

## ONE HEALTH AND BIODIVERSITY CONVENTIONS

### THE EMERGENCE OF HEALTH ISSUES IN BIODIVERSITY CONVENTIONS

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#### Abstract

The article aims to show the emergence of health issues in biodiversity conventions along with the awareness of the interrelations between ecosystems, animal health and human health. It will first examine the evolution of the use of concepts related to health, the way they spread into the various conventions, and the trend and timing of this evolution. Then it will determine which international institutions or organizations are fostering the circulation of concerns related to health among the biodiversity conventions and how. Finally, the article focuses on the emergence of the concept of One Health in the conventions and on the reasons for this emergence.

#### Introduction

A 2015 report of the World Health Organization (WHO), United Nations Environment Programme (UNEP) and Convention on Biological Diversity<sup>1</sup> (CBD) about biodiversity and human health<sup>2</sup> acknowledges the complex interlinkages between biodiversity, ecosystem stability and infectious diseases: it highlights the various aspects of those links insisting on the potential benefits of strengthened partnerships between conservation and health, from

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<sup>1</sup> Which came into force in 1993.

<sup>2</sup> World Health Organization and Secretariat of the Convention on Biological Diversity, *Connecting global priorities: biodiversity and human health: a state of knowledge review* (WHO, SCBD, 2015) (pp364). Available at <<https://www.cbd.int/health/stateofknowledge/>> accessed 3 May, 2016.

the health of wildlife to human health. Nevertheless, the awareness of the importance of these interlinkages has been built up over years, integrating knowledge from scientific research through multiple advocacy channels, and in many areas further interdisciplinary research will be necessary. Among the new Sustainable Development Goals recently adopted by the UN, the third Goal 'Ensure healthy lives and promote well-being for all and at all ages' the target 3.3 clearly states:

*By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.*<sup>3</sup>

We choose to examine in detail how this awareness of the interrelations between ecosystems, animal health and human health evolved by tracking the emergence of health issues in biodiversity-related conventions.

In 2000, while there was an effective awareness that natural ecosystems on which human life depends were under threat, there was a lack of detailed information regarding the extent and the causes of the damage. The Secretary General of the United Nations thus decided to launch the Millennium Ecosystem Assessment (MA). The objective of the MA was to assess the consequences of ecosystem change for human well-being, with the aim to give a scientific basis to action for enhancing the conservation and sustainable use of diverse ecosystems. Presented as 'an international collaborative effort to map the health of our planet'<sup>4</sup>, it also focused on the impact of the planet's health on human well-being.

The MA has been modelled on the Intergovernmental Panel on Climate Change (IPCC), which sets up effective assessment process in order to provide scientific technical and methodological advice to the parties to the United Nations Framework Convention on Climate Change (UNFCCC) or to the parties to the Montreal Protocol on Substances that Deplete the Ozone Layer<sup>5</sup>. Similarly, the MA aims to provide scientific assessment input to the technical and scientific bodies of the Convention on Biological Diversity (CBD), the

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<sup>3</sup> UN General Assembly resolution 70/1 *Transforming our world: the 2030 Agenda for Sustainable Development*, A/RES/70/1 (25 September 2015) p16/35.

<sup>4</sup> KA Annan, *We the peoples: the role of the United Nations in the 21st century* (United Nations, Dept. of Public Information, 2000).

Available at <[http://www.un.org/en/events/pastevents/pdfs/We\\_The\\_Peoples.pdf](http://www.un.org/en/events/pastevents/pdfs/We_The_Peoples.pdf)> accessed 3 May, 2016.

<sup>5</sup> IPCC Special report (1999) JE Penner, DH Lister, DJ Griggs, DJ Dokken, M McFarland (eds), *Aviation and the Global Atmosphere, Summary for Policymakers* (IPCC, 1999) 12, available at <<http://www.ipcc.ch/pdf/special-reports/spm/av-en.pdf>> accessed 3 May, 2016.

Ramsar Convention on Wetlands, the Convention on Conservation of Migratory Species of Wild Animals (CMS) and the Convention to Combat Desertification (CCD). Indeed, from the beginning the MA questioned the health of ecosystems and the related effects on human well-being. The purpose of this article is to identify how health issues have appeared in the conventions related to biodiversity. Those issues can concern human health through various topics (such as food security, unsustainable land-use or invasive species) but they are also related to ecosystems or animal health.

The article will first examine the evolution of the use of concepts related to health, the way they spread into the various conventions, and the trend and timing of this evolution. Then it will determine which international institutions or organizations are fostering the circulation of concerns related to health among the biodiversity conventions and how. Finally, the article focuses on the emergence of the concept of One Health in the conventions and on the reasons for this emergence

### **I. Ecosystem Health and Human Well-Being: The Ecosystem Approach**

The ecosystem approach has been acknowledged by the Convention on Biodiversity since its Second Conference of the Parties in 1995. Affirming that conservation and sustainable use of biological diversity and its components should be addressed in a holistic manner, it was decided that the ecosystem approach should be the primary framework for action under the Convention<sup>6</sup>. Then, the 2000 MA supported an integrated approach for the analysis of the goods and services<sup>7</sup> provided by ecosystems. That approach is called an 'ecosystem approach'. It assumes from the start that human well-being is dependent upon a good management of ecosystems, taking into account the interlinkages between the ecological and social systems involved. The approach is based on the fact that information and knowledge of those interactions is a prerequisite for sound decision-making.<sup>8</sup>

#### *A. Coordinating Complex Analyses*

Indeed, in 2000, the decision V/6 of the Fifth Conference of the Parties (COP) to the CBD on the 'ecosystem approach' acknowledged the complexity of ecosystem processes and

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<sup>6</sup> Convention on Biodiversity COP II, 1995, Decision II/8, Preliminary consideration of components of biological diversity particularly under threat and action which could be taken under the Convention, §1. All CBD COP decisions are available at < <https://www.cbd.int/decisions/cop/> > accessed 3 May, 2016.

<sup>7</sup> E Ayensu, DR van Claasen and M Collins, 'International Ecosystem Assessment', (1999) 286 Science 685-686.

<sup>8</sup> D Charron, 'Ecosystem Approaches to Health for a Global Sustainability Agenda', (2012) 9(3) EcoHealth 256-266.

functions. It highlighted the uncertainties involved, particularly those due to the interactions with the social systems<sup>9</sup>, stating that:

*[T]here is a need for flexibility in policy-making and implementation. Long-term, inflexible decisions are likely to be inadequate or even destructive. Ecosystem management should be envisaged as a long-term experiment that builds on its results as it progresses<sup>10</sup>.*

It thus endorsed the 'ecosystem approach' advocated for adaptive management practices, and stated twelve Principles of the 'ecosystem approach' and their rationale<sup>11</sup>. The subsequent COP in 2002 affirmed the necessity of using the 'ecosystem approach' in national policies and legislation. In order to facilitate that application, it stated the importance of developing regional guidelines for the use of the 'ecosystem approach'<sup>12</sup>. The same year, the Strategic Plan for the Convention on Biological Diversity<sup>13</sup> reaffirmed the need of an implementation of the convention based on the ecosystem approach. That Plan also defined strategic goals and objectives which would be necessary to achieve a significant reduction of the rate of biodiversity loss by 2010 at the global, regional and national levels.

In response to the decision V/6 of 2000, a project entitled 'An Ecosystem Approach under the CBD, from concept to action' was initiated. This project led UNESCO, IUCN, Ramsar<sup>14</sup>, Royal Holloway-University of London, World Wildlife Fund (WWF) and the Secretariat of the CBD to jointly organizing three regional pathfinder workshops. It is interesting to note that the combined report of those three regional workshops addresses the interpretation of the decision V/6: It outlines the theoretical and general nature of that

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<sup>9</sup> S Morand, JP Dujardin, R Lefait-Robin and C Apiwathnasorn (eds), *Socio-Ecological Dimensions of Infectious Diseases in Southeast Asia* (Springer, 2015).

<sup>10</sup> Convention on Biodiversity COP V, 2000, Decision V/6 Ecosystem approach, §10, available at < <https://www.cbd.int/decision/cop/?id=7148> > accessed 3 May, 2016.

<sup>11</sup> See UNEP, CBD, *The Ecosystem Approach* (Secretariat of the Convention on Biological Diversity, 2004) 8-31 for the twelve principles and their rationales.

Available at <<https://www.cbd.int/doc/publications/ea-text-en.pdf>> accessed 1 May 2016.

<sup>12</sup> Convention on Biodiversity COP VI, 2002, Decision VI/12 Ecosystem approach, Preamble.  
< <https://www.cbd.int/decision/cop/?id=7148> > accessed 3 May, 2016.

<sup>13</sup> Convention on Biodiversity COP VI, 2002, Decision VI/26, Strategic Plan for the Convention on Biological Diversity.

Available at < <https://www.cbd.int/decision/cop/default.shtml?id=7200> > accessed 3 May, 2016.

<sup>14</sup> The Ramsar Convention also known as the Convention on Wetlands, signed in 1971 at Ramsar, Iran. < <http://www.ramsar.org/> > accessed 3 May, 2016.

decision and that V/6's implementation would be hampered without the development of operational tools and guidance<sup>15</sup>. In response to this point, a decision of the COP of 2004 detailed the rationale the 12 Principles, proposed implementation guidelines for each of those principles, and outlined cross-cutting aspects of the 'ecosystem approach'.

Among the objectives defined into the Strategic Plan of the CBD, one is highlighting the role of the CBD in promoting cooperation between all relevant international instruments and processes to enhance policy coherence<sup>16</sup>. That effort to promote such cooperation is illustrated by the organization in 2004 of an expert workshop<sup>17</sup> to foster cooperation and synergy between the CBD and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as both Conventions address international concerns about biodiversity loss. That workshop led to a decision by the COP of CITES in 2004 about the synergy between CITES and CBD which endorsed the 'ecosystem approach' and to a decision regarding the synergies between CITES and the Convention for Migratory Species (CMS) as well<sup>18</sup>.

As detailed in a 2004 UNEP report, a significant number of initiatives to improve synergies among the multilateral environmental agreements (MEA) and particularly among the biodiversity related conventions and Rio Conventions or between various organizations such as UN organizations, other institutions and initiatives (GEF, IUCN, World Bank),

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<sup>15</sup> RD Smith and E Maltby, Using the Ecosystem Approach to implement the CBD. A global synthesis report drawing lessons from three regional pathfinder workshops (Royal Holloway Institute for Environmental Research, Surrey, 2001) 16.

Available at <<https://www.cbd.int/doc/meetings/esa/ecosys-01/information/ecosys-01-inf-02-en.pdf>> accessed 3 May, 2016.

<sup>16</sup> Convention on Biodiversity COP VI, 2002, Decision VI/26, Strategic Plan for the Convention on Biological Diversity, notably §8 and Goal 1.2. Available at

< <https://www.cbd.int/decision/cop/default.shtml?id=7200> > accessed 3 May, 2016.

<sup>17</sup> TRAFFIC, FFI, IUCN – The World Conservation Union, BfN and GTZ, UNEP and the CITES and CBD Secretariats, 'Promoting CITES-CBD Cooperation and Synergy', Workshop 20 – 24 April 2004, Bonn – Germany, Workshop Proceedings (pp241).

Available at < <https://www.cites.org/common/cop/13/inf/vilm.pdf> > accessed 3 May, 2016.

<sup>18</sup> Convention on International Trade in Endangered Species of Wild Fauna and Flora, COP 13, 2004, Decision 13.2 to 13.5, Synergy between CITES and CBD (notably 13.2). Available at

< [https://cites.org/eng/dec/valid13/E13-Dec.pdf\\_](https://cites.org/eng/dec/valid13/E13-Dec.pdf_) > accessed 3 May, 2016, and document CoP13 Doc. 12.1.2 §4, available at < <https://cites.org/eng/cop/13/doc/E13-12-1-1.pdf> > accessed 3 May, 2016; see also Resolution 13.3, Cooperation and synergy with the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Available at < [https://cites.org/eng/res/13/13-03.php\\_](https://cites.org/eng/res/13/13-03.php_) > accessed 3 May, 2016.

through Memorandum of Understanding, Joint Work Programme or action plans<sup>19</sup> had already taken place.

### *B. Ecosystems Approach and Human Health*

The link between ecosystem health and human well-being, which is at the core of the MA, can be extended to human health. This is in line with the definition of health given by the WHO:

*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity<sup>20</sup>.*

Thus, a health synthesis of the findings of the MA (published in 2005 by the WHO) examines the links between ecosystems and human health, and how ecosystem change and management decisions may affect human health. It shows that causal links between environmental change and human health are complex because often they are indirect, displaced in space and time, and dependent on a number of modifying forces<sup>21</sup>. That complexity has already been demonstrated in previous works discussing the links among health, environment and sustainable development<sup>22</sup> according to the Rio Conventions and the Agenda 21, on the one hand, and on the environmental factors contributing to human health<sup>23</sup>, on the other hand.

The 'ecosystem approach' supported by the CBD has then been progressively extended to human health. As stated by the WHO in the Health synthesis of the MA:

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<sup>19</sup> UNEP-WCMC, 'Synergies and Cooperation: A status report on activities promoting synergies and cooperation between Multilateral Environmental Agreements, in particular biodiversity-related conventions and related mechanisms' (2004). Available at < <https://old.unep-wcmc.org/synergies-and-cooperation-208.html> > accessed 3 May, 2016.

<sup>20</sup> WHO, Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946.  
Available at <[www.who.int/governance/eb/who\\_constitution\\_en.pdf](http://www.who.int/governance/eb/who_constitution_en.pdf)> accessed 3 May, 2016.

<sup>21</sup> CF Corvalán, S Hales, and A McMichael, Ecosystems and Human well-being, Health Synthesis – A report of the Millenium Ecosystem Assessment (WHO, 2005).  
Available at <[www.millenniumassessment.org/.../document.357.asp](http://www.millenniumassessment.org/.../document.357.asp)> accessed 3 May, 2016.

<sup>22</sup> CF Corvalán, T Kjellström, and KR Smith, 'Health, Environment and Sustainable Development: Identifying Links and Indicators to Promote Action', (1999, September) 10(5) *Epidemiology* 656-660.

<sup>23</sup> KR Smith, C Corvalán, and T Kjellström, 'How Much Global Ill Health Is Attributable to Environmental Factors', (1999, September) 10(5) *Epidemiology* 573-584.

*[E]cosystems are the planet's life-support systems for the human species and all other forms of life. The needs of the human organism for food, water, clean air, shelter and relative climatic constancy are basic and unalterable. That is, ecosystems are essential to human well-being and especially to human health (...) <sup>24</sup>.*

The 'ecosystem approach' to human health is also called Ecohealth approach<sup>25</sup>:

*The Ecohealth approach is anthropocentric — managing the ecosystem revolves around seeking the optimal balance for human health and well-being, rather than simply on environmental protection. (...) The presence of human beings creates a new dynamic whereby people's social and economic aspirations need to be considered, particularly since people have the power to control, develop, and use their environment in a sustainable way, or to abuse it <sup>26</sup>.*

The interest of the ecosystem approach of health is to be able to integrate those various elements and techniques in order to raise the awareness of decision-makers regarding the complexity and the dynamic of the interlinkages between ecosystems and human health<sup>27</sup>, to reveal the potential impacts of public policies<sup>28</sup> in various areas on this dynamic (land management, agriculture, climate change) and ultimately to provide the best way to adopt sound policies acknowledging those links. This approach appears mainly in the decisions of the COPs in relation to various topics such as agriculture, nutrition and food security, emerging diseases or non-communicable diseases.

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<sup>24</sup> CF Corvalán, S Hales, and A McMichael, Ecosystems and Human well-being, Health Synthesis, Millenium Ecosystem Assessment, 2005 (WHO, 2005); op. cit. p. 12.

<sup>25</sup> VA Brown, 'Principles for EcoHealth Action: Implications of the Health Synthesis Paper, the Millennium Ecosystem Assessment, and the Millennium Development Goals' Workshop Group, EcoHealth ONE, Madison, Wisconsin in (2007) 4(1) EcoHealth 95-98.

<sup>26</sup> J Lebel, *Health: an ecosystem approach* (International Development Research Centre, Ottawa, 2003) notably p. xii.

Available at <<http://www.idrc.ca/EN/Resources/Publications/openebooks/012-8/index.html>> accessed 3 May, 2016.

<sup>27</sup> BA Wilcox and DJ Gubler, 'Disease ecology and the global emergence of zoonotic pathogens, Environmental health and preventive medicine', (2005) 10 Environmental Health and Preventive Medicine 263–272.

<sup>28</sup> C Lajaunie and S Morand, 'A legal tool for participatory methods in land systems science: the Thai model of Health Impact Assessment and the consideration of zoonotic diseases concerns into policies', (2015) (n.11) GLP newsletter 30-33.

## II. Biodiversity Liaison Group and the Circulation of Information and Knowledge

The intricate series of events and initiatives mentioned above led to a certain organization of the flow of information and knowledge at the international level (Figure 1). As seen, many initiatives had been taken to improve synergies between MEAs and especially between biodiversity and Rio Conventions prior to 2004. One of them resulted in the creation of a Joint Liaison Group (2001) constituting an informal forum for exchanging information between the three Rio Conventions.<sup>29</sup>

Nevertheless, the COP of the CBD in the Decision VII/26 mandated the Secretariat to establish a separate Liaison Group of biodiversity-related Conventions to enhance the coherence and cooperation in their implementation. That Biodiversity Liaison Group (BLG) links the secretariats of the seven biodiversity-related conventions: the Convention on Biological Diversity (CBD); the Convention on International Trade in Endangered Species of Fauna and Flora (CITES), the Convention on the Conservation of Migratory Species of Wild Animals (CMS); the Ramsar Convention on Wetlands (Ramsar); the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC); the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the International Plant Protection Convention (IPPC). It constitutes a:

*...platform to exchange information and to enhance the implementation at the national level of the objectives of each respective convention whilst also promoting synergies at the national level<sup>30</sup>.*

In this context, the circulation of information is enhanced and strengthened by the position of the CBD: being part of both groups of Conventions, it bridges *de facto* the Joint Liaison Group (JLG) and the Biodiversity Liaison Group (BLG).

Figure One illustrates the emergence of health issues from the various Conventions ongoing Conference of Parties work and decisions, which will be discussed in the sections that follows.

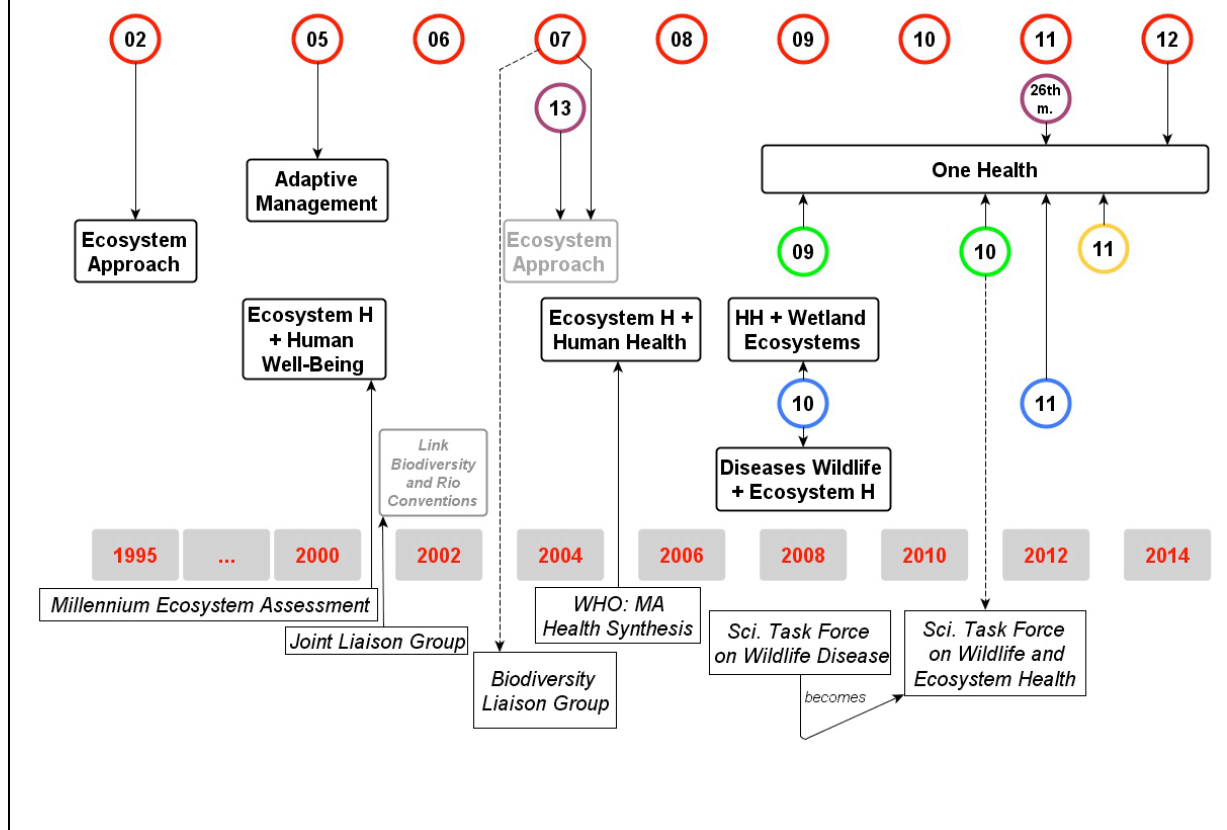
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<sup>29</sup> The three 1992 Rio Conventions are: the UN Framework Convention on Climate Change (UNFCCC); the Convention on Biological Diversity (CBD); and the UN Convention to Combat Desertification (UNCCD).

<sup>30</sup> Modus Operandi for the Liaison Group of the Biodiversity-related Conventions, adopted on 4<sup>th</sup> September 2011, Geneva, § Guiding principles, 1<sup>st</sup> principle.

Available at <[whc.unesco.org/document/107380](http://whc.unesco.org/document/107380)> accessed 3 May, 2016.

FIGURE 1. Summary presentation of key events associated with the emergence of health issues in the biodiversity-related Conventions. The color of each circle indicates the Convention (and the number within the circles, refers to the relevant Conference of Parties (COP) meeting): red = CBD; purple=CITES; green = CMS; blue = Ramsar; yellow: CCD. COPs are connected with the main emerging concepts cited in this study [using the following abbreviations: H = 'Health'; HH = 'Human Health'].



Regarding the cooperation among MEA and other organizations, another decision of the COP of the CDB of 2008 underlines the role of the Biodiversity Liaison Group (BLG) in avoiding duplication of efforts and improving the implementation of the biodiversity-related Conventions<sup>31</sup>. As such, the decision invites the BLG<sup>32</sup> to work on cross-cutting issues such

<sup>31</sup> Convention on Biodiversity COP IX, 2008, Decision IX/27 Cooperation among multilateral environmental agreements and other organizations.

Available at <<https://www.cbd.int/decision/cop/default.shtml?id=11670>> accessed 3 May, 2016.

<sup>32</sup> In order to promote policy coherence, the third meeting of the Biodiversity Liaison Group in 2005 mentioned that: 'A wider partnership could be constructed as an inner core-group and one or more supporting networks; Other organizations that might have a role in a core group, in addition to the five

as climate change and invasive alien species. It also calls for greater collaboration of the subsidiary scientific and technical bodies of the three Rio Conventions (CBD, CCD, and Framework Convention on Climate Change). The 2008 decision strongly supports collaborative partnerships such as the Consortium of Scientific Partners on Biodiversity. It also specifically highlights the collaboration between the executive secretary of CBD with the World Health Organization as well as with the Cooperation on Health and Biodiversity (COHAB) initiative<sup>33</sup> on biodiversity and health-related issues, most notably to establish tools for capacity-building and awareness-raising in the health sector.

The same year, 2008, the CMS adopted a decision about emerging and re-emerging diseases in wildlife species stating that those diseases were linked to issues regarding the ecosystem health such as processes of landscape fragmentation, unsustainable land-use choices, pollution or other types of ecosystem disruption<sup>34</sup>. It expressly refers to a Ramsar decision of 2008 stressing the role of wetlands play for the support of both human and wildlife populations and how migratory species can be useful indicators of ecosystem health.

Also in 2008, it is important to note that the Ramsar COP adopted the Changwon Declaration. That declaration states that: 1) interrelationships between wetland ecosystems and human health should be a key component of national and international policies, plans and strategies, and 2) there is a need for co-management by both wetlands and health sectors of the links between wetland ecological character and human health.

The development of synergies among the biodiversity-related Conventions and among Rio Conventions is expressed by mutual references in the diverse COP decisions, by shared knowledge and by a common focus. This has led to further integration of the main cross-cutting issues related to biodiversity in the various Conventions. Moreover, those decisions are the result of coordination efforts between biodiversity-related Conventions and

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biodiversity-related conventions, include: UNEP and IUCN; FAO, Unesco, DESA; Selected major, global, mainstream NGOs, for example: World Wide Fund for Nature, Birdlife International, Wetlands International' (nb. these are the core partners of Ramsar) in the Third meeting of the Biodiversity Liaison Group, Gland, Switzerland, 10 May 2005, BLG3/REP, §12. Available at < <https://www.cbd.int/blg/> > accessed 3 May, 2016.

<sup>33</sup> COHAB is a community of individuals and organizations working together to address the gaps in awareness, policy and action on the links between biodiversity and human health and well-being. The Initiative supports efforts to enhance human security through the conservation and sustainable use of biodiversity and the goods and services it provides; see < <http://www.cohabnet.org/> > accessed 3 May, 2016.

<sup>34</sup> S Morand, K Owers and F Bordes, 'Biodiversity and emerging zoonoses', ch. 3, in A Yamada, LH Kahn, B Kaplan, TP Monath, J Woodall and L Conti, *Confronting Emerging Zoonoses, The One Health Paradigm*, (Springer, 2014) 27-41.

main international organizations, such as FAO, WHO or OIE<sup>35</sup> for instance, thus they reinforce the convergence of priorities as intended with the creation of the Biodiversity Liaison Group.

It is particularly significant regarding health issues especially from the creation of the Scientific Task Force on Avian Influenza and Wild Birds<sup>36</sup> in 2005 by the CMS in cooperation with the Agreement on the Conservation of African Eurasian Migratory Waterbirds (AEWA) in order to integrate migratory species and other environmental considerations into the international efforts to combat Highly Pathogenic Avian Influenza<sup>37</sup>, stressing the link between wildlife health, conservation issues and human health<sup>38</sup>. The Task Force coordinated by the CMS Secretariat and FAO welcomed the CBD in 2006.

The BLG could also foster the harmonization of biodiversity-related Conventions' reporting at the global level for instance, with joint systems of information management between MEAs. It could also provide reflection about the clarity of the information needed and whether it should be quantitative or qualitative. At the national level it could lead to the creation of more integrated and better coordinated biodiversity information systems between national institutions, allowing a better cooperation between MEAs and their focal points within countries<sup>39</sup>.

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES, 2012) considers the integration of health into its conceptual framework in order to address issues of biodiversity, ecosystem services and their impacts on human well-being and

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<sup>35</sup> Created in 1924, the 'Office International des Épizooties' (OIE) became the World Organization for Animal Health in 2003, but retains its ancient acronym.

<sup>36</sup> Comprised of representatives from UNEP, CMS, AEWA, Ramsar, BirdLife International, the International Council for Game and Wildlife Conservation (CIC), Wetlands International, the Wildlife Conservation Society and the Zoological Society of London, with the UN Food and Agriculture Organization (FAO), WHO and the World Organization for Animal Health (OIE) participating as observers.

<sup>37</sup> I Scoones (ed), *Avian influenza: Science, Policy and Politics (Pathway to Sustainability)* (Routledge, Earthscan, 2010).

<sup>38</sup> Convention on Migratory Species, COP 9, 2008, Resolution 9.8, responding to the challenge of emerging and re-emerging diseases in migratory species, including highly pathogenic avian influenza h5n1. Available at <<http://www.cms.int/en/meeting/ninth-meeting-conference-parties-cms>> accessed 3 May, 2016.

<sup>39</sup> UNEP-WCMC, 'Preconditions for harmonization of reporting to biodiversity-related multilateral environmental agreements', (June 2009 doc).

health<sup>40</sup>. Established as a science-policy interface mechanism, the IPBES aims to improve the quality and availability of policy-relevant information to support policy formulation and implementation. Governments and MEAs related to biodiversity and ecosystem services can make 'requests' to the platform. In that sense, the collaboration with the MEAs and particularly with the CBD will probably increase the synergy and the circulation of information.

### III. One Health: Call for an Integrated Approach

The pace of the circulation<sup>41</sup> of information regarding health into the Conventions related to biodiversity has been accelerated by the development of agreements or initiatives between international institutions<sup>42</sup> or between the secretariats of the Conventions. Many of those initiatives and agreements were developed to improve international awareness and cooperation to prevent infectious disease pandemics, after various SARS and Avian Influenza episodes and in accordance with the WHO International Health Regulations (2005). One very significant initiative is the Global Early Warning and Response System for Major Animal Diseases, including Zoonoses<sup>43</sup> (GLEWS, 2006), a joint FAO/OIE/WHO initiative to enhance Early Warning and Response at international level. The purpose is to improve the sharing of information on disease alerts by coordinating the alert systems of the three institutions, while avoiding the duplication of efforts. The System aims to strengthen international preparedness for epidemics, including Zoonoses at the human/animal interface. Nevertheless, the animal health issues considered focused on domestic animal health.

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<sup>40</sup> IPBES/1/INF/9, outcome of an informal expert workshop on main issues relating to the development of a conceptual framework for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany, 21-26 January 2013.

<sup>41</sup> 'The notion of circulation of legal models constitutes a framework of dynamic analysis of comparative law'; cf. I Alogna 'La circolazione del modello di sviluppo sostenibile. Prospettive di diritto comparato per un percorso multidirezionale', (2016) 1 (T1) Fondazione CESIFIN A Predieri, 14 pp, available on <[www.cesifin.it](http://www.cesifin.it)> accessed 3 May, 2016. The aim of Circulex project is to study the circulation of norms and actor networks in Global Environmental Governance <http://www.agence-nationale-recherche.fr/?Project=ANR-12-GLOB-0001> accessed 3 May, 2016.

<sup>42</sup> LO Gostin, 'Healthy Living Needs Global Governance', (2014) 511 Nature 147-150.

<sup>43</sup> FAO, OIE, WHO, *Global Early Warning and Response System for Major Animal Diseases, Including Zoonoses (GLEWS)*, (FAO, OIE, WHO, 2006). Available at <<http://www.glews.net/2008/07/>> accessed 3 May, 2016.

In the meantime, in 2008 the CMS drew attention to emerging and reemerging diseases in migratory species and more generally to wildlife diseases<sup>44</sup> and their potential impact on animal and human health (see Figure 2 below). This problem is considered to be due to human unsustainable activities and habitat fragmentation. During its 2008 COP, a resolution of the CMS asked the its secretariat and the FAO Animal Health Service to convene a new Task Force on Wildlife Disease based on the principles governing the Scientific Task Force on Avian Influenza and Wild Birds, which was complimented at the occasion for its success<sup>45</sup>. The resolution requested the FAO to:

*...integrate into their "One World One Health" approach, disease and management issues that can be brought to the attention of the Scientific Task Force on Wildlife Disease for consideration and action<sup>46</sup>.*

It seems to be the first reference to the 'One Health' approach into a biodiversity-related Convention's decision. However, in the same year, a Strategic Framework for Reducing Risks of Infectious Diseases entitled 'Contributing the One World One Health'<sup>47</sup> was drafted by the FAO, OIE, UNICEF, UN System Influenza Coordination, World Bank and the WHO.

It should be underlined that in 2010 an International Ministerial Conference on Animal and Pandemic Influenza was organized in Hanoi, Vietnam, under the auspices of the European Union and the United States of America, with the support of the UN System Influenza Coordination and other international organizations.<sup>48</sup>The conference gathered representatives of countries of the region, of regional bodies around the world and of the technical bodies of international organizations. It declared that country strategies and

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<sup>44</sup> P Daszak, AA Cunningham and AD Hyatt, 'Emerging Infectious Diseases of Wildlife Threats to Biodiversity and Human Health' (2000) 287 Science 443-449.

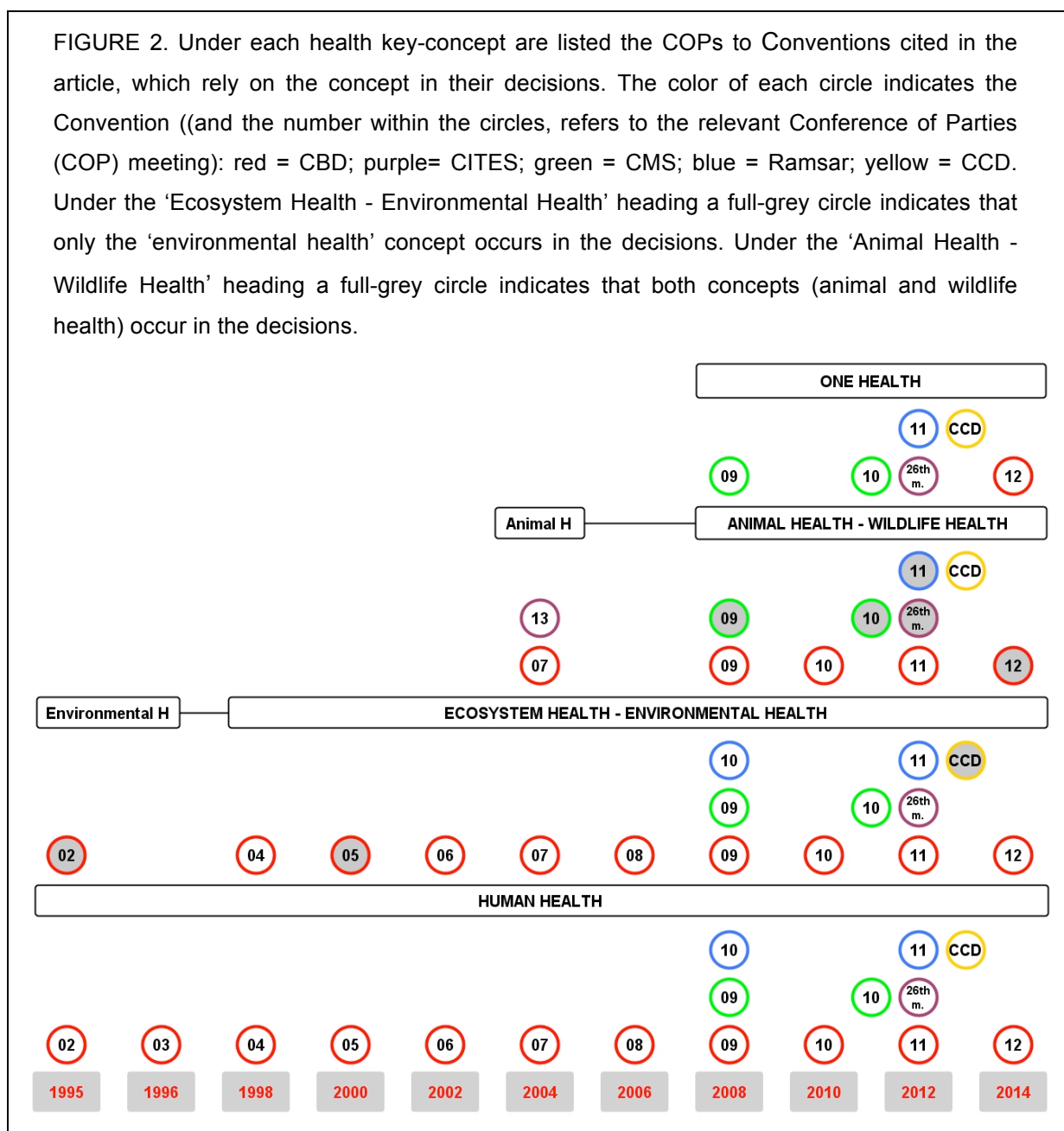
<sup>45</sup> P Rabinowitz, M Scotch and L Conti, 'Human and animal sentinels for shared health risks', (2009) 14(1) Veterinaria italiana, 23-24.

<sup>46</sup> Convention on Migratory Species, COP 9, 2008, Resolution 9.25 Scientific Task Force on Avian Influenza and Wild Birds, CMS's response to highly pathogenic avian influenza, subtype H5N1, §4.

<sup>47</sup> The 'One World, One Health' concept, which establishes a more interdisciplinary and cross-sectoral approach to preventing epidemic or epizootic disease and for maintaining ecosystem integrity, is a trademark of the Wildlife Conservation Society.

<sup>48</sup> C Lajaunie, S Morand and A Binot, 'The link between health and biodiversity in Southeast Asia through the example of infectious diseases', (2015) 8(1) Environmental Justice 26-31.

pandemic preparedness plans should be aligned nationally and regionally to address the global ‘One Health’ challenges.<sup>49</sup>



Thus in 2011, a CMS resolution on Wildlife Disease and Migratory Species referred to the One Health approach as a multidisciplinary way of addressing emerging those infectious diseases increasingly gaining ground and as endorsed by several international organizations

<sup>49</sup> International Ministerial Conference on Animal and Pandemic Influenza, Hanoi Declaration 2010, Vietnam, 19-21 April 2010.

including FAO, OIE, WHO, UNICEF and the World Bank. The same resolution decided to rename the Task Force on Wildlife Disease and call it Scientific Task Force on Wildlife and Ecosystem Health, to reflect more comprehensively the One Health approach<sup>50</sup>. The Ramsar COP in 2012 in turn acknowledged the One Health movement, together with the Ecohealth approach for their capacity to demonstrate the fundamental connectivity in health of humans, domestic livestock, and wildlife<sup>51</sup>. The same year, the CITES COP formally encouraged a One Health multi-sectoral and transdisciplinary approaches including science-based information sharing<sup>52</sup> among the concerned stakeholders (governments, UN agencies, non-governmental organizations).

It is significant that the Agreement between the World Organisation for Animal Health (OIE) and the Convention on Biological Diversity signed in 2013 promotes a One Health approach to manage the risks presented by Animal Diseases and Zoonoses at the animal-human-ecosystem interface<sup>53</sup>. Then in 2013 as well, the United Nations Convention to Combat Desertification (COP 11) considered that the One Health initiative could be a powerful tool to successfully cope with the drivers and consequences of desertification<sup>54</sup>.

Finally, in 2014, the CBD itself during its latest COP acknowledged twice the interest of the One Health approach: the first time in a decision on bushmeat and sustainable wildlife management<sup>55</sup>. That decision stated the relevance of the approach to developing national

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<sup>50</sup> Convention on Migratory Species, COP 10, 2011, Resolution 10.22, Wildlife disease and migratory species, Preamble and §1. Available at <<http://www.cms.int/en/meeting/tenth-meeting-conference-parties-cms>> accessed 3 May, 2016.

<sup>51</sup> Ramsar Convention, COP XI, 2012, Resolution XI.12 Wetlands and health: taking an ecosystem approach, Preamble and §7. Available at <[http://ramsar.rgis.ch/cda/en/ramsar-documents-cops-cop11-cop11-resolutions/main/ramsar/1-31-58-500%5E25837\\_4000\\_0\\_\\_](http://ramsar.rgis.ch/cda/en/ramsar-documents-cops-cop11-cop11-resolutions/main/ramsar/1-31-58-500%5E25837_4000_0__)> accessed 3 May, 2016.

<sup>52</sup> Convention on International Trade in Endangered Species of Wild Fauna and Flora, 26th Meeting, Document 23, Relationship between wildlife trade and wildlife diseases, §1 and §3b. Available at <<https://cites.org/eng/com/ac/26/index.php>> accessed 3 May, 2016.

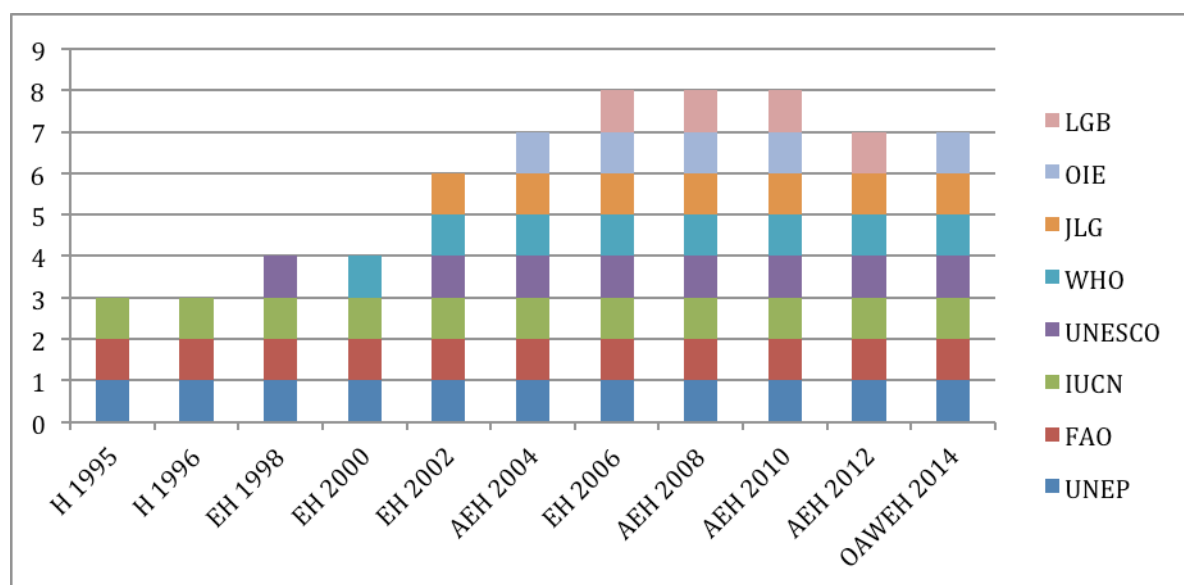
<sup>53</sup> OIE, CBD, Cooperation Agreement between the Secretariat of the Convention on Biological Diversity and the World Organization for Animal Health (OIE), 2013, Art. 1. Available at <<http://www.oie.int/doc/document.php?numrec=4260303>> accessed 3 May, 2016.

<sup>54</sup> United Nations Convention to Combat Desertification, COP 11, 2013, Final outcome of the UNCCD 2nd Scientific Conference, ICCD/COP (11)/CST/INF.3, §29. Available at <<http://www.unccd.int/en/about-the-convention/official-documents/Pages/SessionDisplay.aspx?k=COP%2811%29/CST>> accessed 3 May, 2016.

<sup>55</sup> Convention on Biodiversity COP XII, 2014, Decision XII/18 Sustainable use of biodiversity: bushmeat and sustainable wildlife management, §4. Available at: <<https://www.cbd.int/decisions/cop/?m=cop-12>> accessed 3 May, 2016.

and local wildlife surveillance systems. The second time One Health was acknowledged was in a decision on biodiversity and human health, which recognized the value of the One Health approach to address the cross-cutting issue of biodiversity and human health. Further, it stated One Health’s consistency with the ‘ecosystem approach’ to integrate ‘the complex relationships between humans, microorganisms, animals, plants, agriculture, wildlife and the environment’<sup>56</sup>.

FIGURE 3. Involvement of various organizations in decisions of the CBD COPs considering one or more health issues (indicated with the date on x-axis): H ‘Human Health’; E ‘Ecosystem (or Environmental) Health’; A ‘Animal Health’; W ‘Wildlife Health’; O ‘One Health’. [LGB: Liaison Group of Biodiversity-Related Conventions; OIE; World Organization for Animal Health; JLG: Joint Liaison Group of the Rio Conventions, etc.]



The commitment of the various Conventions related to biodiversity to find practical answers regarding the interlinkages between environmental, animal and human health led to the adoption of the ecosystem approach and later on to the recognition of the One Health approach as outlined above (Figure 3). It appeared as a way to consider the complexity of the various interlinkages and to provide, among other issues, an appropriate answer to the risk of emerging infectious diseases.

<sup>56</sup> Convention on Biodiversity COP XII, 2014, Decision XII/21 Biodiversity and human health, §4. Available at <<https://www.cbd.int/decisions/cop/?m=cop-12>> accessed 3 May, 2016.

## Conclusion

As outlined in this article, the understanding of the consequences of the modification of the environment and ecosystems on human health, on the one hand and the interactions between animal and human health, on the other hand, has been progressively taken into account by the Conventions related to biodiversity and refined to consider the specific case of wildlife. It shows that the One Health approach is resulting from concerted international support<sup>57</sup> but also from ‘the convergence of a series of alliances, specific events and related agendas at this particular time’<sup>58</sup> as illustrated within the biodiversity-related Conventions.

The integrative and global One Health concept appears to be a very interesting tool to draw the attention and support of policy-makers to issues at the interface of the environment / animal / human health<sup>59</sup> and to help them to understand the dynamics and interactions between those sectors. Nevertheless, the complexity of those interactions and the variety of issues should be considered carefully in all their dimensions for the design and the active implementation of sound and informed policies, otherwise the holistic approach calling for a common and concerted response with a true integration of results from different disciplines could miss its real target<sup>60</sup>.

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<sup>57</sup> A Binot, R Duboz, P Promburom, W Primpapai, J Cappelle, C Lajaunie, F Goutard, T Pinyopummintr, M Figuié and F Roger, ‘Beyond cross-sectoral collaborations at the Animal/Human/Environment interface across stakeholders: the ComAcross project in Southeast Asia’, (2015) 1 One Health Journal 44-48.

<sup>58</sup> EPJ Gibbs, ‘The evolution of One Health: a decade of progress and challenges for the future’, (2014) 174 Veterinary Record 85-91 doi:10.1136/vr.g143.

<sup>59</sup> LO Gostin and EA Friedman, ‘The Sustainable Development Goals: One-Health in the World’s Development Agenda’, (2015) 314 (24) JAMA 2621.

<sup>60</sup> BA Walther, C Boëte, A Binot, Y By, J Cappelle, JJ Carrique-Mas, M Chou, N Furey, S Kim, C Lajaunie, S Lek, P Méral, M Neang, BH Tan, C Walton and S Morand, ‘Biodiversity and Health: Lessons and Recommendations from an Interdisciplinary Conference to Advise Southeast Asian Research, Society and Policy’, (2016) *Infection, Genetics and Evolution* 29-46.