

39 Over the past year, the members of the Focal Point (FP) have been preparing material to
40 satisfy the task given by the SAO. As can be seen from the original task statement, there
41 is room for interpretation of the intent, and the FP has in the past, asked for clarification
42 of intent from SAO and the Chair of the Arctic Council.

43
44 For example, the SAO statement gives FP a clear role in adaptation and mitigation issues,
45 and in the material to follow, several recommendations in these areas are presented.
46 After reading these recommendations, we ask the SAO to clarify if you wish the FP to
47 continue working in these areas. If so, then the FP will need to accelerate its work in
48 these areas.

49
50 Various expert consultations have provided a number of science tasks that seem
51 appropriate for the Arctic Council. The Working Groups (WG) will evaluate these tasks
52 and seek ways of implementing as many as possible. The SAO are asked to review the
53 recommended tasks listed below and identify those that seem most important from their
54 perspective.

55
56 The FP also requests that the SAO consider the role of the Arctic Council, the Focal
57 Point, and the relevant working groups in defining and implementing an Arctic
58 Observing Network. The AMAP-sponsored climate workshop and the AMAP Climate
59 Expert Group both agreed that AMAP and CAFF should take a leading role in sustaining
60 Arctic observing capabilities. More recently, a US-sponsored Arctic Observing Network
61 (AON) Plan was produced that recommends: “long-term, coordinated, international
62 resources and efforts should be dedicated to sustaining observing platforms”; and “Arctic
63 residents must be meaningfully involved”; and suggests that the Arctic Council should be
64 involved, along with the Group on Earth Observations to which all Arctic nations belong.
65 If the SAO believe that the Arctic Council should be involved in developing an AON-like
66 activity, work should begin soon with the objective of having an internationally agreed
67 plan of action by the end of the International Polar Year (IPY) in March 2009. Already,
68 AMAP has agreed to work with the IPY Project Office to aid in coordination of activities
69 during the IPY and synthesis of data following the IPY. Coordination of an AON-like
70 activity would be a natural extension of this collaboration.

71
72 If the SAO want the FP to continue its efforts beyond the Ministerial meeting in October
73 2006, then the FP recommends that the SAO reconsider the composition and structure of
74 the FP. For instance, should it include representatives of all of the Arctic Council WG or
75 only WG with clear interest in the tasks of the FP? Should there be “national
76 representation” to ensure that all 8 Arctic countries are participants in the work of the FP?
77 If there are to be national representatives, should they be experts on science, policy, or
78 perhaps both? How should the Permanent Participants (PP) be represented? How should
79 partner organizations be represented? If the FP is to be continued, should it become more
80 formalized, and have a “Terms of Reference”, leadership, etc.? How will SAO support
81 the work of the FP financially? Alternatively, can the work of the FP be assigned to one
82 or more existing working groups, with the requirement that appropriate involvement of
83 all working groups is expected. The current Chairs of AMAP, CAFF and PAME have
84 indicated a desire for closer connections among their respective working groups, for

85 example through overlapping meetings, teleconferences, etc. If requested by SAO, these
86 WG could present a proposal for assuming FP responsibilities.

87

88 **Section II: Draft List of Tasks Identified by the Focal Point**

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90 Through meetings of the Focal Point itself, meetings of Arctic Council WG and of
91 subsidiary expert groups, and through participation in international fora such as the
92 ICARP II conference and Arctic Science Summit Week, a large number of possible
93 ACIA Follow-on tasks have been identified. The charge to the FP is to identify activities
94 in both the science and policy arenas that the Arctic countries will take under
95 consideration for implementation. It is assumed by the FP that the Arctic countries are
96 seriously interested in following the ACIA report with actions in both the science and
97 policy areas, and the FP offers the possibilities listed below for further consideration.
98 Over the next few months individual WG, especially AMAP, will have to consider a
99 priority ranking for these tasks and clearly identify those that are ready for early
100 implementation. The list of tasks is arranged to correspond to the ACIA 10 Key
101 Findings. Preceding this is a list of tasks that relate to all of the Key Findings, and
102 following is a list of policy recommendations.

103

104 **1. Overarching Tasks that Support All 10 Key Findings**

105

106 a. AMAP should lead the efforts to expand the observational networks (both

107

108 indigenous and scientific) and modeling, including regional modeling, as a

109

110 b. AMAP with CAFF and other relevant partners should establish a network

111

112 of integrated observatories (i.e., at least within the four ACIA sub-regions

113

114 and preferably across latitudinal gradients, where appropriate) for each of

115

116 lake, river, terrestrial, and marine (including ice-based) ecosystems to:

117

118 i. provide a baseline (including acquisition of relevant paleo data)

119

120 and to understand ecosystem structure (i.e., biodiversity);

121

122 ii. conduct long-term physical and biological monitoring to detect

123

124 variability and change;

125

126 iii. understand functional relationships and processes;

127

128 iv. assess the ecosystem response to climate/UV/acidification change

129

in the context of other large-scale changes (i.e., human habitation,

etc.);

v. use the above to model and predict future system states;

vi. establish a collaborative indigenous observation program to ensure

integration and comparability of TEK and scientific knowledge

and permit extrapolation of scientific information to areas where

presently only TEK information exists.

c. The PP representation made the point that ACIA follow-up projects should

be conducted under guidelines or rules of how scientists should interact

with local communities and of how to get feedback from the scientists to

the local people. Issues of ownership of their knowledge,

130 acknowledgements etc. need more attention. There is continuing concern
131 that scientists are exploiting the local communities.
132

133 **2. Finding 1 - Arctic climate is now warming rapidly and much larger changes**
134 **are projected**

- 135 **a.** Produce an annual “State of the Arctic Report” that highlights one or more
136 key issues of current interest. (Pay more attention to social and biologic
137 issues, in addition to physical science) (AMAP - 2007+) (with CAFF)
138 (Relates to many Key Findings, depending on topic chosen for each year’s
139 report.)
140 **b.** Review and synthesize the Arctic information in the IPCC-4 reports and
141 evaluate the new climate model outputs for change from outputs used in
142 ACIA (AMAP - 2008)
143 **c.** Assess data-model harmonization and plan for an Arctic System
144 Reanalysis to produce model-generated gridded fields of key Arctic
145 climate variables to complement actual observations (AMAP - 2009+)
146 **d.** Enhance use of geohistorical information (paleo, older instrumental and
147 human observations) to reconstruct past Arctic climate history (AMAP -
148 2009+)
149 **e.** Assess currently used “downscaling” techniques to extend model
150 projections of climate change to regional scales, and recommend an
151 approach that could be applied more broadly in Arctic regions (AMAP -
152 2008)
153

154 **3. Finding 2 - Arctic warming and its consequences have worldwide**
155 **implications**

- 156 **a.** Review and assess the state of knowledge of the current Arctic carbon
157 cycle and its possible state under global warming scenario (AMAP - 2007)
158 **b.** Prepare plan for improved observation of ice sheet and glacier mass
159 balance (AMAP - 2008)
160

161 **4. Finding 3 - Arctic vegetation zones are very likely to shift, causing wide-**
162 **ranging impacts**

- 163 **a.** Define and implement the Circumpolar Biodiversity Monitoring Program
164 (CAFF – 2008)
165 **b.** Conduct comprehensive Assessment of Arctic Biodiversity (CAFF –
166 2010)
167

168 **5. Finding 4 - Animal species' diversity, ranges, and distribution will change**

- 169 **a.** Define and implement the Circumpolar Biodiversity Monitoring Program
170 (CAFF – 2008)
171 **b.** Conduct comprehensive Assessment of Arctic Biodiversity (CAFF –
172 2010)
173
174

- 175 **6. Finding 5 - Many coastal communities and facilities face increasing exposure**
 176 **to storms**
 177 a. Conduct sector specific reviews of vulnerability/impact and adaptation
 178 issues (AMAP - 2008+) (with SDWG?)
 179 b. See policy-related recommendations
 180
- 181 **7. Finding 6 - Reduced sea ice is very likely to increase marine transport and**
 182 **access to resources**
 183 a. Conduct Arctic Marine Shipping Assessment (PAME – 2008)
 184 b. Review IMO Polar Code to assess its adequacy in a changing Arctic
 185 (PAME – 2009?)
 186
- 187 **8. Finding 7 - Thawing ground will disrupt transportation, buildings, and other**
 188 **infrastructure**
 189 a. Conduct sector specific reviews of vulnerability/impact and adaptation
 190 issues (AMAP - 2008+) (with SDWG?)
 191 b. Evaluate building codes, zoning regulations, etc. in the Arctic to assess
 192 adequacy in a changing Arctic (AMAP?, SDWG? – 2010?)
 193
- 194 **9. Finding 8 - Indigenous communities are facing major economic and cultural**
 195 **impacts**
 196 a. See policy-related recommendations
 197
- 198 **10. Finding 9 - Elevated ultraviolet radiation levels will affect people, plants, and**
 199 **animals**
 200 a. Prepare plan for improved observation of UVB coupled with biological
 201 effects studies (AMAP - 2008)
 202
- 203 **11. Finding 10 - Multiple influences interact to cause impacts to people and**
 204 **ecosystems**
 205 a. Convene study group to provide evaluation of links between climate
 206 change and human health in the Arctic (AMAP - 2008) (with SDWG?)
 207 b. Evaluate climate-induced changes in contaminant pathways (AMAP -
 208 2009+)
 209 c. Conduct major assessment of Arctic Climate Change, Impacts, and
 210 Adaptive Response Options with report in 2012 (post IPCC-4, post-IPY,
 211 concurrent with IPCC-5?) (AMAP - with many partners)
 212

213 **12. Policy Recommendations**

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 215 During the AMAP-sponsored workshop in June 2005, participants evaluated the ACIA
 216 Policy Document and provided a series of recommendations regarding both mitigation
 217 and adaptation. If the SAO and Ministers desire the Focal Point to move further in
 218 defining specific tasks relating to mitigation and adaptation, another experts meeting
 219 focused on these areas will be organized.
 220

221 **Mitigation Recommendations**

222 Given that Arctic Nations collectively represent 40% of global warming pollution
 223 emission, we urge aggressive collective and individual actions at all levels to advance
 224 mitigation actions within and beyond the region. We recommend the following:

- 225 1. Member states should report back to the Arctic Council on how they have
 226 considered the ACIA findings in implementing their commitments under the
 227 UNFCCC and other agreements; and the Council compile and produce a report
 228 with this information.
- 229 2. The Arctic Council should engage relevant sectors in outreach and
 230 communication in developing and adopting mitigation strategies; build indigenous
 231 capacity to be effective partners in these mitigation strategies
- 232 3. Member States should initiate the development and adoption of alternative energy
 233 sources and technologies to promote renewable energy production and more
 234 efficient energy use at the federal, state, and local levels; and initiate a
 235 circumpolar prototype project through the Sustainable Development Working
 236 Group.
- 237 4. Efforts should be made by member states to develop forestry and energy policies
 238 that conserve and enhance carbon sinks and reservoirs.

239 **Adaptation Recommendations**

240 The ACIA Policy Document listed three broad adaptation policy objectives. Attendees at
 241 the AMAP ACIA Follow-on Workshop identified specific tasks supporting each of these
 242 policy objectives, and also considered in detail one of the science objectives from the
 243 ACIA Policy Document. These are found in the report from the June 2005 workshop and
 244 are repeated below.

245 *“Work closely with Arctic residents, including indigenous and local communities, to help*
 246 *them to adapt to and manage the environmental, economic and social impacts of climate*
 247 *change and ultraviolet radiation change. Adaptation needs will vary. Arctic residents*
 248 *may need inter alia enhanced access to information, decision makers, and institutional*
 249 *capacity building to safeguard their health, culture and well-being.”*

250 Based on these policy guidelines, we recommend that:

- 251 1. Best management practices should be applied in the use of traditional knowledge
 252 in adaptation planning and management.
- 253 2. The Arctic Council should facilitate and fund communication capacity building of
 254 Arctic residents to provide enhanced access to information and decision makers.
- 255 3. Keep ownership of traditional and local knowledge at the local level.
- 256 4. Gaps in indigenous knowledge data should be identified and collated and efforts
 257 made to fill in the data set.

- 258 5. Research efforts should apply local resources and capacity when possible to
259 achieve greater local ownership, understanding, cooperation, and efficiency.
- 260 6. Researchers should coordinate with local and regional key contacts to evaluate
261 opportunities for collaboration with other researchers and local and regional
262 organizations.
- 263 7. Devolution of authority and building of leadership and management capacity
264 should be made a priority for local and indigenous residents.
- 265 8. Efforts should be made to develop communication in local languages and in
266 culturally appropriate ways.
- 267 9. Funding criteria should encourage constructive partnerships between researchers
268 and local and indigenous residents.
- 269 *“Recognize that opportunities related to climate change, such as increased navigability
270 of sea routes and access to resources, should be developed and managed in a sustainable
271 manner, including through the consideration of environmental and social impacts and
272 taking appropriate measures to protect the environment, local residents and
273 communities.”*
- 274 1. Development must recognize indigenous rights to resources, and be done in such
275 a way as to include the full involvement and participation of indigenous peoples.
- 276 2. Arctic nations should immediately begin to plan and budget adequate resources to
277 provide the capacity to adapt to major changes; local and indigenous people
278 should have full involvement in the decision-making process.
279
- 280 *“Implement, as appropriate, adaptive management strategies for Arctic ecosystems,
281 making use of local and indigenous knowledge and participation, review nature
282 conservation and land and resource use policies and programmes, and to the extent
283 possible reduce risks related to infrastructure damage, permafrost degradation, floods
284 and coastal erosion, taking into account costs and benefits.”*
- 285 1. Perform local and regional climate assessments and develop adaptive
286 management strategies.
- 287 2. Develop models and assessment tools that can provide guidance to decision
288 makers and leaders at the local and regional level.
- 289 3. Develop models at a scale that will contribute to adaptive management.
- 290 4. Develop funding mechanisms which can be applied for adaptation measures
291 rapidly and as new problems emerge.
- 292 5. We recommend that member states report back to the Arctic Council on their
293 “review of nature conservation and land and resource use policies and
294 programmes” incorporating locally available indigenous knowledge and
295 participation as required, in the ministerial-endorsed ACIA policy document.

296 6. We recommend that indigenous people's organizations report back on the work
297 being done by their member states to develop mitigation recommendations.

298 *"Stress the importance of intensifying natural and social science research on impacts*
299 *and adaptation, including studies to enhance understanding of fundamental processes*
300 *and sustainability, procedures for integrating indigenous and local knowledge into*
301 *scientific studies, and partnerships between indigenous peoples, local communities, and*
302 *scientists in defining and conducting research and monitoring associated with Arctic*
303 *climate and ultraviolet radiation changes."*

304 1. Develop monitoring and research projects which reflect a multi-stressed
305 environment and can be used to develop practical applications to address stresses
306 at the local and regional level.

307 2. Analyse the AMAP monitoring strategy to reflect the concerns raised by a multi-
308 stressed environment.

309 3. Develop a cooperative approach to using knowledge and local capacity in social
310 and natural sciences research.

311 Additional adaptation recommendations were listed in the science section of the report of
312 the June 2005 workshop, namely:

313 1. AMAP should (1) document the current rate of carbon storage in the Arctic
314 marine, freshwater, and terrestrial environments to determine its importance in the
315 global balance, (2) assess possible future changes in carbon storage under global
316 warming, and (3) identify possible mitigation efforts to maintain and enhance
317 carbon storage in the Arctic.

318 2. All WG of the AC should work together to establish an outreach and
319 communication process (recognizing differences in languages and cultures) to
320 guide adaptation, including new management and research strategies, to:

- 321 • shifts in renewable resource patterns (commercial, subsistence, recreation);
- 322 • shifts in transportation (e.g., marine, ice road);
- 323 • non-renewable resource extraction;
- 324 • shifts in traditional lifestyles;
- 325 • changes in hydropower production;
- 326 • changes in coastal dynamics (e.g., sea level rise, coastal erosion);
- 327 • changes in infrastructure needs (e.g., permafrost degradation);
- 328 • changes in economic development (e.g., tourism, recreation, industrial
- 329 development, population changes, etc.);
- 330 • outreach to science and policy communities in lower latitudes;
- 331 • report to UNFCCC and IPCC.

332 (The Arctic Human Development Report should be reviewed for guidance to additional
333 policy-related recommendations and to outreach and communication needs.)

334

List of Source Documents

335

- 336 1. Report from AMAP Workshop on ACIA Follow-on Activities, Oslo Norway,
337 June 2005 (Available from AMAP website)
- 338 2. Report from Focal Point Meeting, Copenhagen Denmark, February 2006
339 (Available from AMAP website)
- 340 3. Report from AMAP Climate Expert Group Meeting, Oslo Norway, February 2006
341 (Available from AMAP website)
- 342 4. Report from Open Forum Hosted by AC Focal Point, Potsdam Germany, March
343 2006 (Available from AMAP website)
- 344 5. Status Report on Arctic Marine Shipping Assessment (Available from PAME
345 website)
- 346 6. Status Report on Circumpolar Biodiversity Monitoring Program (Available from
347 CAFF website)
- 348 7. Toward An Integrated Arctic Observing Network, U.S. National Research
349 Council, 2006
- 350 8. Arctic Human Development Report