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**U.S. DEPARTMENT OF EDUCATION**

**NIDRR LONG-RANGE PLAN  
FOR FISCAL YEARS 2005–09:  
EXECUTIVE SUMMARY**



# **NIDRR Long-Range Plan For Fiscal Years 2005–09: Executive Summary**

U.S. Department of Education  
Office of Special Education and Rehabilitative Services  
National Institute on Disability and Rehabilitation Research

March 2007

**U.S. Department of Education**

Margaret Spellings

*Secretary*

**Office of Special Education and Rehabilitative Services**

John H. Hager

*Assistant Secretary*

**National Institute on Disability and Rehabilitation Research**

Steven J. Tingus

*Director*

March 2007

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## INTRODUCTION AND BACKGROUND

The National Institute on Disability and Rehabilitation Research (NIDRR) *Long-Range Plan for Fiscal Years 2005–09* (the *Plan*) provides an agenda for achieving advancements in applied rehabilitation research that will benefit people with disabilities in the United States. This executive summary describes the purposes and scope of the *Plan*, which was published in the *Federal Register* on Feb. 15, 2006 (see [www.ed.gov/legislation/FedRegister/other/2006-1/021506d.pdf](http://www.ed.gov/legislation/FedRegister/other/2006-1/021506d.pdf)). The NIDRR mission statement is the conceptual foundation for the *Plan*. The ultimate aim of all NIDRR research is to enhance the ability of persons with disabilities to achieve their maximum desired participation in the community, with full access to all societal and life activities.

### *NIDRR Mission Statement*

The mission of NIDRR is to generate new knowledge and promote its effective use to improve the abilities of people with disabilities to perform activities of their choice in the community, and also to expand society's capacity to provide full opportunities and accommodations for its citizens with disabilities.

The commitment to this mission propels NIDRR's work supporting research that addresses the multifaceted needs of people with disabilities. The NIDRR mission has been made more salient by the increasing demand for the products of disability and rehabilitation research, including technological devices and new knowledge about successful interventions and policies that advance all aspects of life for people with disabilities. The 2005–09 *Plan* will continue important NIDRR research efforts developed under the 1999-2003 *Long-Range Plan*, and will provide increased emphasis to the five research domains of: employment; health and function; participation and community living; technology for function and access; and disability demographics. In developing the *Plan*, NIDRR was assisted by a committee of stakeholders that included individuals with disabilities, researchers, and service providers. The *Plan* incorporates the NIDRR Logic Model that not only contributed to the design of the research agenda but also provides all stakeholders with a detailed schema that illustrates the comprehensive approach to research employed in the *Plan*.

## NATIONAL POLICY CONTEXT FOR NIDRR RESEARCH

In recent years, several major policy directives have influenced NIDRR activities and initiatives in disability and rehabilitation research, including implementation of the 1999-2003 *Long-Range Plan* and development of the new *Plan*. These include the U.S. Supreme Court's 1999 decision in *Olmstead v. L.C.* (527 U.S. 581), the president's New Freedom Initiative (NFI) in 2001, and the report of the president's New Freedom Commission on Mental Health in 2002. The *Americans with Disabilities Act of 1990 (ADA)*, now in existence for more than a decade, has continued to provide a strong framework for all disability-related activities.

As optimum community participation for persons with disabilities is the ultimate objective of NIDRR research, the important directives in the *Olmstead* decision inform the institute's agenda. The *Olmstead* decision affects disability and rehabilitation research as it highlights the need for

new, validated strategies, supports, programs, interventions, guidelines and policies to make living in the community successful for deinstitutionalized individuals or those diverted from potential institutionalization.

Additionally, several provisions of the NFI have had a direct impact on NIDRR activities including a proposal to increase funding for NIDRR Rehabilitation Engineering Research Centers (RERCs) and the allocation of substantial funding for the Interagency Committee on Disability Research (ICDR), which is chaired and staffed by NIDRR. The ICDR has been instrumental in increasing the coordination of federal research efforts related to disability. In addition, the president's New Freedom Commission on Mental Health (the commission) has taken important steps in identifying problems in the nation's mental health care system. The commission's final report contained important implications for the NIDRR research agenda, as well as those of its federal partner agencies.

## **STRUCTURE OF THE 2005–09 PLAN**

This executive summary discusses the three sections of the *Plan*. The first section includes the introduction and background, as well as information about NIDRR's target population. By law this includes people with disabilities and their families; individuals who provide vocational rehabilitation or medical, technological and direct support services; educators; policymakers; businesses; and the public. People with disabilities clearly are intended to be ultimate beneficiaries of all NIDRR activities.

The second section of the *Plan* addresses managing for success and contains two parts: one on NIDRR's Logic Model for outcomes achievement; and the other on a strategy of *managing for results*. The Logic Model provides a theoretical base for the evaluation of program outcomes and will help ensure consistency throughout a planning and feedback cycle. The NIDRR management section provides information on strategies for making operations more systematic and responsive to the concerns of constituents.

The third section of the *Plan* discusses three arenas of outcomes achievement: research and development (R&D), knowledge translation (KT), and capacity building (C-B). The R&D arena is divided according to the domains of NIDRR research—employment, health and function, technology for access and function, participation and community living, and disability demographics. The R&D arena is further subdivided into stages of knowledge development that include discoveries; theories, measures, and methods; and interventions, products or devices, and environmental modifications.

## **OVERVIEW OF LONG-RANGE PLAN CONCEPTS**

The 2005–09 *Plan* builds on the successes of the previous *Long-Range Plan*, while responding to new developments in the disability and rehabilitation research field and in government. Both plans have stressed the importance of NIDRR's significant role as a research institute in the public interest, carrying out scientific research to meet the diverse needs of people with disabilities.

The concept of a *contextual paradigm of disability* will continue to frame the NIDRR research agenda. As stated in the NIDRR *Long-Range Plan 1999-2003: Executive Summary* (p.3), this paradigm maintains that “disability is a product of the interaction between characteristics of the individual (e.g., conditions or impairments, functional status, or personal and social qualities) and the characteristics of the natural, built, cultural, and social environments.”

The contextual paradigm of disability was explicated in the previous NIDRR *Long-Range Plan* and has significantly influenced the design of NIDRR research during the past five years. This paradigm has helped NIDRR to focus research efforts on new issues; new approaches for defining, measuring, counting and categorizing disability; and new methods for conducting and managing research.

The crux of NIDRR’s mission is to improve participation and community living, which remains NIDRR’s principal goal. As a model for facilitating the community integration of people with disabilities, the *Plan* emphasizes areas of employment incentives/disincentives and accommodations, access to health care, and the preference for supports rather than services. The *Plan* continues to emphasize the major research domains of employment, participation and community living, health and function, and technology for access and function, while the area of disability demographics has been elevated to a major domain to reflect and reinforce the importance of improved disability data for policy, service design, and future research initiatives.

The 2005–09 *Plan* continues to focus on the important research areas of *universal design* and *the emerging universe of disability*. The new *Plan* further recognizes the importance of interdependence, in its continued emphasis not only on personal assistance services (PAS) but also on supports for family and other informal caregivers, direct care workers, and paraprofessionals in facilitating participation and community living.

## **ACCOUNTABILITY, MANAGEMENT, AND EVALUATION OF RESEARCH**

The *Long-Range Plan* introduces major changes in accountability, management, and evaluation of the research portfolio, some of which reflect new standards of accountability for NIDRR as an entity, while others relate to the performance of grantees. NIDRR management has responded to government-wide policy shifts and changes in federal procedures by increasing the emphasis on standards for assessing its work and that of its grantees.

This plan introduces a new emphasis on the stages of knowledge development enumerated above (discoveries; theories, measures, and methods; and interventions, products, or devices, and environmental modifications). These stages relate to the types of objectives and end products that grantees are expected to pursue. This new focus will enable NIDRR to set more measurable goals and to assess the extent to which grantees have produced relevant outputs and outcomes.

## **ACCOMPLISHMENTS OF NIDRR RESEARCHERS: 25 YEARS OF LEADERSHIP AND ACHIEVEMENTS**

NIDRR researchers and representatives of the disability community generally attribute two categories of accomplishments to NIDRR. The first category includes NIDRR leadership in

important research areas, pioneering inquiries, and implementation of general principles. The second category consists of the work of NIDRR-supported grantees in expanding the knowledge base and disseminating new findings. The institute has reached its 25th anniversary, and a brief overview will highlight some of the many achievements by NIDRR researchers that will inform and advance future research efforts.

The Bridging Gaps Research Conference, cosponsored by NIDRR and the American Psychological Association in May 2002, examined the impact and ramifications of the new paradigm of disability on psychology and rehabilitation research, including consideration of the environment, social norms and attitudes, and policies and practices that present barriers to individuals with disabilities.

NIDRR has helped lead development of several new directions in research related to the contextual paradigm of disability. These research issues have included universal design, the concept of an emerging universe of disability, and increasing emphasis on accommodations. NIDRR has been a major national and international proponent of universal design, defined as design for a built environment that can be used by nearly all people—living, working and playing together. Examples of universal design include the information technology (IT) interfaces developed by NIDRR-funded researchers and adopted by major software providers. This technology has been incorporated into IT systems to create accessible public information kiosks, electronic voting systems, ATMs, and airport information systems, as well as personal computers.

NIDRR has examined and used the concept of an emerging universe of disability, which refers to a disabled population that is shaped by demographic changes including age; immigrant status and socioeconomic factors; new types of potentially disabling conditions; consequences of treatments of existing conditions; and differential distribution of conditions and their consequences. Particularly in the last five years, this concept has helped to focus attention on the unique needs of this population, and to increase research endeavors emphasizing cultural and economic factors affecting disability.

In addressing obstacles faced by people with disabilities, NIDRR researchers also have evaluated models for providing supports to enable self-direction in the life of a person with disabilities—an important shift from the traditional *service provision* model. NIDRR-sponsored research on supports has helped provide individuals with information to make their own choices and direct their own lives. NIDRR-sponsored research has addressed peer-to-peer and family-to-family programs, personal assistance services (PAS), self-advocacy skill development, consumer direction, assistive technology, and environmental modifications.

NIDRR leadership in promoting assistive technology and accommodations has been reflected in new public policy, including the ADA and the NFI. NIDRR researchers have developed assistive technology devices that address diverse needs related to IT, communications and speech and neurological, mobility, and manipulation issues, among other functional areas. Appropriate accommodations are particularly important in supporting work and education for people with disabilities.

NIDRR has contributed significantly to research in the area of disability statistics during the past 25 years. In 1982, NIDRR convened the first meeting of federal agencies involved with disability issues. This entity, now known as the Interagency Subcommittee on Disability Statistics (ISDS), continues to generate, coordinate and promote improved statistical knowledge about disability populations.

## **TARGET POPULATION: DEFINITIONS AND CHARACTERISTICS**

### **Definitions of Disability**

There is a myriad of definitions of disability used in the United States. NIDRR has identified more than 60 definitions of disability in the federal government alone, generally related to eligibility requirements for benefits or services but also used in major national surveys that have determined the nation's estimates of disability. NIDRR is governed by definitions in Title II of the *Rehabilitation Act* (the act). Title II describes a person with a disability as: “any person who (i) has a physical or mental impairment which substantially limits one or more of such person's major life activities; (ii) has a record of such an impairment; or (iii) is regarded as having such an impairment” (29 U.S.C. 705).

NIDRR is required to focus research especially on the experiences and needs of individuals with the most significant disabilities, as defined in the act. The act also calls for responding to a resulting need for multiple vocational rehabilitation services over an extended period of time. These services include accommodations needed during the rehabilitation process or during subsequent employment, or both. Section 21 of the act requires specific attention to underserved populations, those individuals with disabilities who are additionally marginalized by minority racial or ethnic status.

Most prevailing definitions of disability used by federal agencies and in research fields do not reflect new paradigm of disability concepts. While most definitions stress limitations, newer frameworks focus on a continuum progressing from etiology through disease, impairments and functional limitations, which, when combined with external or environmental conditions, may cause limitations in the performance of daily activities or desired social roles. The latest proposal for classifying disability is the International Classification of Functioning, Disability and Health (ICF) developed by the World Health Organization (WHO). NIDRR and many other partner agencies are assessing the appropriateness of applying the ICF to U.S. populations. The section on disability demographics in this executive summary also refers to the ICF.

### **Prevalence of Disability**

Current estimates of the number of people with disabilities in the United States indicate that as much as 20 percent of the U.S. population has some disability, based on an extrapolation of data from the U.S. Census 2000 (Summary File 3). Those figures show that out of a total population of 257 million persons aged 5 years and over, there were nearly 50 million individuals with disabilities.

General descriptors of NIDRR's target population show that disability is closely related to aging and poverty. Individuals with disabilities are more likely to be elderly, poor, of low educational status, and unemployed than those with no disabilities. People with disabilities are less likely to

participate in community and social activities and are more likely to lack adequate transportation, although they are about as likely as those without disabilities to have health insurance (relying heavily on Medicare and Medicaid). The disabled population is not homogeneous; there are many variations that may be based on type of disability and age of onset, as well as on the demographic characteristics mentioned here.

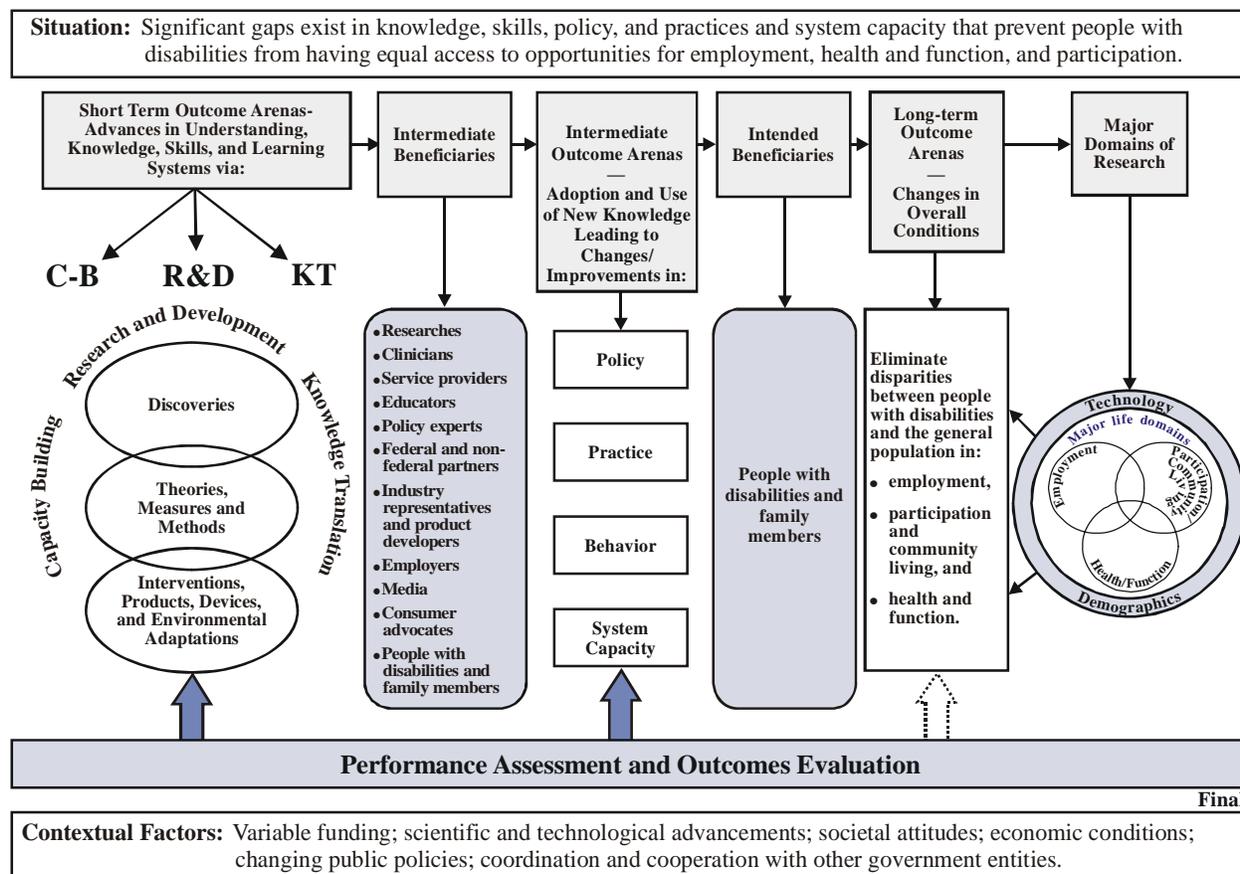
The next section presents the NIDRR Logic Model for outcomes achievement, which serves as part of the framework of the *Plan*. The subsequent management chapter describes efforts to enhance NIDRR's scientific review process and the emphasis on outcomes evaluation.

## MANAGING FOR SUCCESS

### NIDRR LOGIC MODEL

The NIDRR Logic Model, which graphically represents the different types of short-term and intermediate outcomes that NIDRR’s investments are designed to produce or contribute to, and the interrelationships among these intended outcomes, is shown in figure 1.

**Figure 1. NIDRR Logic Model: Targeted Outcome Arenas**



The NIDRR Logic Model was designed to contribute several essential elements to the planning process. These include:

- A tool for outcomes planning and performance management that depicts the chain of events linking outcome goals to outputs, activities, and inputs.
- A vehicle for communicating program goals and guiding program improvement and evaluation.
- A graphic representation or blueprint of the key elements of a program or intervention, and how these elements will work under certain conditions to solve identified problems.

The Logic Model also served as a structure for depicting NIDRR’s planned performance assessment and outcomes evaluation processes, and as a guideline for demonstrating program results.

## **MANAGING FOR RESULTS**

Management of NIDRR research programs and projects encompasses many distinct aspects: provision of a results-oriented planning environment; selection and scheduling of priorities; selection of appropriate program mechanisms and operating those programs to carry out research and related activities; adherence to sound management principles; commitment to an independent and effective peer review process; project monitoring and evaluation; and increasing program utility through interagency and international research efforts.

To further advance the management of research and related activities, NIDRR is developing plans to improve its grant-making procedures and to increase the scope and effectiveness of its standing peer review panels. The *Plan* delineates and clarifies the processes of decision-making and includes a new emphasis on developing research portfolios and research clusters, which will integrate the different research efforts in a given topical area. Over the lifetime of the *Plan*, NIDRR will systematically evaluate all aspects of its management activities.

### **Results-Oriented Planning Environment**

To facilitate advancements in rehabilitation, and in disability and rehabilitation research, NIDRR will delineate and plan strategic goals, identify specific program options for achieving the goals over time, and manage a wide range of projects derived from priorities based on these goals. NIDRR translates its statutory mandate into its mission and strategic goals by continually assessing performance, measuring project progress and short-term outcomes, tracing intermediate outcomes as the target systems use the projects’ results, and identifying long-term outcomes as depicted in the NIDRR Logic Model.

### **Priority Planning**

NIDRR, like all federal agencies, must plan and schedule its decisionmaking for portfolio management over a multiyear time frame. The following steps are intended to advance NIDRR research management:

- NIDRR will implement a regular, fixed competition schedule.
- NIDRR will undertake a rotating review of all major components of its research portfolio.
- To meet the obligations of the *Government Performance and Results Act (GPRA)*, NIDRR will establish expert panels to conduct an annual review of its clusters of projects.
- NIDRR will institute systematic *environmental scans* to help ascertain elements of technology, science, or policy that may offer guidance for future research.

- As part of the ongoing evaluation of the appropriateness of the NIDRR research portfolio, NIDRR will, together with other federal partners, seek to initiate an independent study of disability research and related activities.

## Funding Mechanisms and Strategies

NIDRR operates a number of program or funding mechanisms to support research and related activities. Rehabilitation Research and Training Centers (RRTCs) and Rehabilitation Engineering Research Centers (RERCs) are primary recipients of NIDRR resources and carry out many of NIDRR's major research efforts. RRTCs are national centers of scientific research and resources for the disability and rehabilitation field, providing information and technical assistance to a broad constituency. RERCs conduct engineering and technological research to design, develop, and test equipment, technologies, assistive devices, and methods that will remove environmental barriers and provide innovative models for rehabilitation technology service delivery.

Disability and Rehabilitation Research Projects (DRRPs) include research and knowledge translation projects. NIDRR created a program of field-initiated (FI) research in 1984; the FI program supplements NIDRR's directed research portfolio by addressing research issues in promising and innovative ways. NIDRR also supports service demonstration and research programs to develop and evaluate improved methods and systems of rehabilitation care for individuals with spinal cord injury, traumatic brain injury, and burns. The *Rehabilitation Act* also provides for two capacity-building programs—the Fellowships and Advanced Rehabilitation Research Training programs.

## Management Principles

NIDRR research management will be guided by many elements and will employ several research planning and decision-making principles in its work.

- NIDRR will implement its research portfolio through use of clusters of projects that address common subject matters and employ various funding mechanisms.
- To establish the context for its research, NIDRR will assess possible priorities for its portfolio by applying criteria that ascertain the importance of proposed activities in relationship to NIDRR's mission and authority; past, current and emerging projects; scientific advances; and work of research partners in the United States and abroad.
- NIDRR will communicate decisions clearly and understandably to a wide range of audiences.
- NIDRR will make choices regarding resource allocation using the best available evidence. NIDRR will explain the rationale for directed activities to stakeholders in the publication of priorities.
- NIDRR will allocate resources across program clusters to achieve the best relationship of costs and benefits. Factors for consideration may include the anticipated size of the

investment; available funds; congruence with NIDRR's Logic Model; and risks of failure to act, including lost value and expertise.

- Quality program management at NIDRR will require the further development of internal and external studies to validate knowledge generated from ongoing and completed research and assess its utility to stakeholders.

### **Peer Review Processes**

Application review is central to efforts that ensure the integrity and validity of the research portfolio. As mandated by the *Rehabilitation Act*, NIDRR continues its commitment to a review of applications by independent experts representative of NIDRR stakeholders, including individuals with disabilities. NIDRR envisions a standardized peer review process across its research portfolio, extending the use of standing panels to service most or all program funding mechanisms.

### **Monitoring and Evaluation**

NIDRR has adopted a project monitoring process that involves regular contact between project officers and principal investigators to ensure that activities are carried out as proposed, staffing is as proposed, problems are addressed and resolved, and the projects remain on track to produce the outcomes and outputs agreed upon in their grant awards.

NIDRR will evaluate the outcomes of its grantee research efforts in order to judge project productivity gains, economic value, practitioner satisfaction, and end-user satisfaction. Measures of success will vary by goal and topic. NIDRR is developing a systematic method for tracking measurement instruments developed by grantees (Tools List). The tools, along with patent counts, will verify outcomes of research methods and products. Systematic reviews or meta-analyses will be used to evaluate aggregated research outcomes.

### **Research Cooperation**

As a leading federal agency involved in disability and rehabilitation research, NIDRR works closely with numerous other federal agencies. Interagency collaborations have resulted in joint research projects with the Substance Abuse and Mental Health Services Administration, the Agency for Healthcare Research and Quality, the Centers for Disease Control and Prevention, the National Institutes of Health, and other components of the Department of Health and Human Services (HHS). NIDRR also conducts employment research jointly with the U.S. Department of Labor and conducts NFI-related activities with the Office on Disability of HHS. A major mechanism for fostering such collaboration is the Interagency Committee on Disability Research (ICDR).

### **Interagency Committee on Disability Research**

The ICDR, authorized by the act, will continue to promote coordination and cooperation among federal departments and agencies that are conducting disability and rehabilitation research programs, with a particular emphasis on technology and universal design. NIDRR is the administrative home of the ICDR, and the director of NIDRR chairs this committee, the

membership of which represents more than 35 federal entities. In addition to the full committee, five subcommittees address specific issues: Disability Statistics, Medical Rehabilitation, Technology (including Technology Transfer), Employment, and the NFI.

### International Research Program

The magnitude of the overall federal R&D effort directed to disability and rehabilitation research is relatively small, compared to R&D efforts in other areas. Therefore, international cooperation and exchange has been viewed as an important mechanism by which the critical mass of disability and rehabilitation research can be increased. According to the act [Section 204(b)(6)], the director of NIDRR is authorized to "...conduct a program for international rehabilitation research, demonstration, and training..." NIDRR projects have demonstrated the value of international collaboration in developing technology for individuals with disabilities. As part of the Department of Education, NIDRR is focused on the value of international capacity building and exchange efforts and continues to support these activities.



## ADDRESSING OUTCOMES THROUGH RESEARCH AND DEVELOPMENT, CAPACITY BUILDING, AND KNOWLEDGE TRANSLATION

NIDRR has built its program of funded activities around the three arenas of research and development, capacity building, and knowledge translation. For each arena, NIDRR has developed strategic goals and objectives, which are presented in the *Plan* and summarized below, followed by sections on each of the three arenas or goal areas.

The R&D arena is divided according to the domains of NIDRR research—employment; participation and community living; health and function; technology; and disability demographics. In developing its research agenda in each domain, NIDRR incorporated the latter two stages of knowledge development as portrayed on the left-hand side of the Logic Model—theories, measures, and methods; and interventions, products, devices, and environmental adaptations.

### STRATEGIC GOALS AND OBJECTIVES

Strategic goals are broad statements of a program's aims, whereas strategic objectives specify the means by which the goals will be addressed. NIDRR strategic goals and objectives are intended to communicate the institute's main themes and directions and are not expected to serve as measurable operational objectives. NIDRR has developed the following set of comprehensive strategic goals and objectives that reflect the program's mission and align with both the targeted outcomes depicted in the Logic Model and the institute's GPRA performance measures.

#### **Goal 1: Advance Knowledge Through Research and Related Activities**

Generate scientific knowledge, technologies, and applications to inform policy, change practice, and improve outcomes.

- Objective 1a:** Contribute evidence-based theories, information, and analyses to increase understanding and enhance knowledge of disability and rehabilitation related concepts, issues, and emerging trends and developments.
- Objective 1b:** Provide new and improved tools and methods to strengthen the scientific basis of disability and rehabilitation related research, policy, and practice and increase the generalizability of findings and utility of products.
- Objective 1c:** Develop new and improved interventions, programs, products, devices, and environmental adaptations to guide decisionmaking, change practice, and enhance access, function, and opportunities for full participation.

## **Goal 2: Advance Knowledge Through Capacity Building**

Increase capacity to conduct and use high-quality and relevant disability and rehabilitation research and related activities designed to guide decisionmaking, change practice, and improve the lives of individuals with disabilities.

*Objective 2a:* Promote productive partnerships with other federal agencies and nonfederal organizations and facilitate improvements in R&D infrastructure to strengthen the research portfolio, support clinical trials, and increase the effectiveness of knowledge translation efforts.

*Objective 2b:* Encourage multidisciplinary applications representing a broad array of relevant fields and from diverse individuals and underrepresented institutions to balance the research portfolio and strengthen the capacity to solve problems in a creative, state-of-the-art manner.

*Objective 2c:* Enhance opportunities for cross-disciplinary and advanced research training in disability and rehabilitation-related fields and improve the quality of training provided to qualified individuals, including students with disabilities and those from minority backgrounds.

## **Goal 3: Advance Knowledge Translation**

Promote the effective use of science-based knowledge, technologies, and applications to inform disability and rehabilitation policy, improve practice, and enhance the lives of individuals with disabilities.

*Objective 3a:* Promote external review of the quality of NIDRR funded research and related activities through participation in independent scientific collaborations and registries. For examples and more information, see [www.Campbellcollaboration.org](http://www.Campbellcollaboration.org) and [www.cochrane.org](http://www.cochrane.org).

*Objective 3b:* Develop tools and methods to facilitate effective accumulation, translation, dissemination, and transfer of disability and rehabilitation-related knowledge, technologies, and applications to relevant stakeholders.

These strategic goals and objectives are addressed in the discussion that follows on the three arenas of funded activities: research and development, capacity building, and knowledge translation.

## **RESEARCH AND DEVELOPMENT**

At the heart of NIDRR's mission is the support of research to improve the lives of people with disabilities. The associated strategic goal for R&D is to generate science-based knowledge, technologies, and applications to inform policy, change practice, and thereby improve overall conditions for people with disabilities. The future research agenda for NIDRR rests on the strategic goals and objectives defined previously and on the long-term outcomes depicted in the Logic Model, which call for eliminating disparities in employment, participation and community living, and health care between people with disabilities and the general population and for developing

appropriate technology and statistical data to support those objectives. Within the NIDRR research agenda, performance goals are formulated separately for each major domain of the institute's mission. Unlike long-term outcomes, performance goals (which may be output or outcome-oriented) lie within a program's span of accountability. The following sections provide information on NIDRR research work that will be carried out in the domains of employment, participation and community living, health and function, technology, and disability demographics.

## **Employment**

For many people with disabilities, employment that is challenging, fulfilling, and fairly and adequately compensated is the ultimate rehabilitation outcome. Research on employment of people with disabilities can be used to strengthen the scientific basis of disability-related employment policy and practice. Research findings related to career planning, job entry, advancement, and retention can assist individuals with disabilities—particularly those with significant disabilities—in moving from dependency on public benefits to self-sufficiency, or from underemployment into work that is consistent with the individual's strengths, abilities, and interests. NIDRR's employment research focuses on the lifelong challenges to and opportunities presented by transitions in employment experienced by people with disabilities.

Employment research addresses methods to integrate the unique needs of employers and disability populations to improve employment outcomes across the life span. NIDRR research can lead to more accessible work environments. Employer-oriented, or demand-side, research can assist policymakers, employers, and service providers in developing better strategies for meeting the employment needs both of people with disabilities and hiring entities. Disability and rehabilitation researchers explore methods, costs, and results of services by rehabilitation programs or supported employment, including studies of natural supports at work as they relate to employment outcomes.

Research on employment addresses several areas, including the role of personal assistance services in the workplace. Rehabilitation technology and universal design require systematic application of products, environmental adaptations, and engineering solutions that can both enhance personal function and address barriers confronted by people with disabilities in employment.

### **Research Agenda—Employment**

Within the domain of employment research, NIDRR will focus on the creation of useful theories, measures, and methods to improve the scientific validity of employment research. NIDRR also will focus on research that will increase the availability of validated interventions, products, devices, and environmental adaptations.

### *Theories, Measures, and Methods*

Tested theories, measures, and methods that increase the scientific validity of research on employment are important because they lay the foundation for researchers, policymakers, service providers, individuals with disabilities, and others to:

- Improve their understanding of employment trends for individuals with disabilities in relation to macroeconomic, legislative, and societal changes, and demographic trends.
- Improve services and policies that have an impact on work-related needs of individuals with disabilities and their employers.
- Improve tools that measure multiple dimensions of employment for individuals with disabilities and the employing entities.

### *Interventions, Products, Devices, and Environmental Adaptations*

Research on new and improved interventions, products, devices, and environmental adaptations is important because it provides researchers, service providers, policymakers, and others with information they can use to:

- Effectively contribute to program eligibility determinations, design of program components, and assessment of program outcomes.
- Improve work opportunities for individuals with disabilities from diverse backgrounds in terms of interests, expertise, language, and culture.
- Assist employers and policymakers to provide employment opportunities for people with disabilities.
- Create tools for workplace accommodations that match the needs of employers and individuals with disabilities.
- Improve employment outcomes for specific disability populations, including individuals with behavioral, physical, psychiatric, cognitive, and sensory disabilities, as well as episodic disabilities of all etiologies.

Thus, NIDRR's research agenda in the area of employment is designed to:

- Strengthen the scientific basis of disability and rehabilitation-related research and practice by increasing the availability of validated theories, measures and methods to: (1) improve measurement, data sources, and estimates; and (2) enhance identification, evaluation, and prediction of the factors that facilitate successful labor force participation and work-related transitions across the life span.

- Strengthen the scientific basis of disability-related employment policy, practice and research by providing valid and reliable information and analyses designed to: (1) improve understanding of employment trends; individual labor force participation; and school-to-work transitions; and (2) enhance knowledge of the broader societal developments that affect employment opportunities and outcomes across the life span.

## Participation and Community Living

The research domain of participation and community living is at the center of NIDRR's overall purpose, which is to develop knowledge that can be used to improve substantially the options for disabled individuals to participate in the community. In the *Long-Range Plan*, NIDRR uses the term *participation* to represent all three concepts of participation, community integration, and independent living (IL). This enriched term *participation* will help NIDRR and the applied rehabilitation research community focus on the extent to which people with disabilities are participating in the community in a manner that is meaningful to them. NIDRR's focus on participation parallels the components of IL programs under the *Rehabilitation Act*, which include independent living, consumer control, peer support, self-help, self-determination, equal access, and individual and systems advocacy.

Research on participation enhances the scientific basis for a wide range of policies and practices aimed at promoting the societal participation of individuals with disabilities. NIDRR research on participation develops and evaluates strategies for services, interventions, products and modifications to the built and social environments that would allow individuals with all types of disabilities to live and participate in their communities. NIDRR-funded researchers are among the vanguard of measurement experts seeking to develop new and improved theories about and measures of participation and community living that will enable the impact of specific strategies and interventions to be more accurately determined.

### Research Agenda—Participation and Community Living

At the individual level, NIDRR will support the development of new knowledge that can be used to increase the capacity of people with disabilities to plan and direct their own lives, choosing among options for maintaining the level of independence and social involvement that they desire.

At the systems level, NIDRR will support the development of knowledge that can be used to improve options and services for achieving independence and social involvement, and the supports necessary to realize those options.

### *Theories, Measures, and Methods*

Tested theories, measures, and methods that increase the scientific validity of research on participation and community living are important because they lay the foundation for researchers, policymakers, service providers, individuals with disabilities, and others to:

- Improve their understanding of the wide range of activities that may be associated with enhanced participation among people with disabilities.

- Improve tools that measure multiple dimensions of participation among individuals with disabilities.
- Improve the capacity of researchers to conduct scientific evaluations of services and policies that affect the participation levels of individuals with disabilities and identify those that are most effective.

NIDRR will build a stronger foundation of research-based knowledge upon which participation-focused services and policies can be based. Current measures of participation apply primarily to individuals with physical disabilities. NIDRR will sponsor research to construct reliable and valid theories about and measures of participation and community integration of individuals with intellectual, cognitive and psychiatric disabilities. NIDRR also plans to pursue research to develop advanced theories of disability and participation to capture the complex interaction of environmental and individual factors. That will require improvements in the ability of researchers to measure the influence of environmental factors on participation levels of people with disabilities.

### *Interventions, Products, Devices, and Environmental Adaptations*

Research on new and improved interventions, products, devices, and environmental adaptations is important because it provides researchers, service providers, policymakers, and others with information they can use to:

- Improve participation outcomes for all individuals with disabilities, encompassing increases in the number of individuals with disabilities living and interacting in the community, as well as qualitative improvements in the nature of that social involvement.
- Provide access to individualized services and supports to promote participation among all people with disabilities.
- Apply conceptually sound theories of societal participation for specific subgroups of people with disabilities.
- Tailor services and supports to the specific needs of individuals with physical, sensory, cognitive, or psychiatric disabilities that will reduce environmental barriers to their participation.

NIDRR intends to place particular emphasis on research related to direct supports and services that will enable individuals with disabilities to have options for participation and to implement their choices in their environments. NIDRR also will sponsor research to determine the ways in which people with disabilities can use applications of universal design to reach their participation goals.

NIDRR's research agenda in the domain of participation and community living is designed to:

- Strengthen the scientific basis of policies and practices aimed at enhancing participation among people with disabilities by providing information and analyses designed to improve understanding of participation levels among individuals with disabilities and the multiple barriers to and facilitators of their participation.

- Strengthen participation-related research and practice by increasing the availability of validated theories, measures, and methods in order to: (1) improve data sources and estimates; and (2) enable better identification, evaluation, and prediction of the factors that facilitate or impede participation and community living.

## Health and Function

Maximizing health and function among people with disabilities is critical to the achievement of NIDRR's mission and the associated higher-order goals of employment and community participation. Functional ability reflects the complex interaction between individuals and the environments in which they live. Accordingly, NIDRR conceptualizes and examines issues of health and function at the individual and systems levels. Individual level research focuses on the development and testing of new interventions that improve functional and health outcomes for individuals. At the systems level, NIDRR-supported research focuses on the organization, and delivery of health care and medical rehabilitation services.

***Individual Level:*** Ongoing research and clinical efforts produce a wide variety of programs, interventions, and products aimed at enhancing the health and function of individuals with disabilities. The scope of research in medical rehabilitation is as broad as the numerous conditions that result in disablement; it may encompass the onset of new conditions, the exacerbation of existing conditions, or the development of coexisting conditions. NIDRR is well positioned to capitalize on basic scientific advancements through funding research to develop rehabilitative interventions that are based on the expanding knowledge of neurobiological processes.

Research on health and function also involves the study of new technologies that improve diagnosis and measurement of disabling conditions, and devices to support enhanced function. Research will help to prevent secondary conditions from developing among people with disabilities and will explore the implications of nonmedical interventions, such as exercise, in this context.

***Systems Level:*** The complex and evolving health care delivery system in the United States has a major role in the promotion and maintenance of health for everyone. NIDRR intends to address the policies and practices that exacerbate or ameliorate disability-related disparities in access to health care services. The relative lack of access to health care services by people with disabilities is likely to become an increasingly serious problem as the full implementation of the Olmstead decision shifts some individuals out of institution-based health care into mainstream health services. In addition to individuals whose primary disabilities are psychiatric, people with a range of disabilities disproportionately experience depression and other mental health conditions, and there is a substantial amount of unmet need for mental health services.

Accurate assessment of the health status of individuals with disabilities is critical to understanding the impact of the health care delivery system on their health and wellness. One barrier to accurate measurement of the health status of individuals with disabilities is the tendency of widely used measures to conflate functional ability with health.

NIDRR is funding research on problems of classifying specific interventions in medical rehabilitation, which involves a multidisciplinary effort among the allied health professions. The

lack of consensus on how to define and measure the effectiveness of the multitude of rehabilitation interventions remains a persistent barrier to a more rigorous and targeted evaluation of rehabilitation outcomes.

### Research Agenda—Health and Function

At the individual level, NIDRR will fund research that supports the development and evaluation of new interventions, products, devices, and environmental adaptations aimed at improving the health status and functional abilities of people with a wide range of disabling conditions. Many of these new interventions will address the needs of people who are aging with disability, with particular emphasis on minimizing secondary conditions. To aid in the evaluation of these new interventions, NIDRR also will fund research that leads to the development of the next generation of valid and reliable measures of health and functional status among people with disabilities. NIDRR will conduct research that identifies effective methods for translating data from these new outcomes measures into information that can be used to inform decisions made by consumers, payers, provider organizations, and clinicians.

At the systems level, NIDRR will fund research to generate new knowledge about the systematic causes and consequences of substandard access to rehabilitation services and physical and mental health care for people with a wide range of disabling conditions. This research will identify and evaluate the effectiveness of specific service-delivery approaches and reimbursement models aimed at minimizing physical, social, and economic barriers to the full spectrum of physical and mental health care and rehabilitation services that is needed by people with disabilities.

Thus, NIDRR's research agenda in the area of health and function is designed to:

- Increase the number of validated new or improved methods for assessing function and health status.
- Increase the number of interventions, products and devices demonstrated to be efficacious in improving health and function outcomes in targeted disability populations.
- Increase understanding of the underlying structures and processes that facilitate or impede equitable access to rehabilitation services and physical and mental health care by people with disabilities.

### Technology for Access and Function

For Americans with disabilities, technology plays a vital role by helping them overcome functional and cognitive deficits, thus enhancing the ability to lead increasingly independent, secure, and productive lives. At the societal level, technology enhances access to information and facilitates removal of physical barriers.

NIDRR's Logic Model depicts technology as encircling the goals of sustaining health and function, employment, and community living and participation, reflecting the critical contributions of technology to successful outcomes for persons with disabilities in all these areas. NIDRR is well positioned to continue its leadership role in advancing all areas of rehabilitation engineering and assistive technology research. The corresponding section of the *Plan* discusses

the societal and scientific contexts of disability technology research, and describes its applications at the individual and systems levels. Also discussed are instruments for use in medical and rehabilitative interventions, such as tools for diagnoses, assessments, and therapeutic interventions. Consumer participation in rehabilitation engineering and assistive technology research is a vitally important component of future research efforts.

At the individual level, the primary focus is on assistive technology devices that enhance the physical, sensory, and cognitive abilities of people with disabilities and assist them in participating and functioning more independently in the home, at work, in recreational settings, and at cultural and community events. At the systems level, the emphasis is on applying technology R&D in ways that enhance community integration, independence, productivity, competitiveness and equal opportunity by mitigating or eliminating barriers found in large social systems such as public transportation, telecommunications, IT, and the built environment. Recent, often breakthrough, advances in biomaterials research, composite technologies, information and telecommunication technologies, nanotechnologies, micro electro-mechanical systems (MEMS), sensor technologies and the neurosciences provide can be incorporated into future rehabilitation technology research.

### Research Agenda—Technology

NIDRR will continue to support the development and application of universal design principles to promote the full participation of people with disabilities in mainstream society. Universal design can be a major facilitator of an accessible built environment and of participation.

NIDRR also will sponsor research to improve and build upon disability-specific products, including augmentative communication technology and environmental adaptations that have been developed to enhance participation and community integration.

NIDRR will sponsor research that involves end users at each stage of product development, seeking to enhance use and reduce abandonment of assistive technology devices. NIDRR will continue to sponsor research that evaluates the outcomes of assistive technology products.

NIDRR will sponsor research that builds upon an understanding of the impact of economic factors on technology development, production, availability, and use, including studies of the determinants of technology development, transfer, and use within specific industries or community environments. NIDRR seeks to benefit from international research by providing the opportunity for researchers around the world to collaborate on product development and to examine technology needs.

NIDRR's research agenda in the area of technology for access and function is designed to:

- Strengthen the science basis of rehabilitation engineering and assistive technology through the development of theories, validated measures, and appropriate research methods for the identification and solution of problems to be addressed through technology.
- Increase the number and availability of empirically validated products, devices, and environmental adaptations that promote: (1) increased mobility, interactive control, and manipulation of relevant features of the environment, and (2) access to information and

technology communications systems by people with disabilities in order to promote independence in the home, community, and workplace.

- Increase the number of empirically based standards for products and devices and the built environment to ensure safety, accessibility, and usability by and for people with disabilities.

## Disability Demographics

Valid and reliable demographic data are foundational to the broader mission of NIDRR and help to provide a platform for all agencies in the disability field. The institute will continue its work with other federal agencies to meet NIDRR’s statutory mandate to collaborate with these agencies in producing demographic and statistical data that describe the population of Americans with disabilities. High-quality demographic data contribute to NIDRR’s mission by helping to:

- Allocate NIDRR resources among competing topical areas.
- Inform policy within NIDRR and within the federal government as a whole.
- Identify potential changes in the characteristics and needs of the disabled population.
- Understand changes over time in disablement.
- Inform service delivery.
- Plan research to address current and emerging needs.

The ultimate goal of NIDRR’s disability demographics effort is to generate new information that can be used by individuals with disabilities, service providers, policymakers, and others working to identify and eliminate disparities in employment, participation and community living, and health and function. NIDRR has long funded studies that mine data to address the full range of social, health, and economic facets of disability and that compare findings across data sources. There are significant correlates with disability, such as aging; and there are a variety of links between disability and other factors, including culture, race, and ethnicity. NIDRR also will nurture methodological work that will address identified gaps in data, such as the sparse measurement of the interface between individual and environment.

NIDRR supports research to understand the variances in levels of participation by individuals with disabilities and to evaluate strategies or interventions that may help bridge the gap between preference and feasibility in an existing environment. The *Plan* clarifies and advances NIDRR’s work in disability demographics, which has included the establishment of a center on disability demographics and statistics; elucidation of the complex concept of an emerging universe of disability; and delineation of gaps in the current disability demographics effort.

## The Context for Disability Demographics

Many organizations continue to collect important information about individuals with disabilities, through at least five major surveys as well as other targeted efforts. (For reference on federal surveys, see the U.S. Census 2000, Summary File 3; the Survey of Income and Participation [2000]; National Health Interview Survey [2003]; and the American Community Survey [2000]). However, an overarching and rarely addressed concern in disability demographics is the assessment of the interface of the individual and the environment. Researchers are just beginning to explore measures of barriers and facilitators to participation. Measures of participation vary, although many sources are undertaking to evaluate the important measures of participation.

A lack of standardized definitions, terminology, coding, classification, and measurement of disability and functioning often limits generalization of research findings. NIDRR's mission and its measurement tools are complicated by the interaction of static and dynamic variables that describe the background of disabilities. For example, people age, health changes, economic circumstances vary, and accidents occur. Point-in-time data sources may describe facets of disability, if enough questions are asked, but an environmental context often is absent.

## Descriptions of the Population With Disabilities

Due to the variety of measurement tools for disability, no simple answer exists to the question of how many people with disabilities are living in the United States. As mentioned earlier, drawing upon national Census data from 2000, overall estimates of the prevalence of disability range from 5 percent up to more than 20 percent. NIDRR uses the higher figure for planning purposes.

Measures of significance or severity of disability are critical for purposes of the *Rehabilitation Act*; each of the national datasets connected to the federal surveys mentioned above can be used to estimate the prevalence of significant disability. Measures associated with the highest level of severity include limitations in activities of daily living (ADLs), while limitations in instrumental activities of daily living (IADLs) are often associated with more moderate levels of disability. For working-age adults, working at a job or business is often a major life role, and work limitations usually are measured separately showing the extent of the impact of disability on the individual's ability to work.

Measures of self-care, and the need for personal assistance or technologies, provide rich data for understanding more severe disability. There are consistent trends across data sources showing that increasing age is a key factor in need for assistance. Aging is strongly correlated with disability and with the need for functional supports including technology, environmental access, and personal assistance. Predicted changes in the demographics of the general population will have substantial impact on the distribution of disability and the need for specialized technologies and services. Ultimately, NIDRR researchers will need to evaluate the impact of these and other factors on the equalization of access, opportunity, and successful outcomes for people with disabilities in fulfilling a range of social roles.

## Research Agenda—Disability Demographics

NIDRR’s disability demographic goals will focus on increasing the capability to describe the characteristics and circumstances of people with disabilities and their family members through research designed to:

- Improve the ability to collect data through the joint development of a standard nomenclature and methodological standards, including sampling, in collaboration with other federal and nonfederal entities.
- Continue to support meta-analyses of multiple data sources to examine the current status and trends that project future needs.
- Enhance understanding of the number and characteristics of people with disabilities through targeted studies of existing data and thereby increase understanding of the basic life-cycle events and experiences of people with disabilities.
- Improve the science of disability demographics by developing and improving the measures of the interaction between technology and the physical environment, the social environment, and social policy as they affect people with disabilities.

## CAPACITY BUILDING

In the arena of capacity building, NIDRR has focused its efforts on the personal and professional development of scientists, advocates, and people with disabilities, and is expanding this approach to include development of the capacity of institutions and organizations, especially those that address the needs of underserved populations.

In this section, capacity building and its key dimensions will be defined in a context that reflects NIDRR’s mission. The following sections describe the multidimensional aspects of capacity building, provide a brief review of selected NIDRR accomplishments in capacity building, and discuss future directions and specific goals and objectives in capacity building.

### Definition of Capacity Building

As depicted in the Logic Model, capacity building is foundational for NIDRR’s agenda. NIDRR capacity building includes three major components: (1) improving and enlarging the supply of qualified individuals to conduct research, (2) building a research infrastructure at institutions to carry out research and related activities, and (3) increasing the ability of consumers to interpret and use research and to play an active role in the research process.

At the individual level, NIDRR focuses on capacity building to ensure a source of researchers to carry out the research agenda. In addition, NIDRR capacity building at this level enhances the ability of researchers to generate useful new knowledge. NIDRR historically has sought to increase the number of individuals from underrepresented groups in this effort, particularly those with disabilities. At the organizational or systems level, NIDRR capacity building supports the framework for carrying out

individual level research work. At the systems level, all NIDRR programs may be said to involve capacity building, in that NIDRR funding is intended to increase the capacity of the field to conduct high quality research directed at the long-term goals and objectives identified in the Logic Model.

An important dimension of NIDRR capacity building is the development of strategies to: (1) assist individuals with disabilities and their families, as well as service providers and advocates, to use research findings to inform their choices of interventions; and (2) enhance consumer involvement in the research process. This process begins at research development and extends to implementation, evaluation, and dissemination.

### **Program Mechanisms for Capacity Building**

At the individual level, NIDRR's current capacity-building activities focus primarily on support for individuals who already have selected research as a career and have completed doctoral studies. The Advanced Rehabilitation Research Training (ARRT) and Fellowships programs provide support to individuals who fall within this category. NIDRR acknowledges a need for supporting increased development of research as a career at the secondary school and undergraduate educational levels, particularly focusing on students with disabilities and those from diverse cultural groups. NIDRR will look for opportunities to partner with other federal agencies on initiatives in this area.

ARRTs provide training for researchers in disability and rehabilitation science that integrates disciplines and teaches and enhances research methodology skills. These training programs operate in interdisciplinary environments and provide training in rigorous scientific methods. The fellowships augment scholarly careers in the field and function in an integrative capacity to define new frontiers of disability and rehabilitation research. The ARRTs also enhance capacity in their host institutions by attracting new research trainees from many sources and increasing recognition for the sponsoring university as a leader in the field.

RRTC and RERC offer training activities that capitalize on the existing critical mass of expertise and knowledge to provide: experiential and academic training for researchers and clinicians at the undergraduate, graduate and postgraduate levels, including continuing education activities; in-service training for rehabilitation practitioners; and training for consumers, their families and representatives in implications and applications of new research-based knowledge.

The minority development program focuses on research capacity building for minority entities such as Historically Black Colleges and Universities (HBCUs) and institutions serving primarily students of Hispanic, Asian, and American Indian backgrounds.

### **Agenda for Capacity Building**

NIDRR will support capacity building activities that incorporate training in the application of research findings to the real-world needs of people with disabilities and the entities that affect their lives, including policymaking. Training aimed at transferring research findings into practical use is critical for capacity building at the organizational and individual levels. NIDRR supports initiatives and training that will attract and increase the participation of researchers, particularly individuals with disabilities and those from diverse cultural backgrounds, and will

provide them with high level preparation. NIDRR will place increased emphasis on institutional capacity building and building research infrastructure, in addition to developing a plan of evaluation of capacity building. NIDRR capacity building will extend to increased training for knowledge translation of research and the expansion of multidisciplinary research.

Thus, NIDRR intends to:

- Enhance the capacity to solve problems in creative, state-of-the-art ways by encouraging researchers from different cultural, racial and academic backgrounds to conduct research in settings that represent the contextual experiences of individuals with disabilities and other stakeholders.
- Enhance cross-disciplinary and advanced research training opportunities in disability and rehabilitation-related fields for rehabilitation professionals and qualified individuals, including those with disabilities or from minority backgrounds.
- Increase the capacity of persons with disabilities, family members, and advocates to understand and use research findings through training and research experiences.
- Collaborate with federal and other partners to enhance the development of a disability science infrastructure and a research portfolio.

Future research will examine the cultural and contextual nature of disability experiences, including promoting partnerships between minority and non-minority entities and examining the implications of traditional research methods, models and measurements for traditionally underrepresented populations. The changing profile of the disabled population will require researchers to have a broad understanding of diverse cultures and other demographic differences. Effective strategies to facilitate collaborative research endeavors across disciplines and diverse segments of the research community will be essential.

NIDRR seeks to improve the capacity of the field to understand the contextual nature of disability, including analyses of the intersection of the person and environment; exploration of context and culture with regard to specific disability populations; and topics such as assistive technology, disability rights, health promotion, family relationships, and community reintegration. NIDRR anticipates continued leveraging of the strong base of activity of NIDRR's RRTCs and RERCs serving as centers of excellence to develop capacity.

## **KNOWLEDGE TRANSLATION**

Knowledge translation (KT) activities are a central part of NIDRR's mission and provide an important pathway for improving the quality of life for individuals with disabilities. The KT process actively engages disability researchers, researchers from other disciplines, service providers, policymakers, and persons with disabilities and their families in the interchange, synthesis, and application of rehabilitation research knowledge. NIDRR will focus its specific KT activities in the domains of employment, participation and community living, health and function, technology, and disability demographics. NIDRR's knowledge translation program features a process for assessing the scientific validity of findings to be translated, using external organizations to assist in these evaluations.

## Definition of Knowledge Translation

For NIDRR, knowledge translation encompasses the multidimensional, active process of ensuring that new knowledge gained through the course of research ultimately improves the lives of people with disabilities and furthers their participation in society. KT involves not only knowledge validation and dissemination but also the transfer of technology, particularly products and devices, from the research and development setting to the commercial marketplace to make possible widespread utilization of the products or devices.

NIDRR is particularly focused on ensuring that disseminated information is of high quality and based on scientifically rigorous research and development. NIDRR is especially interested in using models for review, synthesis, and dissemination of research findings that encourage a thorough discussion of the findings among researchers, with emphasis on rigor and application possibilities. NIDRR also wants to ensure that potential end users of information will have the information they need to judge the quality and relevance of research findings and products, supported by NIDRR and other organizations. The scope of knowledge translation as envisioned in this *Plan* covers a wide range of activities and involves a variety of mechanisms, including publication of research results, determination of the effectiveness of research applications, development of targeted materials, and the transfer of technology.

Most NIDRR centers and projects now include information and dissemination activities. With the establishment of the National Center for Dissemination of Disability Research (NCDDR), these activities have become more coordinated and integral to project planning. Moreover, NIDRR intends that every new research project funded under this *Plan* should develop and share new knowledge to improve the lives of citizens with disabilities.

## Challenges in Knowledge Translation

The biggest challenge faced by NIDRR and other major research agencies is to diversify KT activities to better serve various constituencies. This process demands filtering the information for relevance, determining the quality of the findings (source and content), and aggregating research information from a number of NIDRR research venues (no single project addresses all aspects of a problem). At the beginning of a project, researchers must envision the target audiences for KT activities, create a dissemination plan, and develop a strategy to evaluate the outcome. NIDRR intends to assist people with disabilities and their families, and the general public, to access information efficiently through knowledge sharing practices that make maximum use of Web servers, subscriptions systems, e-forums, communities of practice, and other solutions.

## Future Agenda—Knowledge Translation

- NIDRR is interested in developing improved ways to make information accessible to the research community and to disability-related agencies and organizations.

NIDRR will continue to encourage and support dissemination of research findings to consumers as an important aspect of its mission and legislative mandate. Building on NIDRR's solid foundation of peer-to-peer dissemination, individual centers for KT and technical assistance will be encouraged to reach out to their constituent populations.

- NIDRR intends to strengthen the dissemination work done by its specific content-based KT centers and regional networks of technical assistance centers.

NIDRR will advance its KT activities by emphasizing expert judgments on the value of information for further dissemination; better accountability for outputs produced by NIDRR researchers; and improved methods for making this information available beyond the research community. NIDRR will focus on publishing and disseminating research findings to the public by improving traditional dissemination tools and methods and by increasing the use of technology.

- NIDRR will further the development of a theory of KT, the development of measures of success, and uniform definitions and requirements of NIDRR grantees and contractors.
- NIDRR will increase its KT activities by examining the needs of the end users of information.

The new approach will include characterizing users and identifying their goals or purposes; assuring alignment of the type of information disseminated with user goals; providing assistance to users to enable them to find the requested information; and meeting their accessibility needs.

Thus, NIDRR intends to:

- Increase the availability of relevant information to NIDRR's target audiences by developing and implementing a systematic approach to vetting information.
- Increase understanding of how best to communicate new knowledge to beneficiaries.
- Increase the availability of technologies that enable independent mobility and control and manipulation of the home, community, and workplace environments; and facilitate access to information technology.



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