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International animal health policy & *One World, One Health™*: Current incompatibilities & potential solutions

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Background



- OWOH increasingly espoused as a holistic approach to ensuring the health of people and the environment (Utopia!)
 - ⇒ as incontrovertible as mothers' milk
 - ⇒ but, how amenable are present approaches to management of high impact TADs to inclusion in this 'movement'?
 - ⇒ answer – very poorly (especially in context of TFCAs)
 - ⇒ why is that?
 - ⇒ what can we do about it?
- Questions are the subject of this paper

The fundamental conundrum: Conflict between bio-diversity conservation & management of high impact animal diseases



- Bio-diversity conservation (TFCA movement particularly) is founded on the need for 'connectedness' between biota
- Conversely, management of high impact animal diseases is based on strict separation of populations of different health status (particularly for directly transmitted. i.e. contagious, infections)

The conundrum (cont.)



- Partitioning of animal populations is also at variance with the movement towards regional political & economic integration (e.g. establishment of the SADC-COMESA-EAC free-trade area)
 - how will free trade in animals & animal products be achieved in this FTA?
- Present international & regional animal health policy has evolved uniquely
- History explains a lot ...

Historical perspective



- OIE (World Organisation for Animal Health) established 1924 to ensure rinderpest eradication from Europe ⇒ logical consequence: requirement for geographic freedom from rinderpest (subsequently all important TADs) as precondition for safe trade, irrespective of commodity/product
 - approach adopted before advent of WTO/SPS Agreement & concept of 'appropriate level of protection' (ALOP) & principle of 'equivalence'
- So risk management of trade in animal commodities/products based on geographic distribution of infectious agents ⇒ established in the psyche of regulatory authorities ⇒ general public

International perspective



- For a geographic approach to management of risk we need to know, firstly, the distribution of the infectious agents concerned
- This is increasingly not so: Current examples –
 - multiple serotypes of bluetongue virus appearing suddenly in northern Europe from 2006
 - rapid spread of PPR in Africa & Asia from 2007
 - highly pathogenic form of PRRS appeared in south-east Asia in 2006/7 (25% mortality; affected 2 million pigs in China, Vietnam & Myanmar)

International perspective (cont.)



- If zoonotic infections included in this list, uncertainty about distribution is hugely magnified:
 - SARS-CoV spread within & from China, 2002
 - RVF from HoA to Arabian Peninsula, 2000
 - H₅N₁ from China to other parts of Asia, Europe & Africa, 2003
 - 2009 H₁N₁ (so-called swine flu) pandemic
 - More limited epidemics caused by Ebola-, Marburg-, Hendra-, Nipah-, bat lyssa-, Congo-Crimean haemorrhagic fever- & Chikungunya viruses, Q fever & anthrax
- What's the bottom line?
 - **Uncertainty as to where these infections are/ are not, both spatially & temporally!**

How does all this affect us?



- s-SA has more serious TADs than anywhere else on earth!
 - consequence of agent co-evolution with the sub-continent's diversity of wildlife
 - constrains livestock production & trade ⇒ livestock producers traditionally see wildlife as a threat
 - but wildlife is one of s-SA's most valuable natural assets!
- Without eliminating wildlife we can't eradicate these TADs, i.e. achieve trade requirement

A fundamental requirement to support eradication



- “.... elimination and eradication programmes are laudable goals (but) careful and deliberate evaluation is a prerequisite before embarking on any programme. Elimination and eradication are the ultimate goals the only question is whether these goals are to be achieved in the present or some future generation” (Dowdle, 1999)
- Has this been done in respect of animal diseases ‘earmarked’ for eradication, e.g. FMD & CBPP?
 - No
- Two basic considerations concerning eradication
 - feasibility & unintended consequence

Eradication: Technical feasibility?



- An effective intervention strategy is available and able to reduce $R_0 < 1$
- Surveillance tools and strategies with sufficient sensitivity and specificity are available to detect levels of infection that can lead to transmission
- The definitive domestic animal host(s) is(are) essential for the life-cycle of the agent
 - therefore free-living hosts able to maintain the infectious agent represent a killer factor (disqualifies most TADs, e.g. RVF, BT, AHS, ASF & LSD)
- The agent is unable to persist or multiply in the environment in the absence of an animal host

Assessment of the ‘eradicability’ of TADs in SADCR



- Simple matrix-system developed for TADs using rinderpest as base-line
- Results:
 - rinderpest = 52.4/125 (comparative standard)
 - FMD (SAT serotypes) = 17.6
 - CBPP = 20.1
- Conclusion: From a technical perspective FMD & CBPP would be 2-3 times as difficult to eradicate as rinderpest
- Reason - combination between epidemiological features & inadequate intervention technology of these diseases

Assessment of TADs-causing agents (cont.)



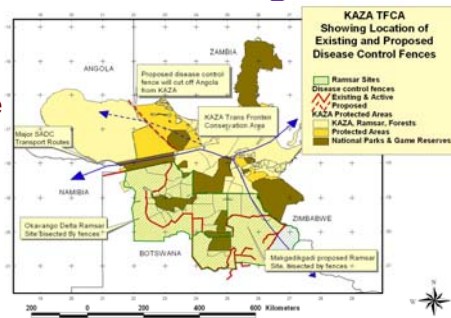
- Similar results for other diseases such as CSF, ASF & PPR
- So the answer is a ‘no-brainer’; we do not have the technical means to even consider eradication of important TADs in sub-Saharan Africa!
- Other factors (impact of disease management on rural communities in different agro-ecological settings, economic & socio-political considerations, implications for trade & rural development etc) are equally important – have not even been considered!
- Yet the ‘eradication apparition’ is well entrenched ⇒ geographic approach remains unquestioned!

A consequence of the geographic approach: Fencing



Thousands of km of fencing erected in southern Africa to enable establishment of FMD-free zones ⇒ access to EU beef markets

Some cut right across ecosystems & have directly & indirectly resulted in serious ecological damage & impoverishment of vulnerable groups



Still more fencing planned in an area where ~1.5m people & their livestock (& 250k elephants!) live in order access foreign beef markets

Fencing & other perverse consequences (cont.)



- What are the chances of success?
- What are the likely benefits/costs & to whom will they accrue?
- Incredibly, answers to these questions are unknown!
- But is this approach even necessary for balanced rural development?
- We say 'no' because other – non-geographic – means of ensuring market access are available (see DVD on CBT)

To summarize



- Very few, if any, TADs in s-SA are eradicable!
- So we have to manage them – need to limit their impact on production & rural development generally
- We also have to develop alternative ways to enable access to markets for animal commodities/ products & reduce impact on bio-diversity management
- Management of disease on a geographic basis is:
 - against interests of around 50 million southern Africans & bio-diversity conservation
 - is unnecessary, i.e. internationally valid alternatives are available!
 - but seems we are unprepared to argue the case!

What's been done so far



- Some progress has been made, e.g.
 - ⇒ advocacy of commodity- (as opposed to geographic-) approaches to international trade has achieved some momentum
 - ⇒ proposal to separate health status of wildlife & livestock under consideration by OIE
 - ⇒ OIE now accepts that properly de-boned beef presents 'very low risk' of spreading FMD (2-year struggle!)
 - by building in additional up/down-stream risk management strategies ⇒ 'minimal risk' of SPS hazards can be achieved

What's still to be done?



- Counter strategy needed for the 'eradication ghost' & geographic approach to management of TADs
- Strategy for persuading OIE that management of trade risk can be achieved in alternative ways (more attention to the principle of 'equivalence', i.e. Integral part of WTO's SPS Agreement)
 - more appropriate disease management strategies for animal diseases of southern African Region
- Demonstration that integrated production systems can result in minimal risk (food safety & animal disease) products & are practically implementable
- Establish win-win scenarios for livestock development & bio-diversity conservation!

Oh, & what about One World, One Health?

