

COMMENT



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H. MAERTENS FOTOGRAF



A green Arctic

Academic collaboration is essential for creating a sustainable future for Arctic development, says **Lars Kullerud**.

This summer, the University of the Arctic celebrated its tenth anniversary by asking whether the future of the north could be a green one.

This vision presents a challenge. Local communities want economic growth, but the easiest ways of achieving that goal are not necessarily sustainable. The north needs a route for development that isn't based solely on resource extraction. Academic collaborations can help to achieve this, by promoting knowledge-based development, and by answering the research questions needed to support sustainable development.

The Arctic is home to a vast wealth of resources. Covering about 7% of the globe (the United States, in comparison, covers 2%), the Arctic has a disproportionately large share of oil and gas (the US Geological Survey estimates that the Arctic holds 22% of the remaining undiscovered petroleum

resources), and includes large swathes of rocks rich in minerals. Diamonds and nickel are plentiful; the waters churn with fish; and the region is bordered by the vast boreal forest belt, which holds one-third of global forests and perhaps 40% of economic forest resources.

Arctic states are promoting the development of natural resources — sometimes with the active support of local people, at other times against local wishes — to secure national economic growth, stable access to resources and job creation. Many indigenous people support development, with provisos. In early 2011, the Inuit Circumpolar Conference — the umbrella organization for

Inuit peoples of the world — issued a declaration welcoming environmentally sound extraction of renewable and non-renewable resources as long as decisions are made locally and the economic benefit stays at home. A similar policy is already in effect in Greenland, actively promoting and welcoming oil and mineral exploration.

Unlike many of the world's conflict-ridden treasure troves — from the diamond-rich African nations to the Middle East's oil fields — the Arctic's resources are in the politically stable backyard of developed countries. But this does not eliminate concerns. Some non-Arctic states fear a future in which a sparsely populated north controls such a large portion of major resources that are in demand throughout the world.

Development initiatives are often met with public protests — from Greenpeace as well as some members of the European

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► Parliament, non-Arctic nations and non-governmental organizations. Local governments and peoples in turn strongly object to attempts by outsiders to impose controls. The European Parliament's 2008 resolution on Arctic governance, which, inspired by the Antarctic Treaty, called for an international treaty to protect the Arctic, combined with the 2009 ban on seal products among other items, was so provocative, that the European Union's request to be an observer on the Arctic Council — the eight nations with territory in the Arctic — has repeatedly been put on hold. Many conservation organizations, such as Greenpeace and Sea Shepherd, and animal-welfare organizations, receive little support across the Arctic, whereas those that strongly encourage local dialogue, including the WWF, are more welcomed.

Academic institutions are working with governments, companies and other institutions to boost economic growth in the Arctic. Cooperation between the private sector, the University of Oulu and local government in Oulu, Finland, fostered the growth of the Finnish mobile-phone company Nokia. Likewise, universities in Tromsø, Norway, and Fairbanks, Alaska, are drivers of knowledge-based development; as are two new institutions in northern Russia: the Northern Arctic Federal University in Arkhangelsk and the North-Eastern Federal University in Yakutsk.

The University of the Arctic was started in 2001 as a network of collaborating higher-education institutions, supported by the member states of the Arctic Council and the Arctic indigenous peoples. Today it links 138 universities and colleges across Russia, North America and the Nordic countries, ranging from small institutions with 100 students to major research-intensive universities with tens of thousands of students. The network shares research initiatives and joint-study programmes, and helps to opti-

“Local peoples strongly object to attempts by outsiders to impose controls.”

mize use of limited resources. It is often argued that a critical mass of people and jobs in one location is necessary to create a viable economy in today's world. The

University of the Arctic proves that a dispersed network can be just as successful.

Another important role of academia is as the place where research questions are formulated and tackled. The International Arctic Science Committee, the University of the Arctic and the International Arctic Social Sciences Association have agreed to jointly organize the third International Conference on Arctic Research Planning in 2015. This is a bottom-up, scientist-driven initiative carried out every ten years to identify major research

questions important in the north. This time, we intend to include more contributions from local peoples. Their concerns are often different from those of academics: with climate change, for example, their focus is on building the knowledge necessary to deal with its effects, rather than on revealing more details of the processes behind it. Local peoples seek ways to merge traditional and academic knowledge to help develop insights that might, for example, be relevant to fishermen when fish migration patterns change, or to reindeer herders when grass and snow conditions alter, as well as replacing soot-producing fossil energy with renewable options.

It is only when the whole population of the Arctic has a say in developing knowledge in and about the region that we will be equipped with the tools to define our own future and decide at what pace our resources will be developed. It is crucial that academics, through facilities such as the University of the Arctic, become involved with those deliberations, so that the right scientific data are made available for policy-makers. Working together, we can strive towards a green economy in the north. ■

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A peaceful Arctic

Encourage dialogue between the producers and consumers of scientific knowledge in the north to keep the region conflict free, says **Oran R. Young**.

A cocktail of powerful forces, including the onset of climate change, the globalization of economic relationships and the shifting distribution of power in international society, is transforming the Arctic. Once regarded as a remote region of interest largely to explorers, missionaries and anthropologists, the Arctic has become a focus of attention for captains of industry and global policy-makers.

Conditions in the far north are very different from those at the opposite side of the globe. There, the highly effective Antarctic Treaty System relies on the scientific community to help administer the internationally agreed provisions for jurisdiction, demilitarization, environmental protection and the prohibition of mineral development in the Antarctic. There are no direct counterparts to this role in the Arctic, a region that is home to millions of human residents, subject to the undisputed sovereignty of its coastal

states, a theatre of operations for nuclear-powered icebreakers and naval vessels, and a site of world-class industrial activities including mining.

Journalists and pundits have broadcast dramatic scenarios that feature a scramble for the Arctic's resources, leading inexorably to resource wars and armed clashes. These concerns are misplaced. In reality, the eight Arctic states have settled most disputes over boundaries and the use of the region's resources through cooperative measures; they have also created the Arctic Council, a body that provides a forum for addressing emerging issues in an orderly manner.

Scientists have long played a part in these peaceful interactions in the Arctic, and they

will continue to do so. But steps can and should be taken to increase the relevance of science to emerging policy concerns, to improve the transfer of scientific knowledge and expertise into the hands of policy-makers, and to ensure that the Arctic remains a zone of peace.

BREAKING THE ICE

In 1987, Mikhail Gorbachev, then president of the Soviet Union, gave his 'Arctic zone of peace' speech, in which he called for a series of concrete measures to overcome East-West divisions in the area, including arms control measures and cooperative resource development. Gorbachev explicitly addressed the role of scientists in achieving that goal, and in the wake of his speech, science became an important vehicle for communication between the two camps. This led to the establishment in 1990 of the International Arctic Science Committee

