Meet Obedi Osore: Rainmaker

BY OBSERVING VARIATIONS in the air temperature, wind and behaviour of animals, Nganyi rain forecasters in Kenya are able to predict the onset of the next rainy season. "Rainmakers," such as 74-year-old Obedi Osore Nganyi (pictured above), observe subtle changes in nature that are unnoticed by most people. By studying air currents, the flowering and shedding of leaves of certain trees, the behaviour of ants, birds, even the croaking of frogs and toads, they interpret weather patterns and advise farmers about what to plant.

"If river water is warm, then we know that rain is close and when it's cold, we know that rain is not near," explains Obedi Osore. "There are also feelings in the body, like feeling hot and a little weak which is mostly [caused] by dull weather."

But the Nganyi have been flummoxed by climate change and the alternating cycles of droughts and floods it is inflicting. "Climate change has come on so fast. People don't know how to adapt or what to plant," says Obedi Osore. "Our traditional crops are disappearing because they cannot handle the new conditions. We need new strategies to handle climate change." Ⓐ

Source: UK Department for International Development (April 2010).

Aaron Stauch

Science of the Elders

Famous for their rainmaking skills, Kenya's Nganyi are working with scientists to forecast the weather.

Maria Onyango, Gilbert Ouma and Laban Ogallo

FOR GENERATIONS, the Nganyi clan of Western Kenya has been regularly consulted and highly valued by the local community for its rainfall forecasts. Nganyi elders base their seasonal predictions on close observation and understanding of weather patterns, and the behaviour of plants and animals before the onset of rain. They pass their accumulated knowledge orally from one generation to the next.

Historically, their practices have been shrouded in mysticism, which has led to the perception that they dabble in magic. So when we assembled a team consisting of two climate scientists, a social economist and experts from the Kenya Meteorological Department and Maseno University to conduct research among the Nganyi, we often faced the question: What is the point of

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"rational" scientists conferring with "mystical" community elders? The very idea seemed far-fetched.

Mysticism has been central to the wider community's understanding of the Nganyi forecasts. Some people consider them rainmakers, believing they not only foretell when the rains will come, but also make them happen. Over the years, the Nganyi themselves have encouraged such views, both as a means of instilling respect and fear, and of protecting their knowledge.

The Nganyi forecasters draw on an ancient, indigenous body of knowledge. Our team found that the mysticism that surrounds these rainmakers is a secondary layer that exists largely for social reasons. At heart, these elders are fellow scientists, and some of their myths and taboos serve to protect endangered species the community depends on for medicines, rituals and other uses.

The Nganyi forecast the weather by observing plants and animals, as well as the stars. They notice when particular insects, birds or reptiles migrate in certain formations. They observe the direction of the wind rolling across a lake, or on which side of a hill the clouds are clustering. When a particular tree sheds its leaves early or late in the season, this means more to them than to modern-day meteorologists.

The Nganyi gather information by keeping a close eye on various natural "shrines." At these sacred sites where it is forbidden to cut trees, they monitor the patterns of climate-sensitive plants and animals. They have identified particular species that are highly sensitive to changes in humidity. They know what it means when a certain reptile suddenly moves to a new habitat.

We are trying to create a modern-day link to the Nganyi's methods, working alongside the elders as part of an initiative supported by the Climate Change Adaptation in Africa program. Launched in 2006 by Canada's International Development Research Centre and Britain's Department for International Development, this program aims to improve the capacity of African countries to adapt to climate change in ways that benefit the most vulnerable.

One of our key objectives in working with the Nganyi is to make weather information available and accessible at the local level. Many local communities are confused by modern meteorological information and are unable to interpret the technical language in a way that applies to their own lives. By contrast, the Nganyi's community-based predictions seem more relevant.

Recent changes in the cycle of rainy seasons are interfering with the Nganyi's methods, however, and some of the plant and animal species they observe are altering their usual patterns as a result of the changing climate. By merging modern scientific and indigenous forecasting styles, we hope to better manage climate risks, reduce poverty, and provide communities with new tools for coping with extreme weather events.

Our research collaboration with the Nganyi is fascinating. They are providing us with a window into the workings of small, localized weather-prediction models. Modern meteorological indicators operate on a very large scale for longer-term forecasts. They may study, for instance, global phenomena such as El Niño, a system triggered by the warming of the sea as far away as the Eastern Pacific Ocean near South America. These modern models can predict that a given region may expect normal, above normal or below normal rains in the coming season. But they cannot accurately make this forecast for a particular village (apart from some places with a very long history of reliable climate information). Not so for the Nganyi elders. One of our goals is to investigate how information scaled down from large models can be integrated with local indicators, and to determine the scientific significance and accuracy of our blended forecasts.

For two seasons, Nganyi elders and modern climate scientists have gone through their respective forecasting processes, and then met to develop a consensus prediction. This harmonized forecast is then presented to the community in clear, locally relevant terms. Referring to the coming rainy season, it might say, for example, "We are expecting a very heavy downpour. So, plant this particular crop, and buy mosquito nets and clean out your drains, because any stagnant water will provide a perfect breeding ground for mosquitoes."

The results have been surprising. When surveyed, the larger community agreed that the consensus forecasts have been accurate even when the Kenya Meteorological Department forecasts were contradictory. We now regularly issue these harmonized forecasts. And because we
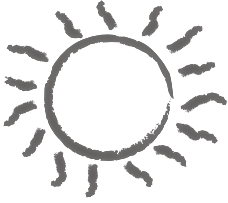
Our main objectives are to demystify the Nganyi's indigenous knowledge and to support their youth.

involve agricultural and environmental experts in the effort, we are providing the community with comprehensive forecasts and practical advice.

Nganyi elders have taken on specific monitoring duties as part of this initiative. We have also involved representatives from the National Museums of Kenya to make sure that this important part of the country's national heritage is properly preserved for future generations. The participation of the Kenya Industrial Property Institute, a department under the Ministry of Trade and Industry, is also crucial to preserving the Nganyi's intellectual property rights. Rather than use mysticism to guard their knowledge, the Nganyi can now choose modern methods of information protection.

The issue of intellectual property is central to our success in dealing with the Nganyi elders, since forecasting is both their vocation and a source of income. This was one of the first issues we had to address to gain their trust and co-operation.

The fear and respect accorded them has also granted these weather forecasters special status in the community. Communal planting was historically controlled by a few people – the chiefs, for instance – who would obtain the information solely from the Nganyi, then instruct farmers on what to plant and when. We needed to demonstrate to the elders that even if they shared their knowledge with us, they would still retain their status in society, they would benefit from new knowledge, and their methods would be valued, preserved and protected.

Our long-term plans include creating a resource centre for farmers and traditional weather forecasters. The Kenya Meteorological Department has agreed to set up a community-operated radio and Internet station for the transmission of vital weather and climate information. We also hope that the National Museums' involvement will lead to the traditional shrines being included on the country's tourism circuit. If the Nganyi's indigenous knowledge can generate additional income for their villages, their status will only increase.

We are determined to integrate the Nganyi's expertise into our understanding of weather patterns and, especially, to make it an integral part of our early warning systems. Researchers from the Great Lakes University of Kisumu are on our team. Together, we are developing a disaster-management curriculum that draws on the Nganyi's knowledge. A "summer" school is planned for the second half of this year to test the curriculum. We also plan to use the Nganyi shrines and the new resource centre as laboratories for students pursuing graduate degrees.

It is important to everyone involved in this project that all parties benefit from the research. With this in mind, training and micro-credit opportunities are being provided for Nganyi women and youth, linked to preserving indigenous trees and diversifying livelihoods. And because the Nganyi's traditional oral educational system is in danger of disappearing, the project also intends to produce a book that will preserve the community's experiences, traditions and lessons.

We understand that the Nganyi elders cannot reveal all of the methods they use to arrive at their forecasts, nor do we expect to collect all their secrets. Yet two of our main objectives are to help demystify the Nganyi's indigenous knowledge and to support their youth so that they take on lead roles as the indigenous-knowledge researchers of the future.

By the time we complete our research, we hope that the knowledge of the Nganyi will be accepted as legitimate community science, not magic. We also hope that our successful collaboration will inspire scientists across Africa to take a fresh look at indigenous knowledge systems in their own countries. Ⓐ

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Collaborating with community leaders to make sense of the weather is just one facet of a larger strategy to help Africans adapt to a changing climate. Launched in May 2009, AfricaAdapt is a web-based networking platform focused on climate change adaptation. The site links members through print, radio and other audio-visual resources, as well as face-to-face events.
For more information visit: **africa-adapt.net/AA**.