

**The Inter-University Conference for Agricultural  
and Related Sciences in Europe (ICA)**

&

**The National Association of State Universities  
and Land-Grant Colleges (NASULGC)  
Board on Agriculture**

**Partnership Meeting**  
*Final Report*

Washington, DC

**The Hilton Garden Inn  
Franklin Square  
815 14<sup>th</sup> Street, NW**

**NASULGC  
1307 New York Avenue, NW  
Conference Room # 1, 1st Floor**

**April 16-18, 2000**

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# AGENDA

## SUNDAY APRIL 16:

### **6:00 – 8:00 p.m. Reception**

Presiding.....Mortimer Neufville  
NASULGC

Welcome.....Thomas Fretz  
University of Maryland, College Park

Response.....Cees Karssen  
Wageningen UR, The Netherlands

## MONDAY APRIL 17: NASULGC

### **8:30 a.m. Continental Breakfast**

**9:00 a.m.** Presiding.....Rodney Brown  
Utah State University

Welcome.....Charles Laughlin  
CSREES/USDA

Remarks.....Cees Karssen

#### Overview of Partnership Activities and Plenary Presentations:

1. US Perspective.....Rodney Brown
2. European Perspective.....Thomas Rosswall  
Agricultural University, Sweden
3. Food Systems Initiative: Global Implications.....Ian Maw  
Rutgers University

Q & A

### **10:30 a.m. Break**

**10:45 a.m.** Presiding.....Willem van Vuure  
Wageningen UR, The Netherlands

Thematic Presentations: 30 minutes each (including Q & A)

1. Students Exchange.....Roland Verhé, Ghent University, Belgium  
Ian Maw
2. Distance Learning.....Simon Heath, Aberdeen University, UK  
Dean Sutphin, Cornell University
3. Curricular Development.....James Mortensen,  
The Pennsylvania State University  
Roland Verhé

**12:30 p.m. Lunch with Speaker**

Presiding.....Rodney Brown

GCHERA Activities and Future Plans.....Martin Jischke  
President, GCHERA and Iowa State University

**2:15 p.m.**

Thematic Presentation 4:

- Multinational Research.....Richard Jones, University of Florida  
Franck Lobnik, University of Ljubljana, Slovenia

Charge to Break-Out Groups

**3:00 - 3:30 p.m. Break**

**3:30 - 5:30 p.m. Thematic Break-Out Group Discussion and Formulation of Recommendations**

**5:30 p.m. Break**

**7:00 p.m. Dinner at the Hilton Garden Inn**

Presiding.....Thomas Fretz

Agency Partnership Activities:

1. ALO – Joan Claffey
2. USAID – Emmy Simmons
3. USDA – Hiram Larew

**TUESDAY APRIL 18:**

**8:30 a.m. Continental Breakfast**

**9:00 a.m.** Presiding.....Denis Lucey  
University College, Ireland

Group Reports

Discussion  
Finalize Recommendations on Mechanisms for More Effective Cooperation  
and Collaboration

**10:30 a.m. Break**

**10:45 a.m.** Presiding.....Thomas Rosswall  
Presentation on Ways Internet Can Facilitate Global  
Collaboration and University Partnership.....Heather Boyles  
Internet2

Discussion

**11:45 a.m. -  
12:15 p.m.**

Summary of Reports

Where Do We Go from Here.....Cees Karssen  
Rodney Brown

**12:30 p.m. Lunch at the Hilton Garden Inn**

Signing of MOU.....C. Peter Magrath, NASULGC  
(*On behalf of US Universities*)  
Cees Karssen, ICA  
(*On behalf of European Universities*)

Next Meeting: Europe  
Closing Comments

**2:00 p.m.**

Adjourn

Optional Site Visits: Beltsville – USDA  
University of Maryland, College Park

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*The Inter-University Conference for Agricultural and Related Sciences in Europe is chaired by Cees Karssen.  
Willem van Vuure provided leadership for planning the meeting.  
The National Association of State Universities and Land-Grant Colleges Board on Agriculture is chaired by Thomas  
Fretz. Rodney Brown and Mortimer Neufville provided leadership for planning the meeting.*

*Sponsored by  
The W.K. Kellogg Foundation  
and  
The National Association of State Universities and Land-Grant Colleges*

# **FINAL REPORT**

## **Introductory Remarks**

The first ICA/NASULGC partnership meeting was held in Washington, DC April 16-18, 2000. This was preceded by two planning meetings: one held in Amsterdam in August 1999 and the other in Paris in January 2000. The purpose of this meeting was to identify, discuss and formalize strategies for collaboration between European and American universities.

The partnership meeting began with a reception on Sunday April 16, 2000 between 6:00 p.m. and 8:00 p.m. to introduce the participants to one another and provide orientation to the program. The official dialogue started on Monday April 17 at 9:00 a.m. and culminated on Tuesday with the signing of a Memorandum of Understanding by ICA and NASULGC's respective Presidents, Cees M. Karssen and C. Peter Magrath.

### **Sunday April 16: Opening Reception – Presiding: Mortimer Neufville.**

Mortimer Neufville opened the meeting with official greetings from the National Association of State Universities and Land-Grant Colleges and asked for introduction of the participants. This was followed by welcoming remarks given by Thomas Fretz (Chair of the NASULGC Board on Agriculture) on behalf of the Land-Grant community. Dr. Fretz expressed his support for the proposed partnership activities and pledged the support of the Board on Agriculture in facilitating the partnership activities.

Cees Karssen (President of ICA), leader of the European delegation, provided response on behalf of his colleagues and expressed his appreciation for the efforts that went into the preparation for the meeting. He indicated that his expectations were for a meaningful dialogue that will culminate with concrete recommendations for follow-up action.

Mortimer Neufville concluded with a brief overview of the program for the succeeding one and a half days.

The session ended following a period of social interaction.

### **Monday April 17 - Presiding: Rodney Brown.**

Rodney Brown opened the session at 9:00 a.m. with an update on the activities since the planning committee meetings in Amsterdam and Paris and insisted on the importance of international collaboration. The intent of today's meeting was to design an action-plan for partnership activities. He expressed his appreciation for the continuing interest of the Europeans and his willingness to provide leadership for the US delegation

**Charles Laughlin** welcomed the group in Washington, DC and outlined the relationship between USDA and land-grant universities. He also expressed USDA's interest in globalization and the leadership provided by CSREES in the GASEPA (Globalizing Agricultural Science and

Education Programs in America) initiative. Dr. Laughlin also indicated that he would support the initiatives of the partnership and was happy to share in the discussions.

**Cees Karssen** in his remarks expressed his delight that we were able to have this meeting: the first full meeting for both parties to become better acquainted and familiarize ourselves with each other's system. He was in support of the previous remarks and hoped that the dialogue would result in positive action and true partnership initiatives in agricultural education and research.

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### **Overview of Partnership Activities**

#### **1. US Perspective – Rodney Brown**

Rodney Brown provided the US perspective on opportunities for collaboration and partnering. He indicated that the partnership should provide opportunities for Americans to learn from Europeans, especially from their solid exchange programs. In distance learning, Americans have done well but we do not know how Europeans are doing.

Master's degrees in the US used to be mini-PhDs; now, there is a great drift and they embrace a more professional orientation. US universities need help in this domain.

A better coordination of providing help to the developing world should be established.

Regarding the internationalization of the curriculum, US universities face a few problems: students are required to take one more course or learn a language, but the motivation to go abroad is just not there. Also, we should send faculty and researchers abroad. Going abroad has a great effect on individuals. Finally, faculty and students should work closer together in facilitating the internationalization process.

#### **2. European Perspective – Thomas Rosswall**

Thomas Rosswall began by stating that the US perspective could just as well be the European one. We have the same challenges, so we have all the need for collaboration. US parents are afraid of sending their children abroad; therefore, part of our work should be to convince the parents first!

Sweden has a system similar to the land-grant universities. International exchange programs are strong and students choose to study where education is best.

Information technology:

- Americans have made mistakes in that they allowed companies to takeover distance learning education. These errors are not to be redone in Europe.
- The teaching should be put in focus, not the technology. Thomas Rosswall cites Cornell University as a great example.

He also agreed with Rodney Brown on the need to increase the number of people involved in these programs, both at the student and the faculty level. The latter need not only take sabbaticals but move abroad for teaching purposes.

The US institutions have a much better support from their alumni than do European universities. However, the system of financial support given by alumni to US universities would not be workable in Europe (where education is much cheaper). But alumni are important as ambassadors. So Europe needs to learn about alumni associations in the US.

Thomas Rosswall mentioned that it was good to have students at the table and to get their input. The focus should be put on quality. Europe needs US expertise to evaluate its programs.

### **3. Food Systems Initiative: Global Implications – Ian Maw**

This initiative has been developed over the past 6 years with support from the Kellogg Foundation. They are interested in health issues and higher education, and involved in the repositioning of the land-grant system. The Food Systems Program in Education (TSPE) focuses on agricultural faculty. Twelve institutions received 5-year projects, of which half are institution focused, and the other half are inter-institutional, involving consortia in different parts of the USA. The aim is to work in a collaborative way to develop higher quality products. There are positive experiences so far, which could be extended internationally.

#### ***Questions and Answers***

- Only the UK has been successful in having open universities.
- Distance learning in Europe is not as advanced as in the US.
- Companies design super courses online: question of who owns the course?

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#### **Plenary Presentations**

Monday April 16, 10:45 a.m. - Presiding: **Willem van Vuure.**

This session focused on four thematic presentations (1) Students Exchange (2) Distance Learning (3) Curricular Development and (4) Multinational Research. There was a lunch break with speaker Martin Jischke, President, GCHERA and Iowa State University. Dr. Jischke provided an update on the Global Consortium of Higher Education and Research for Agriculture (GCHERA) held July 22-24, 1999 in Amsterdam and discussed the outcome of the conference. Membership in the Consortium is now being solicited and information can be found at:

<http://www.gchera.iastate.edu>

Dr. Jischke indicated how pleased he was that the ICA/NASULGC conference resulted from the GCHERA meeting. And this and other collaborations were being formed. He stressed the importance of globalization in all our university programs and activities.

## **1. Students Exchange: Roland Verhé presented the European perspective while Ian Maw presented the US perspective**

### ***Roland Verhé: “Student Mobility for Students in Agricultural and Related Sciences”***

The major point of the presentation was that Europeans do not want to pay tuition to the guest university when they go study in the US. Tuition rates are not comparable between both continents.

### ***Ian Maw: “Student Exchange Programming: The US Experience”***

The paper was based on the results of a survey conducted among members of the Academic Programs Section of NASULGC that have experiences with international exchange programs. The strongest exchanges appear to be those with no additional fees. Faculty-to-faculty contact with proper administration support is also an important factor in the success of exchange programs.

American students encounter more difficulties than European students in that the mobility among US students is not as strong as among Europeans and also, they tend to prefer institutions where courses are taught in English

Ian Maw mentioned the European Master in Food Studies and offered to use this program as a model for an international degree.

### ***Questions and Answers***

The question of the utility of umbrella organizations like ICA and NASULGC was raised. Roland Verhé answered that they are useful to check the program and progress of students. What are the conditions, requirements and incentives for student exchange? Is there a need for a general policy, and for funding instruments? Can partner institutions do that on their own, or do they need sponsoring governments or agencies? We probably need both. Academic recognition is also an important element.

## **2. Distance Learning – Simon Heath and Dean Sutphin**

### ***Dean Sutphin***

A Powerpoint presentation was done by Dean Sutphin. This was a modified version of the attached paper. The vision for international collaboration in distance learning is to enhance the participation of citizens in the social, cultural, civic, and economic life of a global democratic society. The goals are twofold: align the institutional mission with a vision for distance learning (DL) and create changes in higher education to foster partnerships in DL and a forum for future development.

Dean Sutphin distinguishes four currents of changes in today’s situation:

- communications revolution
- shift in intellectual division of labor
- shift in funding streams
- demographic shifts and accessibility

There is also a new learning environment that focuses primarily on learning rather than teaching. The faculty is primarily concerned with intellectual property rights, academic freedom and quality of education.

With the changing learning environment emerges a new typology:

- Public Ed Systems ⇒ eEurope
- Open Universities ⇒ British Open Universities
- Knowledge Portals ⇒ Fatbrain
- B-B Corporate Training ⇒ Corpedia
- University/Partner ⇒ Wharton/Caliber
- University Branded Alone ⇒ Penn State
- University Consortium ⇒ Universitas 21
- Distance Education Professional Organization ⇒ ADEC-IDEAL 1&2.

The next steps will be to conduct evaluation studies, document successes, identify support structures and develop potential theme areas and projects.

### *Questions and Answers*

Q? How much experience is there to evaluate DL?

Q? Cost?

### **3. Curricular Development – James Mortensen presented the US perspective and Roland Verhé presented the European perspective**

#### *James Mortensen: “Some Issues Relative to Designing Curricula”*

Internationalization of the curriculum is achieved through several elements listed on page 2 of the paper. One area where US students are behind compared to Europeans is that of foreign languages.

In order to build an effective curriculum, faculty need to be involved in the process. A major problem in the design of curricula is the tendency of the faculty to lose sight of the fact that each course is but one element in a learning sequence defined as a curriculum. The closer the relationships are among courses, the more effective the learning experience will be for students.

#### *Roland Verhé: “Curriculum Development in Agricultural and Related Sciences between U.S. and Europe”*

Internationalizing the curriculum aims at improving student and staff exchange, enhancing the knowledge of foreign languages and understanding other countries’ cultures.

The internationalization of curriculum can be defined as a process of incorporation of an international dimension into the curricula, teaching methods and evaluation of student competence. The incorporation of this international dimension started only recently (early nineties in Europe). Next to student and staff exchange, curriculum development is one of the most important activities to activate mobility of students and staff. The global economic transformation is the most powerful motivation for curriculum development. In Europe, another incentive is the “European dimension” in curricula.

Internationalization can be performed at three levels:

- undergraduate level: limited internationalization because of the differences both in Europe and between Europe and the US in study programs;
- graduate level: more developed especially in Europe. A European Masters’ Degree in Food Studies has recently been created;

- doctorate level: in Europe, international curriculum can be developed by organizing intensive courses on very specialized topics.

#### **4. Multinational Research**

Richard Jones and Franc Lobnik presented a joint paper on “*Networking Agricultural Research Internationally*”, co-authored with David MacKenzie and Rudy Rabbinge, who were unable to attend the meeting.

The paper addresses international research collaboration and networking, elaborates on guiding principles and evolution of CGIAR research to changing demand. For the development of a common international research agenda, a range of illustrative topics are listed. The paper concludes by discussing research management opportunities and issues.

Break-out groups are formed according to the four themes and each group has been asked to come up with recommendations and concrete action-plans.

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### **Group Reports and Recommendations**

Tuesday April 18 - Presiding: Denis Lucey and Thomas Rosswall.

#### **1. Michael Stitsworth on Students Exchange**

The group did not meet Rodney Brown’s “To Do List” but came up with the following suggestions and comments:

- Inventory of bilateral agreements
- Identify successes and progress overtime
- Managed curriculum issues for easy transfer and transition
- Traditional tuition swap is preferable
- Food and lodging usually not included
- Faculty support and mentoring but bottom up
- Umbrella organizations are useful but exchanges have to come from the bottom-up
- Importance of international offices on both sides of the exchange
- Need to have US students go and study abroad; the same applies to European students
- More in-depth exchanges rather than more exchanges
- The language issue is a problem for US students
- Cooperative education: internship-type program.

## **2. Sharon Anderson on Distance Learning**

The group compared the situation in Europe and the US.

Alliance with the private sector is an important factor.

Technology is an enhancement, not a competitor to teaching in the classroom.

The group agreed that distance learning was more appropriate for continuing education than for PhD degrees for example. Also, a full-degree program using distance learning is not yet under consideration. Other needs include:

- Building distance learning into the curriculum
- Quality products
- Target messages
- Generate new revenue
- Guiding principles
- Linkages with private sector
- Tutors – Teaching techniques
- Administrative policies
- Transfer of credits

Many issues were raised on distance learning education:

- Will textbooks be replaced?
- Are students learning?
- Is mere information going to replace knowledge?

A few answers:

- The media form is not the matter: knowledge is
- Turning information into knowledge is the professor's job
- The delivery of information can be done in many ways
- It was suggested that courses should be free on the Web for anyone interested to learn. Only those who plan to obtain a degree should pay to take the web course.
- A university in England has a web course that allows people to email the Nobel Prize winners who made the scientific discoveries students are working on in the course.

## **3. Philippe Ruffio on Curricula Development**

The group experienced difficulty in tackling the subject at first but eventually came up with the following conclusions:

- Goals and Objectives of Curricula
  - The group agreed with James Mortensen's paper.
- Definition of Priorities
  - Thematic areas:
    - Agrobusiness
    - Biotechnology
    - Natural resources.
- Priority Needs: Action-Plan
  - Stimulate physical mobility: DL and physical mobility are complementary;

- Three mobilities:
  - short-term (for social discovery)
  - medium-term (learning purpose)
  - long-term (learning purpose);
- Increase the exchange of information by creating a database and identifying resource persons;
- Need for accreditation/recognition
- Need for clearer concepts (“internationalization of curricula”).
- Future Working Method
  - Two-step approach:
    - Pilot phase with limited number of institutions (evaluation);
    - Dissemination of results to all members.
- Obstacles
  - US concern: difficulties motivating students to study abroad. European institutions may not want to adapt to changes.

#### **4. Willem van Vuure on Multinational Research**

- Mechanisms
  - EU framework program for research and technological development. Multistate partnership among institutions;
  - International cooperation with third countries;
  - Global Forum on Agricultural research (GFAR).
- Things To Do
  - Survey of on-going active research collaboration between ICA and NASULGC institutions (Patricia Jensen);
  - Participation of Europeans in the Annual Meeting of US regional research projects. Project list to be made and sent to the president of ICA (Gale Buchanan);
  - Link web sites of ICA and NASULGC;
  - Exchange of research managers;
  - Sandwich PhD programs;
  - Development of US-European research programs;
  - Scenario for future developments using existing databases;
  - Faculty exchange (Fulbright) for 3-6 months; basis for future cooperative projects;
  - Dissemination of research results to educate the public;
  - Funding mechanisms to be identified;
  - Revisit USAID agenda to involve US universities in a broader context of development.

#### **Presentation on Ways Internet Can Facilitate Global Collaboration and University Partnership by Heather Boyles, Internet2**

Ms. Heather Boyles discussed the Internet2 initiative and progress to date. Several US universities are engaged and some European countries. Other linkages are being pursued. This is a very effective tool for accessing information and for facilitating international cooperation and development.

Membership to Internet2 is \$25,000/year. 2000 institutions of higher education are members.

### **Where Do We Go from Here?**

Rodney Brown and Cees Karssen provided an overview of where we need to go from here.

**Cees Karssen** insisted on the effective functioning of the partnership between ICA and NASULGC Board on Agriculture. He emphasized that the partnership is twofold:

- stimulate bilateral contacts;
- do things together.

Next steps:

1. Rodney Brown recommended that there should be a conference proceedings with conclusions and a press release should be done.
2. Report of meeting (Noëlle Heymann)
3. Next meeting: Spring 2001(early May) in Europe, coinciding with the annual ICA meeting. Location will be decided in May at the ICA meeting in Aberdeen. The next meeting should be preceded by a coordinating committee meeting; target is early December 2000; location to be decided. The next ICA-NASULGC meeting in Europe could include a seminar on agricultural education and research, and/or about the development of European agriculture.
4. Coordination of follow-up (Willem van Vuure and Mortimer Neufville; they will meet during CGIAR's Centers Week end of October).
5. Lobbying to the European Commission and USDA for political support and inform them about this initiative.
6. Working groups should be appointed to continue exploring the four themes; at least one person from either side of the Atlantic in each of the 4 themes.
7. The coordinating committee will include:
  - Rodney Brown
  - Cees Karssen
  - Mortimer Neufville
  - Willem van Vuure

This will be expanded to include individuals representing the thematic areas.

The meeting culminated in the signing of a Memorandum of Understanding between ICA and NASULGC by Recor Cees Karssen and President Peter Magrath respectively.

The meeting closed on the idea of opening the partnership to universities of other countries: Canada, Mexico, Latin America, and Eastern Europe.

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**Paper 1**

*Student Mobility for Students in Agricultural and Related Sciences*

Roland Verhé, Ghent University – Belgium

**Paper 2**

*Student Exchange Programming: The US Experience*

Ian Maw, Rutgers University

**Paper 3**

*US and European Collaboration on Distance Education*

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**Paper 4**

*Some Issues Relative to Designing Curricula*

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*Curriculum Development in Agricultural and Related Sciences  
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**Paper 6**

*Networking Agricultural Research Internationally*

David MacKenzie, NERA, University of Maryland, College Park

Richard Jones, University of Florida

Rudy Rabbinge, Wageningen UR – The Netherlands

# **Student Mobility for Students in Agricultural and Related Sciences**

*By Roland Verhé*

## **1. Introduction: European Programmes for Student Mobility**

Exchange of students between institutions of higher education is a common phenomenon existing for a long time. However, in most cases the majority of this mobility was organized by bilateral agreements, between universities, personal contacts, cultural agreements between countries and regions, public organizations or private organizations.

The majority of these exchanges involves graduate or doctoral students. In the cases of undergraduate students the study period abroad consists mainly of a practical training, preparation of a thesis. This phenomenon was due to the fact that it seems to be very difficult to recognize academically the study period abroad and the study results obtained. In this way only students who were able financially and socially to prolong their studies were able to participate in these programmes.

From the middle of the eighties a European-wide policy was implemented for the creation of an open area for education and training especially involving mobility in a European dimension. The major challenge was to create well-established structures and organizations on which institutions of higher education were able to rely. The start of the Erasmus programme in 1987 was the platform for comprehensive cooperation in all sectors of education.

The main objective of the Erasmus programme was the development of a European dimension in education due to various activities supported by European funding such as student and staff mobility, curriculum development and organization of short intensive courses. Simultaneously a European programme COMETT was launched with the aim to develop the cooperation university-enterprise. In this programme students have the opportunity to perform practical experience for periods 3-12 months on the work-floor in industry, farms, research organizations, public administration.

The academic recognition of the study results obtained at the guest university was one of the major obstacles in the first year of Erasmus. The introduction of the ECTS-system (European Credit Transfer System) slowly solved this problem.

In the Erasmus programme the initiative came from individual members of an institution to create a ICP (Inter-University Co-operation Programmes). In such an ICP a network was created in a discipline and the co-ordinator was responsible for all activities. The discipline of such an ICP could be very broad e.g. agriculture but also more specific e.g. food sciences, forestry, agricultural economics. At the end of the Erasmus Programme in 1995 more than 200 ICP's were created. It was very difficult to determine the exact number of ICP's in agriculture and related sciences due to the different disciplines in which the ICP's have been classified. For example the most active ICP in agricultural sciences coordinated by myself involved approximately 45

institutions with student exchange of nearly 400 students/year, 40 staff exchanges, organizations of new curricula and organization of intensive programmes, was classified in the Erasmus Compendium under the discipline of microbiology.

At the end of the Erasmus programme an institution of agricultural science could be a member of several ICP's even in different disciplines due to the personal involvement of an individual member of staff. In this way the Erasmus programme was losing transparency. However the main advantage of this programme was that in this way a practical organization of mobility for students and teaching staff was designed with a view to creating innovative educational projects with European dimensions. I am personally convinced that without the tremendous efforts to operate ICP's the success of the Socrates programme could never have been reached the actual level.

## 2. Socrates Programme

In 1995 the Socrates programme was launched which includes the introduction of the Institutional Contract. In this contract the compulsory European Policy Statement set up the central administration (rectorate, international offices) as a specific level for their strategy, thereby promoting the institutional approach instead of the co-ordinator approach.

The institutional contract can cover now all the disciplines available in a particular institution and exchanges between institutions can occur on condition that the bilateral agreement between two institutions describing the field in which they want to participate is an integral part of both institutional contracts. In many cases these bilateral agreements are based on the experiences and the relations built up during the former Erasmus Programme.

The main objectives of SOCRATES are<sup>1</sup>:

- to develop the European dimension in education
- to promote improved knowledge of European languages
- to promote the intercultural dimension of education
- to enhance the quality of education by means of European co-operation
- to promote mobility of teaching staff and students
- to encourage the recognition of diplomas, periods of study and other qualifications
- to facilitate the development of an European area for co-operation in education
- to encourage open and distance education in the European context
- to foster exchanges of information on educational systems and policy

SOCRATES contains provision for a broad range of activities, including<sup>2</sup>:

- transnational projects, networks, partnerships and associations
- joint development of curricula, modules, teaching materials and other
- educational products

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<sup>1</sup> **Source:** European Commission, DG XXII Education Training and Youth.

<sup>2</sup> **Source:** European Commission, DG XXII Education Training and Youth.

- exchanges and mobility
- transnational training courses for educational staff
- visits to facilitate project preparation or sharing of experience
- preparation of studies, analyses, guides and data collection activities
- project evaluation
- dissemination of results

The SOCRATES programme promotes co-operation in six areas<sup>3</sup>:

- Higher Education (ERASMUS)
- School Education (COMENIUS)
- Promotion of language-learning (LINGUA)
- Open and distance learning (ODL)
- Adult Education
- Exchange of information and experience on education systems and policy

### **3. The Socrates Thematic Networks (TNP)**

A totally new activity is the organisation of Thematic Network Projects: University co-operation projects on subjects of mutual interest.

The major objective of TNP's is to furnish Institutions of Higher Education platforms to study and to analyse the state of development of a particular academic field of education with the aim to developing a European dimension through co-operation, common activities and to increase the quality of teaching. Their activities involve assessment of curriculum development and innovation, improvement in teaching methods, development of joint projects at European level, promotion of language learning etc. TNP's are focusing on political and strategic levels.

At this moment two TNP's are active in the field of agricultural and related sciences:

- AFANet (SOCRATES Thematic Network for Agriculture, Forestry, Aquaculture and the Environment, see <http://www.clues.abdn.ac.uk:8080/demeter>). This network was formed from the merger of two former thematic networks DEMETER and AQUAT-NET.
- FOODNET

AFANet aims to develop a European dimension to education and co-operation in universities and colleges in Europe offering degree programmes in agriculture, forestry, aquaculture and the environment. This aim will be achieved by addressing a number of key issues, both structural and discipline-based. These issues include:

- Analysis of current issues in agriculture, forestry, aquaculture and the environment with the objective of influencing curriculum innovation in AFANet partner institutions,
- Support for the shared development of curricula with the objective of developing a European dimension to curricula in AFANet partner institutions,

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<sup>3</sup> **Source:** European Commission, DG XXII Education Training and Youth.

- Support of internationalisation in teaching and learning within the partner institutions, and
- Identification and dissemination of good practice in collaboration between institutions of higher education in the shared delivery of courses and degree programmes.

The current activities in 2000

1. The development of curricula in higher education to embody the concept of sustainability
2. The development of aquaculture curricula in higher education
3. Forestry in changing societies – development of curricula
4. Diversity of European agriculture – agricultural system case studies to support the development of curricula
5. Supporting the development of language teaching for special purposes
6. Staff development for International Relations Officers

The activities of FOODNET include:

- ...
- ...
- ...

Although the activities of AFANet correspond more for long-term co-operation through promoting exchange of information and reflection on the various fields of education and new pedagogical tools, the main driving force is to stimulate student exchange (see § 4).

#### **4. Student Exchanges in the Field of Agricultural and Related Sciences**

##### **4.1. Why students are willing to participate in a mobility programme**

During the 12 years of student mobility in Erasmus a number of studies have been published. From these studies it can be distilled that students are participating in exchange programmes by a combination of a number of reasons:

- to study a similar curriculum but in a different environment: other pedagogical approach, local conditions of a certain geographical area, attitude and standpoint of the region and the particular institution.
- to study a rather different curriculum in most cases not available at the home university.
- to learn and to master another language.
- to live in a region with a different cultural and / or social atmosphere.
- to enhance personality development, social skills and communication through an increased responsibility regarding academic commitments and organizations of living conditions.

##### **4.2. Activities in Student Exchange**

Student exchange can involve three activities.

First the student can participate in the normal study programme of the guest university in a discipline related to the one at his home institution. However this does not mean that the student has to attend the identical subjects of the local students of a particular year, but the student can have the choice to select subjects from different years or disciplines in order to meet the regulation of the home university or to express a personal option.

A second activity of student exchange involves the preparation of a thesis or a project towards a final degree. This project is carried out under the supervision of a local staff member. In addition a number of students are willing to perform an additional training at a guest institution in order to obtain further experience after graduation. In this way they obtained further experience and development skills with the aim to enhance their chances on the labour market. Experimental work at a foreign institution is favoured by students. However the disadvantage is the lack of contact with other students during lectures, practicals and seminars and the lack of experience with another pedagogical approach. The advantage of this activity is that there are no major administrative problems concerning lecture schemes and academically recognition of the study programme. Therefore in order to organize new student exchange programmes it is advisable to start with activities involving experimental work with last year BSc or MSc students or with students who are recently graduated.

A third possibility consists of a combination of performance of a project with a limited number of subjects. In this way students are experiencing both experiences of project work and taught courses.

#### **4.3. Student Exchange: Undergraduate and Graduate Students**

Student exchange can be organized on three levels: BSc students, MSc students and first year PhD students. A clear distinction between these 3 categories of students is very hard to understand in Europe due to the different organization of studies between the different countries in Europe and between Europe and the US.

Generally spoken graduate students are students who have obtained an university degree or diploma which in most cases is a BSc degree. At this moment a reform of the study programmes is occurring in Europe where according to the Bologna Declaration university studies will be organized in a 3 + 2 system in which students will obtain a BSc degree after 3 years and a MSc degree after another 2 years. Such a system is actually operating in the UK, Ireland and the Scandinavian countries and soon will be introduced in the Netherlands, Germany.

However there will be a difference between the British system and the other countries. Where in the UK a BSc degree is considered as a final degree leading to professional activity, in the other countries a BSc degree is considered as an intermediate degree with a limited professional value, which gives the permission to start studies in the last two years. The situation of the US is similar to the one in the British Island. The consequence is that students for a BSc degree in the US and the UK are considered as undergraduate students while in the rest of Europe students are considered only as graduate students after 5 years if study. This is mainly due to the fact that the

study period for a degree in agricultural and related sciences (MSc, engineering) involves 5 years (exception: Ireland, UK). This phenomenon has a dramatic influence on the organisation of student mobility.

Normally student exchange is only organized in the last two years of the study period (except for the UK students). In the new European system (3 + 2) students of the MSc degree are able to participate in mobility programmes. For students of the UK and the US there is not any obstacle to organize exchanges in the BSc and / or MSc level. As mentioned before student exchange can involve participation in the normal teaching programme, project work or a combination of both.

#### **4.4. Practical Organization of Student Exchange**

The organization starts with the signature of a memorandum of understanding between NASULGC and ICA in which the general conditions of student exchange are implemented. Both organizations will inform their members of the possibilities of student exchange in the field of agricultural and related sciences. Further activities will be worked out under separate bilateral agreements between individual Land-Grant Universities (LGU) and ICA-member institutions. In these agreements the conditions of mutual student exchange should be determined and should include the following items:

- number of participating students at each university per year: e.g. 4.
- number of months per year: e.g. 20.
- field of study: e.g. agricultural economics.
- level of the students: undergraduate, graduate, postgraduate.
- type of activity: taught courses, project.
- tuition and fees if applicable.
- conditions of stay: health insurance, third party liability, prove of financial warranty, prove of inscription at home university.
- indication of room and board charges.
- academic recognition of study results.

According to the experiences in the European educational programmes, student exchange can only be successful if there are no additional fees to be paid at the guest university, as the student is paying already a tuition fee at the home university. The second condition is the academic recognition of the study period abroad and the study results obtained. Exchange programmes which are causing an extension of study period are not favourable at this moment. Therefore a credit transfer system similarly with ECTS should become available in order to determine the study load for the period at the guest institution.

From the moment the participating institutions of LGU and ICA are known and the bilateral agreements have been exchanged students will be able to apply for participation. The NASULGC and the ICA Secretariat will co-ordinate the student applications respectively in the US and Europe. The following procedure can be foreseen:

- Both secretariats are forwarding the application form and information to the co-ordinator of the international office at each of the partner universities.
- The international office in collaboration with the local staff are selecting the students.
- The application form, the learning agreement and the CV's of the selected students are forwarded to either the NASULGC or ICA office which in turn will send the information to the international office of the guest university.
- The international office in collaboration with the local staff decides to accept the application (or not) and the decision is sent back to the secretariat and the home university.

In this way all the parties are aware of the application.

The following documents will be available:

- Student application form
- Learning agreement: list of courses or project, contact hours and number of credits.
- Transfer of study results.

In addition a booklet or a website describing the organisation of the studies (calendar, semester, holidays), description of the study programmes and individual subjects, practical information for visa, traveling, accommodation and subsistence, administration, social affairs, cultural events, sports, international office, departmental co-ordinators, will be normally available.

# **Student Exchange Programming The US Experience**

*By Ian Maw*

International student exchange programs appear to have a rich history in many NASULGC institutions. This conclusion is reached given the results of a quick survey conducted among the membership of the Academic Programs Section of NASULGC to collect information of those institutions' experiences with international exchange programs, the challenges they have faced and strategies employed to overcome the challenges. Most institutions that responded (See attached list) indicated that they have student exchange programs of one form or another. All institutions noted the presence of "Junior-Year Abroad" programs centrally administered.

From the data provided by the responses to the questions posed, These remarks are framed around the following topical areas:

- Student Issues (Interest, Concerns, Funding, & Calendar)
- Costs (Tuition, Travel, Room & Board)
- Academic Issues (Credit, Course Substitutions, and Grades)
- Institutional Issues (Faculty, Program Administration)
- Cooperative Education (Work and Internship Experiences)

## **Student Issues (Interest, Concerns, Funding, etc.)**

Students are generally favorably inclined toward an "international study experience" and in the opinion of the institutions responding would take advantage of such programs provided that a number of the following conditions would be present:

- Time of study to obtain their degree would not be extended;
- The cost factors represent a limited differential over a totally domestic education;
- Courses taken are immediately transferable and fit within their major program of study;
- Courses are taught in English; most students prefer going to an institution in which courses are offered in English; language competency would be an issue for students unprepared for classes in a foreign language; programs situated at institutions in which English is not the medium of instruction are more difficult to sustain although some of these have developed special programs taught in English;
- Calendar scheduling of the international experience dovetails with that of "home" institution;
- Students who participate in exchange programs find them rewarding experiences and the international friendships gained follow them in the future;

- Exchange programs are attractive principally to undergraduate students; graduate students' study is more often than not tied to graduate fellowships or assistantships requiring residency at the "home" institution and thus not necessarily feasible;
- graduate students' programs tend to be more highly focused and structured making exchange programs less attractive unless there is a specific opportunity of working in a professor's laboratory or participation as a part of a specific research endeavor. More often than not these grow out of faculty-to- faculty research collaborations;
- More international students seek exchange opportunities in US institution than the reverse situation; for institutions with bilateral arrangements balancing of the numbers can be a concern.

### **Cost Issues (Tuition, Room & Board, Travel)**

The manner in which cost issues are handled appear to be highly dependent upon the form of the individual institutional agreements. In those cases in which bilateral institution-to-institution agreements are in place the most common practice is for the student to pay "home" institution tuition and fees; room and board and travel are the responsibility of the student at the "guest" institution.

In some instances agreements also include room and board as both institutions hold rooms and dining plans for reciprocal exchange students.

In some cases agreements require students to pay tuition and fees at the "guest" institution but usually these are at an "in-state" tuition rate or another "Preferred" rate normally lower than "out-of-state" rates.

In almost all instances, accident and health insurance costs and travel expenses are the responsibility of the individual student. However, a surprising number of institutions reported special funding mechanisms via grants (federal, foundation or corporate funding) to support the travel and miscellaneous expenses.

Financing of exchange programs can be problematic in those instances in which there are wide variations in institutional costs or exchange rates; this is particularly true for incoming students from developing countries.

### **Academic Issues (Course Substitutions, Credit and Grade Point Averages)**

Again the form of the exchange agreement is often a determining factor in the way in which course enrollment, credit and grade point averages are handled. For those institutions with strong bilateral agreements marked by reciprocity and developed by faculty working with their faculty colleagues issues such as course substitutions within a curricular framework, course credit and grades are relatively straightforward. In instances such as these courses are easily substituted, credits accepted within the major, or for a minor, and for graduation. In a number of instances grades are also accepted and counted in the calculation of cumulative grade point

averages (GPA). However, there are many variations on this theme reported by the institutions. Some institutions accept course substitutions and credits, but do not count the grades in the students GPA. Some treat the courses strictly as transfer credits. Some institutions provide "home institution" course numbers for exchange courses and make no distinctions whether the course is a "home" course or not.

The key factor in these matters appears to be faculty-to-faculty dialogue as to course content and the structure and form of the participating institutions' curricula. One comment most instructive noted that in those cases in which the reciprocity exchange is marked by both significant and continuous dialogue and contact at both the faculty level and that of the administration, academic matters are easily disposed of and the exchange program flourishes; where it is absent, programs decline.

Most institutions noted the importance of student advising prior to participation in an exchange program to insure that the student can glean maximum benefit from the experience. In-bound foreign exchange students also require faculty and student-to-student mentoring to ensure a relatively easy and successful transition both within and without the classroom.

Some institutions require students to have achieved a minimum GPA to be eligible for an exchange experience as well as a minimum class standing (usually junior/3<sup>rd</sup> year standing); others do not, reporting no correlation between GPAs or class standing and a successful exchange experience. Rather student maturity and academic readiness (however measured) are found to be more important prerequisites.

### **Institutional Issues (Program Administration and Faculty)**

The most successful exchange programs appear to be built on bilateral arrangements in which there exists constant dialogue and reciprocal faculty exchanges as well as student exchanges. The faculty themselves -- as well as administrators -- become participants in the programs.

All exchange programs are deemed to be labor intensive. Even in those instances in which faculty members (and students) can rely upon a central institutional office for handling much of the necessary paperwork such as application procedures, course registrations, grade reporting, assisting with insurance needs, and even travel arrangements, etc., there is significant need for faculty involvement in the academic advising of students, the preparation of students for adjustments in living abroad and cultural understanding. Given the labor-intensive nature of exchange programs, there needs to be a strong institutional commitment with an adequate resource base of funding to support administrative structures as well as international travel for faculty and administrators.

There is an increasing interest on the part of institutions generally to provide opportunities for international study and experience for students particularly for undergraduates as the opportunities for global societal connections increase. There is a sense that this will only intensify in the future.

## **Cooperative Education (Work Experiences, Internships, etc.)**

Very few institutions reported formalized Cooperative Education Programs in which their colleges participated or had students participate in foreign work placements. More often reported were internship experiences for undergraduate students growing out of faculty-to-faculty contacts.

This appears to be an arena in which little exploration has taken place. It is nonetheless an area that the respondents felt worthy of some concentration of effort. Several institutions reported successful internships "stateside" for foreign exchange students providing paid work experiences for students in agribusiness or agricultural production farms and/or research lab internships or field trial research.

Heretofore, European work restrictions may have inhibited developments in this area. However, recent relaxations of such restrictions may allow more positive development. For example, some US institutions (Rutgers, as an example) require as an undergraduate graduation requirement a practical work experience in their chosen discipline and given that many of the agribusinesses are multinational or international, this may be an area to be actively explored.

### **Summary**

Using the initial discussions between ICA and NASULGC as a point of departure, it is reasonable to develop structures for further work focused around student exchange programs. However, the prevailing thoughts about student exchange -- at least so far as the institutional responses appear to have indicated -- is that those most likely to be successful and sustainable have faculty-to-faculty involvement. These are also those in which there is a strong institutional commitment represented by both administration and the allocation of resources to defray the costs of the activities. The strongest agreements appear to be those that are bilateral and reciprocal in nature, which address cost issues such as tuition and room and board, credit transfer, grading conditions.

### **Institutions Responding to Survey**

California State University, Fresno  
Colorado State University  
Cornell University  
Louisiana State University  
Michigan State University  
Mississippi State University  
North Dakota State University  
Oregon State University  
Purdue University

Rutgers University  
Southern Illinois University  
Texas A & M University  
Texas Tech University  
The Ohio State University  
The Pennsylvania State University  
University of California, Davis  
University of Connecticut  
University of Delaware  
University of Georgia  
University of Hawaii  
University of Maryland—Eastern Shore  
University of Massachusetts  
University of Nebraska  
University of Puerto Rico, Mayaguez  
University of Wisconsin  
University of Wyoming  
Virginia Tech University

**Brief Survey Questions:**

Does your institution have a formal student exchange program with any foreign institutions? What has been your experience with the same? What are some of the challenges and how have they been overcome?

**If you have a program is it for undergraduate, graduate students, or both? With what institutions do you have such a program?**

**How have you handled issues of credit, tuition differential, room & board?**

**Do you believe your students (graduate and undergraduate) would be interested in study at a European institution? What might be some of the drawbacks and opportunities from the student perspective, from the faculty perspective?**

If you have a formalized cooperative education program within your college or institution are any of the placements outside the U.S. how have these worked? What are the challenges? How might these be overcome? Were such experiences available for your students in Europe, might students avail themselves of such opportunities?

# **White Paper on US and European Collaboration on Distance Education**

*By*  
*H. Dean Sutphin, Cornell University*  
*Simon Heath, Aberdeen University*

## **Background**

Ideas, concepts, and questions expressed in this paper on distance learning are presented for discussion during the joint meeting of the Interuniversity Conference for Agricultural and Related Sciences (ICA) and the National Association of State Universities and Land-grant Colleges Board on Agriculture (NASULGC). The original charge for this White Paper evolved from a similar joint meeting in Amsterdam, Netherlands in July 1999. We fully anticipate an evolutionary process that brings together joint US and European higher education through distance and distributed learning.

First, we should clarify the terms “distance” and “distributed learning”. The former has far greater historical significance, representing learning where students and faculty are disconnected by time and space. Distributed learning casts a larger umbrella to include campus based electronic assisted learning along with off campus learning. For the sake of this paper, we will adopt the term “distance learning” because of the widespread familiarity, while encouraging those engaged in this discussion to consider the more contemporary and inclusive concepts associated with “distributed learning”. Distance learning can provide a more open and student-centered approach to learning.

This paper presents a framework for international collaboration through distance learning between ICA and NASULG institutions. We encourage constructive criticism through reflection and careful analysis of the relevant questions pertaining to distance learning.

## **Changes in Higher Education**

This consideration of distance learning comes at a time when there are a number of changes across the higher education system. Ward (2000) identified four currents of change affecting higher education: 1) communications revolution, 2) shifts in intellectual division of labor, 3) shifts in funding streams and 4) demographic shifts and accessibility. Ward noted that these changes bring with them opportunities for collaboration across the oceans involving both students and faculty. These learning experiences can extend well beyond the traditional classroom, uses of information technology, and increased field and research opportunities.

Students are becoming highly skilled in using educational technology at a young age prior to college which will create expectations for multimedia based learning in higher education and in their life-long education. The European Commissioner, Romano Prodi, recently announced a new initiative, “eEurope: An Information Society for All” which has a three-year schedule to equip all schools with Internet, multimedia, web-based information and educational resources (Distance Education Report, 2000). Teachers will be individually equipped and skilled in the use Internet and multimedia resources. Clearly, as these students move through the educational system and as adults, they will expect learning environments supported by educational technology.

Highly respected American and European Universities are aggressively pursuing distance learning. The Wharton Business School, in collaboration with Caliber learning, has initiated a distance learning program known as Wharton Direct. Learners attend six three-hour sessions during a six-week period in Caliber designated learning facilities across the country. At the end of these sessions, participants receive certificates. Clearly, the higher education community is continuing to sort out appropriate strategies.

The open university in Britain is non-selective in admissions and designs its courses for part-time and working students, challenging established higher education institutions (Blumenstyk, 1999). Now, the British Open University is starting operations in the United States. While few research universities are likely to move toward such an open admissions policy, the ways of providing access to life-long learners and special programs may well change.

### **Emerging Partnerships in Distance Learning**

Some well-known universities are signing agreements with one another to cope with a competitive environment for students and to deal with limited funds. For example, Universitas 21, a group of 21 universities from 7 nations, is attempting to register for commercial purposes and hopes to share programs and resources (Cohen, 1999). Cornell University has recently established eCornell, a for-profit venture taken off campus, supported by venture capitalists who will receive a return on their investment. While going alone, Cornell has not ruled out collaboration with other universities on selective initiatives. Other types of partnerships are emerging as well. For example, universities are signing deals with suppliers of on-line textbooks (Olsen, 1999).

Approximately 59 US colleges of agriculture are participating in a national consortium, ADEC (American Distance Education Consortium), which uses financial assessments from respective member institutions to operate. In 1999 ADEC formed a committee, IDEAL I, to generate guidelines and plans for distance learning across the consortium. The primary purpose was to engage the membership in discussions of possible solutions related to distance education including administrative issues such as credit transfer, multi-state programming, tuition payments, turf problems and quality questions.

Recommendations for distance learning, prepared by IDEAL I, included a checklist for

implementing distance learning, two sets of guiding principles, a learning center study, turf study, transfer credit and an inventory. These items are available from the ADEC webpage at <http://www.adec.edu/ideal/ideal.html>. The IDEAL I Report could be very useful in preparing for US and European partnerships for distance learning. An implementation committee called IDEAL II will issue additional products.

The IDEAL II distance learning implementation committee has five objectives: 1) Review the recommendations and assure that all elements needing further attention are addressed; 2) Develop an IDEAL publication including key recommendations and best practices; 3) Review the ADEC website, develop upgrades, promote the website to all institutions and involve the Academic Programs Section of NASULGC in implementation; 4) Plan a national videoconference on the IDEAL Report and assure wide participation; 5) Review results of the Learning Center Survey and develop follow-up activities, possibly an online Learning Center.

A national live interactive videoconference town meeting this spring of over 60 universities discussed distance learning, support services, success stories and best practices. The audiences included chief information officers, provosts, deans of colleges, financial and business officers, faculty and students. Results will be available on the ADEC website and in the IDEAL II report.

### **Continuing Discussion on Distance Learning in Higher Education**

There are certainly shifts in thinking about higher education. Learning rather than teaching is becoming the dominant paradigm. While higher education has focused on teaching, distance education is more accurately portrayed as learning in a cyber community (Haterick, 2000). Theoretical, conceptual and philosophical dimensions of learning at a distance should be examined.

Indeed, the role of distance learning, new partnerships among universities and re-consideration of the mission of higher education is creating debate and controversy. A recent University of Illinois report concluded that online education can be viable, practical and pedagogically sound, but cautioned that this is only true if certain conditions are understood and met by both faculty and administrators.

The optimism and cautions in the Illinois report seem appropriate for considering American and European partnerships in distance learning that could be of mutual benefit. A vision for the future of distance learning must be derived from a dialogue. We are sharing some general parameters for the discussion.

### **Compatibility of Distance Education with Institutional Mission**

The vision for international collaboration in the delivery of distance learning should complement the international missions of our respective institutions, one that each university in the consortia can embrace. We expect that this vision will add value to each university's unique strengths and opportunities.

In many cases, faculty will have the opportunity to build on international linkages that have been developed over many years through more traditional educational events. These experiences could now be enhanced through distance learning. We have the enviable position of creating a vision of our preference. Yet, there are significant questions such as: How should we engage in the process of creating a vision? What processes will be most successful to create faculty ownership? How can we most effectively encourage and empower the faculty to pursue distance learning?

We suggest scenario building through brainstorming in focus groups to address needs and develop a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis for international collaboration in the delivery of distance learning. This could be appropriately characterized as “dreaming about the future” to create a desired future. The discussion groups at this conference could use this strategy to create win/win situations for our respective institutions that will make a positive contribution to global education.

### **Significance of Distance Learning in Higher Education**

Terms such as “information age”, “information technology”, “digital economy”, “digital revolution”, and “learning society” signify transformations in higher education. They signify the potential for new forms of engagement by learners in a world-wide learning network. An emphasis on “life-long learning”, “just-in-time learning” and “part-time learning” provides strong drivers for the delivery of short courses direct to the work place.

Prominent research universities are announcing degree programs and major distance learning initiatives that signify a global campus and partnerships which include educational partners, governmental agencies and private businesses. Universities are assuming leadership in niche markets. Delivery of education “any time, any place” is becoming part of the operation and framework in most higher education institutions.

Transnational education defined as “providing educational services outside the home nation (or political entity) of the provider” represents an important emerging concept. Universities in partnerships with corporations are providing training for employees. Study abroad programs, single purpose programs, branch campuses, institutions chartered in their home country operating abroad or language programs are options that can be part of a distance learning program.

Educational technologies can be transformative for higher education. Yet, the expense and a highly competitive environment represent potential threats. How can we efficiently use new educational technologies to enrich the curriculum, empower learners and add significant value to our institutions?

There is potential for distance learning technologies to enhance the research university system by bringing together scientists with similar interests. Scientists in distant locations can now work together in real time or collaborate asynchronously. We have the ability to create international scholarly workgroups.

Yet, there are many issues associated with uses of electronic networks in higher education such as pedagogy, information technology infrastructure, faculty workload, compensation and tenure. The faculty and administration should work together to experiment with new models and structures. Care should be taken to develop credit and non-credit courses, short courses, and seminars that enhance the individual strength of universities. The extent to which distance learning represents significant changes are reflected in questions on the structure required to support the transition of courses and learning modules to a distance learning mode; support services for faculty; removing barriers; the types of degrees; and preferred structures for learning. Perhaps the most challenging question is related to financing distance learning.

### **Challenge of Financing Distance Learning**

An income stream should not be a prerequisite for distance learning programming. Yet, there must be a solid financial base to sustain new initiatives. Shive (2000) suggests that universities will buy, lease and sell digital course modules developed by their star academics. The market is immense. Some believe that each individual in the workforce will likely need the equivalent of 30 credit hours of instruction every seven years. Even so, few universities have resolved to their satisfaction scaleable financial models for distance learning. Questions related to financing distance learning include sources of funding, use of institutional funds and allocation of capital funds for electronic technology program development.

### **Reinventing Institutional Policies and Practices**

There are fundamental policy, practice and political issues to be resolved for courses to migrate fully or in part to distance education. Guiding principles for distance learning should foster faculty creativity while protecting the interests of the university. These guiding principles, policies and best practices should create distance learning opportunities in a wide range of areas. Each university will need to examine their fundamental values such as their commitment to life-long learning, mechanism for accepting distance learning credit, market niches, targeted audiences and appropriate linkages with community colleges, public high schools, government and other potential partners.

How might the European and US University system begin to address the significant issues surrounding distance learning? We believe it is important to create a framework for that discussion.

### **Framework for Planning US and European Distance Learning**

Linkages should be defined among the various units on campus that support information technologies for distance learning such as schools of continuing education, media technology services and other support services

We will present a brief discussion in key areas and pose key questions. This model closely follows the Strategic Plan for Distance Learning adopted by the Cornell College of Agriculture and Life Sciences, which evolved from a faculty and staff committee. In March 2000 the Academic Program Section of NASULGC adopted a similar framework to guide a national discussion of distance learning. The model has been adapted for a discussion of joint US and European partnerships for distance learning.

## **Vision**

Through international collaboration in the support of distance learners, we will be better able to address societal needs for learning as a lifelong process, important for successful participation of our citizens in the social, cultural, civic, and economic life of a global democratic society. The partner institutions will enhance their capability and success through distance learning.

- Is this the correct view?
- Does it capture the audience we should serve?
- Does it meet the aspirations and needs of the partner institutions?

## **Guiding Principles for Distance Learning in a Learning Society**

Guiding principles are needed to sustain high-quality distance learning. Without such principles, our development of distance learning could easily be fragmented, disjointed and ill conceived from the standpoint of sound educational theory and pedagogy.

- Is it appropriate to adopt an international portfolio of guiding principles among our institutions?
- What are these principles?
- How would we establish a self-governance process to ensure the principles are applied?

## **Productive Alliances**

The alliances between cooperating universities can be initiated at the course or program level, the department level or at the institutional level. Our efficiency for curriculum development and program delivery could be enhanced with a mechanism shared in common among our institutions.

- What are the pros and cons for initiating collaboration at each level?
- What structures should be in place to support collaboration at each level?
- Which alliances are likely to be most productive in the short term and the long term?

## **Administrative Policy and Issues**

Policies for distance learning should foster interaction among colleges and universities. Ideally, we need a common set of policies while avoiding any limitations on faculty creativity.

- Are there barriers to collaboration between our respective institutions that we should remove?
- What are the barriers?
- How can we remove them?

### **Undergraduate Education**

Partnerships among institutions should foster course exchange. There should be experimentation with models for international linkages to core undergraduate programs on campus.

- How can we foster international opportunities in undergraduate distance education?
- What are the most likely opportunities?

### **Graduate Education**

Graduate education opportunities, continuing and adult education such as short courses and professional development programs could provide enriching international experiences.

- How can we foster collaborative initiatives through distance learning?
- What special arrangements for credit will have to be initiated?

### **Partners and Opportunities in Distance Learning**

Partnerships with business and industry may be appropriate for meeting educational needs of target audiences. The possibilities should be examined in terms of collaboration across the entire higher education system.

- Where are our opportunities for collaboration?
- How should we proceed?

### **Extension and Outreach**

Distance learning linkages between extension and academic programs should be examined. There are a variety of outreach systems in our consortia.

- How might we take advantage of the opportunities?
- What are the appropriate strategies to develop a continuum of higher education through life-long learning?

### **Research**

Support of collaborative research, workshops for training in research methods or certification for laboratories, thesis and research activities, and other research and development through distance

learning networks should be examined.

What are the most promising opportunities for collaboration?

What are the strategies to build linkages among teaching, research and extension activities?

### **Opportunities for the Future**

Our goal is to identify and disseminate “best practices” in the development of cooperation between higher education institutions at the international level for the shared delivery of teaching and learning, along with other appropriate partners.

We will carry out the following objectives:

- identify “best practices” at the institutional, the degree program or the course level in the development of effective cooperation.
- identify the components of cooperation which have led to successful outcomes.
- identify the institutional support structures required to facilitate cooperation.
- disseminate this evaluation study to the ICA/NASULGC institutions.
- document and exploit results in the future development of collaboration between ICA/NASULGC institutions and their partners.

### **References**

Blumenstj, G. Distance Learning at the Open University. *The Chronicle of Higher Education*. July 23 1999, A35.

Cohen, D. Universities From 7 Nations Ally to Market Their Assets. *The Chronicle of Higher Education*. July 23 1999, A71.

Distance Education Report. *Global Village: Focus on Europe*. March 15, 2000, p3.

Haterick, R. Time is Nature’s Way of Making Sure Everything Doesn’t Happen at Once. *The Learning MarketSpace a publication of The leadership Forum at the Center for Academic Transformation* <http://www.center.rpi.edu/> March 1, 2000.

IDEAL I Report, American Distance Education Consortium, Commissioned Report. Spring 1999. Available on Website <http://www.adec.edu/ideal/ideal.html>.

Olsen, F. On-Line Bookseller Signs Deals to Handle Textbook Orders for 2 College Stores. *The Chronicle of Higher Education*. July 23, 1999, A36.

Shive, G. Distance Learning and Structural Change in American Higher Education. *International Higher Education*. Fall 1999/Winter 2000, p.33-35.

Sutphin, D. (ed.) Cornell College of Agriculture and Life Sciences Strategic Plan for Distance Learning. College Report, Cornell University, Ithaca NY, 1998.

Ward, D. Catching the Wave of Change in American Higher Education. *Educause Review* January/February (2000) Vol. 35 No. 1, 22- 31.

# Some Issues Relative to Developing Curricula

*By James H. Mortensen*

## Introduction

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Given the critical necessity to prepare students to function in a global society, it is imperative to internationalize curricula at the undergraduate and graduate levels of our Colleges of Agricultural Sciences. An optimally internationalized curriculum enables students to gain a working knowledge of:

- Comparative aspects of distinctive cultural features in different societies from social, economic, geographic, and historical perspectives.
- Current issues and their relationships to international interdependence and global survival: health, nutrition, world population, trade, security, environment.
- International contributions to the food, agriculture and natural resource disciplines.
- The professional skills needed to succeed in an internationally competitive world.
- At least one foreign language.

Internationalization of the curriculum is achieved through:

- Course requirements with an international focus or aspect.
- Infusion of a strong global perspective into undergraduate and graduate education courses.
- Creation of International Studies options, certificates, minors, majors, graduate degrees.
- A structured international experience outside the student's home country.
- Area studies concentrations
- A foreign language requirement.

## **Building an Effective Curriculum**

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A curriculum is developed sequentially, beginning with an institutional statement of goals/outcomes and ending with the assessment of each student prior to graduation and after. As one moves through the design process, from defining general student outcomes to developing course goals and then unit-by-unit objectives, statements of the goals/outcomes become increasingly specific. Careful attention to this process is even more important as we integrate, share and combine courses and learning experiences among our universities in an effort to internationalize the curriculum

## **Goals of a Curriculum**

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In general the goals of a curriculum evolve from outcomes which all students should reach by graduation. The Center for the Study of Higher and Postsecondary Education at the University of Michigan (1988) identified the following student outcomes important in professional fields. It is important to note, however, that a final list of goals/outcomes, their definition, and how they should be assessed must evolve on each campus. To be effective, faculty must be engaged in the process of goal identification and take ownership of the product.

### Traditional Professional Outcomes

**Conceptual Competence.** The graduate understands the theoretical foundations of the profession.

**Technical Competence.** The graduate can perform skills required of the professional.

**Integrative Competence.** The graduate can integrate theory and skills in the practice setting.

**CareerMarketability.** The graduate has superior employment opportunities because of acquired training.

### Professional Outcomes in Common with Liberal Education

**Communication Competence.** The graduate can read, write, speak, and listen Effectively to acquire, develop, convey ideas and information.

**Critical Thinking.** The graduate examines issues rationally, logically, and coherently.

**Contextual Competency.** The graduate understands the societal context (environment) in which the profession is practiced.

**Aesthetic Sensibility.** The graduate will have an enhanced aesthetic awareness of the arts and human behavior for both personal enrichment and application in enhancement of the profession.

**Professional Identity.** The graduate acknowledges and is concerned with improving the knowledge, skills, and values of the profession.

**Professional Ethics.** The graduate understands and accepts the ethics of the profession as standards that guide professional behavior.

**Adaptive Competency.** The graduate anticipates, adapts to, and promotes changes important to the profession's societal purpose and the professional's role.

**Leadership Capacity.** The graduate exhibits the capacity to contribute as a productive member of the profession and to assume leadership roles as appropriate in the profession and society.

**Scholarly Concern for Improvement.** The graduate recognizes the need to increase knowledge and advance the profession through systematic, cumulative research on problems of theory and practice.

**Motivation for Continued Learning.** The graduate continues to explore and expand personal, civic, and professional knowledge and skills throughout a lifetime.

Although not specified in the University of Michigan Study, I propose adding:

**Global Perspective.** The graduate can collaborate and compete in the international marketplace of products, services, and ideas.

### **Bringing Coherence to Learning** \_\_\_\_\_

Research conducted by the National Center on Postsecondary Teaching, Learning, and Assessment (1995) shows that approximately 5 percent of all courses in any one year are new, experimental, and/or offered once. This is healthy evidence that experimentation is taking place; unfortunately, much of this experimentation is occurring in single courses rather than cogent and coherent curricular sequences. Student learning may be fragmented and unconnected with the goals of education and learning. The knowledge base in the agricultural disciplines is expanding, and much innovation is directed at new topics, themes, and paradigms in the fields of specialization. The curriculum is being packed with expanding world of knowledge, perspectives, and innovations.

In our universities today, there is an expanding offering of course work and curricula. Typically undergraduate students and their faculty have from 3,000 to 5,000 courses from which to choose the 40 – 45 they will take as part of their baccalaureate degree program. This number will continue to increase as more and more courses are shared and become available through electronic means. In colleges of agriculture, the number from which to choose ranges from 800 to 1500 courses. The exploding and expansive curriculum reflects the explosion of knowledge, the creation of new fields, and the reliance of society on colleges and universities to provide the

future with human capital to meet the needs of the food, agriculture and natural resources systems.

Inside the curriculum we find much innovation. On average, approximately 5 percent of courses offered in a given year were not listed in the previous year's college catalog or university bulletin. These are experimental courses, new additions and significant modifications to the program of study. The cumulative effect is that 20 percent of the course choices that a first-year student will encounter at a given college or university this coming fall were not available to the graduating senior this spring.

The efforts to bring coherence and engagement to student learning needs to lead, not follow, course by course innovation in the curriculum. Casual acquaintance with a discipline is not synonymous with in-depth learning. Research suggests that a student who takes introductory courses in chemistry, biology, and physics is not as likely to show significant gains in scientific methods of inquiry as will a student taking a planned sequence of instruction consisting of three credit courses in inorganic, organic and molecular chemistry. I'm quite confident the same would hold true in the agricultural sciences.

## Summary

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The following summary of research findings on designing effective instruction is adapted from Romer, 1995 as reported by Diamond, 1998.

A quality undergraduate curriculum requires:

- **Coherence.** Students succeed best in developing higher-order skills (critical thinking, written and oral communication, problem solving) when such skills are reinforced throughout their educational experience.
- **Synthesizing experiences.** Students also learn best when they are required to synthesize knowledge and skills learned in different places in the context of a single problem or setting.
- **Ongoing practice of learned skills.** Unpracticed skills atrophy quickly, particularly core skills such as computation and writing.
- **Integration of education and experience.** Classroom learning is both augmented and reinforced by multiple opportunities to apply what is learned.

The following summary of research findings on curriculum design were adapted primarily from Gardiner, 1996.

- Most curricula are unfocused, do not include clear statements of intended outcomes, and do not produce the intended results. There's a notable absence of structure and coherency.

- A number of conditions foster the development of college-level competences, including challenging courses, a supportive environment, active involvement in learning, high expectations, clearly defined and attainable goals with frequent assessment and prompt feedback. The goals must be challenging and communicated to the student.
- Providing a wide range of options in a general education requirement tends to be counterproductive. The most effective curricula tend to have a carefully structured core program with few electives.
- An effective curriculum provides multiple opportunities to apply and practice what is learned.

One of the most prevalent problems in course and curriculum design is the tendency of faculty to lose sight of the fact that each course is but one element in a learning sequence defined as a curriculum. The closer the relationships are among units/modules, courses, curriculum, and planned out of the classroom activities, the more effective the learning experience will be for students. Diamond (1998) summarized it best when he wrote:

A quality education does not happen by chance; it requires careful planning, effective teaching, and an overall structure that ensures that every student has the opportunity to reach the goals of the program in which she or he is enrolled. A quality education requires faculty who are paying attention to the structure, content, and process. It requires hard work!

## **Issues for Discussions** \_\_\_\_\_

Selected issues or concerns needing to be addressed as we build effective curricula include:

1. The need to review and in some cases develop a set of goals or student outcomes. The final list of goals/outcomes, their definition, and how they should be assessed must evolve on each campus.
2. The need to relate our curriculum, our courses, and our teaching to clearly articulated goals.
3. The need to ensure that the elements of the curriculum (courses and other experiences) are combined and sequenced to most effectively and efficiently make these goals attainable.
4. The need to design effective assessment instruments and procedures.

## References

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Center for the Study of Higher and Postsecondary Education. *PLUSS – Professional/Liberal Undergraduate Self-Study*. Ann Arbor, Michigan: The University of Michigan, 1988

Diamond, Robert M. *Designing and Assessing Courses & Curricula, A practical Guide*. San Francisco: Josey Bass, 1998

Gardiner, L. F. *Redesigning Higher Education: Producing Dramatic Gains in Student Learning*. Report 7. Washington, DC: Graduate School of Education and Human Development, George Washington University, 1996

National Association of State Universities and Land-Grant Colleges. *Globalizing Agricultural Science and Education Programs for America*. Washington, DC

National Center on Postsecondary Teaching, Learning, and Assessment. *Realizing the Potential: Improving Postsecondary Teaching, Learning, and Assessment*. University Park, PA: Pennsylvania State University, 1995

Romer, R. *Making Quality Count in Undergraduate Education*. Denver: Education Commission of the States, 1995

# Curriculum Development in Agricultural and Related Sciences between U.S. – Europe

*By Roland Verhé*

## 1. Introduction

The considerable expansion of international activities in curriculum development over the last decade is a phenomenon closely linked with the commitment to inter-cultural perspectives in the dissemination of knowledge, the rise of academic entrepreneurship and in some regions the financial reduction in budgets.

Internationalising the curriculum is intended to improve student and staff exchange, to enhance the knowledge of foreign languages and understanding of other countries and cultures and to strengthen inter-cultural competence and cross-cultural communication skills.

Internationalisation of curriculum development can be defined as a process of incorporation or integration of international elements or an international dimension into the curricula, teaching methods and evaluation of student competence. These elements can be achieved by mobility of students and staff or by non-mobile students by introduction of an international dimension into study programmes.

A narrower definition specifies that international elements should be introduced in the curriculum content. Therefore, a course taught by a foreign guest lecturer, a course taught in another country or in a foreign language is not necessarily an international curriculum. In our context, internationalising curriculum development is defined as ‘the process of curriculum development or change which is aimed at integrating a global dimension to the content and preferably also into the pedagogical approach’.

The introduction of international elements is one of the most essential aspects of internationalisation. It is affecting the educational system over a longer period of time and for a larger number of students than programmes which are only involved in the international mobility of students. In addition the teaching staff can play an important role in the development and implementation. Furthermore academic staff (both scientific and administrative) have the opportunity to enhance this international orientation and knowledge.

Curriculum development is a stable element in internationalisation in comparison with student and staff mobility. Therefore internationalisation of curriculum development provides a guarantee for consolidation and institutionalisation of global dimensions in higher education.

As a conclusion it can be stated that curricula with an international orientation in content, aimed at preparing students for performing professionally and socially in global and multicultural context and designed for local students and/or foreign students, seems to be the ultimate objective of an internationalised curriculum development.

## **2. Incorporation of “International Dimension” in Curricula**

International education, originally covered activities such as study abroad and international students. Over the two last decades, this term is used to describe activities, programmes and projects meant to internationalise higher education. Among these international activities curriculum development has been underestimated in comparison with the longer tradition of internationalisation and cooperation in research projects. In Europe only with the introduction of the Erasmus and Socrates programmes curriculum development for teaching programmes has been started slowly from the early nineties, while in the Comett and Leonardo da Vinci programmes for vocational and professional curricula organised during a limited period and in very specialised fields have been developed.

Internationalisation of education is inevitable, as the progress and advancement of knowledge is a global activity without borders. In terms of academic study, an international approach avoids parochialism in curricula and stimulates critical thinking of a multidisciplinary approach. Efforts in curriculum development are intended to enable the institution of higher education to involve the interdependence among nations and to prepare staff and students to functions in an international and multicultural context. In addition, even students who never leave their country are influenced by the impact of a globalised curriculum development.

Institutions of higher education have the opportunity and responsibility through international curriculum development to increase awareness of changing phenomena that affect the economic and multicultural transformations within and among nations.

It must be pointed out that curriculum innovation are activities which require careful reflection to the impact on the faculty and student experience which influence in turn the various stakeholders: international, national and regional authorities, the private sector, and institutions.

## **3. Curriculum development-related activities**

Although internationalisation of education covers a wide range of activities, the principal reference is to teaching and training.

Next to student and staff exchange curriculum development is one of the most important activities in order to activate mobility of students and staff. Until now curriculum development represents a relatively minor activity compared to the number of projects involving mobility. However its value must be recognised as an important vehicle for the organisation of globalisation of studies. This is mainly due to the intensity of the work: labour intensive complex, effects on institutional structures.

Curriculum development will include the following aspects:

- infusion of disciplines with international content
- comparative and issue-oriented approaches
- interdisciplinary study programmes
- international development programmes

The global economic transformation is the most powerful motivation for curriculum development. A large number of institutions are not ready for this transformation, especially in undergraduate curriculum development where students are prepared for the multicultural world in which they will work and live. Within Europe an additional incentive for curriculum development is the integration of a “European dimension” in curricula. Differences in subject approaches, degree organisations and teaching methodologies should provide a cross-fertilisation of educational systems in the different regions, enhance the similarity between curricula and academic degrees and provide more transparency.

Researchers involved in a OECD-project defined a “curriculum” as a study programme for a semester, an academic year, or a complete degree programme and adopted the following definition for internationalised curricula: *curricula with an international orientation in content aimed at preparing students for performing in an international and multicultural context and designed for domestic and/or foreign students.*

For degree programmes in agriculture and related sciences the following curricula can be served as criteria for curriculum development:

- curricula with an international subject, e.g. tropical agriculture
- curricula in which the traditional/original subject area is broadened by an internationally comparative approach, e.g. international agricultural economics
- interdisciplinary programmes such as regional and area studies covering more than one country, e.g. rural development, sustainable agriculture
- curricula which prepare students for international professions or leading to internationally recognised professional qualifications, e.g. total food quality management.
- curricula leading to joint or double degrees

#### **4. Integration of curriculum development**

International curriculum development develops a set of conditions necessary for the successful implementation of curricula:

- sufficient institutional autonomy
- sufficient flexibility in curriculum regulations within the institution
- endorsement from the top-management
- international cooperation contacts
- involvement of the staff
- innovation by a leading academic
- coherence between parts of the curriculum offered by partner institutions
- additional funding
- measures for quality insurance

Implementations of internationalised curricula can be performed at three levels at institutions of higher education: at the undergraduate, graduate (MSc) and doctorate level.

Due to differences both in Europe and between Europe and the US especially in study programmes at the undergraduate level (BSc-level), it seems to be very difficult to implement activities for curriculum development.

In Europe BSc-degrees are not developed in agriculture and related sciences with the exception of the UK, Ireland and Scandinavian countries. In addition there is a difference of the objective in BSc-degrees between the British degree which is in most cases more specialized and can lead either to a profession or as a basis for graduate studies, while in the Scandinavian system a BSc is not a final diploma leading to a professional degree but is considered as a basic study programme in agricultural sciences involving basic sciences and a start of a more specialized MSc study programme. It is foreseen that such a system BSc and MSc (3+2) will be the basis of study programmes in agricultural and related sciences.

In Europe curriculum development in undergraduate studies (BSc-level) involves a multidisciplinary approach especially in the first two years in which fundamental sciences such as chemistry, physics, mathematics, biology are taught. In the third year specialisation can start in a topic such as forestry, food sciences, economics, etc...

Therefore curriculum development at the BSc-level exhibits two approaches. The first one involves a study dealing with the basic knowledge which a student should have in order to study agricultural and related sciences. The second one is dealing with more specialized topics and will correspond the 3<sup>rd</sup> year in Europe and the 4<sup>th</sup> year in the US.

Due to the regional differences in Europe and the actual reform of the studies, curriculum development programmes involving several countries is limited at this moment. In the US and in the Anglo-Saxon tradition (UK), internationalisation of curriculum development in the undergraduate studies is of higher importance than in other regions of Europe.

Educational programmes dealing with international curriculum development at the MSc-level is more developed especially in Europe. This phenomenon is due to several reasons:

- lower impact of different educational systems at the level of educational programmes in more specialized programmes
- higher institutional autonomy for organizing programmes at the MSc-level
- the diversity among disciplines favored seems to be less important in organizing common curricula in specialized topics at different institutions
- the language issue is less fundamental in MSc programmes as a number of these students are also created to attract foreign students

Normally curricula at the MSc-level are more specialized topics preferably involving a multidisciplinary approach. The study period is ranging from 12 months until 24 months

depending upon the study profile of the student. The study programme can be rather general e.g. MSc in Agricultural Economics, Food Science or very specific such as Sustainable Agriculture, Quality Management, etc. Most MSc-degrees are involving a period of taught courses with compulsory and optional modules followed by a research project with a publication of a report.

Especially during the last five years, MSc-degree courses are organized in a modular system. This gives the advantage that student mobility can be organized in a more efficient way, that staff from other institutions can be involved in the teaching programme, and that this MSc-degree can be attended more easily by part-time students. In an international curriculum offered at different institutions in different countries a student can complete this study programme at two institutions on the condition that both institutions are recognizing the study results at both sides. In addition a student can obtain a joined or a double diploma.

Recently European Masters have been created. In these study programmes students are studying at different locations. For example: a European Masters Degree in Food studies have been created in which the first ten months are allocated to five study periods of two months each, at five different universities. Each study period consists of three to five intensive modules covering more advanced topics. Afterwards a research project will be undertaken for a period of 6 months in selected universities, research centres or industries. The programme is finalized with a study visit in different countries.

International curriculum development at PhD-level can be organized by the organisation of intensive courses on very specialized topics. This due to the fact that in a number of European countries the number of courses to be attended are very low in comparison with PhD-studies in US institutions.

# NETWORKING AGRICULTURAL RESEARCH INTERNATIONALLY

*By*

*David R. MacKenzie<sup>4</sup>, Richard L. Jones<sup>5</sup> and Rudy Rabbinge<sup>6</sup>*

## INTRODUCTION

The extent of international research collaborations has grown in recent years, mostly as a result of individual investigators seeking out similar researchers through the literature and through informal communication networks. This informal networking has provided valuable research synergy, rich returns to the individuals and institutions, and substantial discoveries that otherwise might not have been possible. Agricultural research has long been a prominent player in this informal network of international collaboration.

International networking for agricultural research has many potential advantages, including enhanced project efficiencies through joint planning, equipment and facility sharing, multiple site testing, and intellectual enrichment through new associations. The downsides to international collaboration may be higher transactional costs for participation, and the all-too-common lack of management support for such collaborative activities. However, much faster progress may lead to an improvement of agricultural production for all, and the well understood self interest of all parties may be stimulated.

Changing perceptions toward international research collaboration as a result of the high costs of some forms of contemporary research, lower costs for travel, and the information technology (IT) revolution have created a desire to assess the opportunities for facilitating institutional links internationally. This is especially true for agricultural research which must deal with the long term preservation of resources, site-specific performance factors, global trade and consumer issues, and trans-national environmental issues.

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## GUIDING PRINCIPLES

Multi-institutional research projects that give benefits to all participants will likely continue to proceed without the need for any intervention by management. Some administrators have noted that this is as it should be, and this philosophy forms the basic premise for much of international science, as we know it today. Management interference in successful research collaborations is normally counterproductive, and should be eschewed.

However, an individual research investigator's participation in multi-institutional research projects may only come at additional cost and burden to the PI, and may not always provide the PI with any direct benefits. But, the benefits resulting from some such research collaborations, when viewed in the aggregate and/or from a larger perspective, may be substantial. Identifying, creating, and capturing these institutional-level benefits, when they occur in the absence of any direct benefits to the individual participants, is a responsibility of institutional managers.

The challenge to research managers is to devise a system for identifying institutionally shared interests, listing commonly shared agenda items, fostering technical planning processes, removing barriers to participation, and planning support for the resulting potential international collaborations.

**Evolution of agricultural research:** During the last few decades agricultural research has developed in such a way that the research agenda in international agricultural research is considerably different from the agenda some decades ago. Furthermore, the impacts of contemporary events will cause an accelerated rate of change in our high priority research needs. Such events include the revolutions in biology, communications, miniaturization, and international trade. All of these will markedly reduce international differentiation. Thus, problems as well as products will be commonplace articles of commerce.

A look at the present history of the Consultative Group on International Agricultural Research (CGIAR) will provide an excellent sampling of past research transformations. This is followed by a look at the future with a discussion of potential illustrative topics.

### EVOLUTION OF CGIAR RESEARCH IN RESPONSE TO CHANGING DEMAND

During its short history, the Consultative Group on International Agricultural Research saw various periods of changing research focus:

**Crop improvement through better use of genetic material:** In this phase the need for better varieties was vital. IRRI and CYMMYT were created with a clear mandate: to develop improved varieties for the most important grain crops, wheat, rice and maize. That task was very successful and more and more national agricultural research systems became involved and took partly responsibility for fulfilling this task.

**Development of technologies and agronomic innovations:** Improvement of varieties was not sufficient. Appropriate agricultural measures were needed. Seed bed preparation, soil fertility

and soil management, irrigation and crop protection were seen as important pillars in crop improvement and productivity rise. Those developments resulted in better agricultural enabling higher productivity and food production. It was the adequate response to the need for new.

**Farming systems research, and research tailored to the farmers needs:** This phase recognized that changes in agricultural systems required more knowledge of the way farming systems function. Socio-economic conditions and possibilities and better technologies dictate agricultural development. Technologies are instrumental in that process. The need for tailor-made technologies was felt clearly and required readjustment of research activities and a better division of responsibilities.

**Awareness of environmental side effects and the need to contain them:** Awareness of negative side effects of agriculture, especially in fragile environments grew in the seventies, calling for adaptation and changes in agricultural practices. Resource use management, soil conservation and erosion control research became necessary.

**Integrating strategic, basic, applied or participatory research and tailoring it to eco-regions:** More recently, the need to tailor approaches and technologies to specific circumstances was recognized. To achieve this research directions, systems approaches, and institutions had to be adjusted, and sustainable development and food security included in the mission of the CG.

Thus, in its twenty-year history, the CGIAR saw its agenda change from supply oriented research to more demand oriented research, from general to specific research, from technology push to technology pull, and from concrete research products (varieties) to approaches, problem articulation and regional solutions. Its role as focal point in the tripartite collaboration with NARS and advanced research organization became increasingly important.

The pace of change accelerated when in the middle 1980's, the intensive agriculture championed by the CGIAR came under scrutiny from several quarters. The donor organizations that provide funds for the CGIAR made an issue of the environmental effects of green revolution technology. The CGIAR was not only prodded by its patrons to give environmental considerations more weight in its overall strategy, but additional pressure was applied by a coalition of environmental organizations. Earlier these groups achieved some success in persuading the World Bank and other international agencies to consider environmental consequences in the selection and design of development projects.

One response of the centers was to rely more heavily on farming systems research. As the name implies, this sort of research involves looking at farming as a system rather than focusing on a single crop. In particular, farming systems research recognizes that farmers make decisions based on social and economic factors and takes these factors into account. Farming systems teams included a significant proportion of social scientists. This contributed to increasing their numbers and strengthening their role in the centers.

In the latter half of the 1980's 'farming systems perspective' permeated the CGIAR. In practice, looking at farming as a system required the centers to make greater efforts to understand soil,

water, weeds and climate. By all accounts, a majority of farming systems programs in the centers were reborn as resource management programs using a farming systems approach.

The dialectic between productivity and natural resources research, of course, did not proceed in a tidy and linear fashion, as this account might suggest. The dynamics varied from center to center and the partisans did not divide on absolutist lines. No one, for example, took the position that preserving the resource base was unimportant. Nevertheless, the shift in priorities in the 1980's has gone in the direction of resource research.

From the perspective of a long time participant in the CGIAR a change in outlook toward sustainability in recent years was most clearly apparent when the CGIAR decided to bring in centers that specialized in agro-forestry, forestry and irrigation, all of which have a strong natural resources management emphasis

### **ILLUSTRATIVE TOPICS**

To initiate the process of discovery of a common international research agenda, the following items are listed as a starting point for illustration and further discussion. Obviously, many other items could have been selected. The point here is to focus on the management aspects of international collaboration, with an eye to fostering dialogue.

**Molecular Genetic Research:** Genomic sequencing of agriculturally important commodities is viewed as an important, contemporary research activity that will lay the groundwork for some exciting future research and commodity improvement. Unfortunately, many of the commodities of importance to agriculture have complex genomes, enormous amounts of DNA, and a large number of traits that deserve DNA sequencing. Institutional strategies are needed to plan coordinated activities, divide up the work-load, and share the results in ways that will propel this area of agricultural research forward. Obviously, because of the magnitude of effort necessary for success, it is not reasonable to expect individual investigators to initiate these types of international collaborations. It is simply too big to address without an institutional perspective.

Functional genomics is a related area of potential international collaboration. Functional genomics will be important to understand for what various DNA sequences code, and to understand how that information functions in a living organism. Clearly, this is of paramount importance to the next steps of genome mapping and sequencing in the agricultural commodities, if the past public sector investments in molecular biology are to have eventual value to society. To obtain this social value, there will be a need for research management to coordinate data collection, form international agreements on information-compatibility, and provide some standards for relational databases. Is it possible to protect many of the important characteristics in the public domain, and how should that be done? What role is there for universities and institutions?

How might the private sector participate in such a venture? Would this be as contractors only, or as research partners? Should institutional divisions of labor be made by commodity? By taxonomy? By site of origin? How might the intellectual property rights be managed? How

might costs for student exchanges be managed? What of the costs for (video-)conferences? For publications?

**Environmental Protection:** Global climate change is a common concern for agriculture worldwide, both as a potential contributor to the problem, and as a technological solution. Research studies are needed to monitor environmental conditions over the large scale, to model the effects of changes, and to provide science-based options for policy makers. Agreements to collaborate on large-scale global climate change research projects has appeal as a multi-site strategy. Opportunities to use internationally coordinated remote sensing data, standardized Geographic Information Systems, and geo-referenced information is an attractive aspect of this opportunity for international collaboration.

**Biosafety Risk Assessment.** Risk assessment, especially for the development of field testing protocols with genetically engineered organisms of importance to agriculture is another potential area for international collaboration. Significant research questions remain for a better understanding of the risks of gene loss to wild relatives, the environmental and human health consequences of antibiotic markers, the importance of allergens in human foods and animal feed, and the social and economic impacts of this emerging biotechnology. These areas are ripe for international research collaboration.

**Pest Quarantine and Management:** Sanitation and phyto-sanitation regulation needs to be more harmonized. This would be best done through science-based research. Heretofore, inadequate documentation on sanitation and phyto-sanitation problems have been said to be a contributing difficulty when seeking to gain international regulatory agreements. Databases of scientifically factual pest and pathogen occurrences; better information resources of assistance to inspectors; and scientifically valid educational programs, are all in need of stronger research support. This might be best done through an internationally coordinated research effort.

**Field Testing Methods:** Unconfined research with exotic pests and pathogens in locations where the organism does not yet occur is not possible. For example, the recent outbreak of plum pox disease in Pennsylvania is a serious concern, and will demand significant research investments to solve the problem if the region's peach industry is to be saved. The problem had been anticipated as a "what if" scenario for decades. But, what if Pennsylvania scientists had easy access to researchers and facilities in Europe where the virus has been well managed more than a century? Might the current prospects for the Northeastern U.S. be more optimistic? Might research managers become more adept at anticipating severe problems before they occur, and early on better organize pest mitigation and management research efforts?

**Biodiversity and Biocomplexity:** With the advent of the Convention on Biological Diversity, germplasm preservation has become an important international issue. Some international coordination of germplasm collections is needed, especially for the elimination of needless duplication; the filling of collection gaps; and for accurate descriptions (including the passport data) of the accessions. DNA characterization of accessions through fingerprinting analysis; the storage of sequence information related to specific clones and collections; and the development

of new technologies for the collection and preservation of germplasm are all areas suitable for international collaborations.

**Threatened and Endangered Species:** Another area of research that would benefit from international collaboration would be more attention to threatened and endangered species. This has two dimensions for agriculture. First, agriculture is often named as the culprit in events leading to the demise of species that are at risk in agricultural production areas. More research is needed on the factors contributing to species endangerment, and the alternatives for their protection. Second, agricultural research has a strong vested interest in preserving ecological biocomplexity and biological diversity, if only to save those resources for future applications. More needs to be known as to how this might be done, especially with systems compatible with agricultural production. International collaboration opportunities abound in this research area.

**International Trade and Law:** Scientific research has a role to play in addressing non-tariff trade barriers. To successfully conduct such research, multidisciplinary specialists need to work within the different economies and cultures to gain a better understanding of the issues, and their solution. Significant national differences exist as to the legitimacy of non-tariff trade barriers, much of which rests on sociological values. Social science research collaborations will have significant contributions to make to the satisfactory resolution of these contentious issues. The best approach would be to coordinate such research internationally, among trading partners to better measure differences, and formulate recommended solutions.

**International Trade Research Issues/Policy Research:** Considerable acrimony has developed over consumer acceptance of the products of biotechnology. This issue is illustrative of the opportunities for international research collaboration on trade and policy issues. There are sensitivities that must be acknowledged on some of these issues. However, this is all the more reason to base these collaborative activities on science research, rather than politics.

**Intellectual Property Rights Protection:** Patent protection of living organisms is said to have created a barrier to research activities. Policy research is needed to understand the relationships, and offer solutions. National issues need to be considered in the development of the study, and this would benefit from international coordination, especially for any survey activity.

**Patent Exemptions for Research:** On a related matter, research exemptions are common for some forms of patent protection, while not statutorily available for some other forms of patents. Some policy research is needed to understand the consequences of variations of this legal issue.

The various topics mentioned above illustrate the possibilities for mutual stimuli for participants from different countries. However, more than collaboration is required in the various case studies as described above. In fact a major stimulus is needed that is based on a unifying concept or a unifying approach to a unifying vision. In fact, all these requirements are exemplified in the International Consortium for the application of systems approaches in agricultural development. That consortium comprised collaboration between scientists from various universities from the USA and European universities. However, the collaboration is still on an ad hoc basis as the

means for funding structural collaboration are absent. It would be a policy of well understood self interest when there were means available for a more structural collaboration.

## **RESEARCH MANAGEMENT OPPORTUNITIES**

**Exchanges scientists/faculty and student:** Research managers have considerable opportunity to foster international research collaboration. Some of these management "tools" are not well coordinated, or do not have adequate funding. For example, a few years ago a E.C.-U.S. task force studied the infrequent exchange of scientists between the U.S. and Europe. Their investigation showed that the European Community could provide their scientists with international travel support for scientific exchanges, but could not provide reimbursement for any of the local expenses. Reciprocally, U.S. agencies could provide visiting scientists European scientists with international travel, but no help for local expenses. This presented a conundrum for scientists wishing to study in the U.S., as to the two pieces of financial support did not match. This situation was then quickly fixed. Similar situations may currently exist, and dialogue among research managers may find opportunity to better coordinate research exchanges.

**Harmonization of Institutional Policies:** Agreements on institutional policy affecting research activities need to be evaluated to provide assurances that existing requirements are not an impediment to collaboration. This might be done through surveys of researchers who have participated in international research collaboration, or through the exchange of business managers charged with the responsibility of finding policy harmonization.

**Communications Strategies:** Some strategies are needed to better coordinate communications for supporting international research collaborations. Many institutions now have video conferencing, or Internet conferencing facilities. Planning to better coordinate these strategies is needed, following comprehensive study and determination of opportunities for compatibility. Some specific areas that need attention are:

- ? **Video-Conferencing and WWW Streaming:** What are the incompatibility issues that might now or later get in the way of e-conferencing? How might future decisions be made that will facilitate better e-communications?
  
- ? **Inventory of Home Pages:** What might be done to foster the building of hot links among related research home pages? Is there a need to provide guidelines to research teams to foster home page links? Might a "shopping mall" of related activities be created to facilitate research coordination, and to support information exchange and technology transfer?

## RESEARCH MANAGEMENT ISSUES

**Science Quality Assurance Methods:** Are there opportunities to share management experiences on topics such as peer and merit reviews? What are the experiences with pre-award reviews? Mid-term project reviews? Post-project reviews? Are there experiences to share on successful research projects with tests of relevance?; stakeholder listening issues?; processes for providing quick research responses?; methods that have been used for the successful allocation of resources?; or good procedures for accountability, impact assessment, and image enhancement? What are the successful models for technology transfer? How does functional integration (i.e., teaching, research, and extension) work in various agricultural knowledge systems?

There is ample opportunity to stimulate exchange of ideas on various research management issues. That should not be limited to the various case studies mentioned above. The case studies could help to stimulate bottom up processes of strengthened collaboration between individuals and groups of research workers. A small amount of seed money could help to strengthen such collaboration. A top down process that creates frameworks for intensified collaboration and that stimulates synergism and mutual interaction will certainly lead to a system in which advanced research institutes in the USA and Europe may work together. It can also lead to an acceleration of research efforts and an upgrading of quality in various quarters.

## ADMINISTRATIVE STRATEGIES

**Learning for Each Other:** What are the valid institutional comparisons that will allow research managers to make comparisons among the various institutions that are potential partners. What are the comparisons for structure and organization? How might we evaluate institutional capacities and strengths? What can be shared among the resources available to institutions? Are there existing resource data bases that could be shared [e.g., the USDA's Current Research Information System (CRIS)]? Which institutions have advocacy and marketing efforts, and how are these organized? Which institutions have leadership development programs, and how do these work?

## CONCLUSIONS

There are significant opportunities for research managers to exchange experiences and knowledge that could work to strengthen international collaborations and assist participants in learning from each other in the process. An exchange of research managers seems worthwhile, if for no other reason than to explore mutual interests, and share the successful solutions that have been found to our common problems.

**The Inter-University Conference for Agricultural  
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**&**

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# **Partnership Meeting**

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