Opinion Article

How We Respond to COVID-19 Will Determine Our Relevancy for the Future

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Adam E. Miller[1]

Cross-Scale Community-Led Conservation Provides Solutions for Systems Change

The COVID-19 global pandemic highlights the need for integrated far-sighted solutions to biodiversity loss, planetary health, rural poverty, and restoring the integrity of social-ecological systems. Cross-scale community-based conservation (CBC) offers opportunities in producing positive outcomes across multiple sectors (Otto et al., 2013). Therefore, CBC represents a potential solution to mitigate the negative effects of COVID-19. Besides the clear impacts on human health, Oldekop et al. (2020) also highlighted the effects of the pandemic on global supply chain collapse and growing debt across multiple scales. These negative impacts are compounded in poor communities, and it is clear the marginalized will bear the brunt of these costs (Bennett, 2016). Holistic community-based conservation has the potential to both lessen the current impacts of COVID-19 while also creating community resiliency to social, economic, and public health shocks. Finally, fully participatory CBC potentially offers a preventative solution, as it is ultimately position to create healthy sustainable relationships between society and nature conservation.

However, CBC is often controversial among many conservationists due to the conflict of attempting to produce both development and conservation outcomes, two areas that are often in opposition with one another (Berkes, 2004). Indeed, there are important lessons to be taken from early Integrated Planning (IRD) and Integrated Conservation Development Programs (ICDPs). These approaches ambitiously attempted to produce many outcomes across multiple sectors, placed a heavy dependence on outside expertise that undercut local involvement and knowledge, and paid little attention to local governance structures to create ownership for sustained change (Brown, 2002; Lewis & Carter, 1993). These early initiatives often ended up accomplishing nothing.

CBC in itself is a reaction to decades of exclusionary conservation where humans and the environment were thought to exist separately and management was based upon linear cause-effect thinking (Berkes, 2004; Ghimire & Pimbert, 1997). The problem was most acute where national policies led to management systems that displaced communities or deprived local resource users of their rights to their own lands. The complexity of social-ecological systems further underlines the importance of decentralized place-based management (Kates et al., 2001) of natural resources as top-down 'expert-based' models are ill-suited and create mismatches in scale (Folke et al., 2002). CBC, in its beginnings, was often delivered via two major approaches in response center-driven conservation (Otto et al., 2013). First, it was an attempt to reverse top-down conservation by shifting the focus to those who bear the 'costs' of conservation. This was particularly associated with the 'protected area movement' where early CBC attempts (e.g. ICDPs) attempted to provide development benefits or incentives for communities with limited or no access to a now 'protected' ecosystem. Second, CBC was associated with complete devolution of rights over a resource to a local community. While there were successes and failures across both methodologies, the discussion was unnecessarily dragged into a 'bottom-up' vs 'top-down' debate. During this period, valuable time was lost to improve and advance conservation efforts. I argue that the focus of the discussion should had been placed upon identifying what conditions, strategies, and underlying factors created positive outcomes to improve future iterations of CBC models. Future advancements should recognize CBC as a way to influence policies and work in tandem, not against, top-down approaches.

In recent years those who still hold true to CBC have moved beyond simplistic cause-effect or 'win-win'

[1]Planet Indonesia, St. Louis, Missouri, United States

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Corresponding Author:
Adam E. Miller, Planet Indonesia, 241 Selma, St. Louis, MO 63119, United States.
Email: adam.miller@planetindonesia.org

thinking to embracing a systems view. Successful initiatives involve communities in all stages of the process from identifying solutions to evaluating outcomes. Recent terminology has revealed a transition from "community-based" to "community-led" highlighting the emphasis on ownership of initiatives at the local level. Conservationists are understanding that human well-being is complex (Woodhouse et al., 2015), and impactful initiatives are underpinned by a theory of change where improved income or reduced financial poverty is *not* the only indicator of social and economic outcomes. Modern community-led approaches highlight the interconnectedness of drivers within systems and the need for integrated interventions.

However, the current COVID-19 crisis further underlines both the importance, and the historical failure, of conservationists' ability to adopt a 'systems' approach. The movement to systems thinking is supported by calls to move beyond mono-consequential approaches to embracing the dynamic interactions between natural systems and society (Berkes et al., 2003; Gill et al., 2019). More modern CBC recognizes that simply compensating for loses or securing rights is not enough. Rather these must be combined with improvements in local governance, place a strong focus on local participation and engagement, and the acknowledgement that socio-economic hardships faced by resource-users are diverse, but *must* be addressed to improve conservation outcomes.

Community-based approaches must account for human well-being, institutional fit, and appropriate local context while also taking into consideration improving existing livelihoods to be environmentally sustainable opposed to complete transformation (Allison & Ellis, 2001, Berkes et al., 2008; Woodhouse et al., 2015). Evidence shows that CBC can be considerably improved by involving resource-users in every step of the initiative from identifying the problem to evaluating the solution. Human well-being is multi-dimensional (e.g. economic, cultural, health) and the feedback loop between conservation and these domains must be considered and accounted for in CBC approaches (Daw et al., 2011; Gill et al., 2019; Woodhouse et al., 2015).

To remain relevant in a post covid-19 world we must both evolve our theoretical understanding and our direct implementation of CBC models. As a conservation community, we must move beyond the one-dimensional idea that CBC is simply compensating communities with 'development benefits' for costs incurred by resource management systems (e.g. protected areas). We must hold ourselves accountable and no longer accept CBC as a set of interventions designed in the offices of Washington D.C. and then implemented in the Indigenous communities of Papua New Guinea. Participation can no longer be a concept that is vaguely defined and unrigorously applied. Participation in CBC by local resource users must be viewed as both a *means* to reaching a goal and a *goal* itself.

CBC has the potential to push the conservation community to move to a more holistic needs-based system where practitioners (e.g. NGOs, CSOs, governments) facilitate a participatory process of identifying, implementing, and evaluating initiatives based upon local challenges and opportunities. This shift would inevitably make conservation far more relevant and applicable to a post covid-19 world. It also positions conservation to be a more impactful solution to both mitigate the negative impacts of pandemics, but also build global resiliency to support better preparedness for future outbreaks.

However, this 'conservation revolution' would require organizations to design, implement, and scale in new ways; donors to support longer multi-year partnerships where learning and failures are continually iterated upon; a movement from multi-national to local implementers; and an overall paradigm shift where conservation as a field now *requires* integration with other sectors.

COVID-19 has shown a light on the interconnectedness of social-ecological interactions, and in many ways underlined both the need to repair the relationship, and our failure as conservationists to address it.

Indonesian Songbird Trade as an Example in the Covid-19 Crisis

The covid-19 pandemic has highlighted the negative impacts of unsustainable global wildlife and natural resource trade. The Indonesian songbird trade represents an ideal example of the negative multi-dimensional impacts of society's unsustainable interactions with wildlife. The integrated and cross-scale nature of CBC offers lessons and themes that could potentially strengthen conservation as a field and be applied to this issue. Rentschlar et al. (2018) in the journal of *Tropical Conservation Science* highlighted the severity of the Indonesian caged bird trade across all five provinces on Indonesian-Borneo documenting over 25,000 individuals form 200 species. Marshall et al. (2020) conducted household surveys and estimated that between 66–83 million caged-birds were kept in captivity on the island of Java alone. The caged-bird trade in Indonesia is massive in scale with a complex supply chain rooted in rural forested areas trafficking birds to urban centers. It represents a threat to biodiversity and planetary health, but has deep ties to social and economic complexes in Indonesia. Solutions to the trade need to be cross-sector in nature and must reduce supply-side drivers and demand-side drivers.

Songbird trafficking in Indonesia, while a threat to biodiversity and planetary health, also offers opportunities for innovation. Besides having direct relevancy to in-situ songbird conservation at the community level, I argue the thematic areas of CBC could be important benchmarks and lessons to both improve and strengthen conservation initiatives as a whole.

For example, one study in the journal of *Tropical Conservation Science* conducted socio-economic surveys of songbird shop owners in West Kalimantan, Indonesia (Miller et al., 2019). Several interesting findings shed light on the need for holistic cross-scale approaches. First, 63% of all shop owners did not have the correct permits to run a business. This does not pertain to protected species or environmental legislation currently in place, but rather to taxation and operation laws applicable to local business. Second, 54% of shop owners reported they would be interested in changing businesses given they had financial and operational support. This was linked to (i) relatively low-levels of income from selling birds and (ii) an increase in law enforcement efforts which led to a sense of uneasiness and fear. These two findings support claims for cross-scale conservation that leverages economic, social, and structural (e.g. policy) triggers to holistically conserve biodiversity and promote planetary health. Expanding upon the definition of a 'community' opens up doors to utilize CBC themes and approaches to reduce the potential impacts of wildlife trade. A cross-scale intervention that views a "community of shop owners" as a target for a participatory holistic CBC approach offers promising potential to create multi-dimensional outcomes. Based on the study's results, an intervention that utilizes a set of economic, social, and policy-driven interventions could potentially close down nearly all songbird and wildlife markets in the project area (see Miller et al., 2019). CBC at its heart is characterized by holistic integrated interventions which we argue are themes that are required across various conservation interventions.

However, despite the covid-19 crisis, trade continues on. Since January 2020 we have monitored 901 facebook accounts and groups involved in buying and selling wildlife in Indonesian-Borneo. 2,374 individuals from 42 species were documented, for which 47% are currently listed as globally threatened on the IUCN redlist (Near threatened – 9; Vulnerable – 5; Endangered – 4 Critically endangered – 2). These trade numbers compared to previous unpublished data from our team shows that the volume and magnitude of the online trade has remained stable both before and after the outbreak. This raises concerns that despite global discussions about the trade and its link to the covid-19 crisis *and* the impacts of the virus on economies wildlife trade continues onwards.

How we respond to the current issues facing our planet will determine the relevancy for the field of conservation. However, in order to remain applicable, we as a conservation community must come together and push for innovative far-sighted solutions that are multi-dimensional and cross-scale. CBC both in direct implementation, and as a set of themes, offers real potential to mitigate the impacts of the current outbreak *and* prevent future pandemics. The human-centered cross-scale interventions that are the benchmark of CBC offer important lessons for the field of conservation. This crisis has highlighted both opportunities and failures in our field to deliver impactful solutions to repair systemic unsustainable relationships between society and nature.

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ORCID iD

Adam E. Miller https://orcid.org/0000-0002-9239-9383

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