The Language of Snow

 [1]

© UN Photo/O Monsen
A young boy with a reindeer in Lapland

Local communities develop nuanced systems of knowledge specific to their natural surroundings. The Sami language is a prime example of that intimate relationship between the physical environment and language. Located in the Arctic, Sami reindeer herders have developed a sophisticated terminology to describe their unique and variable milieu, which reveals interrelated-aspects of the impacts of climate change.

Sami reindeer herding is practiced in Norway, Sweden, Finland and Russia. One of the centres for herding, in Guovdageaidnu (Kautokeino), Northern Norway, involves 1,700 people and 93,500 reindeer. Snow covers the ground more than seven months of the year and reindeer survival is dependent on the ability to access lichen through the snow. Given the extremely variable conditions of the Arctic, the Sami must make timely strategic decisions to ensure the herd's well-being. Thus, they have developed linguistic terms that encapsulate their knowledge of relationships between all elements at a given time, such as the interactions between vegetation, snow, ice and wind. The Sami's rich and accurate terminology for snow conditions and reindeer types is a manifestation of the relationship between Arctic conditions and their way of life. Science and technology study and map vegetation, but the Sami science of winter pastures takes into account much more, to be able to adapt to constant changes.

 [2]

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The reindeer dig through the snow to feed primarily on lichens in the winter. The changes in the weather create a crust of hard ice over the lichen, preventing them from feeding.

Snow terminology includes intricate descriptions of snow types, density, depth, and layers, as well as winds, temperatures, and physical processes on the ground and on trees. The term for "snow, snow-covered ground" is *muohta* and a "thin crust of snow" is *geardni.* An understanding of the physical

conditions of different snow layers and how that relates to weather and temperature variations is integrated into the meaning. For example, *guoldu* means a "cloud of snow which blows up from the ground when there is a hard frost without very much wind." The list of terms for snow is extensive, and there are also numerous terms to describe snow according to transportation and pasture needs.

The study of snow and ice is a rapidly evolving science. Conducting science in the Sami language provides further insight into the environment and contributes to other knowledge sources, especially in times of dramatic change in the Arctic. Sami terminology proves to be more holistic and integrated into the local ecology in comparison to international standard snow terms. Intricacies in the language are used to note both significant and subtle changes, and its terminology also provides tools for climate change adaptation strategies that could be of great use for the international community.

 [3]

CC permanent delegation of Norway to the UN.
Members of the Sami Parliament of Norway participate in the last United Nations Permanent Forum on Indigenous Issues (UNPFII) meeting in New York.

In recent years, collaborative research bringing together indigenous peoples and natural and social scientists has made important contributions to climate change monitoring and adaptation. With support from the French National Research Agency, UNESCO is currently undertaking the project: Bridging Indigenous and Scientific Knowledge about global change in the Arctic (BRISK)[4], in partnership with the French National Centre for Scientific Research, University of Versailles and the French Museum of Natural History. By bringing together indigenous knowledge holders and scientists in the Arctic, UNESCO works not only to enable innovative assessments of the environment but also to elaborate cutting-edge interdisciplinary and transdisciplinary methodologies and tools to build synergies between scientific and indigenous knowledge on climate and global changes in the Arctic, building links between science, policy and society.

UNESCO has led many similar initiatives, including the multilingual Environmental Encyclopedia and online wiki of Marovo Lagoon in the Solomon Islands. UNESCO has also worked closely with the Mayangna people, in Nicaragua, to compile the knowledge stemming from their unique ecological, social, and cultural relationship with their environment.

 [5]

CC Wikipidia/ Ernmuhl.
Sami man in Nordkapp

The wealth of the Sami language illustrates that Indigenous Peoples and local communities have developed sophisticated and nuanced systems of knowledge about the natural world, which are embedded in and intricately connected to the languages that they speak. Their knowledge and experience living on the frontiers of climate change is key to understanding future impacts on the environment. To continue to grow and develop as living knowledge systems, they must be supported to do so in their language of origin, their mother languages.

Language influences the structure of knowledge and knowledge sharing within a community. As we prepare to celebrate International Mother Language Day on 21 February under the theme "Local languages for Global Citizenship: Spotlight on Science", we should remember that knowledge sharing must go both ways. If science is only transmitted in a few languages, many people will be excluded from fully participating in the scientific endeavour. Teaching and doing science in local languages, and recognizing the science encapsulated in indigenous knowledge and language are thus important steps towards inclusiveness and therefore, to global citizenship.

Sources:

- Weathering Uncertainty [6]
  Traditional knowledge for climate change assessment and adaptation
  UNESCO and UNU, 2012
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Back to top

Links

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3. http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/images/img_Sami_parliament_UNPFII_2013.jpg
4. http://www.agence-nationale-recherche.fr/en/anr-funded-project/?tx_lwmsuivibilan_pi2%5BCODE%5D=ANR-12-SENV-0005
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