

CLIMATE-INDUCED COMMUNITY RELOCATIONS: CREATING AN ADAPTIVE GOVERNANCE FRAMEWORK BASED IN HUMAN RIGHTS DOCTRINE

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ABSTRACT

The specter of millions of people fleeing their homes because of climate change has sparked an international debate about creating human rights protections for climate refugees. Though scholars and journalists have focused on the southern hemisphere, this crisis is occurring with unprecedented rapidity in the Arctic. In Alaska, temperatures have increased at twice the rate of the global average. Arctic sea ice is decreasing and permafrost is thawing. These ecological phenomena are creating a humanitarian crisis for the 200 indigenous communities that have inhabited the Arctic for millennia. Dozens of these communities are threatened because of climate-accelerated erosion, flooding, and extreme weather events. The traditional responses of hazard prevention and disaster relief are no longer protecting communities despite millions of dollars spent on erosion control and flood relief. Community relocation is the only feasible solution to permanently protect the inhabitants of these communities. This article describes the steps that federal, state, and tribal governments have taken to relocate Newtok, one of at least twelve indigenous communities in Alaska that need to relocate due to climate change. The policy and practical challenges to relocate the community are enormous and clearly demonstrate that new governance institutions need

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to be designed to specifically respond to climate-induced relocation. This Article ultimately proposes the creation of Guiding Principles of Climigration outlining key human rights principles that can guide an adaptive governance framework. This framework, in turn, will allow government agencies to transition their humanitarian response from protection in place to community relocation.

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I.

INTRODUCTION

Climate change is rapidly transforming our natural environment with disastrous consequences for many communities. Scientists believe that climate change will increase the duration and frequency of extreme weather events, such as hurricanes, tropical cyclones, and storm surges.¹ The extreme weather events that occurred during the summer of 2010 provide evidence that these climate predictions are accurate. According to the World Meteorological Organization, the intense heat and wildfires in Russia, the destructive floods in Pakistan, and the calving of a two-mile glacier in Greenland fit the pattern of “more frequent and more intense extreme weather events due to global warming.”² Such disasters led to the deaths of 700 people each day in Moscow and the displacement of approximately fourteen million people in Pakistan.³ Humanitarian organizations have tried to ameliorate the effects of these disasters through relief efforts. The International Organization for Migration (IOM) executed more than sixty projects responding to natural disasters in twenty-seven countries across four continents in 2007 and 2008.⁴ Financial support to address natural disasters increased from one-fifth of the total

1. See Intergovernmental Panel on Climate Change, *Summary for Policymakers*, in CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 8, 14 (Susan Solomon, Dahe Qin, Martin Manning, Zhenlin Chen, Melinda Marquis, Kristen Avery, Melinda M.B. Tignor & Henry LeRoy Miller, Jr. eds., 2007) [hereinafter Intergovernmental Panel on Climate Change, CLIMATE CHANGE 2007]; PIER VELLINGA & WILLIAM J. VAN VERSEVELD, CLIMATE CHANGE AND EXTREME WEATHER EVENTS 36 (2000).

2. Charles J. Hanley, *Long, Hot Summer of Fire, Floods Fits Predictions*, USA TODAY, Aug. 13, 2010, http://www.usatoday.com/weather/climate/2010-08-12-predictions-weather_N.htm.

3. Tom Parfitt, *Moscow Death Rate Doubles as Smoke from Wildfires Shrouds Capital*, GUARDIAN (U.K.), Aug. 9, 2010, <http://www.guardian.co.uk/world/2010/aug/09/moscow-death-rate-russia-wildfires>; *Pakistan Floods ‘Hit 14m People’*, BBC (Aug. 6, 2010), <http://www.bbc.co.uk/news/world-south-asia-10896849>.

4. INT’L ORG. FOR MIGRATION, POLICY BRIEF: MIGRATION, CLIMATE CHANGE AND THE ENVIRONMENT 6 (2009).

funding received by IOM in 2006, to one-quarter in 2008.⁵ However, there may be no way to quickly reverse the harm caused by climate change. Thus, community relocation may be the only immediate and permanent solution to protect people facing climate-induced ecological change.⁶ I use the term “climigration” to describe the population displacement that results when entire communities are rendered uninhabitable because of these changes.⁷

Alaskan indigenous communities are at the forefront of climate-induced population displacement. Climate change is transforming Arctic ecosystems and threatening the way of life of the indigenous peoples who live along the navigable waters of Alaska’s coasts and rivers.⁸ Disaster relief and hazard mitigation have been the traditional humanitarian responses to extreme environmental events.⁹ Yet government agencies are no longer able to protect communities despite spending millions of dollars on erosion control and flood relief. According to the Alaska Division of Homeland Security and Emergency Management, since 1978 there have been state disaster declarations for 119 different Alaska communities

5. *Id.*

6. The draft text of the U.N. Framework Convention on Climate Change Ad Hoc Working Group on Long-Term Cooperative Action includes “planned relocations” as one of the adaptation strategies that parties to the Convention need to enhance. U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE AD HOC WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE CONVENTION, DRAFT DECISION: OUTCOME OF THE WORK OF THE AD HOC WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE CONVENTION § 14(f) (2010), http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf#page=3. By implementing legislation to respond to climigration, not only would the United States create a model for other governments to use, it would also comply with international standards requiring states to address this issue.

7. As I described in my previous article,

“Climigration” is the term that best describes this kind of community displacement. Climigration results from gradual climate-induced ecological changes, combined with repeated extreme weather events, which severely impact infrastructure, such as health clinics and schools, as well as the livelihoods and well-being of the people residing in the community. Climigration occurs when a community is no longer sustainable for ecological reasons. Climigration differs from population displacement caused by catastrophic random environmental events, such as hurricanes, where disaster relief and the temporary relocation of individuals and communities are the humanitarian responses. Climigration means there is no ability to return home because home is under water or sinking in thawing permafrost.

Robin Bronen, *Forced Migration of Alaskan Indigenous Communities Due to Climate Change*, in ENVIRONMENT, FORCED MIGRATION AND SOCIAL VULNERABILITY 87, 89 (Tamer Afifi & Jill Jäger eds., 2010).

8. ARCTIC CLIMATE IMPACT ASSESSMENT, IMPACTS OF A WARMING CLIMATE 92–97 (2004).

9. See U.S. GOV’T ACCOUNTABILITY OFFICE, ALASKA NATIVE VILLAGES: LIMITED PROGRESS HAS BEEN MADE ON RELOCATING VILLAGES THREATENED BY FLOODING AND EROSION 20 (2009) [hereinafter GAO 2009] (describing disaster relief and hazard mitigation efforts of the Federal Emergency Management Agency).

resulting from 228 flooding events.¹⁰ These extreme events are occurring with greater frequency: approximately forty percent of these flood disasters occurred from 2000 to 2008, with twenty-three occurring in 2005.¹¹

In Alaska, some indigenous communities have determined that relocation is the only solution that will protect them from the combination of climate-induced ecological changes caused by rising temperatures, thawing permafrost, and loss of arctic sea ice.¹² Yet complex governance issues must be resolved in order to facilitate relocation. No federal or state government agency has the authority to relocate communities, no governmental organization can address the strategic planning needs of relocation, and no funding is specifically designated for relocation.¹³ Furthermore, determining which communities are most likely to encounter displacement will require a sophisticated assessment of a community's susceptibility to climate change, as well as the vulnerability of its social, economic, and political structures.

This Article describes the efforts of federal, state, and tribal governments to relocate Newtok, an indigenous community in Alaska. Newtok is one of at least twelve communities that need to relocate due to climate change. According to tribal, state, and federal government officials, including the U.S. Army Corps of Engineers, the relocation of Newtok is the only permanent solution to protect its residents.¹⁴ However, the relocation effort is straining the capacities of tribal, local, regional, and national government agencies.¹⁵ The policy and practical challenges to relocating the community are enormous and clearly demonstrate the need for new governance institutions that specifically respond to climate-induced relocation. This Article proposes the design and implementation of a unique adaptive governance relocation framework based in human rights doctrine.

10. *Id.* at 7.

11. *Id.*

12. Kivalina and Shishmaref are indigenous communities located on barrier islands on the northwest coast of Alaska. Both communities have voted to relocate. *See Shishmaref Erosion & Relocation Coalition*, SHISHMAREF EROSION & RELOCATION COAL., <http://www.shishmarefrelocation.com> (last visited July 5, 2011); U.S. ARMY CORPS OF ENG'RS, KIVALINA RELOCATION PLANNING MASTER PLAN 1 (2006), <http://www.poa.usace.army.mil/en/cw/Kivalina/Executive%20Summary.pdf>.

13. GAO 2009, *supra* note 9, at 39–41.

14. *See* U.S. ARMY CORPS OF ENG'RS, SECTION 117 PROJECT FACT SHEET 14–20 (2008), http://www.commerce.state.ak.us/dca/planning/pub/Newtok_Sec_117.pdf [hereinafter SECTION 117 PROJECT FACT SHEET] (evaluating the impact of erosion and storms on Newtok's infrastructure and examining alternatives to respond to the damage caused by these ecological events); IMMEDIATE ACTION WORKGROUP, RECOMMENDATIONS REPORT TO THE GOVERNOR'S SUBCABINET ON CLIMATE CHANGE 47–51 (2008), http://www.climatechange.alaska.gov/docs/iaw_rpt_17apr08.pdf [hereinafter IAW 2008 RECOMMENDATIONS].

15. *See infra* Part IV.

In Part II, I provide an overview of the climate-induced ecological changes occurring in Alaska. In Part III, I analyze the post-disaster recovery and hazard mitigation laws that define the current humanitarian response to extreme weather events in the United States. Part IV describes how climate change is creating an unprecedented social and ecological crisis in the Alaskan indigenous community of Newtok. Part V proposes the enactment of an adaptive governance framework based in human rights doctrine to protect people residing in communities threatened by climate change.

II. CLIMATE CHANGE IN ALASKA

In the Northern Hemisphere, data indicate that the temperature increase in the Twentieth Century is “likely to have been the largest of any century during the past 1,000 years.”¹⁶ The 2007 Intergovernmental Panel on Climate Change (IPCC) report confirmed that both the average near surface air temperature over land and the average sea surface temperature has increased, so that “[e]ven of the last twelve years (1995–2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850).”¹⁷ These temperature increases are the most pronounced in the Arctic, where the average temperature increase is almost twice the global average for the previous 100 years.¹⁸ In Alaska, winter temperatures have increased an average of two to 3.5 degrees Celsius since 1975.¹⁹ These temperature increases are creating dynamic and complex changes to the natural landscape, including the aquatic and terrestrial ecosystems.²⁰

Increased temperatures are causing the rapid disappearance of ice, a critical element of the Arctic ecosystem, signaling a radical transformation

16. See Intergovernmental Panel on Climate Change, *Summary for Policymakers*, in CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS 1, 2 (J.T. Houghton, Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell & C.A. Johnson eds., 2001).

17. Intergovernmental Panel on Climate Change, CLIMATE CHANGE 2007, *supra* note 1, at 5.

18. *Id.*, at 7.

19. MARTHA SHULSKI & GERD WENDLER, THE CLIMATE OF ALASKA 134 (2007); Peter Lemke, Jiawen Ren, Richard B. Alley, Ian Allison, Jorge Carrasco, Gregory Flato, Yoshiyuki Fujii, Georg Kaser, Philip Mote, Robert H. Thomas & Tingjun Zhang, *Observations: Changes in Snow, Ice and Frozen Ground*, in CLIMATE CHANGE 2007, *supra* note 1, at 337, 339.

20. Eric Post, Mads C. Forchhammer, M. Sydonia Bret-Harte, Terry V. Callaghan, Torben R. Christensen, Bo Elberling, Anthony D. Fox, Olivier Gilg, David S. Hik, Toke T. Høye, Rolf A. Ims, Erik Jeppesen, David R. Klein, Jesper Madsen, A. David McGuire, Søren Rysgaard, Daniel E. Schindler, Ian Stirling, Mikkel P. Tamstorf, Nicholas J.C. Tyler, Rene van der Wal, Jeffrey Welker, Philip A. Wookey, Niels Martin Schmidt & Peter Aastrup, *Ecological Dynamics Across the Arctic Associated with Recent Climate Change*, 325 SCIENCE 1355 (2009).

of the environment and the communities that rely on its existence.²¹ According to an international group of researchers, less ice covers the Arctic today than at any time in recent geologic history.²² Record minimum levels of Arctic sea ice have been recorded since 2002.²³ Scientific observations of Arctic sea ice extent during the summer of 2007 documented a new record low, with twenty-three percent less ice coverage measured than the previous record of September 2005, a loss equivalent to the size of California and Texas combined.²⁴ In 2009, the National Snow and Ice Data Center documented the third lowest sea ice extent since satellites began documenting ice levels in 1979.²⁵

The decreased Arctic sea ice extent coupled with warming temperatures has caused a delay in the freezing of the Bering and Chukchi Seas.²⁶ Since the 1980s, the Arctic seas are remaining ice-free approximately three weeks longer in the autumn.²⁷ The delay in freezing of the Arctic seas has left many communities exposed to the autumnal storms that originate in the Pacific and occur primarily between August and early December.²⁸ These Bering Sea storms, though technically not hurricanes, can cause hurricane-like damage on the coast due to wave action and storm surges.²⁹

Furthermore, climate change has affected the land itself. Along the northwestern Alaskan coast, permafrost—permanently frozen subsoil—is the “glue” that keeps the land intact and habitable.³⁰ But warming

21. *See generally* ARCTIC CLIMATE IMPACT ASSESSMENT, *supra* note 8 (describing the effects of a warming climate on Arctic ice).

22. Leonid Polyak, Richard B. Alley, John T. Andrews, Julie Brigham-Grette, Thomas M. Cronin, Dennis A. Darby, Arthur S. Dyke, Joan J. Fitzpatrick, Svend Funder, Marika Holland, Anne E. Jennings, Gifford H. Miller, Matt O'Regan, James Saville, Mark Serreze, Kristen St. John, James W.C. White & Eric Wolff, *History of Sea Ice in the Arctic*, 29 QUATERNARY SCI. REVS. 1757, 1773 (2010).

23. Mark C. Serreze, *Arctic Climate Change: Where Reality Exceeds Expectations*, WITNESS THE ARCTIC, Winter 2008/2009, at 3–4, http://www.arcus.org/files/witness-the-arctic/2009/1/pdf/wta2008_v13i01.pdf.

24. *Id.* “Sea ice extent” is the area of the Arctic Ocean covered by sea ice. *See id.*

25. Press Release, Nat'l Snow & Ice Data Ctr., Arctic Sea Ice Extent Remains Low; 2009 Sees Third-Lowest Mark (Oct. 6, 2009), http://nsidc.org/news/press/20091005_minimumpr.html.

26. *See* GARY HUFFORD & JAMES PARTAIN, CLIMATE CHANGE AND SHORT-TERM FORECASTING FOR ALASKAN NORTHERN COASTS 1 (2005) (“Sea ice is showing an approximate 8 percent decrease in areal extent since 1954, with winter freeze-up and spring melt arriving about three weeks later and earlier, respectively.”).

27. GARY HUFFORD & JAMES PARTAIN, CLIMATE CHANGE AND SHORT-TERM FORECASTING FOR ALASKAN NORTHERN COASTS 1 (2005).

28. *Id.*; SHULSKI & WENDLER, *supra* note 19, at 122.

29. David E. Atkinson, Int'l Arctic Research Ctr., Coastal Hazards in Alaska: Threats, Trends and Needs, Presentation at the University of Alaska, Fairbanks (Nov. 6, 2007).

30. GAO 2009, *supra* note 9, at 7.

temperatures are also causing the permafrost to thaw.³¹ In 2007, the IPCC reported that the temperature of the top layer of permafrost has increased by up to three degrees Celsius since the 1980s.³²

The complex interplay of these ecological changes is now endangering the indigenous communities that have inhabited the Arctic and boreal forest for millennia. Approximately 200 indigenous communities are located along Alaska's coasts and rivers, each one of which is dependent on easy access to navigable waters to fish and hunt marine mammals.³³ Food gathering is central to their culture and survival.³⁴ Because these communities have a small cash economy, and store-bought food is expensive due to the high cost of transporting food to rural communities, subsistence harvests are essential.³⁵ The changes in sea ice and permafrost have threatened their way of life by altering the ecosystems upon which these communities rely.

Arctic sea ice and frozen tundra provide critical ecosystem "services," such as protection from autumn storms and a firm foundation for construction, respectively.³⁶ Climate change is degrading these ecosystem services and the communities they protect. Near-shore pack ice has, in the past, protected coastal villages from erosion and flooding by creating a barrier to storm-related waves and surges.³⁷ The loss of Arctic sea ice coupled with thawing permafrost is causing erosion.³⁸

Since 2003, the U.S. government has issued several reports documenting the increasing severity of climate-induced threats to Alaska Native villages.³⁹ In 2003, the U.S. Government Accountability Office

31. Serreze, *supra* note 23, at 4.

32. Lemke, Ren, Alley, Allison, Carrasco, Flato, Fujii, Kaser, Mote, Thomas & Zhang, *supra* note 19, at 339.

33. U.S. GOV'T ACCOUNTABILITY OFFICE, ALASKA NATIVE VILLAGES: MOST ARE AFFECTED BY FLOODING AND EROSION, BUT FEW QUALIFY FOR FEDERAL ASSISTANCE 7-8 (2003) [hereinafter GAO 2003] (analyzing erosion and flooding in nine Alaska Native villages and assessing their ability to acquire federal funding to address these ecological threats).

34. VILL. OF NEWTOK, LOCAL HAZARDS MITIGATION PLAN 9 (2008), http://www.commerce.state.ak.us/dca/planning/pub/Newtok_HMP.pdf [hereinafter LOCAL HAZARDS MITIGATION PLAN].

35. See Rural Alaska Community Action Program, *Newtok: As Erosion Gnaws Towards Village, Its People Seek Means to Relocate*, 9 ALASKA'S VILLAGE VOICES 10, 13-14 (2006) [hereinafter RURAL CAP] (describing the hunting and fishing practices of Newtok inhabitants).

36. See LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 24-28 (describing the hazards caused by melting sea ice and tundra).

37. See *id.* at 27 ("Sea ice retreat allows larger storm surges to develop in the increased open water areas, increasing erosion, sedimentation, and risk of inundation in coastal areas.").

38. GAO 2009, *supra* note 9, at 7.

39. See, e.g., U.S. ARMY CORPS OF ENG'RS, ALASKA BASELINE EROSION ASSESSMENT (2009) (assessing erosion issues in 176 communities in Alaska and prioritizing twenty-six for

(GAO) found that flooding and erosion affect 184 indigenous villages, constituting approximately eighty-six percent of all Alaska Native communities.⁴⁰ The report also found that flooding and erosion imminently threatened four villages—Kivalina, Koyukuk, Newtok, and Shishmaref—which were planning to relocate.⁴¹ Six years later, the GAO issued a second report that found that the number of Alaskan villages seeking to relocate due to the immediate threat of climate-induced ecological change had tripled to twelve.⁴² Even with their survival in imminent danger, none of the villages have yet been relocated because of the governance issues that must be overcome to facilitate relocation.⁴³ The 2009 GAO report recognized that no government agency has the authority to relocate communities, no governmental organization exists that can address the strategic planning needs of relocation, and no funding is specifically designated for relocation.⁴⁴ Despite these obstacles, one community, Newtok, is in the process of relocation.⁴⁵

III.

CURRENT LAWS GOVERNING DISASTER RELIEF

Hazard mitigation and post-disaster relief are the traditional humanitarian responses to extreme environmental events, such as flooding, occurring in Alaska.⁴⁶ The statutory framework that governs post-disaster recovery and hazard mitigation encourages rigid responses to specifically defined random weather events. On the one hand, the federal post-disaster recovery humanitarian response has focused on providing temporary emergency assistance after a disaster.⁴⁷ On the other hand, hazard mitigation planning is mostly intended to reduce reliance on federal resources in the event of a disaster and to minimize the damage caused by severe weather events.⁴⁸ Neither of these responses addresses

immediate federal, state and local intervention),
http://www.climatechange.alaska.gov/docs/iaw_USACE_erosion_rpt.pdf

40. GAO 2003, *supra* note 33, at 2–3.

41. *Id.* at 4.

42. GAO 2009, *supra* note 9, at 16.

43. *Id.* at 27.

44. *See id.* at 24–27 (noting that “no comprehensive proactive federal relocation program exists to assist villages with their relocation efforts” and describing the funding sources available to address storm damage and erosion).

45. *See* discussion *infra* Part IV.

46. *See supra* note 9 and accompanying text.

47. *See generally* MITCHELL L. MOSS & CHARLES SHELHAMER, CTR. FOR CATASTROPHE PREPAREDNESS & RESPONSE, THE STAFFORD ACT: PRIORITIES FOR REFORM (2007), http://www.nyu.edu/ccpr/pubs/Report_StaffordActReform_MitchellMoss_10.03.07.pdf (identifying problems in federal disaster response and recommending new “catastrophic” designation under Stafford Act and improved response systems for FEMA).

48. *Cf. id.*

environmental disasters that occur gradually and require relocation.

Complex state and federal laws in the United States strictly define the term “major disaster” and “emergency” and specifically describe the type of hazard mitigation and post-disaster relief work that can be performed.⁴⁹ Moreover, federal and state funding can only be accessed within limited timeframes and for particular activities.⁵⁰ These significant statutory limitations prevent the government from responding effectively to the gradual climate-induced ecological changes that are forcing communities to relocate in Alaska.

A. Post-Disaster Recovery

The two federal statutes that define hazard mitigation and disaster relief do not make provisions for the relocation of an entire community, thus limiting the federal government’s ability to respond. The Alaska state statutes mirror the federal scheme and are therefore equally limited.

The Federal Emergency Management Agency (FEMA) is the federal agency responsible for hazard mitigation and disaster relief.⁵¹ The Robert T. Stafford Disaster Relief and Emergency Assistance Act, enacted in 1988, defines all FEMA post-disaster relief and hazard mitigation activities.⁵² A key component of the Act requires a presidential disaster declaration to access federal funding for post-disaster recovery as well as most hazard mitigation activities.⁵³ Generally, the Governor of an affected state must request this presidential disaster declaration.⁵⁴ Under the Stafford Act, the President is authorized to declare a disaster for natural catastrophes such as hurricanes, tornados, storms, high water, wind driven water, tidal waves, tsunamis, earthquakes, volcanic eruptions, landslides, mudslides, snowstorms, or drought.⁵⁵ Drought is the only gradual ecological process listed in the statute as a potential catalyst for a presidential disaster declaration.⁵⁶ Erosion, which is one of the significant

49. *See generally* The Robert T. Stafford Disaster Relief and Emergency Assistance (Stafford) Act, 42 U.S.C. §§ 5121–5208 (2006) (outlining when and how the federal government will respond to disasters).

50. *See generally id.*; ALASKA STAT. § 26.23.020 (2008); Immediate Action Workgroup, Meeting Summary, Jan. 18, 2008, at 3–6. The Immediate Action Workgroup is a working group of the Alaska Sub-Cabinet on Climate Change tasked with the responsibility to make recommendations regarding the actions and policies to be taken within twelve to eighteen months to prevent loss of life and property in Alaska’s communities that have been identified as those in greatest peril due to climate change.

51. GAO 2009, *supra* note 9, at 20.

52. Stafford Act, 42 U.S.C. §§ 5121–5208. *See also* the enabling regulations enacted by FEMA, 44 C.F.R. §§ 206.31–206.48 (2009) (enabling regulations enacted by FEMA).

53. 42 U.S.C. § 5170.

54. *Id.*

55. 42 U.S.C. § 5122.

56. *See id.*

hazards faced by Alaskan coastal communities, is not included in the list of major disasters in the Stafford Act.⁵⁷

Funding for post-disaster recovery is limited to actual disasters or imminent threats to life and property and generally begins on the date of the occurrence of the event that prompted the presidential disaster declaration.⁵⁸ Subsequently, the Stafford Act provides for different levels of federal assistance depending on the magnitude of damage caused by the environmental event.⁵⁹ The President may declare either an emergency, which is typically a smaller event where a limited federal role suffices, or a major disaster, which occurs where the natural catastrophe causes damage of greater severity and magnitude.⁶⁰ Federal resources are intended to merely supplement state and local resources for post-disaster recovery.⁶¹ The federal government pays seventy-five percent of the cost of recovery aid to state, local, and tribal governments; this includes the repair and replacement of damaged structures, such as buildings, utilities, roads, and bridges.⁶² Individuals and households are also eligible for post-disaster recovery funding, including temporary housing assistance to individuals whose homes are rendered uninhabitable because of a disaster.⁶³ These strategies, however, are designed to help rebuild individual homes in their current location, not rebuild communities in a new one.⁶⁴

In response to Hurricane Katrina, in 2006 Congress enacted the Post-

57. *Id.*

58. See 42 U.S.C. § 5189b (2006) (“Eligibility for Federal assistance under this subchapter shall begin on the date of the occurrence of the event which results in a declaration by the President that a major disaster exists; except that reasonable expenses which are incurred in anticipation of and immediately preceding such event may be eligible for Federal assistance under this chapter.”).

59. See 42 U.S.C. § 5193 (2006) (authorizing additional assistance beyond the normal \$5 million cap where “there is a continuing and immediate risk to lives, property, public health or safety”).

60. 42 U.S.C. § 5122.

61. See MOSS & SHELHAMER, *supra* note 47, at 7.

62. 42 U.S.C. § 5170b.

63. See 42 U.S.C. § 5174 (stating that the government “may provide financial assistance, and, if necessary, direct services, to individuals and households in the State who, as a direct result of a major disaster, have necessary expenses and serious needs in cases in which the individuals and households are unable to meet such expenses or needs through other means”).

64. GAO 2009, *supra* note 9, at 20. See also EDWARD A. THOMAS & SARAH K. BOWEN, POST-DISASTER RECONSTRUCTION: THE PATCHWORK QUILT 20 (2008) (describing the FEMA Individual and Households Program, which limits funds to temporary housing and repair and replacement of homes), http://www.floods.org/PDF/Post_Disaster_Reconstruction_Patchwork_Quilt_ET.pdf; FED. EMERGENCY MGMT. AGENCY, PUBLIC ASSISTANCE POLICY DIGEST 2008, at 5 (2008) (describing the Alternate Project Program, where construction of new public facilities must be within the declared disaster area), <http://www.fema.gov/pdf/government/grant/pa/pdigest08.pdf>.

Katrina Emergency Management Reform Act⁶⁵ to strengthen the federal government's ability to respond to natural disasters. Recognizing that natural disasters can cause "extraordinary levels" of damage to infrastructure as well as mass population displacement, Congress established a catastrophic disaster response level. However, the legislation did not change the Stafford Act's definitions of a major disaster or emergency, which are primarily limited to a one-time or a random extreme weather event.⁶⁶ The legislation also did not change the long-term recovery goal of the Stafford Act—i.e., to rebuild devastated communities in the same location.⁶⁷ Although the legislation included the development of a national disaster housing strategy⁶⁸ and programs to facilitate family reunions and locate displaced children,⁶⁹ the legislation did not authorize any funding or operational guidance for the relocation of an entire community.⁷⁰ As a consequence, neither the Stafford Act nor the Post-Katrina Emergency Management Reform Act provides a statutory framework for community relocation.⁷¹

The Alaska statutes that govern the state's post-disaster response mirror the federal statutory framework. The Governor is authorized to declare a "disaster emergency" if a natural catastrophe or the outbreak of a disease causes or threatens to cause severe damage or loss of life.⁷² The Alaska statutory definition of a disaster is almost identical to the federal definition.⁷³ Likewise, the Governor must declare a disaster emergency before funds are available to respond.⁷⁴ Funding can only be used to restore infrastructure to its condition before the occurrence of the disaster.⁷⁵ The Alaska Division of Homeland Security and Emergency

65. Post-Katrina Emergency Management Reform Act of 2006, Pub. L. No. 109-295, 120 Stat. 1394 (codified as amended in scattered sections of the U.S.C.).

66. *See id.* § 681 (amending Stafford Act §§ 402, 502, 42 U.S.C. §§ 5170a, 5192).

67. *See id.*

68. 6 U.S.C. § 772 (2006).

69. 6 U.S.C. §§ 774–775 (2006).

70. 6 U.S.C. § 701(4) (2006).

71. *Cf.* GAO 2009, *supra* note 9, at 24 ("While no comprehensive proactive federal relocation program exists to assist villages with their relocation efforts, individual agencies are providing some relocation assistance.").

72. *See* ALASKA STAT. § 26.23.900(2)–(3) (2008).

73. *Compare* ALASKA STAT. § 26.23.900(2) (defining "disaster" as a "result from . . . an incident such as storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, avalanche, snowstorm, prolonged extreme cold, drought, fire, flood, epidemic, explosion, or riot"), *with* 42 U.S.C. § 5122(2) (2006) ("Major disaster" means any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm or drought), or . . . any fire, flood, or explosion"). *See also* Newtok Planning Group, Meeting Summary, June 9, 2006, at 3, http://www.commerce.state.ak.us/dca/planning/pub/June9_Newtok_meeting_summary.pdf.

74. ALASKA STAT. § 26.23.020 (2008).

75. *See* ALASKA STAT. § 26.23.010 (2008) (listing "provid[ing] a setting conducive to

Management (DHS&EM) is the state agency that coordinates the state's post-disaster recovery efforts and also administers the FEMA-funded hazard mitigation and post-disaster grant programs.⁷⁶ This structure of agency responsibility replicates the structure at the federal level, and is therefore similarly ineffective in addressing the needs for relocation.

B. Hazard Mitigation

The federal program for pre-disaster mitigation comprises five FEMA grant programs, none of which provide for community-wide relocation. The Disaster Mitigation Act of 2000⁷⁷ modified the Stafford Act by establishing a federal program for pre-disaster mitigation.⁷⁸ Mitigation activities are designed to protect communities from naturally occurring hazards that may endanger people or cause permanent property damage.⁷⁹ Mitigation measures may be implemented prior to, during, or after a disaster and should include programs meant to “reduce the potential impacts of future disasters.”⁸⁰

The FEMA grant programs for mitigation activities have strict local government cost-sharing requirements and require a twenty-five percent state or local government match.⁸¹ Crucially, according to the GAO, “villages often fail to qualify for these programs” because of these requirements.⁸² This restriction also prevents disaster-affected communities from using other federal funding—such as funding from agencies such as the U.S. Army Corps of Engineers, which has the authority to construct flood and erosion control projects—to satisfy the cost sharing requirement.⁸³ Furthermore, no single federal program exists

the . . . restoration of property affected by a disaster” as one of the purposes of the Alaska Disaster Act).

76. ALASKA STAT. §§ 26.20.025, 26.23.040 (2008). *See also* LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 18; ALASKA DIV. OF HOMELAND SEC. & EMERGENCY MGMT., STATE HOMELAND SECURITY STRATEGY 2 (2008), http://www.ak-prepared.com/grant_forms/acrobat_docs/Alaska%202008%20State%20Homeland%20Security%20Strategy.pdf.

77. Disaster Mitigation Act of 2000, Pub. L. No. 106-390, 113 Stat. 1152 (codified as amended in scattered sections of 42 U.S.C.).

78. *Id.* § 102(a), 42 U.S.C. § 5133(b) (2006).

79. *Id.* *See generally* 44 C.F.R. Part 201 (2009) (providing regulations implementing the Disaster Mitigation Act of 2000).

80. U.S. DEP'T OF HOMELAND SEC., NATIONAL RESPONSE FRAMEWORK 46 (2008), <http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf>.

81. *See* GAO 2009, *supra* note 9, at 20–21, 37 (describing various cost-sharing requirements); Immediate Action Workgroup, Meeting Summary, Jan. 18, 2008, at 4, http://www.climatechange.alaska.gov/docs/iaw_18jan08_sum.pdf (same).

82. GAO 2009, note 9, at 20.

83. *See* THOMAS & BOWEN, *supra* note 64, at 11 (describing the U.S. Army Corps of Engineer Flood Management Services Program and Planning Assistance to States Program, which authorize flood assistance to non-federal entities, and noting that the U.S. Army

to proactively provide operational guidance and funding for the relocation of an entire community.⁸⁴

Three of the five FEMA mitigation grant programs are exclusively designated for flood assistance and require participation in the National Flood Insurance Program (NFIP).⁸⁵ The National Flood Insurance Act of 1968 allows any owner or renter of property located in a community participating in the NFIP to purchase a flood insurance policy.⁸⁶ This flood insurance program offers assistance to individual private property owners but does not contemplate relocation of entire communities.⁸⁷ To participate in the NFIP, Alaska state agencies must consider, and seek to limit, potential flood and erosion damage when enforcing land use and building regulations.⁸⁸ Thus, in 1998, former Governor Tony Knowles issued an administrative order requiring state-owned and state-financed construction projects to be sited and constructed in a manner that reduces the potential for flood and erosion damage.⁸⁹ While this does not make it more difficult for communities to relocate, it did create a barrier to Newtok to receiving funding to repair damaged infrastructure.⁹⁰

The two remaining federal hazard mitigation grant programs address non-flood-specific hazards and also have no regulatory process for the relocation of an entire community.⁹¹ The first, the Pre-Disaster Mitigation (PDM) program, is an annual national competitive grant that provides limited funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster.⁹² The second, the Hazard Mitigation Grant Program (HMGP), requires a presidential disaster declaration to access these funds.⁹³ In addition, only communities that have adopted a Hazard Mitigation Plan that has been approved by FEMA and the states where those communities are located can receive this funding.⁹⁴ Application for these funds must be made within one year of the disaster⁹⁵

Corps of Engineers is prohibited from funding flood control work).

84. GAO 2009, *supra* note 9, at 20.

85. *Id.* at 21.

86. *See* 42 U.S.C. §§ 4001–4012a (2006) (describing the NFIP).

87. Local governments are eligible to participate in the flood insurance program if they are incorporated. Newtok was not able to participate in this program because it is located in an unincorporated district in Alaska. 44 C.F.R. § 78.12; GAO 2009, *supra* note 9, at 24.

88. *See* 42 U.S.C. § 4001(e) (2006); 44 CFR § 60.3 (2009).

89. Alaska Admin. Order No. 175 (June 8, 1998), *available at* <http://gov.state.ak.us/admin-orders/175.html>.

90. *See infra* Part IV(C).

91. GAO 2009, *supra* note 9, at 20.

92. 42 U.S.C. § 5133.

93. *See generally* 44 C.F.R. §§ 206.430–440 (2009) (referring to the various requirements imposed on states that seek to receive HMGP funds following a presidential disaster declaration).

94. *See* 44 C.F.R. § 201.6 (2009).

95. 44 C.F.R. § 206.436(d).

and can be used to implement long-term hazard mitigation measures, such as the elevation of flood prone structures; the relocation of individual structures out of the floodplain; natural hazard protective measures for power, water and sanitary sewer systems; and flood control projects.⁹⁶

None of these mitigation grant programs include a funding mechanism to facilitate a community-wide relocation effort. Nor do the programs have sufficient funds to comprehensively address the erosion problems occurring in Alaskan Native villages.⁹⁷ Furthermore, the cost-effectiveness measures required by these laws often disadvantage Native villages seeking relocation. FEMA evaluates mitigation grant projects on the basis of the cost-effectiveness of the proposed project.⁹⁸ Because of the high construction costs, due to high transportation expenses, and the small populations in rural Alaska, village relocation projects have low benefit-to-cost ratios.⁹⁹ As a result, although communities like Newtok can apply for funding from the mitigation grant program to fund individual relocation projects, its small population and remote location create significant hurdles to winning a grant when competing with larger, urban communities.

Federal funding is also available through the HMGP to develop a Hazard Mitigation Plan. Mitigation planning requires a comprehensive risk assessment, which consists of three components: hazard identification, vulnerability assessment, and risk analysis.¹⁰⁰ The first step includes the identification and description of hazards.¹⁰¹ Vulnerability assessments then identify the critical infrastructure in a community that is susceptible to damage by these hazards. Facilities are designated as critical if they are:

- (1) vulnerable due to the type of occupant (children or elderly for example);
- (2) critical to the community's ability to function (health clinics, transportation systems such as airways and roads, power generation facilities or water treatment facilities);
- (3) have a historic value to the community (cemetery); or
- (4) critical to the community in the event of a hazard occurring (emergency shelter, etc.).¹⁰²

Finally, the risk assessment calculates the potential damage to this critical

96. See 44 C.F.R. § 78.12 (2009) (describing the eligibility criteria for projects for flood mitigation assistance funding); § 206.434(c)–(d) (describing eligibility for the HMGP, including the requirement that programs must “[c]ontribute[], to the extent practicable, to a long-term solution to the problem it is intended to address“ and noting that eligible programs may include “[c]onstruction activities that will result in protection from hazards”).

97. See GAO 2009, *supra* note 9, at 24.

98. *Id.* at 22.

99. *Id.* at 22–23.

100. 44 C.F.R. § 201.4(c) (2009).

101. *Id.*; LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 5.

102. LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 7.

infrastructure to determine which hazards will have the greatest impact on the community.¹⁰³ This risk assessment requirement is intended to provide information that will help the community identify and prioritize mitigation activities to prevent or reduce losses from the identified hazards.¹⁰⁴ In addition, local mitigation plans must contain a cost-benefit analysis that examines the economic assessment of each mitigation action.¹⁰⁵ However, there is no requirement to continuously update the hazard mitigation plan as conditions change, although the regulations require that approved mitigation plans be reviewed at least every five years.¹⁰⁶ Thus, this option also does not take into account gradual environmental changes that necessitate a government response.

C. Conclusion

Post-disaster recovery and hazard mitigation laws provide the only statutory framework with which to respond to the climate-induced threats to Alaskan indigenous communities. Because these laws are designed to repair and replace damaged infrastructure in a community's original location, however, they focus on temporary displacement rather than permanent relocation. As described in greater detail in Part IV, these laws have impeded efforts to relocate communities and are inadequate to address the social and ecological crises occurring in Alaska. Newtok's relocation, discussed in the next Part, exemplifies the need to amend these laws so that they are more responsive to the humanitarian crises created by climate change.

103. *Id.* at 6. *See also* 44 C.F.R. § 201.4(c)(2)(iii) (noting that effective hazard mitigation plans should include “[a]n overview and analysis of potential losses to the identified vulnerable structures”).

104. *See* LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 6.

105. 44 C.F.R. § 201.6(c)(3)(iii) (2009).

106. 44 C.F.R. § 201.6(c)(4)(i).

IV.
NEWTOK¹⁰⁷

Newtok is a traditional Yup'ik Eskimo village located close to the Bering Sea in far western Alaska.¹⁰⁸ The Newtok Traditional Council is one of 229 federally recognized indigenous tribes in Alaska.¹⁰⁹ The village's ancestors have lived on the Bering Sea coast for at least 2,000 years and are known as Qaluyaarmiut or "dip net people."¹¹⁰ Today, the community thrives on subsistence foods, such as moose, salmon, musk ox, and seal.¹¹¹

Small, isolated, and surrounded by water, the village of Newtok consists of a cluster of approximately sixty-three houses.¹¹² No roads lead

107. Since February 2007, the author has attended approximately twenty-five meetings sponsored by tribal, state and federal government officials working to relocate Newtok. Two different government working groups are addressing Newtok's relocation: the Newtok Planning Group and the Immediate Action Workgroup, a working group of the Alaska Sub-Cabinet on Climate Change. Between February 2007 and December 2010, the author has attended approximately eighteen Newtok Planning Group meetings. Federal agencies represented at these meetings included the U.S. Army Corps of Engineers, Alaska District; the U.S. Department of Commerce, Economic Development Administration; the U.S. Department of Agriculture, Rural Development; the U.S. Department of Agriculture, Natural Resources Conservation Service; the U.S. Department of Housing and Urban Development; the U.S. Department of the Interior, Bureau of Indian Affairs; the U.S. Department of Transportation, Federal Aviation Administration; the U.S. Environmental Protection Agency, and the Denali Commission. State agencies participating in the meetings include the Alaska Department of Commerce, Community, and Economic Development, Division of Community & Regional Affairs, which is coordinating the Newtok Planning Group; the Alaska Department of Environmental Conservation's Village Safe Water Program; the Alaska Department of Transportation and Public Facilities; the Alaska Department of Military and Veterans Affairs/Division of Homeland Security and Emergency Management; the Alaska Department of Natural Resources, Division of Coastal and Ocean Resources; the Alaska Department of Education and Early Development; the Alaska Department of Health and Social Services; and the Alaska Industrial Development and Export Authority/Alaska Energy Authority. Agency participation at each meeting varied. The details of the Comprehensive Strategic Relocation Plan, including the decommissioning of the old village site, were discussed by various members of the Newtok Planning Group over the course of several meetings.

The author has also traveled to Newtok seven times since December 2007, most recently in December 2010, to observe the community relocation meetings, to administer a housing survey to understand the housing needs for the relocation and to observe the infrastructure development at the relocation site.

108. IAW 2008 RECOMMENDATIONS, *supra* note 14, at 17.

109. Indian Entities Recognized and Eligible to Receive Services from the United States Bureau of Indian Affairs, 73 Fed. Reg. 18,553, 18,557 (Apr. 4, 2008).

110. SALLY RUSSELL COX, AN OVERVIEW OF EROSION, FLOODING, AND RELOCATION EFFORTS IN THE NATIVE VILLAGE OF NEWTOK 2 (2007).

111. RurAL CAP, *supra* note 35, at 11–19.

112. U.S. CENSUS BUREAU, PROFILE OF GENERAL DEMOGRAPHIC CHARACTERISTICS: 2000, GEOGRAPHIC AREA: NEWTOK ANVSA, AK tbl.DP-1 (2000) <http://censtats.census.gov/data/AK/280027055.pdf> [hereinafter NEWTOK DEMOGRAPHIC PROFILE].

to or from Newtok and there are no cars. The only year-round access to the community is by airplane, which seats a maximum of ten passengers. Food, supplies, and basic necessities are carried to the community on these small planes.¹¹³ Airplane travel to Newtok is completely unpredictable due to extreme weather conditions, from ground fog to hurricane-strength blizzards. Days can pass without any ability to travel to or from the community.¹¹⁴ Barges travel to Newtok during the summer to bring fuel and other supplies too large or heavy to be carried by plane.¹¹⁵ Extreme winter temperatures are common for the west coast of Alaska, where the mercury can plunge to two degrees Fahrenheit for weeks.¹¹⁶ In the summer, temperatures hover around sixty degrees Fahrenheit and the earth becomes extremely muddy due to the melting permafrost. Wooden boardwalks connect all of the buildings.¹¹⁷

The community moved to its current site between the Ninglick and Newtok Rivers in 1950¹¹⁸ when the Bureau of Indian Affairs (BIA) decided that the community needed a school.¹¹⁹ The Newtok River provided a good landing site for the barge containing the construction materials and equipment to build the schoolhouse.¹²⁰ At the time of the move, approximately 100 people lived in the community, which consisted of houses made of sod or built using a simple frame.¹²¹ The Holy Family Catholic Church was the only framed building and a dog team moved it to its current location using sleds.¹²² The BIA built a school in Newtok's current location in 1958.¹²³

Newtok's population has tripled since 1950, and inadequate housing has become a problem.¹²⁴ According to the 2000 Census, 321 people reside in the community,¹²⁵ yet few homes have insulation to protect residents from the extreme cold.¹²⁶ Several homes are sinking into melting

113. *See supra* note 107.

114. *See supra* note 107.

115. *See* LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 12–13, 22. *See also supra* note 107.

116. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 7.

117. *See supra* note 107.

118. The community moved from Old Kealavik, which was across the Newtok River and approximately ten miles from the community's current location. ARCTIC SLOPE CONSULTING GROUP, NEWTOK TRANSPORTATION PLAN 1 (2001) http://www.commerce.state.ak.us/dca/planning/pub/Newtok_FINAL_Plan.pdf [hereinafter NEWTOK TRANSPORTATION PLAN].

119. *Id.*; RurAL CAP, *supra* note 35, at 16.

120. RurAL CAP, *supra* note 35, at 16.

121. *Id.*

122. *Id.*

123. *Id.*

124. *See id.*

125. NEWTOK DEMOGRAPHIC PROFILE, *supra* note 112, at tbl.DP-1.

126. *See* note 107. These observations were made while conducting a home survey

permafrost. Thawing permafrost and erosion are also preventing the community from building new homes to meet the needs of its population, causing a housing shortage.¹²⁷ None of the homes, many of which have only one or two rooms, have complete plumbing facilities.¹²⁸ Instead, most residents haul water or have water storage tanks.¹²⁹ Fresh water is pumped from a shallow tundra pond to a water treatment facility and storage tank.¹³⁰ The treated water is available to residents at a centrally located pumping station.¹³¹ The last filling of the storage tank in fall must last through the winter, when Newtok's residents must rely on melted ice if water in the storage tank freezes or the tank is empty.¹³²

The Newtok Traditional Council is the sole governing body for the community and has limited administrative and technical staff.¹³³ Stanley Tom is Newtok's current tribal administrator. Public infrastructure in Newtok includes a gravel airstrip, public laundry facility, tribal government office, post office, school, water treatment plant, and three stores.¹³⁴ However, store-bought food is extremely expensive due to transportation costs; one gallon of milk can cost over nine dollars.¹³⁵ Medical care is provided by a health aide at the Newtok Health Clinic.¹³⁶ Large cylindrical tanks store the fuel that powers and heats the community. The fuel storage facilities are close to the Newtok River to ease delivery by barge.¹³⁷

A. Problems Caused by Climate Change

A combination of gradual ecosystem changes and rapid onset extreme environmental events is damaging public infrastructure in Newtok and endangering the lives and well-being of the village's inhabitants.

1. Ecological Changes

The community of Newtok sits on top of permafrost in the Yukon-Kuskokwim Delta, one of the largest river deltas in the world.¹³⁸ The

during the summer of 2009.

127. *See supra* note 107.

128. NEWTOK DEMOGRAPHIC PROFILE, *supra* note 112, at tbl.DP-4.

129. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 5.

130. *Id.* at 11.

131. *Id.*

132. *Id.* at 6.

133. ARCTIC SLOPE CONSULTING GROUP, NEWTOK: BACKGROUND FOR RELOCATION REPORT 3-4 (2004) [hereinafter BACKGROUND REPORT]. *See also supra* note 107.

134. NEWTOK TRANSPORTATION PLAN, *supra* note 118, at 5, 13.

135. Kyle Hopkins, *Lacking Alternatives, Villagers Can't Kick Soda Habit*, ANCHORAGE (A.K.) DAILY NEWS, July 20, 2008, at A1.

136. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 6.

137. *Id.* at 8-10.

138. COX, *supra* note 110, at 2.

permafrost is ice-rich and, in thaw periods, becomes muddy and has virtually no bearing capacity.¹³⁹ Marshy tundra and thousands of lakes surround the village. The Ninglick River borders the community to the south; to the east is the Newtok River.¹⁴⁰ Both rivers drain into the Bering Sea, located approximately ten miles to the west.¹⁴¹ Newtok's close proximity to the Bering Sea makes the community highly vulnerable to flooding from tidal activity and storm surges.¹⁴²

Unfortunately, erosion is changing the course of the Ninglick River, moving it closer to the village of Newtok. A combination of increased temperatures, thawing permafrost, wave action, and river current is accelerating the rate of erosion.¹⁴³ When the community moved to its current location in 1950, more than one mile separated the Ninglick River from the homes of community members.¹⁴⁴ Between 1954 and 2003, approximately three-quarters of a mile of tundra eroded in front of the village.¹⁴⁵ Efforts by the State of Alaska to control the erosion between 1983 and 1989 totaled approximately \$1.5 million.¹⁴⁶ In spite of these efforts, according to the U.S. Army Corps of Engineers, the projected erosion of the Ninglick River toward Newtok will reach the school, the largest structure in the community, by approximately 2017.¹⁴⁷ The movement of the Ninglick River closer to the Newtok River has caused the Newtok River to become a slough in front of the community.¹⁴⁸ At low tide, the Newtok River appears similar to a mudflat.¹⁴⁹

Six extreme weather events, occurring between 1989 and 2006, exacerbated these gradual ecological changes, five of which precipitated FEMA disaster declarations.¹⁵⁰ FEMA declared three disasters between October 2004 and May 2006 alone.¹⁵¹ In October 2004, the Ninglick River

139. LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 26–27.

140. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 3.

141. *Id.* at 1, 3.

142. *Id.* at 10.

143. Multimedia Presentation, Sally Russell Cox, An Overview of Erosion, Flooding, and Relocation Efforts in the Native Village of Newtok, Alaska, <http://www.commerce.state.ak.us/dca/planning/NewtokOverview/index.html>.

144. RurAL CAP, *supra* note 35, at 13.

145. *See* COX, *supra* note 110, at 6.

146. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 4.

147. U.S. ARMY CORPS OF ENGINEERS, REVISED ENVIRONMENTAL ASSESSMENT: FINDING OF NO SIGNIFICANT IMPACT: NEWTOK EVACUATION CENTER: MERTARVIK, NELSON ISLAND, ALASKA 1 (2008), http://www.commerce.state.ak.us/dca/planning/pub/Newtok_Evacuation_Center_EA_&_FONSI_July_08.pdf [hereinafter REVISED ENVIRONMENTAL ASSESSMENT].

148. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 8.

149. *See supra* note 107.

150. *See* LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 29–30 (describing previous incidents of floods and storm surges).

151. *Id.*

and Bering Sea had not yet frozen when a powerful fall storm inundated the village.¹⁵² In its disaster declaration, the state recognized that the storm would threaten the lives of Newtok's inhabitants and damage critical infrastructure, including power distribution, water and septic systems, and fuel storage tanks.¹⁵³ But the severity and magnitude of the storm was beyond the recovery capability of local resources.¹⁵⁴ Then, in September 2005, a sea storm caused severe flooding that completely encircled Newtok, prompting a second FEMA disaster declaration.¹⁵⁵ Floating boardwalks were the only connection between several houses to the village.¹⁵⁶ Due to this early fall storm, Newtok residents were prevented from filling their sole water storage tank before the water supply from the tundra pond froze for the winter.¹⁵⁷ By early January 2006, Newtok inhabitants used the last stored water and had no easily accessible clean water supply.¹⁵⁸ In August 2006, the President declared the third disaster in less than three years because of flooding.¹⁵⁹ These three storms accelerated the rates of erosion and repeatedly "flooded the village water supply, caused raw sewage to be spread throughout the community, displaced residents from homes, destroyed subsistence food storage and other facilities, and shut down essential utilities."¹⁶⁰

2. *Community Impacts*

These climate-induced ecological changes have significantly damaged or destroyed Newtok's public infrastructure, including the village dumpsite, barge ramp, sewage treatment facility, and fuel storage facilities.¹⁶¹ In 1996, the village dumpsite eroded into the Newtok River.¹⁶² A new dumpsite located across the Newtok River from the village, built as a short-term emergency response in 1996,¹⁶³ is still in use as of 2010.¹⁶⁴ Garbage gathers on the village side of the Newtok River and can only be transported by boat across the river at high tide.¹⁶⁵ The close proximity of

152. Cox, *supra* note 110.

153. *Id.*

154. Disaster Declaration, 69 Fed. Reg. 70,466 (Dec. 6, 2004).

155. See LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 30.

156. *Id.*

157. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 11.

158. *Id.*

159. Disaster Declaration, 71 Fed. Reg. 47,239 (Aug. 16, 2006). See also LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 30.

160. REVISED ENVIRONMENTAL ASSESSMENT, *supra* note 147, at 5.

161. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 7–14.

162. LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 12.

163. *Id.*

164. See *id.* at 33–34 (indicating that the dumpsite was still in use at the time the report was written). See also *supra* note 107.

165. LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 33.

the garbage collection point to the village is a nuisance to nearby residents because of the odor and scattered debris.¹⁶⁶

In 2005, Newtok's primary barge landing eroded into the Ninglick River.¹⁶⁷ During the summer, barges customarily travel from the Bering Sea up the Ninglick River to Newtok to deliver essential supplies to the community. The loss of the barge landing, coupled with the diminished flow of the Newtok River, is an enormous hardship for the community. In April 2006, a fuel barge grounded for three days in the Newtok River, causing the barge company to severely restrict travel to Newtok.¹⁶⁸ Limited access by the summer barge has dramatically impacted the village's ability to receive cost-effective fuel delivery, thus straining power sources later in the year when the fuel runs out.¹⁶⁹ Without access to fuel, the community has no electricity.¹⁷⁰

While building a new barge ramp is essential, a barge landing cannot be rebuilt at Newtok's current location because of erosion.¹⁷¹ The community identified a relocation site where a new barge landing could be built. However, the Stafford Act requirements to repair and rebuild at the original disaster location prevent using these resources to rebuild the barge landing at the relocation site.¹⁷² The fuel tank storage facility is also severely deteriorated and subject to flooding.¹⁷³ Due to their condition, the U.S. Coast Guard will not allow the fuel tanks to be fully filled, which aggravates the problem of a limited cost-effective fuel supply for the village.¹⁷⁴

Furthermore, Newtok lacks an adequate sewage disposal system.¹⁷⁵ The design of a solid waste master plan was deferred because of the community's decision to relocate and the government's reluctance to build new infrastructure in an existing floodplain and on thawing permafrost.¹⁷⁶ As a result, "honey buckets"—five-gallon buckets with plastic bag liners—

166. *Id.* at 34.

167. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 8.

168. *See id.* at 8–10 (“Fall 2006 fuel deliveries were not made. The community is experiencing a fuel crisis.”).

169. *See id.*

170. *See supra* note 107.

171. *See* LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 32–33; BACKGROUND REPORT, *supra* note 132, at 10.

172. *See supra* Part III.

173. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 13–14.

174. *Id.* at 13–14. *See also supra* note 107.

175. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 11.

176. *See id.* at 20 (“Opportunities for replacing these lost or compromised components of the community are hindered by the rapidly deteriorating physical conditions at the site and by public investment policies that preclude investments of new infrastructure at Newtok because it is subject to flooding and erosion.”).

are used in most homes in place of plumbing and sewage disposal.¹⁷⁷ Newtok residents dump raw sewage from the honey bucket into the Newtok River, located just adjacent to the community.¹⁷⁸ Because this section of the river has become a slough, the river is not able to flush the waste away from the village.¹⁷⁹ Raw sewage from the school is dumped into a sewage lagoon, an open-air pond between the school and the Newtok River.¹⁸⁰ Due to the lagoon's close proximity to the Newtok River, it is subject to flooding and leaks into an area residents use to dry subsistence fish.¹⁸¹

In addition to the problems with deteriorating infrastructure, saline intrusion impacts Newtok's access to potable water.¹⁸² The U.S. Army Corps of Engineers estimates that erosion will consume the primary tundra pond providing water to the community "by 2016 or 2012, given an average and maximum erosion rate, respectively."¹⁸³ In 2006, the Yukon-Kuskokwim Health Center conducted a public health survey and found "sanitation conditions in Newtok to be grossly inadequate for public health protection."¹⁸⁴ Between 1994 and 2004, twenty-nine percent of Newtok infants were hospitalized with lower respiratory tract infections because of high levels of community contamination resulting from the lack of potable water for drinking, hygiene, and sanitation.¹⁸⁵ Washing hands regularly is a hardship with limited access to water.

The combination of increased climate-induced ecological hazards and the community's decision to relocate has severely limited capital investment in existing public infrastructure in Newtok.¹⁸⁶ The 2004, 2005, and 2006 FEMA disaster declarations released federal government funding to repair and replace community facilities destroyed during the storms.¹⁸⁷ Due to the statutory restrictions of the National Flood Insurance Program, however, government agencies are unable to use these funds to invest in existing infrastructure in Newtok because of the current and

177. *Id.* at 5.

178. *Id.* at 5–6.

179. COX, *supra* note 110, at 8.

180. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 13.

181. *Id.*

182. *Id.* at 20.

183. *Id.*

184. *Id.*

185. Stanley Tom, Tribal Administrator, Newtok Traditional Council, Presentation to Immediate Action Workgroup (Nov. 6, 2007), http://www.climatechange.alaska.gov/docs/Newtok_6NOV07bww.pdf (citing TROY RITTER, MARK STAFFORD, JENNIFER DOBSON & SUZANNE EDELMAN, ENVIRONMENTAL PUBLIC HEALTH ASSESSMENT: NEWTOK, ALASKA (2006)).

186. LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 34; SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 20.

187. LOCAL HAZARDS MITIGATION PLAN, *supra* note 34, at 30.

expected future loss of and damage to these facilities due to their location in areas prone to flooding.¹⁸⁸ The hazard mitigation laws, written to protect people and infrastructure from flooding, require government agencies to defer construction in places susceptible to flooding.¹⁸⁹ As a consequence, Newtok's seriously deteriorated infrastructure could not be upgraded because the entire community was prone to flooding and there was no alternate location within the community to address the infrastructure needs of the existing village.¹⁹⁰

At the same time, federal and state disaster recovery statutes also hindered use of the funding to build new infrastructure at Newtok's relocation site.¹⁹¹ In January 2005, then-Governor Frank Murkowski enacted Administrative Order No. 224 which prioritized "the infrastructure needs of existing communities before consideration of proposals to create new communities, unless there is a congressionally directed relocation of an existing community."¹⁹² Congress has not authorized the relocation of any community in Alaska and no federal agency has the authority to relocate a community.¹⁹³ Without Congressional or federal agency relocation authority, state funding for

188. See IAW 2008 RECOMMENDATIONS, *supra* note 14, at 51; BACKGROUND REPORT, *supra* note 133, at 11. See also 42 U.S.C. § 4022(a)(1) (2006); ALASKA STAT. § 26.23.150 (2008); 44 C.F.R. § 60.3 (2009); Alaska Admin. Order No. 175, *supra* note 89 (requiring state-owned and state-financed construction projects to be sited and constructed in a manner that reduces the potential for flood and erosion damage).

189. 42 U.S.C. § 4022(a)(1); ALASKA STAT. § 26.23.150.; 44 C.F.R. § 60.3.

190. See *infra* Part IV.A. See also IAW 2008 RECOMMENDATIONS, *supra* note 13, at 51; BACKGROUND REPORT, *supra* note 132, at 11.

191. See GAO 2009, *supra* note 9. See also IAW 2008 RECOMMENDATIONS, *supra* note 14, at 50–52.

192. Alaska Admin. Order No. 224 (Jan. 28, 2005), <http://gov.state.ak.us/admin-orders/224.html>.

193. See GAO 2009, *supra* note 9, at 24. Section 117 of the Energy and Water Development Appropriations Act of 2005 authorized the U.S. Army Corps of Engineers to be the lead agency for Corps-led proposals at Mertarvik and authorized the U.S. Army Corps of Engineers to relocate specific communities at full federal expense. Energy and Water Development Appropriations Act of 2005, Pub. L. No. 108-447, § 117, 118 Stat. 2935, 2944–45 (2004). Despite this authority, no community was relocated between 2003 and 2009 when Section 117 authorized these actions. Instead, the U.S. Army Corps used these funds to conduct studies to determine the viability of relocation and to assess relocation sites. Section 117 addressed the limited issue of construction of infrastructure at relocation sites and did not provide any guidance regarding the relocation process for Newtok residents or the development of a comprehensive relocation strategic plan. In March 2009, Congress repealed this critical legislation that authorized the U.S. Army Corps of Engineers to take the lead in Newtok's relocation effort. Energy and Water Development and Related Agencies Appropriations Act of 2009, Pub. L. No. 111-8, § 117, 123 Stat. 601, 608 (2009). In the 2010 appropriations bill, the Corps received a new Alaska Coastal Erosion authority, which is the same as the prior Section 117 authority except that it requires cost sharing with a non-federal entity. Energy and Water Development and Related Agencies Appropriations Act of 2010, Pub. L. No. 111-85, § 116, 123 Stat. 2845, 2851.

Newtok's relocation has not been prioritized.¹⁹⁴ Relocation efforts are compartmentalized, which has led to delays in Newtok's relocation.¹⁹⁵ For these reasons, Newtok inhabitants continue to reside in a community with seriously deteriorated infrastructure that constitutes a severe public health risk.

B. Prior Studies Regarding this Crisis

State, federal, and tribal government and nongovernmental agencies have authorized numerous reports to document the socio-ecological crisis faced by Newtok residents and the habitability of the relocation site.¹⁹⁶ These reports serve as a model for the type of documentation needed to demonstrate that relocation is the only feasible solution to protect community residents from climate-induced ecological change. The Newtok Traditional Council (the Council) commissioned the oldest report, which was completed in 1984 and evaluated the impact of the Ninglick River's erosion impact on the community.¹⁹⁷ The Council commissioned a second erosion assessment in 2004.¹⁹⁸ The 2004 Newtok Background for Relocation Report, prepared by Arctic Slope Consulting Group (ASCG), is the primary document guiding state and federal government agencies in Newtok's relocation process.¹⁹⁹ This report summarized the previous erosion studies, mapped the advancing Ninglick River to show the scope of erosion, documented the socio-ecological impacts of erosion on the village, and developed a tentative timeline for the short-term and long-term relocation of residences.²⁰⁰ The report also described the Council's evaluation of each potential village relocation site, including "collocation" to one of four existing communities or relocation to one of six potential new sites in the region.²⁰¹ In addition, it contained the results of the 2003 resident survey, which asked Newtok residents to vote on relocation alternatives.²⁰²

Congress mandated two reports to assess the impact of erosion and

194. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 15. *See also* IAW 2008 RECOMMENDATIONS, *supra* note 14, at 50–52.

195. *See* SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 15.

196. *See id.* at 2–5 (describing previous studies).

197. VILL. OF NEWTOK, NINGLICK RIVER EROSION ASSESSMENT ADDENDUM (1984) (assessing causes and rates of Ninglick River erosion in proximity to the village of Newtok and examining potential mitigation solutions, including relocation, which was found to be the most cost-effective solution to the erosion problems).

198. BACKGROUND REPORT, *supra* note 133.

199. *See id.*

200. *Id.* at 8–14.

201. *Id.* at 15–19.

202. *Id.* at 19.

flooding on Alaskan communities and the viability of relocation.²⁰³ In 2003, the GAO evaluated the erosion and flooding impacts on nine Alaskan communities, including Newtok, and outlined possible solutions.²⁰⁴ The second report, published in 2009, evaluated the progress made to protect communities from erosion and flooding and specifically evaluated the progress made to relocate communities.²⁰⁵

The U.S. Army Corps of Engineers also evaluated the habitability of Newtok's relocation site, named Mertarvik.²⁰⁶ The studies include a 2002 site reconnaissance to evaluate the surface and subsurface conditions.²⁰⁷ The Corps also performed an environmental assessment to evaluate wetlands; fish and wildlife resources; cultural resources; water quality and quantity; and erosion and flooding.²⁰⁸ These studies confirm the findings of the Council that Mertarvik is a suitable relocation site.²⁰⁹

In addition, the U.S. Army Corps of Engineers funded two reports between 2005 and 2008 to evaluate Newtok's erosion problem and develop solutions.²¹⁰ The 2008 report analyzed five alternative responses to the social and ecological crisis facing Newtok village residents.²¹¹ These alternatives included: taking no action; staying in place with erosion and flood control; collocation; relocation funded and orchestrated solely by the Corps of Engineers; and a collaborative relocation effort.²¹² The report found that a coordinated relocation effort was in the best interests of Newtok residents, explaining:

With no Federal and state action, relocation efforts will be piecemeal and uncoordinated and will increase ultimate costs

203. GAO 2009, *supra* note 9; GAO 2003, *supra* note 33.

204. GAO 2003, *supra* note 33.

205. GAO 2009, *supra* note 9.

206. SECTION 117 PROJECT FACT SHEET, *supra* note 14; REVISED ENVIRONMENTAL ASSESSMENT, *supra* note 147; U.S. ARMY CORPS OF ENG'RS, ALASKA VILLAGES EROSION TECHNICAL ASSISTANCE NEWTOK, ALASKA: PRELIMINARY RELOCATION PLANNING ANALYSIS (2006) [hereinafter PRELIMINARY RELOCATION PLANNING ANALYSIS] (documenting state and federal agency workshops held in December 2004 and September 2005 and presenting a preliminary timeline for planning and design tasks); U.S. ARMY CORPS OF ENG'RS, ALASKA VILLAGE EROSION TECHNICAL ASSISTANCE PROGRAM (2006) [hereinafter TECHNICAL ASSISTANCE PROGRAM] (providing preliminary cost estimates for the alternatives of relocation, collocation, and a stay-in-place solution).

207. U.S. ARMY CORPS OF ENG'RS, PRELIMINARY GEOTECHNICAL OVERVIEW (2002), http://www.commerce.state.ak.us/dca/planning/pub/2002_Prel_Geotechnical_COE.pdf.

208. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 2.

209. *Id.*; REVISED ENVIRONMENTAL ASSESSMENT, *supra* note 147.

210. PRELIMINARY RELOCATION PLANNING ANALYSIS, *supra* note 206 (documenting state and federal agency workshops in December 2004 and September 2005 and presenting a preliminary timeline for planning and design tasks); TECHNICAL ASSISTANCE PROGRAM, *supra* note 206 (providing preliminary costs for the alternatives of relocation, collocation, and a stay-in-place solution).

211. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 14–21.

212. *Id.*

many times over a coordinated, efficient relocation plan. Local efforts will take many years and the existing significant risk to health, life, and property will continue in Newtok. The disintegration of these people as a distinct tribe may result from splitting the community in two or more locations for many years as they relocate under their own efforts.²¹³

The Corps also specifically rejected the collocation alternative, finding that “[c]ollocation would destroy the Newtok community identity.”²¹⁴

C. Newtok’s Response To the Crisis

The community of Newtok tried responding to its rapidly changing environment with three strategies: erosion control, collocation to other established villages in the region, and relocation of the entire village to a new site. Erosion control failed and the tribe determined it was not a feasible long-term solution.²¹⁵ Collocation required Newtok residents to live in different communities separated by hundreds of roadless miles.²¹⁶ In a 2006 interview, Stanley Tom, the Tribal Liaison for the Newtok Traditional Council, stated, “We opposed that co-location 100 percent . . . our kids, our relatives—we’re all relatives here—we want to be together as much as we can.”²¹⁷ Believing that relocation of the entire community was the only option to protect community residents, the Council planned their community’s relocation.²¹⁸

The Council facilitated a three-pronged relocation process that involved the identification of a new village site location, Newtok resident voter approval of the relocation site, and the creation of documentation to substantiate the need to relocate and the suitability of the relocation site for the community.²¹⁹ The Council began evaluating relocation sites in 1994.²²⁰ The Council determined each site’s habitability for the community by assessing the following criteria: “good soil foundation for village development, no erosion, land suitable for an airport, good barge access and access to subsistence.”²²¹ The Council also wanted to make sure that their relocation site did not infringe on the subsistence areas of other villages.²²² Based on these criteria, the Council identified the appropriate

213. *Id.* at 15.

214. *Id.* at 16.

215. BACKGROUND REPORT, *supra* note 133, at 12–13.

216. RURAL CAP, *supra* note 35, at 15.

217. *Id.*

218. *See* COX, *supra* note 110, at 3–4.

219. BACKGROUND REPORT, *supra* note 133.

220. *See* COX, *supra* note 110, at 4.

221. There are no government standards to determine the suitability of the relocation site. BACKGROUND REPORT, *supra* note 133, at 16.

222. *See supra* note 107.

relocation site, located nine miles away on Nelson Island.²²³

Newtok inhabitants voted three times—in September 1996, May 2001, and August 2003—and overwhelmingly chose to relocate to Nelson Island.²²⁴ They also rejected any option to collocate to an existing village.²²⁵ Nelson Island is the fifteenth largest island in the United States.²²⁶ Tununak, Tooksook Bay, and Nightmute are the only three communities located on the island.²²⁷ The total population of these indigenous communities is approximately 1,065 residents.²²⁸ Seventy-seven percent of the island is uninhabited.²²⁹ Newtok residents plan to relocate to a site on the northwestern part of the island, approximately forty miles from the nearest village on Nelson Island.²³⁰ No roads lead to or from the relocation site.²³¹ No infrastructure exists at the site. Newtok residents named their relocation site “Mertarvik,” a Yup’ik name that means “getting water from the spring.”²³²

1. *Land Acquisition for the Relocation*

The federal government owned the Nelson Island relocation site, located within the Yukon Delta National Wildlife Refuge and managed by the U.S. Fish and Wildlife Service (USFWS).²³³ To obtain ownership of this federal land, the Council first obtained support from Newtok’s village corporation, the Newtok Native Corporation.²³⁴ The Native Corporation

223. COX, *supra* note 110, at 4.

224. BACKGROUND REPORT, *supra* note 133, at 19.

225. *Id.*

226. *List of Islands of the United States by Area*, WORLDLINGO, http://www.worldlingo.com/ma/enwiki/en/List_of_islands_of_the_United_States_by_area (last visited July 5, 2011).

227. U.S. CENSUS BUREAU, CENSUS SUMMARY FILE 1 (SF 1) 100-PERCENT DATA, BETHEL CENSUS AREA, NIGHTMUTE CITY, TOKSOOK BAY CITY, TUNUNAK CDP, ALASKA (2000), <http://factfinder.census.gov>.

228. *Id.*

229. *Nelson Island (Alaska)*, WORLDLINGO, [http://www.worldlingo.com/ma/enwiki/en/Nelson_Island_\(Alaska\)](http://www.worldlingo.com/ma/enwiki/en/Nelson_Island_(Alaska)) (last visited July 5, 2011).

230. *See* REVISED ENVIRONMENTAL ASSESSMENT, *supra* note 147, at 5.

231. *Id.*

232. COX, *supra* note 110, at 4.

233. *See* Alaskan Native Village and the Interior Department Land Exchange, Pub. L. No. 108-129, 117 Stat. 1358 (2003) (codified as amended at 16 U.S.C. § 66dd (2006)) (describing the procedure by which the Newtok community can exchange ownership of their current land with that of the proposed relocation site).

234. The Newtok Native Corporation was created pursuant to the Alaska Native Claims Settlement Act, Pub. L. No. 92-203, 85 Stat. 688 (1971) (codified as amended at 43 U.S.C. §§ 1601–1629h (2006)) (ANCSA). This legislation created a corporate land title structure for indigenous lands. Section 8(a) of the Act requires indigenous tribes to organize as for-profit and nonprofit corporations in order to receive title to the surface and sub-surface land rights. 43 U.S.C. § 1607(a). These corporations formed on the regional and

then obtained support from the USFWS Regional Director, who, in December 1997, submitted an Intent to Exchange Agreement for the land exchange.²³⁵ Congress authorized the land exchange and enacted legislation to that effect on November 17, 2003.²³⁶

The Newtok Native Corporation is now the landowner of the relocation site.²³⁷ The Council is the sole governing authority working with state and federal government agencies to facilitate the community's relocation, but they have no legal title to the land. The Newtok Native Corporation and Council work closely with each other, but no process currently exists to determine how land will be selected and title transferred to both the Council and the new residents of Mertarvik for homes, businesses, or subsistence use.²³⁸

Legal control over the land is particularly important for the relocation process. The Council's efforts to secure funding for land use planning and infrastructure to be built at Mertarvik may require clear ownership of the land. Without an institutional framework to address property rights at the relocation site, it may be difficult for the Council to prove to potential funders that it has the authority to make decisions at the relocation site.²³⁹

2. *Newtok Planning Group*

The Newtok Planning Group was born in May 2006 from an ad hoc series of meetings.²⁴⁰ Unique in its multi-disciplinary and multi-jurisdictional structure in Alaska, the Group consists of approximately twenty-five state, federal, and tribal governmental and nongovernmental agencies that are all voluntarily collaborating to facilitate Newtok's relocation. The Alaska Department of Commerce, Community, and Economic Development (DCCED) is the lead coordinating Alaska state agency for comprehensive integrated planning initiatives like the Newtok

village level. § 1607(b). Section 14(c) of ANCSA establishes requirements for land distribution, received by the village corporation under ANCSA, to community residents. 43 U.S.C. § 1613. The village corporation is authorized to give to any occupants of the village the land used by that occupant as her home, primary place of business, or subsistence campsite as of December 18, 1971. § 1613(c).

235. Cox, *supra* note 110, at 7.

236. *Id.* at 20.

237. *Id.* See also Peter Van Tuyen, Addressing the Impact of Global Warming on Alaska Native Communities 2–3 (May 2007) (unpublished manuscript) (on file with author).

238. Van Tuyen, *supra* note 237, at 2–3.

239. See *id.* at 3 (“[W]ithout the land, or interest in such land, NTC is hamstrung in securing the resources necessary for such land use planning.”).

240. GAO 2009, *supra* note 9, at 41. See also Denali Commission Planning Work Group, Meeting Notes, May 25, 2006, http://www.commerce.state.ak.us/dca/planning/pub/May_25_2006_meeting_notes.pdf.

Planning Group.²⁴¹ Governor Murkowski, in a 2006 state disaster declaration, directed this state agency to “act as the state coordinating agency to coordinate with other state and federal agencies to propose long-term solutions to the ongoing erosion issues in . . . affected coastal communities in this state.”²⁴² There is no single federal authority designated as the lead coordinating agency for Newtok’s relocation effort.²⁴³

Additional members of the Newtok Planning Group include the Native Village of Newtok, represented by the Newtok Traditional Council and the Newtok Native Corporation; seven Alaska state agencies;²⁴⁴ the Alaska Governor’s Office; the Lower Kuskokwim School District; nine federal agencies;²⁴⁵ members of Alaska’s Congressional delegation; and four regional nonprofit organizations.²⁴⁶ Three sub-committees—housing, transportation, and utilities—address the critical infrastructure to be built at Mertarvik.

a. Governance Framework of the Newtok Planning Group

From the Newtok Planning Group’s inception, the Newtok Traditional Council has led the relocation effort. Statements and actions of state and federal agency representatives have repeatedly affirmed the importance of working with the Council.²⁴⁷ However, no state or federal statutes or

241. See SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 18.

242. Alaska Admin. Order No. 231 (Nov. 29, 2006), <http://www.gov.state.ak.us/admin-orders/231.html>.

243. GAO 2009, *supra* note 9, at 31.

244. The state agencies include the Alaska Department of Commerce, Community, and Economic Development, Division of Community & Regional Affairs, which is coordinating the Newtok Planning Group; the Alaska Department of Environmental Conservation Village Safe Water Program; the Alaska Department of Transportation and Public Facilities; the Alaska Department of Military and Veterans Affairs Division of Homeland Security and Emergency Management; the Alaska Department of Natural Resources, Division of Coastal and Ocean Resources; the Alaska Department of Education and Early Development; the Alaska Department of Health and Social Services; the Alaska Industrial Development and Export Authority; and the Alaska Energy Authority. See *supra* note 107.

245. Federal agencies include the U.S. Army Corps of Engineers, Alaska District; the U.S. Department of Commerce, Economic Development Administration; the U.S. Department of Agriculture, Rural Development; the Natural Resources Conservation Service; the U.S. Department of Housing and Urban Development; the U.S. Department of the Interior, Bureau of Indian Affairs; the U.S. Department of Transportation, Federal Aviation Administration; the U.S. Environmental Protection Agency; and the Denali Commission. See *supra* note 107.

246. The four regional nonprofit organizations are the Association of Village Council Presidents Regional Housing Authority; the Coastal Villages Region Fund; the Rural Alaska Community Action Program; and the Yukon-Kuskokwim Health Corporation. See *supra* note 107.

247. See, e.g., Newtok Planning Group, Meeting Notes, Aug. 17, 2006, http://www.commerce.state.ak.us/dca/planning/pub/August_2006_meeting_notes.pdf

regulations govern or guide the Planning Group's work. Instead, the Newtok Planning Group is guided only by their collective desire to provide technical assistance to the Newtok Traditional Council.

While the Newtok Planning Group has made significant progress toward Newtok's relocation, the policy and practical challenges have been enormous. The limitations of existing federal and state statutes and regulations, such as the post-disaster recovery legislation, have impeded their efforts.²⁴⁸ When a storm destroyed Newtok's barge landing in 2005 and federal funding was released due to a federal disaster declaration, for instance, these funds could not be used to build a new barge landing at the relocation site.²⁴⁹ In addition, due to the multi-disciplinary nature of the working group, agency representatives have had to educate each other about the laws that govern their work and the funding options and limitations available within each agency.²⁵⁰ For example, an airstrip needs to be built at the relocation site, and the Federal Aviation Administration has particular requirements regarding proximity to community infrastructure.²⁵¹ Sharing this information was critical in order to determine the appropriate community layout plan.²⁵²

While coordination between the agencies that comprise the Newtok Planning Group has been critical, funding limitations have made it extremely difficult to facilitate this coordination.²⁵³ In fact, not one agency involved in Newtok's relocation has funding designated for relocation:

[T]he Newtok experience [shows] that there are so many unknowns that it's . . . very difficult to track information and to project and plan for what's needed with the relocation effort. Funding sources are iffy and difficult to get a handle on who is going to fund and what the requirements of the project [are] and

(noting that one participant "stressed the need to keep the Newtok Traditional Council in a key role").

248. See IMMEDIATE ACTION WORKGROUP, RECOMMENDATIONS TO THE GOVERNOR'S SUBCABINET ON CLIMATE CHANGE 69 (2009), http://www.climatechange.alaska.gov/docs/iaw_finalrpt_12mar09.pdf [hereinafter IAW 2009 RECOMMENDATIONS] (noting that "state and federal disaster statutes require that all other possibilities be exhausted before relocation is considered").

249. Immediate Action Workgroup, Meeting Summary, Jan. 18, 2008, at 5, http://www.climatechange.alaska.gov/docs/iaw_18jan08_sum.pdf. See *supra* note 107.

250. *Id.* at 7 (discussing the "need to coordinate with different agencies and determine specific details of a community's plan" as well as "know all the funding streams and how to coordinate access").

251. See Newtok Planning Group, Meeting Notes, Jan. 10, 2008 (describing discussion over placement of airstrip), http://www.commerce.state.ak.us/dca/planning/npg/pub/NPG_Mtg_Notes_1-10-08.pdf.

252. See *supra* note 107.

253. See IAW 2009 RECOMMENDATIONS, *supra* note 248, at 75 (lamenting that "current funding streams neither require nor enable comprehensive analysis of comparative costs, of critical path for construction, or identifying potential conflicts with other projects").

what agencies' requirements are. Everyone has a different tracking system and so the site is being developed piecemeal.²⁵⁴

Moreover, every aspect of the relocation requires state and federal agencies to identify and secure funding in phases and to coordinate their funding efforts, including sharing equipment costs and coordinating its usage. The Newtok Planning Group has been extremely creative in their use of existing revenue sources, employing funds generally available for community projects throughout Alaska to put the relocation puzzle together. Using existing funding sources to facilitate Newtok's relocation has enabled the relocation effort to move forward but has also contributed to its slow progress. Newtok's relocation is remarkable given these enormous constraints.

b. Community Relocation Plan

By the time of the first Newtok Planning Group meeting in May 2006, Newtok was clearly in crisis. Erosion was claiming seventy feet of land annually, the community had major floods in September 2005 and May 2006, critical public infrastructure was lost or severely damaged, and access to the community was extremely limited due to the loss of the barge landing in 2005.²⁵⁵ The community was also in the midst of a public health crisis.²⁵⁶ The state, federal, and nonprofit agency representatives recognized that these factors created a complex emergency and that the community needed immediate action. Not knowing whether community residents would be able to go to a safe location within the community in the event of another extreme environmental event, the Newtok Planning Group discussed the possibility of evacuating Newtok residents to Anchorage and Fairbanks, the largest urban areas in Alaska, located hundreds of roadless miles to the east of Newtok.²⁵⁷

The Newtok Planning Group eventually shifted its focus from long-distance community evacuation plans and devised a strategy to meet the community's immediate and long-term needs at the same time. The creation of this strategy was an intense multi-year process and has demonstrated the complexity of the relocation process.

The design and development of a comprehensive relocation plan was an essential first step in Newtok's relocation effort. However, because no funding is specifically available for relocation, the Newtok Planning Group

254. Immediate Action Workgroup, Meeting Summary, Jan. 18, 2008, at 7, http://www.climatechange.alaska.gov/docs/iaw_18jan08_sum.pdf.

255. SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 8–14. *See also supra* Part IV(A)(2).

256. Tom, *supra* note 185.

257. Denali Commission Planning Work Group, Meeting Notes, May 25, 2006, at 1, http://www.commerce.state.ak.us/dca/planning/pub/May_2006_meeting_notes.pdf.

has had to compartmentalize their efforts instead of executing one streamlined relocation plan. The agencies involved used existing revenue sources within the mandate of their respective agencies to fund specific projects within the initial relocation community layout plan. As a result, Village Safe Water, the state agency dedicated to the design and construction of sanitation systems in rural Alaska, applied for and received funding in 2006 to focus exclusively on creating a water, sewer, and solid waste master plan in Mertarvik.²⁵⁸ Understanding the need to create a comprehensive relocation strategy, Village Safe Water also hoped this funding would provide time for other agencies “to identify and secure funding” for the non-sanitation components of the relocation plan.²⁵⁹

Several months later, the Alaska Department of Commerce, Community, and Economic Development Division of Community & Regional Affairs (DCRA) received funding to supplement the Village Safe Water work by developing a comprehensive community layout plan to determine the specific location of homes and public infrastructure.²⁶⁰ This funding also allowed state representatives to travel to Newtok in December 2007 to facilitate the first community meeting to discuss the Mertarvik Community Layout Plan.²⁶¹ Residents thus also contributed to the plan by expressing their ideas about the location of community infrastructure and for the design of the physical layout of Mertarvik.

The community layout process also involved interviews with key agency representatives, many of whom expressed concern about the financing and cost of capital investment in the new village and the village’s ability to fund ongoing operations and maintenance.²⁶² Some agencies also expressed concern that only some villagers would move to the new site, “resulting in two permanent settlements that would require community

258. See GAO 2009, *supra* note 9, at 30 (noting that the “completion of a preliminary layout of water and sewer infrastructure by the Alaska Department of Environmental Conservation’s Village Safe Water Program” was a sign of “significant progress”); Newtok Planning Group, Meeting Summary, June 9, 2006, at 4, http://www.commerce.state.ak.us/dca/planning/pub/June9_Newtok_meeting_summary.pdf; Newtok Planning Group, Meeting Summary, Dec. 11, 2006, at 1, http://www.commerce.state.ak.us/dca/planning/pub/December_2006_meeting_notes.pdf.

259. Newtok Planning Group, Meeting Summary, June 9, 2006, at 4–5, http://www.commerce.state.ak.us/dca/planning/pub/June9_Newtok_meeting_summary.pdf.

260. E-mail from Sally Cox, Planner, Alaska Dep’t of Commerce, Community, and Economic Development, to Robin Bronen (November 20, 2007) (on file with author).

261. Approximately fifty village residents attended this first meeting, which occurred in the village school. Elders, children and their parents participated in the creation of the first community layout plan at Mertarvik. The following morning, meetings occurred with fourth and fifth grade students to invite their ideas about the future community layout. See *supra* note 107 (including the author’s observations at the December 2007 meeting).

262. Newtok Planning Group, Meeting Notes, Jan. 10, 2008, at 1, http://www.commerce.state.ak.us/dca/planning/pub/NPG_Mtg_Notes_1-10-08.pdf.

facilities at both sites.”²⁶³ Without statutory guidance for the relocation process, these critical policy and practical issues remain unresolved.

c. Creating Village Infrastructure At the Relocation Site

The Newtok Planning Group has been engaged in a multi-year effort to determine the type of primary infrastructure to be built at Mertarvik. Planning efforts have focused on the design and construction of infrastructure that can serve the dual purpose of providing both emergency evacuation facilities and the first permanent infrastructure for the relocation effort. To meet these objectives, the Newtok Planning Group decided that an evacuation center, barge landing, staging area, and an access road connecting the barge landing to the evacuation center needed to be the first infrastructure built at Mertarvik.²⁶⁴

Seven different federal, state, and tribal entities are involved with the construction of these facilities, but no agency is authorized as the lead supervisor of the project.²⁶⁵ The DCCED and the Council both applied for and received funding from the U.S. Department of Commerce Economic Development Administration in October 2006 to build a barge landing and staging facility at Mertarvik.²⁶⁶ The Alaska Department of Transportation and Public Facilities (DOT) provided additional funding to satisfy the state matching requirement. Although the DCCED received funding for the barge facility, the agency has no statutory construction authority and was unable to assume fiscal responsibility for the project because of an insurance and bonding requirement.²⁶⁷ Yet the agency did not realize this limitation until after the funding was awarded.²⁶⁸ To resolve this issue, DCCED signed a Memorandum of Agreement with DOT to transfer the funds to DOT. Pursuant to this agreement, DOT assumed construction authority of the barge landing and DCCED lost the ability to control the timing of the construction of the barge landing.²⁶⁹

The U.S. Army Corps of Engineers then planned and designed the road connecting the barge landing to the evacuation center pad, with construction performed by the State of Alaska.²⁷⁰ The U.S. Department of Defense Innovative Readiness Training Program (IRT) plans to assist with

263. *Id.* at 2.

264. *See supra* note 107.

265. Newtok Planning Group, Mertarvik Barge Landing and Staging Area, <http://www.commerce.state.ak.us/dca/planning/BargeLanding.htm> (last visited July 6, 2010).

266. *Id.*

267. Robin Bronen, Notes from Newtok Planning Group Meeting, May 2009 (on file with author).

268. *Id.*

269. *Id.*

270. REVISED ENVIRONMENTAL ASSESSMENT, *supra* note 147, at 7–8.

the construction.²⁷¹ The IRT is a military program to improve military readiness while simultaneously providing services to communities throughout the United States. The IRT has made a five-year commitment to Newtok's relocation effort.²⁷² During the summer of 2009, the DOT built the barge landing and the U.S. military built the staging area to prepare for the construction of the road during the summer of 2010.²⁷³ This complicated process represents just one of many collaborations necessary under the existing statutory requirements to implement the relocation of Newtok.

d. Compliance with Governmental Environmental Permitting Regulations

Compliance with the National Environmental Protection Act (NEPA) is one of the most significant challenges to Newtok's relocation and has delayed its inception and progress.²⁷⁴ NEPA requires an environmental assessment or environmental impact assessment (EIS), depending on the magnitude of the anticipated impact on the environment, to evaluate the likely environmental effects of proposed construction projects undertaken with federal money.²⁷⁵ If two or more federal agencies are involved in the same project or involved in a group of projects directly related to each other, NEPA regulations require that a lead agency supervise the preparation of the environmental assessment or environmental impact statement.²⁷⁶

NEPA has impeded Newtok's relocation for several reasons. First, while the U.S. Army Corps of Engineers is the lead agency for funding and planning the design and construction of the new evacuation center, there is no designated federal lead agency for the overall relocation of the village, as is required in order to comply with NEPA.²⁷⁷ Some of the participants in the Newtok Planning group fear that, without a lead agency dedicated to Newtok's relocation, none of the agencies involved will undertake the legal obligations outlined in NEPA for the village relocation.²⁷⁸ Furthermore, agencies involved in the Newtok Planning Group are uncertain as to which agency has the resources to take the lead.²⁷⁹

271. Press Release, Alaska Dep't of Commerce, Cmty. & Econ. Dev., Reserve Marines Support Join Relocation Effort (Aug. 14, 2009), http://www.commerce.state.ak.us/dcra/pub/Mertarvik_IRT_Visit_Media_Advisory_August_14_2009.pdf.

272. *Id.*

273. *See supra* note 107.

274. GAO 2009, *supra* note 9, at 31.

275. *See* 42 U.S.C. § 4332(2)(C) (2006); 40 C.F.R. §§ 1508.9, 1508.11 (2009).

276. GAO 2009, *supra* note 9, at 31.

277. *Id.*

278. *Id.*

279. Multiple meetings occurred with the NEPA experts from several different federal

The federal agencies involved with the Newtok Planning Group have also struggled with the scope of the impact assessment. There is no precedent for NEPA's application to the relocation of an entire community.²⁸⁰ With no funding to create a strategic relocation plan, the Group took several years to determine the first infrastructure to be built at the relocation site and, until a federal project was identified, no agency could initiate the development of a NEPA document.²⁸¹ These challenges were compounded by the lack of designated funding to complete the EIS and the severe time constraints due to the ecological threats facing the community under which the EIS needed to be completed so that Newtok could move forward with its relocation.²⁸²

e. Conclusion

Newtok's relocation presents acute challenges to traditional governance institutions. With no statutory guidance or authority to relocate the village, the Newtok Planning Group has engaged in an ad hoc process that has strained the individual and collective capacity of governmental and nongovernmental agencies to respond to the complex humanitarian crisis. Newtok's relocation has been particularly challenging because the traditional governmental responses to extreme environmental events, such as post-disaster recovery and hazard mitigation, have not provided any statutory guidance or funding mechanism to assist with Newtok's relocation. In addition, no institutional framework exists within the United States to relocate an entire community. As a consequence, national, state, local, and tribal government agencies lack the legal authority to relocate communities. These agencies also lack the technical, organizational, and financial capacity to implement a relocation process for communities forcibly displaced by climate change. The absence of legal authority and a relocation organizational structure have been significant barriers to Newtok's relocation and have exacerbated the humanitarian crisis faced by the community.

agencies involved in Newtok's relocation, including the Environmental Protection Agency, the Alaska District Army Corps of Engineers, the Department of Housing and Urban Development, the Department of Agriculture Rural Development, the Federal Aviation Administration, and the Department of Commerce to develop a strategy to comply with NEPA at the new village site. Discussions focused on which federal agency will do the EIS to determine the cumulative effect of relocation. *See supra* note 107 (including author's observations from the Nov. 27, 2007 NEPA Meeting).

280. Van Tuyen, *supra* note 237, at 3.

281. *See supra* note 193.

282. IAW 2009 RECOMMENDATIONS, *supra* note 248, at 5; GAO 2009, *supra* note 8, at 31; Newtok Planning Group, Meeting Summary, Sept. 24, 2007 at 3-4, http://www.commerce.state.ak.us/dca/planning/pub/Sept_24_2007_Meeting_Notes.pdf.

V.

CREATING AN ADAPTIVE GOVERNANCE RESPONSE, BASED IN HUMAN RIGHTS DOCTRINE, TO CLIMATE-INDUCED POPULATION DISPLACEMENT

Federal and state statutes need to be enacted to create an adaptive governance framework to respond to the type of climate-induced community relocation occurring in Newtok. A relocation statutory framework must create two primary organizational instruments: a relocation policy framework and an adaptive governance structure. The relocation policy framework provides the overarching principles and objectives necessary for an effective climigration adaptive governance structure. Relocation requires new multi-level and multi-disciplinary relationships between federal, state, local, and tribal government actors in order for them to work in concert. Thus, the relocation policy framework must clearly outline the roles and responsibilities of governmental and nongovernmental agencies and the mechanisms that will release funding and technical assistance to communities.

A. Relocation Policy Framework

A relocation policy framework defines the human rights principles and objectives that govern the relocation process to determine: 1) when relocation occurs to protect the life and well-being of community residents; 2) the steps governmental and nongovernmental agencies must take to implement a relocation process; 3) the organizational arrangements between multi-disciplinary governmental and nongovernmental agencies; and 4) the funding mechanisms for relocation. The necessary steps toward relocation include a community's socio-ecological assessment documenting that relocation is warranted, a community-wide vote or survey demonstrating community commitment to relocate, and a relocation site selection process which includes community approval of the site chosen. Culturally and linguistically appropriate mechanisms for participation and consultation are fundamental components of the relocation process.

In addition, nation state governments need governance tools as well as the technology to respond to climigration. As a consequence, the international community needs to assist these governments to build their capacity to respond through a broad range of adaptation strategies, including community relocation. Community relocations should only occur when there are no other durable solutions.

1. Human Rights Principles

The humanitarian crisis in Alaska clearly demonstrates that human rights principles must be embedded in the relocation policy framework so that governments protect and assist communities forced to relocate due to

climate change.²⁸³ Severe economic, social, and environmental consequences can occur in the relocation process. Relocation can unravel the fabric of a community, weaken community institutions and social networks, disrupt subsistence and economic systems, and impact the cultural identity and traditional kinship ties within a community.²⁸⁴ A relocation policy framework based in human rights doctrine is essential in order to avoid or minimize these adverse impacts and to ensure a community's resilience after relocation.

First, the United Nations should convene an expert working group to develop Guiding Principles on Climigration.²⁸⁵ This working group should include United Nations agencies and non-governmental organizations focused on disaster risk reduction, humanitarian aid, human rights and internal population displacement issues. While the Convention Relating to the Status of Refugees,²⁸⁶ the Universal Declaration of Human Rights,²⁸⁷ the International Covenant on Civil and Political Rights (ICCPR),²⁸⁸ the International Covenant on Economic, Social, and Political Rights (ICESCR),²⁸⁹ the Guiding Principles on Internal Displacement,²⁹⁰ and the

283. See generally Robin Bronen, *Forced Migration of Alaskan Indigenous Communities Due to Climate Change: Creating a Human Rights Response*, in LINKING ENVIRONMENTAL CHANGE, MIGRATION, AND SOCIAL VULNERABILITY 68 (Anthony Oliver-Smith & Xiaomeng Shen eds., 2009) (analyzing the reasons to create a human rights framework to respond to climigration and the reasons the 1951 UN Convention Relating to the Status of Refugees should not be expanded to include climigration).

284. See Ian Johnson, *Foreword* to WORLD BANK, INVOLUNTARY RESETTLEMENT SOURCEBOOK xvii, xvii (2004) (outlining guidelines on population resettlement caused by government or government-supported actors who displace populations to construct infrastructure projects, such as dams). Unfortunately, the World Bank guidelines do not outline the institutional requirements for population resettlement, but do not incorporate any human rights protections.

285. The United Nations has convened expert working groups in the past to analyze and develop human rights principles on a variety of issues, including housing and restitution and internal displacement. See CTR. ON HOUS. RIGHTS & EVICTIONS, THE PINHEIRO PRINCIPLES 4 (2007), <http://www.unhcr.org/ua/img/uploads/docs/PinheiroPrinciples.pdf>; WALTER KÄLIN, GUIDING PRINCIPLES ON INTERNAL DISPLACEMENT: ANNOTATIONS 4, 7 (2008), <http://www.asil.org/pdfs/stlp.pdf>. The United Nations is the most appropriate forum because climigration will affect populations all over the world and the principles need to be relevant to all those affected by climate-induced ecological change that affects the habitability of communities.

286. Convention Relating to the Status of Refugees, *opened for signature* July 28, 1951, 19 U.S.T. 6223, 189 U.N.T.S. 150.

287. Universal Declaration of Human Rights, G.A. Res. 217 (III) A, U.N. Doc. A/RES/217(III) (Dec. 10, 1948).

288. International Covenant on Economic, Social and Cultural Rights, *opened for signature* Dec. 16, 1966, G.A. Res. 2200A (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3 (entered into force Jan. 3, 1976) [hereinafter ICESCR].

289. International Covenant on Civil and Political Rights, *opened for signature* Dec. 16, 1966, G.A. Res. 2200A (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3 (entered into force Mar. 23, 1976).

Universal Declaration on the Rights of Indigenous Peoples²⁹¹ provide a theoretical basis for creating these principles, none of these legal documents address the complex and unique social, economic, and political crises of populations facing climigration. For example, international legal doctrine relating to refugees is based on the fundamental principle that a person needs legal protection because she is outside of her country of origin due to persecution by a government actor or an actor the government cannot control.²⁹² The laws also often anticipate that refugees cannot turn to their own governments for protection because nation states are commonly the source of their persecution.²⁹³ Human rights protections thus attach to refugee movements because of the nation state government's failure to protect its citizens. In comparison, the international community should expect that nation state governments would want to protect their citizenry from climate-induced ecological changes. In fact, nation state governments have a duty to protect their citizens from these changes.²⁹⁴

The Guiding Principles on Internal Displacement provide the closest analogue to climigration, as most scholars predict that climate change will predominantly cause internal as opposed to international migration and they include victims of natural disasters.²⁹⁵ Yet because these principles are also not adequate to respond to the complex issues and human rights implications of climigration for several reasons. First, the Principles are based primarily on population displacement caused by ethnic and political violence.²⁹⁶ Second, emergencies are clearly different from planned

290. U.N. Comm'n on Hum. Rts., *Guiding Principles on Internal Displacement*, U.N. Doc. E/CN.4/1998/53/Add.2 (Feb. 11, 1998) [hereinafter *Internal Displacement Principles*].

291. United Nations Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, U.N. Doc. A/RES/61/295 (Sept. 13, 2007).

292. See, e.g., Convention Relating to the Status of Refugees, *supra* note 286, at art. 1 (defining a refugee as a person who, "owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it").

293. See, e.g., *id.* (defining a refugee as a person who is "unwilling to avail himself of the protection" of his country).

294. BROOKINGS-BERN PROJECT ON INTERNAL DISPLACEMENT, HUMAN RIGHTS AND NATURAL DISASTERS 7 (2008), [http://www.reliefweb.int/rw/lib.nsf/db900sid/KHII-7EE9KM/\\$file/brookings_HR_mar08.pdf](http://www.reliefweb.int/rw/lib.nsf/db900sid/KHII-7EE9KM/$file/brookings_HR_mar08.pdf). See also James C. Hathaway, *Reconceiving Refugee Law as Human Rights Protection*, 23 J. REFUGEE STUD. 113, 122 (1991).

295. INT'L ORG. FOR MIGRATION, MIGRATION, ENVIRONMENT AND CLIMATE CHANGE: ASSESSING THE EVIDENCE 329 (2009).

296. *Internal Displacement Principles*, *supra* note 290 (outlining the responsibilities of nation state governments not to discriminate against or marginalize populations which are internally displaced and also not to cause arbitrary displacement of populations). The Annotations to the Guiding Principles specifically state that "[v]ictims of disasters are

relocations. The Principles do not provide for the prospective needs of populations planning their permanent relocation and do not provide any guidance on how communities can sustain themselves and create the necessary infrastructure to provide for basic necessities without the assistance of humanitarian aid.²⁹⁷ Nor do the Principles address the fundamental rights to food, water, and housing that need to be part of a planned relocation process. Most importantly, the Principles do not clearly define a mechanism for communities to make the decisions regarding the process of relocation.²⁹⁸ A human rights protocol that addresses climigration must ensure the protection of collective rights because climate change impacts the habitability of entire communities whose residents will be forced to permanently relocate. These rights include the collective right to relocate as a community, as well as the collective right to make decisions regarding where and how a community will relocate.

Next, all relocation policy frameworks should include a set of Guiding Principles on Climigration affirming key human rights principles. These principles should include the right to relocation when climate-induced ecological change threatens the lives of community residents and traditional methods of erosion control and flood relief cannot provide protection;²⁹⁹ the right to life, which mandates a nation state government to protect its citizenry from climate-induced ecological threats;³⁰⁰ and the right to self-determination³⁰¹ to empower communities during the

included as experience shows that they also can, as a consequence of their displacement, become victims of human rights violations such as discrimination (e.g., because they have to move to an area where they constitute an ethnic minority), sexual and gender based violence (e.g., in overcrowded camps), or disregard of their property rights.” KÄLIN, *supra* note 285, at 4, 7.

297. *Internal Displacement Principles*, *supra* note 290; BROOKINGS-BERN PROJECT ON INTERNAL DISPLACEMENT, HUMAN RIGHTS AND NATURAL DISASTERS 33 (2008), [http://www.reliefweb.int/rw/lib.nsf/db900sid/KHII-7EE9KM/\\$file/brookings_HR_mar08.pdf](http://www.reliefweb.int/rw/lib.nsf/db900sid/KHII-7EE9KM/$file/brookings_HR_mar08.pdf).

298. *Internal Displacement Principles*, *supra* note 290.

299. See Mathias Risse, *The Right to Relocation*, 23 ETHICS & INT’L AFF. 281 (2009) (arguing that there should be a right to relocation).

300. Universal Declaration of Human Rights, *supra* note 287; Human Rights Committee, *General Comment No. 6: The Right to Life*, ¶ 5, U.N. Doc. HRI/GEN/1/Rev.7 (Apr. 30, 1982) (requiring States to adopt positive measures to protect the “inherent right to life”). The government of the Maldives, for example, has interpreted the human right to life mean that the government has the responsibility to protect its citizens from life-threatening situations caused by climate change. See REPUB. OF MALDIVES, HUMAN RIGHTS COUNCIL RESOLUTION 7/23: “HUMAN RIGHTS AND CLIMATE CHANGE”: SUBMISSION OF THE MALDIVES TO OHCHR STUDY 6 (2008), http://www.maldivesmission.ch/fileadmin/Pdf/Environment/Maldives_Submission_FINAL_250908_01.pdf.

301. The U.N. Declaration on the Rights of Indigenous Peoples affirms the right of indigenous communities to make collective decisions affecting their fundamental human rights. *Supra* note 291, at arts. 1, 5, 10, 18 & 33, In addition, Article 1 of the International Covenant on Civil and Political Rights specifically establishes that “all peoples have the

relocation process and ensure that the relocation is community-based and community-guided. In order to further this last principle, affected communities must be designated as key leaders in the relocation process.

Third, Guiding Principles on Climigration must protect the social, economic, and cultural human rights—defined in the U.N. International Covenant on Economic, Social, and Cultural Rights³⁰²—of individuals and the communities forced to relocate because of climate change. These rights must be protected during displacement as well as relocation.³⁰³ The relocation process must ensure that socio-cultural institutions remain intact.³⁰⁴ Families and tribes must remain together during the relocation process. If tribes are not able to remain together, the tribes must decide who relocates and how tribe members relocate. For indigenous communities, tribal relationships are essential to cultural identity. Subsistence rights and customary communal rights to resources must also be affirmed.

The relocation policy framework must also create the opportunity to improve livelihoods and standards of living while implementing sustainable development strategies as part of the relocation process. Relocation should not diminish the living standards of the affected communities.³⁰⁵ The Guiding Principles on Climigration would affirm the already-recognized rights to safe and sanitary housing,³⁰⁶ potable water,³⁰⁷

right of self-determination” by virtue of which “they freely determine their political status and freely pursue their economic, social and cultural development.” International Covenant on Civil and Political Rights, art. 1(1), Dec. 16, 1966, 999 U.N.T.S. 171 (entered into force Mar. 23, 1976).

302. ICESCR, *supra* note 288.

303. KALIN, *supra* note 290, at 1 (recognizing the need to protect people’s human rights during displacement in addition to after the displacement has occurred).

304. The U.S. Army Corps of Engineers relied on a 2005 anthropological study to negate collocation as an appropriate response to the socio-ecological crisis affecting Newtok residents. The study examined the cultural impacts of the collocation of the residents of Shishmaref, an Alaskan indigenous community also facing climate-induced relocation. The study concluded that many aspects of culture (for example, language, dancing, festivals, carving and sewing, and cultural values), as well as subsistence practices and lifestyles, would be adversely affected in some way by collocation. See U.S. ARMY CORPS OF ENG’RS, COASTAL EROSION PROTECTION AND COMMUNITY RELOCATION: SHISHMAREF, ALASKA, COLLOCATION CULTURAL IMPACT ASSESSMENT 146 (2005). The U.S. Army Corps of Engineers found that “the unique Newtok tribe would be lost” if collocation occurred and that “the increased population would result in a lack of housing, overcrowded schools, stress on utilities and other infrastructure, high unemployment, and strain on local subsistence.” SECTION 117 PROJECT FACT SHEET, *supra* note 14, at 16.

305. See generally WORLD BANK, *supra* note 284, at 153–184.

306. See U.N. Comm. on Econ., Soc. & Cultural Rights, *General Comment No. 4, The Right to Adequate Housing* (Sixth session, 1991), U.N. Doc. E/1992/23, annex III at 114 (1991), reprinted in *Compilation of General Comments and General Recommendations Adopted by Human Rights Treaty Bodies*, U.N. Doc. HRI/GEN/1/Rev.6 at 18 (2003) (describing the right to housing).

307. U.N. Comm. on Econ., Soc. & Cultural Rights, *General Comment No. 15: The*

and other basic amenities.³⁰⁸ Embedding these principles in the relocation policy framework will enhance the resiliency of communities by addressing the socio-economic issues, such as lack of economic development and poverty, which can contribute to the vulnerability of communities.

The human rights of host communities must also be protected. A protocol to respond to climigration must also ensure that human rights protections are extended to those living in communities that provide sanctuary for those displaced by climate change. Host populations may experience shortages of water, sanitation, shelter, and essential health services as a result of the increase in population.³⁰⁹ Schools may also be overburdened to provide educational services if there is an influx of displaced student. Human rights protections for host populations will ensure that host communities benefit from the relocation and preserve or improve their standard of living, and will also prevent conflicts and competition with the displaced populations.³¹⁰

2. *Social-Ecological Indicators for Relocation*

Governmental and nongovernmental actors must know when to collectively and collaboratively shift from the traditional, “protect in place” post-disaster recovery response to a community relocation process. The relocation policy framework should thus clearly define standardized socio-ecological indicators of relocation. These indicators need to be specific to ecosystems; geographic regions; and social, political, and economic systems. To determine which communities are most likely to require relocation, a complex assessment of the vulnerability of a community’s ecosystem to climate change, as well as the stability of its social, economic, and political structures, must be considered. Funding must be allocated so that ongoing socio-ecological assessments can evaluate the impact of climate change on community habitability.

For example, in Alaska, the indicators of socio-ecological vulnerability demonstrating that relocation is required should include: 1) repetitive loss of community infrastructure; 2) imminent danger to the community from ongoing ecological changes and repeated random extreme weather events;

Right to Water, U.N. Doc. E/C.12/2002/11 (Nov. 29, 2002) (describing the right to water).

308. See, e.g., U.N. Comm. on Econ., Soc. & Cultural Rights, *General Comment 12: Right to Adequate Food*, U.N. Doc. E/C.12/1999/5 (May 12, 1999) (describing the right to food).

309. INTER-AGENCY STANDING COMMITTEE, PROTECTING PERSONS AFFECTED BY NATURAL DISASTERS: IASC OPERATIONAL GUIDELINES ON HUMAN RIGHTS AND NATURAL DISASTERS 10 (2006).

310. See also GLOBAL FACILITY FOR DISASTER REDUCTION AND RECOVERY, HANDBOOK FOR RECONSTRUCTING AFTER NATURAL DISASTERS (2009), <http://www.housingreconstruction.org/housing/sites/housingreconstruction.org/files/Chapter%205%20To%20Relocate%20or%20Not%20to%20Relocate.pdf>.

3) no ability for community expansion; 4) numbers of evacuation incidents and numbers of people evacuated; 5) predicted rates of environmental change (e.g., sea level rise) from IPCC; 6) repeated failure of hazard mitigation measures; 7) a lack of viable access to transportation, potable water, communication systems, power, and waste disposal; and 8) decline in socio-economic indicators, including food security, loss of livelihood, and public health.³¹¹

B. Adaptive Governance Framework

To implement the relocation policy framework, a multi-level and multi-disciplinary adaptive governance framework must be created. Adaptive governance is the term used to describe institutional arrangements that govern natural resources and can respond to rapid ecosystem changes.³¹² In the context of climate-induced population displacement, adaptive governance means that institutions have a range of options to respond to the humanitarian needs of communities faced with changing ecological conditions that impact community habitability.

Climigration requires institutions to prepare for a continuum of responses that includes post-disaster recovery, protection in place (consisting of seawall and shoreline protection), hazard mitigation, and relocation. Agencies—such as FEMA, the U.S. Army Corps of Engineers, and the Alaska Department of Homeland Security and Emergency Management Services—that traditionally “protect in place” and provide post-disaster relief and hazard assessment and mitigation should continue to engage in these activities until relocation must occur to protect the life and well-being of the community. At this point, the community, along with tribal, state, and federal governments, can shift their focus to create a

311. These indicators are a compilation of the climate-induced social and ecological threats documented by the five Alaskan coastal communities—Kivalina, Shishmaref, Newtok, Shaktoolik and Unalakleet—facing relocation. See generally IAW 2009 RECOMMENDATIONS, *supra* note 248; IAW 2008 RECOMMENDATIONS, *supra* note 14, for a description of these threats.

The Immediate Action Workgroup (IAW), part of the Alaska Climate Change Sub-Cabinet, issued two reports in March 2008 and April 2009 documenting the social and ecological threats to six communities facing relocation and recommended actions and policies to prevent loss of life and property in these communities. The IAW used the following criteria to determine that communities are in peril and need to relocate: 1) life/safety risk due to storm/flood event; 2) loss of critical infrastructure; 3) public health threats; and 4) loss of ten percent or more of private residences. IAW 2009 RECOMMENDATIONS, *supra* note 248, at 84; IAW 2008 RECOMMENDATIONS, *supra* note 14, at 1.

312. See Carl Folke, Thomas Hahn, Per Olsson & Jon Norberg, *Adaptive Governance of Social-Ecological Systems*, 30 ANN. REV. ENV'T & RESOURCES 441, 444 (2005) (describing adaptive governance as “experiences of governance in relation to complex adaptive ecosystems and in particular during periods when change is abrupt, disorganizing, or turbulent”).

relocation strategic plan.

In order to ensure an effective adaptive governance structure, several changes need to be made to existing law.

1. Amendments to the Hazard Mitigation and Post-Disaster Recovery Statutes

An adaptive governance framework for climate-induced population displacement should include the organizational structure traditionally used to respond to and prevent disasters. This traditional organizational structure is critically important to ensure that relocation only occurs when there are no other durable solutions. However, for this structure to effectively respond to the needs of relocation, the statutes governing the process require the following amendments.

The Stafford Act must be amended so that post-disaster recovery is part of an adaptive governance framework that includes relocation. First, the statutory definition of a “natural catastrophe” needs to expand to include gradual and recurring climate-induced ecological processes. This would allow the President to declare such circumstances a disaster and release federal funds for predisaster hazard mitigation.³¹³ Second, federal and state statutes need to specifically permit federal disaster relief funding to be used to build new infrastructure at a relocation site and relocate an entire community. These two amendments will allow a community threatened by climate-induced ecological changes to shift seamlessly from a disaster recovery to community relocation.

The Pre-Disaster Mitigation Program and the Hazard Mitigation Grant Program also should be amended so that the hazard mitigation institutional structure can become part of an adaptive governance framework that includes relocation. These amendments should also change the scope, timing, and funding of hazard assessments. The federal, tribal, and state government agencies must have the funding and the authority to conduct ongoing socio-ecological assessments. Currently, the hazard mitigation grant programs provide limited mechanisms to conduct hazard assessments prior to a Presidential disaster declaration.³¹⁴ Yet hazard assessments are critical evaluation tools that can monitor gradual and continuous natural processes and also capture unexpected ecological feedback loops that may drastically impact the ability of communities to

313. See 42 U.S.C. § 5122 (providing the current definition for natural catastrophe which does not include gradual ecological change except for drought); Immediate Action Workgroup, Meeting Summary, Jan. 18, 2008, at 3–6, http://www.climatechange.alaska.gov/docs/iaw_18jan08_sum.pdf.

314. See 42 U.S.C. § 5133 (outlining the steps States and local governments need to take to receive technical assistance from the federal government to respond to and prevent hazards).

remain protected in place. In Newtok, decades passed between the assessments of erosion and flooding on the community's habitability. At a minimum, each time a community seeks funding for erosion, flood control, or post-disaster recovery, hazard mitigation assessments should analyze the feasibility of relocation. Hazard assessments need to include measures of hazard impacts on a community's social, economic, and political well-being. The hazard assessment must evaluate the viability of using traditional methods of protecting communities from natural hazards, such as erosion and flood control. The cost-benefit analysis also needs to include culturally-relevant definitions of costs and benefits.³¹⁵ For example, the ability of a community to maintain subsistence practices is a significant benefit to Alaska Native communities that needs to be included in the cost-benefit analysis.³¹⁶

2. *Creating a Relocation Institutional Framework*

Leadership is a key element of adaptive governance.³¹⁷ Leaders are critical to the execution of a dynamic institutional response that shifts from post-disaster relief and hazard mitigation to the relocation of an entire community.³¹⁸ Leaders must use the knowledge generated by the socio-ecological assessments to facilitate well-structured dialogue between scientists, community leaders, policymakers, and government representatives.³¹⁹ Leaders are also essential to ensure the coordination and collaboration of multi-level and multi-disciplinary governmental and nongovernmental actors.³²⁰ Leaders need to be identified at each level of governance and within disciplines to effectuate this cross-scale coordination and collaboration.

In order to ensure the success of the adaptive governance framework, the relocation institutional framework should create a clear organizational structure to implement the relocation policy framework. Under this new framework, lead federal and state relocation agencies would be responsible for implementing two essential organizational components to address the unique issues that arise each time a community relocates: a

315. See GAO 2009, *supra* note 9, at 37.

316. *Id.*

317. See Folke, Hahn, Olsson & Norberg, *supra* note 312, at 451 ("Collaboration in governance networks requires leadership.").

318. See Thomas Dietz, Elinor Ostrom & Paul Stern, *The Struggle to Govern the Commons*, 302 *SCIENCE* 1907, 1909 (2003) ("Success [in adaptive governance] appears to depend on the existence of incentives that benefit leaders in volunteering over laggards and on the simultaneous use of other strategies, particularly ones that create incentives for compliance.").

319. See *id.* at 1908 ("Environmental governance depends on good, trustworthy information about stocks, flows, and processes within the resource systems being governed, as well as about the human-environment interactions affecting those systems.").

320. Folke, Hahn, Olsson & Norberg, *supra* note 312, at 451.

process framework for relocation planning and implementation and an operational framework for the actual relocation. State and federal statutes should specifically outline the institutional framework and funding for the relocation process. The relocation institutional framework should designate a lead federal and state relocation agency that provides overall authority to guide multi-disciplinary and multi-level governmental and nongovernmental teams of agencies involved in community-specific relocation plans.

The relocation process framework should: 1) identify key stakeholders involved in the community relocation; 2) outline the mechanisms for stakeholder coordination; 3) define the role of the existing community's government in the relocation process; 4) develop a land acquisition process; 5) describe the responsibilities and procedures for making relocation decisions; 6) identify regulatory and permitting requirements and determine how each will be met; and 7) identify the mechanisms for making modifications to the relocation strategic plan during implementation.³²¹

3. Role of Existing Local Governance Institutions

Planning challenges can arise because of the lack of clear statutory guidance about the role of local government in the relocation process. First, the existing community's government may have no authority to make decisions at the relocation site. Second, it may be necessary to define and structure the relationship between the owner of the relocation site and the future government of the new community.³²² Without clearly defining the governance authority at the relocation site, decision-making at the local level may delay the relocation process—or, in the most extreme cases, make it impossible for the local government to have any authority to make decisions connected with the relocation site. Similarly, when a village selects a relocation site that it owns, but access to the site requires moving through property owned by other entities, there must be a process to define the relationship and a governing authority responsible for negotiating transit rights.

321. See WORLD BANK, *supra* note 284, at 95–144 (describing key considerations for involuntary resettlement planning). The World Bank developed an institutional relocation framework based on its experience of community relocation in development projects. However, the World Bank guidelines are not based on human rights doctrine. As a result, the development-induced relocations have led to the impoverishment and social fragmentation of the communities forced to relocate. See generally Anthony Oliver Smith, *Introduction*, in DEVELOPMENT & DISPOSSESSION 3 (Anthony Oliver Smith ed., 2009) (describing the enormous trauma and hardship experienced by those displaced by development projects).

322. See generally Van Tuyen, *supra* note 237 (outlining the legal issues that can arise when land title is not clearly defined in a relocation process).

In order to resolve these issues, the existing community's government must have the authority to be a key leader and decision-maker in the relocation process. The community-specific relocation process framework needs to identify the steps that a local government must take to continue in its governance role during the relocation process. The authority to govern may be based on the connection to a defined population or to a defined territory. Clear statutory guidance needs to outline the mechanism that the governing authority of the existing community will use to continue in its governance role over the relocation site.

4. Operational Relocation Framework

The operational relocation framework should: 1) outline the comprehensive strategic relocation plan; 2) identify the staffing patterns required for relocation; 3) develop a capacity-building plan for the relocation staff (if necessary); 4) develop coordination arrangements among relevant agencies; 5) monitor the health and well-being of community residents during the relocation process; 6) design and implement the process for gathering and disseminating information; and 7) create an overall timeframe for completing the relocation and decommissioning the old village site.

a. Capacity Building for Relocation Staff

Relocation places enormous burdens on governance structures. State and local governments are typically structured and staffed to deal with the business of governing established and existing communities. Relocating entire communities involves a lot more work than overseeing an existing community. Without an operational relocation framework that can address relocation staffing issues, local government institutions are expected to deal with relocation. However, this can often strain the limited resources of local governments.³²³ Funding needs to be designated to hire and train staff at all levels of government involved in the relocation process.

b. Comprehensive Strategic Relocation Plan

Comprehensive strategic relocation plans are essential to the relocation of an entire community. The multi-year relocation effort of the Newtok Planning Group highlights the need to include several components in a strategic relocation plan, including: 1) resolving land issues; 2) decommissioning the old village site; 3) physically relocating the existing infrastructure, if feasible; 4) designing the community layout at the

323. See IAW 2009 RECOMMENDATIONS, *supra* note 248, at 67 (discussing the lack of staff available locally to deal with the intricate requirements associated with receiving government funding).

relocation site; 5) building critical infrastructure at the relocation site; 6) physically relocating residents to the community relocation site; 7) assessing the socio-economic needs of community residents during and after the relocation process; and 8) assessing the need for historical and cultural preservation.

i. Land Issues

Relocation of an entire village to a new location creates complex and unique public and private property rights issues that need to be addressed in the relocation planning process. Local governments will need to determine land tenure issues, such as whether property will be common, public, or privately held, and land title allocation between prospective community residents, businesses, and government entities. In addition, the relocation institutional framework needs to create geographically-relevant standardized criteria to evaluate the habitability and feasibility of the relocation site. These criteria should include: 1) current land use, including for subsistence; 2) restrictions associated with the land, such as environmental protections; and 3) habitability of the land, including accessibility of the land, availability of water, climate change vulnerabilities (e.g. vulnerability to storm surges or thaw of ice-rich permafrost), and feasibility of subsistence/agricultural use. Specifically defining these criteria is essential so that the community being relocated and the government agencies providing technical assistance are in agreement in regard to the habitability of the relocation site. Any disagreement over the relocation site will only serve to delay and impede relocation efforts.³²⁴

The relocation of communities also requires many types of government approvals and permits due to the potential construction of multiple major facilities, including airports, barge landings, schools, health clinics, and housing.³²⁵ No one government agency is responsible for the construction of all of these facilities. The process framework needs to identify the permitting requirements for relocation and develop a plan to fulfill these legal obligations. In addition, community usage of the old site, which may provide critical access to subsistence resources or historical sites, needs to be clarified.

324. Shishmaref and Kivalina are two Alaskan indigenous communities that are also in the process of relocation because of climate-induced threats. Both communities have chosen relocation sites that do not meet government standards regarding habitability. As a consequence, the relocation efforts of both communities have been significantly delayed. *See supra* note 107.

325. Permits required by the National Environmental Protection Act include, but are not limited to, estate permits and fish habitat permits. IAW 2009 RECOMMENDATIONS, *supra* note 248, at 66. *See also supra* note 107.

ii. The Decommission of the Old Village Site

Cleaning up and securing old village sites so that they can be responsibly abandoned presents significant planning challenges.³²⁶ In order to transition from the old village sites, environmental assessments must be conducted to analyze: 1) the hazardous wastes and clean-up required;³²⁷ 2) infrastructure that can not be moved to the relocation site and a removal plan; and 3) the natural environment and the steps that must be taken to renew it to a natural ecosystem type compatible with the current or projected environment.

iii. Identification of Infrastructure

Village sites contain a variety of public, private, and community-owned structures, each of which has its own set of circumstances that must be evaluated, planned for, and dismantled or secured. Relocation plans need to identify each of these structures and decide which entities will be replaced at the relocation site, which will be rehabilitated at the original community location, and which have special religious, historical, or spiritual significance that requires special procedures.³²⁸ The relocation plan also needs to identify which agency will be responsible for replacing or rehabilitating the infrastructure and ascertain this cost.

iv. Natural Environment Rehabilitation

The relocation process also must identify the steps to rehabilitate the natural environment of the old village site. Infrastructure and human habitation can alter natural ecosystems, impacting water, soil, vegetation, and other ecosystem components. The comprehensive relocation strategic plan should incorporate the work needed to return the village site to its

326. See generally Van Tuyen, *supra* note 237.

327. Hazardous waste clean-up is a critical component of the relocation process. Climate-induced ecological changes may create unique challenges to securing hazards. In Alaska, thawing permafrost and erosion are creating unstable ground that will prevent the traditional methods of abandonment, such as capping a landfill, from protecting the environment. Fuel tank farms and sewage facilities may collapse into the rivers or lakes as more erosion occurs. In addition, exposure to contaminants that were previously frozen and buried are a concern with erosion and melting permafrost because of the possibility that they can enter the soil and water sources. Determining the appropriate method to secure these facilities will require planning, money, and expert technical assistance.

328. In the United States, the National Historic Preservation Act requires federal and state agencies to assess the impact of projects on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on these properties. 36 C.F.R. § 800.1(a) (2009). The Alaska Historic Preservation Act contains a similar provision, which mandates that any project with state involvement be reviewed in a similar manner. ALASKA STAT. § 41.35.070 (2008). Community-specific relocation plans thus need to outline a process for communities to identify the structures that have religious or historic significance and then determine what to do with these structures.

pre-human habitation condition, if possible.

v. *Construction of Community Infrastructure at the Relocation Site*

The construction of public infrastructure at the relocation site is a fundamental component of the relocation process. Current policies discourage federal and state agencies from building some of this infrastructure at a relocation site when there are no inhabitants.³²⁹ These limitations create a difficult situation, as residents will not want to move to the relocation site if the site does not yet have the facilities to support a population. For example, the Alaska DOT requires the existence of a school in the community before their Project Evaluation Board will evaluate a proposed project.³³⁰ Yet statutes that govern the construction of schools require a minimum of twenty-five students.³³¹ Without the enactment of statutes to create a relocation institutional framework, the ability to construct these facilities at an uninhabited relocation site in Alaska is unresolved. Statutes need to be enacted which authorize the construction of facilities at relocation sites irrespective of population.

vi. *Health and Well-Being of Community Residents*

Relocation places enormous stress on community residents.³³² Baseline data that documents the health and socio-economic status of community residents is critical to the relocation process.³³³ Using such baseline data, governments can monitor the health and well-being of community residents. In addition, the relocation process can incorporate special provisions to ensure that the needs of all residents, including the elderly, children, and those with medical conditions, are addressed.

C. Conclusion

A relocation process and operational framework are key components to the design and implementation of a relocation adaptive governance framework. The creation of new mechanisms for multi-disciplinary and cross-scale coordination is essential to the planning, design, and implementation of village relocations. These new mechanisms must be community-led, dynamic, and able to respond to a rapidly changing

329. IAW 2009 RECOMMENDATIONS, *supra* note 248, at 69.

330. *Id.*

331. See ALASKA STAT. §§ 14.17.400, 410, 500 (2008); IAW 2009 RECOMMENDATIONS, *supra* note 248, at 69.

332. See *e.g.*, BACKGROUND REPORT, *supra* note 133, at 12 (discussing the legacy of poverty, misery, and intergenerational trauma caused by development-forced displacement).

333. WORLD BANK, *supra* note 284.

environment that threatens the habitability of the community.

VI. CONCLUSION

The extreme weather events of 2010 are evidence that climate change is profoundly impacting the habitability of communities around the world. In Alaska in particular, climate-induced ecological changes caused by a combination of gradual ecological processes and extreme weather events are repeatedly damaging community infrastructure, threatening the lives and well-being of community residents and permanently altering the habitability of indigenous communities. In many cases, community relocation is the only permanent solution. Yet post-disaster recovery and hazard mitigation laws, designed to respond to temporary displacement, are unable to effectively respond to the need for climigration. Moreover, the policy and practical challenges to community relocation are enormous.

While Newtok is currently the only Alaskan community engaged in a relocation process, the federal government has documented that an additional eleven communities need to relocate to avert a larger humanitarian crisis. With no federal or state statutory mandate, it is uncertain whether other threatened villages could replicate the Newtok Planning Group to facilitate their own relocation. The United States should lead the effort to respond to climate-induced community relocations and implement legislation to provide governance tools and resources so that communities forced to relocate due to rapid and radical climate change can be resilient. In this way, the United States can create a model adaptation strategy that facilitates an effective transition from protection in place to community relocation that governments throughout the world faced with climigration can implement.