Community-based rodent management in African cities

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Background

The current health crisis has put the spotlight back on the need to consider integrated and sustainable approaches to prevent future zoonotic emergences, rather than focusing solely on a response to an epidemic. For this to happen, it is more important than ever to recognise that human health and well-being are intimately linked to the state of biodiversity and the environment ("One Health, Eco Health" approaches). Rodents are a prime example of these complex interactions between health for all, the fight against hunger, sustainable communities and cities, and biodiversity protection. However, our knowledge of methods to reduce the socioeconomic and health impacts of urban rodents is surprisingly incomplete, often leaving people already weakened by chronic poverty and a degraded environment to fend for themselves.

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Further reading
https://www.ird.fr/attenuation-communautaire-de-defis-lies-aux-rongeurs-en-milieu-urbain-africain

Ladji, one of the intervention sites of the SCARIA project in Cotonou, Benin.

Environmental control of rodent pests

Chemical rodenticides cause both environmental (poisoning of humans and non-target species, for example) and efficacy (increasing resistance) challenges. Ecologically-Based Rodent Management (EBRM) is a sustainable alternative to chemical rodenticides that used a preventive approach: it involves adapting the environment in such a way as to make it unsuitable for rodents to gain a foothold and proliferate. This type of approach is based on sound knowledge of the diversity and ecology of the targeted pests, and requires a good understanding of the extent to which the stakeholders affected by the pests and the associated economic implications are involved. EBRM tends to be community-based, involving the people directly in need. Since the 1990s, EBRM has been tested, developed and evaluated in various rural contexts, most notably in Asia where it now provides practical solutions tailored to local needs. Similar programmes have since been launched in various continental African countries and in Madagascar (for example, the Green Rodent

Control network, run by IRD researchers and their partners). However, attempts to apply EBRM to urban socio-ecosystems are almost non-existent, especially in Africa.

The challenge of rodent management in urban areas

The world is currently experiencing an acceleration of urbanisation, particularly in Asia and Africa, where the pace of urban expansion and/or densification is sometimes so fast that it does not always leave sufficient time for appropriate urban planning. This can result in large, densely populated areas, characterised by substandard housing and a lack of basic services, such as access to drinking water, medical care, education and waste management. These areas suffer from extremely degraded socio-environmental conditions, providing shelter (cluttered and poorly sealed homes, low predation pressure) and food (accessibility of foodstuffs stored in homes, abundant uncontrolled dumping grounds) for the rodents that thrive there. Surveys conducted in Ethiopia, Benin and Niger confirm that significant damage to housing and food stocks is widely reported by slum dwellers. Furthermore, health ecology research shows that rodents in these areas contribute significantly to the risk of infection by being the source of many zoonotic pathogens, some of which have high epidemic potential (for example, hantavirus, Lassa virus, leptospirosis, plague bacilli, typhus agents, etc.). Controlling them is therefore a major economic, food and health issue.

SCARIA, a pilot EBRM project in African cities

The SCARIA project (whose full title is Towards Sustainable Community-Based Mitigation of Rodent Issues in African Cities), funded by the Belmont Forum Pathways to Sustainability programme, aims to tackle the challenge of mitigating rodent impacts in African cities. It is based on identifying and preparing EBRM strategies adapted to the different socio-cultural contexts of four urban sites: Ankasina in Antananarivo (Madagascar), Gamkalley in Niamey (Niger), Hdassie in Mekellé (Ethiopia) and Ladji in Cotonou (Benin). Its first goal is to set up multi-stakeholder working groups bringing together academics, representatives of operational services (such as plant protection services and health services), development organisations (such as humanitarian companies) and communities (such as traditional and religious authorities, community liaisons, non-profit organisations and NGOs). Their combined knowledge and expertise will be used to design EBRM actions that are adapted to local economic and cultural realities. SCARIA's second goal is to define socio-economic, ecological and epidemiological indicators through surveys and field monitoring. These indicators will provide both a baseline of the situation at the start of intervention and valuable tools to assess the effectiveness and sustainable ownership of EBRM by the local people themselves.

Looking beyond the SCARIA project

The SCARIA project deliverables, focused on co-constructing community-based EBRM strategies and defining socio-economic and biomedical indicators, will form the basis for the practical implementation and assessment of EBRM at the four study sites during a second implementation phase (as planned by the Pathways to Sustainability Collaborative Research Action). The feedback gathered from the SCARIA project will also help identify the obstacles and levers and shed light on the commonalities and divergences observed during the EBRM co-construction processes in Benin, Ethiopia, Madagascar and Niger. These results will provide valuable information for the hoped for scaling up of community-based rodent control in deprived urban areas in the Global South.

KEY POINTS

Commensal and peri-commensal rodents are a major obstacle to the economic stability, food security and health of the poorest populations, especially in deprived urban areas where they thrive. Ecologically-Based Rodent Management (EBRM) is a sustainable alternative to the widespread use of rodenticides, but it has rarely been tested and evaluated in cities. The SCARIA project is mainly based on dialogue between disciplines, on the one hand, and on the other, academic, operational and community stakeholders. It aims to implement management strategies in pilot sites in four African cities (Antananarivo, Cotonou, Mekellé and Niamey). It is therefore perfectly suited to a sustainability science approach.

SUSTAINABILITY SCIENCE

UNDERSTAND, CO-CONSTRUCT, TRANSFORM

Collective thinking coordinated
by Olivier Dangles and Claire Fréour

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