

UNIVERSITY OF NORTHERN IOWA

Annual Report

on

UNI's Technology Transfer

and

Economic Development Activities

October 2000

KEY TO ACRONYMS USED IN THIS REPORT

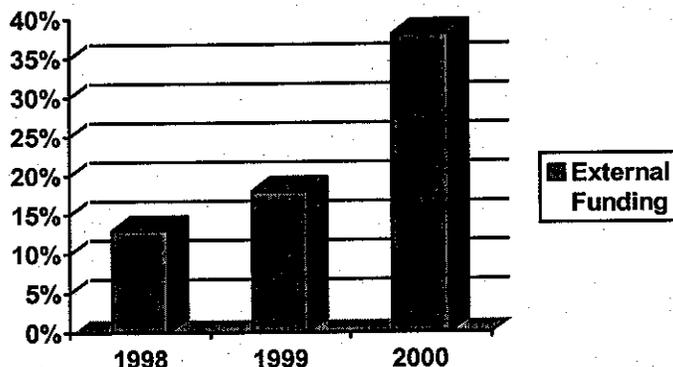
| | | |
|------|---|--|
| ABIL | Ag-Based Industrial Lubricants Research Program | www.uni.edu/abil/index.html |
| BCS | Business and Community Services | www.bcs.uni.edu |
| CEEE | Center for Energy and Environmental Education | www.uni.edu/ceee |
| IDM | Institute for Decision Making | www.bcs.uni.edu/idm |
| IPC | Intellectual Property Committee | |
| ITOP | Iowa Training Opportunities Program | uni.edu/itop |
| IWRC | Iowa Waste Reduction Center | www.iwrc.org |
| JPEC | John Pappajohn Entrepreneurial Center | www.cba.uni.edu/jpec |
| MCC | Metal Casting Center | www.uni.edu/metalcst/web |
| MPDC | Management and Professional Development Center | www.bcs.uni.edu/mpdc |
| MTS | Materials Testing Services | www.rrtc.uni.edu/mts |
| RRTC | Recycling, Reuse, Technology Transfer Center | www.rrtc.uni.edu |
| SBDC | Small Business Development Center | www.sbdc.uni.edu |
| SMS | Strategic Marketing Services | www.sms.uni.edu |

University of Northern Iowa Economic Development And Tech Transfer Activities: A Summary

The University of Northern Iowa (UNI) is committed to meet the needs of businesses, entrepreneurs, and communities throughout Iowa. UNI's outreach services leverage the intellectual capacity and technical expertise of faculty, staff, and students to solve the problems of our external constituents while providing real-world experiences for students. UNI outreach programs focus on helping businesses and communities understand and apply the technology and intellectual properties developed by Regent universities and the private sector.

Collectively, this past fiscal year has been a period of measurable success. This is demonstrated by the more than \$5,737,000 in federal, state, business-derived, and private support dollars for the University's technology transfer and business/community related activities. Approximately two-thirds of these dollars are obtained from sources outside the Iowa General Assembly. Funding of outreach programs from external sources increased by 38 percent during the past year.

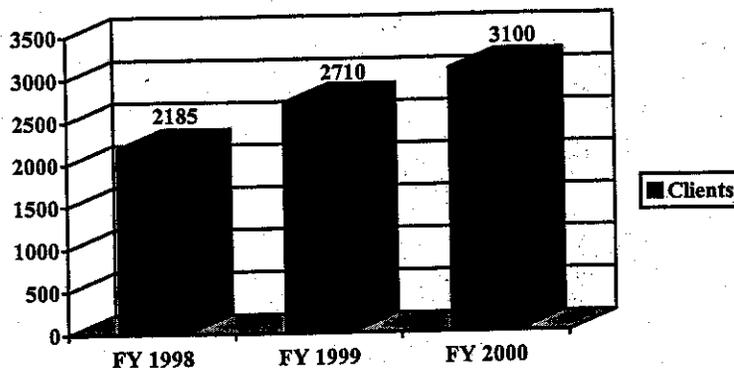
**Percentage Increase of External Funding
(non-general fund sources)**



In other measures of success, the university programs in technology transfer and business/community service have served over 3,100 business and 400 community clients involving almost 30,000 employees and community leaders in all 99 of Iowa's counties. More than 210 training workshops were also conducted this past year.

UNI outreach programs provided opportunities for 1,400 students and 57 faculty members to actively participate in economic development and technology transfer projects. Several of these projects were conducted with other Regent universities, community colleges, and state agencies resulting in a doubling of project activity with these partners in the past year. Outreach and assistance programs have also directly benefited individual citizens. Most important to the individuals affected are the more than 3,200 new jobs created and several thousand more retained, at least partly due to efforts of the University's outreach programs.

UNI Business and Community Clients



This report summarizes the activities of the different entities within the University that are charged with carrying out some aspect of these outreach efforts and are highlighted immediately following.

The **Ag-Based Industrial Lubricants (ABIL)** program has licensed and commercialized two new soybean-based lubricants and is expected to commercialize several more products during the current fiscal year. The Program's success and recognition nationwide has attracted major industrial partners with commitment to help transfer ABIL's technology and to expand the market for non-food uses of soybeans, thereby stabilizing and improving soybean prices.

The **Institute for Decision Making (IDM)** has provided services to 390 community clients, which reported the creation of 3,000 jobs, a result they credited in large part to the efforts of IDM. IDM also received a \$60,000 special appropriation to transfer its laborshed methodology to Iowa Workforce Development.

The **John Pappajohn Entrepreneurial Center (JPEC)** provided research, consultation, and services to 40 businesses and direct financial support to 20 new businesses. JPEC, through its support of the UNI SBDC, assisted over 500 businesses in such areas as market development, operations, and information technology.

The **Small Business Development Center (SBDC)** served 546 clients with technical assistance at the Waterloo office, provided e-commerce workshop training to an additional 379 women statewide, and delivered 76 training programs for 310 entrepreneurs on a variety of small business related topics.

The **Iowa Waste Reduction Center (IWRC)** continues to be an excellent return on investment for the state of Iowa and its small businesses. In its 11 years since inception, the IWRC has worked with 2,000 small businesses to assess environmental compliance and outline options for waste reduction, thereby ensuring not only improved compliance but also saving small business clients millions of dollars in reduced hazardous and solid waste disposal costs. A highlight from this past year was the U.S. EPA verification of the Laser Touch™ targeting device for spray-painting guns. Use of the device can improve spray painting transfer efficiency by an average of 11 percent.

The **Metal Casting Center (MCC)** provided research, training, and services to 32 Iowa foundries and has active contracts with 11 foundry suppliers. The MCC has also been awarded a two-year grant through the city of Chicago to develop the Total Assessment Audit process with metal casters in the Chicago area.

The **Recycling and Reuse Technology Transfer Center (RRTTC)** actively supports research in recycling and sustainable systems. The RRTTC maintains a mailing list of 409 businesses of which 80 percent are recycling related.

The **Center for Energy and Environmental Education (CEEE)** provides outreach to the public, educational and civic institutions, and businesses on issues related to energy efficiency and the environment. Currently 20 projects, spanning a wide variety of issues, are supported within CEEE. The Center received an Iowa Department of Natural Resources 1999 Energy Leadership Award.

The **Management and Professional Development Center (MPDC)** held 120 workshops enrolling 3,500 business professionals from 35 businesses. The MPDC also works with an advisory board and an advisory group comprised of eastern and central Iowa business professionals.

The **Iowa Training Opportunities Program (ITOP)** has launched an 18-month program to provide incumbent worker training in the area of Quality Technician, Understanding Bindery Operations, and Computer Numerical Controls (CNC) Programming. Seventy-two workers in 13 Iowa companies were trained in FY 2000.

ITOP is providing short-term focused technical training to meet the needs of incumbent workers and their employers. Improving the skills of the workers should result in increased productivity, which should translate into better wages, better job positions, and increased job satisfaction. The pilot program to create and fund the training curriculum was funded by the Iowa Department of Economic Development (IDED).

ITOP represents an example where a very small amount of state dollars (\$45,000) helped to secure a major federal job-training grant (\$1 million from the U.S. Department of Labor) to improve Iowa's workers' skills. Iowa is believed to be suffering from a lack of workers and especially a lack of skilled workers. Potentially helping to improve up to 1500 workers' skills, representing over 30 companies is ITOP's long-term goal and contribution to Iowa's economy.

Strategic Marketing Services (SMS) provided students and faculty an opportunity for hands-on project activity with 36 businesses throughout Iowa and the Midwest during the past year.

The **UNI Intellectual Property Committee (IPC)** to date has reviewed 25 patent disclosures and 16 patent applications. In addition, eight license agreements and related royalty agreements have been established and five new patents were issued this past year. The UNI Research Foundation has also taken an equity position in a spin-off business based on research conducted by ABIL.

Examples of Interinstitutional and Other Partnering Projects

SMS-ISU Project – Heartland Technology

Heartland Technologies is a new start-up company located in Oelwein. Through a partnership with Iowa State University, Heartland Technologies has developed several soy-based adhesives that will be used in the manufacturing of board products such as plywood, particleboard, oriented strand board, and manufactured fiberboard. These products will be marketed in the housing, commercial building, and furniture manufacturing industries.

Iowa State University conducted the initial technical product development research and has partnered with Strategic Marketing Services (SMS) at UNI to conduct the market research for the soy-based adhesive and the finished board products. Heartland has no competitive history in the wood adhesives industry and therefore, seeks to understand all relevant market factors that drive the industry. Facets of the industry include the market environment, an overview of the production and trade of adhesives, and the feasibility of competing with a soy-based product. The market research is taking place at UNI as this report is being prepared.

ABIL - ISU Soybean Project

In June of 2000, Ag-based Industrial Lubricants (ABIL) began a testing program in conjunction with Iowa State University's Department of Food Science and Human Nutrition. The program involves testing a new anti-oxidant developed by ISU. The anti-oxidant is called *1,2 Ethanediol Laurate P-Toluenesulfonate* or *ELaT*. The program was established to test the performance of ELaT when used with industrial lubricants based on genetically modified high oleic (acid) soybean oil. Performance evaluation of ELaT will be based on ABIL's nine years of experience with industrial lubricants using agricultural oils.

To date, several tests have been conducted, including a series of 10 Oxidative Stability Index tests, heating tests, general observations, and aging tests. Further tests are planned. Results of the tests are pending.

IDM – Rural Database Project

The Rural Development Council (RDC) Electronic Notebook project was launched during FY 2000 in an effort to foster better communication among economic development service providers to rural Iowa communities. The Electronic Notebook is a database of all the communities/counties in Iowa and any technical assistance received from economic development service providers. The Institute for Decision Making (IDM) volunteered to develop the electronic notebook with the help of students and RDC partners after the initial vendor bids rendered the database project cost prohibitive.

The Electronic Notebook has been developed as a web-based client management and communication tool. Each partnering organization can enter project information regarding either community or county clients and the types of services provided. The database is searchable by community, service provider, type of service provided, and by several other categories. In addition to the RDC, partners in the Electronic Notebook project include, the Iowa Department of Economic Development, USDA Rural Development Administration, Iowa State Extension to Communities, and IDM.

IWRC – STAR Training with Community Colleges

To date, the Iowa Waste Reduction Center (IWRC) has collaborated with fifteen community colleges within Iowa and other states to transfer the Spray Technique Analysis and Research (STAR) Training Program. This collaboration entails community college instructors training at the IWRC applied research facility followed by the purchase of necessary equipment by either the community college itself or, in some instances, the IWRC. Finally, IWRC staff travel to the community college to aid the instructor in initial training. Communication with STAR training instructors at the community colleges is ongoing, and onsite follow-up with the colleges will occur during the next year to maintain quality STAR training standards.

SBDC - Iowa Women's Enterprise Center

The Small Business Development Center/John Pappajohn Entrepreneurial Center (SBDC/JPEC) joined a consortium in 1998, consisting of the ISU Iowa Small Business Development Center and the Institute For Social and Economic Development, to create an Iowa Women's Enterprise Center for the state. This federal grant provides \$150,000 annually through 2003 to fund technical assistance and technology training to women throughout the state of Iowa. The UNI SBDC receives \$32,000 annually from this grant for Internet technology and e-commerce training to women statewide. During the past year, 376 women received this training from the UNI SBDC representing 18 urban and rural communities.

SBDC - Regional Business Center/ Kitchen Incubator

UNI and ISU are entering a unique partnership to assist small businesses in eastern Iowa. UNI is in the final construction phase of a new Regional Business Center (RBC) in downtown Waterloo. The RBC will provide a facility for entrepreneurs to secure technical assistance, specialized training, and access to business technology. Central to the project is the creation of a mixed-use business incubator designed to foster the growth of early stage companies through shared resources, mentoring, and access to technology.

ISU is proposing to co-locate a kitchen incubator adjacent to the UNI RBC. The kitchen incubator will be a licensed kitchen facility where entrepreneurs may process and package agricultural products for sale to the public. The kitchen incubator will fill a recognized gap in the marketplace for food-related entrepreneurs to secure access to the specialty foods market, while providing alternative food-related business opportunities for Iowa families.

There are multiple opportunities for university goals at UNI and ISU to be advanced once facilities are up and running. Critical to the mission of both universities is student education in the fields of business, technology, and agriculture. Both UNI and ISU students will be provided opportunities to explore business, agricultural, and food safety practices in Iowa through the RBC and kitchen incubator. A key component of the facility layout is a potential retail storefront laboratory. An entrepreneurship lab will provide an outlet for products of the RBC and kitchen incubator as well as a living classroom for CBA professors seeking an opportunity to apply classroom theory.

The RBC is scheduled to open November 1, 2000. The kitchen incubator is being proposed as a 'second stage' development project with a potential opening date of mid to late 2001. Upon opening, the RBC and kitchen incubator will be the fulfillment of two years of community planning and reflect a unique partnership between the public and private sectors. This project is a focused, timely response to critical business needs for Iowa business and farming communities.

Center for Energy and Environmental Education (CEEE) – Expanding the Local Food Economy

Community and Economic Regeneration through Strengthening the Local Food Economy: this pilot study seeks to analyze the benefits to the local economy and the environment through direct support of local agriculture. Aspects assessed include: (1) economic benefit to the farmer; (2) customer satisfaction with the quality of the purchased food; (3) savings in energy consumption, especially with respect to transport of the food; and (4) feasibility of community-supported agriculture on a wider scale. Initiated in 1997, the plan was tested through direct sale of food from farms to UNI's food services, an area hospital and a local restaurant. In 1999 alone, these local purchases amounted to nearly \$130,000 directly invested in local farms and processors. Beginning in summer 2000, the program was expanded to include a cluster of hospitals in north/central Iowa that include Mercy Medical Center (Mason City), Mitchell County Regional Health Center (Osage), Floyd County Memorial Hospital (Charles City), Bartels Lutheran Home (Waverly), and Covenant Medical Center (Waterloo). Other institutions, including universities, are now being included in the program.

Actions Toward UNI's Technical Transfer and Economic Development Plan

UNI Goal Area 1: INTELLECTUAL VITALITY: Create and maintain an intellectually demanding and stimulating environment for all members of the university community.

Objective 1.1: Prepare students to use state-of-the-art technology in their chosen fields.

Cumulative Outcome: UNI outreach programs provided opportunities for more than 200 students to apply technology applications in their fields of study.

Actions:

ABIL

ABIL has been an excellent venue for students' experiential learning by providing opportunities in research, public relations, and marketing. During the 1999-2000 academic year, ABIL employed chemistry students to operate analytical testing equipment, business students to support development of the *ABIL Advocate* (a quarterly newsletter designed to position market development of soybean-based lubricants) and other business related issues, and industrial technology students to operate lubricant performance testing equipment and to support development of the testing laboratory. In addition, two students from Wartburg College have been employed to help with marketing and advocacy activities of the program. Also, over 40 marketing students in one class have made commercialization of soybean-based lubricants their course project for the Fall 2000 semester.

CEEE

UNI students from various disciplines and colleges on campus work and volunteer at the Center throughout the year. Students come to the Center from biology, chemistry, communications studies, environmental programs, criminal justice, English, journalism, physics, the College of Education, the College of Humanities and Fine Arts, the College of Natural Sciences, and the College of Business Administration. Students working on *Iowa Electrathon* gain firsthand knowledge about electric vehicles, an emerging technology. Students working on the *Rebuild Cedar Falls/Conservation City Program* learn about energy efficiency and energy conservation by undertaking energy audits on commercial and residential buildings and making recommendations about retrofitting and utilization of state-of-the-art energy efficiency technology. Students working on *Greening of UNI* learn about state-of-the-art technologies for energy efficient buildings. The *Iowa Energy Poster Contest*, *Iowa Energy Bowl*, *Solar Oven Check-Out Program*, and *CEEE-KUNI Radio Series on Energy Issues in Iowa* provide UNI students an opportunity to learn how to educate children and the general public about renewable energy, energy efficiency, and energy conservation through outreach and experiential learning. The Center's web page provides students the opportunity to design and execute state-of-the-art internet technology. Each year, marketing and advertising students complete class projects for the College of Business at CEEE, and have the opportunity to practice what they have learned in class in a real-world, hands-on way by promoting CEEE outreach programs to the general public.

The Center also plays a leading role in the multidisciplinary *Iowa Summer Lakes Study*. With grants from the Roy J. Carver Charitable Trust and the Iowa Space Grant Consortium, nine faculty and 14 undergraduates are analyzing sources of pollution and possible remediation strategies for Casey Lake in Tama County and Silver Lake in Delaware County.

IDM

The Institute for Decision Making (IDM) has provided opportunities for 15 students to apply state-of-the-art technology in the following areas: Geographic Information Systems (GIS) and Management Information Systems (MIS); utilizing software, database programs, and the Internet for market research; and developing and analyzing laborshed databases using SPSS (Statistical Package for Social Sciences) software.

IWRC

Students working on IWRC applied research projects were provided opportunities to explore some of the latest developments in small business waste reduction technologies. MIS and public relations students are exposed to state-of-the-art Internet design software, Cold Fusion, GIS, Visual Basic application development, and Access 2000 database development. Cold Fusion is not currently a part of the curriculum at the University, thus students are learning skills they would otherwise not be learning in college courses.

MCC

The MCC provides practical experience with all foundry processes to prepare students for their careers. Research in sand and binder alternatives has provided the students with state-of-the-art testing techniques. New acquisitions of metal testing equipment are being used in both classroom experiences and industrial-sponsored projects. Support operations such as a computer lab for 3D and solidification modeling are also utilized. The MCC has two undergraduates and one graduate student employed to assist with the industry projects.

RRTTC

The RRTTC recognizes that an essential feature to a student's academic and professional success is the ability to understand and operate current technologies and state-of-the-art equipment. To date, the RRTTC has purchased more than 25 computers and spent as much as \$270,000 to provide students with modern computing equipment, analytical instrumentation, statistical analysis, and word processing software. Through the MTS, research capital and infrastructure are supported in the areas of Chemistry, Biology, and Industrial Technology. The granting of research funds is prioritized for projects employing student assistance and providing practical research experience. The RRTTC has provided 80 students with funding for advancement in their educational careers through internships and assistantships. Graduate and undergraduate research is being funded in seven academic departments throughout the University including sciences, business, and education.

SMS

The SMS Experiential Learning Program prepared 25 students for private sector success upon graduation. Students learned how to use state-of-the-art computer programs and databases and apply them to market research projects for businesses.

Objective 1.2: Integrate experiential learning, focused on technology deployment and business development, with students' academic degree programs.

Cumulative Outcome: UNI outreach programs have provided experiential learning opportunities for 120 students during the past fiscal year.

Actions:

ABIL

While a science and technology-based program, UNI-ABIL has been placed in the College of Business Administration to facilitate commercialization of soybean-based lubricants in line with its mission. UNI-ABIL's students are offered wide responsibilities as well as opportunities to take charge of specific activities, to demonstrate leadership toward implementing innovative concepts in pursuit of the larger (UNI-ABIL) mission, and to integrate their expertise and activities among their peers.

CEEE

Undergraduate students majoring in education or early childhood education degree programs manage the Iowa Energy Poster Contest, the Iowa Traveling Energy Art Gallery, and the Iowa Energy Bowl. CEEE provides on-the-job training in energy issues, and the students apply all that they have learned in class and at CEEE to the management of these highly public, statewide programs that educate children about energy.

CEEE, the College of Business Administration and the UNI Office of Media Relations formed an educational partnership for students in the *Consumer Behavior* course, and the *Promotions and Marketing* course. The partnership provides business students with "real-world" marketing projects at CEEE. The students are divided into teams to work on various marketing and advertising aspects of the *Iowa Electrathon*, the *Iowa Energy Poster Contest*, *Rebuild Cedar Falls/Conservation City Program*, a fair booth display for CEEE, and the *Iowa Prairie Seed* program of the Roadside Management Group.

CEEE and KUNI, the local public radio station, formed a partnership to produce a yearlong series of radio reports on energy topics to the general public. Some of the energy topics include Iowa's energy policy and national energy policy, energy consumption in Iowa, electric power generation and utility restructuring in Iowa, energy efficiency and the economic success story of Fox River Mills in Osage, Iowa, alternative and renewable energy sources and their uses in Iowa (such as biomass, wind, ethanol, geothermal, and methane recovery), and energy consumption in the manufacturing sector.

Energy Stewardship Congregations; Midwest Sustainable Consumption Initiative; Iowa Outreach Initiative for Waste Reduction, Reuse and Recycling; Cedar Valley Commuting Initiative; and Iowa Energy Poster Contest all depend on the work of undergraduate UNI students. This teaches them good management and organizational skills in areas focusing on recycling or resource conservation.

Taking on the Challenge of Climate Change, a project conducted in collaboration with the United Nations Association, USA, Iowa Division, involved the participation of middle and high school teams across the state meeting at the CEEE in the format of a model United Nations General Assembly. UNI students in political science, who honed their skills in parliamentary procedures, supervised these meetings.

IDM

IDM provided direct experiential learning experiences for 14 undergraduate students and three graduate students in the areas of community economic development. Many of the experiential learning experiences included internships at the community level.

IWRC

The Iowa Waste Reduction Center has employed 130 students since its inception. Nineteen students participated in experiential learning at the IWRC this past school year. These students were integral to IWRC's applied research, watershed projects, Geographical Information System, website maintenance, database management, air-permitting efforts, and public relations. IWRC interns comprise a variety of disciplines including MIS, geology, communications, industrial technology, and public relations.

JPEC

During the past year, the UNI John Pappajohn Entrepreneurial Center supported 11 students in experiential learning situations. Two were interns in the Center, meeting with clients and doing research for clients in new venture start-ups. JPEC financially and educationally supported six students starting their own businesses. JPEC also co-sponsored a business plan competition with PRSSA (Public Relations Student Society of America) and provided educational assistance to three student businesses and financial assistance to one student business.

MCC

The Metal Casting Center focuses on teaming class experiences with industry research to introduce students to current practical research. This also allows industrial partners to work with students and observe them for future employment considerations. This past year there have been eight students involved with these projects.

RRTTC

The RRTTC sponsors several internships for undergraduates as well as assistantships for graduate students. An environmental science internship with the Black Hawk County Health Department (BHCHD) is offered through the RRTTC. The internship focuses on solid and hazardous waste issues. Already 18 students have successfully interned for the BHCHD through the RRTTC with the vast majority having found jobs in their career area as a result.

SBDC

The SBDC provides internship opportunities for UNI students in the areas of market research, accounting support, and classroom instruction. These students gain direct experiential involvement with small business owners at the center.

SMS

SMS provided direct experiential learning experiences for 20 students. These included experience in marketing and market research. SMS introduced and now offers a Certificate in Consulting – Market Research.

ITOP

ITOP provided employment for five students during the 1999-2000 academic year. Students were involved with all aspects of the grant including curriculum development, marketing, financial management, as well as routine office procedures.

Objective 1.3: Integrate the university's applied research, technology deployment, and technical assistance programs into the relevant academic programs.

Cumulative Outcome: Each college and nearly all academic departments directly participated in applied research and technical assistance projects throughout Iowa.

Actions:

ABIL

UNI/ABIL generates a substantial volume of data regarding soybean-based lubricants. Students from several disciplines augment what they have learned in their respective programs by their involvement in UNI/ABIL projects.

IDM

IDM provided research opportunities for five faculty members in the academic disciplines of economics, mathematics, marketing, geography, and public policy. Many of these research projects incorporated student group projects and were applied at the community or business level. Some of these research projects included:

- Analysis of underemployment in Iowa
- Probability models to assess commuting patterns
- Economic impact analysis of local economic development projects
- Developing a survey instrument for a statewide laborshed study
- GIS overlays for determining laborshed information for Iowa communities

IWRC

The Spray Technique Analysis Research (STAR) program of the IWRC has training in conjunction with three community colleges: Hawkeye Community College, Scott Community College, and Northeast Iowa Community College. These programs train spray-painting technicians how to optimize their painting technique and make use of the Laser Touch™ paint applicator for cost and environmental efficiency.

MCC

The MCC provides research opportunities for two faculty members in the Industrial Technology Department and one faculty member in the Chemistry Department. These projects incorporate students and are used by the metal casting industry.

RRTTC

RRTTC's interest in academic development is expressed in the funding of a future project involving public and environmental health research related to sewage waste contamination of well water in Eastern Europe. The project will include graduate and undergraduate students interested in Environmental and Public Health.

The Center currently funds several graduate and undergraduate research projects as well as professional projects employing student assistance. Among the Center's staff are student interns

performing duties in public relations surrounding environmental issues, community and student organizations, waste materials characterization, and intellectual property matters management.

MPDC

MPDC provided opportunities for faculty to work with the private sector to gain knowledge that can be used in the classroom. More than 25 faculty members served as instructors for MPDC programs and classes.

SMS

SMS provided research activity for five faculty members in the Marketing Department in the areas of market analysis and survey techniques.

UNI Goal Area 2: RESOURCES: Effectively manage internal resources and aggressively seek external resources to support university programs and aspirations.

Objective 2.1: Encourage the initiatives of individual faculty to identify and respond to the needs of communities, small businesses, and industries through faculty professional service and faculty entrepreneurial activities.

Cumulative Outcome: During the past year, UNI outreach programs used the services and expertise of 57 faculty members in community level problem solving and business development projects.

Actions:

ABIL

During the 1999-2000 academic year, UNI-ABIL employed the services of adjunct chemistry faculty to assist with research in protection of the intellectual property being created through the program activities. Research projects relative to toxicity and biodegradability of soybean-based lubricants were completed under supervision of faculty.

CEEE

The following CEEE programs utilized faculty from numerous disciplines during the past year:

- *Rebuild Cedar Falls/Conservation City Program*
- *Sustainable Community Development through Participation in the Cedar Falls 2010 Strategic Planning Initiative*
- *CEEE-KUNI Radio Series on Energy Issues in Iowa*
- *Community and Economic Regeneration through Strengthening the Local Food Economy; Cedar Valley Commuting Initiative*
- *Yards for Kids*
- *Midwest Sustainable Consumption Initiative*
- *Environmental Issues Instruction (EII), and Greening of UNI.*

IDM

IDM received direct assistance from six faculty members in meeting community needs in the areas of economics, geography, marketing, mathematics, and public policy.

IWRC

IWRC continues to initiate new research to solve the waste stream problems of small businesses and connect with UNI faculty to conduct the research. This past year, IWRC funded a faculty researcher and student to determine how to reduce the metals concentration in aqueous parts wash wastewater.

JPEC

JPEC provided support to faculty members to write case studies related to small business. The center supported the publication and dissemination of case studies to faculty members teaching small business and entrepreneurship courses. JPEC also supported faculty as consultants to client businesses.

MCC

MCC provided support to faculty and staff members for research in energy efficiency and new product testing for application in the foundry industry.

RRTTC

The RRTTC contributes informational and financial support for a broad range of services, publications, and activities. Examples include active participation of Center staff in annual *America Recycle Day* and *Lawn for Kids*. On other levels, the MTS draws on faculty to perform industry requested materials analysis. The RRTTC has performed research in the areas of public and occupational health, including the recent publication of a study to reduce lithographic printers' exposure to carcinogenic, volatile organic compounds.

SBDC

The SBDC relies upon several UNI faculty members as consultants with small businesses on a regular basis. During the FY 2000, partnerships were developed between the IDED ReVamp program, UNI and ISU faculty, and the multiple value-added agricultural clients of the UNI SBDC. This past year research was conducted concerning market potential for goat cheese in Dumont, blue cheese in Cresco, and a squirrel repelling birdseed in West Union, Iowa.

SMS

SMS has utilized faculty for marketing, market research and analysis, and focus group facilitation.

MPDC

MPDC has used 20 faculty members to provide training to Iowa businesses. These experiences provide an opportunity for direct interactions with the business community.

Objective 2.2: Augment university-based funding with additional support from federal, state, private, and business sources to further develop the university's expertise in technology transfer, economic development activities, and its academic pursuits.

Cumulative Outcome: UNI technology transfer and economic development outreach programs increased external funding (non-general fund sources) by 38 percent in FY 2000.

Actions:

ABIL

The \$700,000 UNI-ABIL budget for FY 2000 was derived entirely from external sources. During the past year, core support was provided by state (VAAFap) and federal (USDA) appropriations. Research awards from the Iowa Soybean Promotion Board and the Iowa Department of Agriculture and Land Stewardship supplemented this. In addition, UNI-ABIL has been informed that it has been awarded a \$750,000 USDA grant for demonstration of modularized on-the-farm soybean processing/grease manufacturing plants for fiscal years 2001 and 2002. ABIL also has project proposals at different stages of approval for the Defense Logistics Agency, National Fluid Power Association, and National Grease Lubricating Institute. A jointly patented soybean-based transformer cooling oil with Waverly Light and Power was expanded to include three additional patents on the same product for different properties.

CEEE

Federal grants totaled \$127,220: *Environmental Issues Instruction (eii)* (\$99,970 from the Eisenhower Professional Development Grant Program); *Iowa Summer Lakes Study* (\$22,250 from the National Aeronautics and Space Administration); *Midwest Sustainable Consumption Initiative* (\$5,000 from the Environmental Protection Agency).

State grants totaled \$160,709: *Greening of UNI* (\$50,000 from the Iowa Department of Natural Resources (IDNR)); *Environmental Issues Instruction (eii)* (\$27,497 from a Resource Enhancement and Protection (REAP) grant); *Rebuild Cedar Falls/Conservation City Program* (\$19,500 from the IDNR); *Community and Economic Regeneration through Strengthening the Local Food Economy* (\$16,900 from the Leopold Center); *Iowa Electrathon* (\$11,400 from the Iowa Energy Center); *Yards for Kids* (\$10,000 from IDNR); *Cedar Valley Commuting Initiative* (\$10,000 from the Iowa Energy Center); *Iowa Outreach Initiative for Waste Reduction, Reuse and Recycling* (\$6,342 from the Recycling, Reuse, Technology Transfer Center); *Waste Reduction: Piloting a Curriculum & Training 7-12 Grade Teachers* (\$5,571 from a REAP grant); *Iowa Energy Poster Contest* (\$2,500 from the Iowa Energy Center); *Iowa Traveling Energy Art Gallery* (\$999 from the IDNR).

Foundations/Private Sector Grants totaled \$116,784: *Iowa Summer Lakes Study* (\$68,000 from Roy J. Carver Charitable Trust); *Energy Educator Agreement* (\$20,000 from Cedar Falls Utilities); *Iowa Electrathon* (\$15,000 from Alliant Energy); *Energy Stewardship Congregations* (\$11,784 from National Council of the Churches of Christ in the USA); *Iowa Energy Bowl* (\$2,000 from the Pella Rolscreen Foundation).

IDM

IDM received a special appropriation of \$60,000 from Iowa Workforce Development (IWD) to transfer its laborshed study methodology and train IWD staff.

ITOP

During the academic year ITOP received two grants, one of which was a state IDED Business Network grant to provide a training program for incumbent workers in Iowa's existing industries. The state grant was for \$45,000 with employers matching funds of \$15,000. Seventy-two workers from 13 different Iowa companies were trained in either Quality Technician or Hydraulic Maintenance Technician training.

Results were very satisfactory and encouraged the successful proposal to the U.S. Department of Labor for \$998,000 to train 408 incumbent workers in Iowa's existing industries in the areas of Quality Technician, Understanding Bindery Operations, and Computer Numerical Controls (CNC) Programming. The DOL grant has an 18-month duration, expiring July 31, 2001.

IWRC

The IWRC continues to successfully augment its state funding with support from federal and nonprofit sources. For every \$1.00 invested in state funding, IWRC secured an additional \$1.65 in federal and nonprofit funding. Of the overall IWRC annual budget, approximately \$1.65 million is federal funding and almost \$1 million is state funding.

JPEC

JPEC added sufficient funds to increase the budget of the UNI SBDC by more than 50 percent. This was used to serve more than 500 new firms. JPEC also contributed to the development of the Regional Business Center/Incubator scheduled to open in FY2001.

MCC

The MCC receives about 47 percent of its budget from the Iowa General Assembly. The remaining source of revenue is fee for services for research and problem solving for the foundry industry (\$155,000), and federal grants (\$25,000).

MPDC

MPDC is entirely supported through revenue generated from its workshops and consulting services. Much of this revenue is "paid back" to faculty teaching in MPDC programs, allowing them to pursue other academic interests that may otherwise be cost prohibitive.

RRTTC

Principle investigators from RRTTC funded projects are encouraged to use their research results as a basis to obtain additional funds from other agencies. This includes grants from the Department of Economic Development, the National Science Foundation, the Department of Energy, the Environmental Protection Agency, cooperative projects with industry groups, and administrative salary relief through University appointment. During the past year funding sources included Federal dollars from the Department of Education (\$30,000), the National Science Foundation (\$120,000), as well as state and regional sources of funding including HMTRI/PETE regions (\$26,000), Black Hawk County Health Department (\$10,000), and Iowa Department of Economic Development (\$25,000).

SBDC

The UNI SBDC embarked upon an ambitious public/private partnership with a half dozen public and private entities to develop the UNI Regional Business Center (RBC) in downtown Waterloo. The \$900,000 project is renovation of a white elephant downtown property into a small business

assistance center and second floor private sector offices. The RBC will feature a small business incubator, a business technology computer lab, and the offices of the SBDC, SBA, and SCORE. Funding sources include \$265,000 from the Economic Development Administration, \$500,000 in private sector funding, \$60,000 SBA funding and a full-time staff person, a \$25,000 grant from Qwest and a reduced rental/tax abatement package from the local community. The RBC is expected to serve over 1,000 small business clients annually, with technical assistance, computer and technology training programs, e-business assistance, and incubator services.

The SBDC is entering the third year of a five-year funding cycle with the Iowa Women's Enterprise Center, a federal program designed to assist Iowa women in business. This federal grant provides \$150,000 annually through 2003 to fund technical assistance and technology training to women throughout the state of Iowa. The SBDC receives \$32,000 annually from this grant, which provides Internet technology and e-commerce training to women statewide. This past year the UNI SBDC once again exceeded the milestones for this program by over 30 percent, serving 379 women from 21 counties with a traveling workshop.

SMS

SMS received federal funding of \$150,000, plus self-generated revenues of \$300,000, and technology transfer funds of \$135,000 in the past year.

Objective 2.3: Provide improved access to information systems and specialized technologies for faculty, students, and external constituencies.

Cumulative Outcome: UNI outreach programs expanded online information resources, updated and linked web sites, and integrated new software and GIS applications into its technical assistance services.

Actions:

ABIL

Internally, UNI-ABIL has adapted software to efficiently link, track, compile, and report the large volume of technical data generated by its research. The Program also developed an internal accounting program and continued to expand the capabilities of its website www.uni.edu/abil. In addition, UNI-ABIL installed a password-protected remote access capability on a hydraulic test stand. This allows an industrial partner real-time access to data being generated by specific research activities. Such real-time access serves as a model for future testing services that will be provided to entry-level lubricant producers lacking sufficient "upfront" capital for dedicated testing equipment.

CEEE

The newly reorganized Energy and Environmental Outreach Center and its associated web site provide greater access for faculty, staff, graduate and undergraduate students, teachers, school children, and the general public. Schools and community groups, comprised of over 250 citizens in 18 separate projects, have taken advantage of building tours and state-of-the-art energy presentations at CEEE during the 1999-2000 academic year.

IWRC

The IWRC has taken strides this past year to develop an online information resource that will allow the business community, public, trade associations, chambers of commerce, etc., to access the appropriate business assistance provider for their needs. For example, a small business looking for air permitting assistance can access the Referral Assistance and Information Network (RAIN), enter some of their demographical information and location and receive a list of assistance providers who best suit their needs (see www.iwrc.org/rain).

JPEC

JPEC continued development of its website, www.jpec.org, to enhance access for entrepreneurs. JPEC also began development of a bilingual (English & Spanish) version of its website to assist with outreach to Hispanic entrepreneurs.

RRTTC

Academic departments have only limited state funds for improving access to informational systems and specialized technologies. Through grants and general appropriations the RRTTC has funded computer software and specialized equipment to faculty, staff, and students. In the past year allocations and purchases of computers, an Epi-fluorescing Light Microscope, gas chromatography columns, and a Fluorometer have been provided by RRTTC.

SMS

SMS teaches and trains students how to use information systems, how to access and utilize new research technology and datasets, and how to integrate web-based marketing techniques.

SBDC

The SBDC contracted with a former intern/UNI graduate during FY 2000 to develop a financial statement software program for small start-up ventures to create simple pro-forma financial statements on home computers. This software has been exceptionally popular and has been distributed at low or no cost to UNI business students, financial institutions, and small business owners/clients of the SBDC.

Objective 2.4: Foster the development of faculty and staff through the intellectual properties protection process.

Cumulative Outcome: Intellectual properties policies were updated and improved during the past year and professional staffing was added to the Intellectual Property Committee to provide faculty and staff advice and assistance in pursuing patent disclosures, applications, and licensing agreements.

Actions:

RRTTC

The RRTTC has encouraged the creation of intellectual properties by providing funding to those researchers expressing creative problem solving abilities with unique and novel designs. Several projects funded through the Center have led to the successful patenting and eventual marketing of useful and beneficial products.

During the past year, the RRTTC director was appointed Associate Director for the UNI Office of Intellectual Property. By offering an introductory presentation on intellectual property matters to every department on campus and by creating a manual to educate current and new faculty and staff on university policies and procedures, improved communication between administration and faculty has been cultivated.

ABIL

During FY 2000, UNI-ABIL (jointly with Waverly Light and Power) was awarded three additional patents relative to an application to protect proprietary aspects of a soybean-based dielectric transformer coolant.

IPC

To date, the UNI IPC has 25 patent disclosures and 16 patent applications. Eight license agreements and disbursement of royalties have also been a part of staff reporting/tracking responsibilities. In addition, the University Research Foundation has recently agreed upon an equity position in a spin-off company in exchange for rights to the intellectual property.

IWRC

Staff members from IWRC have previously developed, and the UNI Research Foundation now holds the five patents on the Laser Touch™ spray painting gun. A license agreement was finalized with Laser Touch and Technologies this past year and a local manufacturer has begun to produce the applicators.

SBDC

The SBDC worked with the proposed UNI Plant Materials Center to determine what intellectual property rights may be related to the 'yellow tag' seed developed in the College of Natural Sciences.

UNI Goal Area 3: EXTERNAL RELATIONS: Develop appreciation and support for the values, programs, and services of the university.

Objective 3.1: Pursue and strengthen mutually beneficial partnerships with businesses, communities, and industrial associations.

Cumulative Outcome: UNI economic development and technology assistance programs expanded their emphasis on building new partnerships through expanded advisory council membership, pursuing joint projects with Regents universities and community colleges, and assisting state agencies and departments. As a result of this emphasis, partnering projects with Regent universities, community colleges, and state agencies has doubled during the past year.

Actions:

ABIL

UNI-ABIL's recent success and recognition at the national level has resulted in attracting industry giants such as DuPont and John Deere. The Program has signed a product testing agreement with DuPont for development of soy-based lubricants based on the genetically

modified soybean. Furthermore, a testing agreement with John Deere has brought financial commitment from Deere to test and approve the soybean based tractor hydraulic oil at ABIL for John Deere tractors.

UNI-ABIL has established representation on committees of the Iowa Soybean Association, the American Society of Testing and Materials, the National Fluid Power Association, the Fluid Power Society, the Society of Automotive Engineers, and other technical societies. The Program has also established a commercialization partnership with West Central Cooperative of Ralston, Iowa, a soybean processor that will market UNI-ABIL's soybean-based hydraulic fluid and other products emerging from the program. In addition, ABIL developed joint partnerships with railroads, trucking firms, utility companies, and other industrial firms to field test and approve soybean-based lubricants developed at ABIL.

CEEE

The following 17 projects (listed in alphabetical order), all aimed at developing and strengthening partnerships outside the university, were the major thrust of CEEE outreach during the 1999-2000 academic year.

1. *Cedar Valley Commuting Initiative* (alternatively named *Sole Power*): managed by CEEE in collaboration with UNI's Wellness and Recreation Center. Its goal is to increase the number of students, faculty, and staff that leave their cars at home and commute to campus by foot, bicycle, or skates, and to educate the university community on the advantages of "sole powered" commuting.
2. *CEEE-KUNI Radio Series on Energy Issues in Iowa*: a unique year long radio series that focuses on energy issues in Iowa. KUNI will produce the series with guidance on issues provided by CEEE.
3. *Community and Economic Regeneration through Strengthening the Local Food Economy*: this pilot study seeks to analyze the benefits to the local economy and the environment through direct support of local agriculture
4. *Energy Stewardship Congregations*: a program to provide energy efficiency information to houses of worship nationwide. In partnership with the Eco-Justice Working Group of the National Council of Churches of Christ (NCCC) in the USA and the US Environmental Protection Agency, CEEE designed brochure materials giving practical tips on energy efficiency.
5. *Environmental Issues Instruction* (eii) is a program specifically designed to train K-12 teachers in environmental issues and concepts that can be introduced into their classrooms.
6. *Greening of UNI*: a collaboration between CEEE, UNI's Department of Residence, the Cedar Falls Utilities, and the Iowa Department of Natural Resources (IDNR) to measure and document energy efficiencies resulting from recent campus renovations.
7. *Iowa Electrathon*: a multi-dimensional education and demonstration project for building and racing electric cars powered by 64 pounds of lead batteries. Alliant Energy and the Iowa Energy Center at Iowa State University provide major support. Over the course of an academic year, high school students, under supervision of the instructors, design, build, and race the one-person electric vehicles.

8. *Iowa Energy Bowl*: a statewide competition between high schools sponsored by Pella Windows (and potentially Argonne National Laboratory), and supported by the Iowa Department of Natural Resources. The program goal is in-depth energy education for high school students about energy issues in Iowa and emerging technologies in energy efficiency.

9. *Iowa Energy Poster Contest*: an annual event housed at CEEE with support from the Iowa Energy Center. CEEE provides energy curriculum to teachers, who then encourage their students to produce energy efficiency and energy conservation related artwork. Posters are solicited from school children across the state in grades one through six.

10. *Iowa Outreach Initiative for Waste Reduction, Reuse and Recycling*: three displays have been developed: *Are You in Control of Your Money?*; *Is Stuff Taking Over Your Life?*; and *You Are What You Eat. . . What Are You Eating?* These have been loaned out more than 25 times since July 1999. Thus far, an estimated 51,000 people from New York to California have viewed the displays.

11. *Iowa Summer Lakes Study*: a unique multidisciplinary environmental research project examining water quality in two northeastern Iowa lakes. The Director of CEEE is the co-principal investigator with participation by eight other UNI faculty and approximately 14 undergraduate students each summer. The Roy J. Carver Charitable Trust and the Iowa Space Grant Consortium fund the project. Over the last two summers Silver Lake in Delhi, Iowa has been the focus of our research, the goal of which has been to measure pollutants in the lake and determine their sources.

12. *Midwest Sustainable Consumption Initiative*: the curriculum *Waste Reduction: Addressing the Overlooked 'R'* has been distributed to more than 90 educators. A majority of the booklets were distributed in Iowa and Nebraska at two "train-the-trainer" workshops.

13. *Rebuild Cedar Falls/Conservation City Program*: the objective is to increase energy efficiency in Cedar Falls residences and small businesses, reducing energy consumption while demonstrating the benefits that accrue as a result. Included among these benefits are increased disposable income, creation of new jobs, improved air quality, and reduced emissions of the greenhouse gas CO₂.

14. *Solar Oven Checkout Program*: a creative way to educate the general public about solar technology and encourage its use. A portable solar oven/cooker is available from CEEE to the general public and community groups to take on outings or campouts.

15. *Sustainable Community Development through Participation in Cedar Falls 2010 Strategic Planning Initiative*: membership includes CEEE staff with 25 citizens from business, the electric utility (Cedar Falls Utilities), UNI, and city government. The program is facilitated by UNI's Institute for Decision Making. Its charge is to develop a direction for city planning by the year 2010. CEEE is focused on guiding citizens in reducing energy consumption and fostering environmentally responsible development for Cedar Falls.

16. *Waste Reduction: Piloting a Curriculum & Training 7-12 Grade Teachers*: introduces a selection of waste reduction curriculum materials to Iowa teachers and their students

The waste reduction project used a variety of resources. All materials chosen provide students with various perspectives on waste reduction issues, including use and distribution of non-renewable resources, history of consumption and waste, and social justice.

17. *Yards for Kids* is a public awareness campaign promoting ecological alternatives to lawn pesticides. The specific goals are to: provide one-on-one outreach to homes, businesses, churches, and others who want to eliminate or reduce pesticide use; promote alternative landscaping, native plants, and other practices through community-wide education programs; establish an information clearinghouse on pesticide reduction; and work with existing lawn care providers to offer pesticide-free services to their customers. The project is financially supported by the Iowa Department of Natural Resources, UNI's RRTTC, and the CEEE.

IDM

IDM actively utilizes a 19-member advisory council with members from local communities, the General Assembly, the Iowa Department of Economic Development (IDED), Iowa State University, community colleges, utility companies, local elected officials, Congressional offices, and the financial services sector. IDM also partnered on projects with IDED, IWD, Iowa Area Development Group, the Professional Developers of Iowa, utility companies, the Rural Development Council, Mid-America Economic Development Council, and Iowa State University in the areas of database development, GIS services, laborsheds, economic impact, and strategic planning. In addition, IDM volunteered its efforts to help IDED/RDC develop a rural calendar and client database program.

IWRC

Businesses and trade associations continue to play an integral role in the outreach efforts of the IWRC. Representatives of both comprise the IWRC advisory committee, as well as its national painting and coating advisory group. This past year, the IWRC has taken additional strides in connecting with small businesses by assisting several businesses with grant applications to the Iowa Department of Natural Resources. These partnerships with the businesses have benefited them by securing financial assistance for the implementation of pollution prevention projects, and will benefit the IWRC by providing its office with documented case studies.

JPEC

JPEC provided direct monetary and/or staff support to a number of partners in eastern Iowa and other areas including Junior Achievement, KBBG radio, the Eastern Iowa Enterprise Council, Main Street Waterloo, the SBA, the Iowa School-to-Work program, and the Waterloo and Cedar Falls Chambers of Commerce.

MCC

The MCC continues to be an active partner with IMEP, CIRAS, American Foundry Society, Iowa DNR, four community colleges, two national labs, and the Northeast-Midwest Institute in Washington, D.C. The MCC also has active contracts with 11 companies for research and testing on a fee-for-service basis. The MCC had active projects with 12 Iowa foundries and contacts with 20 other Iowa foundries on problem solving and consultation this past year as part of its outreach efforts.

MPDC

The MPDC actively works with an advisory board and an advisory council. The Eastern Iowa Board consists of representatives from 16 northeast Iowa businesses and the Council consists of representatives from 12 large eastern Iowa businesses. Long-term, education-based relationships have also been established with businesses across the state.

RRTTC

The RRTTC works to pursue and strengthen mutually beneficial partnerships with business, community, and industrial associations by providing funding for relevant applied research, providing services to solid waste producing industries, and participating in communicative networks relevant to issues of municipal and industrial recycling by-product reutilization and industrial ecology.

The Center nurtures economic development by providing information to business and industrial associations about the reutilization of industrial wastes. The Materials Testing Service (MTS) consults directly with the business community. This year, working with a large recycled paper manufacturer, the MTS recommended a reclamation system that would not only reduce landfill costs for the company, but would actually generate a modest income from the resale of these reusable wastes. It was found that additional capital costs could be recovered within 2.2 years if the company chooses to comply with the proposed system.

The RRTTC has established partnerships with several state organizations. Working for the sustainable future of Iowa, the RRTTC has partnered with the Iowa Recycling Association, the Iowa Manufacturing Extension Partnership of Iowa State University, the Iowa Waste Exchange, and Recycle Iowa. The interaction with these associations enriches the information and technology transfer in the recycling and industrial ecology fields.

SBDC

This past year the SBDC has created an advisory board made up of business, community, and public sector representatives from the eight counties served by the center. The role of this new board will be to help drive the direction of the Regional Business Center to serve the needs of both the urban and rural business communities of eastern Iowa. The SBDC has also successfully partnered with Regent universities and community colleges to deliver its women entrepreneurship training programs.

SMS

SMS provides marketing assistance to businesses to help them solve their problems and forms many ongoing partnerships for follow-up work and student placement.

ITOP

In order to achieve the goals of ITOP, close partnerships have been established with half of Iowa's community colleges to develop a marketing scheme. Relationships with IDED and IWD are ongoing and the three groups are considering pursuing further training programs based upon the ITOP model.

Objective 3.2 Enhance community economic development, with emphasis toward rural and small towns statewide.

Cumulative Outcome: UNI's technical assistance programs have reached more than 400 communities in all 99 counties in Iowa.

Actions:

ABIL

Because Iowa is a leading producer of soybeans, creating additional long-term demand is expected to increase across-the-board revenues and associated economic development flowing into rural areas. The potential for specialized manufacturing facilities that provide a more "straight-line" flow of resources from soybean fields to end-use lubricant applications offers potential to further increase revenues on top of that attained by higher soybean prices. The state is well positioned to attract such a dedicated, sustainable, and cost-effective manufacturing infrastructure. UNI-ABIL considers statewide economic development to be the primary benefit of implementing broad-market use of soybean-based industrial lubricants.

The long-term strategy being pursued is to develop and evaluate products, activate consumer interest, and demonstrate revenue-generating potential for soybean-based lubricants using established infrastructure and practices as appropriate.

CEEE

Many of CEEE's partnerships have focused on rural and small towns. Three examples of partnerships dedicated to rural Iowa include: *Community and Economic Regeneration through Strengthening the Local Food Economy*, *Energy Stewardship Congregation* and *Iowa Summer Lakes Study*. These programs were described in the previous section.

IDM

IDM increased the number of community clients served to 390 in 95 Iowa counties in 1999-00 (see Figure 1). Seventy-six percent of these communities are below 10,000 in population, and IDM maintains a high-activity level with 66 percent of these clients. IDM continually strives to achieve results at the community level and receives many testimonials from client communities outlining their success and the importance of IDM's assistance. While many of these results are qualitative, client communities are reporting that they have created at least 3,000 jobs this past year. IDM cannot take full credit for any of these jobs, but communities attribute a significant portion of their success to the contributions of IDM staff.

IDM also conducted 16 laborshed employment studies during the past year. Seventy-five percent of the studies were conducted in rural communities or rural regions.

IDM Client History

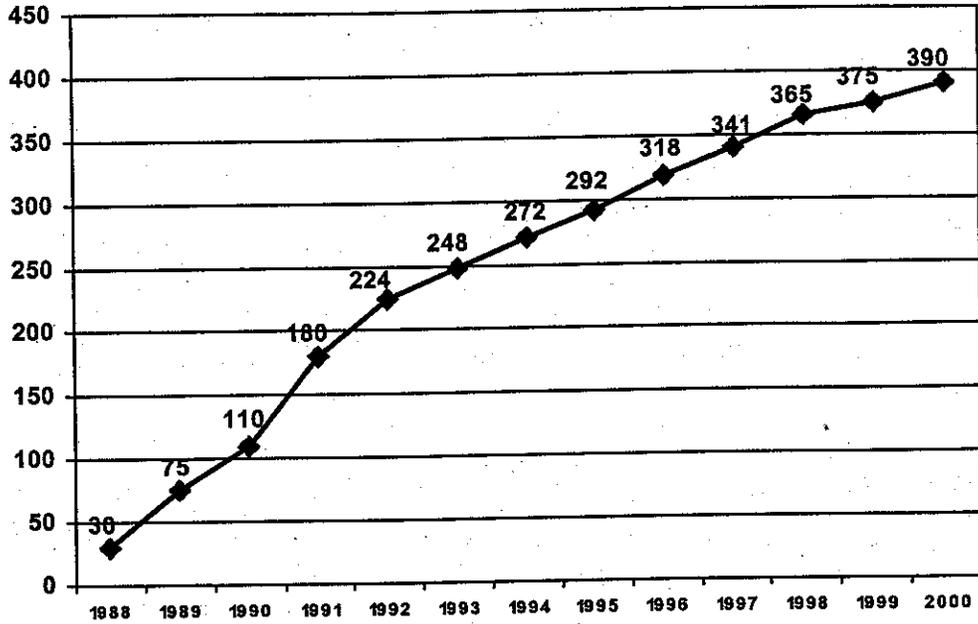


Figure 1: Client Chart

IWRC

Pollution prevention and economic development go hand in hand. The IWRC continues to provide free and confidential compliance and pollution prevention assistance that saves businesses money. As seen in Figure 2, all 99 counties of Iowa have received this assistance. The IWRC strives to get its assistance out to all areas of Iowa, whether municipal or rural. For example, its Mobile Outreach for Pollution Prevention (MOPP) conducts county-level tours in a section of Iowa each year, touring northwest Iowa this past year.

Number of On-Site Reviews by County

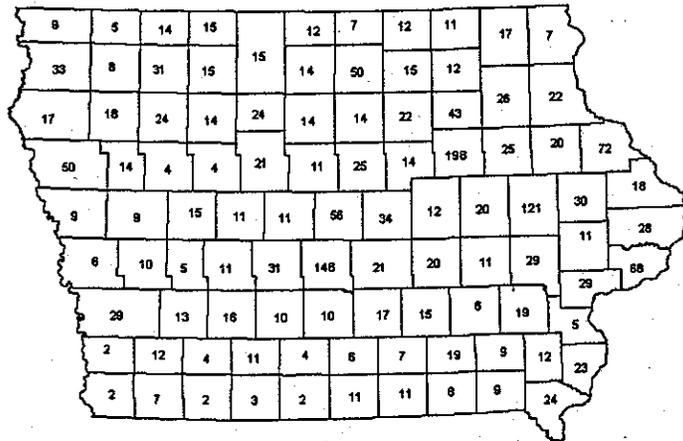


Figure 2: Number of On-Site Reviews per County

SBDC

Community partnerships have been developed with local development offices in four rural communities to provide on-site counseling. The most active rural site is West Union, where 33 businesses were served by the SBDC during the past year.

Through the traveling technology workshops funded by the Iowa Women's Enterprise Center, SBDC staff provided free training for 376 women-owned businesses or pre-venture clients in 15 communities statewide during FY 2000.

SMS

SMS provided marketing and market research to small businesses in rural Iowa communities through special funding provided by the Rural Development Administration of the USDA.

ITOP

Most of the training provided by ITOP and its partners has taken place in companies based in Iowa's small- and medium-sized towns. This training has achieved positive results with 10 companies in Iowa's small and rural communities.

JPEC

JPEC provided direct monetary and/or staff support to a number of partners in eastern Iowa and other areas including Junior Achievement, KBBG radio, the Eastern Iowa Enterprise Council, Main Street Waterloo, the SBA, the Iowa School-to-Work program, and the Waterloo and Cedar Falls Chambers of Commerce.

Objective 3.3: Facilitate the development and success of existing businesses.

Cumulative Outcome: More than 3,100 businesses have been directly assisted by UNI outreach programs.

Actions:

ABIL

As a result of work carried out by UNI-ABIL in prior years, West Central Cooperative added a soybean-based hydraulic fluid to its product line during FY 2000. UNI-ABIL also supported West Central's efforts to market the product during the year. The hydraulic oil opened discussion for additional licensing of a semi-truck fifth wheel grease and a chainsaw bar oil that West Central tentatively intends to add to its product line.

During fiscal year 2000, UNI-ABIL has begun negotiating with a number of lubricants and Original Equipment Manufacturers (OEM's) to license and distribute the UNI-developed vegetable-based industrial lubricants. Examples include, Schumacher Elevator Company, Denver, Iowa; Country Energy, a Joint Venture of Cenex and Farmland; and Portec Rail Products, a Virginia-based OEM for railroad track lubricators. The program expects significant growth in the use of soybean-based lubricants during the current fiscal year.

CEEE

The CEEE developed two programs for existing business. The programs are *Rebuild Cedar Falls/Conservation City Program* (works with local businesses and schools to reduce energy expenses by implementation of energy efficiency measures) and the *Community and Economic Regeneration through Strengthening the Local Food Economy* (connects local/regional farmers to local purchasers for direct sale of produce).

IWRC

More than 2,000 small businesses have benefited from the IWRC's services since inception. These businesses have received free, confidential, and non-regulatory assistance entailing a two-to four-hour site visit, followed by a report detailing compliance and pollution prevention recommendations. Businesses are contacted after a six-month period to determine the implementation rate of IWRC recommendations. By implementing the IWRC's recommendations, small business clients have saved millions of dollars in reduced hazardous and solid waste disposal costs.

JPEC

JPEC provided research, consultation, and services, including the preparation of marketing materials, to 40 firms and financially supported 20 firms.

MCC

The MCC continues to be a partner with the Iowa Manufacturing Extension Partnership to help Iowa companies with casting problems. These contacts include counseling for regulatory compliance problems, market information for castings and foundry equipment, and problem resolution for casting production. A casting defect analysis and prevention training guide has also been prepared and is being distributed to Iowa foundries. The MCC also provides a one day foundry basics training class to all new hires at the John Deere Foundry Waterloo. To date, over 400 new employees have been trained.

MPDC

In addition to offering courses in entrepreneurship, the MPDC makes available a wide range of courses in management and business-related topics through its Management Training Consortia and other programs. During the past year, MPDC has held 120 workshops enrolling 3,500 business professionals from 35 businesses.

SMS

Under common management with the MPDC, the SMS has served 36 businesses in FY 2000 by providing marketing recommendations and market research assistance to aid with market expansion.

RRTTC

The work the RRTTC supports through grant funding for research, student internships, and program development is often applied to waste reutilization and waste reduction. The development of this information permits existing businesses to be more economically productive and stimulates company exploration of alternative processes and products.

Created and funded through the RRTTC, the Materials Testing Service (MTS) provides physical and chemical properties analysis of waste materials. This information is vital in the reutilization of plastics, metals, wood, and other waste byproducts. During the first year of operation, the

MTS has provided detailed consulting services for 23 companies. Included in this number of companies is a plastics composite manufacturer that expressed interest in evaluating the reutilization of a waste composite for a new product line. The company requested specific data on performance indicators, which was then interpreted by their own staff in regard to new product development. The composite was found to be capable of successful reutilization. Being effectively reincorporated into the production line, as much as 500 tons per month of reclaimed plastic is currently being used.

Objective 3.4: Provide businesses with specialized information and assistance in waste reduction, energy efficiency, safety, industrial ecology, and regulatory issues.

Cumulative Outcome: More than 240 businesses were provided in-depth, hands-on technical assistance in waste reduction, regulatory issues, and energy efficiency during FY 2000. Nearly 1,000 more businesses were provided *brief* technical assistance or guidance via phone consultations.

Actions:

CEEE

The CEEE developed four programs dedicated to energy conservation, ecological practices, and waste reduction. The programs are: *Rebuild Cedar Falls/Conservation City Program*, *Energy Stewardship Congregations*, *Yards for Kids* and the *Midwest Sustainable Consumption Initiative*. These programs have been described in previous sections.

IWRC

The main mission of the IWRC is to assist small businesses with waste reduction and regulatory issues. IWRC has assisted more than 2,000 small businesses to date and conducted 182 on-site reviews this past year. The IWRC continues to develop specialized compliance and waste reduction manuals and training programs for small business sectors. For example, its Spray Technique Analysis and Research (STAR) training program has been disseminated to 14 community colleges in Iowa and nationally to improve the spray painting technique of future auto body spray technicians.

MCC

The MCC has been involved in Total Assessments Audits under contract with ISU to help foundries reduce waste and increase energy efficiency.

RRTTC

RRTTC outreach services are provided for all concerned parties ranging from industrial associations to concerned citizens. For this year, the RRTTC responded to 140 requests for information and provided assistance to 23 highly detailed materials analysis and characterization requests. Through the MTS, the RRTTC provides specialized information and assistance to companies seeking waste reduction and reutilization.

Cooperating with the University of Iowa, the RRTTC and MTS worked on a specialized project to evaluate methodologies for the spray surface coating industry in regard to worker exposure to volatile organic compounds, as well as gauging surface coat over spray.

SBDC

The SBDC hosts a Business Club luncheon six times per year. Speakers are recruited to address topics of importance to business owners. An example of the luncheon topics was a presentation by the Iowa Department of Revenue and Finance regarding regulatory and reporting issues.

Objective 3.5: Encourage and provide technology deployment, applied research, and technical assistance to selected industry sectors.

Cumulative Outcome: UNI technical assistance programs focus on industry sectors targeted for growth by IDED and the Governor's office and matching the academic and technical expertise of UNI faculty and staff.

Actions:

ABIL

During FYs 2000 and 2001, UNI-ABIL presented, or is scheduled to present, findings to meetings of the National Lubricating Grease Institute, American Railway Engineering and Maintenance of Way Association, Soy 2000, GreenTech 2000, and European Grease Lubricating Institute. Program activities were also the focus of frequent articles in newspapers and magazines targeted to reach general-public audiences.

In addition to its activities in support of West Central Cooperative's commercialization efforts, UNI-ABIL provided applied research and technology deployment activities relative to its partnership with Waverly Light and Power (and a marketing firm well known in the public power industry) to pursue commercialization of a dielectric transformer coolant. The program also established working partnerships with several railroads and a leading railroad supplier to field test an emerging rail-flange lubricant, as well as a national trucking fleet (along with several other mid-size firms) to field test a semi-truck fifth-wheel grease.

UNI-ABIL maintained expanding partnerships with its funding agencies and multi-national equipment and additive manufacturers, a regional lubricant manufacturer, and several federal agencies and national laboratories (including EPA, Department of Army, and Sandia National Laboratories).

ABIL's director serves on the Governor's Life Sciences Committee and ABIL's research focuses on expanding uses for agricultural products.

CEEE

The CEEE conducted four programs during FY 2000 related to energy efficiency, ecological practices, and economic regeneration.

IDM

IDM assembled approximately 80 industry sector reports to help local development organizations understand the location requirements of *new economy* industry sectors most likely to locate and grow in Iowa.

IWRC

The IWRC, through the Small Business Pollution Prevention Center (SBPPC), has conducted applied research and educational outreach/training for the past seven years pertaining to small business' problem waste streams. Highlights of various research efforts include the aqueous

parts wash wastewater project, ISO 14000 assistance for small businesses, energy aspects of pollution prevention, and the soy ink/solvent performance evaluation study. Highlights of educational outreach and training projects include a spray operator training program that improves transfer efficiency (STAR), the Mobile Outreach for Pollution Prevention (MOPP), and vehicle maintenance and lithographic printing pollution prevention curricula for community colleges.

MCC

The partnerships established with 11 large suppliers of foundry raw materials provide the MCC with information to apply new technologies in Iowa's smaller foundries. This assistance includes information for problem solving and testing products for the individual foundry's process improvements. The MCC maintains a consortium of small foundries to assist and train them on solidification modeling.

RRTTC

Working to develop better by-product reutilization and industrial efficiency in the implementation of these technologies, the RRTTC funds many applied research projects in the recycling and by-product reutilization/industrial ecology sectors. Through the funding of student research, technology deployment and applied research is encouraged. Both qualitative and quantitative research is being performed through RRTTC.

Working for a leading company in the energy production industry, the RRTTC investigated the feasibility for expansion of the facilities to include bio-combustion electrical generation. The proposal to utilize local commercial solid waste for the combustion generation of electricity was found to be impractical based on the characterization of the waste stream. The Center concluded that the available materials are too commingled and too widely dispersed to be a financially viable project at this time.

ITOP

Technical training was provided by ITOP during FY 2000 to the printing industry and manufacturing companies by offering courses in Bindery Operations, CNC Programming, Quality Technician, and Hydraulics.

JPEC

JPEC supported faculty applied research projects directed toward a better understanding of capital availability for small firms.

Objective 3.6 Encourage and support the formation of new businesses and applied technologies that will create a more diversified, viable economy.

Cumulative Outcome: Direct technical assistance or financial support was provided to 37 businesses or entrepreneurs to help diversify the Iowa economy.

Actions:

ABIL

During FY 2000 UNI-ABIL substantially advanced the formation of new business and applied technologies relative to soybean-based lubricants. Specific examples of such activities are referenced in prior discussions contained within this report.

CEEE

The CEEE conducted two programs specifically for diversifying the local economy related to finding additional markets for local food producers and ecological practices for lawn care businesses.

JPEC

JPEC provided direct financial support and consultation to 20 new business firms. JPEC supported and advised an inventor in the process of commercializing new medical device technologies.

RRTTC

The RRTTC funded applied research that has lead to the development of patented devices currently being offered for marketing in the areas of plastic composites, pyrolytic chemistry, and mass spectroscopy.

SBDC

The SBDC is an active participant with the Iowa Department of Economic Development's ReVamp Program. During the past year the UNI SBDC has served six businesses with technical assistance on behalf of IDED to create a more diverse agricultural community.

Currently the SBDC is working with Iowa State University Extension to secure funding and support for a kitchen incubator to be located directly adjacent to the new UNI Regional Business Center. Between the UNI RBC and the ISU kitchen incubator, potential agricultural entrepreneurs would have access to UNI's business incubation services, ISU's commercial ag product processing kitchen, and an array of small business development programs jointly delivered by the two Regent's universities.