

# **SUSTAINABILITY RECOMMENDATIONS FOR COMMUNITY RELOCATION**

## **SUBMITTED TO THE IMMEDIATE ACTION WORKGROUP**

BY  
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I am grateful for having had the opportunity to attend most of the Immediate Actions Workgroup meetings in person or via teleconference. It has been an honor and a pleasure to take part in the planning process for community relocation. I want to express my gratitude, respect, and admiration for the IAW members, other public participants, and especially the members of the imperiled communities for their tireless dedication, hard work, great ideas, respectful collaboration, and sincere desire to advance this important work. I have also appreciated the group's receptivity to ideas and recommendations for making sustainability an integral part of the plans for relocation.

At the IAW's request, I have given two presentations on sustainability: one to the full IAW and one to the Newtok Planning Group. Sustainability was already a priority of the group, and I am pleased to see that it continues to be addressed in the latest draft of the IAW Policy and Research Recommendations. I have also been asked to offer written sustainability recommendations for consideration by the IAW, which I have included below.

The global community has shown broad and increasing commitment to sustainability and sustainable development, from the local grass-roots level to national and international policies and programs. Many communities around the world, from small villages to major cities, are transforming themselves into sustainable communities. There is growing recognition that living sustainably is not only the "right thing to do," it is critical to our long-term success and survival. As the impacts of climate change and other major pressures on human and natural systems intensify, the need for sustainability becomes increasingly evident and urgent. Sustainability is not just about the natural environment; it improves human wellbeing, increases security, and makes sound economic sense as well.

Alaska is navigating an uncharted course as we begin to grapple with some of the Earth's most rapid and severe climate change impacts. There are no contemporary models to guide our

adaptation; the world will soon be looking to Alaska for leadership and examples. As we begin our transformation in these first imperiled coastal villages, we have great responsibilities and opportunities to plan wisely and build communities that are resilient, adaptable, and sustainable in the face of ongoing change.

For these reasons I urge the Immediate Actions Workgroup to recommend the appointment of a task group to develop a separate, clearly defined, and detailed set of recommendations specifically targeting sustainability as a primary, funded goal of Relocation Assistance Policy. I have provided a draft outline as a potential framework, summarized below and detailed in the following pages. It is by no means complete or comprehensive, but I hope it provides a useful starting point.

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**Community Sustainability Recommendations:**

- I. Sustainability & Self-Reliance: General Concepts
  - II. Sustainability Policy Strategies Based on Resilience Science
  - III. Sustainable Design & Technologies for the Built Environment
  - IV. Social, Cultural, & Economic Sustainability
  - V. Ecological Sustainability
  - VI. Sustainable Community Planning, Implementation, and Operation
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At the request of the IAW or later workgroups, I will be happy to contribute to the refinement of these ideas in collaboration with a sustainability task group made up of representatives from communities, agencies, and other stakeholder organizations.

I am aware that many of these items have been addressed in the Immediate Action Workgroup Relocation Assistance Policy Recommendations draft, and many are already being pursued by various individuals and groups involved in the relocation effort. The framework draft offered here is intended only to present a set of ideas that I believe are important in developing plans for community sustainability. There is no implication of what is or is not already in progress.

Thank you sincerely for considering these recommendations.

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# SUSTAINABILITY RECOMMENDATIONS FOR COMMUNITY RELOCATION

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## RECOMMENDATION I:

### **SUSTAINABILITY & SELF-RELIANCE: GENERAL CONCEPTS**

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- 1) **Create our own definition of Sustainability / Sustainable Development that removes ambiguity and addresses Alaskan issues.**
  - a. See Appendix A for examples being used by various organizations.
  - b. Most conventional definitions of sustainability / sustainable development state or imply that:
    - (i) It seeks to sustain important and desirable features of a system, but not to keep it static. Development / change are expected to occur.
    - (ii) It applies to complex, interacting systems, all of whose key components must be sustainable in order for the system to be sustainable.
      - It targets those components of the system that are essential for continued operation of the system AND those features of the system that are deemed most desirable.
      - Systems are typically broken down into three main sub-systems or “pillars” of sustainability: economic systems, social systems, and ecological systems.
    - (iii) It addresses needs and conditions of the present and the future and seeks equity across present society and across generations.
  - c. Most conventional planning for sustainability assumes the future will be like the present; we know this is not the case.
  - d. Our definition should address the conventional concepts listed above, AND:
    - (i) The need to understand sustainability in a directionally changing world.
    - (ii) The amplified impacts of climate change, polar concentration of persistent organic pollutants, and other forces of global change that may be magnified in Alaska.
    - (iii) Characteristics specific to Alaska, including our cultures, lifestyles, wildlife, opportunities, and other characteristics we consider to be important and unique.
- 2) **Recognize communities as complex social-ecological systems whose dynamics and interactions must be integral to the planning process. Complex system characteristics:**
  - a. Composed of specific components with specific boundaries.
  - b. Components are mutually interdependent.
  - c. Processes and interactions are complex, dynamic, and extremely important.

- (i) Flows of information, energy, and materials within, into, and out of the system.
  - (ii) Feedbacks and past conditions constantly affect the system, often with long lag times.
  - (iii) There are constraints and controls over behaviors of system components.
- d. Impossible to predict all outcomes; must be flexible and prepared for surprises.
- 3) Plan sustainability strategies targeting ALL of the primary components of a sustainable community: economic, social/cultural, and ecological/environmental**
- A system cannot continue function indefinitely at healthy / desirable levels unless all of its interdependent components do so. The same applies to sustainable development, as described by the United Nations: *The principle of sustainable development rests on three interdependent and mutually reinforcing pillars: economic development, social development, and environmental protection at national, regional and global levels.* (United Nations Department of Economic and Social Affairs).
- 4) Build community capacity and support local control and self-reliance as the cornerstone of assessment, planning, implementation, and management of the new community.**
- 5) Couple system inputs, outputs, processes, interactions whenever possible to maximize efficiency and take advantage of resources that are currently wasted.**
- a. Assess the “lifecycle” of each of the subsystems within a community to determine its inputs, outputs, functions, processes, and interactions.
  - b. Look for ways the “outputs” of one system can be used as the “inputs” to another.
  - c. Look for creative ways to combine functions / processes / interactions.
- 6) Rely on as much as possible on local people, materials, and other resources.**
- 7) Expand cooperation and build innovative partnerships with agencies, foundations, non-profits, and other organizations to develop and strengthen human and financial capital.**

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RECOMMENDATION II:

**BASE SUSTAINABILITY POLICY STRATEGIES ON RESILIENCE SCIENCE**

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Sustaining the desirable characteristics of complex social-ecological systems under conditions of rapid, large-scale, surprise-laden directional change is a daunting task. Fortunately we are also rapidly improving our holistic understanding of the complex system dynamics at play through many channels, including the blossoming field of resilience science. Resilience is a relatively new, trans-disciplinary, and applied field that draws from the entire spectrum of natural and social sciences to provide a holistic and far more realistic understanding of complex social-ecological systems than any one field can achieve. It provides powerful tools for understanding, assessing, and responding to the driving forces of change operating upon and within systems, from local to global levels and over time. Its holistic, systematic approach provides a way of understanding important conditions and interactions in the context of the “big picture” of a given system. This facilitates the establishment of concrete goals, benchmarks, and indicators for moving toward the goal of sustainability. A resilience framework can be tailored to the specific conditions of any given social-ecological system – including a community facing relocation – to assess its current conditions and likely trajectories, and to plan a course toward sustainability. Because all

components and dynamics of a social-ecological system are so integrally linked, it is important that policy strategies be implemented concurrently and in complementary ways to maximize the societal benefits they each provide and to achieve greater and earlier sustainability.

**Note: Unless otherwise referenced, most of the information in this section was obtained from Chapin, *et al* (2006)<sup>1</sup>, and from discussions and lectures presented by Dr. F. Stuart Chapin at the University of Alaska Fairbanks.**

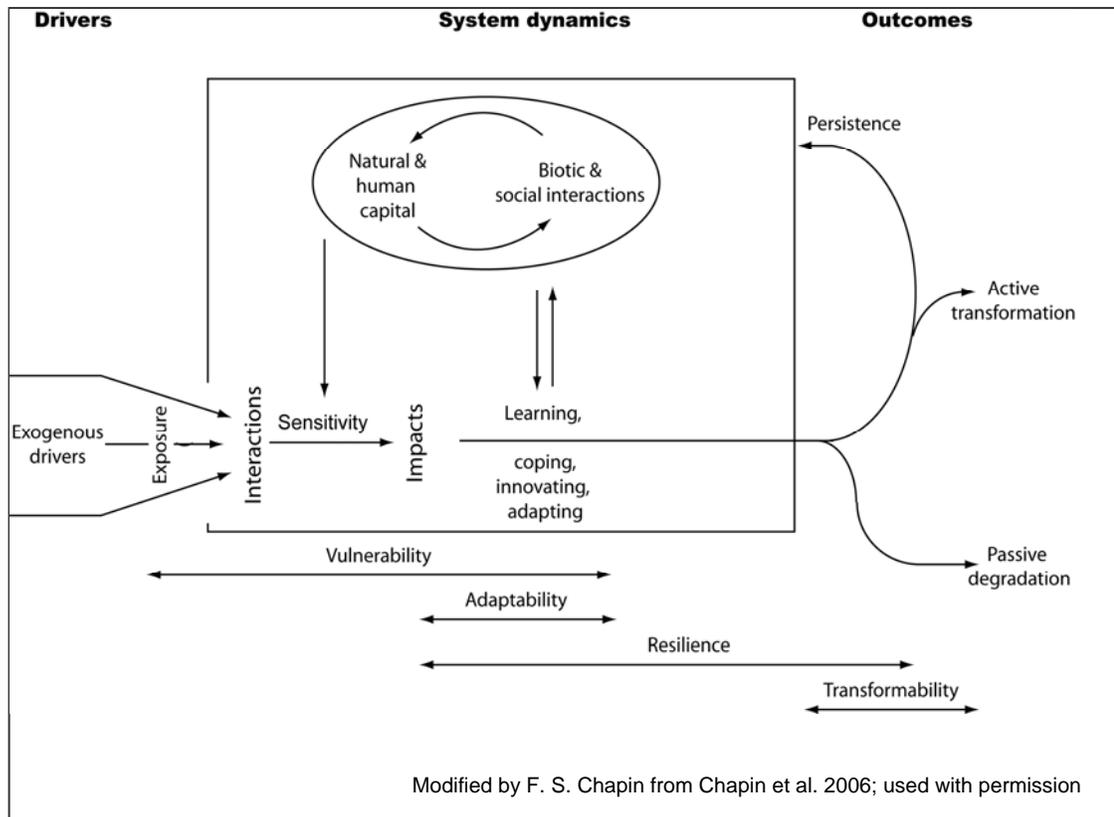


Figure 1: Conceptual Model of a Social-Ecological System

### 1) Policy Strategies to Reduce Vulnerability

**Vulnerability** indicates the degree of harm a system is likely to experience from exposure to a given source of stress. A system's vulnerability can be reduced by reducing its exposure to the stressor; by reducing the sensitivity of its response mechanisms to the stress, or by strengthening its ability to cope with, or adapt to the stress exposure.

- a. Reduce exposure to stress and adhere to the precautionary principle
- b. Minimize sensitivity to changes in controls caused by stress by sustaining / strengthening natural, social, economic, and institutional capital

<sup>1</sup> F. Stuart Chapin, I., Lovcraft, A. L., Zavaleta, E. S., Nelson, J., Robards, M. D., Kofinas, G. P., Trainor, S. F., Peterson, G. D., Huntington, H. P., and Naylor, R. L., 2006: Policy strategies to address sustainability of Alaskan boreal forests in response to a directionally changing climate. *Proceedings of the National Academy of Sciences* 103: 16637-16643.

- c. Enhance equality of opportunity among stakeholders to reduce exposure / sensitivity of most vulnerable components of system
- d. Follow existing frameworks for reducing sustainability to climate change in Arctic communities, such as found in Ford, *et al* (2004).<sup>2</sup>

## 2) Policy Strategies to Enhance Human Adaptive Capacity

**Adaptability** is a measure of the degree to which groups and individuals can successfully respond and adjust to changes in the system or to *create* change in the system, in order to minimize harm from stress or benefit from opportunities. Human adaptability is already the fundamental determinant in social-ecological system dynamics. This is particularly true under conditions of surprise and sudden shifts in system conditions, which are likely to increase with climate change. Policies to enhance human adaptive capacity should build and diversify social capital by promoting learning and encouraging innovation for adjusting to change across multiple scales.

- a. Foster social, ecological, economic, and institutional diversity to increase the range of options for response
- b. Foster diverse social learning that integrates multiple knowledge systems and approaches
- c. Encourage experimentation and innovation
- d. Effective governance with a high degree of local control

## 3) Policy Strategies to Enhance Resilience

**Resilience** is the ability to “bounce back” from the impacts of a shock to the system without suffering net directional change in the fundamental identity, structure, functions, or feedbacks in the system. Resilience is not always positive. Undesirable states, such as pollution, habitat degradation, social injustices, economic hardship, etc. can be highly resilient and persistent. It is therefore important to recognize and differentiate among the features of a community that should, and should not be sustained.

- a. Sustain legacies, such as cultural memory and biodiversity, that provide seeds for recovery
- b. Resilience learning that builds flexibility by reducing uncertainty, expecting surprises, and planning for the long term
- c. Develop and strengthen stabilizing feedbacks within the system
- d. Allow small disturbances to occur to maintain “patchiness” (diversity) of the system to buffer it from impacts
- e. Adaptive governance and adaptive management that share power and promote participation from all sectors
- f. Develop alternative scenarios of future change for more informed planning

## 4) Policy Strategies to Enhance Transformability

**Transformability** is the capacity to transition to a new set of system characteristics if the current system cannot or should not be maintained. High transformability means being alert and ready to

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<sup>2</sup> Ford, J. D. and Smit, B., 2004: A Framework for Assessing Vulnerability of Communities in the Canadian Arctic to Risks Associated with Climate Change. *ARCTIC*, 57: 389-400.

take advantage of new opportunities or to avoid severe consequences of remaining at the current state. Transformation is often triggered by a crisis – the combination of danger and opportunity.

- a. Enhance adaptability and diversity
- b. Enhance capacity to learn from crisis by providing education and incentives that encourage “thinking outside the box”

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RECOMMENDATION III:

**SUSTAINABLE DESIGN & TECHNOLOGIES FOR THE BUILT ENVIRONMENT:**

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**1) Utility systems:**

- a. Modular “neighborhood” units vs. large-scale fixed infrastructure.
- b. Couple multiple-system inputs, outputs, and processes:
  - (i) Example: A high-efficiency anaerobic sewage digestion system that:
    - Consumes sewage & garbage waste as a feedstock.
    - Eliminates the need for a sewage lagoon.
    - Reduces landfill.
    - Produces heat for its own space and an adjacent greenhouse.
    - Produces CO<sub>2</sub> that can be consumed by greenhouse plants to enhance growth.
    - Produces natural gas for heating or transportation fuel.
    - Produces clean, mineral-rich greenhouse soil.
    - Produces near drinking-quality water.

**2) Energy:**

- a. Major emphasis on conservation & efficiency.
- b. Diversified, decentralized sources that feed into “neighborhood” or community grid.
- c. Redundant energy systems that allow for fuel selection and back-ups.
- d. Co-generation of heat and power.
- e. Reduce dependence on fossil fuels.
- f. Renewable energy:
  - (i) Install currently feasible, climate-appropriate systems.
    - Wind: vertical-axis turbines.
    - Solar: high efficiency photovoltaic and passive solar / natural light.
    - Biomass: local feedstocks (fish wastes, wood, garbage, sewage).
    - Others as local resources allow (geothermal, small hydro, etc.).

- (ii) Design for easy integration of new systems as they become feasible.

**3) Water:**

- a. Local renewable source.
- b. Community distribution via truck to home or modular “neighborhood” tanks.
- c. Delivery tank truck could double as community fire truck.

**4) Food:**

- a. Develop / expand local capacity to grow, harvest, process, and store foods.
- b. Provide research-based nutrition guidelines and procurement recommendations.
- c. Establish pricing mechanisms to enable healthier food purchases and discourage unhealthy choices.
- d. Establish / expand purchasing & distribution cooperatives to reduce costs.

**5) Buildings:**

- a. Design and build to standards of LEED or other “green building” guidelines.
  - (i) Commission building systems even if certification is not sought.
  - (ii) Comparable capital costs if planned from the beginning (USGBC has estimated “green buildings” cost  $\pm$  2-3% compared with conventional building costs)
  - (iii) Consider benefits financial beyond capital costs:
    - Significantly reduced O&M / life-cycle costs.
    - Occupant health & productivity are improved.
- b. High energy-efficiency.
- c. Non-toxic & low-toxicity materials.
- d. Use modular interior designs that are sturdy, attractive, and allow for:
  - (i) Inexpensive remodeling.
  - (ii) Quick, easy upgrades.
  - (iii) Flexibility to accommodate multiple uses.
- e. Appropriate to community lifestyles (subsistence, art, extended family, etc.).
- f. Facilitate cultural / community learning & activities.
- g. Appropriate to the climate and local setting.
  - (i) New cold-climate technologies.
  - (ii) Revive traditional Arctic technologies from the past.
- h. Facilitate economic development / entrepreneurial ventures.
  - (i) Tourism, arts, etc.

**6) Waste:**

- a. Materials recovery facility (MRF)

- (i) Mechanical & biological treatment technologies for solid waste separate and process biodegradable materials as feedstock for anaerobic digestion.
- (ii) Recovery of other usable materials
- (iii) Reduction in landfill space and “dispersal” problems

**7) Mobility:**

- a. Movable buildings and infrastructure to facilitate potential future relocation with ongoing climate change.
  - (i) Modular utilities
  - (ii) Homes / smaller buildings on movable foundations
  - (iii) Large buildings (e.g.: school) in modular sections that can be disassembled and reassembled.
- b. Plan for greater seasonal mobility to adapt to shifting availability of subsistence resources.

**8) Community layout:**

- a. Logistically efficient.
- b. Facilitate family / community interactions.
- c. Encourage walking.
- d. Efficient utility clustering / distribution.

RECOMMENDATION IV:

**SOCIAL, CULTURAL, & ECONOMIC SUSTAINABILITY:**

**1) Social:**

The social wellbeing of the community should be included as an integral part and important goal of planning for sustainability. The long-term social needs of the community should be determined by the community members and appropriate education, health, social services, recreation, and other experts and organizations.

- a. Local delivery of higher education and vocational training
- b. Training and support for providing more programs locally

**2) Cultural:**

Maintaining culturally important knowledge, practices, and sense of identity are critically important to all major sectors of community sustainability: social, economic, and ecological. Historic and recent success among Northern Indigenous communities in adapting to climate variability has been shown to rely heavily on traditional cultural practices (Ford, 2007<sup>3</sup>).

<sup>3</sup> Ford, J., Pearce, T., Smit, B., Wandel, J., Allurut, M., Shappa, K., Ittusujurat, H., and Qrunnut, K., 2007: Reducing Vulnerability to Climate Change in the Arctic: The Case of Nunavut, Canada. *ARCTIC*, VOL. 60, NO. 2 150-166.

- a. Facilitate and strengthen cultural attributes that will better enable communities to cope with climate change:
  - (i) Experience-based knowledge of the land, sea, and weather conditions
  - (ii) Skills for subsistence / self-reliance
  - (iii) Strong social networks for sharing and information exchange
  - (iv) Flexibility in seasonal subsistence activities
- b. Infrastructure support:
  - (i) Culture center for traditional gatherings and learning
  - (ii) Facilities for producing traditional products for use and sale (art, clothing, food products, etc.)
  - (iii) Facilities to support subsistence hunting and gathering, food processing, and storage
- c. Program support:
  - (i) Strong emphasis on Native language education and use
  - (ii) Strong Elder-youth interactions in formal and informal education

### 3) **Economics:**

Develop capacity and support for mixed cash-subsistence economies. Build and strengthen existing cooperation among communities, agencies, and organizations that provide education and employment support. Facilitate subsistence activities through infrastructure, cultural opportunities, flexible scheduling, and land access.

- a. Cash economy:
  - (i) Increase bandwidth to support online education and marketing
  - (ii) Local employment opportunities
  - (iii) Incentives for returning to communities following “outside” education and work
  - (iv) Incentives for entrepreneurial ventures based on uniqueness of local human and natural capital
- b. Subsistence economy:
  - (i) Flexible short-notice time-off from paid employment to take advantage of subsistence opportunities
  - (ii) Infrastructure, educational, and cultural support of subsistence activities as described above
  - (iii) Negotiation of broader land access agreements with adjacent landholders

### 4) **Couple the built environment with social, cultural, and economic systems with training that enables residents to build and operate community buildings and infrastructure to provide multiple long-term benefits:**

- a. Provides jobs
- b. Local labor reduces capital costs
- c. Improved O/M efficiency; reduced costs

- d. Keeps more resources in the communities
- e. New opportunities for youth to learn & lead
- f. Strengthens local control & self-reliance
- g. Enhances community identity

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RECOMMENDATION V:

**ECOLOGICAL SUSTAINABILITY:**

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Climate change and other global impacts on Alaska’s ecosystems are increasing, and this pattern is likely to increase in the future. It is imperative that relocation plans include provisions to protect the ecosystems surrounding communities. Understanding, monitoring, and management should be based on combined information and applied practices from local knowledge and research-based science.

**1) Local Ecosystem:**

- a. Adaptive co-management
  - (i) Adaptive refers to a flexible “learn as we go” approach with policy provisions to allow nimble management that can change easily in response to new observations and understanding.
  - (ii) Co-management refers to shared information gathering and management among appropriate stakeholders from local communities, agencies, research institutions, etc.
- b. Develop a user-friendly clearinghouse for pertinent ecological information: local knowledge, research data, predictive modeling, remote sensing maps and real-time data, etc.
- c. Focus management efforts on the critical “support ecosystem services” that provide the foundation for healthy, sustainable ecosystems. These include soil, nutrient cycling, and primary productivity.
- d. Support diversity of species and redundancy in the types of organisms that provide critical functions in the ecosystems
  - (i) Allow or induce small-scale disturbances (e.g.: fire, clearing, etc.) to enhance “patchy” environments at different stages of succession
  - (ii) Carefully introduce new species to provide food and/or important ecological services if the native species can no longer play this role
- e. Monitor and slow the spread of invasive species

**2) Regional / Global Ecosystems**

- a. Take advantage of Alaska’s experience of early and significant climate change impacts to act as a leading voice in calling for mitigation and adaptation strategies in national and international arenas.

- b. Support state, national, and international policies for mitigation of climate change, habitat loss, contaminants, and other threats to the biosphere

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RECOMMENDATION VI:

**COMMUNITY PLANNING, IMPLEMENTATION, AND OPERATION:**

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**1) Build Local Capacity for Community Planning Leadership:**

Building the capacity for community residents to play leading roles in the planning, implementation, and maintenance of the new community provides numerous social and economic benefits, and can ultimately reduce the long-term cost of the project significantly. It also improves local buy-in and collaboration with the multiple stakeholders involved. Ensuring proper operation and regular, timely maintenance of infrastructure, facilities, and equipment will maximize their efficiency, prolong their lifespans, and ultimately reduce costs and provide better service to the community.

Training and employing local people and supplying the necessary equipment and supplies to e

a. Planning:

- (i) Develop a program, based on proven sustainable community planning models (see last section) and culturally-appropriate Indigenous leadership practices.
- (ii) Train a team of relocation leaders from imperiled communities and stakeholder organizations who will act as trainers / facilitators for relocation planning in individual communities.
- (iii) Hold intensive, interactive, hands-on workshops with the relocation leadership in each community to develop individual community planning strategies. The community leaders should be equal participants in this process rather than “trainees.” The training team should act as facilitators and resources.
- (iv) Hold a series of local planning meetings, led by community relocation leaders and representatives from the training team, that invite and encourage the participation of all community residents. Such a process was used by architect Douglas Cardinal in planning the highly successful Ouje-Bougoumou Cree community in the James Bay region of northern Quebec. (See <http://www.cchrc.org/SNS%20Cardinal%20Summary.html>)
- (v) Use a positive approach, such as the “Appreciative Inquiry” method, that highlights community strengths and buoys the confidence and involvement of the local people. This approach has been shown to empower local community members to play a strong and productive role in developing a community that serves their needs and supports their way of life (see <http://www.iisd.org/ai/default.htm> ).

b. Implementation:

- (i) Give hiring preference to community residents
- (ii) When outside agents are contracted to provide services, specify in their contracts that they must provide skills training to local people appropriate for long-term

- operation, maintenance, and other needs associated with the services they are providing
- (iii) Provide education / training in the concepts and skills needed to relocate and build new structures
- (iv) Hire local people and provide additional on-the-job training in construction, operation, and maintenance of infrastructure and facilities
- (v) For highly specialized skills, train a few people from the region who can provide services as needed
- c. Operation & maintenance:
  - (i) Provide the community with the equipment and supplies needed to operate and maintain infrastructure and facilities
  - (ii) Select the least polluting and least toxic equipment and supplies
  - (iii) Train and certify local people for safely working with and properly disposing all hazardous materials they are likely to encounter

## 2) Use / Adapt Existing Models:

The international surge in sustainable community development provides a wide range of models that can be adapted for Alaskan community relocation planning. There is no need to reinvent the wheel! Several excellent examples are listed below, and many more are available.

- a. APA Planning for Sustainability Policy Guides: <http://www.planning.org/policyguides/sustainability.htm>
- b. ICLEI – Local Governments for Sustainability: <http://www.iclei.org/>
- c. Douglas Cardinal’s “Sustainable and Appropriate Shelter Issues for First Nations Peoples” description: <http://www.cchrc.org/SNS%20Cardinal%20Summary.html> ; presentation: <http://www.cchrc.org/SNS-Main.html>
- d. The Natural Step: <http://www.naturalstep.org/com/nyStart/>
- e. Sarah James & Associates: <http://www.sjamesassociates.com/>
- f. Sustain Dane: <http://www.sustaindane.org/index.htm>
- g. SeKom (National Association of Swedish Eco-municipalities): <http://www.sekom.nu/>
- h. Sustainable Sweden Association: <http://www.sustainablesweden.org/>
- i. International Institute for Sustainable Development: <http://www.iisd.org/>
- j. Appreciative Inquiry: <http://appreciativeinquiry.case.edu/>
- k. Indian and Northern Affairs Canada, Sustainable Development: <http://www.ainc-inac.gc.ca/sd/>
- l. Many additional models are in use internationally, and are available for adoption or adaptation.

**DEFINITIONS OF SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT**

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**Sustainability:**

- 1) The long-term health and vitality of economic, environmental, and social systems (from Sustainable Seattle)
- 2) Sustainability is a systemic concept, relating to the continuity of economic, social, institutional and environmental aspects of human society. It is intended to be a means of configuring civilization and human activity so that society, its members and its economies are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals indefinitely. Sustainability affects every level of organization, from the local neighborhood to the entire planet. Put simply, sustainability means providing for the best for people and the environment both now and in the indefinite future. (adapted from Wikipedia, <http://en.wikipedia.org/wiki/Sustainability>)
- 3) “Sustainability” ...implies that the critical influences and activities operating on and within the community are ecologically sound, socially just and economically viable, and that they will continue to be so for future generations. (adapted from University Leaders for a Sustainable Future)

**Sustainable Development:**

- 1) Sustainable development is “Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.” (from the Brundtland Report, World Commission on Environment and Development, 1987)
- 2) Beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent. (Council of Yukon First Nations)
- 3) Sustainable development is about how we meet the needs of people today, without compromising the ability of future generations to meet their needs. It is not an end point, but rather an approach to decision making. It recognizes that social, economic and environmental issues are interconnected, and that decisions must incorporate each of these aspects if they are to be good in the long term. It is an approach that will help us to achieve a healthy environment, a prosperous economy, and a vibrant and just society for current and future generations. (Environment Canada Sustainable Development Strategy (2004-2006))
- 4) (Sustainable development) must respect the environmental limits of the planet; ensure a strong, healthy and just society; contribute to a sustainable economy; use sound science; and promote good governance. (Government of United Kingdom - sustainable development website)