

Matian van Soest

# THE POLITICAL ECOLOGY OF MALARIA

Emerging Dynamics of Wetland Agriculture  
at the Urban Fringe in Central Uganda



[transcript] + Medical Humanities

## From:

*Matian van Soest*

The Political Ecology of Malaria

Emerging Dynamics of Wetland Agriculture at the Urban Fringe  
in Central Uganda

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Malaria remains one of the main causes of mortality and morbidity in sub-Saharan Africa. Matian van Soest looks at the malaria epidemic in the peri-urban zones of Uganda's capital Kampala against the backdrop of recent socio-ecological transformations.

Based on long-term ethnographic research, the book provides a holistic picture of the malaria epidemic in central Uganda, revealing the highly localized character of an epidemic that once spanned across almost the entire globe. Understanding, and ultimately tackling the disease, requires an appreciation of the social, political, as well as ecological circumstances that frame this epidemic.

**Matian van Soest**, born in 1984, is a social and cultural anthropologist with a regional focus on Eastern Africa and a thematic interest in infectious diseases. He works as scientific coordinator of the collaborative research center »Future Rural Africa« at the Universities of Bonn and Cologne and is a member of the AG Medical Anthropology of the German Anthropological Association.

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## Abbreviations

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ACT	Artemisinin-based Combination Treatment
AIDS	Acquired Immunodeficiency Syndrome
BMBF	Bundesministerium für Bildung und Forschung (German Federal Ministry of Education and Research)
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Coope- ration and Development)
DDT	Dichloro diphenyl trichloroethane
DGSKA	Deutsche Gesellschaft für Sozial- und Kulturanthropologie (German Anthropological Association)
HC	Health Center
HIV	Human Immunodeficiency Virus
IMR	Infant Mortality Rate
IRB	Institutional Review Board
JICA	Japan International Cooperation Agency
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MMR	Maternal Mortality Rate
MoH	(Ugandan) Ministry of Health
MoNR	(Ugandan) Ministry of Natural Resources
NaCRRRI	National Crops Resources Research Institute
NARO	National Agricultural Research Organisation
NRM	National Resistance Movement
OPD	Outpatient Department
RBM	Roll Back Malaria Partnership
RDT	Rapid Diagnostic Test
TCMP	Traditional and Complementary Medicine Practitioner
UBOS	Uganda Bureau of Statistics
UGX	Ugandan Shillings
UN	United Nations
VHT	Village Health Team
WHO	World Health Organization
WW II	World War II

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“The human malaria connection is an ever-changing dance, which includes moving forward and back, spinning with partners in tandem or sometimes in opposite directions. Movements of both human beliefs and biological actions. Overlapping meanings. Those belief systems include bioscience and local, preventive behaviors.”

*James C. McCann (2014: 3)*

“In the same way that ecologists talk about ecological cascades that facilitate disease emergence, social scientists speak of the scalar and multifaceted dimensions of influence in social systems – from an individual in a community to the wider political economy – that guide, constrain, or otherwise affect disease risk.”

*Craig R. Janes, Kitty K. Corbett,  
James H. Jones and James Trostle  
(2012: 1885)*

## 1. Introduction

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The second decade of the new century is coming to an end; the public as well as academic discourse on the future of sub-Saharan Africa is dominated by topics such as climate change, population growth, and global neoliberalism. Not surprisingly then, this book is also related, in the larger sense at least, to these debates: in the coming chapters I will look at the wetland-malaria nexus in central Uganda and its significance in the context of the future prospects of the continent, especially with regard to pressing issues of global warming, population pressure, and foreign investments. Climate change is likely to change the use of wetlands as well as the distribution of malaria. So is the rapid population growth in East Africa, as well as the global interest in the continent's arable land.

Malaria and wetlands are linked by water: the characteristic element of wetlands provides the biotope in which mosquito larvae thrive. In the wake of global climatic change, temperatures in the tropics are expected to rise, while the seasonal rainfall patterns are becoming increasingly unpredictable. The rising temperatures allow for malaria parasites to survive in higher altitudes, while the irregular rainfall makes farmers dependent on the water resources of Africa's wetlands. Moreover, the rapidly growing population of East Africa needs to be fed and the farmers' demand for arable land is growing. Wetlands prove to be a promising resource in that regard as they are largely idle, full of water, and in extensive areas still unclaimed. Lastly, these aspects make them attractive to agricultural investors from Europe, America and China, all rushing for the world's last agricultural frontier: only in Africa do we still find large chunks of watered, fertile land, seemingly unused and waiting to be exploited. The dynamics that this rush unleashes have far-reaching consequences, social as well as political, environmental, and of course economical.

## **Relevance of the study and literature**

The empirical study that forms the foundation of this book developed in the context of a larger, multidisciplinary research project, funded by the German ministry for education and research (BMBF), that was designed with the above-outlined debates in mind. The research project titled "GlobE – Wetlands in East Africa: Reconciling future food production with environmental protection", was based on the question how the current dynamics in sub-Saharan Africa will impact the future food security in East Africa. The project should scrutinize the agricultural production potential of wetlands in East Africa, research the environmental and health-related risks of wetland agriculture, and eventually formulate advice for the development of policies for the regulation of wetland use in the respective research countries. Within the context of this project I had the chance to design my own research on the links between wetland agriculture and malaria at the urban fringe in Uganda.

Malaria is a rather obvious health risk of wetland agriculture. As mentioned before, wetlands and malaria are linked by water. And while there are doubtlessly other important water-related and water-borne diseases that are an issue in the realm of wetland agriculture, malaria is arguably the most important one (cp. Malan et al. 2009: 754-760). No other water-related disease kills more people worldwide, and no other water-related disease is pandemic in much of the tropical world.

Malaria is an old disease and much has been said about it. Long before the first written accounts of the sickness, people would have talked about the disease,

and over the course of the centuries medical experts all over the world have experimented with methods to heal sufferers of the intermitted bouts of fevers and chills. With that in mind, one might ask why in 2018 it is still relevant to write yet another book about malaria. The easy answer would be that in this time of rocket science and self-driving cars it is baffling that malaria is still one of the main causes of morbidity and mortality across Africa. As long as there are people suffering from malaria there will be a need to find solutions to the malaria problem – and thus to further the scientific understanding of the disease by investigating and writing about it.

But there is more. Malaria is an ambiguous disease, ancient and well researched yet at the same time remaining mysterious and unknown. Our understanding of what we know today as “malaria” is subject to both space and time, continuously changing, evolving, adapting, and becoming more refined. Whereas in postwar Europe and America people have largely forgotten about malaria and today remain with but a vague idea of what malaria is, the disease is part of everyday life in the tropics. In that regard it makes sense that malaria keeps inspiring scholars, authors and researchers to contribute to the documentation of the ever-changing image of malaria, and to document the contemporary articulations of malaria in an increasingly globalized world.

While in the west the notion of malaria as an exotic “killer-disease”, fed by the devastating numbers of children dying each year of malaria in rural Africa, persists and fuels the fears of exotic parasites from the far-away tropics, malaria wears a different mask in the so-called “global South”, where it is often an everyday nuisance to the local populations. Before beginning this research my own image of malaria was also rather one-sided, dominated by the biomedical understanding of the disease and biased by the alarming figures represented in the popular media, by my ideas of tropical medicine, and by the deceptive, superficial knowledge of my friends and acquaintances who had travelled to the tropics before me. Ironically, learning how malaria shapes the lives of people who are exposed to the disease on a daily basis and how the disease is dealt with as an everyday threat, many of my informants learned how malaria is non-existent in the lives of most Europeans. Many must have wondered why a German, never having been exposed to malaria himself, travels all the way to Uganda to find out about a disease that does not exist in his home country. In a way then, studying and writing about malaria is part of understanding the “global South” and deconstructing the category from a medical perspective. After all, malaria is not only part of what we categorize today as the “global South”, but it shares a common history in that it was constructed as a tropical disease by use of the same mechanisms by which the “West” was distinguished from the so-called “developing world”.

Apart from the humanitarian and health-related angles, there then is a political relevance to the malaria topic. In an increasingly interconnected yet unequal

world it is almost imperative to address the different lifeworlds, realities and also inequalities that coexist in this shared world. Writing about malaria – moreover from an anthropological perspective, with a qualitative methodological approach and room for detailed, individual accounts of localized viewpoints – has therefore also to be understood as an attempt to make sense of an increasingly irrational and seemingly contradictory world. This book, although clearly written from the perspective of a biomedically informed view on malaria and with the hope in mind to contribute to the struggle against the disease and its deadly toll, is first and foremost an attempt to understand global inequalities and their manifestations in the form of malaria, by virtue of the example of central Uganda.

### **The need for an ecological context**

Being a mosquito-borne disease, malaria evokes questions about the relations between humans and mosquitoes, which inevitably touches upon ecologies as well. In the natural sciences the importance of the ecology of a place has long been recognized and noted. Devastating malaria epidemics were linked to large-scale environmental projects, like the building of dams or canals, agricultural production schemes, deforestation, or draining programs (cp. for example Harrison 1978; Lewis 1937). Eventually, the appreciation of the connection between humans, mosquitoes, and parasites and their respective habitats led to attempts to eradicate the disease by controlling the mosquito vector and its breeding grounds. In the social sciences, however, malaria only became a topic of research towards the end of the last century, when mainly (medical) anthropologists pointed out the social dimension of health and disease in general and malaria in particular (cp. Packard/Brown: 1997: 187).

Disease ecology, or what Alex Nading prefers to call the “entanglement [...] of microbes, vectors, human hosts and landscapes” (Nading 2013: 64), particularly with regard to malaria, is only recently becoming a topic of anthropological enquiry (ibid: 63-68; cp. Chandler/Beisel 2017: 416; King 2010: 42-46; Townsend 2011: 182-183). However, with the rise of global health as a distinct degree program taught at universities across the globe, and in the wake of internationally agreed-upon health goals, such as the health-related Millennium Development Goals, medical anthropologists increasingly criticize the lack of regard for the highly localized factors of disease exposure and health risks. In their critique of the global health approach to related problems, Neely and Nading point out the need to integrate the concept of place into the analysis and understanding of disease, suffering, and healing, and ultimately also health interventions (Neely/Nading 2017: 61-62). In their view it is essential to appreciate the place-based determinants of health such as location, gender, ethnicity, and class (ibid: 57), and to carve out “how people

in places address health problems, produce knowledge about them, and regulate them in ongoing, interactive engagement with their environments [...]” (ibid: 58). The call for a political ecology approach to health is then partly also rooted in the disregard for the local contexts of disease distribution in an internationalized, donor-dependent health landscape.

While the global malaria pandemic is doubtlessly shaped by a range of factors that apply to the whole of Africa, there is a lack of regard for the localized, place-based factors that shape the pandemic in different locations. So far it has mainly been historians who have written about the ecological and political factors of malaria (cp. for example Chakrabarti 2014; McCann 2014; Packard 2007; Webb 2009). Comparable approaches from within the social sciences are rather few.

However, whereas I argue that anthropology has so far only dealt marginally with malaria’s disease ecology, there are of course a number of excellent, recent publications within the field of medical anthropology that are revealing the social, and political dimensions of the disease. For example, Caroline Meier zu Biesen shows how the use of the medicinal plant *Artemisia annua* in Tanzania must be understood against the backdrop of global market dynamics and power structures (Meier zu Biesen 2013). Vinay Kamat reveals how social dynamics articulate themselves in the responses of single mothers to malaria in their children in Dar es Salaam (Kamat 2013). René Umlauf has pointed out how the introduction of rapid diagnostic tests and the associated regulations with regard to treatment have changed the way in which patients in Uganda deal with the disease (Umlauf 2017a). Furthermore, Susanna Hausmann Muela has extensively published on malaria in Tanzania’s Kilombero floodplain, and looked at local conceptualizations of malaria and the associated symptoms, the search for treatment, as well as the gender-related articulations of the management of the illness (Hausmann Muela/Muela Ribera/Tanner 1998; Hausmann Muela 2000; Hausmann Muela et al. 2012; Muela Ribera/Hausmann Muela 2011). Also working in Tanzania, Stacey Langwick has discussed the medical pluralism with regard to malaria and the different conceptualizations of the disease (Langwick 2007). Annika Launiala and Marja-Liisa Honkasalo have worked on risk perceptions of malaria in rural Malawi (Launiala/Honkasalo 2010), and Uli Beisel shows how the production and distribution of mosquito nets as a technical response to growing insecticide resistance of mosquitoes disregards the importance of ecological contexts and undermines local economies (Beisel 2015).

## Research questions

With my own research on malaria, I intend to understand the malaria pandemic in Uganda from the perspective of the changing wetland ecology and the underlying dynamics, both social and political. Apart from showing how malaria is made sense of locally, how people in central Uganda deal with the disease, and how they perceive the associated risks, I will point out that it is crucial to also consider the local social and political, as well as ecological context of the disease. In central Uganda the rapid urban expansion and the local tenure system provide the backdrop to my analysis of the malaria epidemic.

It should be mentioned at this point that my own perspective on malaria is very much informed by the biomedical conceptualization of the disease. I certainly learned much about malaria over the course of the research endeavor, including its implications on everyday life, and my engagement with the topic helped to deconstruct my previously simplified and in parts problematic perception of the disease – clearly the perspective of an outsider who has not had many encounters with the disease himself. While my image of malaria has thus changed somewhat, from that of a tropical killer-disease to a more nuanced picture of a curable disease that is subject to a multitude of political, social, economic, ecological and other factors, I nonetheless regard the biomedical conceptualization of the disease, including the medical science that it is based on, as essential to the analysis of the malaria problem. In order to be successful, the struggle against the malaria epidemic will doubtlessly have to address the findings from social scientists, geographers, historians, and political scientists as well as the insights of local experts and stakeholders. However, at the core there must be a biomedical concept of the disease, its treatment, and its prevention.

Medical anthropology, as one of the most important sub-disciplines within anthropology, has since the 1980s increasingly emancipated itself from biomedicine and started to critically assess biomedical practices, the related body-politics and the medicalization of numerous domains of public life (cp. Baer/Singer 2009; Singer 2004).<sup>1</sup> Moreover, an important strand within the sub-discipline has looked at health as the outcome of global political processes, critically reviewing international incentives to target health-related problems and their associated campaigns (cp. Lock/Nichter 2002). Furthermore, medical anthropologists have since long demonstrated that health and healing are embedded in pluralistic and syncretic models of medicine (cp. Baer 2011). In that regard, this text certainly is to be located within the stream of the critical medical anthropology of this time, as I review the malaria pandemic in Uganda and its larger social, political and

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<sup>1</sup> The most prominent examples would be the medicalization of pregnancy and childbirth, as well as ageing and mental wellbeing.

ecological context, and show how the local response to malaria is embedded in a pluralistic and syncretic model of health, healing and medicine.

The questions that guided this research were aimed at investigating the local perception of malaria and the ways in which the disease is dealt with among smallholder farmers who make use of wetlands in central Uganda. Furthermore, in order to understand the problem of malaria in the local ecological, political and social context, I included questions about the drivers and constraints of wetland agriculture, treatment-seeking, and the healthcare system. In order to complement the picture of malaria, and because the disease was relatively new to me, I included the perspectives of the local medical practitioners, from both biomedical and other backgrounds.

The core questions of the research were as follows:

1. How is malaria perceived and dealt with among wetland users in Uganda?
2. What different kinds of healthcare are available in central Uganda to treat malaria?
3. How is the use of wetlands for economic production linked to the occurrence of malaria in Kampala's urban fringe?
4. What are the drivers of and constraints on the utilization of wetlands for economic production?

The first question serves to generally document the views and understandings of malaria among wetland users in Kampala's urban fringe and contrast them to the biomedical conceptualization of the disease. This includes the connected ideas for preventive measures and treatment, as well as the ways in which they are accessed and used. The second research question aims at outlining the different forms of healthcare available in Uganda, as well as the according institutions, infrastructures, and expertise. This includes biomedical as well as other, alternative forms of medical knowledge. With the third research question I intend to shed light on the links between wetland agriculture, mining, and other activities in wetland areas, and malaria. Here, I am interested in the views of wetland users, and the perspectives of other natural scientists, as well as the observable traits. Moreover, I intend to understand wetlands not solely as mosquito habitats but also as sources of economic capital that enable people to access malaria treatment and prevent an infection. The third of the four main research questions also asks about the significance of wetlands as sites of economic production and, more specifically, about the push and pull factors that underlie the increasing use of wetlands in Kampala's urban fringe. The related sub-questions serve to identify social and political forces that characterize the utilization of wetlands. Lastly I am interested in identifying the hindrances and limitations facing wetland production, especially

with regard to malaria, but also in more general terms, looking at implications of wetland transformations in the longer term.

## **Outline of the book**

This book is structured into eight chapters, including the introduction and conclusion. While I present the general topic of malaria in Africa and its relevance in the introduction, the first chapter also serves to point out the need for a social science and political ecology perspective on the disease that is sensitive to place and its articulations. Furthermore, I outline the general interest of my study and the central research questions that guided the research.

In the second chapter I will go deeper into the malaria topic, briefly discussing the biomedical history of malaria research as well as the scientific findings with regard to etiology, treatment, and disease prevention. Furthermore, I illustrate how malaria has, through large-scale interventions and ecological changes, been shaped into a tropical disease, with its epidemiological epicenter in sub-Saharan Africa. Moreover, I will contrast the biomedical understanding of malaria with the local, syncretic model of the disease and its treatment.

In the third chapter I present my methodological approach and discuss the ethical implications of doing research on malaria in central Uganda. Most importantly, I address the issue of working with an assistant and interpreter, and critically assess its epistemological repercussions and consequences for the research process. Moreover, I claim that the issue of the language proficiency of anthropologists in their respective research settings needs to receive more attention within the discipline and at the academy, especially with regard to its methodological implications and the ethical issues that come along with cooperating with an assistant.

With the fourth chapter I turn to the empirical material of my research. Here I will introduce the setting of my research, specifically looking at it as a peri-urban space that has to be understood in the context of the nearby city. The chapter also presents the anthropological field as a place that is constituted of social interactions and shifting positionalities. Moreover, I look at the highly specific tenure regime in the area and connect the locale to its colonial past. This perspective provides the background for the ecological transformations of wetland-systems that are currently ongoing, as I argue that the current dynamics with regard to shifts in land ownership drive smallholders into wetlands, seeking agricultural land.

In chapter five I discuss the available treatment for malaria and the ways it can be accessed. The availability of malaria treatment is subject to a range of social structures, most importantly class, gender, and political regulations. Moreover, I argue that the search for malaria treatment is by no means a straightforward

endeavor, but is shaped by a multitude of factors, individual decisions and evaluations. Some of the devastating consequences of malaria in central Uganda are rooted in the common strategies people there employ to cope with health constraints: delay of treatment-seeking, self-diagnosis, and a trial-and-error approach to healthcare.

Chapter six builds on the observation that the access to healthcare is constrained by a range of factors. Here I take a closer look at individual case studies to highlight the way in which malaria is dealt with and how it is perceived. Moreover, I look at specific factors that determine the possible options to access healthcare and the evaluation thereof, particularly looking at class and gender. As I will show, access to malaria treatment is also closely linked to ideas about the disease, its etiology, and medicine in general.

The last ethnographic chapter, chapter seven, presents the links between malaria and the various uses of wetlands, especially agriculture, in central Uganda. By means of selected case studies I evaluate the motivations of smallholders to move into wetlands in order to make them economically productive. Moreover, I critically assess the ecological impacts of wetland utilization, especially with regard to the creation of mosquito habitats, and complement that view with the risk perceptions of local wetland users.

In the conclusion I finally tie the findings together and relate them to the broader debate on malaria, locally as well as on a global scale. After returning to the research questions raised in this introduction, I will look at the value of the findings for the current efforts to fight the disease. Furthermore, I highlight the importance of the regard for context and the need for qualitative, place-based research.