

AMAP Report 2010:8

AMAP Strategic Framework 2010 +



Arctic Monitoring and Assessment Programme (AMAP)

Preface

The AMAP Strategic Framework 2010 + constitutes the framework for which AMAP's activities will be conducted over the period 2010 – 2018. It provides AMAP with a revised mandate, vision, goals and guiding principles, operational structure and strategic framework. It will be updated as and when necessary to reflect the decisions of the Arctic Council Ministers that determine the AMAP mandate.

Details of the implementation plan for AMAP can be found in the AMAP Workplan, which is updated bi-annually, and in the AMAP Monitoring Programme and AMAP Assessment Strategy. Please view www.amap.no for the latest updates.

This AMAP Strategic Framework 2010+ underwent an extensive internal and external review process involving many stakeholder consultations, including indigenous peoples, industry, Arctic and non-Arctic countries, international science organizations and other Arctic Council Working Groups. The Strategic Framework 2010+ was approved by the Senior Arctic Officials (SAOs) in November 2010.



Russel Shearer
AMAP Chair

Lars-Otto Reiersen
AMAP Executive Secretary

Oslo December 2010

Table of Content:

1	Introduction	4
1.1	Background and Historical Context	4
1.2	AMAP's Mandate	5
1.3	Key Stakeholders	5
1.4	New Challenges – Local, Regional and Global Priorities	7
1.5	Scope of the Strategic Framework	7
2	Vision and Goals	8
2.1	Vision	8
2.2	Goals	8
3	Guiding Principles	9
3.1	A Collaborative Approach	9
3.2	Responsiveness	9
3.2.1	Managing the Evolving Workload	9
3.2.2	Flexibility to Address Emerging Needs	9
3.3	Sustaining Arctic Science Capacity	10
3.4	Respect for and Inclusion of Local and Indigenous Peoples and Communities	10
3.5	Data Sharing, Accessibility and Exchange of Information	10
4	Operational Structure	10

5	The Strategic Framework	12
5.1	Assessment Strategy	12
5.1.1	Integrated Assessments – A Systems-Based Approach	12
5.1.2	Policy on Document Oversight and Review	12
5.1.2.1	Peer Review and Meeting International Standards	12
5.1.2.2	Ensuring the Policy Relevance of Assessments and Recommendations	12
5.2	Communications and Outreach Strategy	13
5.3	Monitoring Strategy: AMAP Trends and Effects Programme	14
5.3.1	Core Monitoring Programme (in priority regions)	14
5.3.2	Supporting Research and Monitoring Activities	14
5.3.3.	Enhancing Observation Networks	15
5.3.4.	Data Management and Quality Assurance / Quality Control	15
6	Implementation	16

Annex 1: Overall Goals of the Arctic Monitoring and Assessment Programme (AMAP) and Its Key Products.

Annex 2: List of AMAP Assessment Publications

AMAP Strategic Framework 2010+

1 Introduction

1.1 Background and Historical Context

In 1991, Environment Ministers of the eight Arctic states (Canada, Denmark, Iceland, Finland, Norway, Russia, Sweden and USA), adopted the Arctic Environmental Protection Strategy (AEPS). The Arctic Monitoring and Assessment Programme (AMAP) was established to implement part of this strategy. In 1996 the AEPS, including all its working groups, was reorganized to form the Arctic Council (AC) (see Annex 1 for a more complete historical account).

AMAP delivered its fourth major comprehensive series of assessments (AMAP 2009) which included human health, persistent organic pollutants (POPs), radioactivity and an update on climate change science issues. This assessment followed those in 1997, 2002 and 2004-2008, which included the groundbreaking Arctic Climate Impact Assessment (ACIA, 2004/05 in cooperation with the International Arctic Science Committee (IASC) and the Conservation of Arctic Flora and Fauna (CAFF)), update on acidification and Arctic haze (2006), and the Arctic Oil and Gas assessment (2007-2010).

The reports have been widely acclaimed by key stakeholders and have significantly influenced the development of international agreements such as the global Stockholm Convention on Persistent Organic Pollutants and the regional United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Transboundary Air Pollution (LRTAP) to curb pollutant emissions. An external review of AMAP undertaken in 2010 found that “AMAP products were widely known and respected in Arctic governments, in intergovernmental, scientific and education organizations, and by indigenous people’s organizations; for a wide variety of stakeholders, AMAP has focused on the important and relevant environmental issues for the Arctic region.”

The AMAP’s strategic framework and implementation plan have been updated and modified over the years as new work was assigned from the AC. The most recent update was in 2004, following the publication of the ACIA.

This Strategic Framework document represents an update to the 2004 document and reflects the results of extensive internal and external review processes and of a February 2010 workshop of contributing experts to AMAP assessments.

1.2 AMAP's Mandate

The overall mandate and direction for the work of AMAP are determined by the AC. Requests for work to be conducted by AMAP are delivered in AC Ministerial Declarations and related reports of the AC Senior Arctic Officials (SAOs).

AMAP has a mandate to monitor and assess the status of the Arctic region with respect to pollution (e.g., persistent organic pollutants, heavy metals, radionuclides, acidification, and petroleum hydrocarbons) and climate change issues by documenting levels and trends, pathways and processes, and effects on ecosystems and humans, and by proposing actions to reduce associated threats for consideration by governments. This mandate is fulfilled through the implementation of a circumpolar monitoring and assessment programme as outlined in this strategic framework and in a separate monitoring plan document. The geographic area covered by the AMAP monitoring and assessment programmes is shown in Figure 1.

AMAP's primary function is to provide sound science-based information to inform policy and decision-making processes in relation to issues covered by its mandate. AMAP aims to make effective use of up-to-date information and results from monitoring and research activities, and to promote and harmonize activities under relevant national and international programmes that can support AMAP assessments.

1.3 Key Stakeholders

AMAP's primary stakeholders are the governments of the Arctic states, northern higher education institutions (e.g., University of the Arctic network) and the Arctic Indigenous Peoples organizations who drive the mandate and direction for the work of AMAP.

Key stakeholders also include other (non-Arctic) governments with interests in the Arctic, non-governmental organizations, the scientific community, news media and industry (e.g., oil and gas, shipping, mining and tourism). AMAP works closely with other AC Working Groups, relevant United Nations organizations such as United Nations Environment Programme (UNEP), including UNEP Chemicals and the World Meteorological Organization (WMO), the United Nations Economic Commission for Europe (UNECE) and other international organizations involved in Arctic science and environmental policy such as IASC and the International Arctic Social Sciences Association (IASSA).

Close cooperation exists with the people living in the Arctic, especially Indigenous Peoples, to address their concerns. AMAP will build on these positive experiences and work collaboratively with Indigenous communities to implement special projects to address issues of concern, to involve them in AMAP monitoring efforts, and to support community-based monitoring programs.



Figure 1. Geographic scope of AMAP with designated key areas.

1.4 New Challenges – Local, Regional and Global Priorities

Past AMAP assessments have shown that the Arctic is susceptible to environmental impacts from pollutants and climate change whose sources and causes are global in nature and originate primarily outside of the Arctic region. As a result, the Arctic is recognized as a bellwether for the state of the global environment.

It is scientifically accepted that over the next several decades, the atmospheric, oceanic, coastal and terrestrial physical and ecological state and controlling processes will continue to change in response to climate change. In turn, the transport and accumulation of contaminants, and the social and economic factors that determine human exposure, will change in intensity, frequency and time of occurrence. All these elements are inter-related and have the potential to be impacted by climate change. Therefore, an overarching imperative for AMAP, together with other AC Working Groups, will be to provide timely assessments of all of these changes as they take place in the Arctic, and to rapidly adjust its programming to meet emerging needs.

Although the Arctic has remained largely undeveloped, the international community is increasingly looking to the Arctic for new opportunities to develop renewable and non-renewable resources, transportation routes, and commercial and tourism opportunities. This increasing global interest in the Arctic will put new pressure on a fragile environment that is already impacted by climate change and global pollutants. The Arctic communities, despite limited capacities, must be prepared to manage the potential impacts of development while continuing to minimize the impacts of climate change and eliminate the threat of long-range pollutants. These new pressures bring an increased need for environmental protection and conservation as well as an increased need for Arctic science and monitoring to support the development and implementation of policies to protect environmental and human health.

Through implementation of this strategic framework, AMAP will build on the strength of its positive legacy and continue to influence international initiatives by working to ensure that Arctic scientific data and information are considered and are providing the substantiation for local, regional and global actions. At the same time, AMAP will position itself to meet the challenges of the coming decade.

1.5 Scope of the Strategic Framework

The AMAP Strategic Framework provides a medium to long-term vision for addressing current and future scientific and AC decision-making needs. The Strategic Framework describes the mandate, vision, goals and program guiding principles of AMAP and broadly outlines the manner in which these will be achieved. Separate implementation plans describe in detail how AMAP will achieve its goals and objectives with respect to monitoring, assessment and communications (see section 6. Implementation). In keeping with the guiding principles of flexibility and responsiveness while ensuring that AMAP

remains current, the Strategic Framework is subject to periodic review and update to meet the changing needs of the AC.

2 Vision and Goals

2.1 Vision

The vision is for AMAP to continue to provide world-class scientific assessments and credible analyses and public outreach products on a range of environmental issues in the coming decades of anticipated environmental change and to provide strong science-based policy-relevant recommendations for the protection and sustainability of Arctic ecosystems and people. This vision should be realized through three pillars of implementation – monitoring, assessments, and communications and outreach – and by working cooperatively with AMAP stakeholders and other AC working groups.

2.2 Goals

In keeping with this vision AMAP has adopted the following Goals. Objectives associated with these goals will be articulated in separate implementation plans: An Assessment Strategy, a Communications and Outreach Strategy and a Monitoring Plan.

Assessments:

- Produce scientific assessments and information 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, and recommend appropriate actions.

Communications and Outreach:

- Develop a closer cooperation with other AC Working Groups, Permanent Participants, governments, observers, educational institutions (e.g., University of the Arctic), the media and other organizations to promote AMAP results.
- Effectively communicate the results of AMAP activities to meet the needs of stakeholders.

Monitoring:

- A sustained, robust circumpolar monitoring network effective at detecting change and discerning trends over the entire Arctic Region related to a range of environmental stressors including pollutants, climate change and the interaction between them.

- Develop and maintain circumpolar monitoring guidelines for the standardized collection and analysis of samples and data, including new parameters that meet evolving monitoring needs.
- Work with, and support, Indigenous Peoples groups' community-based monitoring projects.

3 Guiding Principles

3.1 A Collaborative Approach

AMAP seeks to work, cooperate, and collaborate with a broad range of partners to address the challenges it faces in its work. Key partners include other AC Working Groups, Permanent Participants, international organizations engaged in activities related to Arctic science and policy (e.g., WMO, IASC, IASSA, UNEP, UNECE, ICES, and OSPAR), educational institutions and observers to the AC. The principle of collaboration extends throughout AMAP and the AC and governs work carried out between governments, government agencies, non-governmental organizations, Indigenous Peoples' organizations and the various experts that contribute to AMAP activities.

The new challenges summarized in section 1 are leading to heightened collaboration with traditional and new partners, while drawing on AMAP's strengths and presenting new opportunities for strengthened cross cutting cooperation.

3.2 Responsiveness

AMAP must strike a balance between flexibility to respond quickly to emerging issues and ensuring that ongoing and planned projects are of the highest quality and completed on time.

3.2.1 Managing the Evolving Workload

AMAP will be systematic in its project management to ensure products and activities continue to be highly relevant and effective. AMAP will remain cognizant of expert group workloads and will take into account the impacts of new and emerging projects on the quality and timeliness of ongoing assessments.

3.2.2 Flexibility to Address Emerging Needs

The environmental challenges facing the Arctic and the needs for scientific information are ever changing and evolving. AMAP must remain flexible in its capacity to respond to these new challenges as it has done in the past. This will ensure AMAP continues to be at the forefront of providing science-based and policy-relevant information on Arctic peoples and ecosystems needs in the future. The principle of flexibility and responsiveness is reflected in the structure of AMAP and its ability to assemble interdisciplinary expert groups to address emerging needs in a timely manner.

3.3 Sustaining Arctic Science Capacity

AMAP's success is directly related to the significant contributions of Arctic scientists who are recognized as global leaders in their respective disciplines and who have seen the value in volunteering their time to participate in AMAP activities. It is essential that AMAP continues to attract and engage new and young scientists to broaden and replenish the pool of experts. Providing value for contributors, particularly young scientists, through publication in peer reviewed journals and promotion of those publications may be one way to attract new scientists to AMAP. Sustaining Arctic science capacity through the involvement of students and young scientists will ensure future success and innovation for AMAP.

Capacity building in northern communities is also very important for Arctic science. Strengthening and increasing community-based monitoring and research is one example of engaging northern communities and Indigenous peoples as partners in sustaining Arctic science.

Implementation Plans that follow from this Strategic Framework will identify specific strategies for involving students, young scientists and northern communities in AMAP activities.

3.4 Respect for and Inclusion of Local and Indigenous Peoples and Communities

The contribution of Permanent Participants to AMAP's work is critical. The people of the Arctic are one of AMAP's most important stakeholders. They are at the front line of Arctic environmental change and pollution and are the most severely affected by these stressors. Local and Indigenous Peoples of the Arctic are recognized stewards of the environment. Their invaluable local and traditional knowledge is important to AMAP activities and must be included.

3.5 Data Sharing, Accessibility and Exchange of Information

Developing useful products relies on having access to high quality scientific data and information. The success of AMAP activities relies on sharing, access, and exchange of data and information among experts and agencies. This principle also extends to sharing, accessing and exchange of data and information between AMAP, other AC Working Groups, Indigenous Peoples groups, educational institutions (e.g., University of the Arctic) and partner organizations. Data sharing and accessibility should always be carried out in the spirit of collaboration and with respect and attribution to the originators of the data/information.

4 Operational Structure

The AMAP Working Group, like other Working Groups of the AC, is comprised of delegates from Arctic states, Permanent Participants, observers and invited experts. Heads of Delegation from each state are responsible for submitting National Strategies

and National Implementations Plans (NIPs) which provide details on monitoring and research activities that contribute to AMAP objectives. Observer states are also welcome to submit NIPs and strategic plans. Hence AMAP facilitates the coordination of an environmental circumpolar monitoring network that meets AMAP guidelines and quality assurance and quality control (QA/QC) measures.

AMAP assessment activities address highly relevant AC issues comprehensively by using assessment teams drawn from within and outside of Arctic states. When undertaking assessments, AMAP is governed by guiding principle 3.2 – responsiveness. It adjusts its procedures and assessment structures to address the unique characteristics of each assessment.

Before and during development of assessments, AMAP strives to provide opportunity for discussion and review, effectively manage workload, and ensure participation by subject matter experts. AMAP accomplishes this by prioritizing its activities, developing scopes of work, identifying groups of experts to conduct assessment activities and setting timelines for completion.

AMAP uses a variety of procedures and structures to coordinate support and perform assessment processes. For example, an Assessment Steering Group was created to complete the initial 1997 assessment which reported to the AMAP Working Group and identified and coordinated specific expert groups assembled to address several assessment topics simultaneously. For more recent assessments such as the Arctic Climate Impact Assessment (ACIA) and the Snow, Water, Ice and Permafrost in the Arctic (SWIPA), an integration team (IT) was struck to oversee the assessment and identify and report on cross-cutting issues. Regardless of which type of structure is used, it is vitally important to ensure that the proper structure is introduced at the beginning of the assessment process and that overall management and coordination is conducted by someone other than lead authors.

The structure must be highly responsive to emerging issues, ensure integration takes place across all disciplines and assessment chapters and respond to the needs of the contributing authors. Depending on the specific needs of a particular assessment, the structure will need to assemble experts from various disciplines that are best suited to the task from within and outside the Arctic states, including Indigenous Peoples groups and international environmental organizations, to conduct integrated assessments on issues such as cumulative effects of contaminants and climate change.

Finally and most importantly, the scientific assessments must be of high scientific integrity. Whatever structure and procedures are used by AMAP to conduct an assessment, all AMAP products must meet international standards and be of very high quality (see 5.1.2 below).

5 The Strategic Framework

5.1 Assessment Strategy

5.1.1 Integrated Assessments – A Systems-Based Approach

AMAP assessments utilize a systems-based approach, integrating scientific data and information from diverse sources and disciplines to allow the complete examination of a particular issue, based on strict QA/QC measures. Future assessments will also apply a multidisciplinary and integrated approach to assessing the impacts of multiple stresses on the Arctic environment and people. These assessments will draw on contributors from various backgrounds of natural and social sciences, local community experts, traditional Indigenous Peoples knowledge holders and science-policy experts. In keeping with the principle of collaboration, AMAP will also work closely with other AC working groups to produce holistic assessments. Assessments should use a systems-based approach, including an evaluation of causes and sources of the issues in question; the environmental processes that govern how particular issues play out and interact in Arctic ecosystems; cumulative effects on ecosystems and individual species; impacts on people and communities; historic trends and future projections; documentation on the strict QA/QC programme used; and a discussion of knowledge gaps and recommendations for future monitoring/research as well as science-based policy relevant recommendations. By presenting the scientific state of knowledge in an integrated and multidisciplinary way, AMAP assessments provide scientific support to the development of policy-relevant recommendations. This enables governments to decide upon the need for appropriate policy development and implementation.

5.1.2 Policy on Document Oversight and Review

5.1.2.1 Peer Review and Meeting International Standards

The content of AMAP assessments are independently prepared by relevant groups of international experts. The independence of the expert groups is essential to produce a scientifically credible assessment that is not influenced by politically motivated perspectives. The AMAP Working Group and the selected assessment structure, however, do provide critical oversight by ensuring that each assessment undergoes thorough internal and external scientific reviews and data checks to ensure that the final assessment is of the highest quality and meets or exceeds international standards. The multi-stage review process involves national review of inclusivity of data sources, internal review and verification by assessment authors and contributors, external independent peer review and where relevant, nationally coordinated reviews by country nominated experts.

5.1.2.2 Ensuring the Policy Relevance of Assessments and Recommendations

It is essential that assessments address policy questions of relevance to AC members, and that recommendations put forward by expert groups are science-based and policy

relevant. Prior to the expert group beginning work on an assessment, AMAP Heads of Delegation will review the scope of work to ensure that the topics to be addressed are most relevant to the policy questions at hand. As drafts of assessments are produced by expert groups, AMAP Heads of Delegation followed by SAOs will review the documents to ensure that science-based policy relevant recommendations flow logically and rationally from the assessments' conclusions.

5.2 Communications and Outreach Strategy

Information derived from AMAP assessment activities is communicated to a variety of stakeholders and target audiences according to a comprehensive AMAP communications and outreach strategy. The strategy, which is in keeping with the overarching Arctic Council Communications and Outreach Strategy, outlines AMAP communication objectives and provides guidance on how to achieve them through development of different types of assessment products and use of different communications media. These products are designed to serve the needs of the different stakeholders and target groups.

The AMAP communications and outreach strategy also addresses the identification of new and/or poorly served audiences and development of activities to better serve those audiences (e.g., Arctic communities, industry and commerce). This strategy highlights and benefits the extensive AMAP partnerships and collaborations. Another key component of the communications and outreach strategy is the increasing need for better linkages between AMAP activities, products and Arctic educational institutions (e.g., University of the Arctic). A cornerstone of AMAP communications is open public access to all AMAP products with free access through the AMAP website.

An over-riding issue within AMAP and the AC is the need for improved communications and outreach. The AMAP communications and outreach strategy serves to address this important AC priority. The strategy also describes the process for periodic evaluations to ensure that communications and outreach activities and products are achieving the desired outcomes.

Assessment information may be presented in a variety of formats depending on its intended use. AMAP has divided this information into a range of 1st to 3rd order products:

1st order products include those requested by the AC or prepared for international organizations with which specific cooperative activities have been identified. These may include: Comprehensive circumpolar AMAP Assessment Reports; AMAP Reports on Issues of Concern that enable AMAP to provide Ministerial Meetings and SAOs with key information and emerging issues resulting from and/or related to the work of AMAP; and assessment information prepared to assist in evaluating the effectiveness and sufficiency of agreements for protecting the Arctic environment (including for example, providing Arctic information on substances under consideration for inclusion in international chemical control agreements).

2nd order products are reports or contributions to reports produced and normally funded by international organizations and linked to existing AMAP activities. These reports, or contributions to reports, are generally synthesized from existing AMAP assessments and do not incorporate significant new information. Past examples of 2nd order products include: The Arctic Regional Report to the UNEP Chemicals Regionally Based Assessment of Persistent Toxic Substances (2002); and more recently the Global Atmospheric Mercury Assessment: Sources, Emissions and Transport report prepared for UNEP Chemicals Branch (2008).

3rd order products are intended to communicate AMAP information and results to a wider audience. They include summary reports in plain language, fact sheets, the website and web-based information products, reports to other AC Working Groups, responses to requests for updated or summarized information from international or national bodies, brochures on ongoing projects, and films such as those on the SWIPA project.

5.3 Monitoring Strategy: AMAP Trends and Effects Programme

5.3.1 Core Monitoring Programme (in priority regions)

The AMAP Trends and Effects Programme represents a monitoring blueprint for the AMAP region. The programme is intended to provide monitoring data with sufficient temporal resolution to detect temporal trends in key parameters related to the physical environment, wildlife and ecosystem effects, and human health. AMAP does not directly fund or conduct monitoring activities but relies on participating states to maintain national programmes to contribute monitoring data to AMAP for its assessment activities. The Trends and Effects Programme provides the level of detail necessary to ensure inter-comparability of results between regions where monitoring activities may be carried out by different states. Certain elements of the Trends and Effects Programme are identified as core monitoring and represent the highest priority for implementation. The core monitoring programme specifies a set of parameters and details of data/sample collection and locations that are intended to provide basic trend information related to specific environmental issues such as impacts of climate change or pollutants, with reasonable circumpolar geographic coverage. A goal of AMAP is to increase involvement of Arctic communities in the Trends and Effects Programme by promoting the implementation of monitoring activities through community-based monitoring programmes.

5.3.2 Supporting Research and Monitoring Activities

In addition to the core monitoring programme, the AMAP Trends and Effects Programme identifies supplementary monitoring activities designed to enhance core monitoring by, for example, providing greater geographic scope and resolution for data collection, or collection of ancillary data to assist with trend interpretation. Regular updates to the Trends and Effects Programme ensures that it remains responsive to emerging needs and gaps identified through the assessment process. This includes the identification of supporting research required to fill knowledge gaps in areas such as physical and

biological processes. Climate change and the associated effects on Arctic systems and processes is increasingly incorporated as a factor to be considered in all Trends and Effects activities.

5.3.3. Enhancing Observation Networks

The AMAP Trends and Effects Programme provides a detailed plan that participating countries can use to direct and develop national monitoring and assessment activities. Through the AMAP Working Group and a network of experts, a wealth of technical support is available to assist countries and agencies with implementing the AMAP Trends and Effects Programme where the results may also be valuable for research activities. Cooperation between participating countries and agencies through sharing of expertise, technologies, equipment and financial resources all help to enhance monitoring and research capacity that directly benefits the AMAP Trends and Effects Programme. Part of the Programme is designed to follow up on international organizations' needs thereby securing coordinated methodologies and comparable data over a wider geographic area.

Cooperative initiatives that link AMAP to other programs and identify opportunities for collaboration and integrated assessment activities enhance and sustain Arctic observation networks beyond AMAP. AMAP will actively pursue these goals through implementation of the Sustaining Arctic Observing Network (SAON).

5.3.4. Data Management and Quality Assurance / Quality Control

The quality and credibility of AMAP assessments is dependent on data that have been generated in accordance with best practices for quality assurance. For this reason detailed guidelines have been established to help participating countries implement monitoring and research activities that meet international standards for QA/QC. Guidelines cover all aspects of data generation from sample collection, handling and processing, to analysis, and data management. AMAP ultimately relies on individual countries and programmes to implement their own QA/QC practices but provides assistance where possible. For example, AMAP assists with laboratory quality assurance by providing expert advice and promoting the sharing of analytical methods, and by facilitating participation in international inter-laboratory round-robins and conducting AMAP specific inter-laboratory comparisons.

AMAP has developed a Data Policy to ensure that all relevant data and information are made available for inclusion in the AMAP assessments, while securing the rights of the owner of the data to decide who may have access to their data and for what purpose. Central to the implementation of the data policy is the establishment of Thematic Data Centres (TDCs) where detailed high quality data from participating monitoring activities are submitted for use in AMAP Assessments. The TDCs are operated within other organizations in order to secure long-term existence and reduce cost. The Arctic states, observer states and international organizations are called upon regularly to report relevant data to these TDCs so that the data are available to experts engaged in the production of ongoing and future AMAP assessments. The AMAP Project Directory (PD) is a user-

maintained online system that supports the documenting of Arctic environmental monitoring and research activities relevant to AMAP.

6 Implementation

This Strategic Framework provides the fundamentals of AMAP's approach to fulfilling the AMAP mandate and addressing specific requests from the AC. Separate implementation plans define objectives and describe the methods, plans, and strategies that AMAP will use to achieve its objectives and goals. These implementation plans include: the AMAP Monitoring Plan, AMAP Assessment Strategy, and the AMAP Communications and Outreach Strategy. The execution of these implementation plans is detailed every two years in AMAP work plans which are approved by AC Ministers and outline the high priority monitoring, assessment, communications and outreach activities that the Working Group is undertaking in the near term. AMAP Work Plans include details on how AMAP is collaborating with other Working Groups and partners to better achieve its objectives. Updates and revisions to the implementation plans will be consistent with this Strategic Framework and will:

- Articulate objectives associated with the goals in this Strategic Framework,
- Describe processes for evaluating effectiveness to determine if goals and objectives are being met, and
- Take into account policy direction from the AC, and scientific and technical advice derived from consultations with Arctic scientists and stakeholders (including the Permanent Participants and Arctic Communities) who use AMAP information.

Annex 1:

OVERALL GOALS OF THE ARCTIC MONITORING AND ASSESSMENT PROGRAMME (AMAP) AND ITS KEY PRODUCTS.

In the Rovaniemi Declaration of 1991, the Environment Ministers of the eight circumpolar Arctic States adopted the Arctic Environmental Protection Strategy (AEPS) that in 1998 was subsumed into the Arctic Council. One of its founding objectives was (and continues to be) to “*regularly review the state of the Arctic Environment*” through the measures described in Chapter 6 of the AEPS. In summary, the AMAP was established to understand and document Arctic environmental change through monitoring in order that “*monitoring results may be used to anticipate adverse biological, chemical, and physical changes to the ecosystem and to prevent, minimize and mitigate adverse effects.*” It is clear that the results from AMAP are intended to support collaborative environmental protection actions within and outside of the Arctic Council.

Chapter 6.1 of the AEPS elaborates that AMAP is to provide regular State of the Arctic Environment Reports that are to: integrate status and trends in the conditions in Arctic ecosystems; identify possible causes for changing conditions; detect emerging problems, their possible causes, and the potential risks to Arctic ecosystems including indigenous peoples and other Arctic residents; and, recommend actions required to reduce risks to Arctic ecosystems.

Since 1991 there has been no fundamental revision to the mandate of AMAP. The original focus of AMAP was on persistent organic pollutants (POPs), heavy metals, hydrocarbons, acidification, and radioactivity. However this has evolved since the production of the 2004/5 Arctic Climate Impact Assessment (ACIA) (produced in partnership with the International Arctic Science Committee (IASC), and the Working Group on Conservation of Arctic Flora and Fauna (CAFF)). Now the Arctic Council Work Plans for its subsidiary working groups emphasize cross-cutting themes to be addressed in collaboration by several working groups. Section 5 of the Tromsø 2009 Senior Affairs Officials Report to Ministers illustrates this approach.

Since its establishment, the main product of AMAP has been the periodic production of peer reviewed State of the Arctic Environment Reports on such topics as POPs, heavy metals, radioactivity, human health, acidification, hydrocarbons, ozone, and climate. Many of these topics have been the subject of several reports and up-dates. In addition, AMAP has been producing special topical reports to address emerging issues or stakeholder needs. Examples are the reports on short lived climate forcers, and on persistent toxic substances, food security and Indigenous Peoples of the Russian High North.

Annex 2:

List of AMAP Publications

AMAP Assessment Reports	
Summary Reports for Decision-makers	Scientific Assessment Reports
AMAP 1997. Arctic Pollution Issues: A State of the Arctic Environment Report (in English, Danish, Greenlandic, Norwegian, Russian and Saami)	AMAP 1998. AMAP Assessment Report: Arctic Pollution Issues
AMAP 2000. AMAP Report on Issues of Concern: Updated Information on Human Health, Persistent Organic Pollutants, Radioactivity, and Mercury in the Arctic. AMAP Report 2000:4	
AMAP 2002. Arctic Pollution 2002	AMAP 2003. AMAP Assessment 2002: Human Health in the Arctic AMAP 2003. AMAP Assessment 2002: The Influence of Global Change on Contaminant Pathways to, within, and from the Arctic AMAP 2004. AMAP Assessment 2002: Persistent Organic Pollutants in the Arctic AMAP 2004. AMAP Assessment 2002: Radioactivity in the Arctic AMAP 2005, AMAP Assessment 2002: Heavy Metals in the Arctic
ACIA 2004. Impacts of a Warming Arctic. Arctic Climate Impact Assessment (ACIA) (in English, Dutch, Finnish (summary), German, Norwegian, Russian and Saami)	ACIA 2005. Arctic Climate Impact Assessment (ACIA) Science Report
AMAP 2006. Arctic Pollution 2006: Acidification and Arctic Haze	AMAP 2006. AMAP Assessment 2006: Acidifying Pollutants, Arctic Haze, and Acidification in the Arctic

AMAP 2007. Arctic Oil and Gas 2007

AMAP 2010. Assessment 2007: Oil and Gas Activities in the Arctic - Effects and Potential Effects. Volume I

AMAP 2010. Assessment 2007: Oil and Gas Activities in the Arctic - Effects and Potential Effects. Volume 2

AMAP 2010. Assessment 2007: Oil and Gas Activities in the Arctic - Effects and Potential Effects. Volume 3

AMAP 2009. Arctic Pollution 2009

AMAP 2009. AMAP Assessment 2009: Human Health in the Arctic

AMAP 2010. AMAP Assessment 2009: Radioactivity in the Arctic

AMAP 2010. AMAP Assessment 2009: Persistent Organic Pollutants in the Arctic. Published as a series of articles in the Science of the Total Environment Special Issue. Elsevier, 2010

AMAP 2009. Update on Selected Climate Issues of Concern

AMAP 2009. Summary – The Greenland Ice Sheet in a Changing Climate. Snow, Water, Ice and Permafrost in the Arctic (SWIPA) 2009 (in English, Danish, Greenlandic, Russian, French, Chinese)

AMAP 2009. The Greenland Ice Sheet in a Changing Climate. Snow, Water, Ice and Permafrost in the Arctic (SWIPA) 2009

AMAP 2011. Arctic Pollution 2011

AMAP 2011. AMAP Assessment 2011: Mercury in the Arctic

AMAP 2011. Arctic Climate 2011

AMAP 2011. Climate Change and the Cryosphere: Snow, Water, Ice and Permafrost in the Arctic (SWIPA) (Will also be available in several Translated Versions)

AMAP Coordinated Project and Technical Reports

AMAP/NEFCO 1995. Barents Region Environmental Programme: Proposals for environmentally sound Investment Projects in the Russian Part of the Barents Region: NEFCO/AMAP Report.

- Volume one: Non-radioactive Contamination
- Volume two: Radioactive Contamination

AMAP 2003. Nordic Environment Finance Cooperation (NEFCO). Updating of environmental “Hot Spots” List in the Russian Part of the Barents Region: Proposal for Environmentally Sound Investment Projects. AMAP Report 2003:2

AMAP/DWCL/IHE-Delft 2003. Dialogue on climate change adaptation strategy in water management and flood preparedness at the Lena Basin

AMAP 2000. PCB in the Russian Federation: Inventory and proposals for priority remedial actions (Executive Summary). AMAP Report 2000:3 (in English and Russian)

AMAP 2003. Environmentally Sound Management and Elimination on PCBs on Russia. Executive Summary of the Report of Phase 2: Feasibility Study supporting documentation on the Multilateral Cooperative Project on Phase -Out of PCB Use, and Management of PCB-Contaminated Waste in the Russian Federation. AMAP Report 2003:4 (in English and Russian)

AMAP 2004. Persistent Toxic Substances, Food Security and Indigenous Peoples of the Russian North. Final Report. AMAP Report 2004:2 (in English and Russian) (9 related technical reports)

AMAP/NEFCO/PF 2008. Technical report on the survey of the current state of the areas of decommissioned military bases of the Ministry of Defense on Hoffman, Graham Bell and Alexandra Islands of Franz Josef Land archipelago (in English and Russian)

AMAP 2008. The Impact of Short-Lived Pollutants on Arctic Climate. AMAP Technical Report No. 1 (2008)

AMAP 2008. Sources and Mitigation Opportunities to Reduce Emissions of Short-term Arctic Climate Forcers. AMAP Technical Report No. 2 (2008)

AMAP/UNEP 2008. Technical Background Report to the Global Atmospheric Mercury Assessment. AMAP/UNEP Chemicals Branch.

AMAP 2009. Sensitivity of the carbon cycle in the Arctic to climate change.. Published in Ecological Monographs, 79(4), 2009, pp. 523–555

AMAP 2010. Updating Historical Global Inventories of Anthropogenic Mercury Emissions to Air. AMAP Technical Report No. 3 (2010)

AMAP Strategy and Monitoring Documents

AMAP 1993, The Monitoring Programme for AMAP.

AMAP 1999, AMAP Trends and Effects Programme 1998 – 2003.

AMAP 1999. AMAP Strategic Plan 1998 – 2003.

AMAP 2004. AMAP Strategy 2004 +.

AMAP 2010. An External Review of the Arctic Monitoring and Assessment Programme Strategy.
AMAP Report 2010:7

AMAP 2010. AMAP Strategic Framework 2010 +. AMAP Report 2010:8