

I.- Integrated Resource Management Education & Training Program(Education 4)

Program Manager: Ron Nargang  
Deputy Commissioner  
Department of Natural Resources  
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A. M.L. 91, Chpt. 254, Art. 1, Sect. 14, Subd. 5(d)

Appropriation \$300,000  
Balance \$ 58,930

This appropriation is from Minnesota environment and natural resources trust fund to the commissioner of natural resources to provide training and internship programs in natural resource management.

B. Not applicable.

C. Not applicable.

II.- Narrative

A shortage of qualified candidates to fill vacancies in natural resources and related professions as well as a need to further develop the skills of current resource management employees exists. This project initiates efforts to address these issues through:

(a) the development of internship and college scholarship programs to improve the pool of qualified candidates for resource management positions and attract those candidates to high demand professions such as hydrology, and

(b) technical resource management training programs to assure high quality regulation and assistance to Minnesota citizens by employees in the participating agencies.

Logical target agencies to participate in this project include: DNR, PCA, Health, Agriculture, Board of Soil & Water Resources and the Minnesota Geological Survey.

III.- Objectives:

A: Develop an internship and college scholarship program to attract individuals into natural resource and related careers.

A.1. Narrative: The candidate pool to fill resource management and other environment professional positions has shrunk while competition among public and private employers for qualified candidates has increased dramatically. This is especially true regarding candidates of color and women. The focus of this objective is to develop programs to expose current and prospective college students to natural resource and related careers and develop strategies to aid those with the desire and knowledge to achieve professional careers in those fields.

A.2. Procedures: A college scholarship program coupled with a guaranteed summer job in the recipient's career area will be established including

eligibility criteria and recipient obligations. A goal of ten Internship work opportunities per year in applicable career areas for undergraduate and graduate students will be established to meet the additional needs of scholarship recipients as well as others who may not be eligible for the scholarship program. Although priority will be given to students enrolled in Minnesota institutions of higher learning, acceptance of students in out-of-state institutions will be made on a case-by-case basis in areas where severe shortages of resource management professionals exist. Visits to high school, college and university campuses will be made to encourage participation in the program and to interview prospective recipients. Efforts will be made to place graduating students in the scholarship program into permanent positions within the participating agencies.

A.3. Budget:

	LCMR Funds	Matching Funds
a. Amount Budgeted:	\$210,000	not applicable
b. Balance:	\$ 31,708	

For Objective A, the project is ending with a balance of \$31,708 which is almost twice as high as the balance of \$16,503 reported in January. This can be explained as follows:

(a) in January, funds were allotted to fifteen internships to be used during Summer 1993, but the interns did not actually begin their internship assignments until the second or third week of June.

(b) because we only provided summer internships, we did not expect that the project's funds could not be rolled over and be used to cover for the Summer 1993 internships' salaries beyond the date of June 30.

The internships have continued beyond June 30, 1993 through other funding sources.

A.4. Timeline for Products/Tasks:

	July '91	Jan '92	July '92	Jan '93	June '93
Develop [-----] scholarship program					
Establish [-----] internship & summer work positions					
Notify [-----] educational institutions of program capabilities					
Recruit [-----] candidates					
Interview [-----] & select participants					

A.5. Status:

The following summarizes the project's performance and achievements during its two-year period from July 1, 1991 to June 30, 1993:

- (1) Total numbers of requests for program information and applications: 375
- (2) Total number of applications received and processed: 183
- (3) Total awards given:
  - (a) Scholarships: 21 full scholarships; 2 partial scholarships; 6 renewed (second-year) scholarships.
  - Up to \$3,000 were awarded for each full scholarship, and \$1,500 for each partial scholarship. The renewed scholarship received the full amount of the award.

(b) Internships: 31 were awarded, of these 29 went to the above scholarship recipients, including the 6 renewed students, as part of the total award package. Two internship recipients received only the internship portion without the scholarship, due to lack of sufficient funds at the time their applications were reviewed and decisions were made.

Each internship consists of 40 hours a week of work for ten weeks, or a total of 400 hours. The hourly pay rate is \$7.50 for undergraduate students, and \$10.00 for graduates.

(4) Characteristics of Awarded Recipients:

- (a) Gender: Male = 13  
Female = 12
- (b) Age: 8 recipients were in 30 years of age or older
- (c) Race: Caucasian = 18  
Minorities = 7
- (d) Ethnic Groups: Black = 1  
Hispanic = 2  
Native American = 3  
Asian/Pacific = 1
- (e) Educational Level: Graduate = 3  
Undergraduate = 20  
Technical College = 2

(5) Recipients' Major Fields of Study:

- (a) Biology = 4 students;
- (b) Chemical Engineering/Engineering = 2 students;
- (c) Environment (Studies, Health, Technology & Education) = 4
- (d) Fire Technology = 1;
- (e) Fish and Wildlife = 5; Forestry = 4;
- (f) Geology/Hydrology (Hydrology & Water Quality Management) = 5

(5) Academic Institutions attended by Recipients:

- (a) University of Minnesota/Twin Cities = 15 students
- (b) University of Minnesota/Duluth = 2 students
- (c) University of Minnesota/Morris = 1 student
- (d) Duluth Technical College = 1 student
- (e) Herbert Technical College = 1 student

- (f) Bemidji State University = 1 student
- (g) Moorehead State University = 1 student
- (h) Normandale Community College = 1 student
- (i) University of Wisconsin/Stout = 1 student
- (j) University of Wisconsin/Stevens Point = 1 student

(6) Total Internship Opportunities Offered: 148

For Summer 1992 a total of 85 internship slots were developed and offered to program recipients; the number of internship opportunities for Summer 1993 was 63. All these opportunities were available within one of the six participating agencies and were designed to provide working experience in the broad field of natural resources management.

- (7) Total Interns Placed: - Summer 1992: 15  
- Summer 1993: 12

(8) Agencies where interns were placed:

- (a) Department of Natural Resources = 21 interns
- (b) Pollution Control Agency = 5 interns
- (c) Department of Agriculture = 0
- (d) Department of Health = 0
- (e) Board of Soil & Water Resources = 0
- (f) Minnesota Geological Survey = 1 intern

In all cases, award recipients were given the opportunity to select their own internship, and to set up an interview with the agency offering the position.

During January 1-June 30, 1993, the last six months of the project, the following activities took place:

(1) New applications:

Four were received for partial scholarships for Winter and Spring Quarters. Of these, the Committee selected two for internship awards without the scholarship. The two recipients were two older students, one male and one female.

(2) Internship opportunities:

A total of 63 different summer internship slots was developed and offered to the fifteen program recipients. These internships were available at four of the six participating agencies, including the DNR, PCA, Department of Agriculture and the Minnesota Geological Survey. Thirteen of the eligible recipients took advantage of the offers. The interns were placed in early June and they will be working through summer until the end of August or beginning of September. Two eligible recipients chose not to participate, one having obtained full time employment in the private sector after graduation, and the other due to personal reasons.

A.6. Benefits : A stronger and more integrated relationship between the University of Minnesota, other educational institutions and State resource management agencies will be fostered and developed. The development of scholarship, summer employment and internship programs will assist the University of Minnesota and other institutions in attracting individuals into hydrology and other resource management fields where serious shortages of professionals exist.

B: Improve or update technical skills of professionals in natural resource

management. Broaden skill base of natural resource management professionals beyond specialty areas. Improve coordination and communications between agencies with the expectation of reducing duplication.

B.1. Narrative: DOER's training resources are not equipped to develop technical training, such as hydrology, soil science, recreation management, or ground water modeling. The goal of this objective is to enable long term employees to retain their effectiveness in providing regulatory oversight, technical assistance and recreational opportunities to clientele. Methodology includes classroom and field instruction, seminars, independent study and inter/intra agency mobility assignments. The MPCA will coordinate this objective.

B.2. Procedures: A goal of one off-site focused workshop for 100 participants plus up to five short courses and continuing education programs in natural resources will be developed so that employees' skills can be updated or upgraded. Feasibility of remote site teaching and alternate teaching techniques will be explored to enable increased participation of staff from all resource management agencies (up to 150 participants per short course/continuing education program). Primary emphasis will be from a practical rather than theoretical perspective. Resources from the University of Minnesota and other state higher education institutions as well as technical staff from the participating agencies will be utilized.

B.3. Budget:

	LCMR Funds	Matching Funds
a. Amount Budgeted:	\$90,000	not applicable
b. Balance:	\$27,222	

B.4. Timeline for Products/Tasks:

	July '91	Jan '92	July '92	Jan '93	June '93
Identify [-----] course needs					
Offer initial short courses			[-----]		[-----]
Offer one time off site workshop				[-----]	
Offer follow up course offerings					[-----]

B.5. Status:

Below is a summary of Objective B's two-year performance and achievements:

(1) Technical Training Opportunities for state agency professionals:

(a) Early in the program, two professional employees, one from MPCA and the other from Public Safety Department attended a conference on Emergency Response Preparedness in New York. The attendance provided them with the needed training and experience to serve as facilitators for an emergency preparedness and response workshop for state agency staff.

(b) A Joint Spill Response Exercise held on September 14-16, 1992, in Grand Portage, Minnesota, was attended by some 75 public agencies'

professionals of all levels, 50 of whom were MPCA and DNR employees participating with the financial support from this project. Sponsors included state agencies, EPA, the Coast Guard, and Canadian national and provincial environmental agencies. The exercise involved simulated responses to an oil spill on Lake Superior, surveillance and monitoring activities for simulated oil damages to wildlife and fisheries, and assessment of long-term environmental impact.

Special Remarks: due to an oversight, this activity was not reported in the July 1, 1992 - January 1, 1993 Status Report.

(c) A 4-credit course on Agricultural Perspectives was offered through a contract with MPCA by the University of Minnesota Extension, from July 21 to September 30, 1992. This training opportunity consisted of a total of 60 hours of both classroom and field instruction. Thirty state agencies' employees were able to benefit from this offering. The main topics covered were in agriculture and environmental management areas.

(d) In the last six months of Objective B, the main activity has been the planning, preparation and holding of the Minnesota Conference on Environmental Emergencies. MPCA was the main sponsor of this event. The conference took place on May 24-25, 1993 at Riverwood Conference Center in Monticello, Minnesota. About seventy state agencies employees, as well as federal and local government personnel took part in a series of activities which included general discussions, breakout sessions, panel presentations, guest speakers and exercises. A total of 18 hours of training was provided.

(2) Coordination and Communications:

Through this project, the coordination and communications between the state agencies involved in the environmental field have been markedly enhanced. All the training opportunities described above not only were developed and planned with the participation of many public agencies employees, but they also were attended by professional employees at many public agencies of all levels.

B.6. Benefits: Improve and update skills base of resource professionals. Develop skills of resource professionals beyond primary area of expertise. Improved communication and cooperation between participating agencies. Improved communication and cooperation between participating agencies and state academic institutions.

IV.- Evaluation

For the FY92-93 biennium the program can be evaluated by its ability to:

- (1) attract college and secondary school students into shortage resource management careers
- (2) appoint qualified graduates as resource professionals into shortage occupations
- (3) improve effectiveness of technical staff
- (4) improve internal mobility of technical staff rather than loss to private sector

V.- Context:

A. Currently a need exists for more technical training, especially

continuing education programs for professionals in hydrology, soil science, resource management and ground water modeling. In addition there is a shortage of applicants in these fields matriculating from the secondary educational institutions. The funding for this program will enable the DNR, PCA and other natural resource agencies to fulfill both needs by providing additional technical training (i.e. short courses, continuing education offerings through the university and other educational institutions) and the creation of an internship program designed to attract students and graduates to professional resource management fields such as hydrology.

Without this internship program the available pool of qualified applicants will likely be slim to non-existent.

Without this training program it will be difficult for agency's staff to keep up with rapidly changing technology on their specialties. In addition, resource management is increasingly requiring staff in one program to be familiar with other specialties to perform effectively. This training program should enable improved cross media learning.

B. All agencies have individually struggled to develop successful recruitment and retention programs for natural resource professionals. This project will enable a combined and cooperative approach among agencies to achieve greater technical training of current staff and improve opportunities for selection of skilled graduates into shortage resource management positions.

C. An integrated approach to technical training for all participating agencies has never been attempted. Internships have been done on a very limited basis due to lack of funding and greater need to maintain on-going resource management programs. Because the technical requirements for staff of the participating agencies is similar this program should enable more cost effective development and implementation.

The intent of this program is to establish stronger ties between the participating agencies and the educational institutions that serve as a source for resource management professionals in an effort to develop a "feeder system" for highly trained individuals to attain positions in resource management areas. LCMR funding has never been utilized for either of these objectives.

D. Not applicable.

E. Biennial Budget System Program Title and Budget: not available at this time.

## VI. Qualifications

1. Program Manager: Ron Nargang  
Deputy Commissioner  
Minnesota Department of Natural Resources  
B.S. Natural Resource Management, University of  
Wisconsin, Stevens Point.

Mr. Nargang has been Deputy Commissioner of the Department of Natural Resources since January 1991. Prior to that he was the Director of the Division of Waters at DNR since January 1987, and before that, Assistant Director of the Minnesota Soil and Water Conservation Board since 1984.

2. Major Cooperators:

A) Richard A. Skok, Ph.D Forest Economics, University of Minnesota

Dr. Skok has been a member of the faculty of the University of Minnesota since 1959. He has served as dean of the College of Natural Resources (Forestry until 1988) since 1974 and as an Associate Director of the Minnesota Agricultural Experiment Station since 1984.

B) Rama Murthy, Ph.D. Geology, Yale University

Dr. Murthy is currently a professor in the Department of Geology at the University of Minnesota. Previous appointments with the University included: Associate Provost and Vice President of Academic Affairs (1985-1990), and Acting Provost (1984-1985). Acting Dean of the Institute of Technology (1983-1984) and Chairman of the School Earth Sciences (1971-1983).

## VII. Reporting Requirements

Semiannual status reports will be submitted not later than January 1, 1992; July 1, 1992; January 1, 1993 and a final status report by June 30, 1993.