

International Forestry Resources and Institutions

*An International Forestry Resources and Institutions (IFRI) Initiative,
supported by the National Science Foundation*

Overview: IFRI Central Africa Forests and Institutions Research Project (CAFI), 2006-2011

BACKGROUND

The Congo Basin possesses some of the most valuable and threatened rainforest outside the Amazon Basin. It is home to over 10,000 plant species (about 3,000 of which are endemic) and more than 1,000 bird and 400 mammal species. The Basin's forest ecosystems remain remarkably intact relative to other world regions, but are undergoing rapidly intensifying exploitation. For CAFI, the region constitutes a unique research opportunity for three reasons: 1) its importance to global forest cover and terrestrial biodiversity; 2) the availability of large amounts of data that can be supplemented with new research to construct databases of general relevance; 3) the significant variation in new governance arrangements, logging practices, and forest cover change.

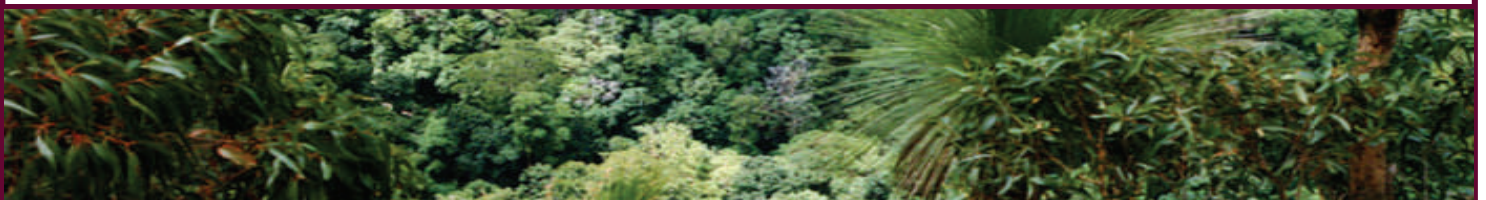
OBJECTIVES

The CAFI project focuses on the critical juncture between environmental governance and logging in forest concessions in the western Congo Basin, specifically in Cameroon and the Republic of Congo. This innovative research will show whether and how, over the research period, ongoing and substantial variations in forms of environmental governance make a difference in forested landscapes in these two countries, chosen for their contrasting governance arrangements and forest management regimes.

The project focuses on two broad questions:

- How do variations in partnerships among country governments, logging companies, and third parties (e.g., NGOs, donors, local actors) affect the content of concession agreements, their subsequent implementation and the environmental outcomes related to logging concessions?
- How do armed conflict, shifts in trade and currency values, and increased access to data about forest cover change, logging and forest management in concessions (e.g., monitoring), and associated outcomes modify new and evolving governance arrangements?

The CAFI project will identify and analyze the intertwined and multi-level causal processes shaping forest cover and change in these two countries, with a focus on macroeconomic processes, civil conflict, extra-legal activities, and the changing behavior of actors such as government agencies, forest concessionaires, NGOs, international donors, and local users. To do so, the project will utilize mathematical, statistical, and agent-based modeling techniques.



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OUTCOMES AND CONTRIBUTIONS OF THE CAFI PROJECT

The extensive data collected during the course of the project and resulting from the research study will be consolidated into a publicly-available repository, including information on the array of governance arrangements, characteristics of logging concessions and concessionaries, the evolving role of NGOs, the nature of monitoring processes, and ongoing forest cover and changes and other indicators of environmental changes. The databases in the repository will help researchers and policymakers better understand the complex governance institutions that shape environmental outcomes at a general level. The research will also illuminate the specific roles of different actors in processes of sustainable forest management and deforestation, including the little understood contributions of NGOs.

IFRI anticipates that the research and educational activities associated with this project will lead to a capstone workshop on Governance and Logging, two syntheses volumes on "Logging in the Congo Basin," and "Environmental Governance and Agent Based Models," and the training of students in computational modeling. It will have the added value of developing a baseline for future study of governance and forests in these two countries of the region.

THE RESEARCH TEAM

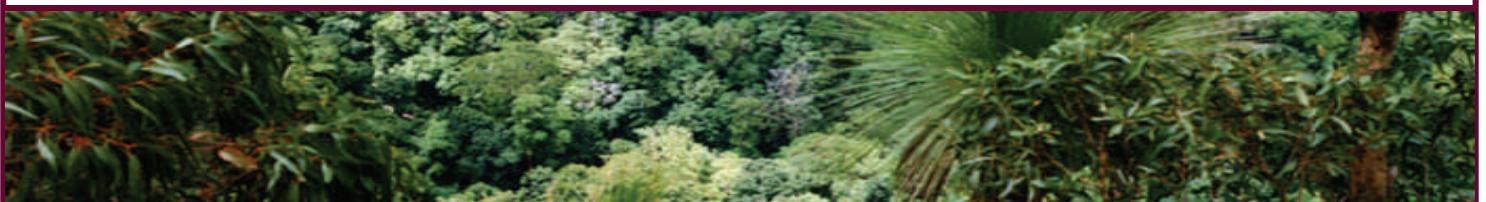
IFRI is based at the University of Michigan. Members of its interdisciplinary research team are from the School of Natural Resources and Environment, the Center for the Study of Complex Systems, and the Department of Ecology and Evolutionary Biology. The team has experience in joint inter-disciplinary research that spans conventional divisions between social and biophysical sciences, qualitative and quantitative methods, analytical and descriptive approaches, and policy-relevant and theoretical work.

Team members include:

Arun Agrawal: *Associate Professor, School of Natural Resources and Environment; Director of the International Forestry Resources and Institutions (IFRI) Program.* Dr. Agrawal's research emphases are on the politics of international development and environmental conservation, particularly institutional change, property rights, poverty, and biodiversity. He has written on indigenous knowledge, common property, community-based conservation, population and resources, and environmental identities.

Daniel Brown: *Professor and Associate Dean for Research, School of Natural Resources and Environment; Director of the Environmental Spatial Analysis Laboratory.* Dr. Brown is also affiliated with the Center for the Study of Complex Systems, the Center for Social Epidemiology and Population Health, the Population Studies Center, and the Center for Sustainable Systems. Dr. Brown's research focus is on land-use and land-cover dynamics and makes use of multiple methods, including GIS, remote sensing, digital terrain analysis, ecological mapping, social surveys, statistics, and computer simulation.

Rebecca Hardin: *Assistant Professor, Department of Anthropology and the School of Natural Resources and Environment.* Dr. Hardin's research focuses on social relations of forest use in the Sangha River region, where Cameroon, Central African Republic, and Congo meet. She has collaborated in long term studies of human/wildlife interactions in the protected areas of that region, and has also published on emergent viral disease in tropical forest environments. Her work on the legal, cultural, and historical elements of concession systems has been carried out in Europe, South Africa, and Central Africa.



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Rick Riolo: *Associate Research Scientist and Computer Laboratory Director, Center for the Study of Complex Systems.* Dr. Riolo is an expert in agent-based modeling of social systems as complex adaptive systems, particularly in modeling agents embedded in and interacting with spatial (GIS) environments and social networks. His interests include evolutionary algorithms in theory and in models of complex adaptive systems, agent-based modeling approaches to studying problems across various complex systems, and the effects of formal and informal institutions on sustainability of common resource pools.

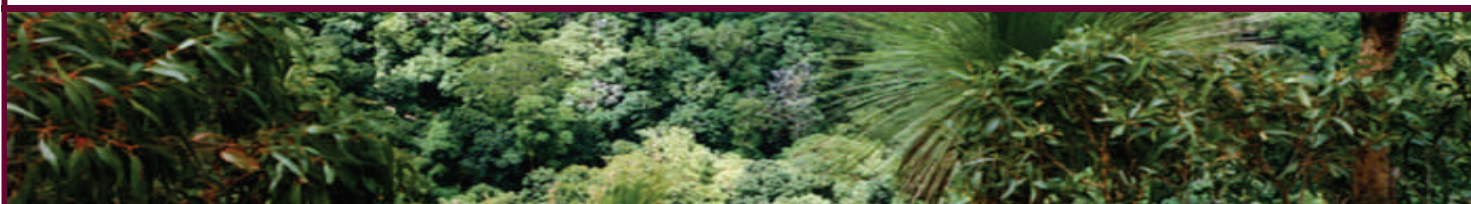
Tom Lyon: *Dow Professor of Sustainable Science, Technology and Commerce; Professor of Business Economics; Professor of Natural Resources.* Dr. Lyon's primary research interest is the interplay between corporate strategy and public policy, which he has pursued in a number of application areas, including corporate environmentalism, electric utility investment practices, natural gas contracting, innovation in the health care sector, and the introduction of competition in regulated industries. He lectures in managerial economics, game theory, business strategy, and the management of innovation.

John Vandermeer: *Professor of Ecology & Evolutionary Biology, College of Literature, Science, & the Arts.* He is also affiliated with the Center for the Study of Complex Systems, and the School of Natural Resources and Environment, among others. His work focuses on recovery of tropical rainforests from natural disasters, theoretical models of predator/prey interactions, ecological impact of agricultural practices, and scientific and sociopolitical aspects of rainforest destruction and conservation

RESEARCH MOTIVATION AND FOCUS

This research draws its basic theoretical approach from an interest in natural resource governance, paying close attention both to the dynamics of and interactions between natural resource systems and governance systems. Existing research on the relationship between institutions and resource-related outcomes has typically focused on effects of governance often in relation to measures of human system variables, e.g., collective action, poverty alleviation, institutional sustainability, or equity. There are few modeling exercises that focus substantively on the important role of institutions as deforestation agents.

This gap is especially striking in the Central African region. A long history of intertwined commercial and political instability as well as corruption during and after formal colonial rule has led to cryptic and incomplete information on business agreements, management approaches, and monitoring outcomes in the region. Rapid turnover within national and provincial governments since independence has been exacerbated by declining donor support for natural resource conservation efforts. Nevertheless, the recent integration of transparency and accountability in governance processes, including donor and loan programs, combined with a political commitment to natural resource management in this region, provides a new foundation for assessment. The WWF-sponsored Yaoundé Forest Summit held in 1999, resulted in a commitment by the Heads of State of the Congo Basin countries to sustainably managing their forests. This event was followed by the Congo Basin Forest Partnership, launched at the World Summit on Sustainable Development in Johannesburg, South Africa in 2002 and the Africa Forest Law Enforcement and Governance Ministerial in Yaoundé in 2003. These have resulted in new collaborations in environmental governance and an unprecedented focus on greater accountability and transparency in the logging sector. These commitments also led to a significant increase in financing for forests in Central Africa, including in Cameroon and the Republic of Congo. Much of this funding has gone to Non-Governmental Organizations (NGOs), focused on influencing and monitoring the sustainable management and non-exploitation of natural resources, including forest concessions.



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At the same time, however, research has shown that over the past two decades logging activity, carried out primarily through concession arrangements, has increased significantly. Logging concessions cover a significant proportion of the region's forests, and logging forms a major part of the GDP of the region's countries. Existing understandings are murky at best where relationships between aggregate macro-level outcomes and micro-level processes related to agent decisions are concerned. They are equally unclear in relating logging, various measures of forest-outcomes, and governance. It is precisely these and other relevant gaps in existing understanding that the CAFI initiative will address.

THE ADVISORY COMMITTEE

The Advisory Committee for the CAFI Project will provide their advice and expertise on the project to the research team through the terms of the project. The members include:

Dr. James Deutsch: *Director, Africa Program, Wildlife Conservation Society, New York.* Previous positions include: Chief Executive, Crusaid, London, Lecturer in Evolutionary Biology, Imperial College, University of London, Research Fellow, Churchill College, University of Cambridge, and Course Leader, Tropical Biology Association, Uganda.

Dr. Hosny El Lakany *Professor Emeritus, Alexandria University, Egypt; Adjunct Professor, Faculty of Forestry, University of British Columbia, Canada; Chair: The International Partnership on Forestry Education, (IPFE):* Dr. Hosny El Lakany is an international consultant to Inter-Alia, the World Bank, UNDP, UNEP, FAO, IDRC of Canada, and USAID. He previously served as the Assistant Director-General of Food and Agriculture Organization from 1998 - 2006.

Dr. James Gasana: *Program Officer, Forestry and Environment Team, Intercooperation, Switzerland.* Dr. Gasana has held several positions in Rwanda including Minister of Defense, and the Minister of Agriculture, Livestock, and Forestry. He served as Coordinator of the Agro-Silvo-Pastoral Project of the World Bank, and Director of the Integrated Rural Development Project of The Congo-Nile Basins Divide.

Ms. Jan McAlpine (Chair) : *Visiting Scholar, Graham Environmental Sustainability Institute; Senior Research Fellow, School of Natural Resources & Environment (SNRE) at the University of Michigan, 2006-2007.* Ms McAlpine has more than two decades of experience in forestry and environment related international policy and negotiating experience. She served as Senior Forest Advisor and Negotiator for the U.S. Department of State. She also held the position of Chairman of the ITTC.

Dr. Elinor Ostrom: *Arthur F. Bentley Professor of Political Science, Co-Director, Workshop in Political Theory and Policy Analysis, Indiana University; Founding Director, Center for the Study of Institutional Diversity, Arizona State University, Tempe.* Dr. Ostrom works with colleagues in several tropical countries to investigate the impacts of diverse institutional arrangements on forest conditions and on global environmental change.

Dr. Manoel Sobral Filho: Dr. Sobral served as the Executive Director of the International Tropical Timber Organization (ITTO) from 1999-2007 and as the Assistant Director for the Forest Industry, ITTO from 1987 to 1999. He also served as the Director of the Forest Products Research Center of the National Institute for Amazonian Research.



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