

COMMUNITY RESILIENCE AND WEALTH:

The Challenges and Opportunities for Rural Communities in a Rapidly Changing World

Appendix B

Selected Resilience Research, Projects, Networks, Centers and Foundation Activities

APPENDIX B: SELECTED RESILIENCE RESEARCH, PROJECTS, NETWORKS, CENTERS AND FOUNDATION ACTIVITIES

The resources listed in this Appendix are not prioritized, as they are purely informational. They are organized in seven categories, however, to facilitate overview. These categories are as follows:

- A. Research Centers and Projects.
- B. Government-Sponsored Programs.
- C. Non-Governmental Organizations Working on Resilience.
- D. Health and Human Development Oriented Resilience Initiatives.
- E. Engineering Resilience.
- F. Selected Foundation Initiatives.
- G. United Nations Programs.

The information was culled from the websites of the different organizations, research institutes and programs, with only minor editing for length. More information can be found by following the weblinks.

A. Research Centers and Projects

1. Resilient Communities Project

<http://www.resilientcommunities.ca/>

The Resilient Communities Project is a research initiative based at the University of British Columbia. Our project is concerned with the social factors involved in the survival and resilience of British Columbia's coastal communities.

The Resilient Communities Project (RCP) is funded by the Social Sciences and Humanities Council of Canada under the Strategic Theme, "Exploring Social Cohesion in a Globalizing Era." This collaboration of academics, First Nations peoples, and government is concerned with the social factors involved in the survival and resilience of British Columbia's coastal communities. The particular theoretical focus of our work is on the concept of 'social capital' and its impact on social and economic structures in a community.

The Approach:

Most studies of regions and settlements under stress focus first and foremost on *economic* factors, and explore the *impact* of these on community, family and individuals. In this project we reverse that relationship, giving primacy to *social* factors. We see economic activities as 'embedded' in social relations and will try to assess the extent to which

social capital stimulates or deters adaptive economic activity, providing buffers against economic decline, and resources for economic growth and diversification.

The key concept in this research is *social capital*. In recent years sociologists, political scientists and economists have made extensive use of this idea in trying to understand economic growth. Our concern is less with the growth and more with resistance to economic adversity. At the social organizational level social capital refers to a) the interpersonal obligations community members have formed with one another and b) the norms which lead members to donate their talents and energies to their community.

We shall focus, not simply on individual communities, but on *regional clusters of settlement*. Many of the coastal communities are small, and understanding their economic and social character requires us to look at relations among neighboring towns and villages. Many of the communities and regions are ethnically diverse, and this offers a unique opportunity to explore how social capital is constituted and employed in *multi-ethnic settings*.

Throughout this study we shall adopt a strongly historical perspective, trying to understand the forces that have shaped these coastal communities, particularly since the second world war. We are interested in the social construction of *heritage*, in the ways in which *social memory* is formed, and the uses of the past in building identity and social cohesion.

We shall focus first on *community social organization* – the groups and associations, the social networks and patterns of participation in communal life – and secondly, on *community social psychology* – especially the levels of community-wide trust and the extent and nature of identification with and commitment to community.

Linking the organizational and social psychological levels is something that is the focus of much current academic interest: *trust*. Trust is a necessary prerequisite for cooperative social organization, and it grows out of identification with communities as spatial, historical and social entities. Many writers have documented and tried to explain what they see as the loss of trust in the modern world. Our interest is in the conditions that make possible its continuance.

2. University of Minnesota, Extension Service

<http://www.extension.umn.edu/distribution/familydevelopment/DE7565.html>

Just in Time Research: Resilient Communities

Focuses on:

- Immigrant and minority populations.
- Children and Youth.
- Housing.
- Community and Economic Development.

Enhancing Capital Access for Rural Businesses

by *Kenneth A. Kriz, David S. Wilsey, and Debra Elias*

Morse Rural areas have lagged behind urban areas in terms of economic growth, and the gap is becoming even wider. Why does this happen and what can be done to create new businesses and jobs in rural areas? This examination of the differences in the availability of debt and equity financing provides some answers.

The Promise and Challenges of the Regional Agricultural and Natural Resources Sustainable Development Partnerships

by *Scott J. Peters, Karen P. Lehman, Julie Ristau,*

Okechukwu Ukaga, and Don Wyse Created in 1997, the Regional Agricultural and Natural Resources Sustainable Development Partnerships initiative is working to advance sustainable development and community resiliency by providing financial support to development-focused projects in greater Minnesota. This paper explores the accomplishments and challenges this initiative has already faced in the early stages of its existence and the promise it holds for future development.

3. The Stockholm Resilience Centre

Research for Governance of Social-ecological Systems
<http://www.stockholmresilience.org/>

Stockholm Resilience Centre is a collaboration between Stockholm University, Stockholm Environment Institute and the Beijer Institute of Ecological Economics at the Royal Swedish Academy of Sciences.

Stockholm Resilience Centre aims to be an internationally recognized transdisciplinary research centre. It will advance the understanding of complex social-ecological systems and generate new insights and development to improve ecosystem management practices and long-term sustainability.

Numerous research projects, large bibliography to Centre-generated publications, and links to collaborating research institutions.

4. Resilience Alliance

<http://www.resalliance.org/1.php>

The RA is a multidisciplinary research group that explores the dynamics of complex adaptive systems.

Features links to *Ecology & Society* (an open-access online journal with a resilience focus, see [<http://www.ecologyandsociety.org/>]), monthly newsletters, networking among researchers, **Resilience Assessment Workbooks** (one for practitioners, one for scientists) (<http://www.resalliance.org/>).

[org/3871.php](http://www.resilience.org/3871.php)), searchable bibliography on resilience and a database on thresholds, etc.

5. Center for Resilience at Ohio State University

<http://resilience.osu.edu/CFR-site/index.htm>

Research center focused on risk and resilience in complex industrial and business systems (e.g., supply changes, anticipation of economic disruptions etc.); conducts life cycle assessments, valuing natural capital, carbon footprint reduction options; researches industrial ecology, and waste reduction options.

6. University of Alaska Resilience and Adaptation Program

<http://www.rap.uaf.edu/>

The University of Alaska Fairbanks offers the Resilience and Adaptation Program (RAP), a graduate program to train scholars, policy-makers, community leaders, and managers to address issues of sustainability in an integrated fashion. This program prepares students to address a major challenge facing humanity: To sustain the desirable features of Earth's social-ecological systems at a time of rapid changes in all of the major forces that shape their structure and functioning.

7. Institute for Global and Community Resilience Western Washington University

<http://www.wvu.edu/resilience/>

The Institute for Global and Community Resilience is part of WWU Huxley's College of the Environment. It facilitates scholarship, education, and practice on reducing social and physical vulnerability through sustainable community development, as a way to minimize loss and enhance recovery from disasters in Washington State and its interdependent global communities.

In seeking to integrate Disaster Risk Reduction and Sustainable Development we focus on five key areas:

- Community Recovery.
- Hazard Mitigation.
- Food Security.
- Social Vulnerability.
- Risk Analysis & Communication.

8. CARRI – the Community and Regional Resilience Institute (CARRI)

<http://www.resilientus.org/>

The Community and Regional Resilience Initiative (CARRI) is a major program of The Southeast Region Research Initiative (SERRI). With the support of the U.S. Department of Homeland Security, CARRI is a groundbreaking program being led by the Department of Energy's Oak Ridge National Laboratory, in conjunction with a variety of other federal, regional, state and local partners.

The goal of CARRI is to help develop and then share critical paths that any community or region may take to strengthen its ability to prepare for, respond to, and rapidly recover from significant man-made or natural disasters with minimal downtime to basic community, government and business services.

When a community is truly resilient, it should be able to avoid the cascading system failures to help minimize any disaster's disruption to everyday life and the local economy. A resilient community is not only prepared to help prevent or minimize the loss or damage to life, property and the environment, but also it has the ability to quickly return citizens to work, reopen businesses, and restore other essential services needed for a full and swift economic recovery.

B. Government-Sponsored Programs

1. Ontario Healthy Communities Coalition

<http://www.ohcc-ccso.ca/en/resilient-communities>

Resilient communities are healthy communities capable of “bouncing back” from adverse situations by actively influencing and preparing for economic, social and environmental change.

How do you build resilience in the community?

- In times of need, a resilient community will draw upon all of the resources that make it a healthy community.
- Social capital provides a community with an informed communications network and access to a wide range of resources, beyond the traditional labor market, during times of crisis.
- A high-level of community capacity will set the framework for quick disaster relief and information sharing through community networks.
- Well-planned urban development and sustainable environmental practices help diminish the effects of disasters by mitigating toxic run-off and erosion, among other factors.
- Indicators examine current programs to determine if they are fostering resilience.
- Always look at the impact your decisions have on the future. Shortsighted may make things worse in the long term.

Benefits of a Resilient Community

- The atmosphere of a community successfully handling adverse conditions is far more positive than a community that is reliant on external resources for survival.
- When disaster strikes, losses, both financial and human, are reduced.
- Resilient communities exhibit a sense of pride and

openness to new ideas and alternatives.

- A local economy, aware of its social capital, is more likely to weather economic recession and remain intact afterwards, keeping money in the community.

Links:

Atlantic Health Promotion Research Centre

<http://www.ahprc.dal.ca/welcome/default.asp>

Research papers on resiliency, particularly in the Atlantic provinces.

Centre for Community Enterprise

<http://www.cedworks.com/>

A special report on community resilience.

2. British Columbia Disaster Resilient Communities

Program

<http://www.pep.gov.bc.ca/hrva/hrva.html>

The mission of the Disaster Resilient Communities Program is:

To promote disaster resilient communities by providing tools to assist communities to manage risks from major emergencies and disasters.

The Provincial Emergency Program (PEP) has developed several tools to help a community to help a community address the six objectives of emergency management as illustrated above. These include:

- **Hazard, Risk and Vulnerability Analysis (HRVA) Tool Kit; and**
- **Community Emergency Program Review (CEPR)**

The tools:

Assess Risk

PEP has prepared a complete step-by-step Hazard, Risk and Vulnerability Analysis (HRVA) Tool Kit to help a community make risk-based choices to address vulnerabilities, mitigate hazards and prepare for response to and recovery from hazard events. The tool kit will help make positive changes and additions to your local emergency program.

Evaluate and Renew Program

PEP has developed an application to conduct a review of your community's emergency program. The Community Emergency Program Review (CEPR) is intended to assist a community to develop a comprehensive emergency program. This application requires Internet Explorer version 5+.

3. Canadian Center for Community Renewal

<http://www.cedworks.com/>

Since 1988, the Centre for Community Enterprise has partnered with the Canadian Centre for Community Renewal to unlock issues in community economic development and social economy. Each organization

brought its own suite of skills and resources to the task. The magnitude and complexity of the issues faced by communities today requires something different — a structure and strategy that enable still more creative action at both the local and regional levels. We are therefore combining the two organizations into one, the nonprofit Canadian Centre for Community Renewal (CCCR). Its mission and staff will focus more effort on community resilience, local food systems, and community-based carbon reduction, and on social enterprise as a vehicle of change.

Regarding its work on community resilience, the organization states:

At issue is the economic and social vitality of rural communities across Canada and the United States. Many have deteriorated in the past decade due to drastic changes in mining, the forest industry, agriculture, and fisheries. Yet others have prospered. They have taken steps that have enabled them to survive crisis, influence change, and become healthy, vital places for their citizens. What must we learn from their success?

On the basis of research into proven strategies of socio-economic revitalization, including its own experience as a practitioner of community-based economic development (CED), the Centre developed a model of community resilience. Two principal publications resulted from its efforts:

- *The Community Resilience Manual* (2000)
- *Tools & Techniques for Community Recovery & Renewal* (2003)

4. NOAA Coastal Services Center's Coastal Resilience Project

<http://www.csc.noaa.gov/bins/resilience.html>

Goal: Provide coastal communities with the necessary tools to become more resilient to coastal hazards.

Description: Resilience represents the ability to “bounce back” after hazardous events, which include storms, flooding, tsunamis, mud slides, and other events. Stronger, better-informed, and better-prepared coastal communities have increased physical, social, economic, and environmental capacities to rebound from weather and climate impacts. The NOAA Coastal Services Center is developing tools and information to help communities understand their particular vulnerabilities and what can be done to make the collective community better able to withstand hazard-caused destruction and disruption.

The goal of the Coastal Resilience Initiative is to define key resilience factors, identify critical linkages, and enable community-based adaptive management techniques. The framework for the initiative will be developed through partnerships among federal agencies, natural- and social-science research communities, and a wide range of coastal end-users who are seeking tools to help them in community and hazard mitigation planning, disaster preparedness and response initiatives, and long-term recovery and restoration efforts.

Tools developed through the initiative will also enhance ecosystem resilience by promoting, for example, restoration and protection of lands that are particularly hazard-prone or that have a high hazard-protection value (e.g., wetlands can reduce the impacts of storm surge).

Currently available information and tools in this series include:

- **Community Vulnerability Assessment Tool**

Learn how to conduct a risk and vulnerability assessment using a geographic information system (GIS) for your community.

Visit www.csc.noaa.gov/rva_tools.

- **Hazard Assessment Tools (HAT)**

This easy-to-use Internet mapping application helps users identify the potential hazards that affect a location. Learn more about how you can set up HAT for your community. Visit www.csc.noaa.gov/hat.

- **Coastal Inundation Mapping Training**

This GIS-based course focuses on elevation data, vertical datums, and mapping inundation, as well as specific inundation mapping products. For additional information, contact Steve.Walker@noaa.gov.

- **Storm Mapping Tutorials**

Find the data and tools you need before, during, and after the storm and learn how to map forecast and observation-based data.

Visit www.csc.noaa.gov/storm_info.

- **No Adverse Impact (NAI) in The Coastal Zone Handbook and Training**

These resources describe the “do no harm,” policy-based approach to floodplain management. The handbook provides seven “how-to” chapters that explain the strengths and weaknesses of the three levels of protection. Visit www.floods.org and see “Coastal NAI Handbook.”

- **Coastal Community Planning and Development Training**

NOAA, the Environmental Protection Agency (EPA), and state coastal resource management agencies have developed an introductory, two-day course that actively engages participants in learning alternatives to how and where growth will occur in their communities. It provides them with the background, examples, and strategies to support alternative development efforts in coastal communities.

Visit www.csc.noaa.gov/training/comm_plan.html.

- **Collaborative Approaches to Hazards Mitigation Workshop**

This workshop provides an opportunity for floodplain managers, coastal resource managers, emergency managers, and planners to better understand the roles of each in managing hazards and land use. It also helps participants determine how to leverage their common resources. For additional information, please contact Pam.Kylstra@noaa.gov.

- **Habitat Priority Planner**

This spatial decision-support tool is designed with the local planner, coastal conservation group, and coastal manager in mind. The tool assists users in prioritizing important areas in the landscape or seascape for conservation or restoration action.

Visit www.csc.noaa.gov/hpp/.

- **Applying Social Science to Coastal Management**

This Web resource provides tools, training, and information on the ways in which social science can be applied to managing our coasts.

Visit http://maps.csc.noaa.gov/socialscience_2/index.jsp.

Upcoming tools and information in this series include:

- **Coastal Community Resilience Guidebook**

– forthcoming

Developed as part of the U.S. contribution to the Indian Ocean Tsunami Warning System, this guidebook guides communities through the process of assessing and improving resilience to coastal hazards.

- **Risk-Wise Resilience Calculator** – forthcoming

How can you know the community impacts of your land use and risk management decisions? The RiskWise calculator will guide you through a series of questions to determine your community's resilience, and it also provides resources that help you learn how to increase resilience.

Ongoing Pilot Projects in this series include:

- **Coastal Storms Program**

Included are a series of regional pilot projects to reduce the adverse impacts of storms in coastal areas by drawing upon wide-ranging expertise from across NOAA. The products developed through individual pilots cover a variety of storm-related issues, which range from community risk and vulnerability assessments to flood response and improved weather forecasting. Visit www.csc.noaa.gov/csp/.

- **Community Perspective on Resilience**

Case Studies

This project works with several neighborhood communities to identify how residents view resilience to different stressors, and it captures their stories to share with other coastal communities.

- **Ecosystem-Based Approach to Coastal Hazards Management: Long Island Case Study**

In this case study, The Nature Conservancy and NOAA Coastal Services Center explore ecosystem-based approaches for increasing community resilience to storm surge and sea-level rise.

- **Resilient Approaches to Regional Growth Scenarios: Mobile Bay Case Study**

In this case study, public- and private-sector partners are coming together to plan for regional growth alternatives that incorporate resilience concepts

and practices.

- **Community Resilience Indicators: Coastal Louisiana and Texas Case Studies**

These case studies involve identifying and quantifying indicators and measures of resilience in three coastal communities of different sizes and characteristics.

This pilot program will develop coastal community resilience indicators. A series of Resilience Salons were held during 2007 to develop a basic understanding of coastal resilience and stakeholder needs for its assessment. During these “salons”, the following common characteristics of resilient communities were identified:

- communities learning from previous experiences with hazards and disasters;
- economic risk reduction (the value of mitigation);
- business size (larger is more resilient);
- shared values and sense of place (personal and community);
- leadership (or a local champion); and local understanding of risk and responsibility.

For further information, see: NOAA, Coastal Services Center (2007). Summary of the NOAA Three community Resilience Salons. Washington D.C.: NOAA, Coastal Services Center, http://www2.nos.noaa.gov/gomex/coastal_resil/resil_salons_3summary.pdf.

One of the pilot studies to develop such indices is conducted by the Gulf of Mexico Alliance (www2.nos.noaa.gov/gomes/coastal_resil/welcome.html). It involves a community self-assessment on how the community might fare in a disaster. The outcome is a scorecard, focused on four elements:

- (1) The location and likely impacts of the “storm of record” on critical facilities (sewage treatment, power grid, water purification, transportation, city hall, police and fire stations, communications, emergency operations center, evacuation shelters, hospitals);
- (2) Evacuation route problems post-event;
- (3) Access to or implementation of hazard planning guidance; and
- (4) The use of hazard mitigation measures.

For further information, see Emmer, R. (2007). Draft resiliency index score card. NOAA, Gulf of Mexico Alliance Working Website: http://www2.nos.noaa.gov/gomex/coastal_resil/resil_index_score_draft.pdf

C. Non-Governmental Organizations Working on Resilience

1. Climate Adaptation: ICLEI's Climate Resilient Communities Program

http://www.icleiusa.org/programs/climate/Climate_Adaptation

The Climate Resilient Communities™ Program assists local governments in enhancing community resiliency to the impacts and costs associated with projected climate change. The program builds upon the highly successful Five Milestone Methodology that ICLEI established for climate change mitigation. Participating communities will assess vulnerabilities, establish targets and goals, and plan and take action to enhance their resiliency to a changing climate.

In 2006, ICLEI members unanimously passed a resolution to expand the organization's renowned climate protection campaign, which has been the cornerstone of ICLEI's work for more than 15 years, from strictly climate change mitigation to also include climate adaptation. The creation of the Climate Resilient Communities Program stems from this commitment.

For more details, see the Program Overview (links)

1. [Structure and goals of the Climate Resilient Communities Program](#)
2. [Climate Resilient Communities Fact Sheet](#)
3. [The importance of climate adaptation for local governments](#)
4. [ICLEI's Five Milestones for Climate Adaptation](#)

2. Business Resilience Certification Consortium

International

<http://www.brcci.org/>

BRCCI provides professional certification programs in business resilience encompassing business continuity and IT disaster recovery, business continuity audit, and enterprise risk management.

3. The Oregon Partnership for Disaster Resilience

<http://www.oregonshowcase.org/>

The Partnership is a coalition of public, private, and professional organizations working collectively toward the mission of creating a disaster resilient and sustainable state. The Partnership is recognized by the Institute for Business & Home Safety (IBHS) as a Showcase State for Disaster Resilience. Developed and coordinated by the Community Service Center (CSC) at the University of Oregon the Partnership employs a service learning model to increase community capacity and enhance disaster safety and resilience statewide. Below are brief summaries of the Partnership's current programs.

Includes:

- Pre-Disaster Mitigation Planning.
- Emergency Management Program.
- Post-Disaster Recovery Planning for Catastrophic Disasters.

4. World Resources Institute (publication)

World Resources 2008: Roots of Resilience - Growing the Wealth of the Poor

<http://www.wri.org/publication/world-resources-2008-roots-of-resilience>

World Resources 2008 argues that successfully scaling up environmental income for the poor requires three elements:

- **Ownership** – a foundation of good governance that both transfers to the poor real authority over local resources and elicits local demand for better management of these resources.
- **Capacity** – making good on this demand requires building local capacity for development-in this case, the capacity of local communities to manage ecosystems competently, carry out ecosystem-based enterprises, and distribute the income from these enterprises fairly.
- **Networks** – the third element is establishing adaptive networks that connect and nurture nature-based enterprises, giving them the ability to adapt, learn, connect to markets, and mature into businesses that can sustain themselves and enter the economic mainstream.

The result is communities with increased resilience: economic, social and environmental. Such outcomes take on added import as it becomes increasingly clear that the impacts of climate change are likely to have their biggest effect on those areas where most of the world's poor live: drylands, low-latitude geographies and high-stress watersheds.

5. Center for Clean Air Policy: Urban Leaders

Adaptation Initiative

<http://www.ccap.org/index.php?component=programs&id=6>

Climate change causes disruptions to human, natural and built systems. It disproportionately impacts poor and vulnerable populations that have limited resources to adapt. Built systems, including water infrastructure, buildings and transportation systems, are vulnerable to more frequent extreme weather events. Local governments are the "first responders" to social, environmental and economic disruptions resulting from natural disasters and must anticipate, prepare for and adapt to the impacts of climate change while minimizing greenhouse gas (GHG) emissions.

In partnership with government leaders from several large counties and cities, CCAP launched the Urban Leaders Adaptation Initiative to:

- Serve as a resource for local governments as they face important infrastructure and land-use decisions that affect local adaptation efforts; and
- Empower local communities to develop and implement climate resilient strategies.

Partners and Stakeholders

Urban Leader partners are representatives from:

- [Chicago](#);
- [King County \(Washington\)](#);
- [City of Los Angeles](#),
- [Miami-Dade County \(Florida\)](#);
- [City of Milwaukee](#);

- [Nassau County \(New York\)](#);
- [Phoenix](#);
- [San Francisco](#); and [Toronto](#).

With its charter partner, Washington State King County Executive Ron Sims, and new core funding from the Rockefeller Foundation, CCAP's vision is to examine projected climate impacts in 2050 and "back cast" to identify what steps are necessary to reduce GHG emissions and build community resiliency.

Program Goals and Objectives

Over the course of the next two to three years, CCAP and its partners will:

- Operationalize key steps of the adaptation process with the end goal of implementing one or more specific policies and/or programs that incorporate resiliency strategies;
- Formulate recommendations that help advance the development of national adaptation policy and/or programs that support local resiliency efforts; and
- Disseminate findings on partners' actions and successes to inform and motivate other local communities in the U.S. and worldwide.

D. Health and Human Development Oriented Resilience Initiatives

1. The Resiliency Center

<http://www.resiliencycenter.com/>

- Your resource to develop resiliency in yourself, your work teams and your organization.
- A large collection of online resources for personal, psychological and organizational resilience.

2. ResilienceNet

<http://resilnet.uiuc.edu/>

Provides information for helping children and families overcome adversities. Focus on psychological resilience.

3. Project Resilience

<http://projectresilience.com/index.htm>

Project Resilience is a private organization based in Washington, DC. We offer [teaching materials and products](#), provide [training](#) and [disseminate information](#) for professionals working in education, treatment, and prevention. We promote a strengths-based approach to both youth and adults struggling to overcome hardship, for instance family disruption, poverty, violence, substance abuse, and racism. Our hallmarks are a balanced psychological model that includes pathology *and* mental health, a developmental vocabulary of strengths, and

culturally diverse materials.

4. The National Resilience Resource Center

<http://www.cce.umn.edu/nrrc/overview/index.html>

The National Resilience Resource Center (NRRRC) assists school, community, and organizational leaders in enhancing capacity to tap natural, innate health or resilience of youth, families, communities, and systems. The goal is to assist leaders to view all students, residents, clients, or organizations as "at promise" rather than "at risk." See "From the Inside: Kathy Marshall helps communities find peace by fostering resilience."

This operating philosophy is grounded in resilience research spanning more than 50 years in a wide variety of disciplines. The primary NRRRC strategy for tapping resilience has been developed from a best practice known as Health Realization. This resilience operating philosophy is the foundation for ongoing NRRRC educational programs and technical assistance designed to promote full human development and well-being, and improve program outcomes.

National Resilience Resource Center (NRRRC) provides:

- Training.
- Presentations, keynote speakers.
- Short classes and programs.
- Systems change initiatives.
- Technical assistance.
- Customized special services.

NRRRC offers both brief and extended services customized to meet the needs of schools, community-based organizations, collaboratives, other organizations, and individuals. The long-term process of systems change usually spans two to five years or more. The Center does offer selected programs for individuals and teams who are not engaged in a system-wide resilience initiative. Short presentations, conference keynote speakers, consultation, and program evaluation services are also provided.

Additionally, NRRRC provides a selection of U of MN graduate and undergraduate credit courses on resilience and health realization. In some instances, these would be developed collaboratively with other entities. Currently, two courses offer two graduate or undergraduate credits. A course co-developed by NRRRC with School of Nursing faculty, "Spirituality and Resilience," is offered jointly by the College of Continuing Education and the Center for Spirituality and Healing. A separate course is offered in two formats: "Introduction to Resilience/Health Realization" is offered at the University or through offsite NRRRC training participation.

5. Institute for the Study of Human Resilience

Boston University

Sargent College of Health and Rehabilitation Sciences

<http://www.bu.edu/resilience/>

Research is focused on people facing significant life challenges (e.g., serious illness, trauma, disability, or disadvantage). People are resilient and can significantly improve the healing process when they have access to knowledge, self-help resources, skilled professionals, sustaining environments, and social justice.

6. Arizona State University Resilience Solutions Group

<http://www.asu.edu/resilience/>

The Resilience Solutions Group (RSG) is an interdisciplinary team of researchers, educators and public health-minded citizens united in their commitment to helping individuals and communities become more resilient.

Offers resources, workshops, publications, and face-to-face consultation to improve individual and community resilience.

E. Engineering Resilience

1. Resilience Engineering

<http://www.resilience-engineering.org/>

The term Resilience Engineering represents a new way of thinking about safety. Whereas conventional risk management approaches are based on hindsight and emphasise error tabulation and calculation of failure probabilities, Resilience Engineering looks for ways to enhance the ability of organizations to create processes that are robust yet flexible, to monitor and revise risk models, and to use resources proactively in the face of disruptions or ongoing production and economic pressures. In Resilience Engineering failures do not stand for a breakdown or malfunctioning of normal system functions, but rather represent the converse of the adaptations necessary to cope with the real world complexity. Individuals and organisations must always adjust their performance to the current conditions; and because resources and time are finite it is inevitable that such adjustments are approximate. Success has been ascribed to the ability of groups, individuals, and organisations to anticipate the changing shape of risk before damage occurs; failure is simply the temporary or permanent absence of that.

The Resilience Engineering Network

The Resilience Engineering Network (R.E.N.) is an open organisation of people and places that are engaged in the development and application of Resilience Engineering. Any dedicated activity on resilience engineering can join the network, as a resilience engineering node (see below). While it is in the nature of a network, that there is no center and that all nodes are equally important, the node in Sophia Antipolis will for practical reasons serve as a host node for information about the network and also provide the basic

administration facilities. The URL for the Sophia Antipolis node is <www.resilience-engineering.org>.

2. The Infrastructure Security Partnership

http://content.asce.org/oldcefi2007/download/Binder_Handouts/Guide_for_an_Action_Plan_to_Develop_Regional_Disaster_Resilience.pdf

“GUIDE FOR AN ACTION PLAN TO DEVELOP REGIONAL DISASTER RESILIENCE”: (2006)

The Infrastructure Security Partnership (TISP) was created shortly after September 11, 2001, by 11 professional/technical organizations and federal agencies to minimize the effects of terrorism and natural disasters on the United States. TISP partners, representing the design and construction communities, local, state, and federal agencies, and other organizations concerned with disaster preparedness, collaborate to develop and implement cost-effective solutions to enhance the resilience of the nation’s critical infrastructure by leveraging their collective resources, experience, technical expertise, research and development capabilities, and knowledge of public policy regarding natural and man-made disasters.

F. Selected Foundation Initiatives

1. The Rockefeller Foundation

Climate Change Resilience

http://www.rockfound.org/initiatives/climate/climate_change.shtml

The Rockefeller Foundation **Climate Change Initiative** catalyzes attention, funding, and action in building climate change resilience for poor and vulnerable people globally by:

- Creating robust action models of climate change resilience for poor and vulnerable people.
- Funding, promoting, and disseminating those models.
- Increasing pressure on funders, practitioners, and policy-makers to support increased funding and action for climate change resilience for poor and vulnerable people.

The program sponsors and partners with both U.S. and Asian cities.

2. The J. W. McConnell Family Foundation

Creating Resilient Communities Program Area

<http://www.mcconnellfoundation.ca/default.aspx?page=156&lang=en-US>

Communities whose members are actively engaged are often called healthy or vibrant: they are open to new ideas and ways of working; in short, they are *resilient*.

Resilient communities can manage change, uncertainty, and the unexpected over the long term. They deal with complexity, and have the capacity for renewal and innovation

in the face of rapid transformation or crisis. Resilient communities develop with an eye to the future.

Preparing for tomorrow means ensuring the environmental sustainability of a community as well, neither exhausting its natural capital nor damaging the life systems upon which it relies.

The Foundation's grants to promote environmental sustainability have focused on ways to engage Canadians in their roles as learners, producers and consumers, to be better informed and more active environmental stewards. Governments and corporations carry a critical responsibility to protect the environment; as citizens we must hold them to account and act responsibly ourselves.

A major Foundation initiative for youth and children is the Green Street program; other grants have aimed to strengthen the environmental movement through capacity-building for national organizations and encouraging funding at the local level; and, finally, other grants have helped Canadians make environmentally responsible choices in their daily lives.

A resilient community is inclusive, it values the diverse traditions and talents of all its members, especially those who have faced obstacles or lacked opportunity; it believes that everyone has a contribution to make, and a responsibility to do so.

Resilient communities are open to innovation, are entrepreneurial in spirit, and promote the development of the next generation.

Many of the Foundation's grants to organizations working with people with disabilities, including PLAN, L'Arche, and L'Abri en ville promote a vision of a society that accepts and embraces all its members as citizens in the fullest sense. CEDTAP and Renaissance Montréal, on the other hand, aim to create economic opportunity for people lacking skills or affected by economic dislocation, while the Community Leadership Network builds on earlier Foundation support for the development of new leadership that is active, knowledgeable, and diverse, in cities across Canada.

3. Honor the Earth Foundation

Native Americans in Philanthropy

http://nativephilanthropy.org/news/request_proposals/021309

Honor the Earth is currently seeking funding proposals for its Building Resilience in Indigenous Communities Initiative. Honor the Earth's 2009 spring grant-making cycle will fund work that builds resilience in Indigenous communities. While not a departure from the types of work that Honor the Earth has historically funded, Honor's resiliency funding guidelines are unique and do not include the entire scope of previous granting.

4. The Christensen Fund

<http://www.christensenfund.org/index.html>

Excerpts from the Vision and Purpose Statement:

The Christensen Fund crafts its grant making and other activities on the conviction that worldwide diversity – both cultural and biological – is hugely valuable and should be cared for.... The presence of these diversities is inherently resilient and enhances ability to adjust to the unexpected twists and turns of time and to the threats posed by globalization, nationalism and unsustainable development. ... The links between culture and landscape are constantly in motion in response to social and ecological changes. The longevity of many local cultures and their landscapes in spite of repeated upheavals are evidence of robust and adaptable ecologies, values and logics, knowledge and practices. The tight integration and capacity for innovation inherent in these diverse systems renders them both profoundly functional and beautiful.

The Christensen Fund has chosen to focus its efforts on regions of the world that exemplify this resilience, harbor exceptional biocultural values, and possess the regenerative potential to survive the current erosion of the world's diversity and seed its recovery.

Geographic Focus:

- The Greater Southwest (Southwest USA and Northwest Mexico).
- Central Asia and Turkey (currently focusing on the mountains and associated valleys of Northeast Turkey, the Kyrgyz Republic and Tajikistan).
- The African Rift Valley (especially Southwest Ethiopia and also Northern Kenya).
- Northern Australia (currently focused on Arnhem Land, Far Northern Queensland, the Kimberley and the Torres Strait Islands).
- Melanesia (sub-region of Papua New Guinea and Vanuatu).

G. United Nations Programs

1. UN Resilient Communities & Cities Partnership

Program (last updated in 2004)

<http://webapps01.un.org/dsd/partnerships/public/partnerships/103.html>

The goal of the Resilient Communities & Cities Partnership Program is to support the development of greater resilience in the institutions, infrastructure, and social and economic life of cities and towns worldwide through urban management and participatory governance. A Resilient Community is a city, town or neighborhood that reduces its vulnerability to dramatic change or extreme events and responds creatively to economic, social and environmental change in order to increase its long-term sustainability.

Guided by the formula "Sustainability=Resilience/Risk," the program seeks to develop a methodology for local resilience management, which will increase the resilience of a city

or community to a range of shocks, crises, and disasters including environmental emergencies, industrial accidents, outbreaks of epidemics, economic shocks, natural disasters, terrorist attacks, and social conflict. In the Resilient Communities & Cities Partnership Program, the concept of resilience encompasses both the resilience of cities (the natural and built environment, including infrastructure) as well as the resilience of communities (social and political structures).

The program will focus on introducing policies, tools and methods developed in the disaster management community into the established worldwide movement for sustainable communities, thereby linking preventative

disaster management know-how with established local methods for participatory sustainable development planning (also known as Local Agenda 21 planning).

The Partnership Program is composed of eight elements: partnership program management and capacity building; documentation and promotion of good policies and best practices; inventory and review of mechanisms for local resilience management; recruitment of pilot cities; methodology, modeling and system development; pilot projects in six municipalities; project learning and experience; and project documentation and products.

Partner is the ICLEI program: <http://www.iclei.org/rcc> (see above).