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Arctic Resilience Action Framework

Cooperating for a More Resilient and Prosperous Arctic Region

Presented to the Senior Arctic Officials by the Arctic Resilience Action Framework Drafting and Review Committees, Co-chaired by Finland, the Saami Council and the United States*

Draft Version: September 2, 2016

*Summary: Resilience is a cross-cutting topic which has become increasingly important to the Arctic Council in the face of rapid changes. The **Arctic Resilience Action Framework (ARAF)** provides the Arctic Council Member States, Permanent Participants, Working Groups and Observers with a common set of Guiding Principles and Priorities for Action[†], as well as a platform to continue discussing priorities as they evolve. The ARAF can also guide Arctic stakeholders from academia, civil society, the private sector and others across the international community.*

* The Arctic Resilience Action Framework Review Committee is co-chaired by Finland and the Saami Council. The Drafting Committee is chaired by the United States. See Appendix D for a full list of Committee members.
† See Appendix A for a summary of the ARAF Guiding Principles and Priorities for Action.

39 I. Introduction

40

41 As global temperatures rise, populations grow and pressures on natural resources increase, the world faces
 42 exceptional new challenges that will require innovative solutions. These challenges are particularly
 43 prominent in the Arctic, where the rate of warming is significantly greater than that of the rest of the
 44 planet and is leading to immediate and profound impacts. At the same time, technological innovation
 45 offers new opportunities in the Arctic for capacity development and collaboration among countries and
 46 peoples.

47

48 At a broader systems-level, the rapid changes in the Arctic make any long-term planning and management
 49 increasingly difficult. Social and ecological systems in the Arctic are inextricably linked, more closely
 50 than most other regions of the world, and some aspects of these systems are changing fundamentally and
 51 surpassing thresholds which may be irreversible. Indigenous residents of the Arctic have always adapted
 52 to environmental changes, but the current rate and intensity of climate change, combined with other
 53 social, environmental, economic and political shifts and constraints, make adaptation extremely
 54 challenging in today's Arctic. It is important for governments, Indigenous Peoples and local communities
 55 to work collaboratively to build resilience to social-ecological changes.

56

57 The Arctic Council, the region's preeminent intergovernmental forum, has taken steps to increase the
 58 understanding of the changing Arctic and to address those changes.[‡] Arctic Council assessments such as
 59 the *Arctic Climate Impact Assessment* and the *Snow, Water, Ice and Permafrost Assessment* have greatly
 60 added to our knowledge foundation about the effects of climate change in the region. The *Adaptation*
 61 *Actions for a Changing Arctic* project is translating
 62 science into actionable knowledge to inform climate
 63 adaptation actions in three different regions of the
 64 Arctic, and the *Arctic Resilience Report* has
 65 identified potential “cliffs” or tipping points,
 66 assessed challenges to Arctic communities, and
 67 identified ways that the Arctic Council might
 68 contribute to strengthening resilience across the
 69 Arctic. All six of the Arctic Council Working Groups
 70 are implementing projects that contribute to the
 71 resilience of the region.[§]

72

73 These efforts to build resilience are extremely timely.
 74 Global momentum for addressing climate and other
 75 environmental changes and their linkages to human
 76 development has markedly increased in recent years,
 77 as demonstrated by the adoption of the Sendai
 78 Framework for Disaster Risk Reduction in March
 79 2015, the adoption of the 2030 Agenda and its
 80 Sustainable Development Goals (SDGs) – several of
 81 which directly address building the resilience of
 82 vulnerable communities and ecosystems – in
 83 September 2015, and the Paris climate agreement of
 84 December 2015. In addition to national reporting on

Box 1: Resilience, Climate Adaptation and Social-Ecological Systems

Resilience is the ability of a system to bounce back and thrive during and after disturbances and shocks. **Climate Adaptation** is an adjustment in natural or human systems, in response to climate change, which is intended to minimize disruption or take advantage of opportunities. Implementing effective climate adaptation measures can build resilience, and actions fostering resilience can build the capacity to adapt. For this reason resilience and climate adaptation are closely linked and often described in commensurate terms.

A **social-ecological system** is an integrated system that includes human societies and ecosystems. Its structure is characterized by reciprocal feedbacks. In the Arctic, social and ecological systems are particularly linked. To understand changes in the Arctic and to identify and implement strategies for adaptation and resilience, it is important to consider the linked social-ecological system.

[‡] See Appendix B for a brief overview of the Arctic Council.

[§] See Appendix C for more information.

85 the agreements above, many international and regional bodies around the world are adopting frameworks
86 and strategies to adapt to climate change and build resilience. In the Arctic, where the rate of warming is
87 double that of the rest of the planet, such a coordinated, regional response to social, economic and
88 environmental changes is timely, relevant and important. The Arctic Council, as the leading
89 intergovernmental forum on issues of sustainable development and environmental protection in the
90 region, is well-positioned to establish a framework that increases our understanding of risks and
91 uncertainties, and supports and encourages measures to improve the resilience of threatened communities
92 and ecosystems.

93
94

95 II. The Scope of the Arctic Resilience Action Framework

96
97 The *Arctic Resilience Action Framework (ARAF)* provides the Arctic Council Member States,
98 Permanent Participant indigenous peoples’ organizations, Working Groups and Observers with a common
99 set of Guiding Principles and Priorities for Action, as well as a platform to continue discussing priorities
100 as they shift. These priorities can also guide and galvanize
101 actions outside of the Arctic Council, bringing together other
102 states, international groups, civil society and the private sector –
103 all of which have an essential role to play in building Arctic
104 resilience.

105

106 The ARAF focuses on the resilience of Arctic states,
107 Indigenous Peoples and communities, and the ecosystems upon
108 which they depend, in the face of rapid social-ecological
109 change. Implementing the Priorities for Action that are outlined
110 in the ARAF will increase our understanding of Arctic change
111 and potential risks and strengthen the adaptive capacity and
112 overall resilience in the region. The ARAF is informed by the
113 Arctic Resilience Assessment and other Arctic Council
114 resources, existing national ambitions to build resilience and
115 advance the SDGs outlined in the 2030 Agenda, and
116 stakeholder consultations.

117

118 Through these priorities and actions, the ARAF aims to achieve the following outcome:

119

120 ***A measurable increase in the capacity of Arctic States and Arctic communities to understand and***
121 ***respond to risks and changes in ways that support socio-economic development and healthy,***
122 ***functioning ecosystems and ecosystem services.***

123 This outcome will only be attained through the commitment of many Arctic stakeholders at all levels of
124 implementation. To attain this outcome, the following Goal will be pursued:

125 *To mobilize and use the broad competence and expertise of all Arctic Council Member States, Permanent*
126 *Participants, Working Groups and Observers, along with other Arctic stakeholders, to provide the*
127 *information, tools, analysis and capacity necessary to address immediate and future resilience and*
128 *adaptation needs in the circumpolar Arctic.*

129 A “community of practice” of Arctic stakeholders – a group of stakeholders engaged in collective
130 learning and implementation – will explore a set of options for monitoring and assessing progress towards
131 the desired outcome. These options will align with other national-level methods and reporting structures,
132 wherever feasible (*See Section V – Implementing the Framework*).

**Box 2: The Arctic Council’s
Recognition of the Importance of
Resilience and Adaptation**

The Arctic Council has increasingly emphasized the importance of resilience and adaptation in the region. In the Iqaluit Ministerial Declaration (2015), Ministers of the eight Arctic States, joined by the six Permanent Participant organizations of the Arctic Council, “**Recognize** that resilience and adaptation to climate change are critically important for Arctic communities.”

133

134 III. Guiding Principles

135 The implementation of the ARAF will be guided by the following principles, while remaining consistent
136 with domestic laws as well as international obligations and ambitions, and taking into account national
137 circumstances.

138

- 139 **1. Build on the strengths of the Arctic Council and its Working Groups as a regional**
140 **mechanism for cooperation.** Draw upon the diversity and commonalities among circumpolar
141 countries, Arctic Indigenous Peoples, and communities to ensure the use of collaborative and
142 participatory approaches.
143
- 144 **2. Value and draw on Indigenous/Traditional Knowledge and local knowledge.** Integrating
145 Indigenous/Traditional knowledge and local knowledge with knowledge and experience from
146 interdisciplinary science and technical disciplines will create the strongest information foundation
147 for building resilience, adapting to future change, and protecting natural and cultural resources.
148
- 149 **3. Build upon existing global, regional and national strategies for sustainable development,**
150 **climate change adaptation and mitigation, and disaster risk reduction.** Pursue coherence
151 across these policies, where appropriate, to align tools and metrics, foster partnerships,
152 investments and innovations, and maximize impact.
153
- 154 **4. Support multi-stakeholder engagement.** Scientific and technical institutions, private sector
155 institutions, and civil society are essential for achieving the goals of resilience. Inclusive
156 approaches help to ensure that the skills, capacities, and unique needs of all people, including
157 Indigenous Peoples, women, youth, and Elders, are considered. Indigenous Peoples, in particular,
158 are at the heart of a sustainable Arctic and their inclusion in building Arctic resilience is crucial.
159 Stakeholders beyond the Arctic should also be engaged as they impact the region in a multitude
160 of ways and may be affected by changes in the Arctic region.
161
- 162 **5. Empower local communities.** Understanding risk and resilience from a community perspective
163 facilitates locally appropriate actions and investments. Such an understanding requires improved
164 education and social learning and empowerment of local authorities and communities through
165 resources, incentives, and support for self-organization as appropriate. Such empowerment is
166 enhanced by the recognition of indigenous peoples and other Arctic residents as co-producers of
167 knowledge, in particular through community-based monitoring and locally-driven research.
168
- 169 **6. Address multiple risks and look for co-benefits.** Arctic communities and ecosystems face
170 multiple hazards and stresses. Treating these in isolation can create new, unanticipated risk, but
171 consideration of the interactions among risk factors creates opportunity to identify measures that
172 deliver multiple co-benefits.
173
- 174 **7. Consider risk and resilience across temporal and spatial scales.** The development of resilience
175 strategies and adaptation responses must consider both temporal and spatial scales; the
176 consequences of decisions may take decades to emerge, and actions and development activities in
177 one region, within or outside of the Arctic, may have negative impacts in other areas.
178
- 179 **8. Encourage innovative investments that prevent and proactively mitigate risk.** Public and
180 private resilience investments should address the underlying risk factors instead of the impacts
181 after they have occurred. Building resilience in advance of disruptions or shocks can protect lives,

182 health, livelihoods and support economic development as well as cultural and environmental
183 assets and offers opportunities for future development.

184
185 **9. Monitor progress and adjust strategies as needed.** Vulnerability and risk in Arctic social-
186 ecological systems are constantly shifting; this framework, as well as Arctic resilience and
187 adaptation efforts more generally, must evolve as new information becomes available.
188

189 IV. Priorities for Action

190 Utilizing a review of existing ambitions outlined in global and regional strategies on climate change,
191 disaster risk reduction and sustainable development; a review of existing Arctic Council strategies,
192 assessments and ongoing initiatives; and extensive consultations with Permanent Participant
193 organizations, Arctic Council Member States, Observers, Working Groups and other stakeholders, the
194 ARAF has been organized around four key priorities: *i) Analyzing and Understanding Risk and*
195 *Resilience in the Arctic, ii) Building Resilience and Adaptation Capacity, iii) Implementing Measures that*
196 *Build Resilience through Policy, Planning and Cooperation, and iv) Encouraging Investment to Reduce*
197 *Risk and Build Resilience (see appendix C for a summary diagram).*

198 Each of the four priorities includes a subset of Action Areas to further focus resilience efforts in the
199 Arctic. It is likely that this initial list of Action Areas will evolve as challenges, needs, and opportunities
200 change. The ARAF is a living document that shall be updated over time. In order to orient the reader, an
201 example of an implementing action is described below each of the Action Areas; these are examples only
202 – in most cases the Action Areas will require multiple suites of implementing actions.**

203 Addressing these priorities will require the expertise and cooperation of a wide range of stakeholders and
204 knowledge systems. While the Arctic Council is well-positioned to coordinate regional resilience
205 priorities and actions, effective implementation will also require partnership with policy makers,
206 academia, civil society and the private sector at the national level, as well as engagement from other
207 multilateral/international groups.
208

209 **PRIORITY AREA I: Analyzing and Understanding Risk and Resilience in the Arctic**

210 In recent years, scientific advancements have improved the world’s understanding of the Arctic region.
211 However, many information gaps about social and natural processes, and the interactions among them,
212 still exist both within the Arctic region and between the Arctic region and global processes. As the Arctic
213 changes, an improved understanding of risks and opportunities can help communities and governments
214 make better decisions and more effectively enhance their resilience, especially in the face of uncertainty.
215 Documenting and sharing adaptation experiences can help to identify and foster effective responses and
216 best practices as the Arctic faces even more rapid change.
217

218 **Action Area 1.1:** Increase the effectiveness of existing monitoring systems and include social-ecological
219 indicators and their interactions.

220
221 Example implementing action: Improve understanding of disease and injuries related to a
222 changing environment.

** It is important to note that the Arctic Council Working Groups are already implementing a range of initiatives related to the Action Areas (See Appendix C). Additional focus on these Action Areas by the Arctic Council Working Groups and other stakeholders will more efficiently address the four Priority Areas that are outlined in this framework.

223
224 **Action Area 1.2:** Substantially enhance our understanding of ecologically vulnerable areas and areas in
225 which Arctic-adapted biodiversity can persist under a changing climate.

226
227 Example implementing action: Identify and map current and future plant and animal range
228 shifts as Arctic systems transform.

229
230 **Action Area 1.3:** Improve short and long-term projections for the Arctic under different future emission
231 and development scenarios, using natural and social sciences and Indigenous/Traditional
232 Knowledge and local knowledge.

233
234 Example implementing action: Develop sea level rise and coastal change projections for the
235 Arctic under future emission pathways, particularly in areas of frequent human use, and
236 identify how these will impact social and ecological resilience and adaptation needs.

237
238 **Action Area 1.4:** Expand the documentation of adaptation responses to changing threats in the Arctic.

239
240 Example implementing action: Collect and add new case studies to existing repositories of
241 adaptation and resilience measures for Arctic communities, economies and ecosystems;
242 promote methods to evaluate the effectiveness of these measures and disseminate information
243 about these resources.

244

245 **PRIORITY AREA II: Building Resilience and Adaptation Capacity**

246 Resilient communities have the internal capacity and flexibility to self-organize, but to successfully adapt
247 to environmental and social challenges, local communities and individuals will require support from all
248 levels of government. Encouraging processes that apply Indigenous/Traditional Knowledge, co-
249 developing tools for self-assessment and decision-making, facilitating access and integration of scientific
250 knowledge at the community level and supporting the education and training of local leaders can all
251 contribute to adaptive capacity and enhanced resilience to disruptive changes. Cross-border and
252 circumpolar collaboration can further support resilience of desired local attributes and can collectively
253 enhance regional resilience to disturbance and shocks.

254

255 **Action Area 2.1:** Increase the co-production of knowledge using science, Indigenous/Traditional
256 Knowledge and local knowledge.

257
258 Example implementing action: Highlight and share case studies for the successful co-
259 production of science and Indigenous/Traditional Knowledge, in which all partners have been
260 equitably involved and community participation has been encouraged. Case studies could
261 highlight the incentives and enabling environment that led to co-production.

262

263 **Action Area 2.2:** Expand the ability of community-based observation networks to collect critical data for
264 monitoring change and integrate with Earth observations.

265

266 Example implementing action: Expand and consolidate guidance for community-based
267 observations.

268

269 **Action Area 2.3:** Improve tools for assessing management strategies in changing Arctic ecosystems.

270

271 Example implementing action: Develop tools that help resource managers understand how
272 the fish, wildlife or land resources they manage relate to the resilience of the greater Arctic
273 region.

274 **Action Area 2.4:** Ensure data and tools are equitably distributed and easily accessible for local
275 communities, decision makers, and policy makers at all levels.

276 Example implementing action: Actively implement open data policies by making data
277 available in common formats in a timely manner.

278 **Action Area 2.5:** Substantially increase the number of communities, youth and emerging leaders that
279 understand Arctic change using a variety of knowledge approaches.

280 Example implementing action: Provide a resilience training platform and community of
281 practice for Arctic leaders and expand opportunities for youth engagement in this platform
282 over time.

283 **Action Area 2.6:** Increase administrative and planning support to communities, governments and
284 decision-makers at all levels, including support for applying resilience knowledge to decision-
285 making.

286 Example implementing action: Develop community-based resilience indicators that help
287 communities make decisions in a timely manner with respect to erosion, inundations and
288 storm surges.

295 **PRIORITY AREA III: Implementing Measures that Build Resilience through Policy, Planning and** 296 **Cooperation**

297 Sound planning and policy processes are essential for implementing measures that build resilience. To be
298 effective, such processes require the engagement and cooperation of a range of stakeholders, especially
299 local and Indigenous communities. These processes also should transcend disciplines and adopt holistic
300 approaches that combine the natural sciences and the social sciences, and multiple knowledge systems.
301 Building resilience requires a diversity of approaches.

302 **Action Area 3.1:** Increase the inclusion of local perspectives in local and sub-regional decision-making.

303 Example implementing action: Establish community-led planning groups to identify social
304 and cultural priorities at the local scale.

305 **Action Area 3.2:** Enhance the development and deployment of resilient infrastructure,
306 telecommunications, and technologies to deal with emerging challenges (e.g., waste, water
307 security, energy, food security, health, etc.).

308 Example implementing action: Develop training platforms that will enhance innovation and
309 enable the sharing of best practices for renewable energy technologies.

310 **Action Area 3.3:** Expand the use of ecosystem-based management in the Arctic.

311 Example implementing action: Identify, and develop measures to protect, crucial areas of
312 importance for biodiversity and food security.

317
318 **Action Area 3.4:** Substantially expand the use of transdisciplinary approaches for understanding change
319 and implementing strategies to enhance resilience.

320
321 Example implementing action: Support and showcase pilot programs that demonstrate the
322 transdisciplinary approach to resilience – for example assessing the impact of health
323 investments on adaptation capacity.

324 **Action Area 3.5:** Encourage consistent practices for ensuring public participation in environmental
325 impact assessments and other decision-making processes.

326 Example implementing action: Compare best practices across Arctic states for assessing the
327 environmental and social impacts of resource development.

328 **PRIORITY AREA IV: Encouraging Investment to Reduce Risk and Build Resilience**

329 Arctic communities and ecosystems will face an increasing number of new risks over time. However,
330 financial resources that enable effective planning and response to these risks have thus far been limited.
331 Resilience investments can bring multiple benefits, including a reduction of risk to communities and
332 ecosystems, more local jobs, increases in quality of life, and better return on investments. New,
333 innovative financial mechanisms will need to be explored in order to address near-term and long-term
334 challenges associated with climate change and other drivers of change, and ensure that investments
335 maintain and enhance the resilience of communities and ecosystem services whenever possible. This will
336 require the cooperation of all levels of government, as well as the private sector. Private-public
337 partnership models have been proven to be effective in the Arctic and could be used to increase
338 investments that build resilience.

339
340 **Action Area 4.1:** Improve our understanding of best practices for resilient and “climate proof”
341 investments in the Arctic.

342
343 Example implementing action: Assess existing funding streams in the Arctic, identify
344 obstacles and barriers in applying them to resilience challenges, and identify examples of
345 climate-proof investments.

346 **Action Area 4.2:** Substantially increase private sector investments that support resilient communities.

347 Example implementing action: Pilot a public-private resilience fund to facilitate private sector
348 investment in economic development, ecosystem health, public safety and long-term
349 resilience.

350 **Action Area 4.3:** Expand the use of innovative financial mechanisms for improving resilience.

351 Example implementing action: Analyze the use of existing financial mechanisms (e.g.,
352 catastrophe bonds, green bonds, climate risk bonds, loan guarantees, tax credits, land swaps,
353 etc.) that reduce risk and build resilience in other regions, and assess the potential for
354 application in the Arctic.

355 **Action Area 4.4:** Encourage the identification of specific funding gaps and resilience priorities, as a way
356 to provide guidance to potential donors and catalyze new investments.

357 Example implementing action: Develop lists of resilience funding priorities for each Member
358 State and Permanent Participant, and make the lists publicly available.

359

360 V. ARAF: Implementing the Framework

361 Implementing the ARAF – as well as monitoring progress toward the outcome and identifying future
362 priorities – will require continuous engagement and conversation by many partners. The following are
363 proposed actions to be taken by the Arctic Council Member States, with participation by a range of other
364 stakeholders:

365 **1. Host a biennial resilience forum.**

366 To facilitate active conversation, monitor progress, and ensure the ARAF remains current, a circumpolar
367 resilience forum could be held every two years – once per Arctic Council Chairmanship. The forum
368 would convene local, sub-regional, and regional Arctic resilience implementers or experts to a) assess
369 progress toward the ARAF outcome and priorities, b) showcase best practices and resilience learning, c)
370 identify and plan for emerging or urgent priorities, and d) encourage public/private resilience investment
371 opportunities. The forum could be organized by the rotating Chair of the Arctic Council. To ensure
372 continuity, it is suggested that the previous and future Chairs could also play key roles in organizing the
373 forum.

374 Subsequent to the biennial forum, organizers could produce a brief report that summarizes the key
375 findings of the meeting and proposes revisions, updates or additions to the ARAF – to be agreed upon by
376 a Review Committee consisting of resilience experts designated by each Arctic state, Permanent
377 Participant Organization, and Working Group.

378 **2. Develop a community of practice for building resilience in the Arctic.**

379 A community of practice that includes Arctic Council Member States, Permanent Participants, Observers
380 and other Arctic stakeholders could convene or communicate on a regular basis to explore methods for
381 measuring progress towards building resilience in the Arctic and beyond. Such a community of practice
382 would work closely with the organizers of the biennial resilience forum and provide a set of indicators or
383 monitoring options for consideration at the first resilience forum. Methods of monitoring progress should,
384 where feasible and appropriate, align with existing reporting mechanisms, such as national reporting on
385 the SDG indicators currently being developed under the auspices of the United Nations.

386

387 VI. Conclusion

388 The ARAF is a collaborative tool for enhancing our understanding and building resilience to disruptive
389 changes in the Arctic. In addition to providing guidance and a clear focus on shared priorities, it will
390 facilitate the sharing of Arctic-specific resilience data and information, and therefore increase our global
391 understanding of risk and opportunity. This is an extraordinary moment for the people and leaders of the
392 Arctic, an opportunity to integrate northern perspectives into global deliberations while at the same time
393 addressing clear and immediate resilience and adaptation needs. The ARAF will evolve over time as
394 circumstances and opportunities change, but the influence and global role of Arctic peoples will steadily
395 increase as global and local efforts align to enhance Arctic resilience.

396

Appendix A: Arctic Resilience Action Framework at a Glance

397

Outcome

A measurable increase in the capacity of Arctic States and Arctic communities to understand and respond to risks and changes in ways that support positive socio-economic development and healthy, functioning ecosystems and ecosystem services.

Goal

To mobilize and use the broad competence and expertise of all Arctic Council Member States, Permanent Participants, Working Groups and Observers, along with other Arctic stakeholders, to provide the information, tools, analysis and capacity necessary to address immediate and future resilience and adaptation needs in the circumpolar Arctic.

Priority Areas and Action Items

Priority Area 1: Analyzing and Understanding Risk and Resilience in the Arctic	Priority Area 2: Building Resilience and Adaptation Capacity	Priority Area 3: Implementing Resilience with Policy, Planning and Cooperation	Priority Area 4: Encouraging Investment to Reduce Risk and Build Resilience
<p>Increase the effectiveness of existing monitoring systems and include social-ecological indicators and their interactions</p> <p>Substantially enhance our understanding of ecologically vulnerable areas and areas in which Arctic-adapted biodiversity can persist under a changing climate</p> <p>Improve short and long-term projections for the Arctic under different future emission and development scenarios, using natural and social sciences and Indigenous/Traditional Knowledge and local knowledge</p> <p>Expand the documentation of adaptation responses to changing threats in the Arctic</p>	<p>Increase the co-production of knowledge using science, Indigenous/Traditional Knowledge and local knowledge</p> <p>Expand the ability of community-based observation networks to collect critical data for monitoring change and integrate with Earth observations</p> <p>Improve tools for assessing management strategies in changing Arctic ecosystems</p> <p>Ensure data and tools are equitably distributed and easily accessible for local communities, decision makers, and policy makers at all levels</p> <p>Substantially increase the number of communities, youth and emerging leaders that understand Arctic change using a variety of knowledge approaches</p> <p>Increase administrative and planning support to communities, governments and decision-makers at all levels, including support for applying resilience knowledge to decision-making</p>	<p>Increase the inclusion of local perspectives in local and sub-regional decision-making</p> <p>Enhance the development and deployment of resilient infrastructure, telecommunications, and technologies to deal with emerging challenges (e.g., waste, water security, energy, food security, health, etc.)</p> <p>Expand the use of ecosystem-based management in the Arctic</p> <p>Substantially expand the use of transdisciplinary approaches for understanding change and implementing strategies to enhance resilience</p> <p>Encourage consistent practices for ensuring public participation in environmental impact assessments and other decision-making processes</p>	<p>Improve our understanding of best practices for resilient or “climate proof” investments in the Arctic</p> <p>Substantially increase private sector investments that support resilient communities</p> <p>Expand the use of innovative financial mechanisms for improving resilience</p> <p>Encourage the identification of specific funding gaps and resilience priorities, as a way to provide guidance to potential donors and catalyze new investments</p>

Guiding Principles

- | | |
|--|--|
| <ul style="list-style-type: none"> • Build on the strengths of the Arctic Council and its Working Groups as a regional mechanism for cooperation • Value and draw on Indigenous/Traditional Knowledge and local knowledge • Build upon existing global, regional and national strategies for sustainable development, climate change adaptation and mitigation, and disaster risk reduction • Support multi-stakeholder engagement | <ul style="list-style-type: none"> • Empower local communities • Address multiple risks together and look for co-benefits • Consider risk and resilience across temporal and spatial scale • Encourage innovative investments that prevent and proactively mitigate risk • Monitor progress and adjust strategies as needed |
|--|--|

398 **Appendix B: The Arctic Council at a Glance**

399
400 The Arctic Council is the leading intergovernmental forum promoting cooperation, coordination and
401 interaction among the Arctic States, Arctic indigenous communities and other Arctic inhabitants on
402 common Arctic issues. In particular, the Arctic Council cooperates on issues of sustainable development
403 and environmental protection in the Arctic.

404
405 The Arctic Council was established in 1996 through the Ottawa Declaration, which designates the
406 following as Member States: **Canada, the Kingdom of Denmark, Finland, Iceland, Norway, the**
407 **Russian Federation, Sweden and the United States**. Chairmanship of the Arctic Council rotates every
408 two years among these eight Member States. Each Member State has a designated Senior Arctic Official,
409 or primary representative, for day-to-day operations within the Arctic Council.

410
411 In addition to Member States, there are six Arctic indigenous peoples' organizations, or Permanent
412 Participants, of the Arctic Council, which have full consultation rights with respect to Arctic Council
413 negotiations and decisions. Permanent Participants include: **the Aleut International Association, the**
414 **Arctic Athabaskan Council, Gwich'in Council International, the Inuit Circumpolar Council,**
415 **Russian Association of Indigenous Peoples of the North and the Saami Council.**

416 The work of the Arctic Council is primarily carried out by six Working Groups.

- 417
418 • **The Arctic Contaminants Action Program (ACAP)** acts as a strengthening and supporting
419 mechanism to encourage national actions to reduce emissions and other releases of pollutants.
420 • **The Arctic Monitoring and Assessment Programme (AMAP)** monitors the Arctic
421 environment, ecosystems and human populations, and provides scientific advice to support
422 governments as they tackle pollution and adverse effects of climate change.
423 • **The Conservation of Arctic Flora and Fauna Working Group (CAFF)** addresses the
424 conservation of Arctic biodiversity, working to ensure the sustainability of the Arctic's living
425 resources.
426 • **The Emergency Prevention, Preparedness and Response Working Group (EPPR)** works to
427 protect the Arctic environment from the threat or impact of an accidental release of pollutants or
428 radionuclides.
429 • **The Protection of the Arctic Marine Environment (PAME) Working Group** is the focal point
430 of the Arctic Council's activities related to the protection and sustainable use of the Arctic marine
431 environment.
432 • **The Sustainable Development Working Group (SDWG)** works to advance sustainable
433 development in the Arctic and to improve the conditions of Arctic communities as a whole.

434
435 In addition to the Working Groups, temporary Task Forces and Expert Groups are sometimes created to
436 work on a specific issue for a limited period of time. Recent examples include the Expert Group on
437 Ecosystem-Based Management and the Task Force for Enhancing Scientific Cooperation in the Arctic.

438 Many non-Arctic states and inter-governmental or non-governmental organizations participate in the
439 Arctic Council as Observers. They are invited to observe the work of the Arctic Council and are
440 sometimes invited to make relevant contributions, primarily through engagement at the level of the
441 Working Group.

442

443 **Appendix C: Working Group Objectives and Initiatives that May Build**
444 **Resilience**

446 The following is a list of current and planned Arctic Council Working Group initiatives that could support
447 ecosystem or community resilience. These initiatives have been divided into three broader categories of
448 resilience “needs”: Capacity Building, Research and Innovation, and Improved Decision-Making,
449 Management, and Implementation. These three “needs” categories were used to frame discussions during
450 the Arctic Council Resilience Workshop on March 14, 2016 in Fairbanks, Alaska, USA. Initiatives have
451 been drawn from the six Working Groups’ 2015-2017 work plans and the Actions for Arctic Biodiversity
452 2013-2021: Implementing the recommendations of the Arctic Biodiversity Assessment. Additional
453 actions from the Arctic Marine Strategic Plan are also listed^{††}.

454
455 In addition to the Working Groups, temporary Task Forces and Expert Groups are sometimes created to
456 work on a specific issue for a limited period of time. The deliberations and products of these Task Forces
457 and Expert Groups may also support resilience and contribute to our understanding of risks and
458 opportunities in the Arctic. For example, the Ecosystem-Based Management (EBM) Expert Group
459 provided definitions and principles for EBM, an integrated approach to management with a goal of
460 improving the sustainability of linked social ecological systems.

461
462
463 **I. ACAP**

464
465 **Working Group Objectives:**

466 To prevent adverse effects, reduce and ultimately eliminate pollution of the Arctic Environment^{††}

467
468 **Current or Planned Initiatives by Resilience “Need”**

469
470 ***Capacity Building***

- 471 • Expand the coverage of an existing monitoring tool, the Local Environmental Observer (LEO)
472 network that links traditional knowledge and western science, across the Arctic to create a
473 Circumpolar Local Environmental Observer (CLEO) network. During Phase I of the project,
474 ACAP will create a North America chapter of the CLEO, including indigenous communities in
475 the Alaskan and Canadian Arctic, and will develop a framework for expansion of the CLEO to
476 the Nordic and Russian regions (ACAP 2015-2017 Work Plan^{§§})
 - 477 • Assess and develop community-level tools for black carbon reduction in indigenous communities,
478 to mitigate health and environmental effects from black carbon sources (in Russian and Saami
479 communities) (ACAP 2015-2017 Work Plan)
 - 480 • Organize a conference on best practices on contaminant reduction in indigenous communities
481 (Actions for Arctic Biodiversity 2013-2021^{***})
- 482

^{††} See Sub-Appendix for initiatives referenced in the Arctic Marine Strategic Plan

^{††} From Arctic Council Action Plan to Eliminate Pollution of the Arctic, 2000. https://oaarchive.arctic-council.org/bitstream/handle/11374/429/ACSAO-US03_6_ACAP.pdf?sequence=1&isAllowed=y

^{§§} ACAP Work Plan: ACAP Draft SAO Report to Ministers including Work Plan 2015-2017.

https://oaarchive.arctic-council.org/bitstream/handle/11374/1437/ACAP_WORKPLAN_Doc1_Draft_submission_to_SAO_Report_including_work_plan_AC_SAO_CA04.pdf?sequence=1&isAllowed=y

^{***} Actions for Arctic Biodiversity 2013-2021. <http://www.caff.is/administrative-series/293-actions-for-arctic-biodiversity-2013-2021-implementing-the-recommendations-of-th/download>

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Improved Decision-Making, Management, and Implementation

- Demonstrate environmentally sound clean-up of an old pesticide storage site/burial site, including destruction of the hazardous waste (ACAP 2015-2017 Work Plan)
- Reduce diesel black carbon emissions through implementation of a range of alternatives, including use of renewable fuel, for providing energy upgrades to offgrid Cluster settlements in Valday, Karelia (ACAP 2015-2017 Work Plan)
- Identify, further develop and apply pollution reduction technologies at a non-ferrous/zinc smelter in Russia and implement related monitoring (ACAP 2015-2017 Work Plan)
- Assess contamination of three old pesticides storages/burial sites using a Rapid Environmental Assessment to assess the risk to local population and the Arctic Environment (ACAP 2015-2017 Work Plan)
- Assess technologies for environmentally sound destruction of obsolete pesticides in northern Russia, when such capacity becomes available (ACAP 2015-2017 Work Plan)
- Identification of PCB-containing waste on Graham Bell, Heiss and Hoffman Islands, their collection and analysis, elimination of liquid waste using a SKGO-10 mobile facility, technical and biological remediation and monitoring of contaminated areas and development of proposals for improving the system to identify, gather, store and dispose of PCB in the Arctic zone of the Russian Federation (ACAP 2015-2017 Work Plan)

II. AMAP

Working Group Objectives:

1. Assessments: Produce scientific assessments and products from which strong science based policy recommendations can be made; Identify gaps and key questions that are needed for the best possible assessment of cumulative environmental stressors, their causes, and impacts on ecosystems and people
2. Communications and Outreach: Develop a closer cooperation with other AC working Groups, PPs, governments, observers, educational institutions, media, and other organizations; effectively communicate the results of AMAP activities
3. Monitoring: Sustained, robust circumpolar monitoring network effective at detecting changes and discerning trends; develop and maintain circumpolar monitoring guidelines for standardized collection of data and analysis; work with and support community-based monitoring^{†††}

Current or Planned Initiatives by Resilience “Need”

Research and Innovation

- Update of 2011 Snow, Water, Ice and Permafrost (SWIPA) assessment, using updated climate change scenarios and more refined models, and the development of the Arctic Freshwater Synthesis (this component of the SWIPA update will prepare the first overall budget of freshwater resources in the Arctic and a synthesis of the current status) (AMAP 2015-2017 Work Plan^{†††})
- Update the 2011 Arctic Ocean Acidification Assessment, which will “inform policy development concerning sustainable marine resources and food security” (AMAP 2015-2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)

^{†††} From AMAP Strategic Framework, 2010-2018. www.amap.no/documents/download/242

^{†††} AMAP Work Plan: 2015-2017 <https://oarchive.arctic-council.org/handle/11374/1443>

- 529 • Prepare three regional assessments with information to assist local decision-makers and
- 530 stakeholders to develop adaptation tools and strategies to deal with climate change and other
- 531 environmental stressors and produce an overall integrated report on adaptation actions (AACA
- 532 Part C) (AMAP 2015-2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 533 • Develop ecosystem models that project ecosystem response to climate change and contaminant-
- 534 related factors (as part of AACA-C) (Actions for Arctic Biodiversity 2013-2021)
- 535 • Provide information for assessment of contaminant level trends in ecosystems, and their
- 536 biological effects, and improve predictive capacity (ongoing with CAFF) (AMAP 2015-2017
- 537 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 538 • Prepare an updated assessment of persistent organic pollutants, including chemicals of emerging
- 539 Arctic concern, biological effects, and the influence of climate change on POPs (AMAP 2015-
- 540 2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)

543 III. CAFF

544 Working Group Objectives:

- 546 1. To enhance efforts to monitor Arctic biodiversity, especially which are of great ecological,
- 547 cultural, social, economic or scientific value
- 548 2. Support and implement measures for the conservation of Arctic genetic resources, species, and
- 549 their habitats
- 550 3. Establish protected areas in the Arctic region where they contribute to the conservation of
- 551 ecosystems, habitats, and species
- 552 4. Manage activities outside protected areas in order to ensure the conservation of biodiversity
- 553 5. Enhance integration of biodiversity conservation and sustainable use objectives into sectoral and
- 554 cross-sectoral plans and policies^{§§§}

555 Current or Planned Initiatives by Resilience “Need”

556 Capacity Building

- 559 • The Circumpolar Biodiversity Monitoring Program (CBMP) is enhancing biodiversity monitoring
- 560 and increasingly incorporating traditional and local knowledge (CAFF 2015-2017 Work Plan^{****}
- 561 and Actions for Arctic Biodiversity 2013-2021)
- 562 • Develop a Pan-Arctic Digital Elevation Map , in order to improve access to Arctic topographical
- 563 information to facilitate monitoring and assessment activities and to inform decisions on
- 564 development, land management and scientific analyses (CAFF 2015-2017 Work Plan and Actions
- 565 for Arctic Biodiversity 2013-2021)
- 566 • Develop educational tool-kits for school children (CAFF 2015-2017 Work Plan and Actions for
- 567 Arctic Biodiversity 2013-2021)
- 568 • Increase engagement of youth and early career scientists in the activities of CAFF to train the
- 569 next generation of conservation leaders (Actions for Arctic Biodiversity 2013-2021)
- 570 • Complete the circumpolar boreal vegetation map (Actions for Arctic Biodiversity 2013-2021)
- 571 • Further develop community-based monitoring as a tool to aid in tracking populations, harvest and
- 572 harvest management (Actions for Arctic Biodiversity 2013-2021)

§§§ From The Strategic Plan for the conservation of Arctic Biological Diversity (1997). <https://oaarchive.arctic-council.org/handle/11374/164>

**** CAFF Work Plan: 2015-2017. <https://oaarchive.arctic-council.org/handle/11374/398>

- 573 • Advance and sustain the Arctic Biodiversity Data Service (ABDS) to facilitate access,
574 integration, analysis and display of biodiversity information to understand, conserve and manage
575 the Arctic's wildlife ecosystems. (Actions for Arctic Biodiversity 2013-2021)
- 576 • Develop and apply standards of the Arctic Spatial Data Infrastructure and further develop use of
577 remote sensing as a tool for better information decisions and more efficient administration of the
578 Arctic (Actions for Arctic Biodiversity 2013-2021)
- 579 • Convene, and report the results of the second Arctic Biodiversity Congress to promote the
580 conservation and sustainable use of Arctic biodiversity focusing on the results of the CBMP state
581 of the Arctic biodiversity reports, progress on implementation of ABA recommendations, and
582 attainment of Aichi Targets (Actions for Arctic Biodiversity 2013-2021).
- 583 • Promote the active involvement of indigenous peoples in the management and sustainable use of
584 protected areas (Actions for Arctic Biodiversity 2013-2021).
- 585 • Develop tools to raise awareness of Arctic biodiversity, and the multiple challenges it faces, and
586 create publications, articles, films, social media, media campaigns and educational kits (Actions
587 for Arctic Biodiversity 2013-2021).

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589

590 ***Research and Innovation***

- 591 • Contribute to pan-Arctic MPA network: Map areas of high species abundance and unique Arctic
592 diversity; analyze existing Arctic marine protected areas to identify gaps and priorities including
593 the most climate-change resilient Arctic areas, connectivity gaps and missing buffer zones (CAFF
594 2015-2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 595 • The Salmon River Peoples' Project will look at trends of salmon in three rivers of the circumpolar
596 Arctic to advance understanding of the importance of freshwater fish to food security for
597 indigenous people using a co-production of knowledge approach (CAFF 2015-2017 Work Plan
598 and Actions for Arctic Biodiversity 2013-2021)
- 599 • Improve our understanding of climate change vulnerabilities and impacts on sea-ice associated
600 biodiversity (CAFF 2015-2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 601 • TEEB Scoping Study (which could lead to further recommendations) (CAFF 2015-2017 Work
602 Plan and Actions for Arctic Biodiversity 2013-2021)
- 603 • Explore the possibility of developing a case study on walrus to demonstrate Inuit food security
604 and ecosystem approach (Actions for Arctic Biodiversity 2013-2021)
- 605 • Identify species that could benefit from range-wide adaptive management strategies (2015-2017
606 and ongoing) (Actions for Arctic Biodiversity 2013-2021)
- 607 • Incorporate common protocols for early detection and reporting of non-native invasive species in
608 the Arctic into CBMP monitoring plans (Actions for Arctic Biodiversity 2013-2021)
- 609 • Follow-up as appropriate on the TEEB (The Economics of Ecosystems and Biodiversity)
610 approach to evaluate the benefits people receive from Arctic biodiversity (Actions for Arctic
611 Biodiversity 2013-2021)
- 612 • Report on changes in Arctic species, ecosystems, and the effects of stressors through state of
613 Arctic biodiversity (Marine, Freshwater, Terrestrial, Coastal) reports (Actions for Arctic
614 Biodiversity 2013-2021)
- 615 • Prepare a report on traditional knowledge on biodiversity change in the North American Arctic
616 (Actions for Arctic Biodiversity 2013-2021)
- 617 • Develop the community observation network for adaptation and security (CONAS) to increase
618 the contribution of community-based monitoring and knowledge from Arctic peoples to existing
619 knowledge (Actions for Arctic Biodiversity 2013-2021)
- 620 • Analyse the state of knowledge and data on cumulative effects and identify priorities, adding the
621 biotic parameters to abiotic work (Actions for Arctic Biodiversity 2013-2021)

- 622 • Continue to develop and report on key robust indicators of Arctic biodiversity, in particular ones
623 that can be used to track and understand cumulative effects, e.g. Arctic Species Trend Index,
624 Land Cover Change Index, etc. (Actions for Arctic Biodiversity 2013-2021)
- 625 • Improve data and assessments on populations, harvest and harvest management, including both
626 traditional knowledge and science, as foundation for harvest management (e.g., Arctic Geese)
627 (Actions for Arctic Biodiversity 2013-2021)

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629

630 ***Improved Decision-Making, Management, and Implementation***

- 631 • Circumpolar strategy for the prevention and management of invasive species (CAFF 2015-2017
632 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 633 • Promote the implementation of ecosystem-based management approaches (CAFF 2015-2017
634 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 635 • Encourage the mainstreaming of biodiversity by developing a set of principles on incorporating
636 biodiversity objectives and safeguards into Arctic Council work (CAFF 2015-2017 Work Plan
637 and Actions for Arctic Biodiversity 2013-2021)
- 638 • Assess, monitor, and develop conservation plans for Arctic seabirds (CAFF 2015-2017 Work
639 Plan)
- 640 • Develop the Circumpolar Vegetation Map, red-list for Arctic plants, moss and lichen check lists
641 (CAFF 2015-2017 Work Plan)
- 642 • The Arctic Migratory Bird Initiative (AMBI) entails the implementation of work plans in
643 different flyways (CAFF 2015-2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 644 • Develop options for safeguarding marine and terrestrial refuge areas (Actions for Arctic
645 Biodiversity 2013-2021)
- 646 • Broker commitments by non-Arctic countries to safeguarding important Arctic migratory bird
647 habitats outside of the Arctic (part of the AMBI) (Actions for Arctic Biodiversity 2013-2021)
- 648 • Continue implementation of existing species conservation strategies (Black-legged Kittiwakes,
649 caribou) (ongoing) (Actions for Arctic Biodiversity 2013-2021)
- 650 • Develop range-wide adaptive management strategies for harvested species (Actions for Arctic
651 Biodiversity 2013-2021)
- 652 • Identify management actions that will enhance resilience of species in adapting to rapid change
653 (2017-2019) (Actions for Arctic Biodiversity 2013-2021)
- 654 • Identify species that could benefit from, but are not covered by, range-wide adaptive management
655 strategies and follow-up as appropriate and develop range-wide adaptive management strategies
656 for those harvested species (Actions for Arctic Biodiversity 2013-2021)

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659 **IV. EPPR**

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661 **Working Group Objectives:**

662 To deal with the prevention, preparedness and response to environmental emergencies in the Arctic.
663 EPPR is not an operational response organization. Its goal is to contribute to the protection of the Arctic
664 environment from the threat or impact from an accidental release of pollutants or radionuclides. In
665 addition, EPPR considers questions related to the consequences of natural disasters.^{††††}

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667 **Current or Planned Initiatives by Resilience “Need”**

†††† From EPPR Strategic Plan (Working Document – Draft) (2015). http://arctic-council.org/eppr/wp-content/uploads/2015/06/2015_11_09_EPPR_Strategic_Plan_draft_posted.pdf

- 668
669 **Capacity Building**
670 • Develop database of Arctic response assets (EPPR 2015-2017 Work Plan)^{****}
671 • Develop of a scoping workshop for the project “Prevention, Preparedness and Response for Small
672 Communities” (EPPR 2015-2017 Work Plan)
673 • Second live exercise for oil spill scenario response (hosted by the U.S.; Canada hosted the first)
674 (EPPR 2015-2017 Work Plan)
675 • Member States will provide datasets to the Arctic ERMA (Environmental Response and Mapping
676 Application) mapping tool (EPPR 2015-2017 Work Plan)
677

678 **Research and Innovation**

- 679 • Develop a circumpolar oil spill gap analysis (EPPR 2015-2017 Work Plan)
680

681 **Improved Decision-Making, Management, and Implementation**

- 682 • Follow up projects that reduce black carbon, including transport and diesel generator sectors; the
683 Arctic Case Studies Platform; and convening a conference on best practices on contaminant
684 reduction in indigenous communities (Actions for Arctic Biodiversity 2013-2021)
685

686 **V. PAME**

687
688 **Working Group Objective:**

689 To address policy and non-emergency pollution prevention and control measures related to the protection
690 of the Arctic marine environment.^{****}
691

692 **Current or Planned Initiatives by Resilience “Need”**

693
694 **Capacity Building**

- 695 • Create a guidebook that will enable communities to independently map their interactions with the
696 marine environment. To test and better refine the guidebook, a mapping project will be conducted
697 using the draft guidebook in three communities (PAME Work Plan 2015-2017^{*****})
698 • Potential follow-up to the Arctic Marine Tourism Plan includes producing site-specific guidance
699 templates or compiling a publicly available repository on Arctic tourism (PAME 2015-2017
700 Work Plan)
701 • Potential follow-up to Arctic Marine Shipping Assessment includes developing a compendium of
702 case study information on maritime incidents in the Arctic that resulted in a spill or release of
703 HFO and the environmental impact thereof (PAME 2015-2017 Work Plan)
704 • Continue to pursue opportunities (including through the proposed Arctic Shipping Data Service)
705 for updating Arctic ship traffic data contained in the AMSA report for use in studies, assessments,
706 trend analyses and development of recommendations that enhance Arctic marine safety and
707 support protection of Arctic people and environment (PAME 2015-2017 Work Plan)
708

709 **Research and Innovation**

^{****} EPPR Working Group Meeting: Drawn from 2- Page highlights to SAO chair – EPPR II Working Group Meeting. http://www.arctic-council.org/eppr/wp-content/uploads/2014/10/Two-pager_EPPR_Meeting_Dec_2014_Final1.pdf

^{****} From PAME Website. <http://www.pame.is/index.php/shortcode/about-us>

^{*****} PAME Work Plan: 2015-2017.

http://www.pame.is/images/01_PAME/Work_Plan/PAME%20Work%20Plan%202015-2017.pdf

- 710 • Support a Marine Protected Areas (MPA) Network through stakeholder engagement, inventory
711 mapping of existing MPAs, and a desktop study on area-based conservation measures and its
712 linkages to categories of Arctic Biodiversity (PAME 2015-2017 Work Plan and Actions for
713 Arctic Biodiversity 2013-2021)

714

715 ***Improved Decision-Making, Management, and Implementation***

- 716 • Continue ongoing activities of the Ecosystem-Approach (EA) Group: contribute to the
717 development of ecological objectives, follow up actions on integrated ecosystem assessments,
718 continue fostering implementation of EA in the Arctic (August 2016 workshop), consider issues
719 of scale in EA, and support a community of practice working to implement EA (PAME 2015-
720 2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 721 • Promote collaboration among Arctic states as they implement the Polar Code (PAME 2015-2017
722 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 723 • Develop a circumpolar strategy for the prevention and management of invasive species (with
724 CAFF) (PAME 2015-2017 Work Plan and Actions for Arctic Biodiversity 2013-2021)
- 725 • Develop an Arctic Regional Reception Facilities Plan as a long-term solution to help meet the
726 challenges posed by increased shipping activity (the aim is for environmentally sound
727 management of ship waste) (PAME 2015-2017 Work Plan)
- 728 • Invite AMAP, CAFF, SDWG and PAME to denote areas within the high seas area of the Central
729 Arctic Ocean that are particularly vulnerable to shipping and further explore possible
730 international protection measures that could be pursued by Arctic States, individually, or
731 collectively at the IMO (PAME 2015-2017 Work Plan)

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735 **VI. SDWG**

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737 **Working Group Objectives:**

738 To propose and adopt steps to be taken by the Arctic States to advance sustainable development in the
739 Arctic. This includes pursuing opportunities to protect and enhance the environment and the economies,
740 culture and health of indigenous peoples and Arctic communities. The guiding tenet is to pursue
741 initiatives that provide practice knowledge and contribute to the capacity of indigenous peoples and
742 Arctic communities to respond to the challenges and benefits from the opportunities in the Arctic
743 region.^{††††}

744

745 **Current or Planned Initiatives by Resilience “Need”**

746

747 ***Capacity Building***

- 748 • Continue supporting the Arctic Adaptation Exchange Portal (AAEP), in association with the
749 University of Alaska Fairbanks. To the extent possible, Member States will build on their open
750 data policies to consolidate and facilitate access to their respective climate-related Arctic datasets,
751 and link this data to the Arctic Adaptation Exchange Portal (SDWG 2015-2017 Work Plan^{††††})
- 752 • Create common metrics for evaluating suicide prevention efforts through the Arctic RISING SUN
753 program, in order to aid health workers and policy makers measure progress and identify
754 challenges (SDWG 2015-2017 Work Plan)

†††† From SDWG website. <http://www.sdwg.org/about-us/mandate-and-work-plan/>

††††† SDWG Work Plan: 2015-2017. <https://oaarchive.arctic-council.org/handle/11374/1480>

- 755 • The EALLU project will raise awareness of climate change among indigenous youth and
756 document TK about food cultures of reindeer herding indigenous peoples (SDWG 2015-2017
757 Work Plan)
758

759 ***Research and Innovation***

- 760 • Networks Academy (ARENA) addresses the need for the development of community energy
761 experts to ensure affordable, reliable, renewable source energy solutions for Arctic communities.
762 It integrates web-based seminars with classroom learning and field exposure (SDWG website)
763 • Arctic Energy Summit is a forum to share information that can lead to innovative practices in
764 renewable energy (SDWG 2015-2017 Work Plan)
765 • Convene workshop to facilitate collaboration between researchers, engineers, manufacturers,
766 vendors and health experts on measures to increase access to and reduce the operating costs of in-
767 home running water and sewer in remote communities, attract investment, improve public health,
768 and spur public-private partnerships (SDWG 2015-2017 Work Plan)
769 • The third Economy of the North (ECONORIII) project will give a statistical overview of
770 economic, social conditions, and environmental change, through the contribution of national
771 statistics agencies (SDWG 2015-2017 Work Plan)
772 • The Arctic as a Food Producing Region project will assess the potential for increased production
773 and added value of food from the Arctic and will identify important factors for developing the
774 Arctic as a food-producing region (SDWG 2015-2017 Work Plan)
775

776 ***Improved Decision-Making, Management, and Implementation***

- 777 • Establish One Health ‘hubs’ across the Arctic (essentially, linking institutions) to enable the more
778 effective implementation of the One Health approach (SDWG 2015-2017 Work Plan)
779
780

781 **Sub-Appendix: Actions Identified in the Arctic Marine Strategic Plan**

782 **Current or Planned Initiatives by Resilience “Need”**

783 ***Capacity Building***

- 784
785 • Enhance local involvement in the collection of information and monitoring of the marine
786 environment including traditional and local knowledge
787 • Develop and standardize data sharing and management at a circumpolar level
788 • Improve awareness of Arctic shipping activity and its impacts by promoting expanded
789 information sharing of ship traffic data
790 • Strengthen the collection, observation, monitoring and dissemination of data on the Arctic
791 marine environment
792 • Map areas of the marine environment that are vulnerable to the effects of ocean acidification
793 • Facilitate coastal community exchanges between Arctic states to improve sharing of
794 knowledge and experiences
795 • Encourage engagement with indigenous peoples organizations to inform the work of the
796 Arctic Council in the protection of the marine environment, including through the use of
797 traditional and local knowledge
798 • Strengthen the Arctic Council’s communication to the public in Arctic and non-Arctic
799 countries pointing out ongoing changes in the Arctic and their likely impact on non-Arctic
800 areas
801 • Improve understanding of risks related to shipping and oil and gas exploration, including gap
802 analysis and sharing of best practices
803

- 804 • Develop circumpolar indicators of changes and stressors across the Arctic marine
805 environment
806 • Create inventories of and reduce emissions of short-lived climate forcers, including black
807 carbon and methane (also in ACAP 2015-2017 Work Plan)

808
809 ***Research and Innovation***

- 810 • Identify and develop tools for assessing cumulative impacts, threats and risks to areas of
811 ecological and cultural significance
812 • Improve remote sensing capabilities to support ice detection, monitoring and forecasting
813 (CAFF ongoing activity)
814 • Support research, development and implementation of oil spill detection, migration measures,
815 and response technologies in ice-covered and ice-infested waters

816
817 ***Improved Decision-Making, Management, and Implementation***

- 818 • Implement measures to protect Arctic marine areas of ecological and cultural significance,
819 focusing on areas of refuge for ice-associated species
820 • Develop a pan-Arctic network of marine protected areas (also in PAME 2015-2017 Work
821 Plan)
822 • Support efforts, in cooperation with indigenous peoples, to:
823 ○ Reduce long-range pollution accumulating in the Arctic marine food-chains
824 ○ Reduce emissions and implement adaptation measures
825 • Support research, development and implementation of oil spill detection, migration measures,
826 and response technologies in ice-covered and ice-infested waters
827 • Improve safety and environment protection performance and the use of best practices and
828 technology for all marine activities
829 • Support international efforts and cooperation to continue to identify, assess and reduce
830 existing and emerging contaminants
831 • Implement an ecosystem approach to management in the Arctic (also in CAFF 2015-2017
832 Work Plan)
833 • Implement measures for early detection and reporting of marine invasive species in the Arctic
834 marine environment (also in CAFF 2015-2017 Work Plan)

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853 **Appendix D: ARAF Drafting Committee and Review Committee Members**

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855 Two committees, a Drafting Committee and a Review Committee, have been responsible for developing
856 the ARAF. The Drafting Committee Chair and Review Committee co-Chairs were responsible for
857 collaborating to negotiate final edits to the ARAF.

858 **Drafting Committee:**

859

860 The Drafting Committee is a voluntary committee of technical and policy experts. Drafting Committee
861 members were responsible for suggesting a draft of the ARAF, after analyzing a variety of inputs to the
862 ARAF development process.

863

864 Joel Clement (Chair), U.S. Department of the Interior
865 Sarah Abdelrahim, U.S. Department of the Interior
866 Tom Armstrong, AMAP
867 Nikolaj Bock, European Environment Agency
868 Glenn Dolcemasclo, United Nations International Strategy for Disaster Reduction
869 Jim Gamble, Aleut International Association
870 Robert Kadas, Foreign Affairs Canada
871 Jaana Kaipainen, Finnish Ministry of Agriculture and Environment
872 Gary Kofinas, University of Alaska Fairbanks
873 Jeanette Krantz, Swedish Ministry of the Environment
874 Johan Kuylenstierna, Stockholm Environment Institute
875 Karen Murphy, Western Alaska Landscape Conservation Center
876 Martin Sommerkorn, World Wildlife Fund
877 Jannie Staffansson, Saami Council
878 Julian Wilson, DG Joint Research Centre, European Commission

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880 Facilitator: Sarah Palmer, U.S. Department of the Interior

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883 **Review Committee:**

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885 Each Arctic Council Member State, Permanent Participant and Working Group was requested to
886 nominate an individual to serve on the Review Committee. Review Committee members were responsible
887 for reviewing ARAF drafts and suggesting additions and revisions.

888

889 Jaana Kaipainen (co-Chair), Finland
890 Gunn-Britt Retter (co-Chair), Saami Council
891 Tom Barry, CAFF
892 Patti Bruns, ACAP and EPPR
893 Jon Fuglestad, AMAP
894 Bernard Funston, SDWG
895 Jim Gamble, Aleut International Association
896 Soffia Guðmondstdóttir, PAME
897 Rachel Joo, Canada
898 Jeanette Krantz, Sweden
899 Marianne Kroglund, Kingdom of Norway

- 900 Aleksei Nesterov, Russia
- 901 Joan Nymand Larsen, Iceland
- 902 Ann Meceda, United States of America
- 903 Maksim Semin, Russia
- 904 Chief Michael Stickman, Arctic Athabaskan Council
- 905 Jim Stotts, Inuit Circumpolar Council
- 906 Inge Thaulow, Kingdom of Denmark

DRAFT