

Modelos de Gestión del Conocimiento y de la Investigación Científica

Foro Internacional sobre Modelos de Gestión de la Investigación
Científica para la Educación Superior y Primer Encuentro Internacional
en América Latina de las redes AUIP, RECLA Y RUEPEP

Manta, Ecuador, 24 al 26 de abril de 2013



Escuela Superior Politécnica del Litoral

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Rector

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Algo de historia:

- ▶ La ESPOLO fue creada mediante Decreto Ejecutivo 1664 el 29 de octubre de 1958.
- ▶ Los fines de la ESPOLO al momento de su creación fueron:
 1. **Docencia superior en ciencias naturales, físicas, químicas y matemáticas**
 2. La investigación científica de los fenómenos y recursos naturales de la región litoral, inclusive el mar territorial



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- ▶ Programa de becas ESPOLE – LASPAU (Academic and Professional Programs for the Americas): “Ven Aprende y Regresa a Enseñar”.
 - ▶ A comienzos de los años 70, la ESPOLE definió el concepto de profesor a tiempo completo (40 h.) como su elemento principal.
 - ▶ A mediados de los años 70, ESPOLE ya tenía el cuerpo docente más joven y académicamente más homogéneo del país, el 85% de profesores laboraban a tiempo completo y contaban con grado de maestría obtenida en el extranjero.



Antecedentes en la gestión del Conocimiento y de la Investigación

- ▶ Creación del Centro de Investigación Científica y Tecnológica (CICYT) en 1983 conjuntamente con el Consejo de Investigación con el fin de: administrar y promocionar la investigación en ESPOL.
- ▶ Consejo Nacional de Escuelas y Universidades Politécnicas (CONUEP) convoca a presentar proyectos de investigación. ESPOL obtuvo financiamiento a 62 proyectos desde 1984 hasta 1996. (Otras iniciativas: RIBEN, Programa de Modernización de los Servicios Agropecuarios - PROMSA)
- ▶ Revistas de difusión interna: Investigación & Desarrollo y RTE



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- ▶ Para 1990, se inauguran las instalaciones del Centro Nacional de Acuicultura e Investigaciones Marinas (CENAIM). Primer Centro de Investigación en ESPOL como resultado de la Cooperación recibida por la Agencia de Cooperación Internacional del Japón (JICA)
 - ▶ A través de CENAIM, la ESPOL construyó relaciones de cooperación con la Universidad Libre de Bruselas, la Universidad de Gent, la Universidad de Lovaina, la Agencia de General de Cooperación al Desarrollo (AGCD) del Gobierno de Bélgica. En diciembre de 1998, se dio inicio a un Programa Internacional de Maestría en Acuicultura coordinado por estos actores.



Plan de Desarrollo Estratégico de ESPOL 1998-2002:

- ▶ Estrategias de cooperación definidas:
 - ▶ “Fortalecer las relaciones con universidades de Europa y del Pacífico
 - ▶ “Presencia significativa en entidades internacionales y redes de universidades”
 - ▶ “Promover los programas de intercambio”





SHARING MINDS, CHANGING LIVES

Programa de Cooperación VLIR-ESPOL

- ▶ Las universidades flamencas, a través su Consejo Nacional (Vlaamse Interuniversitaire Raad, VLIR) opera un programa de cooperación (Institutional University Cooperation – IUC) con universidades seleccionadas en países en vías de desarrollo. Países seleccionados por el gobierno belga.



Para 1998, la ESPOL comenzó su proceso de aplicación a este programa.



Programa de Cooperación VLIR-ESPOL

Primera Fase 1999 – 2003

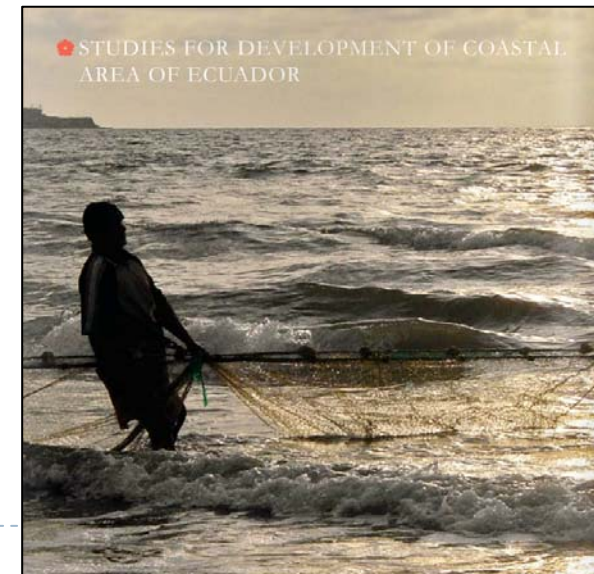
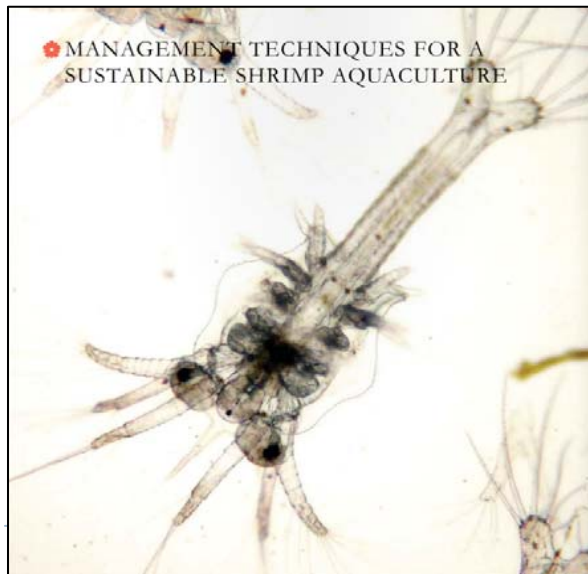
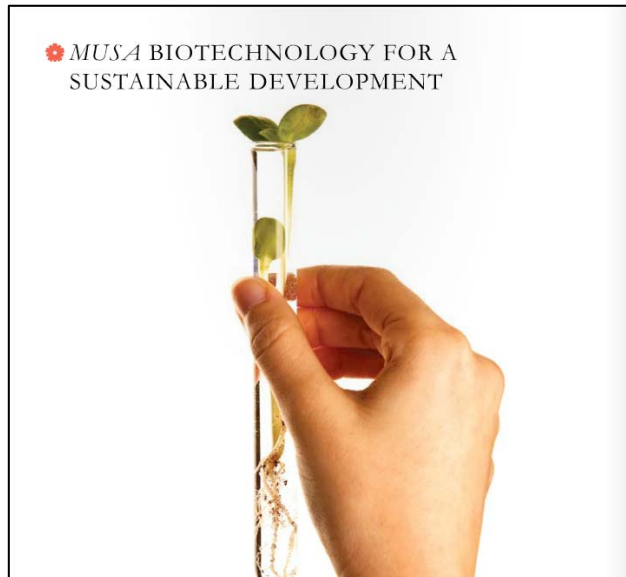
- ▶ Financiamiento externo (Aporte VLIR) de €3'012.191
- ▶ Financiamiento interno (Aporte ESPOL) de US\$878.233

- ▶ El objetivo general fue el de **implantar un programa modelo** que permitiera mejorar la excelencia académica de ESPOL mediante el desarrollo de una Investigación Sustentable que cumpla dos premisas básicas:
 1. Que sirva para resolver problemas en áreas vitales del Ecuador, y
 2. Que pueda ser transferida rápidamente a los sectores productivos.



El Programa se dividió en seis proyectos:

1. Fortalecimiento de la Capacidad de Investigación de la ESPOL
2. Nuevas Tecnologías para la educación en Ingeniería y Ciencias Ambientales
3. Mussa Agro-Biotecnología para un Desarrollo Sustentable
4. Manejo Integrado en Sistemas Ambientales en Agricultura y Acuicultura
5. Nuevas Técnicas de Manejo para una acuicultura sostenible
6. Estudios para el desarrollo de la Zona Costera del Ecuador



Programa de Cooperación VLIR-ESPOL

Segunda Fase 2003 – 2008

- ▶ Luego de un proceso de evaluación (Midterm evaluation), en abril del 2003 comenzó la segunda fase del Programa VLIR-ESPOL
- ▶ Financiamiento externo (Aporte VLIR) de €3´802.498
- ▶ Financiamiento interno (Aporte ESPOL) de US\$1´150.990



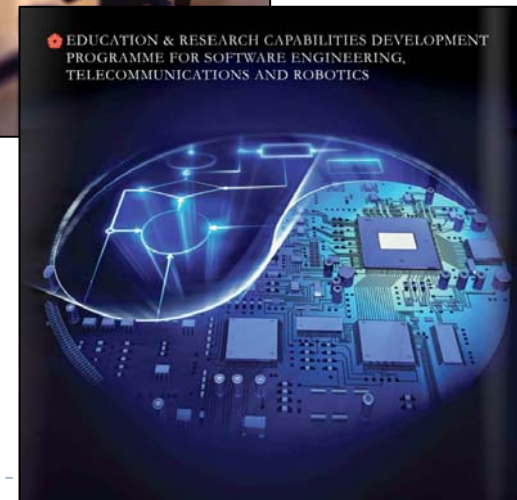
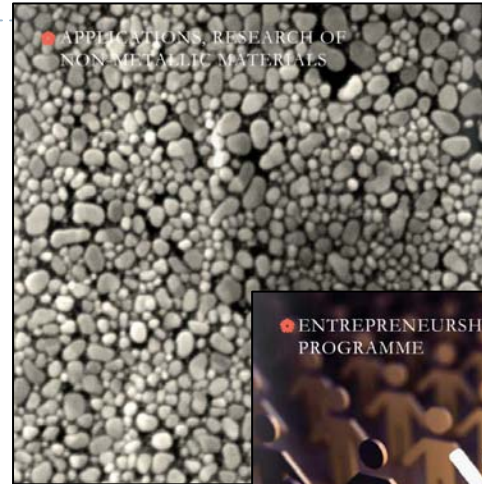
El Programa comprendió los 5 proyectos de la fase anterior:

1. Fortalecimiento de la Capacidad de Investigación de la ESPOLO.
2. Innovación de la educación a través del uso de la Tecnologías.
3. Herramientas para una producción de bananas, amigable con el ambiente, en Ecuador.
4. Sistema de Manejo Ambiental en Agricultura y Acuicultura.
5. Técnicas de Manejo para una Acuicultura sostenible.



Y 3 nuevos proyectos se incluyeron:

- ▶ Programa de investigación en Materiales.
- ▶ Programa de Desarrollo de Emprendedores.
- ▶ Desarrollo de la Capacidad de Educación e Investigación para Ingeniería de Software, Telecomunicaciones y Robótica.

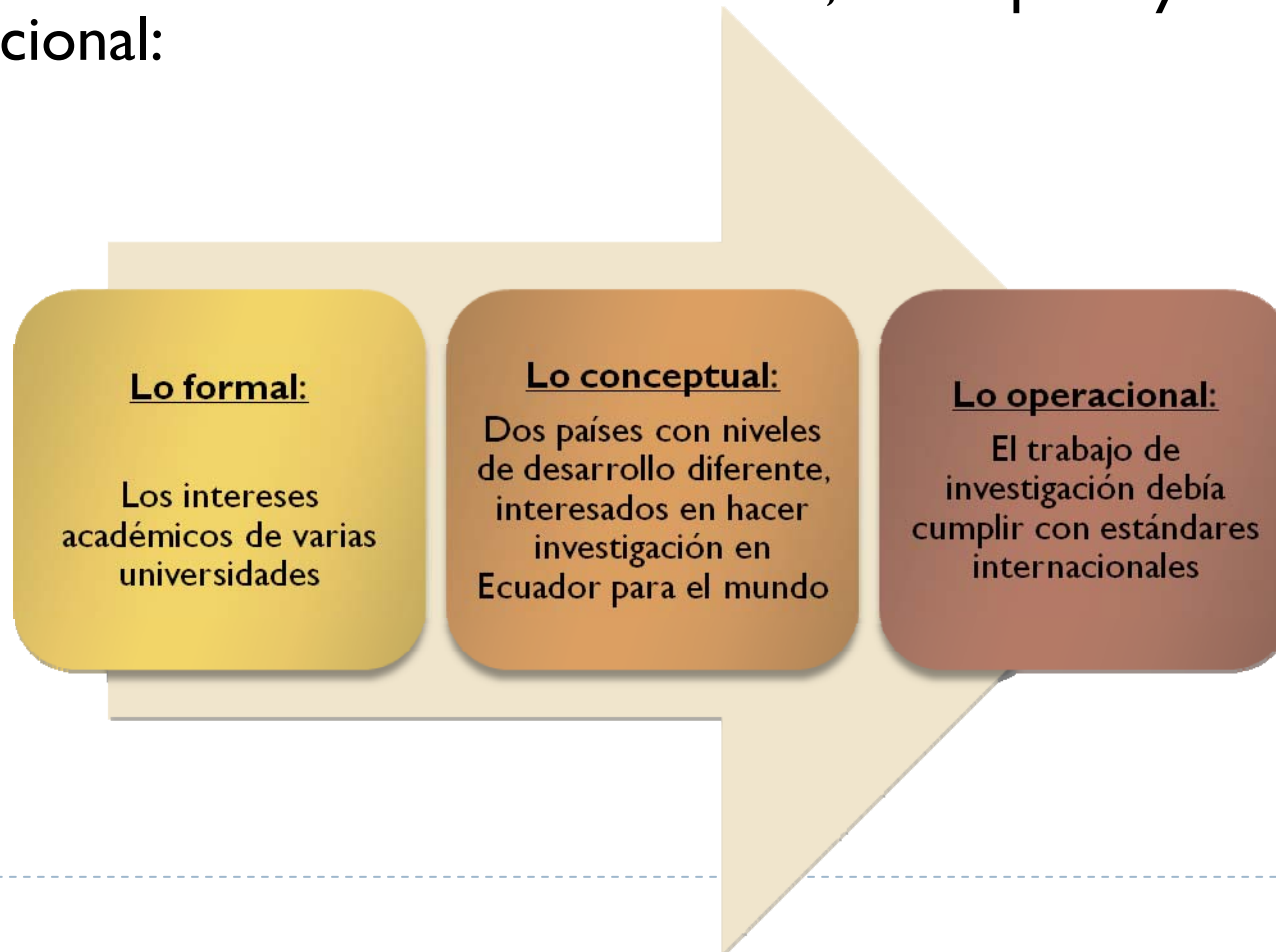


Programa de Cooperación VLIR-ESPOL: El modelo

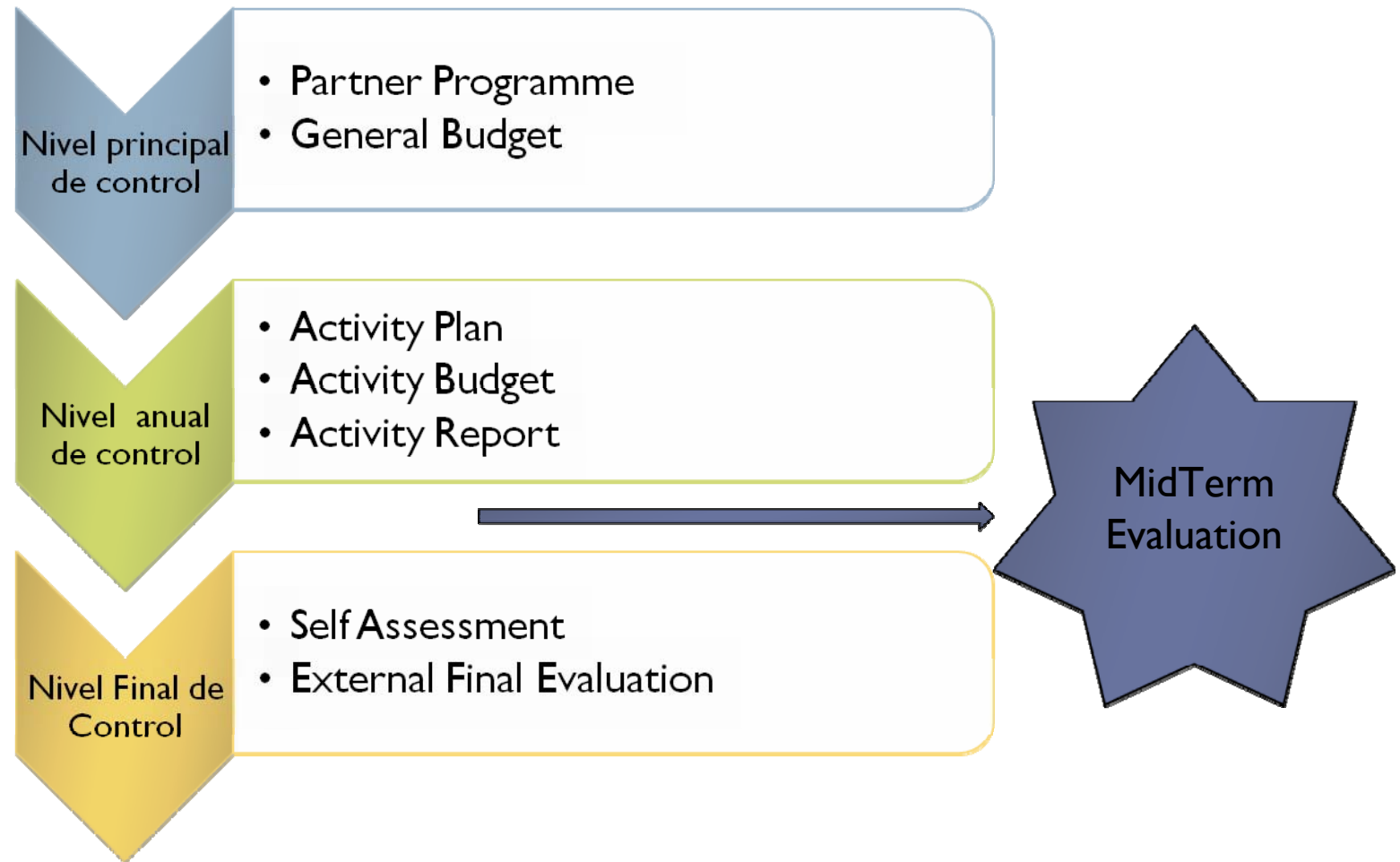


Programa de Cooperación VLIR-ESPOL

- ▶ La metodología para las relaciones entre pares fueron desarrolladas de tres maneras: formal, conceptual y operacional:



Programa de Cooperación VLIR-ESPOL





Nivel principal
de control

- **Partner Programme**
- **General Budget Plan**





VLAAMSE INTERUNIVERSITAIRE RAAD
(VLIR)
FLEMISH INTERUNIVERSITY COUNCIL

**Programme for
Institutional University Co-operation (IUC)**

**IUC PARTNER PROGRAMME (PP)
for IUC partnerships entering Phase II of IUC co-operation**

Final version - June 2002

CONTENTS

- 0. Introduction to the format
- I. The country
- II. The partner university
- III. The overall IUC Phase II Partner Programme
- IV. The sustainability of the results of the IUC co-operation at programme level at present and in future
- V. The general set-up and the management of the IUC Phase II Partner Programme
- VI. The co-operation in the context of the IUC Phase II Partner Programme
- VII. The IUC Phase II Partner Programme by project

ANNEXES TO THE PROPOSED PHASE II PARTNER PROGRAMME

PARTNER PROGRAMME:

- I. The country
- II. The partner university
- III. The overall IUC Phase Partner Programme
- IV. The sustainability of the results of the IUC co-operation at programme level at present and in future
- V. The general set-up and the management of the IUC Partner Programme
- VI. The co-operation in the context of the IUC Partner Programme
- VII. The IUC Partner Programme by project



Annex AP - PROJ "3" – 1: LOGICAL FRAMEWORK MATRIX

PROJECT DESCRIPTION INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS (OVIs)	SOURCES OF VERIFICATION (SOV)	ASSUMPTIONS
<u>Overall objectives</u> <ul style="list-style-type: none"> Biotechnology capacity created for sustainable, environmental and social development for Ecuador 		Total fund for CIBE leading a biotechnology network.	State policy Private sector support International support
<u>Specific objectives</u> <ul style="list-style-type: none"> Nationally recognized and internationally operating research and training center functioning 	<ul style="list-style-type: none"> CIBE institutionalized in ESPOL and integrated in INIBAP MusaLAC network PhD graduates recruited as professional staff of ESPOL High yielding stress tolerant bananas and plantains available and cultivated 	Foundation, publications Staff directory Newspaper, registration in process	Organic Agriculture Market increases. A gene market is created for Ecuador ESPOL TECHPARK is created.
<u>Results</u> <ul style="list-style-type: none"> Local gene bank developed and new varieties tested Local <i>Mycosphaerella</i> isolates collected and characterized for use in bioassays and multisite germplasm evaluation Embryogenic tissue and cell cultures established, conserved and used Plant defence proteins identified and diagnostic tools developed for detection of the fungal pathogen Molecular tools developed for the identification and manipulation of genes involved in plant defence mechanisms Sustainable and viable curriculum developed 	Germplasm collection of 40 genotypes, 6 testing sites <i>In vitro</i> collection of 60 fungal isolates, aggressive pathotypes identified, screening <i>in situ</i> and <i>in vitro</i> Cell and tissue cultures of dessert and wild bananas Diagnostic kit for <i>Mycosphaerella</i> cDNA, sequences, plasmids, transgenic plants MSc and specialization students at graduate and postgraduate level	ITC records, local database Local database, publications ITC records, publications Publication Publications Registration documents	Banana is an important crop for Ecuador. Farmers are adopting the network recommendations Transferred results show that Sigatoka can be controlled.
<u>Activities</u> <ul style="list-style-type: none"> Introduction of plants (mutants) obtained by different genetic manipulations Maintenance and characterization of gene bank Selection of farmers-collaborators at different edaphoclimatic sites 	<u>Means</u> <ul style="list-style-type: none"> Import licence Two technicians, image collection, database Personal contacts and collaborations, soil and climatic data 	<u>Costs</u> <ul style="list-style-type: none"> \$1500 \$1470 \$3130 	<u>Pre-conditions</u> CIBE recognized by ESPOL and funds delivered. Banana Private Sector creates the foundation CIBE supported by MAG as a reference lab for banana.
""	""	""	""

GENERAL BUDGET PLAN

Activity Programme Budget for Planning						
Budgetlines	Act. 1	Act. 2	Act. 3	Act. 4	Act. ...	TOTAL
A. Investment costs						
A.1. Buildings						
A.2. Equipment						
A.3. Vehicles						
A.4. Office furniture						
A.5. Others						
B. Operational costs						
B.2. Maintenance of equipment						
B.3. Consumer goods						
B.4. Communication						
B.5. Representation costs						
B.6. Travel costs in Belgium and locally						
B.7. Congress registrations						
B.8. Local per diem						
B.9. International travel costs						
B.10. International overnight expenses						
B.11. Shipment costs						
B.12. Others						
C. Personnel costs (max. 25% of the total budget)						
C.1. Service contracts						
C.2. Employment contracts						
D. Scholarship costs						
D.1. Short term allowances in Belgium						
D.2. Study scholarships (e.g. Master) in Belgium						
D.3. PhD scholarships in Belgium						
D.4. Study scholarships (e.g. Master) in partner country						
D.5. PhD scholarships in partner country						
Total						

Nivel anual de control

- Activity Plan
- Activity Budget
- Activity Report



Activity Plan (Marco Lógico actualizado cada año)

Annex AP 2004- PROJ "3" – 1: LOGICAL FRAMEWORK MATRIX

PROJECT DESCRIPTION INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS (OVIs)	SOURCES OF VERIFICATION (SOV)	ASSUMPTIONS
<u>Overall objectives</u> <ul style="list-style-type: none"> Biotechnology capacity created for sustainable, environmental and social development for Ecuadorian agriculture 		Donation fund for CIBE leading a biotechnology network	State policy Private sector support International support
<u>Specific objectives</u> <ul style="list-style-type: none"> Nationally recognized and internationally operating research and training center functioning 	<ul style="list-style-type: none"> CIBE institutionalized in ESPOL and integrated in INIBAP Musolac network PhD graduates recruited as professional staff of ESPOL High yielding stress tolerant bananas and plantains available and cultivated 	Foundation, publications Staff directory Newspaper, registration in process	Organic agriculture market increases A gene market is created for Ecuador ESPOL TECHPARK is created
<u>Results</u> <ul style="list-style-type: none"> Local gene bank developed and new varieties tested Local Mycosphaerella isolates collected and characterized for use in bioassays and multisite germplasm evaluation Embryonic tissue and cell cultures established, conserved and used Plant defense proteins identified and diagnostic tools developed for detection of the fungal pathogen Molecular tools developed for the identification and manipulation of genes involved in plant defense mechanisms Nutrition Evaluation of selected clones at different edaphoclimatic sites Sustainable curriculum developed 	<ul style="list-style-type: none"> Germplasm collection of 40 genotypes In vitro collection of 80 fungal isolates, aggressive pathotypes identified, screening in situ and in vitro Cell and tissue cultures of dessert and wild bananas Diagnostic kit for Mycosphaerella cDNA profiling, sequence analysis, plant transformation MSc and specialization students at graduate and postgraduate level 	ITC records, local database Local database, publications ITC records, publications Publication Publications Registration documents	Banana is an important crop for Ecuador Farmers adopt the network recommendations Transferred results show that Sigatoka can be controlled
<u>Activities</u> <ul style="list-style-type: none"> Introduction of plants (mutants) obtained by different genetic manipulations Maintenance and characterization of gene bank 	<u>Means</u> <ul style="list-style-type: none"> Import licence Two technicians, image collection, database Personal contacts and collaborations, soil and climatic data 	<u>Costs</u> €4.010.00	Continuity of ESPOL priority for CIBE Continuity of the support of the Ministry of Agriculture and Banana Private Sector

ANNEX AP - PROG - 2 - ACTIVITY PROGRAMME BUDGET FOR THE YEAR '2004' (in EUR)

	B. Investment costs	C. Operational costs	D. Personnel costs	E. Scholarship costs	F. International travel costs	G. Residential costs	H. Shipping costs	Subtotal - Operational budget (B-H)	K.1. Flemish univ. adm. costs H (5% on B-H)	K.2. Partner univ. admin. costs (max. 5% on B-H)	TOTAL
YEAR 2004											
Project 1	15,700	113,811		11,705	19,400	12,096	500	173,212	8,661	6,928	188,801
Project 2	14,000	17,571	12,480	8,500	1,500			54,051	2,703	2,162	58,916
Project 3	2,980	26,263		47,964	12,011	1,389		90,607	4,530	3,624	98,762
Project 4		44,671		33,693	3,000	8,100		89,464	4,473	3,579	97,516
Project 5	10,000	20,916	6,000	12,000	5,040			53,956	2,698	2,158	58,812
Project 6	13,985	27,558	3,016	22,786	1,102	1,014	882	70,343	3,517	2,814	76,674
Project 7		36,718		24,577	7,500	6,085		74,880	3,744	2,995	81,619
Project 8	18,023	8,399		42,369	2,981	5,201		76,973	3,849	3,079	83,901
TOTAL	74,688	295,908	21,496	203,594	52,534	33,885	1,382	683,486	34,174	27,339	745,000

Activity Report (Cumplimiento de actividades y resultados)

Project output aimed at	Planned activities in view of the output aimed at	Responsible party	Implementation N = not yet implemented If implemented, time of implementation
1. Intermediate Result: Local gene bank developed and new varieties tested		R. Maribona (+) M. Jimenez	
1.1. Gene Bank	1.1.1. Introduction of plants (mutants) obtained by different genetic manipulations		Implemented
	1.1.2.. Maintenance and characterization of gene bank		In progress
1.2. Multisite evaluation	1.2.1. Selection of farmers-collaborators at different edaphoclimatic site		Implemented
	1.2.2. Maintenance, characterization and Multisite evaluation of Mf resistant germplasm collection and mutants		In progress
1.3. Multisite clonal evaluation of resistant genotypes at 6 experimental plots	1.3.1. Multisite clonal evaluation of selected resistant clones for yield, agronomic and harvest traits		In progress
	1.3.2. Supply of selected clones to farmers-collaborators		Implemented
1.4. Extension	1.4.1. Pre-commercial extension of selected clones from germplasm collection		Implemented



MidTerm
Evaluation



Realizada en el año 2002 para comparar los resultados obtenidos por los proyectos durante el periodo 1999-2002 contra los objetivos específicos propuestos: Prof. Frits Wils (Institute of Social Studies – ISS) y Arq. Patrick De Sutter (experto local).



Criteria for qualitative evaluation

Criterion	Indicators
1. Quality	<p>This is the main criterion, being the result of all other criteria.</p> <p><u>Possible indicators of 'quality':</u></p> <ul style="list-style-type: none"> quality of research : the extent to which the results have been incorporated in local or international refereed journals quality of education : the extent to which alumni easily get a job which fits their education profile; the number of fellowships acquired from foundations quality of rendering services to society : the extent to which the university/faculty/department is involved in feasibility studies/consultancies job opportunities strategic vision
2. Effectiveness	the extent to which the specific objectives have been achieved (the level of the results)
3. Efficiency	<p>The relationship between the objectives and the means used to reach the objectives.</p> <p>The degree to which the installed capacity (human/physical/financial) is used; goals/means ratio in human, physical and financial resources</p> <p><u>Possible indicators of 'efficiency':</u></p> <p>At the level of the programme : the extent of flexibility in the programme implementation, e.g. reallocation of resources during implementation</p>



4. Impact

Not just actual but also (given time limitations) potential impact (at level of goals), looking at consultancy, policy advise and accreditation models

Possible indicators of 'impact' :

Impact at the level of the private sector : the amount of money earned on the market

Impact at policy level : the extent to which academics, involved in the IUC programme, are called upon by the government for policy advice

Impact at the level of the own university or other universities :

- renewed curriculum functions as example for other universities/departments

- the new style of teaching has become a model for teaching (e.g. the systematic use of teaching in combination with laboratory work)

5. Development relevance

the extent to which the programme/project addresses immediate and significant problems of the community, looking at the amount of self-finance, demand from state and private actors



	<p>6. Sustainability</p>	<p>Especially financial and institutional sustainability</p> <p><u>Possible indicators of institutional commitment in the South :</u></p> <ul style="list-style-type: none"> co-funding by the partner university (matching funds) incorporation of costs into the budget of the partner university capacity to attract new funds retention of highly qualified staff the partner university sets aside funds for operations and maintenance of physical infrastructure <p><u>Possible indicators of mutual interest :</u></p> <ul style="list-style-type: none"> do the Flemish universities commit their own university funds to the programme, for instance by giving fellowships or by allowing academics to go to the field? are Flemish academics personally committed (e.g. spend their holidays working in the partner university)? are there joint research projects which are interesting both to the Northern and Southern academics involved? do the partner universities also commit their own funds to the programme (matching funds)? is there a good quality follow up plan for implementation after the 10 year period of partnership with earmarked funding? (see self assessment reports) 	
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Indicadores de Resultados

<i>Areas of results</i>	<i>Indicators</i>
1. Human Resource Development	<ul style="list-style-type: none"> ▪ Academic staff development (M.Sc., M.A., Ph.D.) ▪ Technical staff development ▪ Management staff development (numbers and level)
2. Teaching	<ul style="list-style-type: none"> ▪ Number of VLIR-students trained at different levels ▪ Number of courses/training programmes developed per level ▪ Curriculum development ▪ Learning resources ▪ Laboratory based teaching
3. Research	<ul style="list-style-type: none"> ▪ VLIR induced research staff : part-time/full-time ▪ Number of publications (books/chapters/articles): A/B - journals ▪ Number of M.Sc. theses ▪ Number of Ph.D. theses ▪ Contribution to international conferences ▪ Networking with international community ▪ Number of research projects
4. Infrastructure	<ul style="list-style-type: none"> ▪ Physical infrastructure (incl. land) ▪ ICT-equipment ▪ Library equipment (incl. books) ▪ Laboratory equipment ▪ Transport
5. Outreach	<ul style="list-style-type: none"> ▪ Consultancy / contract research ▪ Assignments acquired (number + volume of money) ▪ Social extension ▪ Policy advice
6. Management	<ul style="list-style-type: none"> ▪ New procedures / new skills ▪ Creating new bodies / building new capacity (e.g. capacity for programme management)

Table 1: Scores on result-areas, by component

<u>Component</u>	<u>HRD</u> ¹	<u>Teach</u> ²	<u>Research</u> ³	<u>Infrastruct</u> ⁴	<u>Outreach</u> ⁵	<u>Mngt</u> ⁶
1 (CICYT)	-	-	-	-	4	5
2 (CTI)	4	4	4	5	5	4
3 (CIBE)	4	5	4	5	4.5	3
4 (EMSAA)	4	3	4	5	3.5	4
5 (CENAIM)	4	3.5	4	5	3.5	5
6 (mixture)	3	3.5	2.6	2.5	3.5	2
Programme ⁷	3.8	3.8	4.0	4.5	4.0	3.8

► **Resultados:**

1. Durante la I Fase, en su mayoría, se alcanzaron los objetivos propuestos
2. Se debía fortalecerse las publicaciones científicas
3. Los Centros de Investigación debían integrarse sustentablemente
4. Existieron problemas para encontrar candidatos idóneos para las becas doctorales.
5. Un componente (6) debía cerrarse para dar paso a otras iniciativas de investigación



Nivel Final
de Control

- Self Assessment
- External Final Evaluation

Self Assessment incluyó:

- ▶ Cumplimiento a partir de línea base comparando con lo definido en el Partner Programme:

Key Indicator	Baseline (Year 6)	Year 10	Comments
Staffing [CIBE staff (Eng., Masters and PhD graduates) participating as staff for ESPOL]	None of the CIBE staff is part of the ESPOL permanent staff. CIBE had 1 post doc (project leader). Another PhD and 3 Masters (all formed outside of project); 7 Engineers.	Two post doc CIBE members (with their PhD obtained by the project) are now ESPOL staff. CIBE has in addition: 1 PhD, 6 Masters & 10 Engineers but without a permanent contract or as formal ESPOL staff.	The formation of new people as undergraduate and postgraduate students has been a specific goal in the Centre. 1 PhD will still be obtained during the course of the project.
Publications (CIBE staff publish the results in scientific journals with referees)	None	6 publications in scientific journals: RAFS, EJPP, IHSS, Natural Biotechnology, Global Science Book, JBC.	More papers are in preparation
Institutionalization of CIBE (CIBE institutionalized in ESPOL and integrated in the INIBAP MusaLAC network)	CIBE was officially created in ESPOL in 2003.	CIBE is not a recognized member of a banana research network in Latin America..	
ISO 9001:2000 certification (CIBE has the obligation of made efforts to improve the ISO 9001:2000 certification)	CIBE started with the certification process	CIBE has obtained the ISO 9001:2000 certification	The quality system of CIBE is continuously improved.

Partner Programme presentado en año 2003:

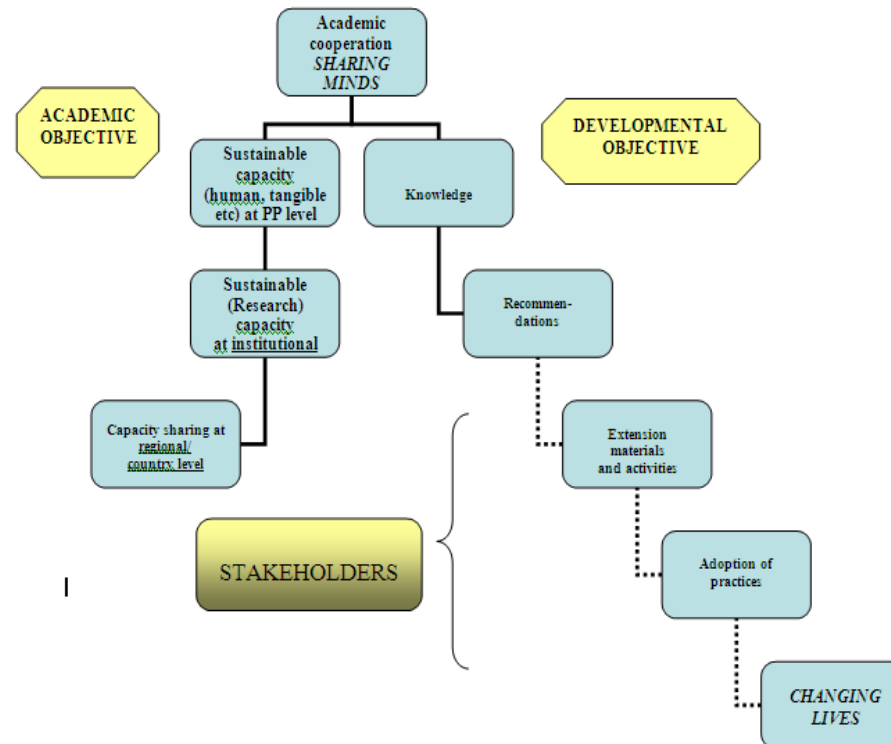
Annex AP - PROJ "3" – 1: LOGICAL FRAMEWORK MATRIX

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<u>Results</u> <ul style="list-style-type: none"> Local gene bank developed and new varieties tested Local <i>Mycosphaerella</i> isolates collected and characterized for use in bioassays and multisite germplasm evaluation Embryogenic tissue and cell cultures established, conserved and used Plant defence proteins identified and diagnostic tools developed for detection of the fungal pathogen Molecular tools developed for the identification and manipulation of genes involved in plant defence mechanisms Sustainable and viable curriculum developed 	Germplasm collection of 40 genotypes, 6 testing sites <i>In vitro</i> collection of 60 fungal isolates, aggressive pathotypes identified, screening <i>in situ</i> and <i>in vitro</i> Cell and tissue cultures of dessert and wild bananas Diagnostic kit for <i>Mycosphaerella</i> cDNA, sequences, plasmids, transgenic plants MSc and specialization students at graduate and postgraduate level	ITC records, local database Local database, publications ITC records, publications Publication Publications Registration documents	Banana is an important crop for Ecuador. Farmers are adopting the network recommendations Transferred results show that Sigatoka can be controlled.			
<u>Activities</u> <ul style="list-style-type: none"> Introduction of plants (mutants) obtained by different genetic manipulations Maintenance and characterization of gene bank Selection of farmers-collaborators at different edaphoclimatic sites 	<u>Means</u> <ul style="list-style-type: none"> Import licence Two technicians, image collection, database Personal contacts and collaborations, soil and climatic data 	<u>Costs</u> <table> <tr> <td>\$1500</td> </tr> <tr> <td>\$1470</td> </tr> <tr> <td>\$3130</td> </tr> </table>	\$1500	\$1470	\$3130	<u>Pre-conditions</u> CIBE recognized by ESPOL and funds delivered. Banana Private Sector creates the foundation CIBE supported by MAG as a reference lab for banana.
\$1500						
\$1470						
\$3130						
....			

▶ Key Result Areas (KRA's):

<i>Key result areas</i>	<i>Indicators (quantitative and full descriptive data)</i>
KRA 1: Research	<ul style="list-style-type: none"> • Articles in international peer reviewed journals • Articles in national peer reviewed journals • Conference proceedings (full paper) • Conference abstracts • Chapters in books (based on peer review) • Books with international distribution (author or editor) • Working/technical papers/popularising literature/articles in national journals, electronic journals etc • Conference contributions (posters, lectures) • Patents • Other
KRA 2: Teaching	<ul style="list-style-type: none"> ▪ Number of courses/training programmes developed ▪ New of substantially updated curriculum ▪ Textbooks development ▪ Learning packages developed (distance learning, CD-rom etc) ▪ Laboratory manuals ▪ Accreditation (labs, programmes etc) ▪ Excursion guides ▪ Other
KRA 3: Extension and outreach	<ul style="list-style-type: none"> ▪ Leaflets, flyers or posters for extension ▪ Manuals or technical guides ▪ Workshop or training modules package ▪ Audio visual extension materials ▪ Consultancy / contract research ▪ Policy advice/papers ▪ Other
KRA 4: Management	<ul style="list-style-type: none"> ▪ New institutional procedures / policies ▪ Lab or departmental management inputs ▪ Systems development (e-management, software etc) ▪ Research protocols ▪ Other
KRA 5: Human resources development	<ul style="list-style-type: none"> ▪ Msc. ▪ Phd. ▪ Pre-doc ▪ Training in Belgium ▪ Other
KRA 6: Infrastructure Management	<ul style="list-style-type: none"> ▪ ICT equipment ▪ Laboratory equipment ▪ Physical infrastructure (incl. land) ▪ Library equipment (incl. books) ▪ Transport
KRA 7: Mobilisation of additional resources/opportunities	<ul style="list-style-type: none"> ▪ Flemish travel grants ▪ Flemish PhDs ▪ Other PhDs ▪ Spin off projects ▪ Other
KRA 8: Other	<ul style="list-style-type: none"> ▪ Inventory

► Impactos de cada proyecto



- Situación Financiera
 - Testimonios y casos
 - Planes futuros
-



http://www.vliruos.be/downloads/IUC_final_evaluation_ESPOL.pdf



Flemish University Council – University Development Cooperation (VLIR-UOS)
Programme for Institutional University Cooperation (IUC)

**Final evaluation of the
IUC partner programme with
the Escuela Superior Politécnica
del Litoral (ESPOL), Ecuador**

FINAL REPORT – March 2010

Jolie Franke
Wietse de Vries

university cooperation for development

sharing minds, changing lives



Table 1: Component scores on qualitative evaluation criteria.

Qualitative evaluation criteria	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	t	t/8
1. Quality	4	5	4	4	2	4	3	3	29	3.6
2. Effectiveness	4	4	3	3	2	4	3	3	26	3.25
3. Efficiency	4	4	3	3	3	3	3	3	26	3.25
4. Impact	4	5	4	4	4	3	3	3	30	3.75
5. Development relevance	4	4	4	4	4	4	4	4	32	4
6. Sustainability	3	4	3	4	3	4	3	3	27	3.4
Total	23	26	21	22	18	22	19	19	170	21.25



**ESTRUCTURA, ASPECTOS
FINANCIEROS Y
ADMINISTRATIVOS
IMPLEMENTADOS**



MODERN ADMINISTRATION



Monthly meetings: first monday of every month
Decisions by consensus.
Accountability.
Common purpose.
Shared vision.

Documentos para administrar el Programa:

- ▶ Estructura Organizacional
- ▶ Manual Operativo
- ▶ Reglamento del Steering Committee
- ▶ Políticas para contratación de Personal (ESPOL)
- ▶ Reglamentos para la compra de equipos y materiales



▶ Implementación de un sistema online multiusuario para control presupuestario basado en rubros contables y actividades:

- ▶ Requerimientos de pago
- ▶ Autorizaciones a cambios presupuestarios
- ▶ Generación automática de reportes presupuestarios
- ▶ Acceso a contrapartes belgas para verificación



Programa VLIR - ESPOL

- Solicitudes
 - Por Estado
 - En trámite
 - Aprobadas
 - Anuladas
 - Pendientes
 - Repadas
- Por Tareas
- Por Fecha
- Por Componente
 - Componente 0
 - Componente 1
 - Componente 2
 - Componente 3
 - Componente 4
 - Componente 5
 - Componente 6
 - Componente 7
 - Componente 8
- Actualizaciones
 - Por Fecha
 - Por Componente
- Presupuestos
 - Por Componente
 - Presupuesto Total
- Tareas
 - Por Componente

Editar el tipo de cambio | Desactivar MacroExcel | Actas Reuniones | Resoluciones Anexos A.R. | Salir del Sistema

Solicitudes Por Componente/Componente 3

Estado	Fecha de Solicitudes	Monto	Descripción
Anulado 2568.75			
1558.27			
▼ B2	03/27/2008	1558.27	Adquisición Equipo
1021.36			
▼ C2	03/31/2008	1021.36	Reactivos AGDS
1.00			
▼ C5	10/16/2007	1.00	
11/14/2007			
▼ C6	03/03/2008	0.01	Honorarios
▼ C1	01/30/2008	1.00	pagos
▼ F1	08/31/2007	0.10	ANULADO
11/05/2007 7.11 Adquisición de Pasajes			
47275.60			
Aprobado 6031.49			
▼ B2	09/17/2007	1175.15	Exámenes Competitivos - Equipo
12/11/2007 1064.45 Adquisición Laptop			
03/25/2008 2008.51 Adquisición fondo competitivo			
03/25/2008 1558.27 Computador DELL			
03/31/2008 367.50 Adquisición equipos de laboratorio			
03/31/2008 647.61 Adquisición de equipo			
3526.19			
▼ C1	04/30/2007	94.17	Reparación Vehículo de Campo
05/09/2007 2454.45 Adecuación instalación AUTOCLAVE			
05/11/2007 57.14 Batería para Vehículo			
05/18/2007 210.18 Vehículo de campo			
06/21/2007 74.16 Mantenimiento Vehículo			
08/24/2007 32.87 Mantenimiento Generador			

2007

CH. ESPOL 2007
 Director: Carlos GARCIA
 Sr. - Srta. - Lic. - Lic. - Srta. -
 Subdirectora Asistencial - Licencia

Done

Autorizaciones

[Regresar](#) [Grabar y Cerrar](#)



Solicitud para Aprobación de Gastos Nueva

Tipo de Cambio: € 1 = \$ 1.2315

No. de Requerimiento:	20
Fecha de Solicitud:	04/22/2013
Descripción:	<input type="text"/>
Responsable:	Ing. Sergio Flores
Componente	0
Detalle:	<input type="text"/>
Monto:	€ <input type="text" value="0"/> (Los decimales se separan con punto "." No se utiliza punto para separar los miles)
Rubro:	<input type="text"/>
Tarea:	No existen tareas para este rubro <input type="button" value="v"/>
Observaciones:	<input type="text"/>
Es una inversión para:	No aplica <input type="button" value="v"/>
Evento/ Publicación:	No aplica o no existen items para este componente <input type="button" value="v"/>



Cambios presupuestarios:

[Regresar](#) [Guardar y Cerrar](#)



Solicitud para Cambio de Presupuesto Nueva

Total de Cambios (Entre Rubros diferentes): 6300 / Corresponde a: 6.81 % cambios

Emitida por:	Ing. Sergio Flores
Fecha de solicitud:	04/22/2013
Componente:	0
Del rubro:	<input type="text"/>
De la tarea:	No existen tareas para este rubro <input type="button" value="v"/>
Al rubro:	<input type="text"/>
A la tarea:	<input type="text"/>
Monto:	<input type="text" value="0"/>
Observaciones:	<input type="text"/>

▶ **Reuniones mensuales:**

- ▶ Informes de actividades por proyecto
- ▶ Control a uso de fondos
- ▶ Acciones correctivas y preventivas en caso de atraso en actividades
- ▶ Resoluciones disponibles para todos los miembros del Programa a través de actas en sitio web





AREAS PRIORITARIAS DE INVESTIGACIÓN

- 1. Tecnologías de la información
- 2. Nanotecnología
- 3. Física
- 4. Biología
- 5. Matemáticas
- 6. Química
- 7. Ciencias de la Tierra y el Espacio
- 8. Ciencias de la Salud
- 9. Ciencias de la Ingeniería
- 10. Ciencias de la Energía
- 11. Ciencias de la Vida
- 12. Ciencias de la Tierra y el Espacio
- 13. Ciencias de la Ingeniería
- 14. Ciencias de la Energía
- 15. Ciencias de la Vida
- 16. Ciencias de la Tierra y el Espacio
- 17. Ciencias de la Ingeniería
- 18. Ciencias de la Energía
- 19. Ciencias de la Vida
- 20. Ciencias de la Tierra y el Espacio

RESULTADOS DEL PROGRAMA



- ▶ 9 becarios de Maestría
- ▶ 15 becarios doctorales
- ▶ Desde 1999, se han desarrollado más de 65 entrenamientos especializados dentro y fuera del país para profesores e investigadores de ESPO.

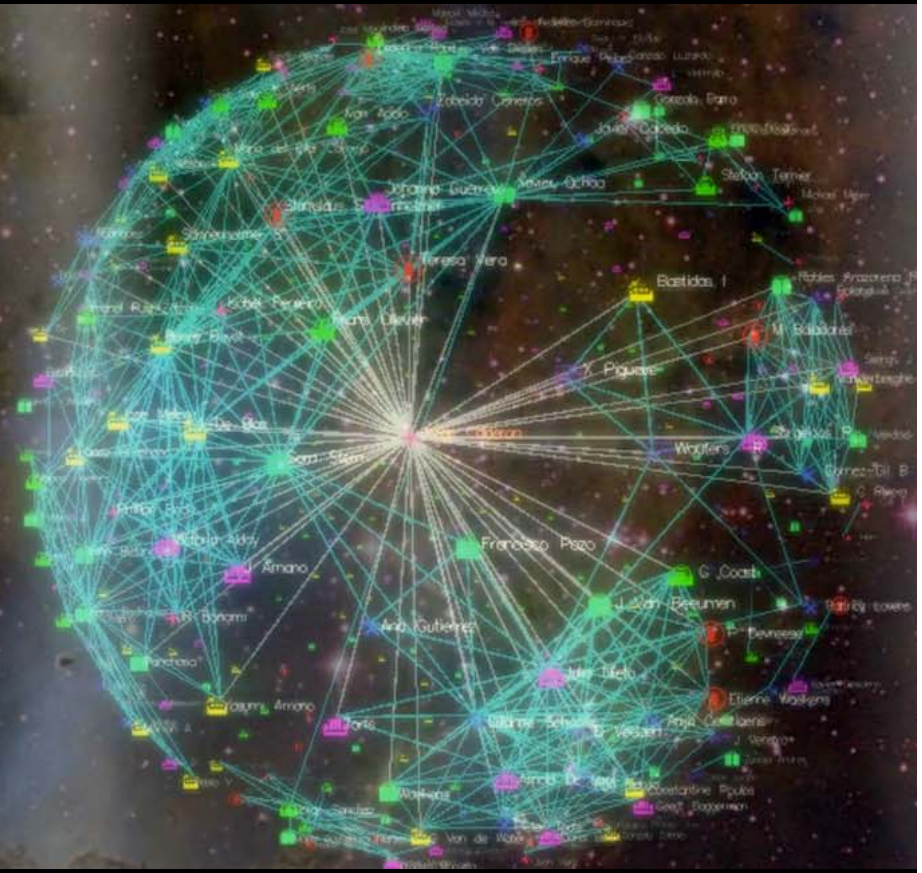
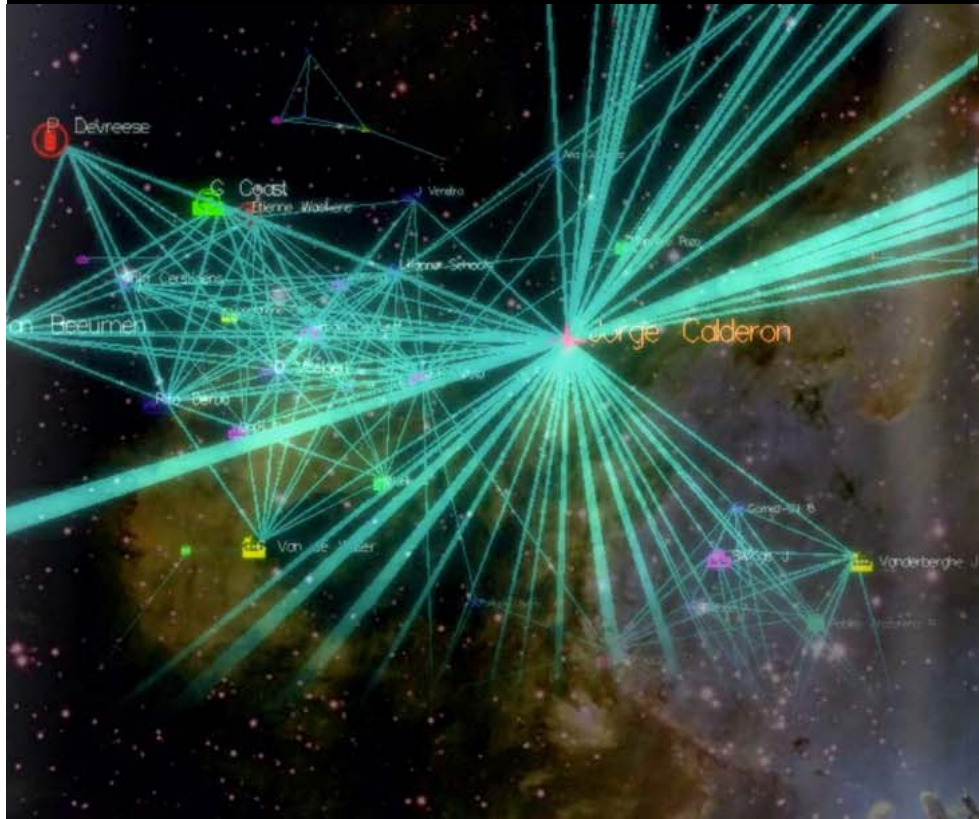


- ▶ La producción científica generada de este Programa se ha divulgado en más de 65 revistas científicas internacionales, en 221 revistas especializadas nacionales y se han presentado en más de 39 congresos científicos nacionales e internacionales.
- ▶ Fruto de esta colaboración, se ha generado un convenio entre FWO y SENACYT para intercambio de investigadores. Mientras que para intercambio de estudiantes y profesores, se estableció un convenio entre la ESPOL y la Universidad de Gent.



El modelo se
continúa aplicando:





ESPOL'S NETWORKS AFTER VLIR



El efecto multiplicador:

- ▶ Más de 120 personas capacitadas en LogFram (administradores e investigadores) vinculados a los grupos de investigación de ESPO
- ▶ 9 Centros de Investigación



Situación actual

- ▶ 46 Becarios doctorales
- ▶ 71 Profesores con estudios doctorales
- ▶ Publicaciones científicas 2010-2012:
 - ▶ 33 en Scimago e ISI Web
 - ▶ 314 Latindex
- ▶ El sistema universitario en general está en fase de transición y reestructuración
- ▶ Nuevo Estatuto de ESPOLE presentado para aprobación del CES.
- ▶ Preparación del Plan Estratégico 2013-2017



ESPOL Network University Cooperation



ESCUELA POLITÉCNICA
NACIONAL



NETWORK PARTNER PROGRAMME (PP) for a Phase I of NETWORK cooperation

CONTENTS

Programme level

0. Introduction to the format
- I. Country context, ex ante identification and formulation phase
- II. The overall NETWORK Phase I Partner Programme
- III. The general set-up and the management of the NETWORK Phase I Partner Programme
- IV. The sustainability of the results of the NETWORK cooperation at programme level at present and in future
- V. Overarching themes

Annexes to the programme level

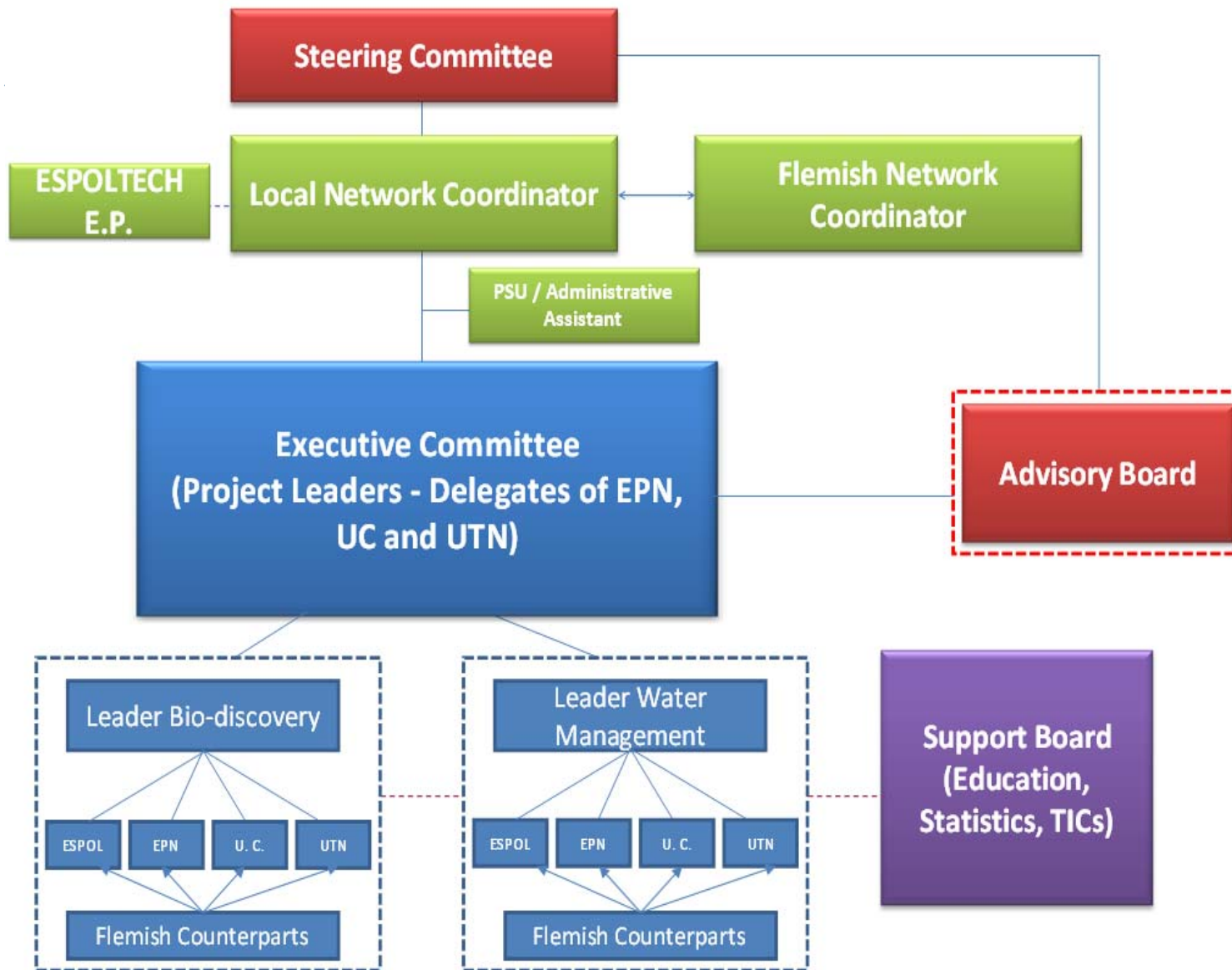
Project level

The NETWORK Phase I Partner Programme by project
Project level annexes

Dos áreas de investigación:

- ▶ **Project 1 .- Bio discovery: Strengthen national capacities for developing bio discovery programs**
- ▶ **Project 2.- Water management: Enhancing Ecuadorian National Capacities on Water Management**





Key Indicator	Baseline (Year 0)	Target
KRA 1: Research		<ul style="list-style-type: none"> • Research topics database for joint projects (2013) • Three joint research projects approved by donors during program first phase (2015) • Four articles published at international peer review journals Thompson-Reuters (Web of science) (from 3rd year) • Eight articles published at international peer review journals (no register impact factor) (from 3rd year) • Four articles published on scientific journal of each network Universities (from 3rd year) • Biannual meeting on biodiscovery (from 2016) organized by network universities. • Special publication : Biodiscovery network biannual report (from 2016) • Eight (posters or oral presentations) accepted at international meetings (from 3rd year)"
KRA 2: Teaching		<ul style="list-style-type: none"> • Four cohorts of master students (Q1 - 2015, Q1 - 2016, Q1 - 2017, Q1 - 2018) • One laboratory manual on biodiscovery related topics at the end of the 6th year • Learning packages developed (distance learning, CD-ROMs etc) on research based education • At least 80% of the master thesis co-directed by researchers of different network Universities. • At least 10 master thesis with scientific focus at the end of each cohort • Report of the workshop on current trends on biodiscovery research (30 - 05 - 2014) • Master's program submitted to CES (complying with CES format)
KRA 3: Extension and outreach		<ul style="list-style-type: none"> • Three leaflets for natural resources management • One audio visual extension materials • One bio – business round with the stakeholders • One white paper on biodiscovery policy
KRA 4: Management		<ul style="list-style-type: none"> • Procedure manual for the development of inter-university postgraduate programs (admission requirements, registration, thesis co-direction, graduate committees, etc.) (Q3 - 2013) • Platform for the master programme e-management • Research protocol for master thesis • Annual network evaluation meeting (management, results, planning) (from May 2014) • Cohort evaluation meeting (Q4 - 2016, Q4 – 2017, Q4 – 2018) • Academic curriculum follow up and evaluation meeting
KRA 5: Human resources development		<ul style="list-style-type: none"> • At least 8 researchers trained (in Belgium or Ecuador) on research based education • Forty five master students graduated at the end of the first phase • At least four PhD candidates identified on each cohort
KRA 6: Infrastructure Management		<ul style="list-style-type: none"> • At least four laboratories of the network are acquired lab equipment's relevant to biodiscovery research • A network repository is implemented among the partner universities to share scientific literature. • Access to relevant journal related to biodiscovery are available for the network (at least 4 each year)
KRA 7: Mobilisation of additional resources/opportunities		<ul style="list-style-type: none"> • At least 8 faculties stay at Belgium universities (from the first year). • Thirty two faculty stays/technical visits at/to other network universities (from the first year) • At least 50% of master students of each cohort make one mobility to other network university
KRA 8: Other		<ul style="list-style-type: none"> • Inventory of technological capacities and needs of the network universities relevant to biodiscovery area (30 – 06 - 2013)

LOGICAL FRAMEWORK MATRIX			
PROJECT TITLE: STRENGTHEN NATIONAL CAPACITIES FOR DEVELOPING BIO-DISCOVERY GRADUATE PROGRAMMES (PROJECT 1)			
I. Overall Objectives (OO)	Objective Verifiable Indicators (OVI)	Source of Information (SOI)	Assumptions
Overall Academic Objective	Not to be completed	Not to be completed	Not to be completed
Strengthened capacity of the network's universities to offer joint research-based post-graduate programs in sciences and engineering related to the area of natural resources			
Overall Developmental Objective			
Local capacity to improve management of natural resources in Ecuador generated			
II. Specific Objective (SO)	Objective Verifiable Indicators (OVI) and Targets (please make use of list of Key Result Areas)	Source of Information (SOI)	Assumptions
Specific Academic Objective	Approval of the joint Master's program by CES by 2014	Certification of approval	CES approves the joint Master's program
A research-based joint Master's program in biodiversity developed	Two promotions of students graduated from the Master's program by 2018	Students transcripts	SENESCYT approves funding for scholarships
	The international accreditation process of the program has started by 2017	Self study of the program submitted to responsible agency	Students do not abandon the program
Specific Developmental Objective	Sixteen publications for diverse audiences	Reprints of the publications	
Improved understanding and use of biodiversity through a research based master program delivering professionals	Special publication: Biodiversity network biannual report (from 2016)	Copy of the report	
III. Intermediate Results (R)	Objective Verifiable Indicators (OVI) and Targets (please make use of list of Key Result Areas)	Source of Information (SOI)	Assumptions
IR 1 <i>Design and implementation of inter-university Master Programs in biodiversity</i>	A market study is developed for knowing public demand of MSc program before 2014	Report of market study	Results of market study demonstrate the interest in biodiversity master program
	Procedure manual and program content of inter-university master program in biodiversity are design and approved (Q3 - 2013)	Procedure manual, Program curricula and official approval doc (from CES)	CES accept the inter-university MSc program
	Program and education materials of MSc program is revised and improved each year	Updated program and course materials	Active participation of professors and researchers of inter-university master program.
	Evaluation meeting is developed each two years	Report of the biannual evaluation of each Master's program and plan of improvements	Active participation of professors and researchers in the meeting
	Marketing strategy is define and implemented	Media, website, folders	Media show interest in the MSc program in biodiversity

IV. Main activities			Assumptions
1.1. Forming the inter-institutional committee for the Master's program	Main resources (physical and non-physical necessary to carry out activities): MIR budget lines could be used: A. investment costs B. operational costs C. personal consumption, travel and personal months of personnel D. scholarships costs	Materials translated into costs (in \$): A. investment costs B. operational costs C. personal consumption, travel and personal months of personnel D. scholarships costs	committed to the success of the program
1.2. Performing the market study for the Master's program			Design allow to identify target groups
1.3. Designing curricula and manual procedures: Review study of the best examples of similar programs in the world; Preparation of survey of research interests and strengths of each network university; Meetings to determine research priorities and experimental protocols related Master program; Discussion sessions to define the main contents to be addressed by the			Curricula is aligned to national needs and trends in biodiversity

Más información sobre el Programa de Cooperación VLIR-ESPOL disponible en:

www.vlir.espol.edu.ec



PROGRAMA DE COOPERACIÓN VLIR-ESPOL

VLIR UOS University Development Cooperation

Principal El Proyecto Componentes Autorizaciones Visitas Galería de Fotos

Reportes Generales

- **Activity Programmes**
 - [Activity Programme 1999](#)
 - [Activity Programme 2000](#)
 - [Activity Programme 2001](#)
 - [Activity Programme 2002](#)
 - [Activity Programme 2003](#)
 - [Activity Programme 2004](#)
 - [Activity Programme 2005](#)
 - [Activity Programme 2006](#)
 - [Activity Programme 2007](#)
 - [Activity Programme 2008](#)
- **Annual Reports**
 - [Annual Reports 2001](#)
 - [Annual Reports 2002](#)
 - [Annual Reports 2003](#)
 - [Annual Reports 2004](#)
 - [Annual Reports 2005](#)
 - [Annual Reports 2006](#)
 - [Annual Reports 2007](#)
 - [Annual Reports 2008](#)
- **Informes Financieros**
 - [Macro 1999](#)
 - [Macro 2000](#)
 - [Macro 2001](#)
 - [Macro 2002](#)
 - [Macro 2003](#)
 - [Macro 2004](#)
 - [Macro 2005](#)

Novedades

15

Inauguración de ESPOL - CIENCIA 19/01/2010

Clausura de ESPOL CIENCIA 21/01/2010

[Videos](#)

**GRACIAS POR SU
ATENCIÓN**

