

ANTIMICROBIAL RESISTANCE (AMR) SESSION

This is a report of the session on cross-pollinating agro-eco-human health perspectives to reduce antimicrobial resistance (AMR) threats that took place on 6th October 2016 in Brussels, in the framework of the European OneHealth/EcoHealth workshop organised by the Belgian Community of Practice Biodiversity & Health which is facilitated by the Belgian Biodiversity Platform



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INTRODUCTION

The session focused on the global threat of antimicrobial resistance (AMR) which poses an important challenge for human, animal and environmental health experts and practitioners to overcome disciplinary silos and quicken understanding and action towards a *One Health/ Eco Health* approach and practice. The session aimed at having a dialogue about current scientific understanding on AMR, antibiotic resistance (ABR) and experience from practice in fighting

antibiotic resistance. In the morning session, three presenters reflected on how the human, animal, environmental streams of information on AMR-ABR were brought together in a practical way, thus presenting a systems perspective. The afternoon session deepened presenters' and participants' experiences to identify pitfalls and potentials for collaboration for a *One Health / Eco Health* approach and practice.

PRESENTATIONS AND DISCUSSIONS

As an introduction, the *'Green antibiotics'* short film was shown featuring how farmers and veterinarians from India and the Netherlands join forces in the reduction of antibiotics in dairy farming by using medicinal plants instead of antibiotics. Subsequently, Dr. Katrien van 't Hooft (*Dutch Farm Experience/Natural Livestock Farming*) presented the international collaboration between the Netherlands, India and Africa on ABR and the need to phase out antibiotic use in agriculture by improving animal husbandry from a natural perspective. Using an innovative approach, knowledge systems and practical field experiences from these countries reinforce each other.

[Prof. Serge Morand](#) (*University of Montpellier & CIRAD*) presented AMR and environmental management within a *EcoHealth* perspective. He stated the need for the integration of biodiversity features into human health

for more resilient socio-ecosystems.

Dr. Jean-Charles Cavitte (*EU DG Agriculture*) gave a short introduction about the work in the EU on AMR, highlighting different initiatives and research programmes in the last years. Examples mentioned were: *vet Antimicrobial resistance; Food chain and AMR; Alternative systems and organic farming; Reduce antimicrobial use to move towards sustainability and resilience. Welfare of animals; zoonosis and emerging threats including AMR, Breeding for robustness.* The need to build evidence was stressed.

Then, a cross-sectorial diagram highlighting the complexity of stakeholders' interactions in the framework of *OneHealth* AMR management was presented and discussed among participants.

CONCLUSIONS



Wim Hiemstra presenting session conclusions to the plenary

Reducing anti-microbial resistance is a key challenge and definitely calls for *(as was shown in presentations)* interdisciplinary research and collaboration. Some specific issues include:

- Obstacles analysis show issues in the lack of data quality, in education and in the policy field: *"We are actually all policy makers as it is a shared responsibility"*.
- Process analysis shows that resilience means different things to different stakeholders and different fields.
- Data mining and setting up open platforms and networking is needed for data sharing.
- More research is needed on economy and ecology. The economic dimension must be taken into account to propose improved

management, as well as health ecology.

- Practice-proven alternatives to reduce antimicrobial resistance developed by (*traditional knowledge holders in*) farming communities need recognition and support. These practice-proven alternatives need support and have to be brought into the realm of Western scientific dialogue for better understanding of efficacy and evidence building. For example, ethnoveterinary practices based on centuries old knowledge systems such as *Ayurveda* in India and other traditional knowledge systems around the world need to be documented and assessed before they are lost. In India, *Transdisciplinary University* (TDU) and *Tamil Nadu Veterinary Science University* (TANUVAS) are leading this assessment and validation process. Hundreds of veterinarians have been trained in these herbal medicines alongside supported by three main milk unions in southern India, thus reaching a vast group of small dairy farmers.

The participants also suggested some priority actions to be conducted in order to better manage AMR in a *OneHealth* approach:

- Setting up research programmes in order to conduct in-depth stakeholders analysis (*as the interactions diagram showed, stakeholders are very diverse and do not fit in “generic boxes” but need in-depth analysis of the specific stakes at play, their practices and social networking*).
- Support participatory learning, research and innovation, including private sector partners, in the dairy sector that combines farm level improvement (*animal management, strategic use of local breeds, use of medicinal plants*) with milk quality control systems and extra payment for residue-free milk to enable farmers make the transition to natural livestock farming.
- Identifying and documenting processes at play: resistance, mutation, immunity, resilience, trade, communication, education, knowledge sharing, regulation.
- Strengthening environmental dimension in AMR management: better understand socio-



Aurélie Binot facilitating group work

- ecosystem's dynamics, ecological functions and services involved in the regulation of resistance.
- Strengthening the economic dimension: better understand actors' practices and socio-economics rationales.
- Improving data collection, management and sharing to increase interoperability.
- Improving communication and networking.
- Strengthening networking (*policy science interface, universities alumni, OneHealth students networks, networking between researchers, decision makers and civil society to better address societal demand*).

Videos and presentations accessible at:
<http://www.biodiversity.be/health/58>