Engaging local communities in tackling illegal wildlife trade

Can a 'Theory of Change' help?

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Discussion Paper
August 2015

Biodiversity;
Natural resource management

Keywords:
Wildlife crime, illegal wildlife trade, community-based approaches, livelihoods, theory of change

iied IUCN CEESP SSC Species Survival Commission SULi ceed ARC MINISTERIUM FÜR EIN LEBENSWERTES ÖSTERREICH TRAFFIC the wildlife trade monitoring network

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Acknowledgements

This discussion paper is based on preparation for, and discussions held at, the international symposium "Beyond enforcement: communities, governance, incentives and sustainable use in combating wildlife crime" held in Muldersdrift, South Africa in February 2015. We would like to acknowledge the support of USAID, GIZ, and the Austrian Ministry of the Environment for that symposium. This paper was produced with funding from UK aid from the UK Government, however, the views expressed do not necessarily reflect the views of the UK Government.

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About SULi

The IUCN Sustainable Use and Livelihoods Specialist Group (SULi) is a joint initiative of IUCN's Commission on Environmental, Economic and Social Policy (CEESP) and Species Survival Commission (SSC). It is a global volunteer network of around 300 experts in sustainable use of wild resources and how these contribute to livelihoods. Its mission is to promote both conservation and livelihoods through enhancing equitable and sustainable use of wild species and their associated ecosystems.

About CEED

The Centre of Excellence for Environmental Decisions (CEED) is a multi-centre network of conservation researchers working on the science of effective decision-making to better conserve biodiversity. It includes the University of Queensland, the Australian National University, the University of Melbourne, the University of Western Australia, Royal Melbourne Institute of Technology (RMIT), Australia, and Commonwealth Scientific and Industrial Research Organisation (CSIRO), and Imperial College (London). Our members working on illegal wildlife trade are based at the University of Queensland. CEED is funded by the Australian Research Council's Centre of Excellence programme.

Published by IIED, August 2015.

Biggs, D, Cooney, R, Roe, D, Dublin, H, Allan, J, Challender, C and Skinner, D (2015) Engaging local communities in tackling illegal wildlife trade: Can a 'Theory of Change' help? IIED Discussion Paper. IIED, London.

http://pubs.iied.org/14656IIED

ISBN 978-1-78431-236-7

Printed on recycled paper with vegetable-based inks

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Recent alarming rises in illegal wildlife trade (IWT) show that tough law enforcement is not enough to stop poachers devastating populations of iconic or endangered species. Local people must be empowered to benefit from conservation and be supported to partner with law enforcement agencies in the fight against wildlife crime. Here we present a 'Theory of Change' for understanding how community-level interventions can help in tackling IWT. Do the 'pathways' we present reflect your experiences from IWT-related projects and programmes? Do the assumptions that we suggest hold true? Please join the discussion and help expand the theory to support better policy and practice on the ground.

Contents

Summary

Wildlife crime is at the top of the international conservation agenda. Poaching and associated illegal wildlife trade (IWT) are devastating populations of iconic wildlife species such as rhinos, elephants and tigers, as well as a host of lesser known ones such as pangolins, some birds, reptiles, primates, medicinal and aromatic plants and timber species. It is well-recognised that there is no simple solution to tackling IWT. In the past few years an array of international policy statements, initiatives and coalitions have highlighted and adopted multiple approaches. These can broadly be classified into three types:

1) Increase law enforcement and strengthen the criminal justice systems along the value chain, including sourcing, trafficking, and consumption stages
2) Reduce demand for/consumption of illegal products, and
3) Support sustainable livelihoods and local economic development.

To date, most attention has been paid to the first two approaches with relatively limited attention given to the third.

The international community increasingly recognises the need to engage communities in tackling IWT. A key problem, however, is deciding *what* to do, and *how* to do it. There is no one-size-fits-all solution. The conditions shaping the potential for community engagement will vary from context to context. So thinking through 'pathways to change' that can lead from different forms of community engagement to the overall objective of reduced IWT, and unpacking the assumptions that underpin the steps in each, can help strengthen policy and practice. Articulating such pathways to change can structure reflection on what actions and policies are likely to work best under different ecological, social and political conditions. Drawing such thinking together into a 'Theory of Change' (TOC) can help in this process.

TOCs have been widely used in conservation and community development as planning and evaluation tools, since they provide a useful framework for setting goals and objectives against which results can be evaluated. To date, however, the TOC approach has not explicitly been applied to the challenge of engaging local communities in combatting IWT. We fully recognise that linear, static models are inadequate for describing the complex dynamic processes that shape the social-ecological systems involved in IWT. However, a TOC can be a useful, heuristic tool that can at least raise awareness of the different incentives and disincentives that communities face in deciding whether or not to engage in IWT. Consideration of these incentives and disincentives is often overlooked in key IWT policy, practice and decision-making arenas.

In this paper we present a draft TOC to explore four different approaches to engaging communities in tackling IWT. These different pathways reflect the recommendations emerging from various international policy discussions and include:

A. Strengthening disincentives for illegal behaviour. This pathway involves making it more difficult and costly to trade poached wildlife.

B. Increasing incentives for stewardship. This pathway involves strengthening both the financial and non-financial rewards for protecting and sustainably managing wildlife.

C. Decreasing costs of living with wildlife. This pathway involves reducing the burdens of living with wildlife.

D. Supporting alternative (non-wildlife) livelihoods. This pathway involves creating livelihood and economic opportunities not directly related to wildlife eg bee-keeping, or craft development.

Each of the four pathways involves sequential community-level Actions, Outputs and Outcomes that lead to one common desirable Impact: decreased pressure on wildlife from IWT. Each step (eg from Action to Output, or Outcome to Impact) is based on at least one assumption — all of which require testing against field-based situations. The pathways are also underpinned by enabling conditions, which may themselves need enabling Actions.

IWT is a dynamic and complex process and any strategies to address it also need to be dynamic and complex. There are multiple strategies for tackling IWT, of which engaging communities is just one. This TOC thus represents just one part of a larger strategic approach to IWT.

Overall, it is important to view the TOC as reflecting a dynamic and interactive process of change, rather than a static snapshot or a simple series of cause and effect steps. Indeed, practitioners tackling IWT know to expect unpredictability and surprise. But a TOC such as the one presented here serves as a simplifying tool to understand the problems and how to address them. This TOC is based on extensive discussions and reviews of evidence, and we believe the four primary pathways and the cross-cutting enabling Actions we identify do describe the commonly encountered pathways to the most likely Outcomes and Impacts.

DISCUSSION POINTS

1) Is a Theory of Change a useful approach to help policymakers and practitioners think about how and where to invest resources in community engagement to tackle illegal wildlife trade (IWT)?

2) Do the four pathways that we articulate make sense to you? Are there other pathways for engaging communities in tackling IWT?

3) Do our suggested Outputs and Outcomes make sense? Are there better alternatives or additions?

4) Do the assumptions (Table 2 and Annex 1) hold true in the IWT settings you are familiar with? Are there additional assumptions that we are missing?

5) Are there other key enabling or disabling conditions that we have overlooked?

We invite those with direct experience of engaging communities and tackling IWT 'on the ground' to join our discussion on how useful this approach is and how well our draft TOC represents these complex issues. Please send feedback direct to Duan Biggs (corresponding author d.biggs@uq.edu.au) or respond to our survey at www.surveymonkey.com/r/SH6SWZB by the end of September 2015.

Why involve local communites in the fight against illegal wildlife trade?

1

Wildlife crime is at the top of the international conservation agenda. Poaching and associated illegal wildlife trade (IWT) are devastating populations of iconic wildlife species such as rhinos, elephants and tigers, as well as a host of lesser known ones such as pangolins, some birds, reptiles, primates, medicinal and aromatic plants and timber species.

The sudden and rapid escalation of IWT up the political agenda has partly been driven by a huge increase in poaching of Africa's elephants and rhinos and concerns for the longer-term survival of these and other already endangered species, such as tigers. But another major driver is the link to large-scale organised crime and armed militia and insurgency groups, and subsequent repercussions for national and international security and stability.[1] These immediate security threats mask a wider development issue. Wildlife can be a key asset for rural communities in Africa and elsewhere, providing a foundation for investment and economic development through, for example, tourism or timber trade. Poaching can deplete this asset, limiting options for local and national sustainable development.

It is well-recognised that there is no simple solution to tackling illegal wildlife trade. In the past few years an array of international policy statements, initiatives and coalitions have highlighted and adopted multiple approaches. These can broadly be classified into three types:

1) Increase law enforcement and strengthen criminal justice systems along the value chain, including sourcing, trafficking, and consumption stages
2) Reduce demand for/consumption of illegal products, and
3) Support sustainable livelihoods and local economic development.

To date, most attention has been paid to the first two approaches with relatively limited attention to the third. For example, a 2014 European Parliament resolution[2] on wildlife crime includes over 30 wide-ranging actions in support of law enforcement, from strengthening intelligence, enforcement and judiciary systems to introducing trade moratoria and revised penalties. In contrast, only one action is directed towards local communities — promoting alternative (non-wildlife based) livelihood strategies.

IWT has an enormous impact on the communities[3] that live alongside wildlife. This includes those that have wildlife on land which they control as well as those who live next to wildlife areas, such as national parks. These communities are affected by insecurity and the depletion of important livelihood and economic assets. They can also be affected by heavy-handed, militarised responses to wildlife crime. Law enforcement systems often make little distinction between the illegal activities driven by large scale profits ('crimes of greed') versus those driven by poverty ('crimes of need'). Most fundamentally, however, the long-term survival of wildlife populations, and in particular the success of interventions to combat IWT, will depend to a large extent on the local communities who live with wildlife populations. Where wildlife populations offer people economic and social value, locals are likely to be motivated to support and engage in efforts to combat and manage poaching and illicit trade. But where local people do not play a role in wildlife management and where it generates no benefits for them, there will be strong incentives for illegal use (as well as for conversion of land to agriculture, a much bigger threat to most species than IWT). Even the most focused and well-resourced enforcement efforts, which few countries can afford or have the political will to implement, will struggle to effectively control wildlife crime where there are strong incentives for complicity by local people.

There is increasing recognition amongst the international community of the need to engage communities. The 'London Declaration'[4] that came out of a major intergovernmental meeting on illegal wildlife trade in February 2014 (and which recognises the African Elephant Action Plan and the urgent measures endorsed at the African Elephant Summit in December 2013) includes a number of commitments to strengthening the role of local communities — as do other international declarations. At the same time as the London Conference on Illegal Wildlife Trade was held, United for Wildlife,[5] a coalition of international conservation organisations convened by the Royal Foundation,[6] hosted a two-day meeting to explore 'International Wildlife Trafficking: Solutions to a Global Crisis'.[7] One of the solutions to IWT announced by United for Wildlife was to support successful models of community wildlife management. More recently, the Kasane Conference on Illegal Wildlife Trade[8] (held in March 2015) and the African Common Strategy on Combatting Illegal Trade in Wild Flora and Fauna[9] (developed at an international conference in Brazzaville in April 2015) also emphasised the importance of recognising local peoples' rights to benefit from wildlife conservation. Table 1 summarises the key international policy recommendations.

The conditions shaping the potential for community engagement will vary from context to context. Thinking through the 'pathways to change' that can lead from different forms of community engagement to the overall objective of reduced IWT, and unpacking the assumptions that underpin the steps in each, can help strengthen policy and practice. Articulating such pathways to change can aid structured reflection on what actions and policies are likely to work best under different ecological, social and political conditions. A 'Theory of Change' can help in this process.

Table 1: International policy recommendations on engaging communities in tackling IWT

Global Tiger Recovery Plan (2010)	"Engage with indigenous and local communities to gain their participation in biodiversity conservation by providing sustainable and alternative livelihood options through financial support, technical guidance, and other measures."
African Elephant Summit (2013)	"Engage communities living with elephants as active partners in their conservation."
London Declaration (2014)	"Increase the capacity of local communities to pursue sustainable livelihood opportunities and eradicate poverty." "Work with, and include local communities in, establishing monitoring and law enforcement networks in areas surrounding wildlife."
Kasane Declaration (2015)	"Promote the retention of benefits from wildlife resources by local people where they have traditional and/or legal rights over these resources. We will strengthen policy and legislative frameworks needed to achieve this, reinforce the voice of local people as key stakeholders and implement measures which balance the need to tackle the illegal wildlife trade with the needs of communities, including the sustainable use of wildlife."
Brazzaville Declaration (2015)	"Recognise the rights and increase the participation of indigenous peoples and local communities in the planning, management and use of wildlife through sustainable use and alternative livelihoods and strengthen their ability to combat wildlife crime."

What is a Theory of Change?

2

A Theory of Change (TOC) is a tool to help think through and plan actions and interventions to address a specific societal or environmental problem in a transparent manner.[10] TOCs map out the logical pathways and sequences of events that are needed for an intervention to lead to a desired outcome and articulate the assumptions underlying each step.

TOCs have been widely used in conservation and community development as planning and evaluation tools as they provide a useful framework for setting, and then evaluating, goals and objectives.[11] A TOC typically functions according to a sequential logic, or results chain, that runs from:

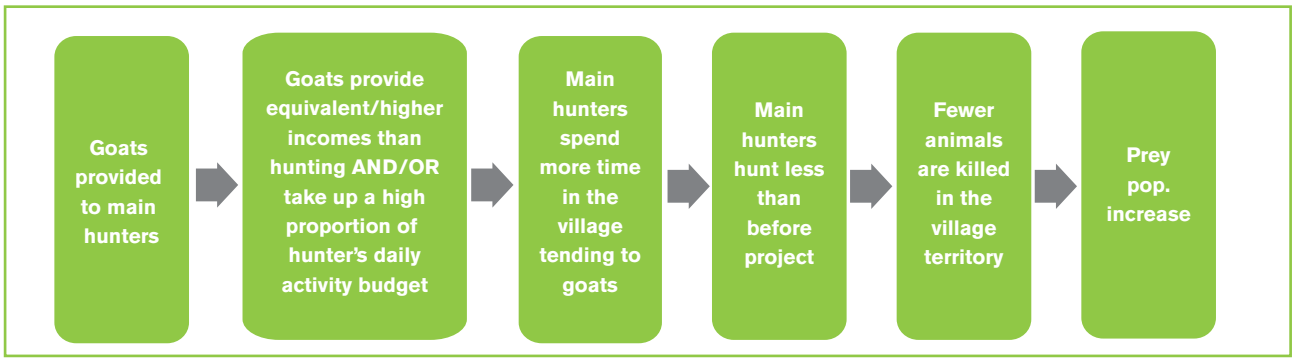
- **Actions**: specific activities undertaken by an agency such as an NGO or government department for example to decrease human-wildlife conflict by initiating or expanding a compensation scheme for damage caused by wildlife.
- **Outputs**: the desired direct results of the Actions, for example the 'cost' wildlife imposes on communities is reduced.
- **Outcomes**: the changes in behaviour that stem from the Outputs, for example community members feel less antagonism towards wildlife.
- **Impacts**: the change in the environmental or social factors being targeted, for example illegal trade puts less pressure on wildlife.

A key element of a TOC is making explicit the assumptions on which the step from one element of the results chain to the next is based (eg from Actions to Outputs, or from Outcomes to Impacts).[12] For example, a project to incentivise conservation by allocating tourism revenue to local communities assumes that enough revenue will be generated to provide that incentive and that there are no other significant factors driving poaching. Many conservation interventions fail because the assumptions on which they are based simply do not hold true.

TOCs can vary hugely in their complexity. Figures 1 and 2 provide two examples from the conservation sector: a very simple one for an alternative livelihoods project (Figure 1) and a more complex one for linking direct payment for conservation services with human wellbeing outcomes (Figure 2).

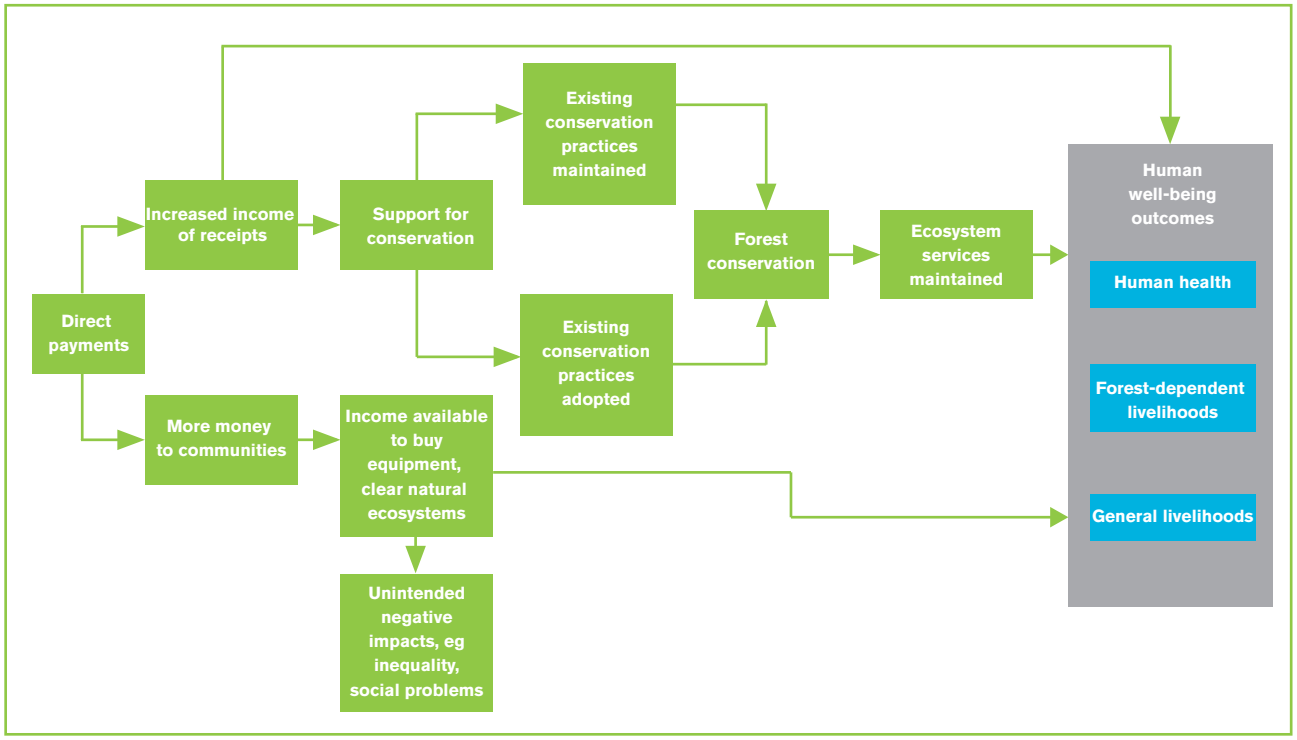
To date, however, the TOC approach has not explicitly been applied to the issue of engaging local communities in combatting IWT – an issue we seek to address in this paper. We fully recognise that linear, static models cannot adequately describe the complex dynamic processes that shape social-ecological systems such as those involved in IWT.[13] However, a TOC can be a useful, heuristic tool that can at least raise awareness of the different incentives and disincentives that communities face in deciding whether or not to engage in IWT. Consideration of these incentives and disincentives is often overlooked in key IWT policy, practice and decision-making arenas.

Figure 1: An example of a simple theory of change for an alternative livelihoods project



Redrawn from Wicander and Coad (2015).[14]

Figure 2: An example of a theory of change with multiple pathways, for linking direct payment for conservation services with human wellbeing outcomes



Redrawn from Bottrill *et al.* (2014).[15]

Towards a Theory of Change for engaging communities in tackling IWT

3

Methods and approach

In preparation for the international Beyond Enforcement symposium held in 2015,[16] we developed a draft TOC to explore four different 'pathways' to engaging communities in tackling IWT. These different approaches reflect the recommendations emerging from the international policy processes discussed earlier and include:

A. **Strengthening disincentives for illegal behaviour.** This pathway involves making it more difficult and costly to trade poached wildlife.

B. **Increasing incentives for stewardship**. This pathway involves strengthening both the financial and non-financial rewards for protecting and sustainably managing wildlife.

C. **Decreasing costs of living with wildlife.** This pathway involves reducing the burdens of living with wildlife.

D. **Supporting alternative (non-wildlife) livelihoods.** This pathway involves creating livelihood and economic opportunities not directly related to wildlife. eg bee-keeping or craft development.

We described each 'pathway to change', and articulated the assumptions underpinning each step in the pathway. These assumptions were drawn from practical experience and published empirical and theoretical literature. We shared the draft TOC with participants at the Beyond Enforcement symposium, and invited them to suggest additions and amendments, based on their own experiences and expertise and in light of symposium presentations and discussions. We then further refined the TOC, which is shown in Figure 3 and described in detail below.

Exploring the four pathways

Each of the four 'pathways to change' involves different community-level Actions (green boxes), Outputs (red boxes), and Outcomes (purple boxes), connected sequentially and leading to the same overall Impact (blue box) of decreased pressure on wildlife from IWT. Each step (eg from Action to Output, or Outcome to Impact) involves assumptions (some examples are provided in Table 2 and described in full in Annex 1). There are too many different possible Actions on each pathway to capture in one diagram, so for simplicity we have described a general *type* of Action that would be required. But to clarify how the TOC works, we also describe an example of a specific Action in each pathway and how it can lead to the desired Impact.

Strengthening disincentives for illegal behaviour, pathway A. Actions that strengthen community engagement in enforcement are needed at the community level. An example Action might be training and equipping local people as community game guards. The Output of this Action would be better trained and equipped community guards, and an Outcome would be that stronger action against poachers is now possible, leading to related Outcomes of stronger action taken against poachers from outside of the community and, hence, reduced poaching. These Outcomes ultimately lead to the Impact of decreased pressure on wildlife from IWT. However there are some key assumptions made here (see Table 2 and Annex 1). For example, moving from the Output of better trained and equipped community guards to the Outcome of stronger action taken against poachers assumes that the community guards will use their new equipment or weapons to tackle poachers, and will not use the weapons to poach, or sell the equipment to earn income.

Increasing incentives for stewardship of wildlife, pathway B. The types of Actions needed on this pathway are 1) those that develop or support initiatives/ enterprises that can generate local benefits from wildlife, and 2) those that build local people's capacity to benefit from those initiatives. An example in the first category might be developing a community tourism enterprise and in the second might be training local people to be nature tourism guides. The Outputs are that communities are more able to benefit from wildlife and obtain greater financial and non-financial benefits. The Outcomes of this are that the community will value wildlife more, have a higher incentive to protect wildlife and therefore take action against poachers, leading to the Impact of decreased pressure on wildlife from IWT. There are numerous assumptions nested along this chain (Table 2 and Annex 1), for example that the community has the capacity to market its tourism product, and that tourism is financially viable.

Decreasing the costs of living with wildlife, pathway C. Actions on this pathway are essentially those that mitigate human-wildlife conflict. An example here might be providing a community with better fences for their livestock. The Output is that the community loses less livestock so the costs are reduced. The Outcome is decreased antagonism towards wildlife and therefore less incentive to engage in poaching or facilitate poaching. This will lead to the further Outcome of stronger action being taken against poachers and therefore the ultimate Impact of decreased pressure on wildlife from IWT. Here we assume there are no perverse outcomes, for example that better livestock fences do not encourage a community to invest in more livestock which are then detrimental to wildlife (see Annex 1).

Support for alternative livelihoods, pathway D. The Actions required here are similar to those under pathway B, ie to develop viable initiatives, and then build capacity to benefit from those. But in this case

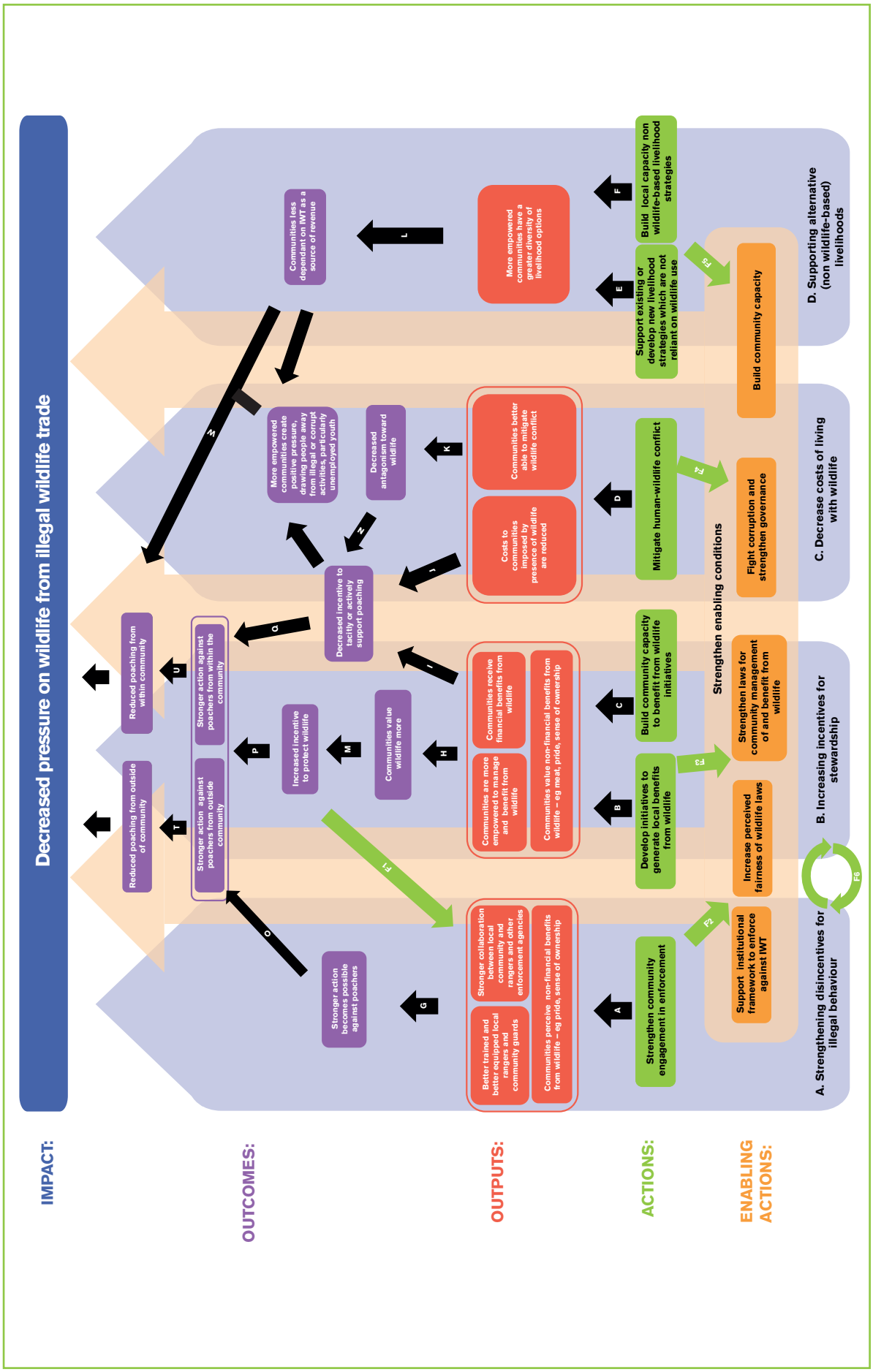


Figure 3: Proposed Theory of Change for engaging local communities in tackling IWT

There are four pathways to change: A. Strengthening disincentives for illegal behaviour; B. Increasing incentives for stewardship; C. Decreasing costs of living with wildlife; and D. Supporting alternative non wildlife-based livelihoods. The chain of logic (black arrows) is that Actions lead to Outputs, which lead to Outcomes and the overall desired Impact. Enabling Actions strengthen all Actions and provide enabling conditions. The assumptions behind each step in the chain of logic are indicated by white letters in the black arrows. Feedback is shown by green arrows. See Annex 1 for a list of assumptions and descriptions of feedback.

Actions should focus on livelihood strategies that do not depend on using wildlife. Examples of actions might include establishing a bee-keeping enterprise and training local people in honey production and marketing. The intended Output is that the community is more empowered and has a greater diversity of livelihood options. The Outcomes are that communities depend less on wildlife as a source of revenue and so are less involved in IWT. Again, the ultimate Impact will be less pressure on wildlife as a result of reduced IWT. There are numerous assumptions between each step, including that the benefits from the alternative livelihood are enough to out-compete the benefits to be gained from IWT (see Annex 1).

Importance of enabling conditions

In addition to the Actions, Outputs, Outcomes and assumptions, our TOC diagram includes Enabling Actions (orange boxes). We recognise that all of the four pathways depend on a number of cross-cutting enabling conditions for success. These include the prevailing legislative and institutional framework, adequately controlled corruption, adequate capacity, legitimacy and governance. Actions to improve the enabling conditions for tackling IWT are not necessarily carried out at the community level. An example of an Enabling Action could be lobbying governments to strengthen laws for community management of and benefit from wildlife.

Table 2: Examples of some of the assumptions which underpin the four pathways

CODE*	ASSUMPTION
	PATHWAY A: Strengthening disincentives for illegal behaviour
A1	Community rangers use equipment and training to combat IWT and not to poach themselves or for other purposes (ie community governance is at an adequate level and corruption is sufficiently controlled).
A2	Collaboration between communities and other enforcement agencies leads to stronger action against IWT and not stronger collusion for IWT or other activities (governance and control of corruption is at an adequate level).
G3	An increased sense of non-financial benefits contributes to willingness to take stronger action against poachers.
G5	Communities have not already been intimidated by poachers, and are willing and able to take stronger action against poachers.
O1	Collaboration between communities and other enforcement agencies leads to stronger action against IWT and not stronger collusion for IWT or other activities (governance and control of corruption is at an adequate level).
	PATHWAY B: Increasing incentives for stewardship
B10	Benefit sharing within the community is sufficiently equitable and 'elite capture' – where the elite capture most or all of the benefits – does not undermine the schemes.
	PATHWAY C: Decreasing costs of living with wildlife
D4	Compensation does not lead to perverse behaviour, ie damage from wildlife is not actively induced to receive payments.
	PATHWAY D: Supporting alternative (non wildlife-based) livelihoods
E2 and F2	Alternative livelihood schemes do not generate perverse incentives, ie money is not reinvested in poaching or other land-uses that damage wildlife.
L	IWT is not so high in value that that all other potential forms of income (through tourism, etc) cannot compete financially.

*Note: The codes refer to the letters in the black arrows in Figure 3.

The Enabling Action 'Increase perceived fairness of wildlife laws' highlights a crucial issue: the ability of society to participate meaningfully in the policy and law-making process (the voice and accountability dimension of governance).[17] The laws for wildlife conservation are often perceived to lack legitimacy and to be unfair. Indeed, many of these laws date from the colonial era and disenfranchise local communities from traditional rights to land and to harvests and benefits from wildlife. Many conservation laws, regardless of origin, are outdated, have limited deterrent effect and reduce people's livelihood options, thereby increasing local hardship and feelings of disenfranchisement.

Perceptions of illegitimacy and unfairness are closely related to poor control of corruption, addressed in the Enabling Action 'Fight corruption and strengthen governance'. For example, under-paying individuals responsible for implementing laws can pave the way for corruption. Likewise, if Actions to fight corruption and strengthen governance are successful, it is likely that Actions across all four pathways will become more effective. Indeed, research has shown that governance quality, in particular corruption control, is a good predictor of the status of populations of key IWT species such as the African elephant and the black rhino.[18]

Recognising complexity and dynamism

4

IWT is a dynamic and complex process and any strategies to address it also need to be dynamic and complex. There are multiple strategies for tackling IWT, of which engaging communities is just one. This TOC represents just one part of a larger strategic approach to IWT. Even within our focus on communities there is complexity, such as important interactions and feedback loops between the four pathways for engaging communities and between their various components. For example, as success is reached in pathway B, and incentives for stewardship and wildlife protection increase, pressure not to engage in IWT should increase, which complements pathway A, providing stronger disincentives for IWT (see feedback arrows F1 and F6 in Figure 3). Descriptions for all the feedback arrows in Figure 3 are provided in Annex 1.

Local communities' participation and co-learning is an inherent and essential element in successful community-level Actions, and should be coupled with an ongoing process of adaptive management. The TOC should not be read as implying a series of activities imposed by external actors, but as a 'self-learning' (heuristic) guide to help partnerships of external actors and local communities think through activities to address IWT. Communities' capacity to effectively tackle IWT will be strengthened by the capacity building that takes place through such partnerships.

Overall, it is important to view the TOC as reflecting a dynamic and interactive process of change, rather than a static snapshot or a simple series of cause and effect steps. Indeed, practitioners tackling IWT know to expect unpredictability and surprise. A TOC, such as the one presented here, serves simply as a tool to understand the problem and explore how to address it. Nevertheless, this TOC is based on extensive discussions and reviews of evidence and we believe the four primary pathways and the Enabling Actions that cut across these do describe the commonly encountered pathways to the most likely Outcomes and Impacts.

We invite those with direct experience of engaging communities and tackling IWT 'on the ground' to join our discussion on how useful this approach is and how well our draft TOC represents these complex issue. Please send feedback direct to Duan Biggs (corresponding author d.biggs@uq.edu.au) or respond to our survey at www.surveymonkey.com/r/SH6SWZB by the end of September 2015.

1) Is a Theory of Change a useful approach to help policymakers and practitioners think about how and where to invest resources in community engagement to tackle IWT?
2) Do the four pathways that we articulate make sense to you? Are there other pathways for engaging communities in tackling IWT?
3) Do our suggested Outputs and Outcomes make sense? Are there better alternatives or additions?
4) Do the assumptions (Table 2 and Annex 1) hold true in the IWT settings you are familiar with? Are there additional assumptions that we are missing?
5) Are there other key enabling or disabling conditions that we have overlooked?

Annex 1: Assumptions underlying the Theory of Change

CODE*	ASSUMPTION	NOTES (REFERENCES ARE FOUND WITHIN THIS ANNEX)
A1	Community rangers use equipment and training to combat IWT and not to poach themsleves or for other purposes (ie community governance is at an adequate level and corruption is sufficiently controlled).	
A2	Collaboration between communities and other enforcement agencies leads to stronger action against IWT and not stronger collusion for IWT or other activities (governance and control of corruption is at an adequate level).	
A3	Communities are willing to enforce more strongly against IWT both within their communities and outside.	
A4	Communities are willing to collaborate with external enforcement agencies, ie historical or existing tensions with police force, park rangers or other authorities are not excessively high.	
A5	Formal sanctions are fair and proportionate, eg penalties are reasonable and fines can be avoided.	Principle of common property management (Ostrom 1990).
A6	The community understands and agrees that there is a wildlife poaching problem.	
A7	External enforcement agencies are willing to collaborate with communities.	
B1	Communities hold rights to legally benefit from harvesting or use of wildlife products, eg trophy hunting or trade in animal parts (locally, nationally and internationally).	Many high-value wildlife products (eg ivory, rhino horn) have restrictions on domestic and international sale and export. This impacts on ability to allocate wildlife rights to communities (eg Norton-Griffiths 2007; Stiles 2004).
B2	Harvesting and managing wildlife products is culturally appropriate and attractive to the community (eg some communities prefer livestock or crop farming even where these offer lower returns).	See example from fisheries – where communities preferred fishing to a higher earning alternative (Pollnac *et al.* 2001).

CODE*	ASSUMPTION	NOTES (REFERENCES ARE FOUND WITHIN THIS ANNEX)
B3	There is a market for legally produced wildlife products.	
B4	Protected Area authorities are willing to share revenue (some may feel very cash constrained and are unlikely to want to share revenue).	
B5	There is a donor for any Payment for Ecosystem Services (PES) scheme.	
B6	Ownership leads to pride.	Sense of ownership and pride is an important outcome of allocating rights and responsibilities to communities (Brooks 2010; Salafsky *et al.* 2001).
B7	Revenue sharing and PES schemes lead to pride in stewarding wildlife.	Perceptions of benefit may or may not lead to increased pride – this is often context dependent – eg Brooks (2010).
B8	Within the community there is sufficient perception of the link between wildlife and revenue, ie that the benefits flow from having wildlife populations.	It is possible that communities receive benefit but do not perceive that that benefit stems from the well-being of wildlife.
B9	Adequate monitoring is possible at an affordable cost for a PES scheme to work	Monitoring the achievement of PES outcomes can be expensive and difficult leading to payments for non-achievement and other 'fraudulent outcomes' (Laurance 2004).
B10	Benefit sharing within the community is sufficiently equitable and 'elite capture' – where the elite capture most or all of the benefits – does not undermine the schemes.	Elite capture can undermine the incentives from wildlife ownership or PES (eg Jones *et al.* 2012).
B11	Legally produced products substitute for wild products in the market place, rather than lead to parallel markets.	
C1	Communities are willing to engage in capacity building (eg to become nature guides, engage in PES schemes, etc).	Some communities and individuals may prefer current activities (eg domestic livestock) for cultural and other reasons – even if financial returns are lower. Pollnac *et al.* (2001) contains an example from fisheries.
C2	Donor funds are available to facilitate and support capacity building.	
D1	There are funds available for increased compensation.	
D2	There is a functioning mechanism for distributing money for wildlife damage eg it is not subject to elite capture.	
D3	The strategies to mitigate conflict actually work.	
D4	Compensation does not lead to perverse behaviour, ie damage from wildlife is not actively induced to receive compensation payments.	There is widespread anecdotal evidence of perverse outcomes from compensation schemes.
E1 and F1	Community governance functions well, including limiting 'elite capture' of alternative livelihood strategies.	Jones (2007) contains an example from Royal Chitwan, Nepal.

CODE*	ASSUMPTION	NOTES (REFERENCES ARE FOUND WITHIN THIS ANNEX)
E2 and F2	Alternative livelihood schemes do not generate perverse incentives, ie money is not reinvested in poaching or other land-uses that damage wildlife.	See McAllister *et al.* (2009) for a vicuna example and discussion on this.
E3 and F3	There is a government agency or donor willing to support schemes.	
E4 and F4	Alternative livelihoods provide jobs opportunities for the unemployed and would-be perpetrators of wildlife crimes.	
E5 and F5	'Alternative livelihoods' do not become 'additional livelihoods', leaving IWT the same, while an additional revenue stream is opened up.	
G1	Better trained, better equipped guards are willing to use their skills and equipment to counter IWT and not use their more advanced equipment for more poaching or other purposes.	Anecdotal evidence and media reports of community guard and ranger complicity.
G2	Collaboration between communities and other enforcement agencies leads to willingness to take stronger action against IWT and not willingness instead for stronger collusion for IWT or other activities (governance and control of corruption is at an adequate level).	Anecdotal evidence and media reports of community guard and ranger complicity. Also see Bennett (2015); Smith *et al.* (2003, 2015); and also literature on combatting illegal narcotics (eg Chambliss 1992; Cussen and Block 2000).
G3	Increased sense of non-financial benefits contributes to willingness to take stronger action against poachers.	Brooks (2010) suggests that non-financial benefits can be an important determinant of conservation outcomes. Also see Biggs *et al.* (2011 and 2012).
G4	Police and rangers are not involved or linked to illegal activities.	For example: https://www.environment.go v.za/mediarelease/formersan parksranger_arrested
G5	Communities have not already been intimidated by poachers, and are therefore willing and able to take stronger action against poachers.	For example: http://america.aljazeera.com/ multimedia/2015/1/the- human-cost- ofrhinopoaching.html
H1	Communities that are more empowered to manage wildlife value it more.	Evidence from a range of natural resource management settings and behavioural experiments (eg Child 1996; Gelcich *et al.* 2006; Ostrom 1990; Ostrom 2005; Salafsky *et al.* 2001).
H2	When communities receive benefits from wildlife they value it more.	Evidence from a range of natural resource management settings and behavioural experiments (eg Child 1996; Gelcich *et al.* 2012; Ostrom 1990; Ostrom 2005; Salafsky *et al.* 2001).
H3	The community has full knowledge about how benefits are shared and distributed.	See Child (2015).
I1	Communities who value wildlife more have a decreased incentive to actively or tacitly support poaching and are more willing to stand up to it.	See Child (1996); Frost and Bond (2008).

CODE*	ASSUMPTION	NOTES (REFERENCES ARE FOUND WITHIN THIS ANNEX)
J1	Communities for whom the cost of living with wildlife falls have a decreased incentive to actively or tacitly support IWT and are more willing to stand up to it.	
K	Communities better able to mitigate wildlife conflict feel decreased antagonism towards wildlife.	
L	IWT is not so high in value that that all other potential forms of income (through tourism, etc) cannot compete financially.	
M	Increased value of wildlife to communities leads to increased incentive to protect it.	Foundational economic assumption.
N	Individuals and communities that are less antagonistic towards wildlife are less likely to actively or tacitly support poaching.	
O1	Collaboration between communities and other enforcement agencies leads to stronger action against IWT and not stronger collusion for IWT or other activities (governance and control of corruption is at an adequate level).	
O2	Poachers have not similarly strengthened their capacity and equipment to poach, negating any gain through an ongoing 'arms race'.	
P1	Communities have the willingness, equipment and the capacity to take stronger action against poachers from outside or inside the community.	
P2	Poachers do not intimidate communities to the level that even with increased incentives to protect wildlife they are too scared to take action against poachers from inside and outside the community.	
P3	Community has the sufficient levels of social capital and cohesion to take collective action against poachers from inside and outside the community.	
Q	Communities with a decreased incentive to poach are more willing to stand up to poaching.	
T1	Communities have the capacity to confront poachers, ie they are not excessively intimidated or 'outgunned' by poachers from outside of the community.	
T2	The relative value of illegal wildlife products is not so high that new players enter into the system and negate the stronger action against poachers that has come into place (eg a powerful private security firm, or army unit, called into defend wildlife does not itself become an offender because the relative gains are so high).	
U	Communities have the capacity to confront poachers, ie they are not excessively intimidated or 'outgunned' by poachers from within the community.	
W	The relative value of illegal wildlife products is not so high that communities participate in IWT anyway.	

*Note: The codes refer to the letters in the black arrows in Figure 3.

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Descriptions of feedback within the Theory of Change

CODE*	DESCRIPTION
F1 and F6	Communities with an increased incentive to protect wildlife are more likely to support and positively engage in actions to strengthen enforcement.
F2	Strengthening community involvement in enforcement will help to support the institutional framework to enforce against IWT.
F3	Initiatives that generate local benefits from wildlife will strengthen the perceived fairness of wildlife laws for community management and benefit from wildlife.
F4	Effectively addressing conflict between humans and wildlife will help strengthen the governance of human-wildlife relationships.
F5	Building capacity for and developing alternative livelihoods for communities (eg cultural villages) will help strengthen community capacity more broadly.

*Note: The codes refer to the letters in the green arrows in Figure 3.

Join the debate

DISCUSSION POINTS

1) Is a Theory of Change a useful approach to help policymakers and practitioners think about how and where to invest resources in community engagement to tackle illegal wildlife trade (IWT)?

2) Do the four pathways that we articulate make sense to you? Are there other pathways for engaging communities in tackling IWT?

3) Do our suggested Outputs and Outcomes make sense? Are there better alternatives or additions?

4) Do the assumptions (Table 2 and Annex 1) hold true in the IWT settings you are familiar with? Are there additional assumptions that we are missing?

5) Are there other key enabling or disabling conditions that we have overlooked?

We would very much like your involvement in continuing to develop and test this TOC and to explore its use as a practical tool for policy and decision-makers. Please let us know what you think. We are particularly interested in your responses to the discussion points in the box to the left.

Please send feedback direct to the authors (via the corresponding author Duan Biggs (d.biggs@uq.edu.au) or respond to our survey at www.surveymonkey.com/r/SH6SWZB by the end of September 2015.

Notes

1. UNODC (2010) The globalization of crime: a transnational organized crime threat assessment. United Nations Office on Drugs and Crime, Vienna, Austria.

2. http://www.europarl.europa.eu/sides/getDoc.do?type=MOTION&reference=B7-2014-0013&format=PDF&language=EN

3. The term communities is used here to comprise 'indigenous peoples and local communities' as per agreement at the Convention on Biological Diversity's Twelfth Conference of the Parties.

4. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/281289/london-wildlife-conference-declaration-140213.pdf

5. http://www.unitedforwildlife.org/

6. A foundation set up by the UK's Duke and Duchess of Cambridge and Prince Harry. http://www.royalfoundation.com/

7. http://sites.zsl.org/iwtconf/

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Related Reading

The report of the Beyond Enforcement symposium is available here: http://pubs.iied.org/G03903.html

A briefing paper summarising the main findings from the symposium is available here: http://pubs.iied.org/17293IIED.html

All the presentations from the symposium are available here: http://www.iucn.org/about/union/commissions/ceesp_ssc_sustainable_use_and_livelihoods_specialist_group/communities_and_wildlife_crime/beyond_enforcement/

A series of case studies highlighting examples of successful community engagement in tackling IWT is available here: http://pubs.iied.org/14648IIED.html

A review of the drivers and impacts of wildlife crime in Uganda is available here: http://pubs.iied.org/17576IIED.html

A briefing paper on the role of sustainable use in tackling IWT is available here: http://pubs.iied.org/17205IIED.html

List of acronyms

CEED	Centre of Excellence for Environmental Decisions
CEESP	Commission on Environmental, Economic and Social Policy
CSIRO	Commonwealth Scientific and Industrial Research Organisation
IIED	International Institute for Environment and Development
IUCN	International Union for Conservation of Nature
IWT	Illegal Wildlife Trade
PES	Payment for Ecosystem Services
RMIT	Royal Melbourne Institute of Technology
SSC	Species Survival Commission
SULi	Sustainable Use and Livelihoods Specialist Group
TOC	Theory of Change
USAID	United States Agency for International Development

Recent alarming rises in illegal wildlife trade (IWT) show that tough law enforcement is not enough to stop poachers devastating populations of iconic or endangered species. Local people must be empowered to benefit from conservation and be supported to partner with law enforcement agencies in the fight against wildlife crime. Here we present a 'theory of change' for understanding how community-level interventions can help in tackling IWT. Do the 'pathways' we present reflect your experiences from IWT-related projects and programmes? Do the assumptions that we suggest hold true? Please join the discussion and help expand the theory to support better policy and practice on the ground.

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Funded by:

UKaid
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This discussion paper was funded by UK aid from the UK government. However, the views expressed do not necessarily reflect those of the UK government.