Arctic Council Wildland Fire Projects *18/October/2021*

Wildland fires are increasing in frequency, severity, and area across the Arctic, bringing challenges as well as opportunities and requiring greater collaboration, knowledge sharing, and partnership. GCI is leading two projects in CAFF and EPPR to advance work on wildland fires at the Arctic Council. Projects usually have a Steering Committee, objectives, and intended uses, summarized below. Projects are connected through their overarching goal of addressing wildland fires in the Arctic with a circumpolar focus. Knowledge sharing is a key component of both projects, and a workshop is planned to bring people working in ecology, management, and response together and review draft project deliverables.

	CAFF	EPPR	AMAP[1]	ACAP
Sphere of impact	Management & mitigation of impacts Sharing knowledge systems	Operational readiness and response Economic development	Assessment of climate and air quality impacts of wildfires as a basis for science-based policy development .	Support efforts to improve air quality and minimize climate change and its impacts.
Objective(s)	Understand extent and impacts of wildland fires; Understand good practices for wildland fire management (to achieve social, ecological, cultural goals) from Western science and IK perspectives. Share practices and ongoing work and learnings.	Document and understand good practices for international cooperation agreements, targeting operational activities. Improve coordinated response by Arctic States and Permanent Participants and promote international cooperation. Create template for discussion of MOU for Arctic fire collaboration (response, training).	Estimating emissions associated with wildfires; developing scenarios for wildfire emissions; analysing the causes of wildfires; assessing climate change impacts on wildfires and associated climate feedbacks; Assessing societal impacts; smoke modelling in connection with air quality/human health impacts; Improvement of observing systems.	Understand the impacts of fire management practices on emissions of black carbon and other pollutants from wildland fire and share best practices.

[1] The content of the table reflecting AMAPs work is based on activities currently under consideration; decisions on precise specifications of eventual work have yet to be made.

Activities	Map the extent and distribution of fires across the Arctic (look at data across jurisdictions and map key elements), currently and in the past. Review practices from states/different jurisdictions to compile how they manage fires. Invite PPs to document use of fire for management and impacts. Assess who is doing what work/projects around fire in the Arctic. **Joint with EPPR** Workshop to bring together fire ecologists, knowledge holders, and operational staff to share and discuss project work and deliverables across and within working groups.	Compile and assess instruments (agreements, MOUs, policies) that enable cross-border responses. Interview users, designers, and policy makers for what elements worked, recommendations for change, and what was most useful. Draft a template to include necessary elements for consideration when discussing cross-border fire response. **Joint with CAFF** Workshop to bring together fire ecologists, knowledge holders, and operational staff to share and discuss project work and deliverables across and within working groups.	Analysing results of GIS work to map fire occurrence (NB: mapping/GIS work using satellite remote sensing in this connection is already ongoing); GIS-based fire attribution and risk assessment; GIS-based work to identify fuel characteristics and calculate resulting emissions; Modelling of climate and air quality impacts, including smoke modelling.	Compile information on practices for wildland fire management across Arctic States. Assess the impact of various practices on emissions. This would include emissions resulting directly from management practices (for instance from a controlled burn), from wildland fires that occur (or are prevented) in areas where management practices are undertaken, and fires that occur in areas where no management is undertaken. This information could be used to help improve air pollution and GHG inventories and modelling and could also help to determine best practices for limiting emissions from wildland fires.
Deliverables	Map(s) of the extent and distribution of fires across the Arctic. Compilation of guidelines and best practices for Arctic fire	Compendium and assessment of instruments and best practices. Template with clauses relevant for wildfire response (including but not limited to operational and training response).	AMAP assessment products; fire mapping and analyses (GIS-based); Emissions models (scenarios); Smoke transport/impacts	Report on how various management practices impact emissions of black carbon and other air pollutants.

	ecology and forest management. Compilation, to be updated annually, of work on Arctic fire ecology and fire-related Indigenous knowledge products.	Summary of how each Arctic state manages operational response and what, if any, interagency/state agreements are in place. Summary of standard practices/training by state.		This report could include recommendations for best practices in fire management to limit air emissions.
Audience	Public –understand how fires impact the Arctic Ecologists – better understanding of management practices and options, including from Indigenous perspectives Policy makers –understand scope of issue and levers of impact Academics –understand current work and gaps PPs –enable knowledge transmission	Policy makers Operational fire managers Government resource managers and planners Local fire crews and communities PPs –enable co-production of knowledge	Scientific community; Policy- and decision-makers	Policy makers – understand how various management practices can be used to limit emissions. Scientific community – improve knowledge and use information on emissions from different management practices to refine and update emissions estimates, climate models, etc. Public – understand how wildfires and their management impact air quality, health, and climate
Priorities	Data compilation and standardization Ecological, management, social, cultural impacts, and knowledge transmission	Understanding context for international cooperation on fire response, and drafting template to advance discussion	Data compilation and analysis, incl. GIS-based analyses	Determining best practices for limiting emissions of black carbon and other air pollutants from wildland fires and fire management measures.
Partners	GCI CAFF Secretariat	GCI EPPR Secretariat	AMAP Secretariat AMAP Climate Expert Group	AMAP EGBCM

	Natural resource agencies & departments of Interior, Resource Management, Forestry Knowledge holders Academics GIS specialists	Wildland fire experts and managers (operations division) Law & policy specialists Training branches	AMAP Short-lived climate forcers Expert Group Miami University ICCI IIASA Remote sensing agencies (e.g., NASA, NOAA, ESA, IKI)	CAFF EPPR
How work is intended to be used	Reduce threats of catastrophic wildfires Increased options for mitigating and managing fires depending on desired outcomes Support cross-border conversations about management Advance Arctic conversation because extent of impact in Arctic is known	Enable cross border responses to fire, bringing more resources to bear and creating economic opportunities for crews that understand and are trained in Arctic fire response Create the framework for joint responses when fires cross borders Proactively have mechanism for sharing resources Enable international cooperation, training, and contracting of wildland fire resources across state boundaries	Provide input to AMAP assessments to understand the causes and implications of wildfires for climate and air quality, including related societal impacts. Develop science-based advice for policy-makers. Parts of the AMAP work will feed into joint AMAP-CAFF project work on '*Understanding climate change impacts on Arctic ecosystems and associated climate feedbacks*'.	Reduce impacts of fires on air quality and climate change. Provide recommendations for best practices to manage emissions from wildland fires according to local conditions.
Timing	Project approved September 2019 Steering Committee established Nov 2019 PSI Funding application submitted Feb 2020	Project approved January 2020 Steering Committee to begin early summer 2020	2021-2023, and beyond, building on work reported in AMAP 2021 assessment products	The project is in a conceptual stage and is still in the scoping process. We are hopeful that we will be able to begin work in 2021.