

ORIGINAL RESEARCH

EXCHANGE AND COORDINATION: CHALLENGES OF THE GLOBAL ONE HEALTH MOVEMENT

A pilot study exploring options to increase cooperation and coordination with systemic strategies to improve the impact on people and politics.

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Abstract¹

Current economic, social, and environmental trajectories within most world regions are unsustainable. Interaction between bottom-up initiatives and top-down good governance is essential to change them. The One Health movement, made up of many organizations, groups, and individuals from diverse backgrounds and disciplines, seeks to redress the present trajectories but has lacked coordination and cooperation, limiting its effectiveness to date. We take a snapshot of groups/organizations working to promote One Health, explore options to increase cooperation and coordination among global One Health stakeholders, and propose systemic strategies that could positively impact animals, people, the planet, plants, and politics.

Methods: Through a review of the compilation of Who's Who in One Health organizations on the One Health Commission's (OHC) website and the list of organizations that have pledged support for One Health listed on the One Health Initiative (OHI) website, 289 organizations were identified (as of 29 July 2022: 126 Civil Society Organizations, 133 academic and 30 governmental organizations). A stratified sampling approach and MAXQDA 2022 were used in a mixed-methods analysis to select a sample (N=50) of organizations to evaluate with 10 questions on purpose & focus, structure & transparency, cooperation & implementation, and publications.

Results: The words "One Health" appeared in the organizations' names on 62.0% (N=31) of websites examined, most often those in academic settings (78.2%). As regards transparency of the organizational structures, membership was defined in 70.0% (N=35), again most often by academic organizations (82.6%). Members of the governing structures were named on 34.0% of organizational websites. Projects led in the last two years were described on 32.0%, and cooperation with other organizations was indicated on 64.0% of websites examined. Relevant publications and annual reports were listed on 46.0% and 24.0% of probed websites, respectively. Ranking the number of positive findings for each of the 50 organizations examined revealed that full information for all ten questions was provided by only 4 academic and 1 governmental organization.

The OHC website was used as a starting point and thus was not included in the N=50 samples. It was therefore examined as an example of a Non-Profit / CSO working to support bottom-up One Health leadership. Since 2014 the OHC has supported a Global One Health Community listserv of individuals from around the globe. The analysis revealed a dominance of Directors from the US and a high proportion of organizations included on the OHC Who's Who in One Health organizations webpage were located in North America. The social sciences - sociology and economics in particular – were underrepresented among in its leadership.

Conclusion: These 10 questions may not have been fully appropriate for all organizations examined in academic or government settings versus stand-alone non-profit or civil society organizations. However, an examination of the 50 selected websites of organizations working

¹ Presented orally at the 7th World One Health Congress 2022 in Singapore: <https://tinyurl.com/yy767vmy>



to implement One Health and/or framing their projects and purpose in One Health revealed the global One Health movement to be fragmented and uncoordinated. The authors propose to form a more unified voice for One Health across the international One Health movement, a fully networked, informal global One Health alliance or community of practice that can coordinate sharing of information among the networks and with the general public, and that is able to seek synergies and joining of hands in collective/collaborative actions to effectively and efficiently promote and support bottom-up efforts.

Keywords: One Health movement; trajectories, globalization; global health; organizational deficits; interaction; global One Health alliance.

Ultimately, the survival, not only of other life forms on this planet but also of our own, will depend upon humanity's ability to recognize the oneness of all that exists and the importance and deeper significance of compassion for all life (Wiebers & Feigin, 2020 (1))

INTRODUCTION

We have transgressed several planetary boundaries that regulate the stability of earth systems and ultimately a stable state of the planet. THE WORLD IN 2050 (TWI 2050) (2) initiative identified in 2018 specific pathways on how we can achieve a sustainable future, and, in a more recent reformulation, Sachs et al. (3) outlined 6 transformations to achieve the United Nations Sustainable Development Goals:

- 1) Education, gender, and inequality
- 2) Health, well-being, and demography
- 3) Energy, de-carbonization, and sustainable industry
- 4) 4) Sustainable food, land, water, and oceans
- 5) 5) Sustainable cities and communities
- 6) 6) Digital revolution for sustainable development

The timing

How can the world progress along these six pathways? First, we must realize that there is not much time left; the last decades of this century may be too late. As outlined by the United Nations' seventeen goals (4) and TWI 2050 initiative (2), which target 2030 and 2050 respectively, action is required 'now'. This is exemplified by the fact that, e.g., since 1970 the abundance of all vertebrates has declined by 60% (5). Yet, resistance to the necessary change is strong² (2). Politics may be too slow as seen at the Glasgow Summit 2021 (6) and "current health governance remains segregated in local, national and international institutions, which lack the authority and tools to prevent emerging health threats at various scales" as stated by Kevin Queenan et al. in 2017 (7).

² Vested interests:

- a) Owners of fossil fuels resisting the move to zero-carbon energy, and beneficiaries of unsustainable land and ocean practices as e.g. land clearing and deforestation, overfishing the oceans.
- b) Major wealth owners avoid successfully taxation.
- c) Limited capacity of governments to plan and implement policies with time scales of decades because of the short political business cycle and the lack of strong planning units supported by universities, and think tanks.
- d) The difficulty of a suitable balance in public private partnerships (successful lobbying vs. strangulation of initiative).
- e) An ill-informed public develops fear and resistance to change leading to 'status quo biases'.

Threats of the future or today?



The Lake Chad Basin, situated in the Sub-Saharan region of Africa, is facing one of the world's greatest humanitarian crises. Between 1973 and 2017 the lake shrank by 90%: from a surface area of 25,000km² in 1963 to less than 2,500km² in 2021. More than seven million people suffer from severe food insecurity and more than two million have been displaced by the intractable conflict fueled by the diminishing livelihood. The region's recent history provides an illuminating snapshot of how climate change is already driving social tensions, conflict and migration, and threatens to do so on a much larger scale over the next decades.

The historical perspective

In Western Countries, advancements in human health were critical to and resulted from the human "Great Escape" out of poverty over the past 250 years (8). However, many recent health gains resulted from the exploitation of natural resources, particularly for food and energy provision. The required correction of this unsustainable path must be based on the most important asset of good governance, the public's confidence, and trust: if lost, the costs can be very high. This applies also to the public's confidence in scientific conclusions. The starting point is public awareness, often initiated by civil movements or farsighted authors³ whose

writings have often preceded governmental action by decades (e.g., Nelson Mandela for civil rights). Admitting that a de-growth scenario is at least for the moment impossible, instead, we must try to mitigate the consequences of our current trends (9). An example is carbon dioxide (CO₂) mitigation. Can we extend it to other fields and what would it take - scientifically, politically, and economically? The real danger is that a collision between several non-linear tipping points will generate unpredictable disruptions, leading to a period of global chaos, accelerated by rapid technological change, such as the fast Internet.

³ E.g. Rachel Carlson's book of 1962: "Silent spring" initiating the environmental movement in the US

Bottom-up and Top-down

A dynamic One Health framework of leadership and management will require both bottom-up (10) and top-down (11) structural elements, interacting based on scientific reasoning and guiding long-term One Health advancement. Innovative ideas and subsequent initiatives are often initiated bottom-up, as is the societal dimension of One Health and its social dynamism. On the other hand, supportive leadership carrying forward and stabilizing initiatives is mandatory to secure an enduring long-term perspective and permanent progress: *The flowers rising their heads are going to dry and die without rain*⁴.

Science and policy

Yet policymaking in the 21st century is dealing with uncertainty and the process has become even more complex as it attempts to address systemic risks confronted with multiple possible futures. Decision-making today includes many players and stakeholders, various processes (politics), and related structures (polity) to reach an agreement on courses of action, bottom-up and top-down.

Exacerbating policymaking is the fact that the amount of evidence is always increasing, and it is rarely final. This difficulty to forecast the effects of action with a sufficient degree of reliability constitutes a major problem for political and administrative decision-makers. Consequently, they are hesitant to make decisions in a state of uncertainty and have no incentive to go beyond their field. Not to mention that they are usually elected for a limited time and have to be concerned about

their professional future. Addressing complex social issues based on separate responsibilities and not on teamwork across sectors does not pay justice to 'the interactions between causal factors, conflicting policy objectives and disagreement over the appropriate solution.' (12). Already in 2010, The World Bank called for a permanent system of international surveillance and control instead of prevailing temporary arrangements and uncoordinated duplication of efforts (13).

An additional fundamental element is a complex amalgam requiring expertise from natural and social sciences, oriented on three interconnected concepts:

I) Global Health, which underlines the steep gradients in human health between rich Western countries and, e.g., impoverished sub-Saharan countries in Africa.

II) Public Health, which targets population health and the essential service infrastructure required in addition to individual curative medicine by.

III) Planetary Health which targets the ecosystem as an interdependent and interactive system of air, water, land, plants, animals, and humans.

Multi-professionality

Practice on the ground – represented by the activities of Non-Profit or Civil Society Organizations (CSOs) - should help to influence, bottom-up, the governing level and induce changes toward more responsive and inclusive governance. On the other hand, governance should secure the initiation and support of an active and well-informed, bottom-up community of practice

⁴ Poetic wording, UL

thus widening its scope and coverage. This process includes multiple professional sectors, inter alia: mechanical engineering, pharmaceutical industry, forestry, education, and professional specialists: e.g. economists, agriculturalists, veterinarians, physicians, political advocates, and journalists. Also, the multiple professional sectors' involvement must include the often-neglected areas of jurisprudence, sociology, and ethics in which we need to go beyond the bioethics and include the issues of environmental and biodiversity ethics, social science ethics, and aspects of rights (human, animal, ecosystem). To this end, legal experts, sociologists, and experts in ethics should be included in the implementation of One Health (14). As demand increases from the scientific community, from policymakers, and other stakeholders for quantitative projections of future climate change, the involvement of professionals with expertise in systems modeling is a must (15). Indeed, though many writings have outlined core competencies⁵ required for One Health practitioners (16), consensus across the global One Health movement on a set of required competencies has not yet been reached.

Global interaction

“One Health” has been recently defined by four global institutions⁶ joined together as a One Health Quadripartite:

⁵ https://www.onehealthcommission.org/en/why_one_health/one_health_core_competencies/

⁶ The Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO): <https://www.who.int/news/item/01-12-2021->

One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems.

It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.

The approach mobilizes multiple sectors, disciplines, and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems while addressing the collective need for clean water, energy, and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development.

Nevertheless, One Health has struggled to gain a firm institutional foothold despite growing support for this framework most recently at the G7 and G20 2021 and 2022 summits⁷. Lee and Brumme observed in 2013 that, beyond meetings, there had been few attempts (so far) “...to create a single designated global level institution for One Health” (17). They continued that an integrated approach to One Health is hindered by “institutional proliferation, fragmentation, competition for scarce resources, lack of an overarching authority, and donor-driven vertical programs”. Leboeuf (18) called it “soft Global Health Governance” based on meetings and declarations, dominated by veterinarians and characterized by a high degree of reductionism and fragmentation (19). Streichert et al. (20) in their study on participation in One Health Networks (OHNs) and involvement in the Covid-19

[tripartite-and-unep-support-ohhlep-s-definition-of-one-health](https://www.iges.or.jp/en/projects/g7-g20-2022;https://www.woah.org/en/g20-ministers-of-health-reaffirm-the-urgent-need-to-address-global-health-under-a-one-health-approach/http://www.g20.utoronto.ca/2021/210906-health.html)

⁷ <https://www.iges.or.jp/en/projects/g7-g20-2022;https://www.woah.org/en/g20-ministers-of-health-reaffirm-the-urgent-need-to-address-global-health-under-a-one-health-approach/http://www.g20.utoronto.ca/2021/210906-health.html>

response found that of 1050 questionnaire responses globally, 75.0% considered themselves to be part of an OHN. 44.6% came from the United States and 42.7% from academia but only 15.6% from non-profit organizations and only 7.6% from social sciences.

Khan et al. in 2018 published (21) a systematic analysis of OHNs. Khan et al. in 2018 published a systematic analysis of OHNs (21), defined a network as engagement between two or more discrete organizations and investigated whether duplication of efforts was occurring, which stakeholders were being engaged in One Health networks, and how frequently monitoring and evaluation of investments were being reported. They identified "specific gaps in the coverage of activities, limitations in stakeholder representation, apparently absent or ambiguous accountability structures, and potential areas of duplication." Less than 15% of OHNs reported activities targeting the "...community level impact of ongoing

The targets of this paper

Since 2010 (13) there have been multiple calls for permanent systems of sustained One Health implementation on many fronts, (especially for disease surveillance and response) instead of temporary arrangements and uncoordinated duplication of efforts. Yet, the One Health movement has appeared as a conglomeration with many different players and often uncoordinated actions.

In Part I of this paper, we identify and analyze the websites of a representative sample of non-profit, Civil Society Organizations (CSOs), university-based

investments in One Health, engagement with target populations, and research to aid adaptation of interventions to the local context."

In this paper, we consider a global orientation – potentially best termed 'Globalism' – as a decisive dimension. Although each country or group of countries must find its priorities, direction, pace, and agenda (the traditional scenario), each such choice today has global implications in terms of conditional determinants and global effects. Therefore, they must be discussed and decided considering the global context. People become increasingly 'place-less' with other, non-territorial modes of organization emerging. Globalism supports our understanding of an interdependent world but can also undermine societal cohesion, the multidimensional value systems that keep communities together (22) with the consequence of unrest and even rampant fanaticism unlocked.

organizations (Academia), and governmental organizations (Government) that are embracing, promoting, and operating within a One Health framework. We examine their websites with 10 questions on purpose & focus, structure & transparency, cooperation & implementation, and publications. In Part II we analyze the comprehensive website of the One Health Commission to provide an imperfect but positive model. Finally, we explore options to increase cooperation and coordination among global One Health stakeholders and propose systemic strategies that could positively impact people, animals, plants, the environment, and politics.

PART I: The Website Analysis

METHODS

Starting from the websites of the One Health Commission (OHC)⁸ and the One Health Initiative (OHI)⁹, we identified (as of 29 July 2022) 289 organizations working to promote and implement One Health (126 non-profit Civil Society Organizations (CSO), 133 academic organizations, and 30 governmental). To ensure the most efficient evaluation, we decided to work with a random sample of $N = 50$ organizations. This number seemed to be both large enough and the evaluations achievable within a reasonable amount of time. Stratified sampling was used to account for the different sizes of the three categories

“civil, academic and governmental”. One approach for stratified sampling is proportionate stratification. With proportionate stratification, the sample size of each stratum is proportionate to the population size of the stratum according to the formula (23):

$$n_h = (N_h / N) * n$$

The organizations were selected using random numbers per sample stratum. This resulted in 22 civil, 23 academic, and 5 governmental organizations, $N = 50$ in total.

For a description of the organizations, 10 questions were formulated (see Table 1 and Figure 1) to be checked on their websites for positive/negative findings (also short: YES/NO classification).

Table 1: The ten questions

- 1) Is One Health part of the organization's name?
- 2) Are the work objectives listed?
- 3) Is membership defined?
- 4) Is a governing structure (executive board) described?
- 5) Are members of the governing structure named?
- 6) Are projects indicated for the period 2020/2021?
- 7) Is cooperation with other organizations/projects indicated?
- 8) Are names of cooperation partners provided?
- 9) Are publications (any media) listed on the website?
- 10) Is an annual report published?

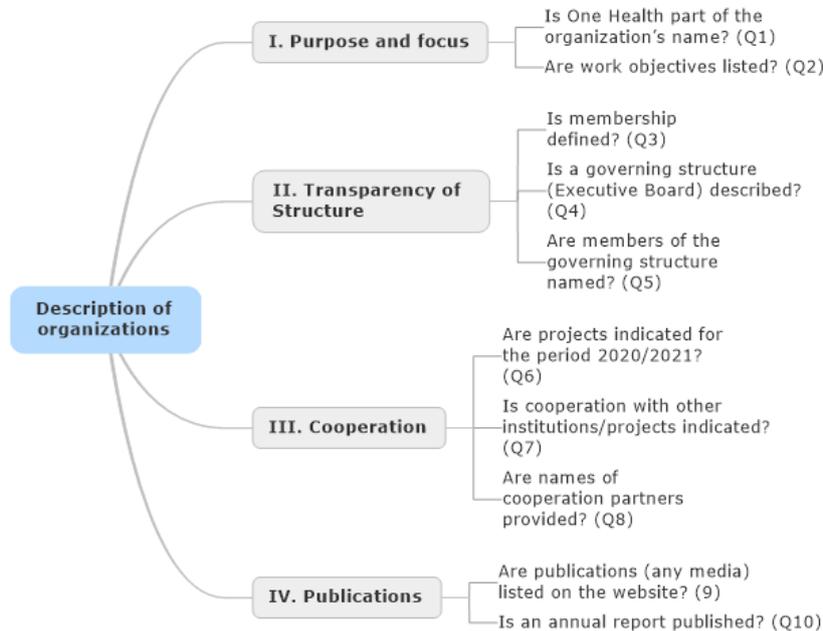
The answers to these questions, taken from the websites of the selected organizations, should clarify (Figure 1):

- I. What is the purpose and focus (1, 2)?
- II. Is the organization's structure transparent (3-5)?
- III. Are cooperation and implementation described on the website (6-8)?
- IV. Are there publications (9, 10)?

⁸ <https://www.onehealthcommission.org>

⁹ <https://onehealthinitiative.com/>

Figure 1: The four domains of questions on the practice of One Health Organizations.



RESULTS

Table 2 shows the basic account of the 50 relevant websites of civil, academic, and governmental organizations identified, and randomly selected from 289 organizations (for more details see **Annex A**). Though they were included in a listing of Who's Who in One Health Organizations, the words “One Health” appeared in the organizations’ names on 62.0% (N=31) of websites examined, most often those in academic settings (78.2%) and governmental organizations (80.0%). As regards transparency of the organizational structures, membership was defined in

70.0% (N=35), again most often by academic organizations (82.6%). Members of the governing structures were named on 34.0% of organizational websites. An annual budget was found on only one CSO website. One Health projects led in the last two years were described on 32.0%, and cooperation with other organizations was indicated on 64.0% of websites examined. Relevant publications and annual reports were listed on 46.0% and 24.0% of probed websites, respectively.

Table 2: Summary of the resulting classifications of One Health organizations (percentages in bold)

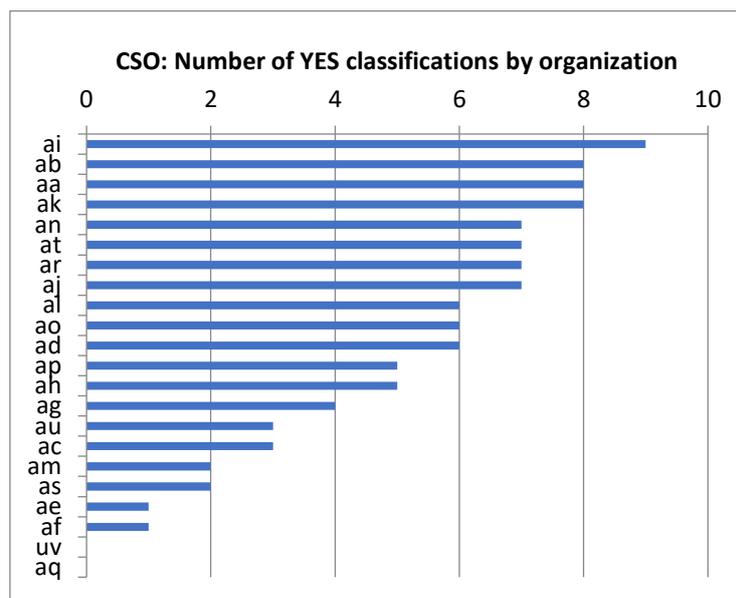
Question No.	I. Purpose & Focus		II. Transparency of structure			III. Cooperations			IV. Publications		Sum of YES classifications
	1	2	3	4	5	6	7	8	9	10	
A. CSOs (N=22)	9 40.9	18 81.8	13 59.1	9 40.9	8 36.4	8 36.4	13 59.1	10 45.5	10 45.5	7 31.8	105 47.7
B. Academia (N=23)	18 78.2	18 78.2	19 82.6	7 30.4	8 34.8	7 30.4	16 69.6	15 68.2	10 43.5	4 17.4	122 53.0
C. Government (N=5)	4 80.0	3 60.0	3 60.0	2 40.0	1 20.0	1 20.0	3 60.0	3 60.0	2 40.0	1 20.0	23 46.0
Sum of YES classifications	31 62.0	39 78.0	35 70.0	18 36.0	17 34.0	16 32.0	32 64.0	28 56.0	22 44.0	12 24.0	250 50.0

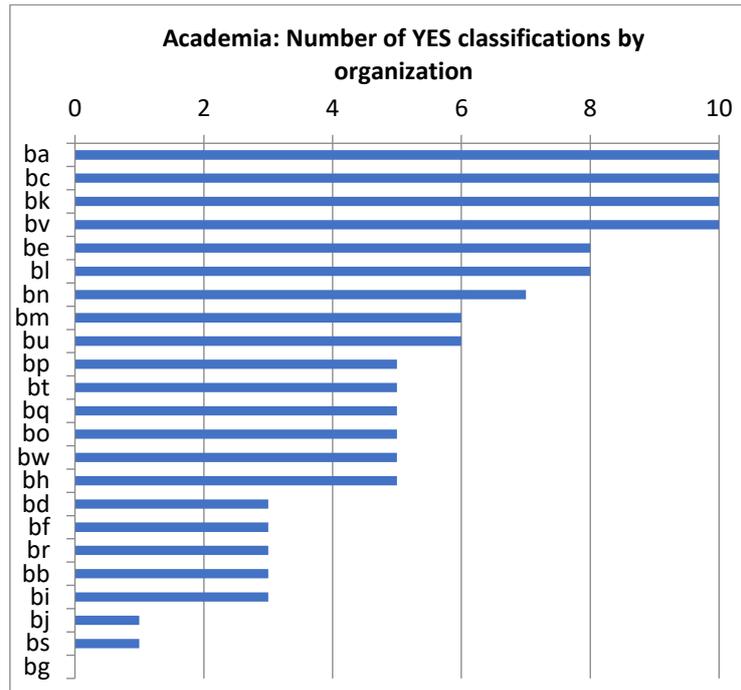
Note: The total number of possible YES/NO classifications is 500 (10 questions checked for 50 organizations)

Of the 50 websites examined, full information for all ten questions was provided only by 4 academic and 1 governmental organization (none of the governmental ones, together 5 organizations or 10%), almost one-third

answered positively on less than 5 questions. A ranking of the number of positive findings (YES classifications) for CSOs and academic organizations is demonstrated in **Figure 2**.

Figure 2: Comparison of positive findings (YES classification) for the ten questions per organization: here CSOs and Academia.

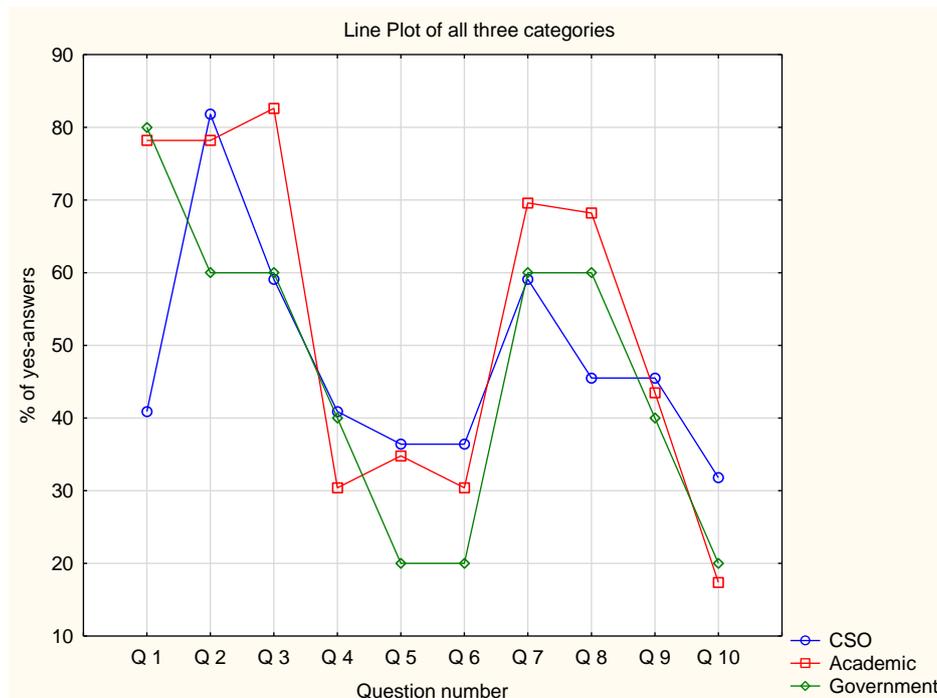




The pattern of positive or YES classifications is similar for all three organizational groupings (Figure 3). Insignificant differences were shown for

CSOs on one side and academic and governmental organizations on the other also by Principal Component Analysis.

Figure 3: Percentage of YES classifications by question and categories



PART II: Analysis of the website of the One Health Commission (OHC)

The One Health Commission's website was used as one starting point for this pilot study and thus was not included in the random sample selected from its website. It may therefore be examined as a potential positive example of a Non-Profit / CSO working to support bottom-up One Health leadership. Since 2014 the OHC has supported a Global One Health Community listserv that had grown to over 17,200 individuals (at the time of this publication) from around the globe actively sharing information through its monthly 'One Health Happenings' newsletter.⁷ The website presents a comprehensive and well-organized collection of information, an extensive catalog of activities - mainly Programs / Working group activities, Extensive Resources (Online One Health Opportunities Bulletin Board, One Health Educational Resources for Public Health Educators, National One Health Strategic Action Plans, One Health Tools/Toolkits, Relevant Newsletters, Social Media links, Webinars and Presentations) - as well as a library of relevant books and articles, and a list of Who's Who in One Health

Organizations. Annual Reports for 2020 and 2021 were presented under 'Why Support the One Health Commission?'. Consequently, all 10 questions could be answered positively. Of special interest is the list of projects and organizational collaborations (**Annex B**).

However, a more detailed analysis of the OHC website revealed that all but one member of the Board of Directors was from the US and that approximately 50% of organizations included on the Who's Who in One Health organizations webpage were located in North America in the US and Canada. Individuals listed as directors were almost exclusively veterinarians and physicians. While the OHC supports a One Health Social Sciences Initiative and working groups, the social sciences - sociology and economics in particular - were underrepresented as of July 2022 among its leadership. (See the discussion).

Figure 4 reveals a map of 'all' groups and organizations (Non-Profit/CSO, Academia, Government) identified so far in an OHC-led global One Health Community joint effort as working to promote One Health or framing their work in One Health.

Figure 4: Global map (July 2022) of identified groups and organizations working to promote One Health or framing their work in One Health



Permission to use granted by the One Health Commission

Table 3 reveals dominance of US-American organizations identified as working to promote One Health. A global list-serv¹⁰

indicates a community of followers of plus 17.000 actively served with information through the monthly newsletter "One Health Happenings".

¹⁰https://www.onehealthcommission.org/en/resourceservices/join_the_global_oh_community_listser/

Table 3: Who is Who in One Health^{11,12}

Organizations	Civil society organization, not for profit	Academic	Governmental	Private for-profit organizations	TOTAL
Africa	5	5			10
Asia (incl. AU/NZ)	11 (1/1)	10 (2/0)	2	2	25
Europe	13	6	5	2	26
North America (incl. Canada)	22 (1)	30	7	6	65
South America	4	3			7
TOTAL	55	54	14	10	133

The structure of the One Health Commission¹³ can be summarized as follows:

The Board of Directors consists of 13 members: 7 with a veterinarian education, 4 with medical education, and 1 with medical public health education (one CV is not accessible), all members are US American.

The Council of Advisors (non-voting) comprises 15 members: 13 veterinarians and 1 with medical public health education, all US American. One member lives in England.

Among the Council of Advisors, the One Health Initiative (OHI)¹⁴ (autonomous pro bono team) lists 7 active members, thereof 2 veterinarians, 2 physicians, and 3 members of related pharmaceutical companies.

A student representation is dated 2015/2017 and continued as the International Student One Health Alliance (ISOHA¹⁵).

The lists of 5 corporate financial donors/sponsors, ca. 25 institutional financial donors, and ca. 55 individual donors appear to be almost exclusively US-American donors.

¹¹ https://www.onehealthcommission.org/en/resourcesservices/whos_who_in_one_health/

¹² The figures may not be fully precise and differ by one or two units because of unclarity of information.

¹³ At: https://www.onehealthcommission.org/en/leadership_board_of_directors/ (visited 18 September 2022)

¹⁴ The One Health Initiative Autonomous *pro bono* team (OHI) was co-founded originally by physician Laura H. Kahn, MD, MPH, MPP [View bio](#), veterinarian Bruce Kaplan, DVM [View bio](#), and physician Thomas P. Monath, MD [View bio](#) in 2006-2007 for the sole purpose of promoting the One Health concept nationally and internationally. The OHI team was expanded to include health research scientist *Jack Woodall, PhD [Read more about Jack Woodall](#) in February 2009 and *Lisa A. Conti, DVM, MPH [View bio](#) in January 2012.

¹⁵ https://www.onehealthcommission.org/en/leadership_board_of_directors/students_for_one_health_soh_news/

DISCUSSION

If we continue failing to address the wide gaps revealed in poverty, social inequality and the environmental injustice – failing to acknowledge and act on the linkages between environment and human and animal well-being - then negative trajectories may exponentially grow and endanger civility. How to enhance civility? Is it sufficient to get citizens to adopt a convention on decent behavior? It seems that in most if not all societies there is a potential for indecent behavior only waiting for an opportunity to exercise aggressive communication and even physical attack. This potential may be smaller in more equal societies but will be unlocked by steepening social gradients or, for example, by a pandemic like COVID-19 and the restrictions coming with it.

The German history of the last 150 years is a good example of unlocked aggression. Starting from Kaiser Wilhelm II's immature personality and almost absolute power on the last decisions, to the unbalanced Treaty of Versailles, and the financial crash of 1929 the stage was set for extremist groupings to take over. Today the largely uncontrolled social media make it even easier to form extremist cocoons growing fast in times of general hardship when people look desperately for an exit. Nevertheless, a deeply disturbing question arises: Why could the great, humanizing traditions of German history - Duerer, Lutherbibel, Bach, the Enlightenment, Goethe's Faust, the Bauhaus, and very many more - not prevent the total moral collapse of 1933-1945.

Today, on a global scale, we see large sections of our societies being deprived of a decent living and health equity - e.g., in the big cities, in the former German Democratic Republic (GDR), in England, and especially in the US, not to mention the global South. How can we expect that they behave decently? If we do not get better at equalizing social gradients (even vaccines are unequally distributed (24)), a huge reservoir of non-civility will remain (25).

Many people see the One Health way of thinking and living as a Ray of Hope for the Future never more desperately and urgently needed. Implementation of One Health, truly making it the default way of thinking at all levels of academia, research, government and policy, will help us fully achieve the UN 2030 Sustainable Development Goals¹⁶. Achieving those goals will go a long way toward global security by addressing the social, public health and ecological inequities that can drive the unlocked aggression mentioned above. It is urgent that the global community of One Health stakeholders and advocates succeed in helping the world understand and adopt the One Health paradigm shift.

In the introduction to this paper we referred to the necessity, for One Health to be fully realized, of a bottom-up and top-down strategy as outlined also in the special volume of the South Eastern European Journal of Public Health on the Global One Health Environment (26).

Action from both sides and a supportive array of environmental, social, and health sciences are essential to secure sustainable,

¹⁶ <https://sdgs.un.org/goals>

codified, institutionalized, long-term implementation. Innovative ideas are often conceptualized bottom-up. And supportive leadership from the top is mandatory to stabilize and carry initiatives forward for secure, permanent, sustainable progress.

Yet the One Health movement has struggled for 20 years to get these coordinated bottom-up/top-down actions happening simultaneously from both directions. There are many differing opinions about why we have not been able to sustainably put One Health programs in place even on the most obviously needed fronts like zoonotic disease surveillance and control. Some advocates think we have tried too much from the top down via government programs that don't draw from deep knowledge and expertise 'in' local communities to discern what 'they' think their priorities need to be and how 'they' think they should be addressed. That is the way to get true support and 'buy-in' from the grassroots communities needed to implement One Health thinking at ground level.

The challenges likely lie at both ends of this spectrum. If we think for the moment just about the 'bottom-up' challenges, what the Community of Global One Health Stakeholders, i.e. the global One Health movement, needs is a way to better 'connect, communicate and coordinate' our actions across all categories of players in the global One Health Community:

- so organizations working for One Health can find each other, discover their commonalities, overlaps, strengths, and synergies, join hands, and work 'together'

- to share news from all global regions, and all professions – so the right hand of the One Health movement knows what the left is doing – so we can 'support' each other's efforts and become 'force multipliers'!
- to speak in a unified voice to the public, to governments, lawmakers, and policymakers urging a focus on ways to 'prevent' infectious disease outbreaks and environmental contamination and degradation.
- to share educational, job, and volunteer opportunities
- to engage more social scientists and many other disciplines

There is, already in place, a lot of what is needed for effective bottom-up and top-down actions. It just lacks connection, communication, and coordination.

Bottom-Up:

- We have a global army of individuals willing and able to lead for One Health as revealed by annual One Health Day events since 2016 (<https://tinyurl.com/OH-Day-Home>).
- We have many powerful One Health Tools and Toolkits (<https://tinyurl.com/OHC-OH-Toolkits>).
- We have grassroots networks for communications like the OHC's One Health Happenings newsletter (<https://tinyurl.com/OHC-OH-Happening>) and the OHI's One Health News webpages (<https://onehealthinitiative.com/one-health-initiative-news/>).
- We have a network of networks of

One Health groups and organizations (<https://tinyurl.com/OHC-WW>) that can share information and get it out deeply across and into their networks. (Example: the OHC's global One Health Community listserv has grown to >17,200 since 2014 (<https://tinyurl.com/OHC-Listserv>)).

The needed communications just aren't currently happening efficiently because those working in the One Health space often don't even know each other exists.

Top-down:

- We have the newly expanded Quadripartite and its advisory One Health High-Level Expert Panel (OHHLEP) that has given us a more unifying definition of One Health to guide us. <https://tinyurl.com/WHO-OHHLEP-OH-Definition>
- We have the newly released Quadripartite One Health Joint Plan of Action <https://tinyurl.com/Quadri-OH-JPA> with its elegant Theory of Change and unifying message.
- We have a growing number of countries that have formally adopted National One Health Strategic Action Plans and One Health framed Antimicrobial Resistance Strategic Action Plans (<https://tinyurl.com/OHC-OH-StratAct>).

All that is needed is the collective, grassroots 'will' to 'be' a more coordinated community of practice to provide collaborative leadership in both directions. Thus, we are calling for an informal global One Health Alliance. Not another non-profit organization, but a global community of practice that is well-connected and coordinated among its members.

Formation of an informal global Alliance is not an unprecedented idea. Indeed the "Alliance for Multilateralism"¹⁷ launched by the French and German Foreign Ministers is an informal network of countries united in their conviction that a rules-based multilateral order is the only reliable guarantee for international stability and peace and that our common challenges can only be solved through cooperation. That Alliance has embraced One Health with a posting about the Berlin One Health Principles¹⁸ stating "International cooperation in this field [One Health] must be intensified and existing structures strengthened. In this sense, the "Berlin principles", the outcome document of the conference on „One Planet, One Health, One Future“ held in October 2019 in Berlin by the Federal Foreign Office in cooperation with the Wildlife Conservation Society can serve as a point of departure, calling for a "unity of approach that is achievable only through convergence of human, domestic animal, wildlife, plant, and environmental health".

We call for an informal global One Health Alliance.

¹⁷ <https://multilateralism.org/the-alliance/>

¹⁸ <https://multilateralism.org/actionareas/berlin-principles-on-one-health/>

The One Health Commission¹⁹ was not included in the random sample of organizations selected from its website for the pilot study reported here; thus it was further examined as a potential positive though imperfect example of a CSO working to support bottom-up One Health leadership. At the 7th World One Health Congress 2022 in Singapore²⁰, the OHC presented this call²¹ for a global One Health Alliance, pledged its support for collaborative, coordinated, communication partnerships with OHHLEP and the Quadripartite and urged that mechanisms be devised for the whole community of One Health stakeholders to get actively involved, to help us become better aware of who is doing what, who has what strengths and how we can synergize our efforts to raise a collective voice. In their article One Health, One Welfare, One Planet (July 2019), Stroud and Lindenmayer (27) explain a critical need to push the boundaries of the One Health framework toward 'One Health and One Welfare for One Planet' which implies that the real sustainability challenge is primarily and essentially societal and individual! Health and well-being are both preconditions and outcomes of sustainable development. But the needed changes cannot be driven by any one country, one profession, or any individual. It will take the collective will of the whole global community of One Health stakeholders, working both bottom-up and top-down. We call for an informal global One Health Alliance, an informal community of practice.

CONCLUSIONS AND RECOMMENDATIONS

Motto: To save the planet - our arch in space - requires political, economic, and sociologic analysis and coordinated intervention.

Limitations of the pilot study

This pilot study is limited because of the small sample size from two selective lists, available at the OHC and OHI websites, and the missing operability of advanced statistical analysis. Additionally, though the information has been gathered and compiled on the Who's Who maps on the OHC website for the past 8 years, we know that those maps are still incomplete because many critical players in the One Health space are not yet aware of and have not yet joined in the effort to help identify each other and be better connected for collaborations and sharing of information. It will require full participation by the global community of One Health advocates to make those maps more complete, though they will hopefully be ever-evolving as more and more organizations, individuals and governments move into a One Health way of thinking and living. To achieve full representation, a global One Health Stakeholders survey of related organizations and their activities is proposed for the network of networks to collectively push it out to all players. Among few, OHC/OHI has the potential and the intention to support a common agenda for the One Health-oriented CSOs

¹⁹ <https://www.onehealthcommission.org/>

²⁰ <https://worldonehealthcongress.org>

²¹ <https://tinyurl.com/yy767vmy>

as well as academic organizations if not also administrative bodies.

The horizon for further expansion

The most recent announcements of the World Bank and UN agencies signal heightened attention and promise a turn-around of focus to the One Health concept and framework (28). In our call for an informal global One Health Alliance, a community we recommend:

- 1) As a first step a central information hub should be installed to allow for multilateral contacts and information exchange perhaps with circulating administration by interested One Health organizations.
- 2) Through that hub, an agreement should be reached on the minimum information on the websites of participating organizations modifying where appropriate the catalog of ten questions used in this paper for a basic analysis.
- 3) Delegates solicited from the global Community of One Health stakeholders should be on the organizing committee and contribute to the preparation of the next World One Health Congress in 2024 in Cape Town Africa²².
- 4) A community driven One Health information newsletter is needed to orient specifically on global One Health developments, initiatives and proposals as well as on publications regarding specific One Health topics. For example, the established monthly One Health Happenings newsletter, edited by the One

Health Commission, could be further funded and supported by the community of One Health stakeholders, expanded and disseminated across and deeply into One Health networks and beyond.

In summary, there is an **urgent need to form a coordinated voice for One Health, an informal Global One Health Alliance**, a community of practice that is connected in a communications network and able to speak in one voice, enhance synergy and collaboration, and further bottom-up efforts. The best format would be to act in partnership with the Quadripartite Organizations (29, 30).

Reminder

Earth is a home for animals, plants, and mankind in a common environment of air, water, and land - the planet Earth as Noah's Ark, told in the heritage of mankind (Genesis 6,12,13 & 1920): "God saw how corrupt the earth had become, for all the people on earth had corrupted their ways. So, God said to Noah: ...You are to bring into the ark two of all living creatures, male and female, to keep them alive with you. Two of every kind of bird, of every kind of animal, and of every kind of creature that moves along the ground will come to you to be kept alive".

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²² <https://www.facebook.com/hashtag/wohc2024>

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Annex A: Information on the ten questions provided by the N = 50 sampled organizations on their websites.

Note 1: Missing data was assessed and counted as NO since no information is equal to a negative answer. These 39 values are marked in italics.

Note 2: The analysis of the websites according to the 10 questions was done by HW and UL with mutual control.

Group of questions	I. Purpose & Focus				II. Transparency of Structure						III. Cooperations						IV. Publications				Summary		
	1		2		3		4		5		6		7		8		9		10				
Questions & answers	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Sum YES	Sum NO	TOTAL
aa	1	0	1	0	0	1	1	0	1	0	0	1	1	0	1	0	0	1	1	0	7	3	10
ab	1	0	1	0	0	1	1	0	1	0	0	1	1	0	1	0	1	0	1	0	8	2	10
ac	0	1	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	9	10
ad	0	1	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	9	10
ae	1	0	1	0	1	0	0	1	0	1	1	0	1	0	1	0	1	0	1	0	8	2	10
af	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	8	2	10
ag	0	1	1	0	1	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0	6	4	10
ah	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	0	10	10
ai	0	1	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	4	6	10
aj	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	10
ak	0	1	1	0	1	0	1	0	0	1	1	0	1	0	1	0	1	0	0	1	7	3	10
al	0	1	1	0	1	0	0	1	1	0	1	0	1	0	1	0	1	0	0	1	7	3	10
am	0	1	1	0	0	1	0	1	0	1	0	1	0	1	1	0	1	0	1	0	3	7	10
an	1	0	1	0	1	0	1	0	0	1	1	0	1	0	1	0	1	0	1	0	9	1	10



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ao	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	2	8	10
ap	1	0	0	1	0	1	0	1	0	1	0	1	1	0	0	1	0	1	0	1	2	8	10
aq	0	1	1	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	1	6	4	10
ar	1	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	5	5	10
as	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	3	7	10
at	1	0	1	0	1	0	0	1	0	1	1	0	1	0	0	1	1	0	0	1	6	4	10
au	0	1	1	0	1	0	0	1	0	1	1	0	1	0	1	0	0	1	0	1	5	5	10
av	0	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	7	3	10
Sum	9	13	18	4	13	9	9	13	8	14	8	14	13	9	10	12	10	12	7	15	105	115	220



Questions & answers	1		2		3		4		5		6		7		8		9		10		Sum YES	Sum NO	TOTAL
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N			
ba	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0	10
bb	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	9	10
bc	1	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	5	5	10
bd	1	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	5	5	10
be	1	0	1	0	1	0	1	0	1	0	0	1	1	0	1	0	1	0	0	1	8	2	10
bf	1	0	1	0	1	0	0	1	1	0	0	1	0	1	0	1	0	1	0	0	5	5	10
bg	0	1	1	0	1	0	0	1	0	1	1	0	1	0	1	0	1	0	0	1	6	4	10
bh	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	10
bi	0	1	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	9	10
bj	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0	10
bk	1	0	0	1	0	1	0	1	0	1	0	1	1	0	1	0	0	1	0	1	3	7	10
bl	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	3	7	10
bm	1	0	1	0	1	0	0	1	0	1	1	0	1	0	1	0	1	0	0	1	7	3	10
bn	1	0	0	1	1	0	0	1	0	1	0	1	1	0	1	0	1	0	0	1	5	5	10
bo	1	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	5	5	10
bp	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0	10
bq	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	8	2	10
br	0	1	0	1	1	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	3	7	10
bs	0	1	1	0	1	0	0	1	1	0	0	1	1	0	1	0	1	0	0	1	6	4	10
bt	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0	10
bu	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	3	7	10
Sum	18	5	18	5	19	4	7	16	8	15	7	16	16	7	15	8	10	13	4	19	122	108	230



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Questions & answers	1		2		3		4		5		6		7		8		9		10		Sum YES	Sum NO	TOTAL
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N			
ca	1	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	5	5	10
cb	1	0	1	0	1	0	1	0	0	1	0	1	1	0	1	0	1	0	0	1	7	3	10
cc	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	10
cd	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0	10
ce	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	9	10
Sum	4	1	3	2	3	2	2	3	1	4	1	4	3	2	3	2	2	3	1	4	23	27	50

Annex B: Projects and cooperations of the One Health Commission, listed on their website, information regarding questions 6-8

Question 6:

Are projects indicated for the period 2020/2021?

- Creation/leadership of global One Health Day
- Creation/leadership of global One Health Awareness Month <https://tinyurl.com/OH-OH-Awareness>
- Creation/production/dissemination of monthly One Health Happenings <https://tinyurl.com/OHC-OH-Happening> (Since 2015)
- Creation of
 - One Health Social Sciences Work Group <https://conta.cc/3II5bUY> https://www.onehealthcommission.org/en/programs/one_health_social_sciences_initiative/
 - Bat Rabies Education Work Group https://www.onehealthcommission.org/en/programs/bat_rabies_education_initiative/
 - Related projects at: <https://conta.cc/2K1Noc9>
- Creation/launch of the following recent web pages:
 - Mapping countries that have formally adopted National One Health Strategic Action Plans <https://tinyurl.com/OHC-OH-StratAct>
 - Mapping countries that have formally adopted National One Health AMR Plans <https://tinyurl.com/OHC-OH-AMR>
 - One Health Toolkits webpage <https://tinyurl.com/OHC-OH-Toolkits>
 - One Health Education Resources for Public Health Educators <https://tinyurl.com/OHC-OH-PH-Ed>

Questions 7 and 8:

Is cooperation with other organizations/projects indicated?

Are names of cooperation partners provided?

- Partnership with Global Alliance for Rabies Control - call for project submissions <https://conta.cc/3StBs1c>
- Partnership (advisory and promotional) with CABI in the launch of its One Health Initiatives (Journal, Case Studies)
 - <https://conta.cc/3g1UBGI>
 - <https://conta.cc/3MIIyx2>



- Partnership with Georgia Aquarium (Atlanta, Georgia) to create/lead Gregory Bossart One Health Scholarship
 - <https://conta.cc/3Et1uLO>
 - https://www.onehealthcommission.org/en/programs/one_health_scholarships/
- Partnership with OneHealthLessons.com to get the word out <https://conta.cc/3Shcu4n>
- Partnership with The National Academies of Sciences, Engineering, and Medicine, in partnership with the Wilson Center and the Smithsonian's National Museum of Natural History, to lead One Health in the US webinar
 - <https://conta.cc/3SeCwFl>
 - https://www.onehealthcommission.org/en/events_since_2001/one_health_in_the_us_webinar_series/
- After supporting its creation - continued partnership with the International Student One Health Alliance (ISOHA) - One of many examples <https://conta.cc/3pIJBQX>
- Partnership with WHO GOARN and One Health European Joint Program in a survey of One Health professional participation in the pandemic response:
 - <https://conta.cc/2WvULMr>
 - Streichert LC, Sepe Ludovico P, Jokelainen P, Stroud CM, Berezowski J, Del Rio Vilas VJ., [Participation in One Health Networks and Involvement in the COVID-19 Pandemic Response: A Global Study](#), *Frontiers in Public Health*, Vol. 10, 2022, DOI=10.3389/fpubh.2022.830893
- Partnership with WHO GOARN in call for professional volunteers for pandemic response <https://conta.cc/2VPQ0xk>
- Creation of US informal coalition of One Health organizations:
 - <https://conta.cc/2DCnTbe>
 - https://www.onehealthcommission.org/documents/filelibrary/oh_news/9420_Coalition_partners_146384B46DFD8.pdf
- Cooperative / Collaborative Project with One Health Academy in Washington DC - providing a webinar platform for all their monthly seminars since 2014:
 - <http://www.onehealthacademy.org/> Scroll to the bottom of the page...
 - and also click on all their 'Previous Talks' <http://www.onehealthacademy.org/previous-talks.html>
- List of OHC Financial Sponsors (they are 'all' partners)
 - <https://www.onehealthcommission.org/en/sponsorship/>



- https://www.onehealthcommission.org/en/sponsorship/list_of_sponsors/ You have to click on the links to see the lists...
- It takes quite a bit of 'cooperation' to create and lead the Who's Who in One Health Organizations webpages - and in the process, an incredible network of colleagues all over the world has been developed. <https://tinyurl.com/OHC-WW> (At the time of publication the Global One Health Community Listserv is over 17,200 and has increased by over 7,000 since the onset of the pandemic)
- Other 'Cooperation' Projects
 - Synergizing OH Collaborations online meeting <https://conta.cc/3TxYODc>
 - OHC - US EPA partnership on National Pet Health Survey: <https://conta.cc/3yVsiTI> and:
 - <https://www.onehealthcommission.org/index.cfm?NodeID=93484&AudienceID=1&preview=1>
 - <https://conta.cc/3ETb8Kf>
 - Supporting the creation of International Student One Health Alliance: <https://conta.cc/3CQO3W1>
 - Online One Health Education Conference <https://conta.cc/3yUnE8e> and: https://www.onehealthcommission.org/en/events_since_2001/one_health_education_online_conference/
 - 2016 Launch of annual global One Health Day <https://conta.cc/3EVIgkp> and: <https://conta.cc/3EScQLX> and: <https://conta.cc/3COCcaF> and: https://www.onehealthcommission.org/en/events_since_2001/2nd_intl_whos_who_in_oh_webinar_2016/
 - Letter from OHC to Obama White House <https://conta.cc/3TioEv5> and: https://www.onehealthcommission.org/en/events_since_2001/1st_intl_whos_who_in_oh_webinar_2016/