

## Session No. 6

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**Course Title: Disaster Planning and Policies**

**Session 6: Community Resilience**

**Time: 3 hrs**

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### **Learning Objectives:**

- 5.1 Review definitions of resilience and discuss the concept of community resilience.
- 5.2 Discuss different types of resilience: physical, economic, and community/social resilience.
- 5.3 Discuss the relationship between resilience and vulnerability
- 5.4 Identify policy and planning interventions that can increase resilience

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### **Scope:**

This second session of the *Preparedness and Planning* module provides important information on conceptual understandings of resilience and factors that give rise to different types of resilience: physical, economic, and community/social. At the conclusion of the session, the student will appreciate that resilience varies within and among communities and should be able to identify some policies and plans that can help increase resilience.

*Student Readings (also referred to in the subsections below):*

### **Required Readings:**

- Norris F.H., Stevens S, Pfefferbaum, B., Wyche, K.F., and Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, (1 – 2), 127 – 150
- Federal Emergency Management Agency. 2011. “Federal Coastal Community Resilience: Building Resilience from the Inside Out.” AWR-228 National Disaster Preparedness Training Center, University of Hawaii.
- Sapat, A. 2012. “Multiple Dimensions of Societal Resilience: Directions for Future Research.” Proceedings of the 2010 International Workshop on Societal Resilience, Department of Homeland Security, Washington, D.C.

## Recommended Readings:

- From FEMA.gov “Building disaster resilient communities” [training.fema.gov/EMIWeb/edu/docs/hazdem/Trends-Building%20Disaster%20Resilient%20Communities.doc](http://training.fema.gov/EMIWeb/edu/docs/hazdem/Trends-Building%20Disaster%20Resilient%20Communities.doc) - 2006-12-04.
- National Research Council. (2010). Building community disaster resilience through public private collaboration. Washington, DC: The National Academies Press
- Cutter S.L., Burton C.G. and Emrich C.T. (2010). Disaster resilience indicators for benchmarking baseline conditions. *Journal of Homeland Security and Emergency Management* 7(1):1-22
- United Nations. (2007). Building disaster resilient communities: Good practices and lessons learned. International Strategy for Disaster Reduction. UNISDR publications. Retrieved on March 14, 2011 from website: [http://www.unisdr.org/eng/about\\_isdr/isdr-publications/06-ngos-good-practices/ngos-good-practices.pdf](http://www.unisdr.org/eng/about_isdr/isdr-publications/06-ngos-good-practices/ngos-good-practices.pdf).
- Tobin, G.A. (1999). Sustainability and Community Resilience: The Holy grails of hazard planning? *Environmental Hazards* 1: 13 – 25  
[http://archone.tamu.edu/epsru/Course\\_Readings/Ldev671MARS689/LDEV671\\_Readings/Tobin\\_holygrail.pdf](http://archone.tamu.edu/epsru/Course_Readings/Ldev671MARS689/LDEV671_Readings/Tobin_holygrail.pdf).

## General Requirements:

*The readings for this session are on the syllabus and the instructor should remind students that the materials should be read and reflected upon before class. The information about the readings should also be placed on an appropriate course website.*

*Instructional Methodologies: The instructor can choose to employ a mixture of tools for presenting the course content. For example, the content presented here can be summarized into a Power Point presentation.*

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### **5.1 Review definitions of resilience and discuss the concept of community resilience.**

#### Refer to Readings:

- Norris F.H., Stevens S, Pfefferbaum, B., Wyche, K.F., and Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, (1 – 2), 127 – 150
- Sapat, A. 2012. “Multiple Dimensions of Societal Resilience: Directions for Future Research.” Proceedings of the 2010 International Workshop on Societal Resilience, Department of Homeland Security, Washington, D.C.

#### **5.1.1 Resilience: Definitions and Conceptual Understandings**

#### Refer to Readings:

- Adger W. Neil, “Social and Ecological Resilience: Are They Related?” *Progress in Human Geography*, vol. 24, iss. 3, (2000): 347-364, [https://groups.nceas.ucsb.edu/sustainability-science/weekly-sessions/session-102013-11.01.2010-emergent-properties-of-coupled-humanenvironmentsystems/supplemental-readings-from-cambridge-students/Adger\\_2000\\_Social\\_ecological\\_resilience.pdf/at\\_download/file](https://groups.nceas.ucsb.edu/sustainability-science/weekly-sessions/session-102013-11.01.2010-emergent-properties-of-coupled-humanenvironmentsystems/supplemental-readings-from-cambridge-students/Adger_2000_Social_ecological_resilience.pdf/at_download/file).
- Bodin, P., and B.L.B. Wiman, “Resilience and Other Stability Concepts in Ecology: Notes on Their Origin, Validity and Usefulness,” *ESS [Environmental Science Section] Bulletin*, vol. 2, no. 2 (2004): 33-43, [www.bom.hik.se/ess/pdf/theESSBulletinSpecialIssue/Resilience%20and%20other%20stability%20concepts.pdf](http://www.bom.hik.se/ess/pdf/theESSBulletinSpecialIssue/Resilience%20and%20other%20stability%20concepts.pdf).
- Bruneau, Michel, et al., “A Framework to Quantitatively Assess and Enhance the Seismic Resilience of Communities,” *Earthquake Spectra*, vol. 19, # 4 (2003): pp. 733-752, [http://civil.eng.buffalo.edu/~reinhorn/PUBLICATIONS/Bruneau%20et%20al%20\(2003\)%20EERI%20Spectra%20Resilience%20-%20Paper%20Body%2019\(4\)%20733-752.pdf](http://civil.eng.buffalo.edu/~reinhorn/PUBLICATIONS/Bruneau%20et%20al%20(2003)%20EERI%20Spectra%20Resilience%20-%20Paper%20Body%2019(4)%20733-752.pdf).

- Coles, E., and P. Buckle, “Developing Community Resilience as a Foundation for Effective Disaster Recovery,” *Australian Journal of Emergency Management*, vol. 19 (2004): 6-15.
- Godschalk, David R., “Urban Hazard Mitigation: Creating Resilient Cities,” *Natural Hazards Review*, vol. 4 (2003): 136–143.
- Gordon, J. E., *Structures: Or, Why Things Don't Fall Down* (Harmondsworth, UK: Penguin Books, 1978).
- Gunderson, Lance H., “Ecological Resilience—In Theory and Application,” *Annual Review of Ecology and Systematics*, vol. 31 (2000): 425–439.
- Holling, C.S., “Resilience and Stability of Ecological Systems,” *Annual Review of Ecology and Systematics*, vol. 4, iss. 1 (1973): 1-23, [www.iiasa.ac.at/Admin/PUB/Documents/RP-73-003.pdf](http://www.iiasa.ac.at/Admin/PUB/Documents/RP-73-003.pdf).
- Longstaff, P.H., “Security, Resilience, and Communication in Unpredictable Environments such as Terrorism, Natural Disasters, and Complex Technology” (Cambridge, MA: Harvard University Center for Information Policy Research, 2005), [http://pirp.harvard.edu/pubs\\_pdf/longsta/longsta-p05-3.pdf](http://pirp.harvard.edu/pubs_pdf/longsta/longsta-p05-3.pdf).
- Miles, Scott B., and Stephanie E. Chang, “Modeling Community Recovery from Earthquakes,” *Earthquake Spectra*, vol. 22, iss. 2 (2006): 439-458.
- Pfefferbaum, Betty, Dori B. Reissman, Rose Pfefferbaum, Richard L. Klomp, and Robin H. Gurwitch, “Building Resilience to Mass Trauma Events,” in Lynda S. Doll, et al., eds., *Handbook of Injury and Violence Prevention* (New York: Springer, 2007).
- Waller, Margaret A., “Resilience in Ecosystemic Context: Evolution of the Concept,” *American Journal of Orthopsychiatry*, vol. 71, no. 3 (2001): 290–297.

Resilience is often understood as building capacity to prevent or withstand shocks and to respond to slow and rapid onset disasters. However, resilience has been defined in a number of different ways and by a number of different disciplines to emphasize :

- physical resilience (Gordon 1978; Bodin and Wiman 2004),
- engineering and seismic resilience (Miles and Chang 2006, Bruneau et al.2003);
- ecological resilience (Holling 1973; Waller 2001; Gunderson 2000; Longstaff 2005),
- community resilience (Coles and Buckle, 2004; Pfefferbaum, Reissman, Pfefferbaum, Klomp, and Gurwitch, 2005), and;
- social resilience (Adger 2000; Godschalk 2003).

The term resilience comes from the root word “resilire”- to leap back or rebound. Definitions generally also focus on characteristics such as absorbing shock, adaptation, responding and recovering quickly, absorbing impacts, and self-organizing to come back.

Resilience then, in the context of communities and natural hazards, is the trait that helps communities bounce back from natural disasters.

Norris, Stevens, Pfefferbaum, Wyche, and Pfefferbaum (2008, 1-4) summarize some of these prior conceptualizations of resilience. In a shift from previous definitions, they contend that resilience needs to be understood not as an outcome but as:

*“**a process** linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance.”(Emphasis added) (Norris et al. 2008, 4).*

## **5.2 Discuss different types of resilience: physical, economic, and community resilience.**

### Refer to Readings:

- Norris F.H., Stevens S, Pfefferbaum, B., Wyche, K.F., and Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, (1 – 2), 127 – 150.
- Mayunga, Joseph S., “Understanding and Applying the Concept of Disaster Resilience: A Capital-Based Approach,” a draft working paper prepared for the summer academy for social vulnerability and resilience building. Munich, Germany (July 2007), [www.ehs.unu.edu/file/get/3761](http://www.ehs.unu.edu/file/get/3761).
- Peacock, Walter. “Advancing Coastal Community Resilience: A Brief Project Overview,” presented at the Resilience Research Workshop, Broomfield, Colorado (July 14-15, 2009), [www.resilientus.org/library/Walter\\_Peacock\\_1248440599.pdf](http://www.resilientus.org/library/Walter_Peacock_1248440599.pdf).
- Sherrieb, K., Norris, F. H., & Galea, S. (2010). Measuring capacities for community resilience. *Social Indicators Research*, 99(2), 227-247. doi:<http://dx.doi.org/10.1007/s11205-010-9576-9>.
- Cutter S.L., Burton C.G. and Emrich C.T. (2010). Disaster resilience indicators for benchmarking baseline conditions. *Journal of Homeland Security and Emergency Management* 7(1):1-22.

There are different forms of resilience. **Physical resilience** typically refers to the built environment, while **economic resilience** refers to the economic capacity a community has to help it recover after disaster. Community resilience can encompass physical, economic, social and even individual resilience.

Resilience has also been measured in several different ways. For instance, Peacock (2009) conceptualizes community disaster resilience as a combination of the community's capital resources (social, economic, physical and human) and they explore how these capital resources affect the four phases of the disaster cycle: mitigation (perceptions and adjustments); preparedness (planning and warning); response (pre- and post-impact); and recovery (restoration and reconstruction).

Norris et al. (2008) also emphasize similar components of community resilience and focus on the level of economic development, social capital, information and communication, community competence and capacity, institutional strength, recovery and commitment to mitigation and sustainable recovery through policies and plans. Other components of community resilience that have been underscored are the state of a community's infrastructure and related social and economic factors.

*Note to Instructors:* Remind students that there can be other forms of resilience: for instance psychological and ecological resilience. However, the focus of this session is on community resilience to disasters.

***Segue to the relationship between resilience and vulnerability by discussing that resilience assessments can also be carried out similar to vulnerability assessments. The instructor can refer to Sessions 4 and 5 for discussions of vulnerability assessments. In a resilience assessment, capacities for resilience can be measured. For resilience assessments, the instructor can refer to the readings on community resilience and resilience indicators. Relevant readings are:***

- *Federal Emergency Management Agency. 2011. "Federal Coastal Community Resilience: Building Resilience from the Inside Out." AWR-228 National Disaster Preparedness Training Center, University of Hawaii).*
- *Cutter S.L., Burton C.G. and Emrich C.T. (2010). Disaster resilience indicators for benchmarking baseline conditions. Journal of Homeland Security and Emergency Management 7(1):1-22.*
- *Peacock, Walter. "Advancing Coastal Community Resilience: A Brief Project Overview," presented at the Resilience Research Workshop, Broomfield, Colorado (July 14-15, 2009), [www.resilientus.org/library/Walter\\_Peacock\\_1248440599.pdf](http://www.resilientus.org/library/Walter_Peacock_1248440599.pdf).*
- *Sapat, A. 2012. "Multiple Dimensions of Societal Resilience: Directions for Future Research." Proceedings of the 2010 International Workshop on Societal Resilience, Department of Homeland Security, Washington, D.C.*

- Sherrieb, K., Norris, F. H., & Galea, S. (2010). Measuring capacities for community resilience. *Social Indicators Research*, 99(2), 227-247. doi:<http://dx.doi.org/10.1007/s11205-010-9576-9>.

### **5.3 Discuss the relationship between resilience and vulnerability**

**Note to Instructor: For this section, refer to reading:**

- Mayunga, Joseph S., “Understanding and Applying the Concept of Disaster Resilience: A Capital-Based Approach,” a draft working paper prepared for the summer academy for social vulnerability and resilience building. Munich, Germany (July 2007), [www.ehs.unu.edu/file/get/3761](http://www.ehs.unu.edu/file/get/3761).
- Godschalk, David R., “Urban Hazard Mitigation: Creating Resilient Cities,” *Natural Hazards Review*, vol. 4 (2003): 136–143.
- Sapat, A. 2012. “Multiple Dimensions of Societal Resilience: Directions for Future Research.” Proceedings of the 2010 International Workshop on Societal Resilience, Department of Homeland Security, Washington, D.C.
- Simpson, David M., “Indicator Issues and Proposed Framework for a Disaster Preparedness Index (DPi),” report prepared for the Disaster Preparedness Assessment Project, Fritz Institute, San Francisco (2006), [www.fritzinstitute.org/PDFs/WhitePaper/DaveSimpson%20IndicatorsReport.pdf](http://www.fritzinstitute.org/PDFs/WhitePaper/DaveSimpson%20IndicatorsReport.pdf).

At times, resilience has also been conceptualized as the capability to offset vulnerability. Poor policies and land use planning can substantially increase risk, while well-designed policies undergirded by strong political institutions at local and state levels can increase resiliency and lead to lower levels of potential vulnerability.

To a large extent, resilience is seen as being the reverse of vulnerability; for instance, Godschalk (2003) points out mitigating social vulnerability to urban hazards and integrating those activities with economic development and social justice could help achieve a resilient system. Similarly, Simpson (2006) links the concept of community resilience, defined as a community’s capacity to recover, in the context of its ability to offset vulnerability.

Mayunga (2007, 4) however, points out that “conceptualizing resilience [as the opposite of vulnerability] may not be desirable because it does not add much to our understanding,” implying that resilience and vulnerability are not necessarily mirror opposites.

**Discussion topic # 1:** *Would reducing vulnerability levels be sufficient to build resilience? Or would other actions also be needed?*

*(The instructor can review actions to address vulnerability from the Session 5 during various phases of disaster management. The students can then be challenged to think of other actions that can be undertaken to build resilience).*

**Discussion topic: # 2:**

We discussed the many definitions of community resilience in this course session and looked at the one presented by Norris et al. (2008, 4) which focuses on resilience as “**a process** linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance.” Based on the course material presented so far, let’s try to think of the types of adaptive capacities that a community needs to develop to grow more resilient. *(The Instructor can provide some examples such as planning for resilience by undertaking risk and vulnerability assessments and developing plans to address relevant vulnerabilities. The Instructor can note that we will be discussing these in further detail in the next section of this session and in future course sessions).*

***This discussion will help segue to the next section- where the specific focus is on policy and planning interventions to increase resilience.***

#### ***5.4 Identify policy and planning interventions that can increase resilience at each stage of the disaster management cycle.***

Refer to readings:

- Norris F.H., Stevens S, Pfefferbaum, B., Wyche, K.F., and Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, (1 – 2), 127 – 150
- Federal Emergency Management Agency. 2011. “Federal Coastal Community Resilience: Building Resilience from the Inside Out.” AWR-228 National Disaster Preparedness Training Center, University of Hawaii.

#### **5.4.1 Suggested Exercise and Class Activity**

*Using a worksheet, have students work individually or in groups to identify a hazard/disaster they experienced or read about. The next step is for the individual or group to discuss the lessons learned from the disaster and then finally, to identify the steps that were taken (at the individual level, through an organization they worked for, or by the affected community) in the response and recovery phases of the disaster and the steps taken for future mitigation and preparedness.*

*Note to Instructor: This activity could be undertaken even at the beginning of the session or at the very end of the session.*

*If undertaken at the beginning, it should be modified to understand the level of information and knowledge students have about resilience. Based on responses given, the instructor can tailor the information in this session to either provide more or less background information to students, based on their levels of knowledge about the topic.*

*If this activity is used at the end of the session, it can be modified to summarize the information and to test levels of student understanding of key concepts presented through the session.*

#### **5.4.2 Policy and Planning Interventions to increase community resilience to disaster:**

##### Refer to readings:

- Norris F.H., Stevens S, Pfefferbaum, B., Wyche, K.F., and Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, (1 – 2), 127 – 150
- Federal Emergency Management Agency. 2011. “Federal Coastal Community Resilience: Building Resilience from the Inside Out.” AWR-228 National Disaster Preparedness Training Center, University of Hawaii.
- Longstaff, P.H., “Security, Resilience, and Communication in Unpredictable Environments such as Terrorism, Natural Disasters, and Complex Technology” (Cambridge, MA: Harvard University Center for Information Policy Research, 2005), [http://pirp.harvard.edu/pubs\\_pdf/longsta/longsta-p05-3.pdf](http://pirp.harvard.edu/pubs_pdf/longsta/longsta-p05-3.pdf).

There are several steps that communities can take to increase their resilience to disaster. These include different policy and planning interventions such as:

- 1) **Addressing and Reducing Vulnerabilities:** As discussed in the last session, differential levels of vulnerability exist across communities. As noted by Cutter et al. (2003, 2010), risks from hazards are not evenly distributed or random. So communities need to first assess their vulnerabilities and then take steps to reduce risk and resource inequities and address social, physical, and other vulnerabilities.
- 2) **Empowering communities:** Individuals impacted by an event are often the first responders in any event. When individuals, families, civic groups, and community organizations are empowered, they are likely to be engaged more meaningfully in every step of the disaster management cycle. Disaster management practitioners and planners need to enable existing social networks of assistance and information and enhance community capacities (Norris et al. 2008). Empowering communities builds their capacities to become self-sufficient.
- 3) **Resilience planning should be collaborative rather than top-down.** Pre-existing organizational networks and relationships can be mobilized. Collaboration also fosters greater investment and participation by the community. Policy interventions can also try to boost naturally-occurring social supports after disaster (Norris et al. 2008).
- 4) **Resilience plans and policies must involve all community sectors:** social, economic, and environmental (FEMA 2011). Keeping all three sectors in mind leads to more balanced planning. For instance, not keeping environmental considerations in mind, might lead to resilience planning that is non-sustainable or that causes environmental damage. For e.g. new shelters can be built to be disaster-resistant and conform to green design standards.
- 5) **Planning for disaster and planning for the absence of plans:** Norris et al (2008, 143-144) point out that while communities should plan, they also need “to exercise flexibility and focus on building effective and trusted information and communication resources that function in the face of unknowns. Uncertainty is almost certain to exist after disasters. The most adaptive disaster management strategy is one that acknowledges complexity and uncertainty and relies on timely and trusted sources of information for rapid decision-making as opposed to rigid plans and command-and-control strategies (Longstaff 2005).” In other words, they emphasize the need for flexibility.

- 6) **Identifying Actions to Build Resilience:** This includes strategic planning and undertaking a SWOT (Strengths, Weakness, Opportunity, and Threat) Analysis. Strengths of a community in building resilience could be discussed such as levels of community resources and organizational capabilities. Barriers could be at the individual and or organizational level. Individual barriers include potential demographic factors and factors such as lack of trust in government, lack of experience with disasters, perceived community and social norms, etc. Organizational and community barriers to building resilience could be the lack of political will, lack of collaboration, cost concerns and resources, conflicting priorities, short-term decision making timelines and priorities, etc.

Approaches to overcoming these barriers that could be discussed include building awareness of natural hazards, documenting and sharing resilience best practices, identifying individual and organizational champions to support such practices, and more effective communication of resilience practices including the development of different messages for different groups/perspectives (see references to readings for this section).

*Note to Instructors: If time permits, instructors can spend 15-30 minutes engaging the students in a more in-depth discussion about the barriers to resilience and the planning and policy actions to overcome those barriers. The instructor can also have the students discuss each of the policy and planning actions above and list or rank them in terms of their importance and/or feasibility.*

*Finally, the instructor can also have the students suggest topics in community resilience that they would like to learn more about and have them relate that to other topics and issues they have learnt thus far in the course.*