

**SEPTEMBER 2007 ROUNDTABLE WORKSHOP & MEETING**

**SPECIAL SESSION ON INDICATOR 38,  
RESILIENCE OF FOREST-DEPENDENT COMMUNITIES**

Submitted to the U.S. Roundtable on Sustainable Forests

by  
Kristen Magis, Ph.D.  
Leadership Institute  
and  
Portland State University

10/2/2007

## TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>5</b>
<b>WORLDVIEWS</b> .....	<b>5</b>
<b>DEFINITIONS</b> .....	<b>6</b>
Community.....	6
Forest-Dependent .....	8
Community Resilience .....	10
<i>Conditions Affecting Community Resilience</i> .....	13
<b>COMMUNITY CAPITALS</b> .....	<b>15</b>
Theory & Rationale.....	15
Alternative Models .....	16
Community Capitals.....	17
<i>Community Capital Relationships</i> .....	17
General.....	18
<b>PURPOSE &amp; AUDIENCE</b> .....	<b>18</b>
Purpose .....	18
<i>General</i> .....	18
<i>Provide Vital Sign</i> .....	18
<i>Decision- and Policy-Making Tool</i> .....	18
<i>Build Community Resilience</i> .....	19
Audience .....	20
<i>Changing Audience</i> .....	20
<i>Audience Types</i> .....	20
<b>AGGREGATION &amp; STRATIFICATION</b> .....	<b>21</b>
Scale.....	21
<i>Community Complexity &amp; Diversity</i> .....	21
<i>Community Information</i> .....	21
<i>Levels of Information Use</i> .....	21
<i>Defining the Information Need</i> .....	22
<i>Scale Phenomena</i> .....	22
<i>Problems with Scaling Up</i> .....	22
Aggregation .....	23
<i>Limited Utility of Aggregated Community Level Data</i> .....	23
<i>Aggregation to What Level?</i> .....	24
<i>Recommendations for Aggregation</i> .....	24

Stratification .....	24
<i>General</i> .....	24
<i>Dependency</i> .....	24
<i>Regional</i> .....	25
<i>Ownership</i> .....	25
<i>Urban/Rural</i> .....	25
<i>Threats</i> .....	25
<b>METHODS .....</b>	<b>26</b>
Sampling .....	26
<i>General</i> .....	26
<i>Representative Sample</i> .....	26
<i>Sample Selection</i> .....	26
<i>Sample Size</i> .....	27
Community Participation .....	27
<i>Local Knowledge</i> .....	27
<i>Community Partnership</i> .....	27
<i>Trust</i> .....	27
<i>Representation</i> .....	27
<i>Benefit to Community</i> .....	28
Case Studies.....	28
<i>Validity of Case Studies</i> .....	28
<i>Case Study Selection</i> .....	28
<i>General</i> .....	28
Protocol Administration.....	28
Associated Costs.....	29
<i>New Research</i> .....	29
<i>Investment</i> .....	29
<i>Affordable &amp; Effective</i> .....	29
<b>DATA.....</b>	<b>29</b>
General Requirements .....	30
<i>Relevant</i> .....	30
<i>Valid &amp; Reliable</i> .....	30
<i>Replicable</i> .....	30
<i>Comparable</i> .....	30
<i>Precise &amp; Parsimonious</i> .....	31

Data Availability .....	31
<i>Location</i> .....	31
<i>Availability</i> .....	32
<i>Accessibility</i> .....	32
Data Collection.....	32
Metrics.....	33
<i>General Requirements</i> .....	33
<i>Metrics for the Capitals</i> .....	33
<b>ANALYSIS .....</b>	<b>34</b>
General Requirements .....	34
Protocol Testing .....	34
<i>Exploration</i> .....	34
<i>Test</i> .....	34
<i>Evaluation</i> .....	35
<b>REPORT FEATURES.....</b>	<b>35</b>

## INTRODUCTION

In September, 2007, the Roundtable hosted a workshop to share and discuss work completed on the two new indicators, Resilience of Forest-Dependent Communities and the Value of the Forest to People. Notes herein reflect the contributions of Roundtable participants to the development of Indicator 38, Community Resilience.

The notes are organized to facilitate an understanding of the many and varied conversations. Statements presented at the beginning of each section endeavor to summarize the *key* points from the discussion. Points identified herein as key were those around which much discussion occurred. Bulleted items are direct quotes from participants.

## WORLDVIEWS

There are at least three worldview paradigms influencing the thoughts of people at this Roundtable. The first is the particular branch of science from which Community Resilience is approached, i.e., physical or social. The Community Resilience indicator measures a social phenomenon and as such is best approached from the social sciences. The study of social sciences and the precepts upon which they are based are different than the physical sciences. This requires physical scientists to consciously inquire into this different mode of thinking and social scientists to make explicit operating assumptions and rationale.

The second is the field in the social sciences which provides the context for the indicator, namely economic or sociological worldviews. This indicator is approached from the sociological worldview. The sociological framework accounts for social systems, interactions and 'facts', the sum of which define a community and its resilience. While the economic welfare of communities is of vital import, it is couched as one aspect within a more comprehensive sociological framework.

The third is the different worldviews operationalized in western science and indigenous and local knowledge systems. Care needs be taken that the western scientific paradigm not dominate and obscure the important contributions of indigenous and local knowledge systems.

- ❖ Biological science – social science
- ❖ Western science bias
- ❖ Mismatch between \$ and indigenous knowledge/values
- ❖ Omission of certain types of communication
- ❖ Acceptance
- ❖ Interface between social and ecological domain
- ❖ Accommodate different worldviews
- ❖ Different ways of understanding the world. Where do we go once we get the model, but have to avoid an academic approach. There is amount of trust in terms of the grounding.
- ❖ Natural and social – we are exploring new boundaries

## DEFINITIONS

### COMMUNITY

The discussion of *community* reflected what one participant aptly noted, i.e., that community has many different meanings. Discussion fell into six broad categories; general, urban/rural, place-based vs. interest-based, complexity within communities, diversity between communities and interrelations. Three issues in particular will need to be addressed in the definition of community utilized for the Community Resilience indicator.

1. As the number and size of urban communities in the U.S. is growing, urban communities need be included in the definition.
2. Community can be conceived of as *place-based*, i.e., delineated by geographical and jurisdictional boundaries, or as *interest-based*, i.e., delineated by people who share common interests but who don't necessarily live within the same geographical or jurisdictional borders. Mid range in this continuum are those who own but do not live on property within a geographically defined community.
3. Communities are unique, diverse, complex and interconnected. Furthermore, they are in a constant state of change.

#### **General**

- ❖ Thinking about the importance to people as an individual is a western thing. Other cultures consider the community as the important unit.
- ❖ Community has many different meanings
  - Locally defined
  - No consistent definition – spatially – of communities. So, how do you measure?
  - What community?
- ❖ Define community
  - What is community
  - Define forest community broadly
  - Characterizations of communities
- ❖ Counties aren't communities
- ❖ Define community to include groups who move around the forests, don't marginalize them; include absentee landowners; social capital extends to them.
- ❖ Problems with delimiting community
  - Some areas have no defined communities re: political area, so there is no data
  - What are a community's boundaries?
- ❖ Include 'unique' demographic patterns in definition of community – better to say unique as 'specific' implies a predefined notion. Dealing with a dynamic entity
- ❖ How to lump types of communities
- ❖ We can talk about a variety of different communities by
  - community – core values, community interests

- types – ethnic type, geography, cultures & practices different in these communities

### ***Urban/Rural***

- ❖ The US is an urbanizing country so need to capture this dynamic in definition of community
- ❖ Communities themselves vary in scale
- ❖ Definition does not include urban/metro
  - Big cities
  - Significant urban forest communities
- ❖ Hope that we don't retreat to old definitions related to the urban, rural differentiation.
- ❖ urban vs. rural
- ❖ Issues of urban forest resilience

### ***Place-based vs. Interest-based***

- ❖ Why define geographically?
  - Difficult to only define community geographically
- ❖ indigenous knowledge and communities of interest are important to resiliency and need to be taken into account.
- ❖ Also right to have access to forest – cultural-identity communities
- ❖ Forest related communities can communities of interest be resilient?
- ❖ place based versus sense of place attachments by people who live outside the community or area
- ❖ Communities are groups of interests
  - Complexity of aggregating by interest
  - CR by relationship?? Not necessarily place-based
- ❖ Community as state of mind is not going to help in this exercise. You have to be able to put your finger on the map. There is a concrete element of this.
- ❖ Put your finger on the map – political jurisdiction is not too far off in locating community as a place. Jurisdictions collect data – they are data rich, but it may not be the right data.
- ❖ What is a community? Place-based or not
  - based on jurisdiction and interest groups
  - Community of place vs interest
- ❖ Community of place indigenous communities
- ❖ 44 – communities of interest; 38 place communities

### ***Complexity within Communities***

- ❖ Communities are ephemeral - changing dynamics

- Constant change
- ❖ No assurance that a community is any more similar than a county or state – can have lack of interactions
- ❖ Richness of community; communities within communities
- ❖ Realize that communities aren't closed systems
- ❖ Too many unknowns to do anything with the data
- ❖ Complexity
  - Diversity
    - You do have to get into issue of embracing diversity—faith, other values.
- ❖ Feedback loops
- ❖ Connectivity - internet, infrastructure

### ***Diversity Between Communities***

- ❖ Communities are not homogeneous
  - Communities may not be any more homogeneous than counties or states
  - Huge diversity in U.S.
- ❖ Different historical contexts
- ❖ Dependency on different resource sets
- ❖ Different community goals
- ❖ Different sizes of communities
- ❖ Community uniqueness

### ***Interrelations***

- ❖ Broad issues: communities are not independent, are connect to things outside of their “boundary”
- ❖ Communities are interconnected
- ❖ Understand the linkages

## **FOREST-DEPENDENT**

The conversation of *forest-dependent* raised important considerations for the workgroup. Primary issues included: the relationship between forests and communities; insufficiency of the traditional definition; types of forests, forest-dependency as a matter of perception; and characteristics by which to define forest-dependency. Important points include:

1. Forests and communities are in relation to each other. Changes in either affect the other. Forests have need of communities just as communities rely on forests. As the demographics in the U.S. change, traditional constituencies of the forest are diminishing and new ones are appearing.
2. The traditional definition of forest-dependent is challenged in three ways. First, urbanization of the U.S. is increasing and urban areas are dependent on forests.

3. Forest-dependency is, at least in part, a matter of perception. That perception doesn't always align with economic, social, cultural and physical evidence. So, while some communities identify as forest-dependent, the economic realities that originally led to that designation have changed, resulting in a reduced, or perhaps changed, dependency on the forest. Also, communities that perceive no connection to a forest, can in fact, be vitally dependent on it.

One participant challenged the workgroup to develop a very specific and clear definition of a forest-dependent community, and to couch that definition within the needs of the Community Resilience indicator.

### ***Forests and Communities***

- ❖ Show the relationship of changes in forests to community and visa versa
- ❖ Relative size of community (urban) and their impact on the forest
- ❖ Relation between forest and forest community and forest decisions. Need to be sensitive to ability of community to respond to decisions and changes.
- ❖ Community dependent forests
- ❖ Forests have lost communities
  - Danger of forest are losing constituency as people move to cities

### ***Traditional Definition***

- ❖ 80% of the US is urban. This indicator must capture the concept of urban communities being forest-dependent.
- ❖ urban/rural are very different
- ❖ Indicator based on western timber industry-based communities
  - census shows other industries actually dominate employment, not forest industry

### ***Forest Types***

- ❖ Big versus little forests
- ❖ Urban forests provide benefits

### ***Forest-dependency and Perception***

- ❖ people define themselves as this, based on their perception
- ❖ Many communities are forest-dependent but don't even realize it, e.g., dependency that isn't resource based, when scarcity extends the reach of the forest, urban dwellers
- ❖ Community identity 'dependent' on forests even though the reality, i.e., economy, to support it is not
- ❖ forest-dependent vs forest-related? Not the same

### ***Characteristics of Forest-dependency***

- ❖ Range - continuum - of types of dependence
- ❖ Social, economic, environmental factors
- ❖ Much of the dependency isn't revenue-based.
- ❖ Factor in concept of scarcity into urban areas
- ❖ proximity and character
- ❖ Towns or not
- ❖ density of forest to define forest-dependent
- ❖ economic, cultural, nature, water...
- ❖ geographic characteristics. Easier to stick to forest-dependent and be productive-otherwise too much.

### **COMMUNITY RESILIENCE**

The resilience discussion generated four primary issues: 1) Community Resilience and Sustainability; 2) Role of Community Resilience in the MPC&I; 3) Characteristics of Resilient Communities; 4) Community Resilience and Forests; and 5) General. Three key points are drawn from the discussion.

1. Resilient communities have several critical characteristics. They develop community resources, i.e., build community capacity. Communities have a variety of resources, including those that are internal and those that it can access externally. Economic resources are just one of many and cannot alone make a community resilient. Community members collectively engage those resources for the common good. Importantly, capacity is necessary but insufficient for resilience. Engaging that capacity toward the accomplishment of a common community goal is critical.
2. Community Resilience represents one facet of the social domain of sustainability. By itself, it is an important, but incomplete measure of sustainability.
  - a. 'Community resilience is the existence, development and engagement of community resources to thrive in a dynamic environment characterized by change, uncertainty, unpredictability and surprise. A resilient community intentionally develops and engages personal and collective capacity to respond to and influence change, to sustain and renew the community and to develop new trajectories for the community's future.'<sup>1</sup>
3. The Community Resilience indicator is one of 64 indicators in the MPC&I. Its contribution to the MPC&I is a deeper understanding of the social side of sustainability, specifically as it relates to communities' ability to thrive in contexts of change. This indicator is important as resilient communities have the capacity, the experience and the resources to act as stewards of the forest, thereby contributing to forest sustainability.

---

<sup>1</sup> Adapted from Magis, K. (2007). Indicator 38 – Community Resilience: Literature And Practice Review. U.S. Roundtable on Sustainable Forests.

### ***Characteristics of Resilient Communities***

- ❖ Forward looking instead of backward looking
  - Resiliency is something to move toward
- ❖ Resilience is not about maintaining the status quo – adapts after reaching a threshold
  - Looking at communities that can handle internal and external pressures.
  - Vulnerability – opportunity
- ❖ Capacity:
  - to respond – that is what this is about
  - for creativity
  - Diversity is the backbone of community resilience
  - Capacity is a subset of resilience
- ❖ Resiliency is predisposition to action.
  - Response to threats
- ❖ Investment of capital patterns
  - We are all connected to each other and need to be watching out for each other – we each have important roles
  - Community resilience wider than natural resources
  - Resilience of communities is about how they invest their capital (including oil \$)
  - Add value to other resources to make them whole again
  - Resilience can depend on outside \$
  - Community acuity occurs as force of resistance, not resilience—just refusing to die. And that goes beyond the borders of reservation communities.
  - Loyalty and commitment to place regardless of monetary difficulties or whether the larger world respects us or not—connection to land is really important.
  - Tenacity of people to stay
  - Politics of place
  - A singular focus on economic s is too narrow
    1. Economic approach is too narrow
    2. subsistence relationships are/can be forest-dependent
    3. Protected areas have more than \$ values

### ***Levels of Resilience***

- ❖ Resilience with respect to what? What is the risk or challenge that is being responded to?
- ❖ Communities are able to respond to one type of shock, but not others

- Not sure that ability to respond to one kind of event is positively correlated with ability to respond to other types of events.
- ❖ Resilience also relates to deliberative process. Make sure that communities have ability to inform public policy, hard to measure this indicator.

### ***CR and Sustainability***

- ❖ Need to define how resilience relates to sustainability
  - Is discussion of community resilience the same as a discussion of sustainability?
- ❖ The word ‘resilience’ as tied to community. Argument is that people are part of the ecology. ‘resilience’ – forest sustaining people versus people sustaining forest. Response – looking at ability of communities to sustain themselves. Not people sustaining the forest.
- ❖ Sharing indigenous wisdom – The Menominee sustainable development institute came up with model to explain sustainability. Center is sense of place – elements that comprise sustainability – internally dynamic and in respect to each other. Sustainability is a process that continues. There is always tension within and among the six dimensions. Their profound sense of place has allowed them to relieve the tensions – understanding that they will arise as another is relieved.
  - Land and sovereignty – local control of natural resources
  - Natural resources, which include human models
  - Institutions – formal governmental to traditional ones
  - Technology – old and new
  - Economics
  - Human perception, knowledge and behavior
  - How does the community react? Tension within and among all the dimensions – grounded in a sense of place, which relieves the tensions.

### ***CR in the MPC&I***

- ❖ CR is one of 64 indicators – all address the issue of forest sustainability. Don’t expect this one to do more than its share in adding to the overall picture of forest sustainability.
- ❖ One indicator can’t be designated to push an entire agenda
- ❖ Find bounds between economic, ecological and social indicators
- ❖ How comprehensive is this indicator?
- ❖ 44 is about individual psychology and 38 is about sociology – group
- ❖ Internal metric to community. How does this relate to forest sustainability? Response – one indicator can’t tell the whole story.

### ***CR and Forests***

- ❖ Many factors affecting resilience are unrelated to forests
  - Some community changes are not reflected in the forest or caused by changes in management
- ❖ Internal metric to community. Measuring community resilience via metrics that are not forest-based is useful
  - Choosing metrics that are not related to trees/forests
- ❖ Do we want to focus on forest-related social capitals?
- ❖ Define resilience relative to forest dependence
  - How to relate this to forests, not just any community
- ❖ Focusing on how forests relate to that resilience pos/neg.

### ***General***

- ❖ Articulate theory being used for 'resilience'
- ❖ Do foresters have responsibility for CR?
  - Should we put effort into keeping dying communities alive?
  - Local community demise might be good at a higher level
- ❖ Progressive participation - what the community good is? Who in the community defines it? Priorities based on?
- ❖ What is the most relevant to the community?

### **CONDITIONS AFFECTING COMMUNITY RESILIENCE**

Participants listed some of the conditions affecting communities. More importantly, however, their comments showed recognition of several important points.

1. While some of the conditions affecting communities are related to the forest and forest management, many are not. Community Resilience is about a community's capacity and active agency in responding to stressors, regardless of their origin.
2. The community doesn't control all the conditions that affect it, e.g., the status of landownership or the industries influencing the local economy. Community Resilience is not about controlling all the conditions that affect the community, but rather is about thriving in those conditions.
3. As the example of the two communities (below) illustrates, forest management does have an influence on the conditions affecting the community. A significant question raised by participants was whether, and to what extent, the forest service is responsible for the impact of its policies and actions on communities.

### ***General***

- ❖ Focus on threats and resilience? Trust/mistrust
- ❖ Community character can stay consistent for a very long time & then a spark (entrepreneur...) occurs that quickly changes the community and its culture

- ❖ Disturbance – impact on community well-being
- ❖ Shocks come from anywhere. Community Resilience mobilizes resources to respond
- ❖ Changes in community must be considered in context of change in larger society
- ❖ On communities, model gives indicators for communities to use. Also need to have approach that looks at unintended consequences of policy decision.
- ❖ Who controls the conditions
  - Land ownership issue public/private – if private – how much can community control/do about land use changes?
  - It isn't the case that community level controls all there is strong national/regional control (budget)
  - Alaska oil industry controls/funds communities
- ❖ What impact will outside influences have on community
  - National results from a shock (like the NW forest plan) might be positive while local impacts are negative
- ❖ Example - Community resiliency – two communities lose a mill and respond very differently. Management actions are part of the lower resiliency of the community. Creating a legacy for dependency on the FS.
- ❖ What can DR do to increase community resilience? Increase timber sales?

### ***Conditions***

These items provide answers to the question, '*Resilience to what?*'

- ❖ Figuring out resiliency with respect to what?
- ❖ Indicator trends can change with management action
  - How do forests liquidate or stock social capital?
  - Metrics must be sensitive to changes in the forest
- ❖ Land ownership & elements – relevant at all scales
  - Different between east/west in terms of % public/private – history and who funds
  - Where is tax structure reflected here? Where \$ come from and go? Who is paying for what need to be done?
  - Land ownership and tax structure/policies are key
  - Majority of forests are privately owned.
- ❖ Many industry towns will not be able to compete in globalization
- ❖ Anticipating likely 'shocks' so that community can prepare & be resilient
  - Feedback of shocks
  - Notion of shock - only from outside? Or from within?
- ❖ Majority of people are in urban areas and influence forest lands. Absentee landowners have influence. Pick up the urban picture.

## COMMUNITY CAPITALS

Discussion of the Community Capitals fell into four broad categories: 1) Theory and Rationale; 2) Alternative Models; 3) Links and Relationships; and 4) Capitals. Two important points emerge from the discussion:

1. Clearly articulate the theory behind the measurement protocol, ensuring that issues of equity and justice are considered. Rationale should include clear definitions of critical constructs, theories and their empirical basis, as well as explication of how the protocol measures Community Resilience and how it relates to other models.
2. The Community Capitals are all interrelated and comprise a coherent and integrated system so need to be measured and articulated as such.

### THEORY & RATIONALE

- ❖ Articulate your theory; consider equity and justice
  - Equity
  - Justice
- ❖ How has the capitals framework been utilized?
  - Cornelia explained many places and ways in which the capital framework is being used.
  - Examples of Community Capitals model actual practice.
- ❖ Is this the right way? The only way? Does it really capture what we need to know about what we need to measure?
- ❖ Other models that might be helpful to look at (FEMA, Disaster management).
  - We think it would be useful to look at resilience. Need to think about community capital approach relative to other approaches. But people have studied resilience in other ways, and we need to look at that.
  - Has the train left the station?
- ❖ Model came from interacting with rural communities in NA and Latin America. This was the way that the community understood where it is, how it can move forward, etc. It was designed for that audience. Shocks can come from any of the capitals, and most of them are external. Resiliency is then the way that the community responds using its core of capital. The framework is less theoretically driven than it is driven by communication with communities. Community Capital framework developed over 20 years working with local and indigenous people

### *Definitions*

- ❖ Be clear about what each dimension of capital entails
- ❖ How do the capitals aggregate into resilience?
- ❖ Scientifically sociologically defensible
- ❖ Making transparent the assumptions behind the CC framework
- ❖ Be clear about what each dimension of capital

## ALTERNATIVE MODELS

- ❖ What are other or complementary frameworks?
- ❖ My work is on sense of place. Need to use that. It's simple to measure and simple to conceptualize. How much they care about a landscape, how much they identify with it, how much it means to them? Predisposes place protective behavior. There are differences between wanting to be somewhere and being stuck there.
  - meanings for landscape care, attachment to land built through experience
  - community entertains diversity
  - community still represents the meanings we care about
- ❖ How do you do that at a community level?
  - Not by calculating means. Places where communities are transitioning, the politics of place. Resilient communities under that framework are places where citizens can come together and say 'this is the place for me' even if we feel that way for different reasons.
- ❖ Don't see sense of place replacing capitals. Good compliments.
- ❖ Different ways of understanding the world; community capitals are compelling; avoid getting lost in discussion
  - My way of understanding the world is different from everyone else's here. But my way isn't the right way or the wrong way. Capitals seems compelling way to explain a lot of the elements and dynamics. We will all have to agree to make some cognitive compromise in this process. We cannot spend time just advocating for our favorite way of seeing the world.
- ❖ Do different frameworks lead to different answers? Only the same if come from the same worldview.
- ❖ Is a community sustainable? What happens to the young males: stayers, out-in, and permanent leavers? Which of the capitals are the primary areas of need for these particular communities? Looking at all seven looks at a system and allows for narrowing in.
  - Community capitals are useful. Communities can relate to them. Resilience is very connected to in- out-migration. Which of the 7 capitals are the most important? Look at the system and then narrow focus.
- ❖ The Capitals Framework is helpful to me. Answered one of my principal concerns about how an indicator of resiliency could actually be used. What's essential here is developing inter- and intra-community trust.
- ❖ Social capital typology. People have to make the social choice to work together to get progressive participation. Do you get the same results from people working to their own benefit?
- ❖ Temper the debate over models. Likely to see same picture with different models.
- ❖ It's about active participation by people to work to improve the community.

## COMMUNITY CAPITALS

- ❖ Don't want to standardize capitals via an economic model or using economic terms
- ❖ Bridging/bonding
- ❖ Appropriately address 7 capitals
- ❖ Capitals are not static
- ❖ Need to understand broader social capital relating to forests
- ❖ Morality
- ❖ Spirituality
- ❖ Ethics
- ❖ Resistance to die
- ❖ Models discard history and future
- ❖ Companions to a capital
- ❖ Natural capital - what's healthy and sustainable?
- ❖ 7 capitals divide the community

## COMMUNITY CAPITAL RELATIONSHIPS

- ❖ Everything is linked—make sure we deal with links, not isolated capitals
  - ID - measure relationships between capitals
  - Interdependence of community capitals
- ❖ Where does intellectual capital come in? This is a big deal for forest-dependent communities for the stewardship of the resources.
  - I've lumped under human capital, which is perhaps inappropriate. But remember that all capitals are overlapping and have fuzzy borders. If a community should pick out intellectual capital separately as a key capital, that's a good thing to do.
- ❖ Herman Daly's model suggests relationships – include spiritual with others listed in CC framework
  - Link between social and cultural capital is missing—that's theology and ethics, or spirituality and morality. I don't see the two latter in the context, yet those are key to achieving what he called ultimate good.
  - The capitals framework – doesn't include enough things from Herman Daly's model. Herman Daly suggests there are relations of dependency – natural capital is the not replacement -- natural capital as the base of the pyramid, built capital, social capital, then leads to ultimate good – cultural capital. Links by economics and politics links
  - Response - Capitals are substitutable or compensatory. They are complementary.
- ❖ Spiral assumes linearity??

## **GENERAL**

- ❖ Environmental linkage to forests
- ❖ Economic linkages to forest (industrial, tourism)
- ❖ Social links to the forest
- ❖ Transportation access
- ❖ Perhaps link to community resilience assessment that look at all sectors
- ❖ Challenge to communities

## **PURPOSE & AUDIENCE**

Participants identified three primary purposes for the protocol; 1) to provide vital signs, 2) to inform policy- and decision-making, and 3) to facilitate the development of community resilience. Participants enumerated a number of audiences with potential interest in the information generated by the Community Resilience indicator and emphasized that those with interest have changed over time.

### **PURPOSE**

#### **GENERAL**

- ❖ Define end points and then discern the protocol
- ❖ Why measure? Who is responsible for community resilience and for measuring it?
- ❖ National report is about America's forests
  - Does USFS want to limit to forest systems?

#### **PROVIDE VITAL SIGN**

- ❖ I view national indicators as at least serving purpose of vital signs. We should be able to discern by level or trend whether it should be the object of discussion and concern. If we haven't done that, then what do we know? If we have a series of case studies, and if we can't say what they're representative of, then what did we accomplish?
- ❖ CR – discern level/trend whether or not it should be the subject of concern for various audiences. How do case studies answer this question?

#### **DECISION- AND POLICY-MAKING TOOL**

- ❖ We need community-level data to inform decision-makers
- ❖ Please keep in mind the context—this came out of discussions about smaller communities whose revenue and wealth depended on forests. Also, communities near public forests were being harmed by decisions made there. People who make decisions about forest management need to be more sensitive of communities to absorb impact of forest management decisions. You need to think of the indicator as a tool to understand how decisions are made.
- ❖ What are the places that are struggling with resilience? Policy implications.
- ❖ Usefulness as a mgt. tool

- ❖ Where does the report lead us? Top-down decision-making or value for the community?
- ❖ One thing is to illustrate how policy impacts communities so that we don't repeat past mistakes and think more about systems in policy making. Can help us look at things like biomass energy, etc. in the future and how policies there will affect us.
  - Regarding feeding into policy and choices—think about how forest-based incomes have changed. Carbon market is new forest industry that outweighs other industries in the state. This represents a new day in how we think about land, jobs, and tradeoffs.
  - Detect unanticipated consequence of management actions, and thus adapt management actions to get on track.
- ❖ There are strong desires here to understand change at an individual community level. There is also a strong desire to understand effects of change on clusters of communities, across communities. An example of something I would hope we could understand would be federal policy decisions in one part of the country having impacts on communities in very different parts of the country. That's a macro kind of community resiliency thing that I would like to be able to get a handle on with this indicator. Don't want to focus all on the micro.
- ❖ Rolling up would be stupid and useless. But knowing the location of the communities that feel that they are not resilient would be useful to people who are making national-level decisions

## **BUILD COMMUNITY RESILIENCE**

- ❖ Any community can apply the measures. Provides a tool to the community. Detect unintended consequences and adapt.
- ❖ Developing local consensus on community vision & goals as the basis for making informed choices
- ❖ Analyze data to develop programs that will increase resiliency (reason to gather and add/aggregate)
  - Where is the community now on the CR grid? What is needed to move it in the right direction?
  - How can the community be moved to recover?
  - timing – how can community respond
- ❖ Developing the capacity to absorb shocks, e.g., where does financial capital come from to start upward spiral?
- ❖ Identify attributes of communities that are resilient and we could help orient actions at all scales to help communities be more resilient. Forward-looking attributes as well as past. Also look at threats to resilient communities. If you go too aggregate, information on threats is watered down in terms of its meaning to any specific place. People can understand and act on attributes and threats.
  - Opportunity to look at common threads and approaches to various issues.

## **AUDIENCE**

- ❖ Who will benefit?
- ❖ Usability/usefulness of this report, this information. How do they use this data as a tool
- ❖ What are we trying to communicate?
- ❖ Figure out an audience list and then determine scale.
- ❖ Who is the audience for national report and for partner report on this indicator?
  - Hopefully not research scientists at conferences?
  - Program – Rural Community Assistance is now gone; Community development programs? District ranger?
  - ID few key people who will use it when it lands on their desks
- ❖ Audience for I38 – people making decisions about forests – does resilience of NYC factor into those decisions?

## **CHANGING AUDIENCE**

- ❖ Those interested in well-being as related to forest were originally FS. That evolved to include private/public landowners and then to forest stakeholders at all levels.
- ❖ Sub national level. Forest industries have changed. Think toward the future – has different choices
- ❖ The audience needs to be the community itself. Make sure that going to them will result in something they can use.
- ❖ Benefit the communities.
- ❖ Institutional will - do agencies really want to know?

## **AUDIENCE TYPES**

- ❖ What mechanism or structure in government will be able to apply these things and direct them to—the community planning process—we need to focus on those entities as a place where this information should be headed, we can influence strategic plans, def of community objectives, long range budgets, and political support/will.
- ❖ Associated partners who influence acceptance of indicators
- ❖ All of the partners involved in planning of activities related to forest and communities
- ❖ Community leaders in government
- ❖ Public/private forest land managers
- ❖ Leaders involved in planning/executing funding
- ❖ Leaders of sources of private investment capital
- ❖ Community leaders, rangers, government.
- ❖ Need to deliver results to be useful for local governments
- ❖ Educational and media

## **AGGREGATION & STRATIFICATION**

Discussion of scale and aggregation led to brainstorming around stratification. Several key points are gleaned from the discussion.

1. Community Resilience is community level data.
2. There are several levels of intended use for this community data, i.e., the community, sub national, national and international.
3. Aggregating community level information poses a significant problem, specifically the loss of rich detail and critical differences within and between communities.
4. Stratification is perceived as a way to scale up community level information into meaningful national level information while maintaining the diversity and specificity required to ensure the information is useable for local communities.
5. Participants discussed six ways to stratify communities, by; 1) type of forest dependency, e.g., economic, cultural, amenity, ecoservice, 2) geographic, e.g., region or state, 3) type of forest ownership, i.e., private or public, 4) population size, i.e., urban and rural, and 5) type of salient threats to communities.

### **SCALE**

#### **COMMUNITY COMPLEXITY & DIVERSITY**

- ❖ Diversity – economic, cultural, faithbased
- ❖ Community – don't need to lump all communities & generalize all communities. Not one size fits all.
- ❖ Complexity of communities – those who enjoy tranquility, those who come to party for the weekend, weekend home
- ❖ Overlap of communities
- ❖ Recognizing diversity
- ❖ Different communities - different issues?
- ❖ Revealing range of diversity (community issue)
- ❖ Rural/not rural?
- ❖ Diversity within communities

#### **COMMUNITY INFORMATION**

- ❖ Resilience is community level, not national
- ❖ Reflect local knowledge
- ❖ Can you only measure community resilience at community level? If so, why do the national level?

#### **LEVELS OF INFORMATION USE**

- ❖ Data are co(multi)-level
  - Needs to be of local relevance

- Needs to be nationally relevant
- Supranational purpose – global community – tied across nations. Resources we use affect other countries. International influence
- ❖ More than just national level indicators
  - Recognize that just having information available at the national scale is not adequate for 2010 purpose. Have commitment to sub-national reporting. So need to have commitment there to make information more useful.
  - How can this be valuable at the national level? Info needs to be available at other levels. What do we want people to act on information at various levels?
- ❖ National level is often not useful at local scale (locally derived information should benefit community)
  - I struggle with how this can be useful at the national level. Maryland vs. Alaska and everything in between? This indicator may be very different from others. If we don't have breakdown beyond national sense, people will not think we spent resources well. I think local leaders when I think of audience—from governor on down
  - Is national level relevant?
- ❖ We are speaking different languages – micro – community level and macro – effect of change on community. Both are important

#### **DEFINING THE INFORMATION NEED**

- ❖ Must be able to make some inferences
- ❖ What scale will be measured for what purpose?
- ❖ Different needs for information at local and national levels
  - Balance between managing forests for community and nation
  - Are community decisions made at the national level?
- ❖ Some issues are completely unique – local
  - Reporting scale community issue for many indicators

#### **SCALE PHENOMENA**

- ❖ Dynamics change as scale changes
- ❖ Different scales may not lead to different results – in particular with regard to indigenous communities.
- ❖ Are forests relevant at community level?
- ❖ Resilience operates at many levels
- ❖ Scale of change

#### **PROBLEMS WITH SCALING UP**

- ❖ Fine points are lost

- Lose the richness of the story
- Cannot represent details of all factors at the national level. What are the key factors?
- Bundling data - loss of detail is significant
- Loss of useful detail
- National level data often necessitates devolving to the most common factors/indicators and then becomes too generic
- ❖ Size and location
  - larger communities are more resilient, so aggregation adds a bias
  - Miss the small-scale local ‘secret to success’
  - Small communities could lose their voice
- ❖ Complexity and nature of communities is lost when you move to national level
  - Adding up – diverse communities lose distinction at national level
  - Can’t see the trees for the forest
  - Homogenization washes out differences
  - Lose distinct community characteristics
  - Local identity lost
  - Will diversity be lost?
- ❖ Resilience is community specific. As a result what works for one community may not work for others. Hard to aggregate.
- ❖ Methodology
  - Impractical to aggregate: timing, political will, many things working against
  - Geographic mismatch – spatial scale, temporal...standardized data
  - Adding up community level data obscures interpretation
- ❖ Loss of context

## **AGGREGATION**

### **LIMITED UTILITY OF AGGREGATED COMMUNITY LEVEL DATA**

- ❖ It becomes meaningless
  - scaling-up – data loses meaning
  - Some indicators are less relevant...diversity (if aggregating)
- ❖ Data gap: Is national data really useful for communities?
  - On-the-ground management versus national level – is national level relevant?
  - Is ‘rolling up’ data even useful? What % of communities...vs. what is total?
- ❖ How data @ national level relates to regional and local (pull out Georgia for instance)

- ❖ Alternatives to national approach

### **AGGREGATION TO WHAT LEVEL?**

- ❖ Is aggregation necessary?
- ❖ Should we scale it up?
- ❖ Do we need to aggregate to the national level?
- ❖ If you want a national index #, can't use community level data
- ❖ Representation: How do we represent those communities at the national level?
- ❖ Can we generalize about resilience at the national level? Communities are rich and diverse
- ❖ Reliability of drawing a metric that begins to represent the U.S.

### **RECOMMENDATIONS FOR AGGREGATION**

- ❖ Averages mask variability
- ❖ Community surveys first – move it up
- ❖ Maintain detail of diversity (local identity) when aggregating
- ❖ Could use maps and narrative to scale up information
- ❖ Summarize local info but don't aggregate

### **STRATIFICATION**

#### **GENERAL**

- ❖ The typology of communities is vastly diverse
- ❖ Stratification is critical so don't obscure diversity & usability of information
- ❖ Typology - Look at ownership, commercial, protected, unprotected, type, location, immediate proximity, a subset of U.S. communities
- ❖ Relationships between community forest, resource extraction, economic, urban. Cases need to be emblematic relationships. Others need to be able to relate

#### **DEPENDENCY**

- ❖ Which communities? All or forest-dependent?
- ❖ aggregate based on 'types' of community and dependency
  - Consider typologies of 'dependence'
  - Establish typology of community dependence (economic, water, cultural)
  - If you look at 2003 report it doesn't talk about forests generically. It's segmented by type, planted, natural, ownerships. We should feel like we're going to try to aggregate everything into something meaningless. We need to segment communities by characteristics and types, as was done with types of forests. Need to think at the front end about what type of dependency, think a lot about typing.
- ❖ Defining forest dependent groupings for data collection

- 1992 exercise on forest-dependent communities source of information to look at stratification. Irv Shoffer Economic Research Service
- ❖ Can we compare the resilience of forest and non-forest communities?

## **REGIONAL**

- ❖ Geographic diversity
- ❖ Can compare regions and characteristics
  - Regional history of land use/resiliency – needs to be traced (need to show/capture the unique aspects of each region)
  - East/West/Midwest
- ❖ Work at bio region at landscape level
- ❖ Typology – regional problematic – states
- ❖ Each region should as a minimum have at least one case study. Sense of urgency around resiliency to respond to problems. In Alaska, the governor will act if the feds do not. Let the states have a role in working through the process.
- ❖ Developing a system that allows for comparison but has room for local/regional specificity

## **OWNERSHIP**

- ❖ Typology of communities to measure patterns (public, private, amenity)
- ❖ Public/private ownership
- ❖ Land ownership issue – if private – how much can community control/do about land use changes?
- ❖ Different between east/west in terms of % public/private – history and who funds

## **URBAN/RURAL**

- ❖ Determine community stratification scheme...rural/urban
- ❖ Urban/Rural
- ❖ Influence of population size? Larger generally more resilient
- ❖ Community size (population)
- ❖ Community scale – population, proximity

## **THREATS**

- ❖ Start with highly threatened areas – forest fires, industrial change
- ❖ Some areas of country obviously facing major issues. I hope one part of stratification is looking at communities being affected by changes in forest type and cover.
- ❖ Very different systems in east and west. Big sieves. How do those sorts of big things influence the indicator. Regarding what threats are, depends on where you are in the country—fire, invasives, sprawl, etc. Maybe those big threats on landscape from forest perspectives is one way to cut the cake with regard to typologies.

- ❖ Disturbance – from a forest perspective

## **METHODS**

Participants discussed several methodological issues; 1) sampling, 2) community participation, 3) case studies, 4) protocol administration and 5) associated costs. Key points included:

1. Be careful about drawing too small a sample as the ability to generalize to other communities will be mitigated.
2. Communities need be approached as partners who will both participate in and benefit from this endeavor. People who speak for the community need to ensure the community is well represented, including those who are disadvantaged and who don't have a 'voice'.
3. Case studies are a valid methodology to collect data on Community Resilience. They need be selected carefully to ensure they are representative. However, it would be difficult to scale up the information to the national level.
4. As this is a new indicator with a new measurement protocol, resources to test and refine the methodology will be necessary. Further, an investment in the continued collection and analysis of this data needs be made. Finally, researchers need to design the most efficacious methodology possible to ensure effectiveness and affordability of the measurement protocol.

## **SAMPLING**

### **GENERAL**

- ❖ Defining boundaries
- ❖ Statistically valid distribution
- ❖ Hard to find the right people to sample
- ❖ Need a list of forest-dependent communities

### **REPRESENTATIVE SAMPLE**

- ❖ Obtaining representative sample of communities costly/possible?
- ❖ representative sample
  - what is a representative community
- ❖ Selecting representative communities for sampling
- ❖ Omission of certain types of communities
- ❖ Where is the professional representation from the targeted communities?

### **SAMPLE SELECTION**

- ❖ Which communities?
- ❖ In selecting the sample, if you just use f-d communities from the past, communities may think they are f-d when not so much (that's just economic aspect).

- ❖ Finding and identifying communities

### **SAMPLE SIZE**

- ❖ Small sample is inadequate and send wrong message to regions. Minimum – regions have at least one sample.
- ❖ If limited number of communities, need overlay of sampling systems—do they end up at the same spot or not. By system mean models that have been laid out.
- ❖ Number of communities

## **COMMUNITY PARTICIPATION**

### **LOCAL KNOWLEDGE**

- ❖ Citizen science
- ❖ Importance of worldview of community residents
- ❖ Nature of local knowledge system is formal
- ❖ Embedded knowledge
- ❖ What is it about indigenous knowledge that is key to resilience?
- ❖ Is any indigenous knowledge a strong contributor to resilience?

### **COMMUNITY PARTNERSHIP**

- ❖ After have metrics – don't want communities to say 'we weren't involved so the metrics aren't used'
- ❖ Community cooperation
- ❖ Developing partnerships
  - Network of partnerships in community

### **TRUST**

- ❖ Deciding whether or not the working group intends to gather 'buyin' from the communities at large
- ❖ Developing trust within the informal group to gather the data
- ❖ Community acceptance—communities we're going to get this data from need to be on board with this and accept whatever comes out.

### **REPRESENTATION**

- ❖ Incorporate inclusive measures, particularly inclusive of poor and minority populations.
  - Securing community input in disadvantaged areas (requires additional resources)
- ❖ Be sure to access 'silent majority' in rural communities; carry their input all the way to the top
  - People who don't speak are still stakeholders
- ❖ Diversity of ways people participate needs be represented

- ❖ Who decides what measure
- ❖ Who decides community interests?
- ❖ Who in communities will be part of data collection?

#### **BENEFIT TO COMMUNITY**

- ❖ What does it mean to the community? Why should they care?
- ❖ Rationale for 'dialing in' to target communities
- ❖ Communication is crucial in calling attention to things important to communities. What is the 'voice' of community and will it find this useful?

#### **CASE STUDIES**

##### **VALIDITY OF CASE STUDIES**

- ❖ primary data, case studies. Wall to wall data won't be available.
- ❖ How use this approach to understand regional or national frame?
- ❖ D Case studies are important and valid
  - Validity of case studies in this work.
  - Perhaps case study approach to show community resilience
  - Case studies might be a better approach

##### **CASE STUDY SELECTION**

- ❖ How to choose them, basis for selection
  - Select cases with care
- ❖ Representative case studies actual/typical
  - Select typology defining communities carefully, e.g., bioregion, type of dependence, social change
  - Select case study sites to understand resilient communities
  - Understand distinctions in pre/post community life – resilience
  - Represent diverse communities - case study?
  - Defining criteria for selecting communities

##### **GENERAL**

- ❖ Case study challenge – longitudinal
- ❖ Case study – meta analysis
- ❖ Largest scale up to go
- ❖ Don't get 'too local' see connections

#### **PROTOCOL ADMINISTRATION**

- ❖ Must be replicated over time
  - Capture temporal dynamics of indicators

- ❖ Expert vs community - who reports and how?
- ❖ Organizational logistics
- ❖ Cost + political will
- ❖ Time lags between data collection and final reporting
- ❖ Identify basic unit to be measured
- ❖ Change in community immigration

### **ASSOCIATED COSTS**

#### **NEW RESEARCH**

- ❖ Community level data requires 'new research' \$\$\$
  - What will it cost?
  - Time & money for qualitative methods
- ❖ Funding - data collection costs money
  - Defining & gaining sources of political support
- ❖ Be clear about funding limitations from the outset
  - Limited by data costs?

#### **INVESTMENT**

- ❖ Costs and funding—but don't want that to drive things too up front—otherwise may not measure what we really want to measure.
- ❖ Value of data vs. cost to collect & analyze
- ❖ Secure reliable dedicated funding
  - Secure sources of funding

#### **AFFORDABLE & EFFECTIVE**

- ❖ Affordable, practical data
- ❖ Cost-effectiveness of data collection
  - Maximum benefit for minimum cost
  - What is cheap and available?
- ❖ Ability to sample – cost issue – maybe should focus on forest proximate/economic dependent communities

### **DATA**

The data discussion centered on four topics; 1) general requirements, 2) data availability, 3) data collection, and 4) metrics. Key points included:

1. The set of measures needs to be precise and parsimonious. Data must be relevant to audience needs and must be comparable. And, the methods need to be valid, reliable and replicable.

2. Issues related to data availability include location of data, availability of data and accessibility to the data.
3. Recommendations regarding metrics include: utilize qualitative measures; utilize measures that create a comprehensive picture of the community; and ensure the metrics are relevant to the indicator, understandable, measurable and sensible.

### **GENERAL REQUIREMENTS**

#### **RELEVANT**

- ❖ Making metrics fit/understandable to audience
- ❖ Ask first the measures that make sense locally
- ❖ Different interpretations for different communities
- ❖ Individual communities seeing themselves
- ❖ Indicator understandable to non-experts
- ❖ Useful in diverse types of communities
- ❖ Can communities do this, use this analysis?

#### **VALID & RELIABLE**

- ❖ Indicator should tell a meaningful story
- ❖ The metrics actually measure something meaningful
- ❖ Must be clear relationship between data and issues
- ❖ Finding measures that are measurable & valid nationally
- ❖ Statistical validity
- ❖ Appropriate metrics
- ❖ Flexibility built into metrics - works in diverse communities over time
- ❖ Ensuring validity of inferences
- ❖ Using approaches that will provide accurate/reliable data, in variety of contexts

#### **REPLICABLE**

- ❖ Must be able to repeat data collection periodically
- ❖ Ensuring replicability of inferences

#### **COMPARABLE**

- ❖ Data comparability among communities
  - metrics that allow comparison are useful but expensive
- ❖ How to standardize data collection
  - Standardization of measures
  - Universal measurements (consistency)
  - Measurable in all communities

- ❖ Consistency of data
  - across places
  - over time
  - Inconsistency between data
  - Ensure consistent collection methodology
  - Consistency, yet allowing for diversity
  - Consistent data across time & space

### **PRECISE & PARSIMONIOUS**

- ❖ Finding a suite of metrics that work together - not too many
  - Continuity between community measurements
  - Figuring out how to combine capitals measures to come up with an index?
- ❖ Able to capture rich details uniqueness, diversity
- ❖ Simplification based on some assumptions of relationships
  - Simplifying the metrics
  - can't be too difficult to measure
  - KISS
  - Selection of data to measure capitals—keep it simple
  - People don't understand complex measures
- ❖ Need to take a hatchet to the long list
  - Too many things to measure
  - Come out with national metric with too many variables
  - How do you capture subtle nuances that attribute to community resilience? Too much data

### **DATA AVAILABILITY**

#### **LOCATION**

- ❖ Existence of data at national level or possible to collect data
- ❖ Can we use county level data or just go into communities
- ❖ Counties are 'too blunt' obscure variation
  - County level data is superficial
- ❖ Don't discount county data to get some demographic trends to scale up
  - County data can tell you this
  - County data – see poverty – but can see resilience within

- Don't be quick to throw out existing jurisdictional resources that can provide a lot of information and make a direct connection to the people, institutions, and processes Use data that relates to existing governmental units or borders
- ❖ National need - prevalence & location of factors associated with resilience
- ❖ ID typologies based on primary and secondary information– learn.
- ❖ Bias against political jurisdictions

#### **AVAILABILITY**

- ❖ Use available data
  - Community level data – does it exist?
  - There is data out there at the community level
  - Plan for data collection – look for what already exists
- ❖ Is there existing data?
  - Availability of adequate existing data
  - If no adequate data is available, huge data collection issue
- ❖ Lack of data
- ❖ Resilience takes more data than we have

#### **ACCESSIBILITY**

- ❖ Access to information
  - Right to access
  - Sovereignty of information
  - Intellectual property
  - Privileged intellectual capital
- ❖ Sensitive information (cultural capital)
  - Resistance of/to disclosure
  - Sensitivity
- ❖ Earning trust
  - Interracial trust

#### **DATA COLLECTION**

- ❖ Who will collect the data (capacity)?
  - Can communities measure it themselves?
- ❖ Quality of community facilitation
- ❖ Populating data requirements
- ❖ Utilizing interviews in systematic fashion
- ❖ Identification of right tools

- ❖ Need to think about being creative with data collection. We need to be not so “not” and think about where we get information from.
- ❖ Data collection/analysis and interpretation is very difficult

## **METRICS**

### **GENERAL REQUIREMENTS**

- ❖ Metrics should be: relevant, understandable, measurable, sensible
- ❖ Need to truly accept some qualitative measures
  - Qualitative in addition to quantitative data
- ❖ Need to resist just looking at economic measures
  - Don't focus on easy to measure economic metrics and then think social is covered
- ❖ Define metrics for community resilience
  - Operationalizing measures
  - Establish key measures of each capital
  - Clear definition of standards of measures
- ❖ Determine time frame for metric
  - Time span of data
- ❖ Metrics should be sensitive to change
- ❖ Emerging or future community concerns anticipated

### **METRICS FOR THE CAPITALS**

- ❖ Best ways to measure capitals
- ❖ Look at bond rating and jurisdictions
- ❖ External economic sources available
- ❖ Tax structure
- ❖ Immigration influx rate
- ❖ Communication opportunities
- ❖ Education success rates
- ❖ Culture and resilience
- ❖ Government/private employment ratio
- ❖ Education level diversity
- ❖ Age diversity
- ❖ Measurement approach determines the issues
- ❖ Is there an integrated surrogate?
- ❖ Change in communities immigration

- ❖ Local revenue streams
- ❖ Self sufficient
- ❖ Data fields are seldom independent variables

## **ANALYSIS**

Participants provided a few general recommendations regarding analysis as well as for testing the measurement protocol. Key points include:

1. Community Resilience needs to be measured periodically over time.
2. Conduct a pilot study and refine the measurement protocol. Test the generalizability of results across communities, the relation of the capitals and their metrics to Community Resilience, and the ‘spiral up’ theory.
3. Give the protocol to communities to self administer and then report back.

## **GENERAL REQUIREMENTS**

- ❖ Simple, understandable analysis
- ❖ Quantification of qualitative data
- ❖ Weighting data equitably
  - How to weight various measures
- ❖ Population vs. Average
- ❖ Avoid averaging
- ❖ Present outliers

## **PROTOCOL TESTING**

### **EXPLORATION**

- ❖ It does come down to sample case studies. If we can only have a couple b/c of resources then we need to have an exploratory frame of mind. If we can later bump up our sample, then we do need to really worry about typology.
- ❖ pilot study – refine protocol – give template to communities who can self administer and then report back
- ❖ Research plan & strategy to test and refine measures

### **TEST**

- ❖ Test CR framework
- ❖ Generalizability – empirical question – does research exist?
- ❖ What is empirical basis that identified factors are associated with resilience?
- ❖ Can resilience be characterized by factors or are factors too individual to generalize?
- ❖ Accuracy
- ❖ Are we able to capture difficult issues with the available technology?

- ❖ Test 'spiral up' theory
- ❖ If we add 7 capitals = resilience
- ❖ Validating units of measure
- ❖ replication

#### **EVALUATION**

- ❖ Feedback from communities
- ❖ Acceptance of & confidence in data
- ❖ Determining measures of success

#### **REPORT FEATURES**

- ❖ Will information be grouped by community 'type'?
- ❖ What way could combining of factors be mapped?
- ❖ regional vs. national
- ❖ Spatial picture
  - What this data would look like, i.e., spider diagram?
  - Use regional displays of results (maps)
- ❖ Find a simple way to express
  - Hi medium lo typifying cases
- ❖ Establish categories of communities by mix of capital characteristics. Map or prepare graph of frequency of communities by dependency and capital characteristics
- ❖ We can provide examples of resilient communities – would be a case study
  - If there are key 'modes' of resilience, they could be illustrated with examples
- ❖ Concern that final result is not a number. Need to be more qualitative.
- ❖ Case studies that other communities can use
- ❖ Communicating results to effectively inform intended audiences
- ❖ national report one pager; 30 pager communities, decision-makers, congress