San Jose, and the Caribbean Coast in Costa Rica.
 - Environmental Pollution Research Center, Department of Civil Engineering and Electro-chemistry and Chemical Energy Center.
- . Sustainability indexes.
 - Institute for Economy Research

Population and Urbanism: Basic Services and Urban Ordaining

- . Urban rivers recovery.
 - Department of Civil Engineering
- . Improvements on the Technological Capacity of Municipal Governments of Costa Rica.
 - Department of Civil Engineering
- . Road accidents Impact, Analysis and Reduction in Costa Rica.
 - Department of Civil Engineering

Tourism Sector

- . Management of ecotourism within the framework of self-sustained development.
 - Department of Architecture.

Transectorial Elements

Gender Aspects

- . Project: Women and Sustainable Development: Renewable Energy, Appropriate Technologies, Education.
 - Interdisciplinary Program of Gender Studies
- . The Social, Cultural, and Organizational Conditions of the Women on the First Stage of the Irrigation Project Arenal Tempisque: Guidelines for their participation.
 - Institute for Social Research

Health

- . Public Health, Sustainable Development, and Interorganizational Management.
 - Department of Public Health
- . Integral Health Care and Policies of Sustainable Development: Formulation of a Model.
 - Department of Public Health

Organization, Participation and Social Action, Cultural Diversity

- . Community Education on the Ecology.
 - Vice-Rectorcy for Social Action
- . Design of Prevention, Promotion and Family Structure Models.
 - Vice-Rectorcy for Social Action
- . Evaluation of Social Action Projects.
 - Vice-Rectorcy for Social Action
- . Strengthening and Transference of the Medication Information Center CIMED.
 - Vice-Rectorcy for Social Action

Industry Sector

- . Advisor to Industries Concerning Air and Water Pollution.
 - Institute for Engineering Research and Department of Chemical Engineer

- . Economic Development Programs and Policies in Costa Rica: A Research Proposal for the Study of the Industrial Free Zones.
 - Institute for Economical Science Research

2. Instituto Tecnológico de Costa Rica

PROPOSED PROJECTS BY THE INSTITUTO TECNOLÓGICO DE COSTA RICA, TO BE DEVELOPED UNDER THE HOLLAND-COSTA RICA AGREEMENT FOR THE SUSTAINABILITY OF NATURAL RESOURCES

Agricultural Sector

AGRIBUSINESS MANAGEMENT

- . Agribusiness Management Centre
- . Agroindustry capacity improvement of the Costa Rican North Huetar Region.
- . Livestock Information System
- . Extension Program at Tierra Blanca, Cartago
- . Products diversification and training of cheese producer at Santa Cruz de Turrialba Region.
- . Training program to associated small form producers.
- . Implementation of cultural practices to crop improvement at the humid tropics.
- . To make a new product using rejected melon.
- . Transformation and marketing of agriculture production of high elevation regions nearby to Cartago.

PROJECTS FOR DEVELOPMENT UNDER HUMID TROPIC CONDITIONS

- . **LIVESTOCK AREA**
 - Pasture improvement in farms for the development of sustainable cattle raising.
- . **PHYTOTECNIA**
 - Huetar Norte Region of Costa Rica.
 - Sustainable production systems in woodless species from forests of the Huetar Norte Region of Costa Rica.

- Promotion of domestic tropical orchards husbandry in Huetar Norte Region of Costa Rica.
- Sustainable production systems with organic vegetables in the Alfaro Ruiz Region, of Costa Rica.

Natural Resources: Conservation and management hydric resources, forests, marine resources, biodiversity, environmental incidence and others

RESEARCH CENTRE IN FOREST INDUSTRY INTEGRATION

. SEEDS AND FOREST NURSERIES

- Diagnostic on the availability and marketing of improved seed in Costa Rica.
- Evaluation and development of alternatives for marketing of high quality seeds.
- Technical diagnostic of nurseries for small scales reforestation projects in Costa Rica.
- Development and validation of rules and procedures to control quality of production of forest nurseries in Costa Rica.
- Diagnostic of pest and diseases in forest nurseries.
- Forest protection regional programs.

. FOREST PLANTATIONS

- Technical diagnostic of small scales forest plantations established in Costa Rica.
- Development of management models for small scales plantations in Costa Rica.
- Evaluation of trees quality of small scale forest plantations.
- Evaluation of wood quality obtained from small scales forest plantations.

. **TIMBER HARVESTING**

- Development and optimization of timber harvesting models for thinning and final harvest of small scales forest plantations.

. **INDUSTRY**

- Diagnostic of the primary and secondary processing industry for small diameter trees.
- Industrialization techniques and products development for small diameter logs, based on different production plants scale.
- Ergonomic and operational analysis of current production plants.
- Design and development of feeding and burning system for wood drying processes.
- Development of artificial and natural-artificial wood drying and preservation systems.
- Evaluation of current techniques for the manufacture of products based on industrial residues or lower quality wood.

. **PRODUCTS DESIGN**

- Development of new products manufactured with wood obtained from small diameter trees.
- Development of rules and quality standards for forest products.

. **MARKETING OF FOREST PRODUCTS**

- Diagnostic of current ways to market forest plantations products.
- Analysis and quantification of timber marketing distortions in Costa Rica.
- Development of a marketing strategy for products from small scale forest plantations in Costa Rica.

. **FOREST INDUSTRY INTEGRATION**

- Development and validation of administrative models for the consolidation of production systems based on the concept of forest-industry integration.

PROJECTS TO BE DEVELOPED JOINTLY BETWEEN THE INSTITUTO TECNOLÓGICO DE COSTA RICA AND THE UNIVERSIDAD NACIONAL

- . Forestry research and development in Costa Rica: natural forest management, forest plantations management, and training.

BIOTECHNOLOGY RESEARCH CENTRE

- . Germoplasm bank in vitro to conservation *Sechium* spp and *Pachyrizus* spp (Jícama) and native tree species.
- . Determination of metabolites secondaries with plant biological activity , to use as Biocides, soaps.
- . Germoplasm bank in vitro of native tree species.
- . Reproductive biology studies of native tree species.
- . Establishment in vitro of commercial and plants medicinal species.
- . Genetic engineering to improvement the nutritive quality of the potato.
- . Determination of the genetic variability by electrophoresis technics in crops and tree poblations.
- . Microencapsulation of fertilizers.
- . Utilization of Microencapsulation for water treatment.
- . Protection of plant cells using Microencapsulation.
- . Diffusion control of natural insecticides by using Microencapsulation.
- . Natural products protection by means of Microencapsulation.

PROJECTS TO BE DEVELOPED JOINTLY BETWEEN THE INSTITUTO TECNOLÓGICO DE COSTA RICA AND THE UNIVERSIDAD NACIONAL

- . Biotechnology applied to characterization and conservation of *Sechium* species.
- . In vitro propagation of native tree species.
- . Establishment of germoplasm bank to vanilla.

Pollution: Management of waster and other toxic products

Characterization and establishment germoplasm bank of the genus *Sechium*.

CHEMISTRY

- . Air deterioration in urban areas.
- . Air quality monitoring in/industrial areas.
- . Control and prevention of chemicals in working areas.
- . Quality monitoring of vegetables irrigated with polluted waters.
- . River water treatment for irrigation purposes.
- . Development of a bio-pesticide based on NEEM.
- . Fate of pollution in ground-waters and surface waters in places closed to dumps and land fills.
- . Segregation of recyclable things in industries, commerce and offices.

PROJECTS TO BE DEVELOPED JOINTLY BETWEEN THE INSTITUTO TECNOLÓGICO DE COSTA RICA AND THE UNIVERSIDAD NACIONAL

- . Waste management with a disposal site operated manually.
- . Landfill for the urban area of Cartago.
- . Environmental education for the "No waste culture".
- . Small enterprises of waste management for nival areas.

- . Usage of agro-industrial waste.
- . Reduction and minimization of industrial waste in Industrial Parks.

METALLURGY

- . Pilot plants for the process of industrial scrap.
- . Environmental control using nuclear technique.

Energy

INFORMATICS APPLIED TO INDUSTRY

- . Reasonable use of energy and industrial automatization: Development of an Appropriate Technology Transfer Centre.

Industry

OCCUPATIONAL HEALTH AND SAFETY

- . Impact of the hazardous chemical materials used in Costa Rica in the industry and agriculture over workers and environment.
- . Information network related to work and health conditions.
- . Research and proposal for improving work conditions in the small/middle size industry in occupational health and safety.
- . To take advantage of ITCR's existing facilities to develop a network of laboratories in order to conduct technical and analytical assessments and specific tests to equipment for worker protection.

URBANISE AND POBLATION: Basic services and urban organization

HOUSING AND CONSTRUCTION RESEARCH CENTRE

WASTE AND WASTE WATER TREATMENT, WATER SUPPLY SYSTEMS

- . Diagnostic and evaluation of waste-water treatment systems in residential developments in Costa Rica.
- . Design, construction and adaptation of systems to reuse and recycle solid waste and liquids from treatment plants.
- . Design and Construction of biologic filters to be integrated to treatment systems in both solid and liquid phases, using non- traditional materials.
- . Natural Costa Rican materials apply to treatment process: water and waster water (examples: activated carbon, local fibres, etc).
- . Technology transference on water and waste water treatment schemes.
- . Rational use of the resources within the housing- unit: use of space, water saving and conservation, waste- water treatment and disposal. Treatment, recycling disposal of solid and liquid wastes.

HUMAN SETTLEMENTS AND HOUSE DESIGN

- . Improvement process of popular settlements in slum and squatter areas under consideration of criteria such as sustainable development. Identify of major problems, evaluation parameters and directives to formulate appropriate solutions.
- . Monitoring sustainability of the urban environment.
- . Sustainability problems in popular settlements and appropriate technologies available: an inventory - periodical dissemination.
- . Changing from emergency situations to a recovery of the art to inhabit.
- . Ecological housing publication.
- . To carry on a contest about "Ecological urbanization" and to publish the results.

- . A manual for transit areas with emphasis in ecological aspects.
- . Comparative revision of the dutch and Costa Rican urban legislation in terms of sustainability. Proposals for the respective governments.

BUILDING PHYSICS PLANNING

- . Assessment of the problems related to the type-design of social housing used in the country, from the point of view of sustainability.
- . To carry on a process of systematization of the house design under consideration of its location, position in the lot, orientation, immediate environment and the rational use of the available resources.
- . Proposal of type-design that allow for flexibility and growth according to the future needs of the families.
- . Design guide for the different climatic zones of the country as a way to take advantage of the environment in order to crate a comfortable internal climate.
- . Recommendation of suitable volume and spaces (relation between with length and height) according to the external climate, direction, and position within the lot.
- . Passive solar energy utilization, sun exposure, illumination and natural ventilation as a way to rationalize the use of resources.
- . Built space relation - open space within the lot from the ecological point of view.
- . A proposal for the development of units of several houses that create a basic ecological centre for better and rationalize the resource handling.
- . Development and use of building waste materials, recycled materials and others, that have a minimum impact on the environment during their production process, installation and use.
- . Utilization of Agriculture Residues for the Making of Soft and Hardboards.
- . The proposal of housing solutions that better adjusts to irregular topographies and landscapes in order to avoid negative impacts on the environment.

MODULAR COORDINATION

- . The study and proposal of vertical solutions for (2-3 floors) for social housing to optimize the use of the available land, and that satisfy the cultural behaviour of the users.
- . Dissemination and publication of the general principles of modular coordination approach in order to create consciousness of its benefits, resources and in terms of better use or the possibilities to reuse components in construction.
- . To integrate groups of interests for the definition of policies and guide lines (professionals, producers and researchers) for the most economical and ecological use of building materials and components.
- . Preparation of a training package aimed to professionals, producers and potential users of the modular coordination, within a sustainability approach.
- . A diagnostic on the dimensions of the building systems used in Costa Rica in order to determine the ones that allow for an optimal use of resources modular coordination standards in Costa Rica.
- . Elaboration of the technical standards for modular coordination in Costa Rica.

Elements within all sectors: Research, Adaptation and Technology Transfer

COMPUTER SCIENCES RESEARCH CENTRE

- . Development of Geographic information systems about natural resources.
- . Development of Multimedia systems as a education and promotional tool in the sustainable development process.
- . Development of Expert systems to support the sustainable development process.
- . Development of Agricultural Information systems.
- . Simulation of agro-ecology systems.

- . Simulation of development projects in order to establish its social-economical-environmental impact.

TECHNICAL INFORMATION CENTRE

- . Edition and distribution of Technical publications called: Serie Informativa Tecnología Apropiada y Serie Transferencia de Tecnología (Appropriate Technology Technical Series and Technology Transfer Series).
- . Patents of Invention: Training of Technical examiners and patent's information use.
- . Information and educational programs about the sustainable development for different Social Sectors of Costa Rica.

PROJECTS TO BE DEVELOPED JOINTLY BETWEEN THE INSTITUTO TECNOLÓGICO DE COSTA RICA AND THE UNIVERSIDAD NACIONAL

- . Bibliographic data base on sustainable development from remote access for the Central American region.
- . Forestry and natural resources information for the Central American region.

3. Universidad Nacional

SPECIFIC PROPOSALS OF THE UNIVERSIDAD NACIONAL FOR THE AGREEMENT COSTA RICA-HOLLAND

Agricultural Field

Areas included:

1. Management of sustainable silvi-pastoral systems
2. Rural developmnet and sustainable agriculture.
3. Veterinary medicine
4. Application of information systems

MANAGEMENT OF SUSTAINABLE SILVI-PASTORAL SYSTEMS

- . Parameter determination biological, economical and social sustainability in agricultural-forestry systems of goat production.
- . Management project of sustainable silvo-pastoral systems. School of Veterinary Medicine.

RURAL DEVELOPMENT AND SUSTAINABLE AGRICULTURE

- . Management of agricultural-forestry livestock systems (INISEFOR. FCTYM)
- . The Central American agricultural industry in the presence of the imperfection and the competition of the international market
- . Sustainable development. State and non-governmental politics regarding the restoring of hydrographic basins, the rescue of native flora and fauna and the improvement of farms. Regional Masters Degree in Rural Development. (FCTM).
- . Technological Politics. Reality and perspectives at small production levels. Regional Masters Degree in Rural Development. (FCTM).
- . Training of promotors for the managment of local development. Regional Masters Degree in Rural Development. (FCTM).

- . Center for Sustainable Agriculture:
- . Center for the enabling in sustainable agriculture. (School of Agricultural Sciences. FCTM).
- . Development of natural products in the control of pests. (Department of Chemistry. FCEN).
- . Enabling and counseling for small producers of the Brunca Region. (Brunca Region See).
- . Regional Subprogram of sustainable development in the light of the Sustainable Development Program in the tropical dry area. (Chorotega Region See).
- . Forestry enabling to organized farmer groups. (INISEFOR).

Projects to develop in conjunction with the Instituto Tecnológico de Costa Rica

- . Applied Biotechnology to the conservation and characterization of germoplasm of the species of the Sechium.
- . The Establishment of a germoplasma bank for vanilla (Vanilla fragne)

Projects to develop with the Center for the enabling for development (CECADE)

- . Impact of the structure of the ownership of land in Sustainable Development: actual situation and future strategies for Costa Rica.
- . Legal frame, politics and strategy of a territorial order for Sustainable Development.

VETERINARY MEDICINE, TROPICAL SICKNESSES, MANAGEMENT OF LIVESTOCK SYSTEMS

- . Third program of Post-graduate in Biomedical Sciences (School of Veterinary Medicine)

APPLICATION OF INFORMATION SYSTEMS

Geodesia and application of systems of geographical information

- . Evaluation of the potential danger of natural disasters of endógeno origin for Costa Rica using a system of geographical information (OVSICORI-FCTM).
- . Regional Institute of Systems of Geographical Information (IRESIG)
- . Regional Geodesic Institute: Geodesy, planning and development. (School of Topography, cadaster and geodesy. FCEN).
- . Evaluation and monitoring of the contribution of biodiversity to sustainable development of the forest areas in Central America using tele-detection and systems of geographical information (Masters Degree in Wild Life). (FCTM).

Natural Resources- Conservation and Management: Forest Resources, Hydroresource, Marine Coast Resources, Biodiversity, Environmental Impact and Others

Areas included:

1. Management of the tropical forest and a study of the biodiversity
2. Ecology and development
3. Environmental studies
4. Climate studies
5. Hydro resources and hydrographic resources
6. Management of coastal resources
7. Environmental and rural education
8. Prevention and mitigation of natural disasters.

TROPICAL FOREST MANAGEMENT AND STUDY OF BIODIVERSITY

- . Investigation center and sustainable development in the highlands of Costa Rica. (ECOMA-EDECA Program).
- . Masters Degree Program in Sustainable Development of Forestry Resources. (EDECA).
- . Investigation and Forestry Development for Costa Rica. (Project planned in conjunction with the Technological Institute of Costa Rica).

- . Dynamics and management of the tropical humid forest. (INISEFOR. FCTM).
- . Biodiversity evaluation in the management of the low forest. (INISEFOR. FCTM).
- . Evaluation of residue use in the main cut in natural tropical forests. (INISEFOR. FCTM).
- . Use of organic fertilizers with greenhouses and forestry plantations. (INISEFOR).
- . Agro-forestry projects in Guanacaste. (INISEFOR).
- . Production of clonal material through in vitro solutions of native forestry species. (Exposed in conjunction with the Technological Institute of Costa Rica).
- . Management program of natural tropical continental resources. (School of Biological Sciences):
 - Ecological evaluation and of the alternatives for the use of the system of humidities; the National Reserve of Vida Silvestre Caño Negro and of the National Park Palo Verde.
 - Natural product development in the plague control.
 - Program of Managing Study of the biodiversity. (Masters Degree in Nature Life).
 - Regional Center of investigation and extension in the productive use of native species. (FCS).

MATHEMATICS APPLIED TO BIODIVERSITY

- . Computing focusing in dynamics of populations and epidemiology.

ECOLOGY AND DEVELOPMENT

- . Mesoamerican Degree with emphasis in Environment and Development and in Ethno-sociology. (See, Region Chorotega).
- . Program about Ecology and Development. (Masters Degree in Nature Life).

ENVIRONMENTAL STUDIES

- . Environmental study in the development of a model banana plantation (preliminar conversations with Chemelinko and Agroeco in Utrech-Holland). (Plague Program. School of Environmental Sciences. FCTM).
- . Environmental study of estuaries and coastal zones. (Oceanography Center and Coastal management. FCEN).

CLIMATIC CHANGE

(Faculty of Exact and Natural Sciences)

- . Sea level and the superficial temperature of water as variables of climatic control.
- . Analysis of the radiation bands UVA and UVE in relation to the UV global.
- . Evaluation of the vulnerability of the coastal zones in the Nicoya Gulf before an eventual increase in the medium level of the sea.
- . Monitoring of the thermic structure from Cabo Blanco-Isla del Coco.

MANAGEMENT OF HYDRIC RESOURCES AND HYDROGRAPHICAL BASINS

- . Evaluation of the impact of agricultural and industrial activities over the hybrid resource in the Central Valley (Evaluation Laboratory in Environment and Management of Natural Resources (LAREN). School of Biological Sciences. FCE and Natural).
- . Saving of the Río Terraba's basin. (See, Brunca Region).

MANAGEMENT OF COASTAL, MARINE AND WATER RESOURCES

Integral Center for the sustainable development of the coastal resources. (FCEN).

Oceanography Center and Coastal Management

- . Sustainable Tuna Fishing, dolphin safe.
- . Fishing Center and Acquaculture. (FCEN).
- . Laboratory of Marine Investigations. (LIM).

ENVIRONMENTAL AND RURAL EDUCATION

- . Center of Environmental Education for the Sustainable Development. (FCEN).
- . Regional Program of Masters Degree in Environmental Education. (EDECA).

PREVENTION AND MITIGATION OF NATURAL DESASTERS

- . Sismologic wide band station for Costa Rica (Vulcanologic and Sismologic Observatory in Costa Rica-OVSICORI).
- . The volcanic eruptions of ashes and fumarolic activities as conditions for the sustainable development in volcanic areas.
- . Geodesy applied to the study of the geodynamic processes in Costa Rica.
- . Tectonics regional model and sismic potential in Costa Rica.
- . Evaluation of the potential danger of natural disasters of endogen origin for Costa Rica, using a geographical information system.
- . Vigilance and predictions of the active volcano activities in Costa Rica.
- . Sustainable Development, poverty and natural disasters. (Geography School).
- . The regional Institute of Geogrspfic Information Systems (IRESIG) (Geographic Sciences School).

Pollution; Production Mamagement of Disposals and Subproducts

- . Agroindustry and disposals management of the banana. (CINAT-FCTM).

Center of Environmental Studies and Disposal Management.

Projects to develop in conjunction with the Instituto Tecnológico de Costa Rica

- . Proposal management of two communities in the cities of Heredia and Cartago, with the final disposition in a sanitary disposal center manually operated.
- . Stablishment of a sanitary disposal center for the city of Cartago and Heredia.
- . Environmental education for the culture of "no disposal".
- . Usage of agro-industrial disposals.
- . Micro companies of manual recollection, transport and final disposition of solid domestic wastes.
- . Minimization and lowering of industrial wastes in the Industrial Park of Cartago.

Energy

Alternative sources of energy

Alternative and renewable sources of energy. (Faculty of Exact and Natural Sciences).

- . Housing/ Ecological Laboratory
- . Solar installments for tourism, ecotourism, health, recreational zone and esthetics.
- . Solar industrial plant for coffee processing.

Energetic sources in the economical development of Costa Rica and Masters Degree in Political Economy. FCS.

Projects to develop in conjunction with the Instituto Tecnológico de Costa Rica

- . Bibliographic base of remote access for the sustainable development at a Central American Level.
- . Forestry information and of natural resources for the Central American Region.

Urbanism and Population: Basic Services and Urban Organizing

- . Urban and environmental planification and Natural Resources Management. Construction materials, actual and future situation. (Geographical Science School).
- . Land market, real state and soil values in the metropolitan agglomeration and central region of Costa Rica. 1994-1998. (Geographical Science School).

Tourism

TOURISM AND ECOTOURISM

- . Ecotourism perspectives in the economical social development of Costa Rica. (Planified with the IVO). (Masters Degree in Politics and Economics).
- . MASTERS DEGREE IN INTERNATIONAL RELATIONSHIPS AND DIPLOMACY, with emphasis in environment and development, emphasizing ecotourism.
- . Rural program for the sustainable development of the Dry Tropics (See, Chorotega Region).
- . Contributions of the popular culture for the integral development of tourism.

CULTURAL AND ARTISTICAL DEVELOPMENT

(See, Chorotega Region)

- . Infrastructure analysis of the social-cultural and turistic resources of the Chorotega Region.
- . Contribution of the popular culture for the integral development of tourism.
- . Historic Cultural Mesoamerican Museum of the Dry Tropic.
- . Masters Degree in Museums Studies with major in:
 - Environment
 - Environment and culture

Transectorial Elements

EDUCATION

- . Environmental and rural education. (CIDE).

HEALTH

- . Sports, health and recreation.
 - Central American Institute of Sports Medicine (ICEMEDE) (Sports Medicine School).

WOMAN AND DEVELOPMENT

- . Fishing Center and Acquaculture (Faculty of Exact and Natural Sciences): Fishing Area.
 - Economic import of artisanal and industrial fishing in woman and family.
 - Women training in production of forestry ornamental plants for the Central Depression of Costa Rica and at a Central American level. (INSEFOR).
 - Sustainable development in the Dry Tropic (See Chorotega Region).
 - Woman, formation and community training.

POLITICS INTEGRATION

- . Social impact of the Structural Adjustment. Costa Rica, Honduras and Dominican Republic. (Presented to IVO). (Masters Degree in Economical Politics). (FCS).
- . Agrary politics for the sustainable use of the land and feeding security. A study in the case of the Atlantic coast of Costa Rica. (Planified with the University of Wagenigen). (Masters Degree in Economical Politics-FCS).
- . Non traditional exportations and Environment. (Planified with Tilburg University). (Masters Degree in Economical Politics-FCS).
- . Masters Degree in International Relationships and Diplomacy, with emphasis in environment and development and emphasizing ecotourism.
- . Social impact of the Structural Adjustment. Costa Rica, Honduras and Dominican Republic. (Presented to IVO). (Masters Degree in Economical Politics-FCS).

- . Agrary politics for the sustainable use of the land and feeding security. A study in the case of the Atlantic coast of Costa Rica. (Planified with the University of Wagenigen). (Masters Degree in Economical Politics-FCS).
- . Non traditional exportations and Environment. (Planified with Tillburg University).
- . Masters degree in Social History Applied, emphasis in History, Agrary. School of History.
- . Planification and management Program of development politics. (School of History. Faculty of Social Sciences).

4. Universidad Estatal a Distancia

PROPOSED PROJECTS BY THE UNIVERSIDAD ESTATAL A DISTANCIA,
TO BE DEVELOPED UNDER THE HOLLAND-COSTA RICA
AGREEMENT FOR THE SUSTAINABILITY OF NATURAL RESOURCES

Academic projects

- . A program leading to a Bachelor's degree in Touristic Entrepreneurship
- . A program on Protection and Management of Natural Resources
- . National strengthening and Central American projection of the Master's degree program in Agricultural Extension
- . Child Education with emphasis on sustainable development
- . Child and Juvenile Education on the Preservation of the Environment
- . Licenciature in Teaching (an intermediate degree between Bachelor's and Master's degree) with emphasis on sustainable development

Extension Projects

- . Strengthening of the information system on options concerning the unilateral use of pesticides in Costa Rica
- . Dissemination of topics proposed by the agreement Costa Rica-Holland through the Revista de Educación Ambiental (Magazine of Environmental Education) "Biocenosis"
- . Community extension for the sustainable development of the San Marcos de Tarrazú county
- . Strengthening of the Environmental Documentation and Information Center (CEDIA)
- . Community Environmental Extension hotline
- . Audiovisual production: "Alternatives for Life"

- . Central American program for the reconciliation of communities with their ecosystem
- . Training program project on agroindustry in the area of utilization of land-cattle products for local consumption and for exportation

Research Projects

- . Effects of chitin on the cholesterol content of hen eggs
- . Minimal agricultural effort and multiple crops to increase biodiversity and diminish pollution
- . Expert systems, mathematical and simulation models for the study of the degradation, contamination and conservation of soils.
- . Public state universities and the Structural Adjustment in Costa Rica "Critical Analysis and Proposal"

Research and extension programs

- . Rabbit breeding and the production of organic fertilizer
- . Agroecological program the "Food Valley" which includes an information center on land and cattle