



Position

Head of research in plant ecophysiology

Institution

National Centre of Forest Research of the Senegalese Institute of Agricultural Research (CNR/ISRA - Centre National de Recherche Forestière de l'Institut Sénégalais de Recherche Agricole), Dakar

Country

Senegal

Education

PhD, Forestry/
Ecophysiology

Mentor

Professor Bienvenu Sambou,
Researcher and Director,
Institute of Environmental
Sciences, Cheikh Anta Diop
University

Research Area

Adaptation of plants to
water and/or saline stress
and vulnerable ecosystems

Mame Sokhna Sarr

2019 One Planet Laureate Candidate

Mame Sokhna Sarr has a degree from Virginia Polytechnic Institute and State University in the USA. She achieved her PhD in Forestry/Ecophysiology there in 2017. Since her early childhood, she has developed a real interest in scientific disciplines, in particular in mathematics and the natural sciences.

It's hardly surprising that this native of Saint-Louis is so passionate about nature. Indeed, Saint-Louis in Senegal, a magical city classified as World Heritage since 2000 by UNESCO, also benefits from an exceptional natural environment.

Sarr's desire to understand how plants work led her to study natural sciences then plant biology which she validated through obtaining a master's degree in 2006 and a Diploma of Advanced Study (DEA - Diplôme d'Etudes Approfondies) in 2009 at the Cheikh Anta Diop University of Dakar.

The ecophysiological characterization of *Senegalia senegal* (better known as *Acacia senegal*) in terms of efficient water use and gum arabic productivity was one of her initial research projects, of which she is very proud.

Indeed, the adaptation and yield components of gum, she stresses, are very important for improving the income of local populations and mitigating the effects of climate change in arid and semi-arid environments.

Since 2017, Sarr has been responsible for research in plant ecophysiology and the gender focal point since 2019 at the National Centre of Forest Research of the Senegalese Institute of Agricultural Research (CNR/ISRA - Centre National de Recherche Forestière de l'Institut Sénégalais de Recherche Agricole) in Dakar.

Her current research activities focus on the ecophysiology of woody trees for multiple use, and more specifically on the importance of hydraulic redistribution in roots in agroforestry systems, the ecophysiological traits of *Faidherbia albida* and the identification of the most attenuating tree species (with high carbon sequestration potential) faced with climate change.

This scientist and mother of two children, who aspires to become emeritus research director, underlines the importance of the support of her whole family and her husband in her professional career.

The “One Planet Fellowship”, for her, is not only an excellent opportunity to build personal and scientific capabilities but also a collaboration/partnership portal for her institution where she also wishes to share her achievements as a Laureate with future generations of researchers through co-supervising and mentoring.

Working with vulnerable rural communities is of paramount importance in her future plans.

She is considering a new line of research on cacti (more particularly *Opuntia ficus-indica* or prickly pear). Cacti are a group of plants belonging to the Cactaceae family which are known for their ability to adapt to extremely arid and poor environments.

The prickly pear is particularly interesting in the context of climate change in terms of potential for carbon sequestration, restoration of degraded land and above all to improve the resilience of local communities. The fruits, cladodes and seeds are plant products with high added value for human and animal consumption.

“The One Planet Fellowship is an excellent opportunity for me to strengthen my personal and scientific capacities, and also a window for me to pass on my achievements as a laureate to future generations of researchers through mentoring,” says Sarr.

However, despite the presence of the species (some cactus species) in the arid areas of Senegal, they remain unfortunately neglected and therefore have a potential that is not exploited by rural communities.

Sarr intends to conduct active research on the cactus sector in Senegal to promote the resilience of rural communities in arid environments in the context of climate change.

Mame Sokhna Sarr is one of the growing number of candidates selected to participate in the One Planet Fellowship. The One Planet Fellowship is a career development initiative that is building a robust pipeline of highly connected, inter-generational scientists equipped to use a gender lens to help Africa’s smallholder farmers cope with climate change. The One Planet Fellowship is funded by the Bill & Melinda Gates Foundation, the BNP Paribas Foundation, the European Union and Canada’s International Development Research Centre (IDRC). African Women in Agricultural Research and Development (AWARD) and Agropolis Fondation are jointly implementing the Fellowship.

Do you have any further questions? Send an email to: oneplanet.award@cgiar.org