

IN A NEW DOCUMENTARY, *SEEDS OF SCIENCE*, ITALIAN FILMMAKER NICOLE LEGHISSA EXPLORES HOW RESEARCHERS IN KENYA ARE TRANSFORMING FARMS, LABORATORIES, COMMUNITIES – AND PEOPLE’S LIVES.

It is not a sentimental film, nor does it deal in stereotypes. You won’t see sick children or graphic images of extreme poverty. Rather, *Seeds of Science* is a candid, grassroots look at challenges facing communities in Kenya, and how work by four African scientists is developing solutions that improve farm production, reduce the need for toxic agricultural chemicals and provide clean water.

THE HUMAN FACE OF TWAS IN AFRICA

What is striking about *Seeds of Science*, above all, is its vibrant humanity. Nicole Leghissa, a filmmaker based in TWAS’s home city of Trieste, spent time in the summer of 2013 in the Kenyan countryside and in the capital, Nairobi. She talked with people who are growing maize, trying to feed their families; she interviewed local teachers and students, and people who worry that tainted water is making them sick. And she looked at the work of four scientists who are making a difference. Each of the researchers is supported by TWAS, one with a PhD fellowship, another with a research grant, two others with prizes that recognized their important work.

“TWAS has given me legs to start walking”, is Peterson Momanyi Guto’s heartfelt comment. Guto is currently a lecturer at University of Nairobi, in the department of chemistry. Along with his team, he regularly performs chemical analysis of the water from Nairobi River, which causes health problems in the local population due to the contaminants it contains.

The other three Kenya-based scientists, Zeyaur Khan, Vitalis Wafula Wekesa and Segenet Kelemu, describe how they have initiated important changes within their communities, provid-

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Filmmaker Nicole Leghissa speaks at the TWAS General Meeting. (Photo: Roque Silles)

versity of São Paulo has opened the doors of international research for him, and upon returning to his home country he was able to establish his own microbiology laboratory where he studies microbes that protect plants against common parasites. Wekesa is currently a lecturer at the Technical University of Kenya.

Segenet Kelemu, who has been recently appointed the director of the International Centre of Insect Physiology and Ecology (*icipe*), headquartered in Nairobi, is currently engaged in training young scientists in the most common biological techniques. She provides them with lab facilities, thus helping avoid the brain drain that impoverishes African countries of their best human resources.

Some 3,500 miles to the north, the film explores the efforts of TWAS's secretariat in Trieste, Italy, where the Academy in 2013 marked its 30th anniversary.

The 37-minute film is a joint production of TWAS and RAI-Friuli Venezia Giulia, the Italian public broadcasting company RAI's regional office for Trieste and Friuli Venezia Giulia. The documentary has been supported indirectly by the Italian Ministry of Foreign Affairs, which supports TWAS, and by Sida, the Swedish international development cooperation agency. The Italian version premiered at the annual TriesteNext science festival on 27 September 2013, followed by the English-language premier at the TWAS General Meeting in Buenos Aires, Argentina. It was screened for a small audience of political and educational leaders at RAI's Trieste office, and then was broadcast twice on RAI-TV in late October.

By weaving past and present, images and music, the fields of Kenya and hills of Trieste, Leghissa paints an exquisite fresco of how a global network based in Italy is helping to solve human problems in Africa. In an interview with TWAS staff writer Cristina Serra, the filmmaker discussed the ideas, experiences and lessons that brought *Seeds of Science* to life.

ing Kenyans with knowledge and tools to overcome local problems and to achieve a better life.

Khan, for example, has devised and introduced a 'green technique' to get rid of pests and weeds without using pesticides and chemicals. His technique, called 'push-pull', is now widely used by some 60,000 Kenyan farmers.

Vitalis Wekesa's dreams of a science career came true thanks to a TWAS PhD fellowship and the Brazilian National Council for Scientific and Technological Development. The doctorate he earned at the Uni-



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Until recently, your experience as a filmmaker has focused mostly on historical themes. Why did you decide to engage in scientific movies?

My previous works have addressed historical themes because I thought I could portray present days more effectively by using the past as an example. Then I realized that exploring what science can do in terms of addressing problems and finding potential solutions could bring the audience and me into a more real world. In addition, two inspiring events put me onto this road, prompting me to engage in a more science-oriented production: my first documentary on Italian virologist Ilaria Capua, called *Revolutionary Mind*, and *Unwired*, the documentary on wireless communication in Africa that the Abdus Salam International Centre for Theoretical Physics (ICTP) asked me to produce in 2012. Both have been really inspiring in forging this new trend in my career.

How did you organize the logistics and the settings, from Italy?

I started my preparation well in advance. I met with people at TWAS, to get a gist of what the Academy has been doing for some 30 years. I read the history of this institution and I flicked through old and recent pictures. I began writing the script when I was still in Trieste, and I plotted a detailed flowchart of all the locations throughout Kenya. Most importantly, I got through to the scientists who would later become the actors in my film. These were essential preparatory steps, and when we later met, in Kenya, it was like meeting old friends. Sometimes, words were unnecessary.

What were your expectations before your departure to Kenya?

I had mixed feelings. I was excited for the subject and for the geographical features I was about to film. But I was also a bit anxious for my technical equipment and feared that my plans could be difficult to observe. My schedule was quite dense and unexpected events, if they had happened, could have thrown the whole plan awry. However, the project was born under a lucky star, and apart for a small health problem that has affected me, everything was smooth.

What is the subject of *Seeds of Science*?

The film aims at portraying the most common challenges the world is now facing: energy, hunger, lack of safe drinking water, poor sanitation and health risks. It shows what agriculture



Leghissa shakes hands with TWAS President Bai Chunli as former TWAS President Jacob Palis stands by.
(Photo: Roque Silles)



PORTRAIT OF THE FILMMAKER

Nicole Leghissa writes, films and produces documentaries and news reports. She holds an Italian Laurea in international relations and diplomatic sciences and a master's degree in risk management.

Her first experience in the film industry dates back to 1998, when she set up collaboration with foreign news agencies and television networks, including the German public broadcasting consortium ARD, Reuters, and Worldwide Television News (WTN).

A few years later she took her early steps towards docu-fiction productions, working as an assistant director for American and British television channels such as Channel 4, the Public Broadcasting Service (PBS) and HBO.

Her first reportage, Magic and Masks in Sardinia, was produced in 1998 and then broadcast by WTN News UK.

In recent years, Leghissa has gained broad experience in making films about scientific themes. Her Revolutionary Mind on Italian virologist Ilaria Capua has been broadcast by the Italian public broadcaster RAI, both for the national and the regional audience of Friuli Venezia Giulia. Unwired, her second scientific documentary, was produced in collaboration with the Abdus Salam International Centre for Theoretical Physics (ICTP) to report about wireless communication projects promoted by ICTP's scientists. In 2012, Leghissa started her own film company, HYPHAE.

Seeds of Science is a joint TWAS-RAI collaboration. It was broadcast in the autumn of 2013 by the Italian RAI and the Slovenian Radio Televizija Slovenija (RTSI).

means in a developing country. It gives voice to people who have much to say but often go unnoticed. All these people are scientifically skilled, they know their country, and they often spot solutions in local problems that could help solve critical situations. They simply need somebody who listens and supports them. *Seeds of Science* shows that science is made of human beings.

Tell us a bit about the people you met in Kenya.

I have met farmers and shared their worries for harvests to come. Remigius Bwana was one of them. He is one of the Kenyan farmers who live exclusively on agriculture (farmers are 75% of the population), often possessing as little as half a hectare, barely enough to support a family. Bwana, for example, has 12 sons. I came across scientists who try to fight pests with natural approaches that do not call for pesticides; who investigate ways to increase the yield of a land that is just 17% fertile; who share their knowledge with farmers trying to raise awareness and create a self-sufficient, chemical-free community.

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Did these people leave an especially lasting impression on you?

Yes, they have moved my innermost feelings, for the way they are all fuelled by strong inner dignity. They were never afraid of laying bare in front of my camera, showing the hardships they encounter in their life. Thanks to these people, the film has grown, moving from the first draft to a fully mature product. They were eager to help me, to assist me in the production, to be part of the project. In addition, they wanted to express their gratitude for the gifts received.

What gifts?

Through TWAS's help they have been able to bring innovations and to make a difference in their communities. They wanted me to know this, and communicate it to the audience.

Can you share with us the first memory that comes to your mind?

I experienced a sense of intense intimacy when I met Ethiopian scientist Segenet Kelemu, one of the winners of the TWAS Prizes for 2011 who is now the director general of the *icipe*. During our meeting, we identified ourselves in each other, we 'sensed' each other and immediately fine-tuned our souls. That was a true gift. Another gift was the huge amount of time that some people, like microbiologist Vitalis Wekesa, have dedicated to this project, by accompanying me around and easing my work.

What have you drawn from this experience?

I have experienced how contagious the scientists' enthusiasm is, their driving purity and their strong desire to improve the life in their country or their society. I'm not a scientist, and I think this has been an asset. Without any prejudice or biased opinions, I could take an unblemished view all around. Perhaps my natural curiosity has stimulated me more than it would have if I had had a scientific background. I have found a great humanity and goodwill – no cynicism, but sharp awareness. I have appreciated how science can bring people together.

What do you think will be the take-home message for the audience?

I have no doubts about it: Where there is a will there is a way. This is especially true in developing countries, but it has lost credibility in developed countries.

Do you have future projects?

Yes, I am already working at two new series of documentaries. The first set will depict some medium-sized European cities and witness social, economic, urban and cultural changes that have occurred in recent times. The second project is a documentary to celebrate the 50th anniversary of ICTP, aimed at following the life of some of its foreign scientists who upon going back home now hold prominent positions in the society. ■

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