

Curriculum Vitae



Dr. Cheikh MBOW,

PhD & Doctorat d'Etat (Habilitation)

Date and Place of Birth 02-08-1969, Dakar-Senegal

Previous Jobs:

- 2000-2011 : *Institut des Sciences de l'Environnement, University-UCAD Dakar, Senegal.*
- 2012-2016: *Senior Scientist at ICRAF (World Agroforestry Centre), Nairobi-Kenya*
- 2016-2019: *Executive Director, International START Secretariat*
- 2019-2021: *Director Future Africa Science at University of Pretoria-South Africa*

Currently:

- **January 2022 to Now, Director General Centre de Suivi Ecologique (CSE), Senegal**
Fann Résidence Rue Leon Gontron Damas, Dakar, BP : 15532 Dakar Sénégal
- **2012-now: Adjunct Professor, Michigan State University-Forestry. Lansing-USA**

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Overview

Cheikh Mbow is a research Professor and the Director General of the [Centre de Suivi Ecologique-CSE](#) (Senegal). He was previously Director of [Future Africa](#) at the University of Pretoria. He served as the Executive Director of [START-International](#) in Washington DC and Lead Scientist on Climate Change at the [World Agroforestry](#) center in Kenya. He is Adjunct Professor at [Michigan State University's](#) Department of Forestry. He works on Global Change research capacities for developing countries in Africa and Asia. He worked on land productivity and climate change at the Institute of Environmental Sciences, an interdisciplinary institute of the University Cheikh Anta Diop of Dakar ([UCAD](#)). At the university, he managed the research team CAREX (Climate Change, Adaptation and Environmental Risks). Over the past 23 years, Mbow has been active to raise funding and develop research and education partnerships. He established and coordinated the [GOFC-GOLD Regional Network](#) for West Africa (WARN) and worked in several regional programs such as AFRICANESS, AMMA (FP6), UNDESERT (FP7) projects, for the Global Atlas of the convention on Desertification, the GBO3 and for the GLO. Cheikh Mbow has been a Senior Scientist (Team Leader) on Climate Change and Development at World Agroforestry Centre ([ICRAF](#)) and supported the inter institutional program [CCAFS](#) (Climate Change, Agriculture and Food Security). He is currently Adjunct Associate Professor at [Michigan State University's](#) Department of Forestry where he supports integrated land use systems such as agroforestry. With more than 120 publications on various sustainability issues, Mbow has proven transdisciplinary expertise on food security and sustainable production in Africa. His work focuses on natural resources management, capacity building and translation of scientific information to decision makers and various stakeholder groups. He is a Lead Author on the Agriculture, Forestry and Other Land Use (AFOLU) chapter in the IPCC's AR-5 and AR-6. Mbow is now a [Coordinating Lead Author for the IPCC Special Report on Food Security](#). He served in many Scientific Committees such as the International Geosphere-Biosphere Program-IGBP (2012-2014) and Future Earth (2013-2015). He contributed to many high-level science-policy documents for UN agencies.

Publications from 2015

Google scholar link:

http://scholar.google.com/citations?hl=en&user=ps8zzUMAAAAJ&view_op=list_works&cstart=40

Research Gate Link

https://www.researchgate.net/profile/Cheikh_Mbow

A- International Science-Policy papers

➤ IPCC-UNFCCC

- a. **Mbow, C.**, C. Rosenzweig, L.G. Barioni, T.G. Benton, M. Herrero, M. Krishnapillai, E. Liwenga, P. Pradhan, M.G. Rivera-Ferre, T. Sapkota, F.N. Tubiello, Y. Xu, 2019: [Food Security](#). In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press.

➤ UNCCD-Joint Research Center (JRC-EC)

- a. Cherlet, M., Hutchinson, C., Reynolds, J., Hill, J., Sommer, S., von Maltitz (Eds.), 2018. [World Atlas of Desertification. Rethinking land degradation and sustainable management](#). Publication Office of the European Union. Luxembourg.
- b. Mbow, C. Halle, M., Beker, L., Thiaw, I., 2019. Land of opportunities: Framing contextual and practical solutions for lasting peace and prosperity in the Sahel. Background document for UNCCD Bellagio Workshop. 29 p.
- c. United Nations Convention to Combat Desertification (UNCCD). 2019. [The Global Land Outlook, West Africa Thematic Report](#), Bonn, Germany, Cheikh Mbow (Edt).

➤ Global Commission on Adaptation

- a. Sinclair, F., Wezel, A., **Mbow, C.**, Chomba, S., Robiglio, V., and Harrison, R. 2019. "[The Contribution of Agroecological Approaches to Realizing Climate-Resilient Agriculture](#)." Rotterdam and Washington, DC. Available online at www.gca.org.
- b. **Mbow, C.**, Dube, P., Smith, M.S., 2021. *Drylands* (Focus Sector). In, [State and Trends in Adaptation Report](#) 2021: Africa. Co-directed by Dr. Ede Jorge Ijjasz-Vasquez, Prof. Jamal Saghier, and Dr. Ian Noble., GCA-Netherlands, 290 p.

➤ International Council for Science Union (ICSU)

- a. Eric O. Odada, Robert J. Scholes, Kevin Noone, **Cheikh Mbow**, Washington O. Ochola, 2008. AfricanNESS/ICSU-ROA. [Strategy for Global Environmental Change Research in Africa](#): Science Plan and Implementation Strategy. AfricanNESS/ICSU ROA. 110 p.

➤ African Union

- a. Cheikh Mbow, Andre Amakobo Diatta, Taibou Ba , Abdoul Aziz Diouf, Amadou Sall (2023) Combining productivity and resilience in the Africa agricultural sector. Chapter in Book "Twenty Years of African Union"

B- Publications on food security and resilience

- 1) Ouedraogo, I., **Mbow, C.**, Balinga, M., Neufeldt H. (2015). "[Transitions in Land Use Architecture under Multiple Human Driving Forces in a Semi-Arid Zone](#)." *Land* 4(3): 560-577.

- 2) Sehmi R, **Mbow C**, Pitkanen S, Cross H, Berry N, Riddell M, Aynekulu E, Heiskanen J. 2016. [Replicable tools and frameworks for bio-carbon developments in West Africa](#). *ICRAF Working Paper No. 237*. Nairobi, World Agroforestry Centre.
- 3) Nicholas Berry, Helen Cross, Mike Riddell, **Cheikh Mbow**, Issa Ouedraogo, Jerome Tondoh. 2016. [Community Biocarbon Projects in West Africa: Challenges and Lessons learned](#), 43 p.
- 4) Kennedy Wahome Muthee, **Cheikh Mbow**, Geoffrey Mugo Macharia, Walter Leal-Filho, (2017) ["Ecosystem services in adaptation projects in West Africa"](#), *International Journal of Climate Change Strategies and Management*.
- 5) **Cheikh Mbow** (2017). [The Great Green Wall in the Sahel](#). *Climate Science*, Oxford Encyclopedia.
- 6) Pius Borona, **Cheikh Mbow**, Issa Ouedraogo (2018). [Linking Temporal Changes of Climate Factors with Staple Cereal Yields in Southern Burkina Faso](#). *World Academy of Science, Engineering and Technology, International Journal of Environmental and Ecological Engineering*. Vol 12 (2):
- 7) Martin Brandt, Kjeld Rasmussen, Pierre Hiernaux, Stefanie Herrmann, Compton J. Tucker, Xiaoye Tong, Feng Tian, Ole Mertz, Laurent Kergoat, **Cheikh Mbow**, John L. David, Katherine A. Melocik, Morgane Dendoncker, Caroline Vincke & Rasmus Fensholt, 2018: [Reduction of tree cover in West African woodlands and promotion in semi-arid farmlands](#). *Nature Geoscience*, **11**, pages 328–333.
- 8) Kouassi, J.-L.K.; Wandan, N.E.; **Mbow, C** (2018). [Assessing the Impact of Climate Variability on Wildfires in the N’Zi River Watershed](#) in Central Côte d’Ivoire. *Fire* 2018, *1*, 36.
- 9) Rosenzweig, C.; **Mbow, C.**; Barioni, L.G.; Benton, T.G.; Herrero, M.; Krishnapillai, M.; Liwenga, E.T.; Pradhan, P.; Rivera-Ferre, M.G.; Sapkota, T.; Tubiello, F.N., Xu, Y. (2020). [Climate change responses benefit from a global food system approach](#). *Nat. Food* 2020, *1*, 94–97. <https://doi.org/10.1038/s43016-020-0031-z>.
- 10) **Cheikh Mbow** (2019). Comment réconcilier notre alimentation avec le climat. Number 553, November 2019. <https://www.larecherche.fr/search/node/Mbow>
- 11) **Mbow, C.**, Toensmeier, E., Brandt, M., Skole, D., Dieng, M., Garrity, D., Poulter, B. (2020). [Agroforestry as a solution for multiple climate change challenges in Africa](#). In Deryng, D. (ed.), *Climate change and agriculture*, Burleigh Dodds Science Publishing, Cambridge, UK, 2020, (ISBN: 978 1 78676 320 4; www.bdspublishing.com).
- 12) Papa, C., Nzokou, P. & **Mbow, C.** (2020). [Farmer Livelihood Strategies and Attitudes in Response to Climate Change in Agroforestry Systems in Kedougou](#), Senegal. *Environmental Management* 66, 218–231 <https://doi.org/10.1007/s00267-020-01302-8>
- 13) **Mbow, C.** (2020). Use it sustainably or lose it! The land stakes in SDGs for Sub-Saharan Africa. *Land*, *9*(3), 63; <https://doi.org/10.3390/land9030063>
- 14) **Mbow, C.**; Halle, M.; El Fadel, R.; Thiaw, I. Land resources opportunities for a growing prosperity in the Sahel. *Curr. Opin. Environ. Sustain.* 2021, *48*, 85–92. 10.1016/j.cosust.2020.11.005
- 15) Dieng M, **Mbow C**, Skole DL and Ba B (2023), Sustainable land management policy to address land degradation: linking old forest management practices in Senegal with new REDD+ requirements. *Front. Environ. Sci.* 11:1088726 [doi: 10.3389/fenvs.2023.1088726](https://doi.org/10.3389/fenvs.2023.1088726)
- 16) AA Diatta, AGB Manga, C Bassène, C Mbow, M Battaglia, M Sambou, et al. (2023) [Sustainable Production of Tomato Using Fish Effluents Improved Plant Growth, Yield Components, and Yield in Northern Senegal](#). *Agronomy* 13 (11), 2696

C- Trends and drivers of land productivity

- 1) **Mbow C.**, Brandt M., Ouedraogo I., Leeuw J.d. & Marshall M. (2015). [What Four Decades of Earth Observation Tell Us about Land Degradation in the Sahel?](#) *Remote Sensing*, *7*, 4048-4067.
- 2) Brandt, M., **Mbow, C.**, Diouf, A. A., Verger, A., Samimi, C., Fensholt & R. (2015). [Ground- and satellite-based evidence of the biophysical mechanisms behind the greening Sahel](#). *Global Change Biology*. Volume 21, Issue 4; pp 1610–1620. DOI: 10.1111/gcb.12807.

- 3) Tagesson, T., Fensholt, R., Guiro, I., Rasmussen, O. M., Huber, S., **Mbow, C.**, Garcia, M., Horion, S., Sandholt, I., Holm-Rasmussen, B., Gottsche, M. F., Ridler, E. M., Olen, N., Olsen L., J., Ehammer, A., Madsen, M., Olesen, S. F., Ardo & J. (2015). [Ecosystem properties of semiarid savanna grassland in West Africa and its relationship with environmental variability](#). *Global Change Biology*, 21, 250-64.
- 4) Tian, Feng, Brandt, Martin, Liu, Y. Y., Verger, Alexandre, Tagesson, Torbern, Diouf, A. A., Rasmussen, Kjeld, **Mbow, Cheikh**, Wang, Yunjia, Fensholt Rasmus (2016). "[Remote sensing of vegetation dynamics in drylands](#): Evaluating vegetation optical depth (VOD) using AVHRR NDVI and in situ green biomass data over West African Sahel." *Remote Sensing of Environment* 177: 265-276.
- 5) Brandt, M., Hiernaux, P., Tagesson, T., Verger, A., Rasmussen, K., Diouf, A. A., **Mbow Cheikh**, Mougin, E., Fensholt R. (2016). "[Woody plant cover estimation in drylands from Earth Observation based seasonal metrics](#)." *Remote Sensing of Environment* 172: 28-38.
- 6) Mwenda Borona, **Cheikh Mbow**, Issa Ouedraogo (2016). [Unstacking high temporal resolution meteorological data for multidimensional analysis of climate variability in southern Burkina Faso](#). *Geografisk Tidsskrift-Danish Journal of Geography*, 1-14; Doi:10.1080/00167223.2016.1212668.
- 7) Brandt, M.; Rasmussen, K.; Hiernaux, P.; Herrmann, S.; Tucker, C.; Tong, X.; Tian, F.; Mertz, O.; Kergoat, L.; **Mbow, C.**; David, J.; Melocik, K.; Dendoncker, M.; Vincke, C.; Fensholt, R. (2017) [Farmlands Feature Greater Woody Cover than Savannas in Semi-Arid West Africa](#). *Preprints* **2017**, 2017030173.
- 8) Rasmus Fensholt, **Cheikh Mbow**, Martin Brandt and Kjeld Rasmussen (2017). [Desertification and Re-Greening of the Sahel](#). Climate Science, Oxford Encyclopedia.
- 9) Martin Brandt, Jean-Pierre Wigneron, Jerome Chave, Torbern Tagesson, Josep Penuelas, Philippe Ciais, Kjeld Rasmussen, Feng Tian, **Cheikh Mbow**, Amen Al-Yaari, Nemesio Rodriguez-Fernandez, Guy Schurgers, Wenmin Zhang, Jinfeng Chang, Yann Kerr, Alexandre Verger, Compton Tucker, Arnaud Mialon, Laura Vang Rasmussen, Lei Fan & Rasmus Fensholt (2018). [Satellite passive microwaves reveal recent climate-induced carbon losses in African drylands](#). *Nature Ecology & Evolution* **volume 2**, pages 827–835 (2018).
- 10) [Global Sustainable Development Report 2016](#). Contributing Author for Chapter 5. Chapter 5: Identification of Emerging Issues for Sustainable Development.
- 11) Martin Brandt, Gray Tappan, Abdoul A. Diouf, Gora Beye, **Cheikh Mbow**, Rasmus Fensholt (2017). [Woody vegetation die off and regeneration in response to rainfall variability in the West African Sahel](#). *Remote Sensing*, 9(1), 39.
- 12) Kouassi, J.-L.; Wandan, N.; **Mbow, C.** [Predictive Modeling of Wildfire Occurrence and Damage in a Tropical Savanna Ecosystem of West Africa](#). *Fire* **2020**, 3, 42.
- 13) Kouassi, J.-L.; Wandan, N.; **Mbow, C.** **2020** [Exploring Wildfire Occurrence: Local Farmers' Perceptions and Adaptation Strategies in Central Côte d'Ivoire, West Africa](#). *Journal of Sustainable Forestry* 41 (2), 173-192.
- 14) Skole, D.L.; Samek, J.H.; Mbow, C.; Chirwa, M.; Ndalowa, D.; Tumeo, T.; Kachamba, D.; Kamoto, J.; Chioza, A.; Kamangadazi, F. [Direct Measurement of Forest Degradation Rates in Malawi: Toward a National Forest Monitoring System to Support REDD+](#). *Forests* **2021**, 12, 426.
- 15) Timothy Dube, Dylan Seaton, Cletah Shoko, **Cheikh Mbow** (2023). Advancements in earth observation for water resources monitoring and management in Africa: A comprehensive review. *Journal of Hydrology*, Volume 623, ISSN 0022-1694. <https://doi.org/10.1016/j.jhydrol.2023.129738> .
- 16) Diop, M., Mall, I., Sonko, E., Diop, T., Badji, L. and **Mbow, C.** (2023) Development and Application of Water Quality Index (WQI) for the Evaluation of the Physico-Chemical Quality

- of Groundwater in Gold Mining Areas of Southeastern Senegal. *Journal of Water Resource and Protection*, 15, 33-50. doi: [10.4236/jwarp.2023.152003](https://doi.org/10.4236/jwarp.2023.152003).
- 17) M Diop, I Mall, EM Sonko, T Diop, B Niane, C Mbow (2024). [Restoration or Rehabilitation of the Faleme River Affected by Mining Activities: What Methods?](#) *Journal of Water Resource and Protection* 16 (4), 233-263
 - 18) M Sambou, B Koné, S Sambou, F Niang, S Sane, M Diatta, H Sambou (2024): [Variation of biomass carbon stock within agroforestry systems in the Senegalese groundnut basin](#). *Discover Sustainability* 5 (1), 35
 - 19) M Sambou, B Koné, S Sane, MEJ Vodounnon, AA Diatta, L Diatta (2024). [Impact of climate change on the habitat range and distribution of *Cordyla pinnata*, *Faidherbia albida* and *Balanites aegyptiaca* in Senegal](#). *Modeling Earth Systems and Environment*, 1-19.
 - 20) M Dieng, C Mbow, DL Skole, B Ba. (2023). [Sustainable land management policy to address land degradation: linking old forest management practices in Senegal with new REDD+ requirements](#). *Frontiers in Environmental Science* 11, 1088726
 - 21) T Dube, D Seaton, C Shoko, C Mbow (2023). [Advancements in earth observation for water resources monitoring and management in Africa: a comprehensive review](#). *Journal of Hydrology*, 129738

D- Urban systems

- 1) Thomas Elmqvist, José Siri, Erik Andersson, Pippin Anderson, Xuemei Bai, Pranab Kishore Das, Tatu Gatere, Andrew Gonzalez, Julie Goodness, Steven N Handel, Ellika Hermansson Török, Jessica Kavonic, Jakub Kronenberg, Elisabet Lindgren, David Maddox, Raymond Maher, Cheikh Mbow, Timon McPhearson, Joe Mulligan, Guy Nordenson, Meggan Spires, Ulrika Stenkula, Kazuhiko Takeuchi, Coleen Vogel, 2018: [Urban tinkering](#). *Sustainability Science* 1-16.

E- Tools and Methods for land resources assessment

- 1) Ndao, B.; Leroux, L.; Gaetano, R.; Diouf, A.A.; Soti, V.; Bégué, A.; Mbow, C.; Sambou, B. [Landscape heterogeneity analysis using geospatial techniques and a priori knowledge in Sahelian agroforestry systems of Senegal](#). *Ecol. Indic.* **2021**, 125.
- 2) C Steger, S Kande, D Diop, M Sall, C Mbow, A Sène, S Wood. (2024) : [Local Ecological Knowledge Indicates Pathways Towards Equitable and Sustainable Management of the Sudano-Guinean Savanna](#). *Human Ecology*, 1-22
- 3) M Toure, NAB Klutse, MA Sarr, AD Kenne, MAE Bhuiyanr, O Ndiaye, Badiane, D., Thiaw, W., Sy, I., Mbow, C., Sall, S.M., Gaye, A.T. (2023) [A New Multiple Imputation Approach Using Machine Learning to Enhance Climate Databases in Senegal](#). *Research Square*, Version 1 published in 2023 <https://doi.org/10.21203/rs.3.rs-3287168/v1>
- 4) M Diop, I Mall, T Diop, L Badji, C Mbow (2023). [Development and application of water quality index \(WQI\) for the evaluation of the physico-chemical quality of groundwater in gold mining areas of Southeastern Senegal](#). *Journal of Water Resource and Protection* 15 (2), 33-50

F- Book and Book Chapters (various topics)

- 1) Mbow, C., C. Neely and P. Dobie (2015). [How can an integrated landscape approach contribute to the implementation of the Sustainable Development Goals \(SDGs\) and advance climate-smart objectives?](#)

- Climate-Smart Landscapes: Multifunctionality In Practice. P. A. Minang, M. v. Noordwijk, O. E. Freeman et al. Nairobi, World Agroforestry Centre (ICRAF): 71-86.
- 2) Noordwijk, M. v., P. A. Minang, O. E. Freeman, **C. Mbow** and J. d. Leeuw (2015). [The future of landscape approaches: interacting theories of place and change](#). Climate-Smart Landscapes: Multifunctionality In Practice. Minang, P. A., v. Noordwijk et al. Nairobi, World Agroforestry Centre (ICRAF): 373-374.
 - 3) Minang, P. A., M. v. Noordwijk, O. E. Freeman, **C. Mbow**, J. d. Leeuw and D. Catacutan (2015). [Climate-smart landscape: Multifunctionality in Practice](#), World Agroforestry Centre (ICRAF).
 - 4) Minang, P. A., M. v. Noordwijk, O. E. Freeman, L. A. Duguma, **C. Mbow**, , J. d. Leeuw and D. Catacutan (2015). [Introduction and basic propositions. Climate-Smart Landscapes: Multifunctionality In Practice](#). Minang, P. A., v. Noordwijk et al. Nairobi, World Agroforestry Centre (ICRAF): 3-18.
 - 5) Adriansen, H., K., Mehmood-Ul-Hassan, M., **Mbow C.** (2016). [Producing scientific knowledge in Africa today: auto-ethnographic insights from a climate change researcher \(Chap7\)](#). In Higher Education and Capacity Building in Africa. Hanne Kirstine Adriansen, Lene Møller Madsen and Stig Jensen (Eds). Routledge, Taylor and Francis Group. ISBN: 978-1-138-83815-4 (hbk)/ ISBN: 978-1-315-73462-0 (ebk).
 - 6) Kuyah S., Mbow C., Sileshi G.W., van Noordwijk M., Tully K.L., Rosenstock T.S. (2016) [Quantifying Tree Biomass Carbon Stocks and Fluxes in Agricultural Landscapes](#). In: Rosenstock T., Rufino M., Butterbach-Bahl K., Wollenberg L., Richards M. (eds) Methods for Measuring Greenhouse Gas Balances and Evaluating Mitigation Options in Smallholder Agriculture. Springer, Cham
 - 7) Muthee, K., **Mbow, C.**, Macharia, G. and Leal Filho, W., 2017. [Ecosystem-Based Adaptation \(EbA\) as an Adaptation Strategy in Burkina Faso and Mali](#). *Climate Change Adaptation in Africa: Fostering Resilience and Capacity to Adapt*, p.205.