

Panel F40: Citizen Science and Environmental Monitoring [initiated by Wageningen University and Science Technology and Innovation Studies RUFORUM, African Centre for Technology Studies].

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ABSTRACT SUMMARIES

	Abstract title	Authors	Research focus
1	Towards a platform for sharing tick knowledge and practices: insights from Laikipia	Faith Mutavi; Aarts Noelle; Van Passen Annemarie; Ignas Heitkönig; Barbara Wieland	Understanding stakeholders information and knowledge needs and sources relevant for designing knowledge sharing platforms on ticks and tick borne diseases
2	Using public bad games as interdisciplinary research method to learn about decision making about infectious crop diseases: Experiences with a game for Rwandan banana farmers	Mariette McCampbell; Julissa Galarza Villamar	A public bad game approach on farmers decision making process in their banana wilt management efforts in Uganda
3	Citizen science, an alternative approach to strengthen malaria vector surveillance in Rwanda?	Marilyn Milumbu Murindahabi; Arash Hoseni; Arnold Van Vliet; Jackie Umupfasoni; Leon Mutesa; Sander Koenraadt	Lessons from a citizen science approach on mosquito monitoring system in Rwanda

Key points from panel presentation

1) Milumbu Marilyn MURINDAHABI

“Citizen science is an alternative approach to provide mosquito surveillance.”

Q and A

Q (Koenraadt Sander): Mosquito-borne viruses worldwide and the emergence of these diseases in Africa – How could we connect to the WHO stakeholder to make your kind of evidence available to create more awareness?

A: Policy debrief – invite different stakeholders, founders in workshops; organise in-country workshops to present research results and also to inform authorities about other available approaches to mosquito-monitoring.

Q (Heitkonig Ignas): What do you need to practically get such workshops? When?

A: Organise online workshops involving different institutions. Soonest. Will develop the workshop programme (Monday 15-02-2021) with a colleague and start thinking of inviting different stakeholders.

Q: What did you learn in your approach that you couldn't have learnt through any other?

A: First time relying on non-scientists and believing in community contribution to research. I tried to understand the community's context and tailor solutions to meet their needs.

“Science should be there for the society” (Marilyhn MILUMBU)

Comment (Munthali Nyamwaya): Nice to broaden and how research can be used to understand and apply within the context of Covid-19.

2) MC. Campbell Mariette: Using Public Bad Games

- Public bads: Collective actions of banana in Rwanda
- Insect factor: Monitor representing the government.
- The Musa game: Combined with a pre-game of farmers.

Different inputs and outputs in the banana system

- Different variables
- Different decisions

Independent variables: Risk communication and different perceptions.

Control variables: farmers, insect factor, monitor.

Physical game design: Four player-board game

Findings

- Emergence and spatiality.
- Interactions between the entities and the game: Most of the players used non-cooperative strategy, which is harmful for the success of farmers.
- Collective strategy: High observance by the government and observers in the field. Farmers related it to their personal experience.
- Farmers have the right to communicative strategy due to created trust.
- Game is a source of knowledge.

Q and A

Q (Leeuwis Cees): You did not compare the four communicative treatments. Which one is the most effective?

A: Communication – re-strategize responsive communication.

Q (Assefa Elias): Given the communication opportunity, how do you relate it with a broader debate of monitoring processes?

A: Fear for the monitor – government agent(s), which negatively affect people's willingness to go for collective strategy and rather choose the individual one.

Q: What do you think about the gender and social backgrounds of farmers? Does it affect communication?

A: We included all kinds of farmers but our (field) work was nipped in the bud by Covid-19. However, we could have found interesting things if we observed patterns.

Q: What are the practical implications of these findings?

A: This very much focused on individual farmers. We need collective communication to strategize with one another. There is need for getting together and strategizing together.

3) Faith Mutavi, Noelle Aarts, Ignas Heitkonig: Knowledge that Farmers Use

- Motivation: Report from previous studies.
- Historical development of tick control knowledge:
 - Precolonial era up to 1895: Africans used their traditional knowledge (space, environment, movement).
 - Colonial era (1896 – 1963): Introduction of chemical products and veterinary science.
 - Post-independence (1964 – 1991): Marked development of technical knowledge and the training of many people and also introduction of new production.
 - Post 1991: Major policy change that privatised animal care.
- Declining trust in Agroveter
- Veterinarians no longer trusted. Trust shifted to friends.
- Neglect of technical knowledge and reliance on experiential knowledge.
- Need to encourage interaction of stakeholders and their connection.
- Important to connect stakeholders through different knowledge (sharing) platforms.
- Policy: establish the status of tick resistance – zone out areas.

- Need for more active involvement of different stakeholders (government and private sectors).

Q and A

Q (Ignas): About the future – increasing vulnerability, post-truth information ... “trust is perhaps relative...” Is there a possibility through social media in which post-truth information can be established?

A: Lack of trust comes from:

- Nature of attendants: untrained personnel in animal healthcare.
- Individual learning to do and get results: lack of technical knowledge – dangerous processes.
- Preference to turn to friends.
- Source of misinformation: higher concentration of products, motivated by results but not inspired by the correct information.

Q (Ton Dietz): In the 80s and 90s I worked a lot with farmers and experienced farmer information as well as declining trust. Looking at the way public and private sectors work, is there still lack of connectivity between truth and heresy?

A: I did not evaluate that but worked with the Agroviet. I found trained workers who understood the technical classification and were confident. Another group lacked this technical knowledge. Therefore, the trained workers are confident whereas untrained workers account for the mistrust.

Q (Yves van Leynseele): Informal knowledge systems: have you tried to study how those farmer-to-farmer learning exchange knowledge?

A: What do they know? Where do they know it from? How do they interact or not? I discovered interactions between farmers and ranchers but experts did not interact.

“Information is within groups not across groups”, that is, farmers between farmers; ranchers between ranchers. What has worked is what they share and this accounts for the (in)effectiveness.”

Part Two

EVOCA Synthesis

- Much has to do with livelihoods, information-sharing, risk-management.

Use of Social-ecological Systems/Frameworks

- Livelihoods is one based on the intervention of humans.

Social, Economic and Political Setting(s)

- Climate case – crop protection and communication.
- Social dilemmas and coping capacities. Examples: the framework was applied to malaria, tick-borne diseases, banana xanthomonas Wilt (BXW) and results proved that it can be applied to other projects.
- Connective Actions: risk governance-direct users-livelihood assets (LA)-agricultural livelihood systems (ALS).

Q and A

Q: How connected is monitoring and citizens time?

A: There is the risk of not monitoring. Inaccurate information to ask when monitoring. Connective action is a whole interaction and intervention.

Q: In Panel 10, there was an introduction of “One Health” WHO programme of connecting human-plant-animal. What attempts are there for EVOCA to connect in different circumstances?

A: We look at citizen science as a way to improve connectivity, which can contribute to collective action.

Q: You are looking at two variables: information communication and monitoring systems. How is a connective action different from collective action?

A: Citizen science is one of the means through which connectivity can be improved but we also bring in other strategies through which people can be connected together. Citizen science and information exchange should contribute to connections.

Some takeaways from the break-up session – Excel Sheet Information management

The presenter tried to explain what was the intervention and the essence of filling the excel table

- The first thought was to use ICT but in rural baseline, there was low use of mobile phones.

- Researcher wanted to involve community members in different data collection.
- The paper-based forms provided by the researcher were completed monthly throughout the year.

Why the project

- Different perspectives: Researcher was interested in the motivation of the volunteers and what impacts this had and how various concepts could be included in the research.

NB: Part of the workshop focused on the Vector System – Testing the tool with a panel of experts and cross-evaluation of projects. Some of the questions of the practical session were:

- How do (different forms, mechanics, “hardware”) stakeholders connectivity hinder or facilitate collective-action problems solving in complex systems (SES) in the context of each EVOCA case?
- How are these learnt lessons useful for others? Practitioners? Project Managers? Policymakers? Others?

Key points from case-by-case discussion after workshop session.

- i) Malaria case (Excel sheet)
 - Socio-ecological livelihood system:
 - ❖ Same operationalisation although some results differ.
 - ❖ It was operationalised that malaria is a public health problem.
 - ❖ Livelihood: citizens report information.
 - ❖ Asset focus: public health.
 - ❖ Target in rural community in Rwanda: citizens
 - Vulnerability: Capacity, government and other institutions.
 - ❖ Government is the main player to provide healthcare facilities.
 - ❖ Community.
 - ❖ Mosquitoes.
 - Risk-governing systems
 - ❖ Mosquitoes.
 - ❖ Monitoring.
 - ❖ Surveillance.

Question: Can this framework fit into other components?

- ii) Potato Case

- Social, ecological framework can be applied to this case.
Considered two cases and two diseases in general terms.
 - ❖ Social and ecological livelihood perspective – rain-fed categorised in three seasons.
 - ❖ Blight: more serious during heavy rains.
- Potato production is a livelihood unit.
- Collective livelihood of citizens is a livelihood asset.
- Public-private context: lack of monitoring systems.
- Vulnerability: late blight is weather-dependent but bacterial wilt is not seasonal.
- Hazard: the two diseases are considered as a hazard.
- Risk-governance system: lack of knowledge and interdependency among farmers is a challenge.
- Collective-action problem: lack of seed quality control, improper management of the diseases.

iii) Tick-Borne Disease

- Public bad risk context requires rethinking.
- Farmers need more knowledge.
- Need for collaborative effort e.g. in spraying.
- Vulnerability
 - ❖ Farmers need to be aware and collaborate.
 - ❖ Farmers need appropriate and timely knowledge.
 - ❖ Need to collaborate in knowledge exchange and dissemination of information.
- Threats
 - ❖ Lack of appropriate information.
 - ❖ Not spraying at the same time.
 - ❖ Lack of interaction between stakeholders.
- Risk-governance system – what is happening?
 - ❖ Extension systems.
 - ❖ Pest monitoring systems need to be improved.
 - ❖ Intervention: face-to-face, ICT, social media, farmer-group etc engage in knowledge exchange in the field; knowledge integration and deeper discussion, etc.

Link between agriculture and livestock (Mutavi Faith)

- Inadequate feed
- One-health approach is inadequate.
- Lack of water/pollution of water bodies.
- Over doze: farmers incur expenses for product purchase.

Vulnerability

- Livestock as public good
- Cattle pick up ticks on grazing grounds and increases the risk of acceleration of risk-resistance (development) substance method.
- No recognition of resistance development.
- Motivations to act are different.
- Different financial capabilities of the groups affect response.
- Lack of trust and motivation.
- Need to think of who to involve, what are they monitoring and when?

Q and A

Q (Leeuwis Cees): Good framework! Should questions be answered broadly or in the context of the study?

A: A more practical approach id to treat at case study level.

As there was no other business, the panel adjourned at 3:30pm.