OMB Control Number: 1840-0785
Expiration Date: 04/30/2006

FUND FOR THE IMPROVEMENT OF POSTSECONDARY EDUCATION
INTERNATIONAL CONSORTIA PROGRAM
Project Title Form

* Program: North American Program

Consortium Members - - U.S. Partners:

* Lead: Michigan Technological University

* Partner: University of Puerto Rico Mayag?ez

Partner:

Consortium Members - - Foreign Partners:

* Lead: University of Sonora, Mexico

* Partner: Universidad Aut?noma de Aguascalientes, Mexico

Partner:

Consortium Members - - Foreign Partners:

Lead: University of Northern British Columbia, Canada

Partner: Lakehead University, Canada

* Project Title: Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances

* Abstract of Proposal: (1000 Character Limit)

We propose to create a consortium of universities and colleges in Mexico, Canada and U.S. to tackle the most critical issues in rural sustainability by educating a new generation of students and creating collaborative ties among researchers at these institutions. We propose to: train a total of at least 46 students among the participating universities through one- to two-semester visits and up to 60 students via short-term intensive field courses; develop a new web-based course (in English and Spanish) that introduces engineering, natural science, and social science students to global and local rural sustainability issues; and compile a collection of web-based case studies in rural sustainability in North America.

* Select project format:

● Four-year consortia project

○ Two-year consortia project

Federal Funds Requested ($):

* Year 1:	30,000.00
* Year 2:	50,000.00
* Year 3:	50,000.00
* Year 4:	50,000.00
* Total:	180,000.00

OMB Number: 1840-0785
Expiration Date: 04/30/2006

U.S. Department of Education Budget Summary

* 1. Program

North American Program

* 2. Select One: ● Lead (fiscal agent) ○ Partner

* 3. Name of the Institution/Organization:

Michigan Technological University

Project Costs Requested from FIPSE:

Budget Categories:	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
4. Personnel (salary & wages)	9,331.00	6,387.00	2,500.00	7,583.00	25,801.00
5. Fringe Benefits (employee benefits)	2,725.00	2,192.00	950.00	2,635.00	8,502.00
6. Travel	9,200.00	9,200.00	9,200.00	9,200.00	36,800.00
7. Equipment (purchase)	0.00	0.00	0.00	0.00	0.00
8. Supplies (and materials)	2,384.00	1,751.00	1,513.00	1,679.00	7,327.00
9. Contractual (enter partner totals here)	2,000.00	2,000.00	2,000.00	2,000.00	8,000.00
10. Other (equipment rental, printing, etc.)	1,402.00	935.00	6,402.00	3,804.00	12,543.00
11. Total Direct Costs (lines 4-10)	27,042.00	22,465.00	22,565.00	26,901.00	98,973.00
12. Indirect Costs* (8% of line 11)	2,958.00	2,535.00	2,435.00	3,099.00	11,027.00
13. Mobility Stipends	0.00	25,000.00	25,000.00	20,000.00	70,000.00
14. Language Stipends	0.00	0.00	0.00	0.00	0.00
15. Subtotal of Stipends (lines 13 + 14)	0.00	25,000.00	25,000.00	20,000.00	70,000.00
16. Total Requested from FIPSE (lines 11 + 12 + 15) (These figures should appear on the Title Form)	30,000.00	50,000.00	50,000.00	50,000.00	180,000.00
Project Costs Not Requested from FIPSE:					
17. Lead Partner Non-Federal Funds	0.00	0.00	0.00	0.00	0.00
18. Subcontractor(s) Partner Non-Federal Funds	0.00	0.00	0.00	0.00	0.00
Funds Requested by Foreign Partners:					
19a. Total Requested from Canada	(b)(4)				
19b. Total Requested from Mexico					
19c. Total Requested from Brazil					
19d. Total Requested from Europe					

* Indirect Cost Information (To be completed by Your Business Office):

If you are requesting reimbursement for indirect costs on line 12, please answer the following questions:

(1) Do you have an Indirect Cost Rate Agreement approved by the Federal Government? ● Yes ○ No

(2) If Yes, please provide the following information:

* Period covered by the Indirect Cost Rate Agreement: From: 07/01/2006 To: 06/30/2009

* Approving Federal Agency: ○ ED ● Other (please specify): Office of Naval Research

(3) For Restricted Rate Programs (select one) - - Are you using a restricted indirect cost rate that:

○ Is included in your approved Indirect Cost Rate Agreement? Or, ● Complies with 34 CFR 76.564(c)(2)?

Budget Narrative

Year 1

4. & 5. Salaries Wages and Employee Benefits. We are requesting funds for the project director, Dr. Alex Mayer, to expend 0.44 months effort, worth $4,931 (plus 20.2% for fringe benefits) for administering the project. We are requesting funds for staff at International Programs & Services (IPS), who will expend time worth approximately $1,300 (plus 42.4% for fringe benefits) to assist in setting up exchange agreements. We are requesting $4,278 for salary and benefits for UPRM faculty.

6. Travel. These funds include: (a) travel to project directors meetings and to planning meetings and (b) travel for faculty for purposes of curriculum development.

8. Materials and Supplies. These funds will cover development of recruiting materials, such as brochures and web sites.

9. Contractual. $2,000 will be expended for an external evaluator for the project.

10. Other. $1,402 is allotted for web page development and printing costs.

12. Indirect Costs. 8% of Total Direct in MTU budget, which includes partner school (UPRM) subcontract plus 8% of Total Direct in partner school (UPRM) subcontract.

13. Mobility Stipends. None for the first year.

Year 2

4. & 5. Salaries Wages and Employee Benefits. We are requesting funds for the project director, Dr. Alex Mayer, to expend 0.13 months effort, worth $1,593 (plus 20.2% for fringe benefits) for administering the project. We are requesting funds for staff at International Programs & Services (IPS), who will expend time worth approximately $1,100 (plus 42.4% for fringe benefits) to assist in setting up exchange agreements. We are requesting $5,098 for salary and benefits for UPRM faculty.

6. Travel. These funds include: (a) travel to project directors meetings and to planning meetings and (b) travel for faculty for purposes of curriculum development.

8. Materials and Supplies. These funds will cover development of recruiting materials, such as brochures and web sites.

9. Contractual. $2,000 will be expended for an external evaluator for the project.

10. Other. $935 is allotted for web page development and printing costs.

12. Indirect Costs. 8% of Total Direct in MTU budget, which includes partner school (UPRM) subcontract plus 8% of Total Direct in partner school (UPRM) subcontract.

13. Mobility Stipends. $25,000 for five semester-long student exchanges total from MTU and UPRM

Year 3

4. & 5. Salaries Wages and Employee Benefits. We are requesting $3,450 for salary and benefits for UPRM faculty.

6. Travel. These funds include: (a) travel to project directors meetings and to planning meetings and (b) travel for faculty for purposes of curriculum development.

8. Materials and Supplies. These funds will cover development of recruiting materials, such as brochures and web sites.

9. Contractual. $2,000 will be expended for an external evaluator for the project.

10. Other. $5,000 is allotted for fees for attending project director's meeting. $1,402 is allotted for web page development and printing costs.
12. Indirect Costs. 8% of Total Direct in MTU budget, which includes partner school (UPRM) subcontract plus 8% of Total Direct in partner school (UPRM) subcontract.
13. Mobility Stipends. $25,000 for five semester-long student exchanges total from MTU and UPRM

Year 4
4. & 5. Salaries Wages and Employee Benefits. We are requesting funds for the project director, Dr. Alex Mayer, to expend 0.13 months effort, worth $1,756 (plus 20.2% for fringe benefits) for administering the project. We are requesting funds for staff at International Programs & Services (IPS), who will expend time worth approximately $1,500 (plus 42.4% for fringe benefits) to assist in setting up exchange agreements. We are requesting $5,971 for salary and benefits for UPRM faculty.
6. Travel. These funds include: (a) travel to project directors meetings and to planning meetings and (b) travel for faculty for purposes of curriculum development.
8. Materials and Supplies. These funds will cover development of recruiting materials, such as brochures and web sites.
9. Contractual. $2,000 will be expended for an external evaluator for the project.
10. Other. $3,804 is allotted for web page development and printing costs.
12. Indirect Costs. 8% of Total Direct in MTU budget, which includes partner school (UPRM) subcontract plus 8% of Total Direct in partner school (UPRM) subcontract.
13. Mobility Stipends. $20,000 for four semester-long student exchanges total from MTU and UPRM

Note that amounts in 19a Total Requested in Canada are in Canadian dollars and amounts in 19b Total Requested in Mexico are in Mexican pesos.

OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424

Version 02

* 1. Type of Submission:	* 2. Type of Application:	* If Revision, select appropriate letter(s):
○ Preapplication	● New	
● Application	○ Continuation	* Other (Specify)
○ Changed/Corrected Application	○ Revision	

* 3. Date Received:	4. Applicant Identifier:
04/08/2008	

5a. Federal Entity Identifier:	* 5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:	7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Michigan Technological University

* b. Employer/Taxpayer Identification Number (EIN/TIN):	* c. Organizational DUNS:
38-6005955	065453268

d. Address:

* Street1:	1400 Townsend Drive
Street2:	
* City:	Houghton
County:	Houghton
* State:	MI: Michigan
Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	49931-1295

e. Organizational Unit:

Department Name:	Division Name:
Geo. & Mining Engr. & Sciences	

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:	Ms.
* First Name:	Kim
Middle Name:	
* Last Name:	Codere
Suffix:	

Title: Senior Grants Analyst

Organizational Affiliation:

Research and Sponsored Programs

* Telephone Number:	906-487-2226	Fax Number:	906-487-2245

* Email: kmcodere@mtu.edu

OMB Number: 4040-0004
Expiration Date: 01/31/2009

Application for Federal Assistance SF-424

Version 02

9. Type of Applicant 1: Select Applicant Type:

H: Public/State Controlled Institution of Higher Education

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

*** Other (specify):**

*** 10. Name of Federal Agency:**

U.S. Department of Education

11. Catalog of Federal Domestic Assistance Number:

84.116

CFDA Title:

Fund for the Improvement of Postsecondary Education

*** 12. Funding Opportunity Number:**

ED-GRANTS-020808-001

*** Title:**

Special Focus Competition: Program for North American Mobility in Higher Education

13. Competition Identification Number:

84-116N2008-1

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

US/Michigan/North Carolina

*** 15. Descriptive Title of Applicant's Project:**

Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances

Attach supporting documents as specified in agency instructions.

Application for Federal Assistance SF-424

Version 02

16. Congressional Districts Of:

* a. Applicant: MI-001
* b. Program/Project: MI-001

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:

* a. Start Date: 09/01/2008
* b. End Date: 08/31/2012

18. Estimated Funding ($):

* a. Federal	180,000.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	180,000.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

● a. This application was made available to the State under the Executive Order 12372 Process for review on 04/12/2008.

○ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

○ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**

○ Yes ● No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☑ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix:	Dr.
* First Name:	David
Middle Name:	
* Last Name:	Reed
Suffix:	
* Title:	Vice President for Research
* Telephone Number:	906-487-3043
Fax Number:	906-487-2245
* Email:	rsch@mtu.edu
* Signature of Authorized Representative:	David Reed
* Date Signed:	04/08/2008

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Standard Form 424 (Revised 10/2005)
Prescribed by OMB Circular A-102

Application for Federal Assistance SF-424

Version 02

*** Applicant Federal Debt Delinquency Explanation**

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.

Attachments

AdditionalCongressionalDistricts

File Name **Mime Type**

AdditionalProjectTitle

File Name **Mime Type**

ASSURANCES - NON-CONSTRUCTION PROGRAMS

OMB Approval No. 4040-0007
Expiration Date 04/30/2008

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis- Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327- 333), regarding labor standards for federally-assisted construction subagreements.

10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93- 205).

12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL David Reed	* TITLE Vice President for Research
* APPLICANT ORGANIZATION Michigan Technological University	* DATE SUBMITTED 04-08-2008

Standard Form 424B (Rev. 7-97) Back

Tracking Number: GRANT00450540

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

Approved by OMB

0348-0046

1. * Type of Federal Action:	2. * Status of Federal Action:	3. * Report Type:
__a. contract ●b. grant __c. cooperative agreement __d. loan __e. loan guarantee __f. loan insurance	__a. bid/offer/application ●b. initial award __c. post-award	●a. initial filing __b. material change For Material Change Only: year quarter date of last report

4. Name and Address of Reporting Entity:	5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:
●Prime __SubAwardee Tier if known: * Name: N/A * Address: N/A N/A Congressional District, if known:	
6. * Federal Department/Agency: N/A	7. * Federal Program Name/Description: Fund for the Improvement of Postsecondary Education CFDA Number, if applicable: 84.116
8. Federal Action Number, if known:	9. Award Amount, if known:
10. a. Name and Address of Lobbying Registrant (if individual, complete name): * Name: N/A N/A * Address:	b. Individual Performing Services (including address if different from No. 10a): * Name: N/A N/A
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	* Signature: David Reed * Name: N/A N/A Title: Telephone No.: Date: 04-08-2008
Federal Use Only:	Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)

Public Burden Disclosure Statement

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

NOTICE TO ALL APPLICANTS

The purpose of this enclosure is to inform you about a new provision in the Department of Education's General Education Provisions Act (GEPA) that applies to applicants for new grant awards under Department programs. This provision is Section 427 of GEPA, enacted as part of the Improving America's Schools Act of 1994 (Public Law (P.L.) 103-382).

To Whom Does This Provision Apply?

Section 427 of GEPA affects applicants for new grant awards under this program. **ALL APPLICANTS FOR NEW AWARDS MUST INCLUDE INFORMATION IN THEIR APPLICATIONS TO ADDRESS THIS NEW PROVISION IN ORDER TO RECEIVE FUNDING UNDER THIS PROGRAM.**

(If this program is a State-formula grant program, a State needs to provide this description only for projects or activities that it carries out with funds reserved for State-level uses. In addition, local school districts or other eligible applicants that apply to the State for funding need to provide this description in their applications to the State for funding. The State would be responsible for ensuring that the school district or other local entity has submitted a sufficient section 427 statement as described below.)

What Does This Provision Require

Section 427 requires each applicant for funds (other than an individual person) to include in its application a description of the steps the applicant proposes to take to ensure equitable access to, and participation in, its Federally-assisted program for students, teachers, and other program beneficiaries with special needs. This provision allows applicants discretion in developing the required description. The statute highlights six types of barriers that can impede equitable access or participation: gender, race, national origin, color, disability, or age. Based on local circumstances, you should determine whether these or other barriers may prevent your students, teachers, etc. from such access or participation in, the Federally-funded project or activity. The description in your application of steps to be taken to overcome these barriers need not be lengthy; you may provide a clear and succinct description of how you plan to address those barriers that are applicable to your circumstances. In addition, the information may be provided in a single narrative, or, if appropriate, may be discussed in connection with related topics in the application.

Section 427 is not intended to duplicate the requirements of civil rights statutes, but rather to ensure that, in designing their projects, applicants for Federal funds address equity concerns that may affect the ability of certain potential beneficiaries to fully participate in the project and to achieve to high standards. Consistent with program requirements and its approved application, an applicant may use the Federal funds awarded to it to eliminate barriers it identifies.

What are Examples of How an Applicant Might Satisfy the Requirement of This Provision?

The following examples may help illustrate how an applicant may comply with Section 427.

(1) An applicant that proposes to carry out an adult literacy project serving, among others, adults with limited English proficiency, might describe in its application how it intends to distribute a brochure about the proposed project to such potential participants in their native language.

(2) An applicant that proposes to develop instructional materials for classroom use might describe how it will make the materials available on audio tape or in braille for students who are blind.

(3) An applicant that proposes to carry out a model science program for secondary students and is concerned that girls may be less likely than boys to enroll in the course, might indicate how it intends to conduct "outreach" efforts to girls, to encourage their enrollment.

We recognize that many applicants may already be implementing effective steps to ensure equity of access and participation in their grant programs, and we appreciate your cooperation in responding to the requirements of this provision.

Estimated Burden Statement for GEPA Requirements

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1890-0007. The time required to complete this information collection is estimated to average 1.5 hours per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. **If you have any comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to:** Director, Grants Policy and Oversight Staff, U.S. Department of Education, 400 Maryland Avenue, SW (Room 3652, GSA Regional Office Building No. 3), Washington, DC 20202-4248.

Attachment Information

File Name	Mime Type
2685-gepa.pdf	application/pdf

Department of Education's General Education Provisions Act (GEPA) 427 Requirement

Description of the steps the applicant proposes to take to ensure equitable access to, and participation in, its federally assisted program for students, teachers, and other program beneficiaries with special needs:

Our efforts for recruiting students in this program will be conducted without regard to gender, race, national origin, color, disability, or age. All of the universities and degree programs in this consortium have student bodies that have broad representation with respect to at least gender, race, national origin, color, and disability; however, we will work through each university's office of programs for underrepresented students to publicize our mobility program. For example, participating faculty and students will be active at the regional and national levels through workshops, presentations and conferences emphasizing the importance of international mobility. We will ensure that there will be no barriers in all activities in this program to those with disabling conditions.

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

* APPLICANT'S ORGANIZATION Michigan Technological University
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE Prefix: Dr. * First Name: David Middle Name: * Last Name: Reed Suffix: * Title: Vice President for Research
* SIGNATURE: David Reed * DATE: 04/08/2008

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* Country: U.S.

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* Country:

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Phone Number: Fax Number:

Email:

CONSORTIUM PARTNERS IDENTIFICATION FORM

Important: Please attach your Consortium Partners Identification Form Attachment file(s). Please remember that any files you attach must be a Pure Edge document.

1) Please attach Attachment 1

ED_FIPSEConsortiumPartnersIdentificationFormAttachment_can.xfd

2) Please attach Attachment 2

ED_FIPSEConsortiumPartnersIdentificationFormAttachment_mex.xfd

OMB Number: 1840-0785
Expiration Date: 04/30/2006

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Lead Partner:

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* First Name: Dagoberto

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Phone Number: Fax Number:

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Project Narrative

Abstract Narrative

Attachment 1:
Title: Pages: Uploaded File: **107-summary.pdf**

SustR: Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances

We propose to create a consortium of six research-based universities and colleges in Mexico, Canada and U.S. to tackle the most critical issues in rural sustainability by educating a new generation of students and creating collaborative ties among researchers at these institutions. The consortium universities will exchange students and faculty in several engineering and science disciplines (anthropology, sociology, political science, biology, health sciences, environmental engineering and sciences, forestry) involved in finding social, political, economic and technical solutions to the problems of rural communities.

The universities forming this consortium are Michigan Technological University (U.S.), University of Puerto Rico-Mayaguez (U.S.), Universidad de Sonora (Mexico), Universidad Autónoma de Aguascalientes (Mexico), University of Northern British Columbia (Canada), and Lakehead University (Canada). These universities were selected not only for their expertise, but to ensure a wide range of local issues in rural sustainability. Collaborative ties already exist between several of these universities, in terms of student and faculty exchange programs, collaborative research, and education projects. These universities offer a broad range of expertise in the area of rural sustainability, from social sciences, including an understanding of the social dynamics and economics in rural communities; public and community health, including an understanding of determinants of community and individuals' health in rural and remote communities; natural sciences, including an understanding of the capacity of the natural environment to sustain development in rural communities; and engineering, including knowledge of how to design, build and manage technical solutions.

At least 46 students will be mobilized among the participating universities through one- to two-semester visits and up to 60 students via short-term intensive field courses. The number of students sent and received by each of the universities is approximately equal (approximately 7 student-semester per university) Student activities will consist of three stages: intensive language training, coursework in sustainable development, and professional or research internships with local businesses, municipalities, agencies or at the host university. Students enrolled in semester-long exchanges will be required to register in a course in sustainability at their host university. It is expected that each student exchanged will provide an international perspective on issues discussed in these courses and thereby impact the education of students at the host university.

Faculty activities will focus on the development of a general web-based course in water resources and intensive courses in urban water issues, and on the compilation of a collection of web-based case studies in water resources systems in North America. The faculty participants in the project will meet two times per year, with the locations alternating between the participating universities. Faculty from the participating universities will attend approximately seven trilateral consortium meetings over the project period, including four annual project sponsor meetings.

Faculty at the three institutions will benefit immensely from exchange and discussion with each other as they compare the differences and similarities in their home territories. This exchange will enable students to learn in an "integrated" manner that not only combines diverse disciplines, but also the histories and experiences of the different regions. In effect, this will be a laboratory for student learning and preparation for resolving a central problem that faces rural communities: linking reduction in poverty and increasing sustainability.

Project Narrative

Project Narrative

Attachment 1:
Title: Pages: Uploaded File: **8950-Mandatory_projnarrative_2.pdf**

PROJECT DESCRIPTION

A. Significance and Objectives

Poverty in Mexico, the U.S. and Canada tends to be concentrated in rural and remote areas. As indicated in Boxes 1, 2, and 3, rural populations in the three North American nations share common characteristics. Poverty deprives people of basic needs (food, education, health, shelter, and employment). Although poverty may contribute significantly to the degradation of natural resources and the environment, poverty may also stems from environmental degradation from resource extraction. Since sustainable development is the cornerstone to improving human health and welfare, there is a need to guide the development of rural and remote communities towards sustainability. Sustainable rural development addresses the root causes of poverty- the environmental, political, social and economic factors that can make communities vulnerable to crises or trap them in endemic poverty. These factors can be highly localized or can be tied to global forces.

Box 1: Rural and Remote Poverty in Mexico

- The incidence of rural poverty is high in Mexico (49%).
- The share of the rural sector in total poverty in Mexico is 33%; the share of extreme poverty that is rural is 52%.
- The infant mortality rate is more than three times higher in rural than in urban Mexico and the average educational level for adults between 25 and 59 years old is 66% less than the urban level.
- Access to public infrastructure and service is far less in rural than in urban Mexico: in rural areas, potable water reaches only 74% of the population and only 9% of rural residents receive critically-needed sanitation services.

Box 2: Rural and Remote Poverty in the U.S.

- Poverty is highest in the most rural areas, with 16.8 % of the population poor in the most rural counties.
- Counties with low employment are disproportionately located in the most rural areas, where 32% of the population resides in low-employment counties.
- Persistent poverty and degree of rurality are linked: nearly 28 percent of the people living in completely rural counties live in persistent poverty counties.
- Rural poverty is geographically concentrated and is racially and ethnically concentrated: more than one out of every four rural Hispanics, Blacks, and Native Americans live in poverty.

Box 3: Rural and Remote Poverty in Canada

- Rural communities often do not have the infrastructure necessary to adequately care for low income or impoverished families and individuals.
- 15% of rural households are classified as having low incomes and 11% of rural households in Canada did not have adequate housing.
- Most First Nations peoples are found in rural and remote communities; the socio-economic disparities between First Nations circumstances and those of Canadians in general are substantial. For example, average annual income of First Nations peoples is less than half of the average for all of Canada.

Rural communities also face external pressures to exploit natural resources located on lands they occupy and use for their own subsistence. Hydro-electrical development, mining, agro-industrial developments and logging have displaced and continue to displace rural populations, as well as impacting local environments with limited benefits to rural communities.

Historically, agriculture, subsistence fishing and logging, have been a mainstay of the economies, social structures, and cultural makeup of rural communities. More recently, several different and emerging forces have reshaped local access to resources. Perhaps the most significant of these forces are the globalization of agricultural and primary resources markets, which has shifted the scale of exploitation. Fluctuating patterns of industrial developments in rural and remote communities create the need for a mobile workforce, which impacts the sustainability of rural and remote communities.

The loss of small farm production may play a social role in rural communities that greatly exceeds its nominal significance in national accounts. The loss of small farms, either to larger farms or suburban development, changes the texture of communities and may threaten long-term food security. Further, the significance of environmental consequences from the intensive use of land and water resources and the application of agricultural chemicals is becoming well recognized. Integration of environmental concerns with rural farming practices has proven to be difficult; but in many areas of North America, over-use of water for agriculture and contamination form agricultural chemicals threaten the health of rural communities and wildlife. A parallel issue in Aboriginal communities is the loss of access to wild populations of plants and animals as a source of food, medicines and cultural connectedness.

In addition, the current situation of the native languages is characterized by their exclusion from practically every non-traditional public and institutional domain; furthermore, it is ever more frequently found that native languages are not being used in the community or family environment. The latter is extremely serious, especially for linguistic communities with few native speakers, because it means that the language is not being taught to new generations, which may lead to the extinction of the language. Among the endangered languages in Sonora, Mexico is the *Mayo* or *yoreme* language, due not only to the

small number of speakers but because of the disadvantageous economic and social conditions which face the communities where this ethnic group lives.

The connections between over-exploitation of natural resources, environmental degradation, and quality of life can often be subtle and emerge over long periods of time, at the end of which it is too late to regain what has been lost. Only through cooperative and integrated approaches that engage broad and diverse groups of sectors and stakeholders, including civil society, under-represented groups and local authorities while taking a gender-sensitive approach, will sustainable development be achieved. Box 4 lists a few of the questions that might be considered in assessing problems related to rural sustainability. The breadth of these questions implies that solving problems related to rural sustainability requires knowledge from several disciplines:

- social sciences, including an understanding of the social structure, decision-making processes and the stakeholders in issues pertaining economic development, cultural protection in rural communities;
- public and community health, including an understanding of determinants of community and individuals' health in rural and remote communities;
- natural sciences, including an understanding of the capacity of the natural environment to sustain development in rural communities; and
- policy studies to understand the local "issues" and the stakeholders involved

Box 4: Some critical questions to be addressed in solving problems of rural sustainability

- While cities are sources of intense economic, social, cultural and political activity, do rural people feel marginalized?
- What do words like sustainability, health, and land mean to rural and remote communities?
- What do rural men and women consider their greatest assets?
- What are the most successful ways to engage community inhabitants to consider issues of sustainability?
- What issues should be paid special attention and what should become the basis for the overall policy aimed at sustainable rural development?
- What are the most important indicators to be used to measure rural sustainability and what trends do those indicators point to?
- What is the link between community, sustainability of the environment, cultural retention, and health?
- How do engineers, natural scientists, social scientists, policy-makers, and civil society cooperate to promote sustainable rural development?

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- engineering, including knowledge of how to design, build and manage technical solutions that will solve problems that have been defined by the stakeholders

Traditional academic training, however, rarely crosses between these disciplines. Furthermore, traditional academic training does not offer opportunities to participate in field studies of sustainable development, especially as applied to rural communities. We propose to create a consortium of universities and colleges in Mexico, Canada and U.S. to tackle the most critical issues in rural sustainability by educating a new generation of students and creating collaborative ties among researchers at these institutions. The consortium is titled "Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances," or "SustR."

The goals of the SustR program are

- to create a North American dimension for rural sustainability in university curricula;
- to broaden students' understanding of the problems facing rural communities with respect to sustainable development, with a particular focus on the sustainable development of North American communities; and
- to build capacity at the local level by providing students with the tools and information they need to participate in rural sustainability projects in their own communities and regions, once they graduate.

These goals will be met by achieving the following objectives:

- train a total of at least 46 students among the participating universities through one- to two-semester visits and up to 60 more students via short-term, intensive courses;
- develop a three-phase program, where each student will participate in (1) intensive language coursework, (2) coursework in rural communities and sustainable development, and (3) a field experience;
- integrate the perspectives of the many disciplines involved in the project to develop a coherent perspective on rural sustainability via faculty visits and web-based workshops
- develop a new web-based course (in English and Spanish) that introduces engineering, natural science, and social science students to global and local rural sustainability issues;

- compile a collection of web-based case studies in rural sustainability in North America;
- develop new curricula in the form of short-term, intensive courses; and modules in existing undergraduate and graduate courses, with a view towards establishing a North American dimension in curricula that deal with rural sustainability;
- for each university in the consortium, select one general course that has intensive discussion sessions and enroll all exchange students at a given university in this course, providing a structure that allows for a broadened impact of the program, since that participation of each exchange student will provide an international perspective for these courses and enhance the education of as many as 25 classmates at their host institution;
- attain inter-institutional transparency with respect to credit recognition and transfer; and
- develop alternative funding sources to sustain the program beyond the four-year project period.

B. Proposed Program Activities

1. Participating Universities and Personnel

The universities forming the consortium are Michigan Technological University (MTU), University of Puerto Rico-Mayaguez (UPRM), the Universidad de Sonora (UNISON), the Universidad Autónoma de Aguascalientes (UAA), University of Northern British Columbia (UNBC), and Lakehead University (LU). These universities were selected not only for their expertise, but to ensure exposure to a wide range of local issues in rural sustainability due to different ecosystems, economic-political, and cultural contexts. Table 1 summarizes some of the geographical and cultural features that distinguish the community settings of each participating university. The expertise and facilities that each university offers in rural sustainability education and research are described in the sections on Capabilities of Consortium Universities, as are the capabilities for intensive language training.

Table 1: Geographical and Cultural Features of Participating Universities

Table 1: Geographical and Cultural Features of Participating Universities

Michigan Technological University	▪ small rural community, Upper Midwestern U.S., proximal to Great Lakes ▪ stable population but high unemployment ▪ proximity to rural Native American population	▪ rural economy based on mining, forestry ▪ threats include degradation of environment from natural resource extraction, poorly maintained infrastructure
University of Puerto Rico at Mayaguez	▪ nearby poor rural farming communities in western Puerto Rico.. ▪ rural farms consumed by expanding urban population ▪ High levels of water and soil pollution ▪ Political instability and patron-client relations	▪ rural economy based on farming ▪ most rural farmers still use uninspected well water ▪ threats include high unemployment rates, urban sprawls and water quality issues
Universidad de Sonora	▪ nearby near poor, rural communities Northern Mexico ▪ high migration rates from rural to urban areas ▪ increasing rates of violent crime	▪ rural economy based on farming, mining, fishing ▪ threats include poor sanitary conditions, deforestation, water scarcity
Universidad Autónoma de Aguascalientes	▪ large urban community in Western Mexico ▪ threats include declining agricultural base due to globalization, poor sanitary conditions	▪ growing population ▪ rural economy based on agriculture
University of Northern British Columbia	▪ medium sized urban community serving large remote/rural region of northern British Columbia ▪ declining regional population but growing Aboriginal presence	▪ forestry-based economy facing major problems from pine beetle epidemic ▪ poor rural health outcomes
Lakehead University	▪ regional urban centre servicing remote communities, often by fly-in ▪ high rates of crime and poverty in an increasing urban Aboriginal population from rural emigration ▪ threats from industrial development	▪ high costs associated with health services in areas with poor water supply, poor sanitary conditions and difficult access to either traditional or cultivated foods ▪ rural areas poorly serviced

The personnel involved in managing the proposed program are faculty from engineering, science, forestry, social sciences, and humanities disciplines. Table 2 summarizes the faculty participants from the partners. The faculty are selected to give a wide range of expertise in the political, social and economic dimensions, as well as the technical dimensions, of rural sustainability, e.g. anthropology, business, political science, biology, environmental engineering, so that the coursework and professional experiences available to the students are as broad as possible. In each university, international programs administrators also are participating and will provide leadership in developing

consortium agreements, recruiting and publicity, administering the sending and receiving of students, program evaluation, and sustaining the program beyond the four-year funding period.

Table 2: Participant List

Project Participants	Affiliation	Areas of Research and Teaching Expertise
Secundino Amarillas Valenzuela, Prof.	UNISON, Indigenous Languages	Sustainability of indigenous languages in Sonora, sustainable development in indigenous communities
Dagoberto Burgos Flores[c], Prof.	UNISON, Environmental Engineering	Sanitation, drinking water treatment, surface and ground water quality
Marisol Delgado Torres, Sub-director	UNISON, Student Mobility	Student and cultural exchanges
Josée Lavoie, Asst. Prof.	UNBC, Health Sciences	Role of NGO & indigenous sectors in health care delivery, health care planning & implementation challenges in remote environment
Alex Mayer[b], Prof., Director	MTU, Geological & Environmental Engineering, Center for Water & Society	Modeling hydrologic systems under conditions of uncertainty, basin-scale water resources management, rural sanitation
Carol MacLennan, Assoc. Prof.	MTU, Social Sciences	History of rural industrial communities, politics of human health & environmental
Brian McLaren[c], Asst. Prof.	LU, Forestry & Forest Environment (Wildlife)	Wildlife population dynamics, stewardship of wildlife habitat
Connie Nelson, LU, Prof.	Social Work, Co-Director, Food Security Network	Quantitative approaches to study of social work, food security, nutritional and mental health
Diana Olympia Rosales de Lira[d], Head,	UAA, Academic Interchanges & Scholarships	Student and cultural exchanges
Blair Orr, Assoc. Prof.	MTU, Forest Resources & Environmental Sciences	Forestry in developing nations; Forest economics; regional and development economics
Cecilio Ortiz-Garcia[a], Assit. Prof.	UPRM, Social Sciences	Environmental justice and policy, public participation and public administration.
Fernando Padilla Lozano, Prof. & Chair	UAA, Sociology & Anthropology	Mapping development in urban & rural regions, cultural implications of development
Luis Zavala Peñaflor, Prof.	UAA, Environmental Engineering	Engineering of sanitation & health improvements in rural regions
Marla Perez-Lugo, Associate Professor	UPRM, Social Sciences	Environmental education, energy consumption, environmental justice and social vulnerability.
Jim Randall[c], UNBC, Prof. & Acting Provost	International Studies	Regional and international development, economic change in resource-dependent communities, quality-of-life indicators
Mirella Stroink, Asst. Prof	LU, Psychology	Cross cultural, community, and social psychology, and social cognition, quantitative methods
Gary N. Wilson, Asst.	UNBC, Political	Multi-level governance and intergovernmental

Prof.	Science	relations in the circumpolar north
[a] U.S. partner project director		[d] Canadian lead project director
[b] U.S. lead project director		[e] Mexican lead project director
[c] Canadian partner project director		[f] Mexican partner project director

The project directors from the three countries have a wide range of experience in administration, student exchange programs, and multi-disciplinary education initiatives related to the program theme. In addition, the project directors have conducted funded research into various aspects of rural sustainability. For example, in the U.S., Dr. Mayer has been or is the director of several international exchange programs, including two North American Mobility programs. Dr. Mayer also is the director of the Michigan Tech Center for Water and Society (MTCWS). The mission of the MTCWS is to support research, education, and outreach in all disciplines at Michigan Tech related to water issues. At UPRM, the project director will be Dr. Cecilio Ortiz-Garcia, a Professor of Social Sciences, and researcher at the Center for Applied Social Research (CISA), specializing in environmental policy, and public administration. Dr. Ortiz-Garcia has been working with rural sustainability issues since mid 1990's in a variety of cultural and ecosystem contexts. He was a fellow, and later an instructor at the Smithsonian Institute Monitoring and Assessment of Biodiversity Program where he received formal training in effective leadership and communication tools for environmental management and conservation. His research and applied work have focus mainly on water management issues in transboundary regions (the US- Mexico border). As program manager for the Center for Environmental Resources Management he was a member of Paso Del Norte Water Task Force. The Paso del Norte Water Task Force had the objective to bring together multiple stakeholders including farmers, public officials and water managers to develop collaborative partnerships for capacity building and water planning in the US Mexico Border. Dr. Ortiz-Garcia is also a board member of the National Hispanic Environmental Council, which is the only national organization that seeks to improve environmental conditions in Hispanic communities in the US. Now at UPRM Dr. Ortiz-Garcia is exploring capacity building and stakeholder involvement in the local environmental policy.

More information on the qualifications of Drs. Mayer and Ortiz-Garcia can be found in the Personnel Information section of this proposal.

2. Target Student Groups

Table 3 identifies the degree programs from which we will target students. Each of these disciplines includes a significant degree of study of issues related to sustainability, in terms of coursework or research activities. The disciplines listed in Table 3 include undergraduate and Master's degree programs. We will target third and fourth year undergraduates and second year Master's students.

Each university will use ongoing recruitment efforts for identifying students who might be interested in study abroad. Recruitment activities will begin during the first and second year of the four-year curriculum, including presentations in relevant courses, university-wide study-abroad fairs, publicized faculty-wide presentations, and student advising by faculty. In particular, we encourage the students in their first year to immediately begin taking foreign language coursework if they have any interest in studying abroad. We will intensify our recruiting efforts for the mobility program by preparing and distributing specialized brochures, advertising in student publications and through new web pages. Furthermore, we will identify a set of faculty in each discipline who will be responsible for personally recruiting students into the program.

Table 3: Targeted Degree Programs at Participating Universities

Michigan Technological University	▪ Environmental Engineering ▪ Geological Engineering ▪ Civil Engineering	▪ Social Sciences ▪ Forestry ▪ Biological Sciences
University of Puerto Rico at Mayaguez	▪ Sociology ▪ Political Sciences ▪ Social Sciences ▪ Biology ▪ Agricultural Sciences	▪ Geology ▪ Civil engineering ▪ Electrical engineering ▪ Chemical engineering
Universidad de Sonora	▪ Sustainable Development ▪ Civil Engineering ▪ Industrial & Systems Engineering ▪ Agricultural Engineering	▪ Law ▪ Sociology ▪ Clinical Biology & Chemistry ▪ Economics

Table 3: Targeted Degree Programs at Participating Universities

Universidad Autónoma de Aguascalientes	▪ Sustainable Development ▪ Civil Engineering ▪ Chemistry	▪ Agricultural Engineering ▪ Law
University of Northern British Columbia	▪ Political Science ▪ International Studies ▪ Health Sciences	▪ Geography ▪ Environmental Studies ▪ First Nations Studies
Lakehead University	▪ Social Work ▪ Psychology ▪ Women's Studies ▪ Political Science	▪ Forestry/Environmental Studies ▪ Indigenous Learning ▪ Sociology

Our recruiting efforts will be conducted without regard to race, color, national origin, gender, age, disabling condition, or economic status. All of the universities and degree programs in this consortium have student bodies that have broad representation with respect to at least ethnicity and gender; however, we will work through each university's office of programs for underrepresented students to publicize our mobility program. For example, participating faculty and students will be active at the regional and national levels through workshops, presentations and conferences emphasizing the importance of international mobility. Furthermore, the students' parents will systematically be kept informed of their daughter's and son's progress while preparing and participating in SustR.

3. Student Mobility Numbers and Duration

Each participating university will train at least six to ten students at the partner universities in the consortium over the project period. As shown in Table 4, we anticipate distributing the students uniformly, since each university has unique aspects to offer incoming students, in terms of coursework and internship possibilities. A typical duration of a student visit will be one semester, although we expect that at least one student per university per year will spend an entire academic year abroad. At every host university, students will be required to register in a pre-specified general course in rural sustainability which has weekly discussion periods. These courses will serve as a means of monitoring student progress and as vehicle for exposing students at the host university to issues in rural sustainability. A model for

such a course will be developed by the six project directors as one of the objectives of this project. This course is described in the Curricular Developments section below.

Table 4: Student Mobility Matrix

Home Institution		Host Institution						
		U.S.		Mexico		Canada		Total Students Moving
		MTU	SC	UniSon	UAA	UNBC	LU	
	U.S.							
	MTU			3	1	3	1	8
	UPRM			2	1	2	1	6
	Mexico							
	UniSon	3	2			3	2	10
	UAA	2	1			2	1	6
	Canada							
	UNBC	3	2	3	2			10
	LU	2	1	2	1			6
								46

In addition to conventional student visits of at least one semester, we will also offer short, intensive programs and field trips for bringing larger numbers of students to the participating universities. These courses are described in the Curricular Developments section below. Courses such as these will be made open to all of the participating universities. We expect that each university will offer such a course once during the project period, which could increase the numbers of students participating in the mobility program by up to 60 students. In addition, these short-term experiences will attract students who are unsure about committing a semester or more to study abroad. We expect that, having been exposed to the advantages of travel and study abroad, a significant portion of these students will apply for longer-term study abroad programs.

4. Curricular Developments

Curricula for this program will consist of four primary components: (a) new modules to be integrated into existing coursework, (b) a new web-based course on rural sustainability, (c) short-term

intensive field studies, and (d) semester-long student internships. These components are described in the following.

A wide range of courses covering issues related rural sustainability is available at all six participating universities. Several of these courses will be modified to include new modules on North American aspects in rural sustainability. These modules will consist mainly of case studies developed in this project that are designed to illustrate the technical, social and policy issues involved in development in rural communities in the U.S., Canada, and Mexico. The case studies will be compiled as a web-base resource for the members of the consortium. Outlines for three case studies are provided in Appendix I. The modules will be used to compare and contrast problems in rural communities and problem-solving practices between the U.S., Mexico and Canada. Inclusion of these modules will significantly alter the existing teaching practices at the participating universities, because a North American perspective on rural communities will become a permanent part of the curriculum at each university.

A new undergraduate web-based course that introduces engineering, natural science, health and social science students to rural development issues will be developed by the project directors at the six universities, with input from participating faculty. The material will focus on developing an understanding of current rural development debates involving social, health, economic and environmental aspects of rural life; the evolution of the concept of sustainable development as it applies to rural communities; and how the use of selected environmental management approaches and techniques may contribute to sustainability. The courses will be developed in part based on faculty visits to Canadian, Mexican and U.S. universities and will be provided in English and Spanish. The syllabus for this course is provided in Appendix II.

New, short-term, intensive field courses will be developed and introduced, where groups of students will travel to locations near the participating universities to conduct field work and observe local rural community problems and solutions. These courses will be open to students from all the participating universities. For these courses, at least twenty students spend one to two weeks at the field location,

respectively, and spend the previous university term preparing for the field studies. Models for this type of program are the field courses in water resources issues developed as part of previous North American Mobility programs in which MTU has led or participated in 1998-2006. These courses have been very successful, with consistently excellent ratings from the students and considerable changes in student's attitudes towards their fields of study.

Student internships will be a cornerstone of this program. The internships will provide not only valuable, practical experience in rural sustainability issues, but will expose the students to the cultural differences in the way life and business are conducted in the host country. The internships will occur either at public agencies, consulting companies, non-governmental organizations, or the host universities. The public agencies would include local, state and federal agencies that oversee rural development. For example, we have several students from MTU who are already working with the Mexican Secretary of Social Development (SEDESOL) on rural sustainability issues. Conversely, at MTU, we would be able to place students from Canada or Mexico with the Department of Natural Resources or the National Resources and Conservation Service. Public interest groups, such as the National Wildlife Federation in the U.S., are non-governmental organizations that often become involved in sustainability issues, from either a technical or political perspective. Finally, each of the participating universities has active research projects in a wide range of rural community issues. Short-term projects for visiting students can be developed easily from the larger projects.

In the first year of the project, potential internship positions will be identified at each university. In each case, the student will have an advisor at the host university who will be responsible for securing the internship position, guiding the student to the internship location, and monitoring the student's progress in the internship. If there is more than one position available, the student will be able to choose a desired position. The student also will have a clearly identified supervisor at the internship location.

5. Academic Credits, Tuition and Fees, and Student Stipends

The consortium will adopt the most successful models currently in use in other consortia funded in the previous round of North American Mobility program competitions. Students will pay home campus

tuition and fees and then travel to a host campus for a period of study. Participating students will continue as candidates for degrees at their home institution. This model has proven itself to be cost effective and administratively efficient. Student work performed abroad will be accorded full credit recognition through approval prior to departure. Visiting students at the host universities will be accorded the same privileges as the home students, such as access to labs and other institutional resources at the host campus that are related to their academic disciplines and coursework.

During the first year of the project, we will identify one general course related to sustainability at each university that will be taken by all exchange students at that institution. We will also identify the most likely set of courses that will be taken by visiting students at each university and work out the details of credit transfers and recognition. This effort will greatly streamline the process when students are preparing to depart for their exchange. It is worth noting that several of the universities involved in this consortium have previously forged agreements for the support and exchange of students, either through previous North American Mobility programs or other, formal study abroad programs.

Student stipends for U.S. students will cover airfare (economical class) plus subsistence fees up to about $2,000 to $3,000 per semester, depending on the cost of travel to/from and cost of living at the host university. We expect that the stipends will be used strictly for travel, room and board, language training at the host universities, and payment for the professional internships. We perceive that the Mexican students may have difficulties in affording the cost of living in the U.S. and Canada. During the first year of the project, we will explore the issue of reciprocity for room and board expenses. All partners in the consortium are committed to addressing this issue so that the mobility of the Mexican students will not be compromised. Both U.S. universities offer on-campus housing which usually reduces the burden of room and board expenses.

6. Pre-Exchange Preparation, Integration of Students, and Language Preparation

During the semester prior to departure, the students will be networked with their future study partners and will begin to think about the topics that they will be addressing in the curriculum. They will be apprised of study abroad-related issues, typical of a normal pre-departure orientation.

At the U.S. universities, we will be targeting students who have at least a year of Spanish language coursework or its equivalent. Students applying to the mobility program will be evaluated as to their language proficiency by taking our standardized language placement tests. Students who do not meet these standards will be required to take the intensive language programs offered at the host university, upon arrival. Students applying to the mobility program from Mexico to visit MTU or UPRM will be evaluated as to their language proficiency by their TOEFL score. Students who do not meet standards of a minimum score of 500 (paper score), 194 (computer score), or 72 (internet score) will be required to take the intensive English language programs offered at MTU upon arrival. It will not be necessary to take intensive English language programs at UPRM because the language spoken is Spanish.

Each university has extensive experience in hosting foreign students, including assisting in securing visas, health insurance and suitable housing. The host university will welcome each visiting student by bringing the students from the airport to their housing and providing a campus orientation. These activities will be coordinated at International Programs and Services at the respective universities. These activities have been accounted for in the budget by setting aside funds for staff at the respective units at MTU and UPRM.

7. Annual Performance Report and Meetings

We will provide annual reports to the respective funding agencies on a timely basis. The reports will be based on the data collected in the Project Evaluation plan (see Section C.). The reports will be prepared by the project directors at the lead institution for each country. The project directors will solicit and include information from the partner institutions. Representatives from each of the six participating institutions will attend the annual meetings of the Program for North American Mobility in Higher Education. We have included funds in the project budget to support travel to these meetings.

C. Project Evaluation

An intensive evaluation effort will be conducted during the life of the project. A detailed evaluation plan will be developed during the first year of the project that will focus on several aspects of the project, including

- number of students exchanged, institution by institution
- number of joint projects undertaken
- number of students participating in international teamwork
- language competency (as compared to before the visit)
- impacts on the students' sense of the North American context in rural sustainability as observed through discussions led in targeted courses
- course evaluations and affective domain surveys for the new web-based course and the intensive field studies
- number of students participating in internships
- the effect of the program on the rest of the university, including permanent curriculum developments and increases in other student exchanges that can be attributed to this program
- demonstrated internationalization of curriculum at the consortium universities, through development of web-based undergraduate courses, and innovative intensive field courses
- extension of the tri-lateral collaboration agreement at the end of the project
- fund-raising for sustaining the program.

We have identified two candidates for hiring as external evaluators: Ms. Patricia Kieckhafer and Ms. Karen Dubow. Both have extensive experience in evaluating higher education programs and both have worked MTU faculty before as evaluators, including on a previous and current North American Mobility program. Funds for the external evaluator have been included in the budget. The external evaluator will be hired during the first year of the project and will have the primary responsibility for data collection and assessment.

The evaluation data will be collected through several avenues, including monitoring of exchange numbers and duration, monitoring of students in targeted discussion-based classes, preparation of pre- and post-visit reports by the students, and pre- and post-visit language competency exams. The students will be asked to write short pre-visit reports where they will identify their goals for their visit. Following their visit, they will write a follow-up report, where they will discuss how well their goals were met and describe strengths and weaknesses. The students also will write a short essay that compares and contrasts rural sustainability problems and problem solving practices between their home and host countries.

We will consider the evaluations to be formative, in the sense that they will be used while the program activities are forming or happening and thus will aid in managing and improving the project. Furthermore, the evaluation results will be used in a summative sense such that projects that follow ours

will be able to take advantage of the information. The evaluation efforts will be coordinated among partners to ensure that the success being measured is consortia-wide.

D. External Impact and Benefits

1. Project Dissemination

From the beginning of the project, students will be encouraged to follow and integrate when possible the activities of the CONAHEC - North American Student Forum. Starting in the third year of the project, we will make presentations at national and international conferences focusing on international programs (e.g. AIPU, NAFSA), and national and international conferences that focus on rural sustainability issues. Most engineering and science professional conferences include sessions on student education, which would be excellent forums for discussing our programs. Furthermore, students may present technical papers on the results of their internships at these conferences. We will also publish papers in peer-reviewed journals on international programs in higher education and on science and engineering education (e.g., Journal of Engineering Education).

2. Broader Impact of Proposed Program

We anticipate that our mobility program will affect the participating universities beyond the numbers of mobilized students. First, the curricular developments described previously will become permanent at the participating universities. These curricular changes will bring a North American context to teaching and research at the universities and will serve as a model for globalizing other curricula. Second, we expect that the experiences of the mobilized students will affect the outlook of their peers. We have observed that the positive experiences of students who have been abroad tend to circulate to other students through word of mouth; however, we intend to be more pro-active by publicizing the program results to both faculty and students. Third, the participation of foreign students in our courses will enhance the impact of the North American modules to be incorporated in these courses. For example, the faculty teaching the courses will be able to point to the student exchanges as material evidence that cooperation among the North American countries is occurring.

Furthermore, through the dissemination efforts described above, we will show that our program can be an effective model for incorporating a North American context into science, social sciences, health and engineering curricula. In particular, our innovations in rural sustainability curricula could benefit a large number of degree programs in all three countries. Some of the disciplines where this material will be taught are listed in Table 2.

3. Sustaining the Project

The SustR consortium intends to continue the student mobility programs indefinitely. At MTU, we will work with their Advancement Office to solicit contributions from alumni to a student mobility fund. MTU has a network of successful alumni who are aware of the importance of student mobility, either through their own international experiences as students at MTU, or as professionals involved in international work. We will also solicit funds from engineering and management companies that specialize in these areas; our faculty members have excellent contacts with these companies already.

E. Capabilities of Consortium Universities

1. Experience in Tri-Lateral Exchange Programs

SustR is composed of three out of six university partners with substantial expertise in conducting this kind of project. This means the faculty members involved in the consortium will be able to take advantage of the experience of the institutions' professional staff and validated evaluation, recruitment and student management tools. This combination should allow SustR to move not only *faster* but *farther* into the process of developing a new generation of students with an understanding of rural issues in the three countries. The students will also benefit from this experience since a good deal of the uncertainty about the exchange will have already been eliminated through previous experience. Recruitment should thus be enhanced by the evidence of past success stories and the reliance on documented procedures of the institutions.

2. Prior Activity among Consortium Universities

MTU and Universidad de Sonora have cooperated in three trilateral exchange programs over the last ten years. These programs have been highly successful in terms the numbers of students

moved (over 70 in semester long stays and more than 120 in short-term intensive field studies) and faculty moved (over 30 faculty visits). We have learned a great deal from past initiatives and experiments conducted under this program. We have created organizational models, personal contacts, institutional networks and also built some very useful knowledge, and most certainly the appropriate attitude towards human resources development and student-centered awareness and mobility. The cooperation between MTU and Universidad de Sonora has changed the face of both universities. For example, at MTU, there is now a strong contingent of Mexican students. Faculty from all over MTU are working on research and educational initiatives that involve US-Mexico collaboration.

Our project evaluations for our most recent trilateral exchange program, "ExCit: Expanding Cities," have demonstrated that we have consistently met student mobility goals and have brought new knowledge to and changed attitudes of students. We are particularly proud of our short-term intensive field studies. These courses have been very successful, with consistently excellent ratings from the students and considerable changes in student's attitudes towards their fields of study. We are currently preparing an article for submission to a peer-reviewed education journal, demonstrating changes in students' affective domains, as a result of the field course.

3. Building on Our Previous Exchange Projects

This partnership will be able to draw on past experience in the North American Mobility Program while also bringing in new perspectives. In our past projects, we have focused exclusively on water resources issues. We are now turning our attention to the most critical issues facing rural communities in the three countries. With this new project, we look forward to working with four new partners (UNBC, LU, UAA, and UPRM) with experience in student exchanges and a strong interest in the project theme, but with minimal, previous participation in the North American Mobility Program. Although the project director and faculty participants at the southern campus are new to North American Mobility programs, they will be able to rely on the accumulated experience in administering these programs at the central campus. Lastly, most of the participating faculty at MTU

are new to North American Mobility Programs; the new project will thus open up more opportunities for a different group of students.

In addition, we would like to note that improvements upon our previous trilateral student exchange efforts will include the following.

(a) At U.S. and Canadian universities, it is commonplace to give credits to students for independent research that will count towards their degree program. Since this does not seem to be the case for the Mexican universities we have worked with, we will work to secure credit transfers at the Mexican universities for independent study or research.

(b) We have strived to secure internships for students at all of the universities involved in our past trilateral projects. But since this has been done informally, not every student has been able to find an internship. In this new project, we will set up a formal process, whereby internship opportunities will be identified in the first year of the project and each student will apply for internships at the host university. It will be the host university's project director's responsibility to ensure that the internship is secured for each visiting student.

(c) We will work on the issue of sustaining the project beyond the funding period from the beginning of the project. Each project director will bring concrete proposals for sustainability to our first meetings and will be expected to make progress on these proposals throughout the project period. In the U.S., for example, we believe that the success of our past projects will help us obtain funding from foundations; however, "courting" foundations for funds is a long-term endeavor and thus must begin as early as possible.

(d) At the end of our current North American Mobility project (currently scheduled to end in August 2008), we will conduct a comprehensive evaluation of the project. The results of the evaluation will be used to identify further improvements that can be implemented in the new project.

Project Narrative

Other Narrative

Attachment 1:
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Attachment 2:
Title: Pages: Uploaded File: **4122-CV_Cecilio.pdf**

G. OTHER ATTACHMENTS

Contents

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Education

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University of North Carolina at Chapel Hill, M.S. Environmental Engineering, 1987
Title: Development of a three-dimensional groundwater flow model
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Title: An investigation of residual nonaqueous phase liquid dissolution in saturated groundwater systems

Professional Experience

September 2005-present
Director, Center for Water & Society
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March 1992-present
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1981-1985
Junior and Assistant Civil Engineer
Water Resources Projects Section, Planning Division
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Professional Registration

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Awards

Fulbright Scholar Award, 2000-2001
James M. Montgomery Consulting Engineers Southeast Region Scholarship, 1990-1991
University of North Carolina Board of Governors Fellowship for Doctoral Research, 1987-1990
University of North Carolina Daniel A. Okun Scholarship for Master's Research, 1985-1986

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Huang, C. and A. S. Mayer, "Dynamic Optimal Control for Groundwater Remediation Management Using Genetic Algorithms," *Models for Assessing and Monitoring Groundwater Quality*, IAHS Publication No. 227, International Association of Hydrologic Sciences, 149-155, 1995.

Mitchell, R. J. and A. S. Mayer, "Effects of Transient-Hysteretic Flow on Nonreactive Solute Transport in the Vadose Zone," *Vadose Zone Hydrology: Cutting Across the Disciplines*, Hydrologic Science, University of California, Davis, 74(43), 95-6, 1995.

Sorby, S. A., A. S. Mayer, and J. G. Johnson, "Development of a Pre- and Post-Processing Framework for Groundwater Flow Modeling," Computers and Their Applications, *Proceedings of the ISCA 11th International Conference*, International Society for Computers and Their Applications, Raleigh, North Carolina, 118-121, 1996.

Huang, C. and A. S. Mayer, "The Role of Uncertainty in the Optimization of Groundwater Remediation Systems," *Proceedings of the XIth International Conference on Computational Methods in Water Resources*, Computational Mechanics Publ., Southampton, UK, 359-366, 1996.

Huang, C. and A. S. Mayer, "Computational Challenges Associated with Mathematical Optimization of Soil and Groundwater Remediation Systems," *Next Generation Environmental Models and Computational Methods*, Society of Industrial and Applied Mathematics, 287-291, 1997.

Mitchell, R.J. and A.S. Mayer, "The Impacts of Source Size and Horizontal Correlation Scale on Solute Transport during Unsaturated Hysteretic Flow," *Proceedings of the International Workshop, Characterization and Measurement of the Hydraulic Properties of Unsaturated Porous Media*, U.S. Salinity Laboratory, Riverside, California, pp. 677-686, 2000.

Mayer, A.S., "Development of multi-objective optimization algorithms for assessing tradeoffs between cost, reliability, and cleanup goals for subsurface remediation," *Computational Methods in Water Resources XII*, 1395-1402, 2002.

Endres, K.L., Mayer, A.S., and C. Enfield, "Optimization of Source and Plume Remediation, *Proceedings of the World Water and Environmental Resources Congress,* May 2001, Orlando, Florida, American Society of Civil Engineers, 2001.

Endres, K. and A.S. Mayer, "Using Remediation Time as an Optimization Variable in Groundwater Remediation Systems," *Proceedings of the 15th International Conference on Computational Methods in Water Resources* (CMWR XV), June 13-17, 2004 Chapel Hill, NC, USA, C.T. Miller et al., editors, Elsevier, Amsterdam, pp. 535-543, 2004.

Bau, D. and A.S. Mayer, "Analysis of the Impact of Layered Soil Heterogeneity on Optimal Policiesfor Groundwater Remediation," *Proceedings of the 15th International Conference on Computational Methods in Water Resources* (CMWR XV), June 13-17, 2004 Chapel Hill, NC, USA, C.T. Miller et al., editors, Elsevier, Amsterdam, pp. 312-320, 2004.

Bau, D. and A.S. Mayer, "Geostatistical Solution To The Inverse Problem Using Surrogate Functions For Remediation Of Shallow Aquifers," *Proceedings of the 16th International Conference on Computational Methods in Water Resources* (CMWR XVI), June 18-22, 2006, Copenhagen, Denmark, P. Binning et al., editors, Technical University of Denmark, http://proceedings.cmwr-xvi.org, 2006.

Kemppainen, A.J., Mayer, A.S., Huntoon, J.E., "Introducing Sustainable Design into First Year Engineering Education,"2007 ASEE North Midwest Section Conference, Houghton, Michigan, September 20-22, 2007, http://www.ndsu.nodak.edu/asee/conferences/2007/proceedings/.

Other Publications

Miller, C.T., D.J. Crawford-Brown, and A.S. Mayer, "Development of a Variable, Dual-Energy Attenuation Method for Measuring Fluid Saturations in Multiphase Systems," Final Report for University of North Carolina Biomedical Research Support Grant, Chapel Hill, NC, 1989.

Miller, C.T., F.K. Pfaender, A.S. Mayer and D.C. Dobbins, "Investigation of Aquifer Response to Purge-Well Rehabilitation," Final Report for Robert S. Kerr Environmental Research Laboratory, U.S. Environmental Protection Agency, Project CR-814625, Ada, OK, 1990.

Mayer, A.S., "Supercomputer Modeling of Groundwater Contamination by Nonaqueous Phase Liquids," *Cray Channels*, 17(2), 18-21, Cray Research, Inc., Eagan, Minnesota, 1995.

Miller, C.T. and A.S. Mayer, "NAPL Dissolution in Heterogeneous Porous Media," *Center for Multiphase Research News* 2(2), 1-5, University of North Carolina at Chapel Hill, 1996.

Mayer, A.S. and W.L. May, "Mathematical Modeling of Proposed Artificial Recharge for the Mission Creek Subbasin," Report for the Mission Springs Water District, Desert Hot Springs, CA, 1998.

Presentations (1997-2007)

Conferences and Workshops

"Well Location Optimization for Heterogeneous Aquifer Remediation," American Society of Civil Engineering Water Resources Planning and Management Conference, Houston, Texas, April 1997.

"Coupling Risk and Cost in a Multi-Objective Framework for Optimizing Remediation Design," Society of Industrial and Applied Mathematics Geosciences Conference, Albuquerque, New Mexico, June 1997.

"Development of a Multidisciplinary Curriculum to Address Subsurface Remediation Education," International Conference on Engineering Education, Chicago, Illinois, August 1997.

"The Influence of the San Andreas Fault on Groundwater Flow in the Upper Coachella Valley, California: A Mathematical Modeling Investigation, poster presented at Penrose Conference on Fluid Flow and Faults, Taos, New Mexico, September 1997. *invited*

"Using Surfactants to Enhance Solubilization of Organic Liquid Contaminants in Groundwater Systems," ECODES '98, University of Matanzas, Cuba, June 1998. *invited*

"Nonequilibrium Behavior in Surfactant-Enhanced Solubilization of Nonaqueous Phase Liquids," Gordon Research Conference, Proctor, New Hampshire, August 1998.

"Interphase Mass Transfer in NAPL-Contaminated Groundwater Systems," special session co-chair, Fall Meeting of the American Geophysical Union, San Francisco, California, December 1998.

"Nonequilibrium Mass Exchange in Surfactant-Enhanced Solubilization of a Nonaqueous Phase Liquid," Fall Meeting of the American Geophysical Union, San Francisco, California, December 1998.

"Visualization of Surfactant-Enhanced Nonaqueous Phase Liquid Mobilization and Solubilization Phenomena at the Micro-Scale," 24th General Assembly of the European Geophysical Society, The Hague, Netherlands, April 1999.

"Modeling Nonequilibrium Solute Transport Under Transient Flow Conditions with Steady State Flow and Transport Parameters," 24th General Assembly of the European Geophysical Society, The Hague, Netherlands, April 1999.

"Applications of Saltwater Intrusion Modeling to the Guaymas Valley Aquifer, Sonora, Mexico," University of Sonora, Sonora, Mexico, October, 1999. *workshop presenter.*

"Saltwater Intrusion into a Northwest Mexico Coastal Aquifer," Conference on Ecology and Sustainable Development (ECODES 2000), Matanzas, Cuba, June 2000, *invited*

"Uncertainty- The Most Significant Technological Limitation" Environmental Modeling Expert Workshop, Pennsylvania State University, August 2000. *invited panel member and speaker*

"Multi-Scale Mass Transfer Limitations in Nonaqueous Phase Dissolution," Workshop on Subsurface Flow and Transport Phenomena, Delft Technical University, Netherlands, October, 2000. *invited*

"Optimization Methods for Subsurface Remediation Design," Workshop on Subsurface Flow and Transport Phenomena, Delft Technical University, Netherlands, October 2000. *short course teacher*

"Pore scale analysis of nonaqueous phase liquid dissolution and surfactant-enhanced solubilization," Society of Industrial and Applied Mathematics Geosciences Conference, Boulder, Colorado, June 2001. *invited*

"Using multi-objective optimization to construct tradeoff curves for subsurface remediation," Society of Industrial and Applied Mathematics Geosciences Conference, Boulder, Colorado, June 2001. *invited*

"Development of multi-objective optimization algorithms for assessing tradeoffs between cost, reliability, and cleanup goals for subsurface remediation," XIIth International Conference on Computational Methods in Water Resources, Delft, Netherlands, July 2002.

"Contamination of Soil and Groundwater by Nonaqueous Phase Liquids," Delft Technical University, Netherlands, July 2002. *short course organizer and teacher*

"Development of Multi-Objective Optimization Algorithms for Assessing Tradeoffs Between Cost, Reliability, And Cleanup Goals for Subsurface Remediation," XII Conference on Computational Methods in Water Resources, Delft, Netherlands, July 2002.

"Incorporation of uncertainty in hydraulic conductivity and source strength into a multi-objective optimization algorithm for designing subsurface remediation systems," IX Mexican American Exchange in Mathematics and it Applications (MAXIMA), Morelos, Mexico, August 2002. *invited*

"Optimization of Engineering Design of Subsurface Environmental Remediation Systems– Development & Testing of Community Benchmark Problems," Large–Scale Computer Models for Environmental Systems- Simulation and Optimization Workshop, Research Triangle Park, North Carolina, April 2003. *invited*

"Optimization of Engineering Design of Subsurface Environmental Remediation Systems- Development and Testing of Community Benchmark Problems," American Geophysical Union, Fall Meeting, San Francisco, December 2003.

"Sustainability Analysis in Water Resources Management and Potential Application to Sonora, Mexico," Third Forum on Water, University of Sonora, Hermosillo, Mexico, May 2004. *invited*

"NAPL Dissolution: Field Scale Modeling," DNAPL Source Zone workshop, Tucson, Arizona, February, 2005. *invited*

"Building Human Capacity to Improve Water and Sanitation in Rural Sonora," TIES Workshop 2006, Guadalajara, Mexico, February 2006. *invited*

"Modeling the Rio Yaqui basin, Mexico- Optimization of water resource allocation," GeoCuenca 2006, Havana, Cuba, June 2006. *invited*

"Training A New Generation of Water Resource Experts," Higher Education in Development/USAID Meeting, Washington DC, August 2006. *invited*

"Crecimiento de Ciudades: la Población, el Agua y su Infraestructura," North American Mobility Program Conference, Guanajuato, Mexico, October, 2006. *invited*

"Sustaining the Project: "Training a Core of Water Resource Experts," TIES Workshop 2007, Querétaro, Mexico, June 2007. *invited*

Workshop on "Complex Interacting Systems for a Sustainable Future," National Science Foundation, Tampa, Florida, June 2007. *invited panelist*

"Environmental Observatory Operations Workshop," National Science Foundation, Baltimore, Maryland, October 2007.

<u>Invited Lectures:</u>

"Nonequilibrium Dissolution of Nonaqueous Phase Liquid (NAPL) Contaminants," Department of Petroleum and Geosystems Engineering, University of Texas, Austin, Texas, January 1997.

"Apparent Nonequilibrium Dissolution of NAPLs: Explanations and Implications," Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, March 1997.

"Coupling Risk and Cost in a Multi-Objective Framework for Optimizing Remediation Design," Sandia National Laboratory, Albuquerque, New Mexico, June 1997.

"Rate-Limited Solubilization of Organic Liquid Contaminants: Measurements and Implications," Department of Earth Sciences, Stanford University, California, October 1998.

"Surfactant-Enhanced Aquifer Remediation: A Multi-Scale Investigation of Rate Limitations," University of Colorado, Boulder, Colorado, March 1999.

"Using Multi-Objective Optimization to Design Subsurface Remediation Systems," Faculty of Civil Engineering and Geosciences, Delft University of Technology, Delft, The Netherlands, April 1999.

"Visualization of Surfactant-Enhanced NAPL Mobilization and Solubilization," ISVA, Danish Technological University, Lyngby, Denmark, April 1999.
"Applications of Saltwater Intrusion Modeling to the Guaymas Valley Aquifer, Sonora, Mexico: Four-Day Workshop," University of Sonora, Sonora, Mexico, October, 1999.
"Surfactant-Enhanced Aquifer Remediation," Mexican Institute for Water Technology, Cuernavca, Mexico, May 2000.
"Multiobjective Optimization for Groundwater Remediation," Mexican Institute for Water Technology, Cuernavca, Mexico, May 2000.
"Groundwater Remediation and Risk Assessment" Tampere University, Finland, December 2000.
"Optimization Methods for Groundwater and Soil Remediation," Tampere University, Finland, December 2000.
"Multi-Scale Nonequilibrium in Surfactant Enhanced Aquifer Remediation" University of Vermont, January 2001.
"Chemical and Physical Nonequilibrium in Groundwater Remediation with Surfactants," Leuven University, Belgium, February 2001.
"Surfactant-Enhanced Aquifer Remediation-Kinetic Effects," University of Padua, Italy, March 2002.
"Broad survey of water problems and approaches for solving problems in Sonora," Instituto Mexicano de Tecnologia del Agua, Morelos, Mexico, August 2002.
"A Challenging Optimization Problem: Engineering Design of Subsurface Environmental Remediation Systems," Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, North Carolina, March 2003.
"US Perspectives on Watershed Management," Watershed Management Certificate Lecture Series, College of Sonora, Mexico, October 2006.
"US Perspectives on Watershed Management," Watershed Management Certificate Lecture Series, College of Sonora, Mexico, April 2007.
"Integrated Economic-Environmental-Hydrologic Modeling of the Rio Yaqui Basin, Sonora, Mexico," University of Illinois, May 2007.
"US Perspectives on Watershed Management," Watershed Management Certificate Lecture Series, College of Sonora, Mexico, October 2007.

Research Projects

Total Funding, 1993-present
Federal Sources: as PI, $3,810,000; as co-PI, $1,035,000
Other Sources: (b)(4)

Current Projects

Modeling and Analyzing the Use, Efficiency, Value and Governance of Water as a Material in the Great Lakes Region through an Integrated Approach, PI, National Science Foundation, $1,078,000, 09/07 to 08/12.
Sustainable Wastewater Management in the Rio Sonora Basin, Mexico, PI, Consejo Nacional de Ciencia y Tecnologia (Mexico), $80,000, 01/04 to 12/10.
ExCit: Expanding Cities- People, Water and Infrastructure, PI, Department of Education, $228,000, 08/03 to 07/08.
Integrated Modeling of Water Resources in the Rio Yaqui Basin, Mexico, PI, MTU, (b)(4) 01/04 to 12/08

Watershed Management Plan for Huron Creek Watershed, PI, Michigan Department of Environmental Quality, (b)(09/07 to 12/08.

Selected, Past Projects

Center for Water and Society, PI, MTU, (b)(4 09/05 to 08/06
Vietnam: Water Resources Management Planning Grant, PI, National Science Foundation, $2,000, 03/05 to 09/05.
Michigan Tech-UNISON Linkage: Training a Core of Water Resources Experts, PI, U.S. Agency for International Development, (b)(4 03/03 to 08/06.
Multi-Objective Decision-Making for Environmental Remediation, PI, Environmental Protection Agency, $292,000, 09/98 to 05/03.
AQUA3: North American Alliance for Sustainable Water Resources Management, PI, Department of Education, $214,000, 03/01 to 02/05.
Ph.D. Fellowships in Computational Engineering and Sciences, PI, Department of Education, $453,000, 03/01 to 02/04.
Computational Facilities for MTU's CS&E Program, co-PI, National Science Foundation, $260,000, 09/98 to 08/01.
Metrics for Optimization of Environmental Remediation Problems, PI, National Science Foundation, $111,000, 06/01 to 05/03.
Multi-Scale Investigation of Mass Transfer Limitations in Surfactant-Enhanced Aquifer Remediation, PI, Environmental Protection Agency, $474,000, 11/96 to 10/01.
A Mathematical Modeling Approach to Determine the Advance of Saline Intrusion in the Guaymas Valley, Sonora, Mexico, co-PI, Consejo Nacional de Ciencia y Tecnologia (Mexico), (b)(4 05/97 to 12/99.
Monitoring and Assessment of Northern Hardwoods Groundwater Remediation Efforts, Mead Paper Company, PI, Mead Paper, (b)(4 05/96 to 08/00.
Capillary Desaturation of Nonaqueous Phase Liquids in Porous Media, PI, Michigan Research Excellence Fund, (b)(4 12/97 to 12/98.
In Situ Subsurface Remediation Technologies: Integration into an Interdisciplinary Engineering Curriculum, co-PI, National Science Foundation, $465,000, 09/94 to 09/98.
Mechanistic Relationships for Physical Nonequilibrium Phenomena in Vadose Zone Solute Transport, PI, National Science Foundation, $142,000, 09/93 to 01/97.
Environmental Treatment Design Options Tool (ETDOT), co-PI, MTU/EPA Center of Excellence, (b)(4 04/93 to 06/96.
Environmental Fate and Risk Assessment Tool (EFRAT), co-PI, MTU/EPA Center of Excellence, (b)(4 04/95 to 06/96.
In Situ Containment of Heavy Metals in Soils and Groundwater through Chemical Precipitation, co-PI, Michigan Research Excellence Fund, (b)(4) 12/94 to 03/96.
A Pore-Scale Investigation of Immiscible Fluid Displacement at Porous Media Interfaces (Travel Grant), PI, National Academy of Science/National Research Council, (b)(12/94 to 11/95.
Enhanced Visualization for Analysis of Groundwater Modeling Efforts, co-PI, Michigan Research Excellence Fund, (b)(4 11/92 to 10/94.
Application of Domain Decomposition and Parallelization Techniques for a Multiphase Flow and Transport Model, PI, Cray Research Corporation, (b)(4 09/93 to 04/94.
Characterization of a Large Fault Zone as a Barrier to Fluid Flow: The San Andreas Fault near Desert Hot Springs, CA, PI, Petroleum Research Fund, (b)(4 09/94 to 08/97.

Service

Recent University Service, 2005-present, listed roughly in order of effort

2005-present	*Director* and co-founder, Michigan Technological University Center for Water & Society
2006-7	Search Committee for College of Engineering Dean, *Chair*
2007	Research Misconduct Investigation Committee, *Chair*
2004-present	GMES Departmental Graduate Committee , *Chair*
2007	Presidential Task Force on Commitment to International Education, Research, and Service
2006-present	College of Engineering Promotion & Tenure Committee
2005-present	several Degree Program Curriculum Committees
2007	Search Committee for SFRES Faculty
2006	Committee to Evaluate SFRES Dean
2005-6	Search Committee for SFRES Faculty

Editing

Advances in Water Resources: Member, Editorial Board 1997-2005
Journal of Contaminant Hydrology: Member, Editorial Board 1999-2005
Water Resources Research: Associate Editor1999-2003

Current Membership in Professional Organizations

American Geophysical Union
American Society of Civil Engineers
International Water Association
National Ground Water Association

Manuscript, Proposal, and Panel Reviews

Advances in Water Resources
American Society of Civil Engineering (ASCE) Books
Biotechnology Progress
Environmental Science & Technology
European Journal for Operations Research
Ground Water
Ground Water Monitoring & Remediation
Journal of Colloid and Interface Science
Journal of Contaminant Hydrology
Journal of Environmental Engineering, ASCE
Journal of Hydraulic Engineering, ASCE
Journal of Hydrogeology
Journal of Hydrologic Engineering, ASCE
Journal of Hydrology
Journal of Water Resources Planning & Management, ASCE
Soil Science Society of America Journal
Soil Science Society of America Books

Water Resources Research

Alabama Agricultural Experiment Station
Canadian Universities Community Development
Fulbright Scholar Program
National Science Foundation (IGERT, Environmental Engineering, Hydrology)
National Research Council/U.S.-Mexico Foundation for Science
Petroleum Research Fund
U.S. Army Research Office
U.S. Department of Defense EPSCoR
U.S. Department of Energy EMS
U.S. Geological Survey

UPRM Project Director CV
CECILIO ORTIZ GARCIA
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Río Piedras, Puerto Rico 00924
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E-mail: ortizc@uprm.edu

EDUCATION

1999 - Doctor of Public Administration, Arizona State University, Tempe, AZ.
Dissertation: *"Managing the Environment in the Caribbean: A Baseline Assessment of State Environmental Capacity in Puerto Rico."*
1996 - Master of Public Administration, Governors State University, University Park, IL.
1988 - Bachelor of Science in Management, Park College, El Paso, TX.

MAJOR AREAS OF INTEREST

Social Dimensions of Environmental Management, Latino Policy Issues, Comparative Environmental Politics, Environmental Policy Analysis and Evaluation, Risk Perception of Environmental/Health Hazards, Environmental Justice and Sustainable Development issues in the U.S. and Developing Countries, Comparative Public Administration (Latin America & Caribbean).

ACADEMIC EXPERIENCE

ASSISTANT PROFESSOR, DEPARTMENT OF SOCIAL SCIENCES, UNIVERSITY OF PUERTO RICO- MAYAGUEZ CAMPUS
July 2008 until present
Courses: Public Policy Analysis, Environmental Policy, Public Participation

ASSISTANT PROFESSOR, ROBERTO SANCHEZ VILELLA GRADUATE SCHOOL OF PUBLIC ADMINISTRATION- UNIVERSITY OF PUERTO RICO-RIO PIEDRAS CAMPUS
January 2006 until present
Courses: Research Methods for Public Administration, Decision Making Theory, Development Administration.

ASSISTANT PROFESSOR, POLITICAL SCIENCE DEPARTMENT, UNIVERSITY OF TEXAS OF THE PERMIAN BASIN
August 2004 - January 2006
Courses: American Government, Environmental Policy in the United States, Introduction to Public Administration, Environmental Justice, and Latino Politics.

ASSISTANT GRADUATE PROFESSOR, MASTERS OF PUBLIC ADMINISTRATION PROGRAM, UNIVERSITY OF TEXAS OF THE PERMIAN BASIN
August 2004- January 2006
Courses: Graduate Seminar in Public Policy, and Research Methods for Public Administration.

VISITING ASSISTANT PROFESSOR, POLITICAL SCIENCE DEPARTMENT, UNIVERSITY OF TEXAS AT EL PASO
August 2001 until July 2004
Courses: Introduction to Political Science (course also taught in Spanish), Principles of American Government (course also taught in Spanish), and Minority Communities and Public Policy in the United States.

VISITING ASSISTANT PROFESSOR, CHICANO STUDIES DEPARTMENT, UNIVERSITY OF TEXAS AT EL PASO
January 2001 until July 2004
Courses: Environmental Policy on the U.S./Mexico Border, Environmental Justice Issues in Minority Communities, Societal Issues in Chicano Studies, and Socio-Political Aspects of Water Management in the West.

LECTURER, ENTERING STUDENT PROGRAM, UNIVERSITY OF TEXAS AT EL PASO
January 2000 until July 2004
Courses: Seminar on Border Environmental Issues (course also taught in Spanish), and Technology and Society: Water Management and Society in the Southwest.

FACULTY ASSOCIATE, SCHOOL OF ARCHITECTURE & ENVIRONMENTAL DESIGN, ARIZONA STATE UNIVERSITY, TEMPE, AZ.
August 1999 until December 1999
Courses: Environmental Planning and Policy and Sustainable Development.

CO-LECTURER, SCHOOL OF ARCHITECTURE & ENVIRONMENTAL DESIGN, ARIZONA STATE UNIVERSITY, TEMPE, AZ.
August 1997 until May 1998
Courses: Introduction to Environmental Policy, and Environmental Justice.

GRADUATE RESEARCH ASSISTANT, ARIZONA STATE UNIVERSITY, TEMPE, AZ.
March 1997 until December 1999
Serve as a Social Science liaison between ASU's Hispanic Research Center and all National Science Foundation sponsored research institutions.

RESEARCH ASSISTANT, PUBLIC POLICY INSTITUTE, GOVERNORS STATE UNIVERSITY, UNIVERSITY PARK, ILL.

August 1995 - June 1996

Performed detailed research on policy issues affecting local government, economics, education, housing and politics. Compiled and analyzed data on economic, social, physical infrastructure and other factors. Prepared narratives, research papers and other reports.

PROFESSIONAL EXPERIENCE

GUEST EDITOR, JOURNAL OF PUBLIC ADMINISTRATION, ROBERTO SANCHEZ VILELLA GRADUATE SCHOOL OF PUBLIC ADMINISTRATION, UNIVERSITY OF PUERTO RICO – RIO PIEDRAS, PR

August 2006 until July 2008

Coordinate the solicitation, review and selection of articles for the oldest and longest running public administration peer reviewed journal in Latin America, editing of selected articles and negotiation of publishing activities.

PROJECT COORDINATOR/MANAGER, CENTER FOR ENVIRONMENTAL RESOURCE MANAGEMENT (CERM), UNIVERSITY OF TEXAS AT EL PASO, EL PASO, TX.

November 1999 – August 2001

Procure, develop and manage environmental research projects with particular interest to the U.S./Mexico border. Maintain liaisons with Texas Congressional Delegation and educate members of Congress about Border environmental issues. Manage sponsored student programs funded by the Department of Energy, Environmental Protection Agency, etc. Develop funding proposals pertinent to CERM's main research areas.

ECONOMIC DEVELOPMENT COORDINATOR, RIO GRANDE COUNCIL OF GOVERNMENTS, EL PASO TX.

October 1997 - April 1998

Co-managed Brownfields Redevelopment Pilot Project in partnership with EPA. Secured $200,000 grant towards completion of 2 year project.
Represented the Rio Grande Council of Governments in all economic development related activities. Prepared economic data reports, abstracts and other documents for presentations to the Board of Directors and other external groups.

HOUSING ADMINISTRATOR, COMCARE, PHOENIX, AZ.

August 1996 - March 1997

Spearheaded fundraising activities for the continuation of homeless assistance programs. Developed homeless assistance initiatives in coordination with local service providers. Assured compliance with federal, state and municipal grant requirements. Created grant proposals and complete grant applications in a timely manner. Supervised a staff of four.

COUNTY PLANNER, WILL COUNTY LAND USE DEPARTMENT, JOLIET, ILL.

September 1994 - July 1996

Devised & recommended arrangements for recreational, residential, industrial, commercial, agricultural and other community facilities and uses. Recommended measures affecting land use, public utilities and transportation, economic affairs, housing and other community facilities. Reviewed and evaluated environmental, financial, and other assessments or impact reports and statements, applicable to specific private and public plans.

HOUSING FINANCE SPECIALIST, NEIGHBORHOOD SERVICES DEPARTMENT, CITY OF JOLIET, ILL.

June 1992 - August 1994

Handled low income loan applications for both First Mortgages and Home Improvement loans. Negotiated rates with local banks for the benefit of applicants.
Linked applicants with applicable neighborhood and community services.
Conducted home ownership seminars in both Spanish and English.
Handled closings and all related documents for every loan processed.
Coordinated CDBG grant applications and accounting.

PUBLICATIONS

Ortiz García (2006) "Administración y Medio Ambiente: Un acercamiento interdisciplinario" *Revista de Administración Publica; Volumen 39, Numero 2*, Escuela Graduada de Administración Publica, Universidad de Puerto Rico, Río Piedras

Ortiz-García (2006) "Managing the Environment on the Caribbean: A Baseline Assessment of State Environmental Capacity in Puerto Rico," *Revista de Administración Publica; Volumen 39, Numero 2*, Escuela Graduada de Administración Publica, Universidad de Puerto Rico, Río Piedras

Ortiz Garcia (2005) "Academics and Activists as Policy Entrepreneurs in the Environmental Justice Movement: Advocacy and Praxis on our Borders" *Submitted to the International Journal of Public Administration.*

Ortiz Garcia (2004) in Bassford, Ledford and Lemus, et. al. "US/Mexico Border Air Quality." Air of Injustice: How Air Pollution Affects the Health of Hispanics and Latinos. League of United Latin American Citizens, Washington, DC

Ortiz Garcia (2004) in Bassford, Ledford and Lemus, et. al. "Our Shifting Borders: Changes in Hispanic/Latino Demographic Patterns and its Environmental Justice Implications." Air of Injustice: How Air Pollution Affects the Health of Hispanics and Latinos. League of United Latin American Citizens; Washington D.C.

Ortiz Garcia (2004) in Bassford, Ledford and Lemus, et. al. "The Urban Forest of the New Millennium: Hispanics Preserving the Lungs of San Juan." Air of Injustice: How Air

Pollution Affects the Health of Hispanics and Latinos. League of United Latin American Citizens; Washington D.C.

Ortiz Garcia (2003) "Promoting Bi-National Cooperation for Water Management in the Paso del Norte Region" Environmental Defense, New York

Ortiz Garcia C., Ashur S. and Mushkatel, A. (2002) "Development of a Risk Management System for the Transportation of Hazardous Wastes Across the U.S./Mexico Border: The Case of El Paso-Ciudad Juarez." The Southwest Center for Environmental Research and Policy, The University of San Diego

PRESENTATIONS/CONFERENCES

- "El Colegio de Químicos y su rol en la Política Publica Ambiental de Puerto Rico" Ponencia ofrecida durante la Conferencia Anual del Colegio de Químicos de Puerto Rico, Centro de Convenciones de Puerto Rico, Agosto 2008
- "En búsqueda de la capacidad ambiental de estado en Puerto Rico: Un acto de contrición de la administración publica al pueblo", Ciclo de Conferencias del Programa Graduado en Ciencias Ambientales de la Universidad del Turabo, Gurabo, Puerto Rico, Diciembre, 2007
- "Retos y oportunidades para la Administración Publica ante el siglo XXI", conferencia ante la facultad de Ciencias Sociales de la Universidad de Puerto Rico- Mayagüez. Auspiciada por la Unión de Estuantes de Sociología y la asociación de Estudiantes de Ciencias Políticas, Noviembre, 2007
- "V is for Vendetta: El gobierno somos nosotros" Cine Sociológico, Universidad de Puerto Rico-Mayagüez, Octubre, 2006
- "Quien contamina en Puerto Rico, o donde esta la capacidad ambiental del estado en Puerto Rico, o que hace un administrador publico hablando de protección ambiental?", I Foro Social de Puerto Rico, Universidad de Puerto Rico-Recinto de Río Piedras, Noviembre del 2006
- "Environmental Justice: Disproportionate Impacts of Environmental Degradation", XXVI International Congress of the Latin American Studies Association, March 2006, San Juan, Puerto Rico
- "Environmental Justice and Latinos: Current issues and Future Needs" National Hispanic Environmental Council Annual Conference, April, 2005, Seattle , Washington
- "Public Administrators as Activists: The role of Environmental Justice in the implementation of Environmental Policy" Conference on Minority Public Administration (COMPA), Corpus Christi, Texas, March 2005
- "Our Shifting Borders: Changes in Hispanic/Latino Demographic Patterns and it Environmental Justice Implications." SESSION 5: Law, Social Justice and Public Policy at the SIGLO XXI CONFERENCE – IUPLR. January, 2005.
- "Academia y Activismo en la Balanza: Retos y Oportunidades para la Justicia Ambiental" Conferencia Magistral, Department of Social Sciences, UPRM. October, 2004
- "Environmental Issues in Transboundary/Transnational Settings: The Tragedy of the Commons in the U.S./Mexico Border and Puerto Rico", Diversity Lecture Series, Humboldt State University, Arcata, California, April, 2004.

- "Opening Paths/Abriendo Brechas" A Workshop and Conference on Activist Scholarship in the Humanities and Social Sciences: "Academic Activists as Policy Entrepreneurs in Border Regions: The Case of the Urban Forest of The New Millennium," February 2004, UT-Austin Center for Mexican American Studies
- "The Future of Texas City-Regions" UT Austin School of Architecture, Speaker: "A Tale of Three Cities: Water as a Metaphor for the Future of the Paso del Norte Region" September, 2003 UT- Austin
- CEPAL Annual Conference, San Juan Puerto Rico "Environmental Education and its effects on Policy: The case of The University of Texas at El Paso and U.S. Mexico Border Environmental Issues" University of the Sacred Heart, 2002
- EPA Brownbag Series, EPA Headquarters, Washington D.C. "Assessment of Environmental Capacity of the State in Puerto Rico", 2002
- Project Bravo, Environmental Justice Conference, March 2003, El Paso Texas, Keynote speaker: "History of the Environmental Justice Movement: The El Paso/Ciudad Juarez Experience"
- National Hispanic Environmental Council Annual Conference, April, 2003, Albuquerque, New Mexico
- First California Hispanic Environmental Conference, Sacramento California, 2002 Keynote Speaker: "What is there in attaining an environmental education: A social scientist perspective."
- 2001 United States Environmental Protection Agency Community Involvement Conference and Training. Presenter. "Capacity Building for Environmental Health in the Paso del Norte Region: The Case of El Paso/Ciudad Juárez." , San Antonio, Texas, June 2001
- American Society for Public Administration, National Conference, Rutgers University, Newark, New Jersey Presenter/Roundtable Discussion: "Cross-National Partnerships for a Sustainable Future? Volunteerism, NGOs, and the Paso del Norte Water Task Force Experience." March 2001
- Western Social Science Association, Regional Conference, Reno, Nevada Paper Presentation: "Comparative Assessment of the Environmental Impacts of 'Maquiladora' Economic Development Strategies in Mexico and Puerto Rico: Learning from Shared Experiences." April, 2001
- National Hispanic Sustainable Energy & Environmental Conference; San Jose, California April 1999
- Constructing Common Ground: Human and Environmental Imperatives @ The Society for Applied Anthropology 1999 Annual Meeting Tucson, Arizona. April 1999
- 4th Conference on Planning and Environment, Graduate School of Planning, University of Puerto Rico-Rio Piedras Campus, February 1999

FUNDED RESEARCH PROJECTS

- "Airs of Injustice: How Air Pollution Affects the Health of Hispanics and Latinos" League of United Latin American Citizens, Dr. Cecilio Ortiz-Garcia, Scientific Advisor.

- "Promoting Collaborative Partnerships for Water Management in the Paso del Norte Region," Environmental Defense Fund, Dr. Cecilio Ortiz-Garcia, Principal Investigator.
- "Development of a Risk Management System for the Transportation of Hazardous Wastes on the US-Mexico Border: A Case Study of El Paso/Ciudad Juárez," Environmental Protection Agency through the Southwest Center for Environmental Research and Policy, Dr. Cecilio Ortiz-Garcia, Principal Investigator.
- Sustainability through Energy Efficiency Program, United States Housing and Urban Development, Cecilio Ortiz Garcia, Ph.D., Co-Principal Investigator.
- EPA Environmental Student Support Program, United States Environmental Protection Agency, Office of Air and Radiation, Dr. Cecilio Ortiz Garcia, Principal Investigator.

RECENTLY SUBMITTED PROPOSALS

- Co-Pi for the Project "Instituto Tropical de Energia Ambiente y Sociedad" submitted to the Office of the Chancellor, University of Puerto Rico at Mayaguez on May 2008.
- Co-Pi for the Project "Creation, Development and Implementation of an Environmental Leadership Development Institute for Social Sciences Students." Submitted to the Ittleson Foundation on March, 2005 in collaboration with Dr. Marla Perez Lugo, from the Department of Social Sciences at UPRM.
- Co-author of MOU between UTPB and UPRM to establish UPRM – UTPB Commitment for promoting academic and research collaborations between faculty and students. Submitted on February, 2005.
- Co-Pi in the project "Community Participation in Watershed Management: A comparative approach to the Socio-Political Issues Regarding El Paso del Norte and the Mayagüez Bay Watershed." Proposal submitted to the Ford Foundation FY2004 Peace and Civil Governance Program on November, 2004.

AWARDS/MEMBERSHIPS

- Comité Asesor, Comité Interdisciplinario para Estudios del Medio Ambiente y el Desarrollo Sustentable (CIEMADes), Universidad del Turabo
- Project Coordinator, Environmental Protection Agency-NMEMS Program, University of Puerto Rico- Mayaguez
- Environmental Leadership Scholar, Smithsonian Institution Monitoring and Assessment of Biodiversity Program, Class of 2000.
- Board of Directors (Advisory Board), National Hispanic Environmental Council, 2000 until present
- Advisory Board Member, Paso del Norte Water Task Force, 2001 until present
- Regent's Scholarship Recipient, Graduate College, Arizona State University, Fall 96 / Spring 97.
- American Society of Public Administration, Member, 1998 until present

(2) PLANNING TIMETABLE

Following is a detailed timetable for each program activity. The project would begin around September 2008. Our performance with respect our progress in each identified activity listed in the timetable will be used as part of our evaluation plan.

	Month							
Activity/Outcome	**0**	**6**	**12**	**18**	**24**	**30**	**36**	**42**
Begin detailed planning (scheduling meetings, arranging credit transfer agreements, etc.	x	x						
Recruit external evaluator	x							
Identify internship opportunities		x		x		x		
Develop list of courses for N. American module development								
Web course development	x	x						
Develop plan for intensive language coursework for visiting students	x	x						
Develop list of potential list of courses for visiting students		x						
Develop detailed evaluation plan	x	x						
Begin recruiting efforts	x							
Attend project directors' meeting		x						
First planning meeting		x						
N. American module development, implementation, and modification		x	x	x	x	x	x	x
Select students for first year of exchanges		x						
First year evaluation and progress report			x					
Transfer students for first year of exchanges			x	x				
First field course				x				
Second planning meeting				x				
Attend project directors' meeting				x				
Select students for second year of exchanges				x				
Begin fund-raising efforts for sustaining the program				x				
Web course implementation				x				
Second year evaluation and progress report, identify areas of program that require adjustment					x			
Transfer students for second year of exchanges					x	x		
Second field course						x		
Third planning meeting						x		
Attend project directors' meeting						x		
Select students for third year of exchanges						x		
Third year evaluation and progress report, identify areas of program that require adjustment							x	
Web course implementation						x		
Transfer students for third year of exchanges							x	x
Third field course								x
Fourth planning meeting								x
Attend project directors' meeting								x
Fourth year evaluation and progress report								x

(3) ENDORSEMENT LETTERS

US Lead: Michigan Technological University
US Partner: University of Puerto Rico Mayaguez
Mexico Lead: University of Sonora (2 letters)
Mexico Partner: Autonomous University of Aguascalientes (3 letters)
Canada Lead: University of Northern British Columbia
Canada Partner: Lakehead University

MichiganTech
Michigan Technological University

Vice President for Research

302 Administration Building
1400 Townsend Drive
Houghton, Michigan 49931-1295
906-487-3043 • Fax 906-487-2245

March 12, 2008

Dr. Frank Frankfort
Coordinator, Program for North American Mobility in Higher Education
U.S. Department of Education, OPE
Fund for the Improvement of Postsecondary Education (FIPSE)
1990 K Street, N.W., 6th Floor
Washington, DC 20006-8544

Dear Dr. Frankfort:

I am pleased to endorse the proposal titled "SustR- Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances." SustR is well suited to our strategy for increasing the international mobility of our students, in particular with our NAFTA partners, Canada and Mexico. The project's emphasis on rural development and sustainability is in keeping with our institution's goals to pursue excellence in education and research in all aspects of the human and environmental issues, especially sustainable development. Our institution is uniquely suited to carry out this project, because of our expertise in the engineering, scientific, social and economic aspects of development in the rural context. In addition, we are committed to enhancing economic opportunities in our region, which is primarily rural.

We have been pleased with the success of our past projects supported by the North American Mobility in Higher Education program. The students who participated in the projects have returned with a broader outlook on the world and a maturity that they could not have gained in the classroom. Furthermore, the presence of students from abroad on our campus has exposed our own students to new and diverse cultural and technical aspects.

We look forward to fully supporting and participating in this new project. If the project is funded, we foresee the drawing up of a memorandum of understanding, among the six participating universities, including details of transferring credits and tuition agreements, will be straightforward.

Sincerely,

David D. Reed
Vice President for Research

PR/Award # P116N080002

Universidad de Puerto Rico
Recinto Universitario de Mayaguez

Instituto Tropical de Energía, Ambiente y Sociedad
ITEAS
http://iteas.uprm.edu/

University of Puerto Rico
Mayaguez Campus

Institute for Tropical Energy, Environment & Society
(ITEES)
http://iteas.uprm.edu/

March 1, 2008

Dr. David Reed
Vice President for Research
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Dear Dr. Reed:

I am pleased to lend a preliminary endorsement to the proposal titled " SustR: Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances." SustR is well suited to our strategy for increasing interdisciplinary course offerings, as well as the number of students that continue graduate studies in interdisciplinary areas. Also, the project's emphasis on rural development and sustainability is consistent with the vision and mission of the Tropical Institute of Energy, Environment, and Society (ITEAS) at UPRM. The Institute recognizes that global changes demand holistic responses for attaining a more sustainable environment. Through this proposal, we hope to continue to expand the opportunities that would enable our students to better understand these changes as well as equip them with the necessary tools to play a more effective role in dealing with them.

We look forward to building relationships with the six participating institutions. We intend to work as quickly as possible to address the details for transferring course credits and tuition agreements. Dr. Cecilio Ortiz-Garcia will work with Dr. Alex Mayer on this.

Sincerely,

Dr. Moises Orengo Aviles
Dean of the Faculty of Arts and Sciences
UPRM

mpl

P O Box 5937 • Mayagüez Puerto Rico 00681-5937 • Tel (787) 642-3705 • Fax (787) 831-7564

PR/Award # P116N080002

UNIVERSIDAD DE SONORA

RECTORÍA

EL SABER DE MIS HIJOS HARÁ MI GRANDEZA

Hermosillo, Sonora; Marzo 4 de 2008.
Oficio No.185

Dr. Eugenio Cetina Vadillo
Director General de Educación Superior
Subsecretaría de Educación Superior
P r e s e n t e.

Por este conducto deseo presentar la propuesta del proyecto: DESARROLLO SUSTENTABLE PARA COMUNIDADES RURALES: AVANCES SOCIALES, ECONÓMICOS Y AMBIENTALES SustR (Sustainable Development for Rural Communities: Social, Economic, and Environmental Advances SustR), a fin de que sea considerada su participación en la Convocatória del Programa para la Movilidad en la Educación Superior en América del Norte (PROMESAN).

La Universidad de Sonora, en su afán de promover el desarrollo de docentes y estudiantes de nuestra región y su participación en acciones que impulsen la cooperación y el intercambio, tanto entre nuestras instituciones de educación superior nacionales como internacionales con los diversos sectores de la sociedad, ha venido redoblando esfuerzos por desarrollar actividades de vinculación que apoyen la planeación en el crecimiento de las ciudades, en las cuales, se han involucrado diversas áreas académicas de nuestra institución en los últimos años.

Dado que este programa contempla promover el intercambio Inter-Institucional, el impulso de las políticas de desarrollo e inclusión a la sociedad de las personas con habilidades diversas y la profesionalización de los recursos humanos que atienden a este sector de la población, consideramos que su implementación cumple con el apoyo a las estrategias de los objetivos del Plan de Desarrollo Institucional de la Universidad de Sonora relacionado con la elevación de la calidad de los servicios y productos académicos, así como el ampliar, sistematizar y consolidar la vinculación y el intercambio.

Cabe mencionar que nuestra institución está en la mejor disposición de convenir las estrategias necesarias para las transferencias de crédito que resulten adecuadas a las condiciones de las universidades miembros del consorcio. Igualmente se establecerán los acuerdos pertinentes para que el pago de colegiaturas se realice en la institución de origen y sea válido para la institución receptora. Así mismo, la Universidad de Sonora cuenta con las áreas administrativas, contables y académicas suficientes para apoyar el compromiso financiero del consorcio, así como el desarrollo de programas especiales para la preparación en el idioma inglés de los estudiantes seleccionados para la movilidad.

A T E N T A M E N T E
"EL SABER DE MIS HIJOS HARÁ MI GRANDEZA"

DR. PEDRO ORTEGA ROMERO
Rector

RECTORÍA

C.c.p.- Archivo
JLGR/Carmen L.*

PR/Award # P116N080002

UNIVERSIDAD DE SONORA
DIRECCIÓN DE MOVILIDAD, INTERCAMBIO Y COOPERACIÓN ACADÉMICA

EL SABER DE MIS HIJOS HARÁ MI GRANDEZA

Hermosillo, Sonora; Marzo 7 de 2008.
Oficio DIMICA 114-08.

Dr. Eugenio Cetina Vadillo
Director General de Educación Superior
Subsecretaría de Educación Superior
P r e s e n t e.

Por este conducto me permito hacer de su conocimiento la participación de la Dirección de Movilidad, Intercambio y Cooperación Académica, en el planteamiento del proyecto: RESPONSABILIDAD SOCIAL CORPORATIVA Y NEGOCIOS INTERNACIONALES EN AMERICA DEL NORTE en lo que respecta a los aspectos operativos de la movilidad estudiantil, tales como: los migratorios, de alojamiento, transferencia de créditos y atención médica.

Esta Dirección es responsable de los programas de movilidad estudiantil en esta institución, coordinando esfuerzos con las diferentes entidades académicas involucradas, tal es el caso de la Unidad Regional Norte Campus Nogales de esta Alma Mater, por lo que expreso el firme compromiso de la Universidad de Sonora por ofrecer los servicios necesarios de orientación a los estudiantes en el Programa para la Movilidad en la Educación Superior en América del Norte.

Finalmente, me permito expresarle mi reconocimiento por la participación de México en este esfuerzo para lograr una educación superior con mayor equidad.

Sin otro particular, hago propicia la ocasión para ponerme a sus órdenes y enviarle un cordial saludo.

A T E N T A M E N T E
"EL SABER DE MIS HIJOS HARÁ MI GRANDEZA"

ING. JOSÉ LUIS GARCÍA RUÍZ
Director

C.c.p.- Archivo
JLGR/Carmen L.*

EDIFICIO DICTUS AVE. ROSALES Y NIÑOS HEROES C.P. 83000 TELS. Y FAX (662) 259 22 66 259 22 67 EXT. 360

PR/Award # P116N080002

Aguascalientes, Ags. 10 de Marzo de 2008

Oficio No. Rect. 153/08

UNIVERSIDAD AUTONOMA
DE AGUASCALIENTES

DR. EUGENIO CETINA VADILLO
DIRECTOR GENERAL DE EDUCACIÓN SUPERIOR
SUBSECRETARIA DE EDUCACIÓN SUPERIOR
P R E S E N T E

Estimado Director Cetina Vadillo:

Presento ante Usted la propuesta del Proyecto "*Desarrollo Sustentable para Comunidades Rurales (Agua, Salud, Economía y Administración SusR (Sustainable Development for Rural Communities: Water, Health, Economy and Environmental Issues SusR)*" a fin de que sea considerada su participación en la Convocatoria del Programa para la Movilidad en La Educación Superior en América Latina del Norte PROMESAN.

La Universidad Autónoma de Aguascalientes, dentro de su visión Institucional se considera como la mejor Institución de Educación Superior en el Estado, deberá consolidar su prestigio de calidad en cuatro áreas a través de haber alcanzado estándares internacionales, siendo la actividad de docencia de pregrado la más importante de la Institución, pero también con una considerable actividad en Investigación y Difusión.

Por lo tanto la participación de alumnos y profesores de licenciatura en este Proyecto de Movilidad Académica, permitirá a ellos y a la institución conocer y participar en experiencias de tipo internacional, permitiendo elevar la competitividad y participación bajo parámetros de tipo internacional y así para alcanzar la visión institucional.

Derivado de lo anterior, manifiesto el compromiso de esta institución por realizar las gestiones y actividades necesarias para cumplir con los compromisos de este proyecto, promoviendo la participación de profesores, facilitando la movilidad de alumnos, cumplir con gestiones de calidad tipo administrativa y académicos, en la medida de las posibilidades; otros recursos necesarios para llevar a cabo este proyecto.

Sin otro particular, agradezco la atención prestada al presente.

ATENTAMENTE
"SE LUMEN PROFERRE"

DR. RAFAEL URZÚA MACÍAS
RECTOR

[redacted]

UNIVERSIDAD AUTONOMA
DE AGUASCALIENTES

Aguascalientes, Ags. 10 de marzo de 2008

Oficio No. Rect/153/08.

Dr. Eugenio Cetina Vadillo
Director General de Educación Superior
Subsecretaría de Educación Superior
P r e s e n t e

Estimado Doctor Cetina Vadillo

Le comunico que su servidora, participa como representante de la Universidad Autónoma de Aguascalientes, en los procesos administrativos de intercambio para estudiantes en el Programa designado. ***"Desarrollo Sustentable para Comunidades Rurales: Avances Sociales, Económicos y Ambientales SustR"***, expreso el firme compromiso de la Institución por ofrecer los servicios necesarios de orientación a los estudiantes de este Programa

Sin otro particular de momento, quedo a sus órdenes.

ATENTAMENTE
"SE LUMEN PROFERRE"

M. en A. Diana Olimpia Rosales de Lira
Jefe del Depto. Intercambio Académico y Becas

[redacted]

SEPLADE

2008 009-1345

"En Marzo nuestro valor es la Honestidad"
Solo si respetamos nuestra identidad real podremos abrir nuestro corazón a la verdad y sinceridad

Aceptación.

Aguascalientes Ags 10 marzo 2008

"Sexagésimo Aniversario de la Declaración Universal de los Derechos Humanos

DR. FRANCISCO JAVIER AVELAR GONZÁLEZ
DIRECTOR GENERAL DE INVESTIGACIÓN Y POSTGRADO DE LA U.A.A.
P R E S E N T E

Por medio del presente y en respuesta a su oficio No. INT/065/08 hacemos de su conocimiento que la Secretaría de Planeación y Desarrollo Regional de Estado acepta participar en el Programa para la Movilidad en la Educación Superior en América del Norte (PROMESAN) de proyecto "Desarrollo Sustentable para Comunidades Rurales Avances Sociales, Económicos y Ambientales" lo anterior con la finalidad de recibir alumnos de nacionalidad estadounidense - canadiense, y reforzar el trabajo que ustedes vienen realizando y que es el de proporcionar a los alumnos una experiencia que los prepara como miembros activos de la sociedad en general y específicamente en carreras de su elección. Esperando con ello contribuir al crecimiento de nuestro Estado

Sin mas por momento aprovecho la oportunidad para enviarle un cordial y atento saludo

ATENTAMENTE
SECRETARIO DE PLANEACIÓN Y DESARROLLO REGIONAL

M.D.U. RICARDO DE ALBA OBREGÓN

DE ...ADO

PR/Award # P116N080002

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

3333 University Way
Prince George, B.C.
Canada V2N 4Z9

Office of the President
Tel.: (250) 960-5600
Fax: (250) 960-7301

March 20, 2008

Program for North American Mobility in Higher Education
International Academic Mobility
Learning Branch
Human Resources and Social Development Canada
200 Montcalm Street
Tower 2, Ground Floor
Gatineau, Quebec
K1A 0J9

Attention: Tom McCloskey

I am pleased to endorse the proposal titled "SustR- Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances." SustR is well suited to our strategy for increasing the international mobility of our students, in particular with our NAFTA partners, the United States and Mexico. The project's emphasis on rural development and sustainability is in keeping with two of the six thematic clusters that are part of the University of Northern British Columbia's academic vision: "Commerce and Community Sustainability" and "Global Processes and Perspectives". UNBC has developed considerable strength in teaching and research related to sustainable development and we take every opportunity to engage undergraduate and graduate students on these issues across a wide range of majors and Programs. This project will build on those strengths, providing greater opportunity for our students to develop an international perspective on rural development and exposing students from the USA and Mexico to rural sustainable development in the context of northern British Columbia.

We understand that a requirement of this project is to express a willingness and intent to sign agreements with our partner universities regarding transfer credit and tuition fee waiver for students participating in these exchanges. We have agreements with many other international universities that contain these provisions and we therefore have no difficulty in accepting this aspect of the project. We also offer support services for international students, including language preparation, to ensure that they succeed. Our in-kind commitments to this project will be considerable. In addition, our Provost has committed funding in the form of Teaching Assistantships to support students.

In summary, we look forward to fully supporting and participating in this new project. If the project is funded, we foresee that drawing up memoranda of understanding among the six

participating universities, including details of transferring credits and tuition agreements, will be straightforward.

Sincerely,

Don Cozzetto
President and Vice Chancellor

H:\word\Anne\March 2008\James Randall.doc

Lakehead
UNIVERSITY

Faculty of Graduate Studies

Tel (807) 343-8785
Fax (807) 346-7705

March 5, 2008

Dr. Alex Mayer
Department of Geological & Mining Engineering & Sciences
Michigan Technological University
1400 Townsend Drive
Houghton, MI
49931

Dear Dr Mayer:

I am pleased to endorse the proposal entitled "SustR- Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental Advances." SustR is well suited to our strategy for continuing excellence in teaching and research involving international opportunities. Lakehead University has been committed since its inception as an institution to educating students who are recognized for leadership and independent critical thinking and who are aware of social and environmental responsibilities. Our commitment to this goal and to SustR can be facilitated by the Food Security Network, which is designed to build community-based research projects and service opportunities that foster student leadership, enhance connections to the broader community, and build capacity in civil society around the theme of food security. We are committed to enhancing economic opportunities in our region, which includes vast areas with fly-in and winter road access only.

We have been pleased with the success of our past international projects, which have included major CIDA funded efforts in Ghana and Nepal. The students who participated in these projects both from Lakehead University and from the host countries have returned with a broader outlook on the world and a maturity that they could not have otherwise gained. The presence of students from abroad on our campus has enriched our own faculty and student life.

We look forward to fully supporting and participating in this new project. If the project is funded, we foresee that drawing up memoranda of understanding among the six participating universities, including details of transferring credits and tuition agreements, will be straightforward.

Sincerely,

Dr Gary Boire
Dean of Graduate and International Studies

PR/Award # P116N080002

(4) OUTLINE OF PROPOSED NEW COURSE Rural Sustainability: A North American Perspective

Objectives: Develop an understanding of current rural development debates involving social, health, economic and environmental aspects of rural life; the evolution of the concept of sustainable development as it applies to rural communities; and how the use of selected environmental management approaches and techniques may contribute to sustainability

Mode: lecture materials, class discussions, practicum delivered via web to six universities on web

Audience: Upper level and graduate engineering, natural science, health and social science students.

Activities: On-line lectures by faculty in participating and other universities; readings; discussions lead by class participants; short papers; and report on results of practicum.

Outline:

1. Short History of rural development in three regions, with attention to differences in issues, community structures, sustainability issues and policies; and role of indigenous peoples.
2. Overview of natural and social systems important to rural sustainability, with emphasis on contemporary issues and policies of importance to rural communities.
   a. Water
   b. Forests
   c. Minerals
   d. Land use
   e. Agriculture
   f. Health and Sanitation
3. Overview of sustainability literature with attention to its application/limitations for rural communities.
4. Case studies that integrate the above components in US, Canada, Mexico.
5. Practicum: analysis of sustainability issues in US, Canada, Mexico.

(5) OUTLINE OF CASE STUDY MODULES (Examples)

These modules will consist of case studies designed to illustrate the technical, social and policy issues involved in development in rural communities in the U.S., Canada, and Mexico. The case studies will be compiled as a web-base resource for the members of the consortium. The modules will be used to compare and contrast problems in rural communities and problem-solving practices between the U.S., Mexico and Canada.

1. Food Security and Cultural Connectedness in Northwestern Ontario First Nations

For Aboriginal communities, the outdoor world is a fundamental part of the social-ecological and cultural identity. We considered the process of place-based learning in the context of cultivated and woodland gardens in three Aboriginal communities in Northwestern Ontario. We were interested how access to traditional foods may have involved a range of cultivated to wild harvest and whether participation in food acquisition activities create measurable increases in social capital, food security, and cultural identification. We documented the history of cultural disruption, misguided natural resources decisions and misfit educational policies that have resulted in increased disconnection from the land, its traditional food sources, and local culture. This disconnection has been contributing to a variety of health and social problems, particularly among youth.

2. Impacts of Mining, Logging, or other Resource Extraction Activities on Rural Communities

These case studies will compare policy, water issues/pollution, and mining in rural communities in BC, Sonora, and the Lake Superior region. There could also be a similar case related to forest resources. The Lake Superior case could include either the current Yellow Dog mining dispute, new mines proposed for Minnesota, or the Crandon mine dispute. All of these proposed mining activities are currently under study by Michigan tech faculty

3. Indigenous/First Nation/Ejidio Land Rights

These case studies will examine indigenous/first nation/ejidio land rights in Ojibwe (treaty rights) territory, BC first nation land rights, and ejidio rights in Sonora especially, policies, issues, and relation to sustainability and poverty. A Lake Superior example would be a case study on Treaty Rights and rural sustainability in Michigan, Wisconsin, and Minnesota. Different treaties (1830s-50s) were signed in this district, but all provided for rights to ceded territories. How these cede territory rights pertain to rural sustainability would involve historical and political analyses.

4. Provision of Water and Sanitation Facilities in Rural Sonora

Rosario has a population of about 3,000 and is among the most disadvantaged of the hundreds of small rural towns in Sonora. The town has no wastewater treatment system; contact with raw sewage is suspected to have caused hepatitis outbreaks. The Michigan Tech system design is based on a very low-maintenance, constructed wetlands technology. Funds to build the system have been secured from SEDESOL and construction has recently been completed. A remaining hurdle is that the people of the community are not well informed of the need and purpose of the project, as revealed by a survey of local opinions on water and wastewater conducted by a Michigan Tech MS student who is from Sonora. The results of the survey indicate that active participation by all groups in the community, particularly women, indigenous peoples, and the poorer segments of the community, is critical for improvements in water supply and sanitation to succeed.

CECILIO ORTIZ GARCIA
Calle Ferrara # 576
Urb. Villa Capri
Río Piedras, Puerto Rico 00924
Tel: (787) 761-8938
E-mail: ortizc@uprm.edu

EDUCATION

1999 - Doctor of Public Administration, Arizona State University, Tempe, AZ.
Dissertation: *"Managing the Environment in the Caribbean: A Baseline Assessment of State Environmental Capacity in Puerto Rico."*
1996 - Master of Public Administration, Governors State University, University Park, IL.
1988 - Bachelor of Science in Management, Park College, El Paso, TX.

MAJOR AREAS OF INTEREST

Social Dimensions of Environmental Management, Latino Policy Issues, Comparative Environmental Politics, Environmental Policy Analysis and Evaluation, Risk Perception of Environmental/Health Hazards, Environmental Justice and Sustainable Development issues in the U.S. and Developing Countries, Comparative Public Administration (Latin America & Caribbean).

ACADEMIC EXPERIENCE

ASSISTANT PROFESSOR, DEPARTMENT OF SOCIAL SCIENCES, UNIVERSITY OF PUERTO RICO- MAYAGUEZ CAMPUS
July 2008 until present
Courses: Public Policy Analysis, Environmental Policy, Public Participation

ASSISTANT PROFESSOR, ROBERTO SANCHEZ VILELLA GRADUATE SCHOOL OF PUBLIC ADMINISTRATION- UNIVERSITY OF PUERTO RICO-RIO PIEDRAS CAMPUS
January 2006 until present
Courses: Research Methods for Public Administration, Decision Making Theory, Development Administration.

ASSISTANT PROFESSOR, POLITICAL SCIENCE DEPARTMENT, UNIVERSITY OF TEXAS OF THE PERMIAN BASIN
August 2004 - January 2006
Courses: American Government, Environmental Policy in the United States, Introduction to Public Administration, Environmental Justice, and Latino Politics.

ASSISTANT GRADUATE PROFESSOR, MASTERS OF PUBLIC ADMINISTRATION PROGRAM, UNIVERSITY OF TEXAS OF THE PERMIAN BASIN
August 2004- January 2006
Courses: Graduate Seminar in Public Policy, and Research Methods for Public Administration.

VISITING ASSISTANT PROFESSOR, POLITICAL SCIENCE DEPARTMENT, UNIVERSITY OF TEXAS AT EL PASO
August 2001 until July 2004
Courses: Introduction to Political Science (course also taught in Spanish), Principles of American Government (course also taught in Spanish), and Minority Communities and Public Policy in the United States.

VISITING ASSISTANT PROFESSOR, CHICANO STUDIES DEPARTMENT, UNIVERSITY OF TEXAS AT EL PASO
January 2001 until July 2004
Courses: Environmental Policy on the U.S./Mexico Border, Environmental Justice Issues in Minority Communities, Societal Issues in Chicano Studies, and Socio-Political Aspects of Water Management in the West.

LECTURER, ENTERING STUDENT PROGRAM, UNIVERSITY OF TEXAS AT EL PASO
January 2000 until July 2004
Courses: Seminar on Border Environmental Issues (course also taught in Spanish), and Technology and Society: Water Management and Society in the Southwest.

FACULTY ASSOCIATE, SCHOOL OF ARCHITECTURE & ENVIRONMENTAL DESIGN, ARIZONA STATE UNIVERSITY, TEMPE, AZ.
August 1999 until December 1999
Courses: Environmental Planning and Policy and Sustainable Development.

CO-LECTURER, SCHOOL OF ARCHITECTURE & ENVIRONMENTAL DESIGN, ARIZONA STATE UNIVERSITY, TEMPE, AZ.
August 1997 until May 1998
Courses: Introduction to Environmental Policy, and Environmental Justice.

GRADUATE RESEARCH ASSISTANT, ARIZONA STATE UNIVERSITY, TEMPE, AZ.
March 1997 until December 1999
Serve as a Social Science liaison between ASU's Hispanic Research Center and all National Science Foundation sponsored research institutions.

RESEARCH ASSISTANT, PUBLIC POLICY INSTITUTE, GOVERNORS STATE UNIVERSITY, UNIVERSITY PARK, ILL.

August 1995 - June 1996

Performed detailed research on policy issues affecting local government, economics, education, housing and politics. Compiled and analyzed data on economic, social, physical infrastructure and other factors. Prepared narratives, research papers and other reports.

PROFESSIONAL EXPERIENCE

GUEST EDITOR, JOURNAL OF PUBLIC ADMINISTRATION, ROBERTO SANCHEZ VILELLA GRADUATE SCHOOL OF PUBLIC ADMINISTRATION, UNIVERSITY OF PUERTO RICO – RIO PIEDRAS, PR

August 2006 until July 2008

Coordinate the solicitation, review and selection of articles for the oldest and longest running public administration peer reviewed journal in Latin America, editing of selected articles and negotiation of publishing activities.

PROJECT COORDINATOR/MANAGER, CENTER FOR ENVIRONMENTAL RESOURCE MANAGEMENT (CERM), UNIVERSITY OF TEXAS AT EL PASO, EL PASO, TX.

November 1999 – August 2001

Procure, develop and manage environmental research projects with particular interest to the U.S./Mexico border. Maintain liaisons with Texas Congressional Delegation and educate members of Congress about Border environmental issues. Manage sponsored student programs funded by the Department of Energy, Environmental Protection Agency, etc. Develop funding proposals pertinent to CERM's main research areas.

ECONOMIC DEVELOPMENT COORDINATOR, RIO GRANDE COUNCIL OF GOVERNMENTS, EL PASO TX.

October 1997 - April 1998

Co-managed Brownfields Redevelopment Pilot Project in partnership with EPA. Secured $200,000 grant towards completion of 2 year project.
Represented the Rio Grande Council of Governments in all economic development related activities. Prepared economic data reports, abstracts and other documents for presentations to the Board of Directors and other external groups.

HOUSING ADMINISTRATOR, COMCARE, PHOENIX, AZ.

August 1996 - March 1997

Spearheaded fundraising activities for the continuation of homeless assistance programs. Developed homeless assistance initiatives in coordination with local service providers. Assured compliance with federal, state and municipal grant requirements. Created grant proposals and complete grant applications in a timely manner. Supervised a staff of four.

COUNTY PLANNER, WILL COUNTY LAND USE DEPARTMENT, JOLIET, ILL.

September 1994 - July 1996

Devised & recommended arrangements for recreational, residential, industrial, commercial, agricultural and other community facilities and uses. Recommended measures affecting land use, public utilities and transportation, economic affairs, housing and other community facilities. Reviewed and evaluated environmental, financial, and other assessments or impact reports and statements, applicable to specific private and public plans.

HOUSING FINANCE SPECIALIST, NEIGHBORHOOD SERVICES DEPARTMENT, CITY OF JOLIET, ILL.

June 1992 - August 1994

Handled low income loan applications for both First Mortgages and Home Improvement loans. Negotiated rates with local banks for the benefit of applicants.
Linked applicants with applicable neighborhood and community services.
Conducted home ownership seminars in both Spanish and English.
Handled closings and all related documents for every loan processed.
Coordinated CDBG grant applications and accounting.

PUBLICATIONS

Ortiz García (2006) "Administración y Medio Ambiente: Un acercamiento interdisciplinario" *Revista de Administración Publica; Volumen 39, Numero 2*, Escuela Graduada de Administración Publica, Universidad de Puerto Rico, Río Piedras

Ortiz-García (2006) "Managing the Environment on the Caribbean: A Baseline Assessment of State Environmental Capacity in Puerto Rico," *Revista de Administración Publica; Volumen 39, Numero 2*, Escuela Graduada de Administración Publica, Universidad de Puerto Rico, Río Piedras

Ortiz Garcia (2005) "Academics and Activists as Policy Entrepreneurs in the Environmental Justice Movement: Advocacy and Praxis on our Borders" *Submitted to the International Journal of Public Administration.*

Ortiz Garcia (2004) in Bassford, Ledford and Lemus, et. al. "US/Mexico Border Air Quality." Air of Injustice: How Air Pollution Affects the Health of Hispanics and Latinos. League of United Latin American Citizens, Washington, DC

Ortiz Garcia (2004) in Bassford, Ledford and Lemus, et. al. "Our Shifting Borders: Changes in Hispanic/Latino Demographic Patterns and its Environmental Justice Implications." Air of Injustice: How Air Pollution Affects the Health of Hispanics and Latinos. League of United Latin American Citizens; Washington D.C.

Ortiz Garcia (2004) in Bassford, Ledford and Lemus, et. al. "The Urban Forest of the New Millennium: Hispanics Preserving the Lungs of San Juan." Air of Injustice: How Air

Pollution Affects the Health of Hispanics and Latinos. League of United Latin American Citizens; Washington D.C.

Ortiz Garcia (2003) "Promoting Bi-National Cooperation for Water Management in the Paso del Norte Region" Environmental Defense, New York

Ortiz Garcia C., Ashur S. and Mushkatel, A. (2002) "Development of a Risk Management System for the Transportation of Hazardous Wastes Across the U.S./Mexico Border: The Case of El Paso-Ciudad Juarez." The Southwest Center for Environmental Research and Policy, The University of San Diego

PRESENTATIONS/CONFERENCES

- "El Colegio de Químicos y su rol en la Política Publica Ambiental de Puerto Rico" Ponencia ofrecida durante la Conferencia Anual del Colegio de Químicos de Puerto Rico, Centro de Convenciones de Puerto Rico, Agosto 2008
- "En búsqueda de la capacidad ambiental de estado en Puerto Rico: Un acto de contrición de la administración publica al pueblo", Ciclo de Conferencias del Programa Graduado en Ciencias Ambientales de la Universidad del Turabo, Gurabo, Puerto Rico, Diciembre, 2007
- "Retos y oportunidades para la Administración Publica ante el siglo XXI", conferencia ante la facultad de Ciencias Sociales de la Universidad de Puerto Rico- Mayagüez. Auspiciada por la Unión de Estuantes de Sociología y la asociación de Estudiantes de Ciencias Políticas, Noviembre, 2007
- "V is for Vendetta: El gobierno somos nosotros" Cine Sociológico, Universidad de Puerto Rico-Mayagüez, Octubre, 2006
- "Quien contamina en Puerto Rico, o donde esta la capacidad ambiental del estado en Puerto Rico, o que hace un administrador publico hablando de protección ambiental?", I Foro Social de Puerto Rico, Universidad de Puerto Rico-Recinto de Río Piedras, Noviembre del 2006
- "Environmental Justice: Disproportionate Impacts of Environmental Degradation", XXVI International Congress of the Latin American Studies Association, March 2006, San Juan, Puerto Rico
- "Environmental Justice and Latinos: Current issues and Future Needs" National Hispanic Environmental Council Annual Conference, April, 2005, Seattle , Washington
- "Public Administrators as Activists: The role of Environmental Justice in the implementation of Environmental Policy" Conference on Minority Public Administration (COMPA), Corpus Christi, Texas, March 2005
- "Our Shifting Borders: Changes in Hispanic/Latino Demographic Patterns and it Environmental Justice Implications." SESSION 5: Law, Social Justice and Public Policy at the SIGLO XXI CONFERENCE – IUPLR. January, 2005.
- "Academia y Activismo en la Balanza: Retos y Oportunidades para la Justicia Ambiental" Conferencia Magistral, Department of Social Sciences, UPRM. October, 2004
- "Environmental Issues in Transboundary/Transnational Settings: The Tragedy of the Commons in the U.S./Mexico Border and Puerto Rico", Diversity Lecture Series, Humboldt State University, Arcata, California, April, 2004.

- "Opening Paths/Abriendo Brechas" A Workshop and Conference on Activist Scholarship in the Humanities and Social Sciences: "Academic Activists as Policy Entrepreneurs in Border Regions: The Case of the Urban Forest of The New Millennium," February 2004, UT-Austin Center for Mexican American Studies
- "The Future of Texas City-Regions" UT Austin School of Architecture, Speaker: "A Tale of Three Cities: Water as a Metaphor for the Future of the Paso del Norte Region" September, 2003 UT- Austin
- CEPAL Annual Conference, San Juan Puerto Rico "Environmental Education and its effects on Policy: The case of The University of Texas at El Paso and U.S. Mexico Border Environmental Issues" University of the Sacred Heart, 2002
- EPA Brownbag Series, EPA Headquarters, Washington D.C. "Assessment of Environmental Capacity of the State in Puerto Rico", 2002
- Project Bravo, Environmental Justice Conference, March 2003, El Paso Texas, Keynote speaker: "History of the Environmental Justice Movement: The El Paso/Ciudad Juarez Experience"
- National Hispanic Environmental Council Annual Conference, April, 2003, Albuquerque, New Mexico
- First California Hispanic Environmental Conference, Sacramento California, 2002 Keynote Speaker: "What is there in attaining an environmental education: A social scientist perspective."
- 2001 United States Environmental Protection Agency Community Involvement Conference and Training. Presenter. "Capacity Building for Environmental Health in the Paso del Norte Region: The Case of El Paso/Ciudad Juárez." , San Antonio, Texas, June 2001
- American Society for Public Administration, National Conference, Rutgers University, Newark, New Jersey Presenter/Roundtable Discussion: "Cross-National Partnerships for a Sustainable Future? Volunteerism, NGOs, and the Paso del Norte Water Task Force Experience." March 2001
- Western Social Science Association, Regional Conference, Reno, Nevada Paper Presentation: "Comparative Assessment of the Environmental Impacts of 'Maquiladora' Economic Development Strategies in Mexico and Puerto Rico: Learning from Shared Experiences." April, 2001
- National Hispanic Sustainable Energy & Environmental Conference; San Jose, California April 1999
- Constructing Common Ground: Human and Environmental Imperatives @ The Society for Applied Anthropology 1999 Annual Meeting Tucson, Arizona. April 1999
- 4th Conference on Planning and Environment, Graduate School of Planning, University of Puerto Rico-Rio Piedras Campus, February 1999

FUNDED RESEARCH PROJECTS

- "Airs of Injustice: How Air Pollution Affects the Health of Hispanics and Latinos" League of United Latin American Citizens, Dr. Cecilio Ortiz-Garcia, Scientific Advisor.

- "Promoting Collaborative Partnerships for Water Management in the Paso del Norte Region," Environmental Defense Fund, Dr. Cecilio Ortiz-Garcia, Principal Investigator.
- "Development of a Risk Management System for the Transportation of Hazardous Wastes on the US-Mexico Border: A Case Study of El Paso/Ciudad Juárez," Environmental Protection Agency through the Southwest Center for Environmental Research and Policy, Dr. Cecilio Ortiz-Garcia, Principal Investigator.
- Sustainability through Energy Efficiency Program, United States Housing and Urban Development, Cecilio Ortiz Garcia, Ph.D., Co-Principal Investigator.
- EPA Environmental Student Support Program, United States Environmental Protection Agency, Office of Air and Radiation, Dr. Cecilio Ortiz Garcia, Principal Investigator.

RECENTLY SUBMITTED PROPOSALS

- Co-Pi for the Project "Instituto Tropical de Energia Ambiente y Sociedad" submitted to the Office of the Chancellor, University of Puerto Rico at Mayaguez on May 2008.
- Co-Pi for the Project "Creation, Development and Implementation of an Environmental Leadership Development Institute for Social Sciences Students." Submitted to the Ittleson Foundation on March, 2005 in collaboration with Dr. Marla Perez Lugo, from the Department of Social Sciences at UPRM.
- Co-author of MOU between UTPB and UPRM to establish UPRM – UTPB Commitment for promoting academic and research collaborations between faculty and students. Submitted on February, 2005.
- Co-Pi in the project "Community Participation in Watershed Management: A comparative approach to the Socio-Political Issues Regarding El Paso del Norte and the Mayagüez Bay Watershed." Proposal submitted to the Ford Foundation FY2004 Peace and Civil Governance Program on November, 2004.

AWARDS/MEMBERSHIPS

- Comité Asesor, Comité Interdisciplinario para Estudios del Medio Ambiente y el Desarrollo Sustentable (CIEMADes), Universidad del Turabo
- Project Coordinator, Environmental Protection Agency-NMEMS Program, University of Puerto Rico- Mayaguez
- Environmental Leadership Scholar, Smithsonian Institution Monitoring and Assessment of Biodiversity Program, Class of 2000.
- Board of Directors (Advisory Board), National Hispanic Environmental Council, 2000 until present
- Advisory Board Member, Paso del Norte Water Task Force, 2001 until present
- Regent's Scholarship Recipient, Graduate College, Arizona State University, Fall 96 / Spring 97.
- American Society of Public Administration, Member, 1998 until present

REFERENCES

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Budget Narrative

Budget Narrative

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