

# 終結瘟疫大流行 行路徑圖

攜手共進





EndPandemics。2021. 終結瘟疫大流行路線圖：攜手共進。  
(由 EndPademics 行動聯盟。2021年8月15日版) <https://endpandemics.earth/join.html>

創意共享歸屬 (CC BY) 許可條款

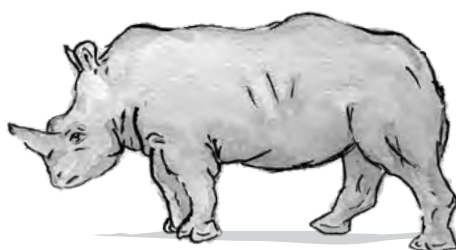
欲瞭解更多資訊，請寫信給：support@endpademics.earth

# 內容

I. 防止下一次瘟疫大流行：政府、公司、民間社會、個人可以得到的資訊	4
II. 為什麼：為什麼有這個路徑圖，以及如何使用它	6
III. 原因：大流行是如何開始的？	10
IV. 治療：如何阻止大流行再發？	12
V. 如何修復：瘟疫大流行預防計劃的成分和成本	14
VI. 良好做法：公共和私營部門及個人可以採取的政策	20
VII. 緊急狀態：現在就要行動	22
VIII. 可提供的協助：EndPandemics 如何協助您	24
附錄：終結瘟疫大流行解決方案路徑圖範例	26

線上附件：

- A. 終結瘟疫大流行使命聲明和參與條件  
<https://support.endpandemics.earth/en/articles/4596222-terms-of-engagement>
- B. EndPandemics時間表  
<https://endpandemics.earth#timeline>
- C. EndPandemics共用資源清單  
<https://endpandemics.earth/participate.html>
- D. 提交EndPandemics解決方案的指南  
<https://support.endpandemics.earth/en/collections/2995762-solutions-map>
- E. 常見問題（常見問題）  
<https://endpandemics.earth/faqs.html>



# I. 預防下次瘟疫大流行

● 政府、公司、民間社會、個人可以得到的資訊

- 在我們的有生之年，沒有任何比預防下一次瘟疫大流行更大的事了。
- 在每個人都安全之前，沒有人是安全的。我們每個人在全球復甦和轉型中都發揮著作用，以創造一個更安全、更具韌性的世界。
- 無論你認同什麼理論，COVID-19是一種人畜共患疾病，現在在人與人之間傳播。我們知道此類疫情的是如何誘發的，因此我們可以降低此類疫情復發的風險。
- 人畜共患疫情的主要誘發原因是野生棲息地的破壞（通常用於不可持續的農業）和野生動物的商業貿易（不論合法和非法）。
- 禁止野生動物的貿易，改變我們的糧食供應系統，並優先考慮自然保護，是全球健康投資計劃的主要部分，該計劃將大大減少未來人畜共患疫情的風險和強度。
- 預防遠比治療便宜：一個以預防為中心的全球健康投資計劃，每年花費不到世界修復瘟疫大流行損害成本的1%。



- 預防必須是任何瘟疫大流行恢復和防災方案的完整要素。

---

- 預防必須包括社區行動、公共政策和法律，商業運營和消費者行為的變革。

---

- 禁止野生動物商業貿易，並不禁止為生存或可持續的狩獵。它們是不同的事。

---

- 禁止野生動物的貿易將不會增加偷獵或販運。禁令的實施將減少貿易額，從而減少對生物多樣性和人民的威脅。

---

- 從集約化農業實踐向農林業和農業生態方法的轉變，產生了可持續的土壤、作物和社區，並生產了更安全、更健康的糧食。

---

- 個人可以做11件特別的事情來說明預防大流行。

---

- EndPandemics 聯盟準備幫助實施地方、國家、區域和全球預防大流行病的計劃。

## II. 為什麼 為什麼有這個路徑圖，以及如何使用它

COVID-19比過去100年中任何恐怖主義行為或自然災害所造成的破壞和破壞都多，它震撼了我們的世界，並使國際社會相信，我們必須盡我們所能防止另一場瘟疫大流行。但是怎麼做呢？我們究竟能做些什麼來警告世人避免新的災難性疫情？我們世界的重生需要一種重生方法，這是在路徑圖中闡述的。

此多國語言路徑圖是 EndPandemics 為全球各國政府、組織、公司、民間社會和個人設計的，生動互動的工具，為如何預防下一次大流行提供了具體、實用的指導。

在我們的有生之年，沒有更重要的事。每個人都可以在我們的全球復甦中發揮作用，如果以正確的方式實施，將導致一個更加公義和可持續的世界，大大降低另一場大流行病的風險。

“

EndPandemics 是一個“協作型組織”，專業的實踐者創建一個持久疫苗的配方，也就是這個“路徑圖”，我們分享在以下的章節。

”

在COVID-19大流行的大部分時間裡，世界的重點一直是通過疫苗的推廣，和史無前例的經濟復甦計劃，去修復已經造成的損害。但是，我們需要是積極主動，而不是被動。我們如何預防下一次疫情的爆發，避免對生命和經濟造成更大的破壞和破壞？這個路徑圖通過解釋大流行病是如何開始的，以及如何首先阻止它們發生來回答這個問題。

EndPandemics 是一個“協作型組織”，專業的實踐者創建一個持久疫苗的配方，也就是這個“路徑圖”，我們分享在以下的章節。

我們邀請您審查並使用此路徑圖，並加入創建它的充滿生命力的全球社區，因為我們不斷完善和共同實施解決方案。你可以利用全球運動的力量，來繪製適合您特定環境、需求和本地環境的解決方案。這個路徑圖可以引導和授權你，和你周圍的人，與那些依賴你的人，開始走出這個自己預防的瘟疫大流行時代的道路，進入一個更安全的世界

無論你是立法者還是政府官員 社區組織者，或“大健康（One Health）”或“大福利（One Welfare）”的專業人員、政策宣導者或國際談判者、企業主或基金經理、農民或學者、科技大師，或媒體編輯、智囊團研究員或監測官員，或只是關切的個人 - 此路徑圖包含有關人類大流行病驅動因素的實用資訊，以及我們如何能夠聯合起來防止新的大瘟疫流行，同時創造一個更安全、更健康、更平等的星球

此路徑圖是EndPandemics (<https://EndPandemics.earth>) 共享的資產，這是一個全球倡議聯盟，由一群不同的面向解決方案的專業人員於2020年初在 COVID-19大流行開始時發起，EndPandemics旨在通過解決其根源和對全球健康的投資來預防未來的流行病。

當世界試圖控制大流行，並從其災難性的社會和經濟影響復甦，與正在進行的對抗其突變的競賽中，EndPandemics專注於促進和擴大瘟疫大流行的預防解決方案。這些解決方案對於政府、企業或消費者的任何恢復和整備行動都至關重要。

路徑圖是一個開放的工具：你不必是一個 EndPandemics 的參與者，都可以利用它，並幫助其發展和成長。

- 請稍用片刻閱讀此文件
- 探索在附錄1中的“解決方案地圖”，幫助預防疾病的項目樣本（並瀏覽我們的線上解決方案資料庫或來自世界各地前線的更多現實生活中的解決方案）。
- 將您自己的解決方案提交到解決方案地圖，享受EndPandemics聯盟的互動支援，以吸引全球各界的關注和支援，使其更具可行性。
- 與聯盟的實踐社區合作，擴大、塑造、加強和推廣可複製的解決方案，監測和驗證其對實地的影響，並獎勵進展。

通過開發EndPandemics 解決方案交流計劃，參與塑造地球積極影響投資的未來。

使用其不同的背景、技能和目標來實施、構建和使用此路徑圖的人員和組織越多，它對每個人就越有用和強大，變成每個人的都加入。

感謝您！

EndPandemics 聯盟

<https://EndPandemics.Earth>

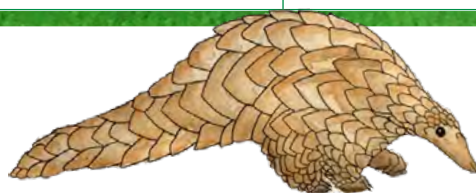
### 銘謝

這份檔是由 EndPandemics 行動聯盟的成員編寫的。Steven Galster 和Andrey Kushlin是主要作者和編輯，Marc Eberle, Bruno Laporte, Alan Laubsch, Roger Leakey, Sophie Le Clue, Niall McCann, Dawn Peacock, Christina Scaringe, Pei Su, Courtney Vail and Amy Van Nice 都提供了大量意見。Cecilia Fischer 和 John Scanlon所做的草稿同行審查，並提供了批判性的見解，大幅改善了論述。文件設計和版面由Luxana Kiratibhongse製作，Olivia Millard負責插圖。

## 為什麼我應該加入EndPandemics？

---

如果我是：	我可以做什麼
關心的個人	加入有活力的社群，並幫助這個世界
地區社區 / 社會企業	提高解決方案的可見性和市場價值
“大健康”組織的實踐者	將我的本地合作伙伴連接到最佳同行實踐
立法者/政策宣導者	驗證我的政策建議並獲得本地購買
政府官員	為我的新計劃交付尋找可靠的實施人員。
國際組織 (NGO, IGO)	擴大我獲得當地知識和合作夥伴的機會
捐贈者/慈善經理	增加我的高影響力專案的管道
企業主管	測試我的新產品/服務，並向本地購買
技術平臺 / 金融科技初創公司	測試我的新工具，並擴展我的應用生態系統
監測和核查人員	驗證和擴展我的觀察協定
大學/智囊團研究員	收集經驗數據，應用於大流行影響研究
媒體/創意機構編輯	收穫的故事，引起廣大觀眾的共鳴





## EndPandemics迄今參加團體與個人

---

Academia Sinica	Freeland	Peace Journey
ACTAsia	Fundación Entropika	Planetary Health Alliance
ADM Capital Foundation	Generation Blue	PRC Global Pte Ltd
ALERT	Global Ocean Trust	Project Coyote
Animal Defenders International	Global Regeneration CoLab	Rede Latino-Americana de Ministerio Publico Ambiental
Animals Asia Foundation	Global Tiger Forum	Regen Network
Ark Ventures	Green Consumers' Foundation	Save Wild Tigers
AsiaWorks	GreenRope	SEEDS
Asociación de Becarios de Casanare	GTI Council	SmartAgro
B.Grimm	Hemp for the Future	Solidaridad Network Central America
Big.tc	Humane Society International	Sumatran Tiger Project
Blood Lions	Hyphae	Task.io
Blue Sphere Media	International Fund for Animal Welfare	The Corbett Foundation
Born Free Foundation	International Tree Foundation	The Land App
Born Free USA	Lancaster University	Third Avenue Business Improvement District
Catalyze	Land of the Leopard National Park	Threefold.io
China Biodiversity Conservation and Green Development Foundation	Leadership Knowledge Learning	Transparent World
David Shepherd Wildlife Foundation	Liberia Chimpanzee Rescue & Protection	Victoria Falls Wildlife Trust
EarthPulse	Mememeshop	Voices 4 Biodiversity
Education for Nature Vietnam	Michigan State University	WildAid
Endangered Species Coalition	Muktir Bondhon Foundation	WILD Foundation
Endangered Species Protection Agency	National Park Rescue	Wilderness Foundation Global
EndTheTrade	Norwegian Yacht Voyages	Wildlife Alliance
Environmental Investigation Agency	Ocean Conservation Trust	World Agroforestry
For the Animals	Oceanic Preservation Society	World Animal Protection
	Open Hearts Foundation	Worldview International Foundation
	PawPAC	World Youth Wildlife Summit

### III. 原因

### 大流行是如何開始的？

世界衛生組織（WHO）於2021年初向中國派遣了一個小組，尋找導致COVID-19的線索。研究小組的結論是，最有可能的理論是從野生動物養殖場到商業濕市場的野生動物區進行交易。研究小組確定，最不可能的理論是病毒是從實驗室中逃出的。無論來源是野生動物養殖場、出售野生動物的“濕市場 (wet market)”，還是對野生動物進行試驗的實驗室，人們的共識仍然是病毒的起源是野生動物。因此，COVID-19是 - 像以前的許

多爆發-另一種人畜共患疾病，現在在人與人之間傳播。

我們不需要等待更長的調查結果才採取行動。病毒告成人畜共患風險的證據是廣泛的，早於我們目前的危機想像一下，一群檢查員進入一個燃料庫爆炸，尋找線索，發現地上有一個香煙包。他們可能需要數年時間，才能確定是哪支香菸或其他因素導致了爆炸。但你可以肯定，隨著倉庫的重建和重新開放，禁菸條例將得到嚴格執

#### 框1：大流行病的根本原因

COVID-19在2019年底成為全球瘟疫大流行出現，是疾病出現模式的一部分，突出了生物多樣性、全球環境變化和人類健康之間的聯繫。COVID-19和其他流行病植源於生物多樣性。它們是由微生物引起的，微生物本身是生物多樣性的重要組成部分，由包括人類在內的多種動物物種託管和傳播。COVID-19 是一系列由野生動物來源的病毒引起的疾病中的最新一種，這些疾病是由人為的環境變化引起的，這些變化使野生動物、牲畜和人類更加密切地接觸。這些疾病包括非典、伊波拉和尼帕病毒病、茲卡和流感，反映了人畜共患（動物起源）病毒性疾病在過去幾十年中影響人類的新興傳染病中的主導作用。在過去幾年中，發表了一系列科學論文，指出威脅全球生物多樣性喪失的同樣的環境變化（例如，土地利用的變化，如森林砍伐、退化或侵佔野生動物棲息地；氣候變化；不可持續的野生動物貿易和消費；農業集約化；全球化貿易和旅行），正在推動這些新型病毒性疾病的日益蔓延、擴大。

資料來源：IPBES，2020年<sup>1</sup>。



1 <https://www.ipbes.net/pandemics>.

行。我們需要採取類似的預防措施重建我們的世界。COVID-19是病毒炸彈，我們已經知道引爆器了。

具體來說，人畜共患疫情的兩個主要誘因是：

(1) 野生生境的破壞，主要用於集約化農業、畜牧業和自然資源開採；(2) 野生動物的商業貿易。前者將野生動物趕出自然家園，與人類和家養動物密切接觸。後者將野生動物從自然家園中拉出來，與人和其他動物密切接觸。

在這兩種情況下，令人心疼的動物可以成為病毒的宿主，通往一個人缺乏免疫力的人，使他生病。當這種情況發生時，可能會發生人畜共患的疫情或全面的大流行。這些因素也引發了愛滋病毒、伊波拉、SARS（非典）、MERS（中東呼吸道症候群）、H5N1（流感的一種病毒），在此之前，還有鼠疫等。

新型傳染病經常來自大自然。然而，許多治療方法和產品，使我們的生活更輕鬆。自然本身不是問題。瘟疫大流行時代是由人類造成的，而且可以由人類解決的危機（見框1）。這些疾病很少成為流行病或疾病，因為大自然的平衡不受干擾。

為了減輕人類對自然的干涉的影響，我們必須解決大流行病的根本原因，也被稱為“觸發因素（triggers）”。

## 大流行觸因素1： 野生棲息地破壞

不可持續的耕作方式，清除野生棲息地，或人工和密集繁殖野生動物，導致生態系統紊亂和功能障礙。當自然生態系統受到干擾時，人畜共患疾病的風險就會增加。自然界中，在受干擾的棲息地中茁壯成長和繁殖的物種（如蝙蝠、嚙齒動物和靈長類動物），往往攜帶高病毒載量。傷害或清除這些物種的自然棲息地，將這些動物推向附近的社區或農場，在那裡它們可能會引入病毒給家畜或人類。

## 大流行觸發因素2： 野生動物的商業貿易

將野生動物從自然家園中帶走——不管是活的還是死的——並把它們推進市場出售，是向人類傳播人畜共患病毒的另一種有效方法。一些國家對野生動物的需求不斷增加，導致“野生動物養殖場”出現，這些農場飼養的外來物種出售給同一城市、邊境和在電商市場，與野生動物貿易相關的運輸、禁閉、缺乏動物福利標準，以及其他已知壓力因素使動物容易患病，增加了病毒傳播的風險，更容易成為宿主和傳播病毒。

野生動物在我們的生態系統中，有著至關重要的作用。如果我們能學會通過保護野生動物和荒地來理解和尊重對人民的好處，我們都會更安全。買賣牠們或摧毀牠們的家園，這些動物成為潛在的炸藥堆<sup>2</sup>。

“  
瘟疫大流行時代是由人類造成的，而且可以由人類解決的危機。  
”

2 一些專家會提出，並非所有商業交易的野生動物，全都存在傳染給人類危險病毒的風險。EndPandemics採取“預防方法”，認識存在自然界170萬種病毒的本質，如果我們破壞了自然的平衡，至少有一半會導致人類健康嚴重的威脅。科學家們仍在瞭解這些病毒。我們對“野生物”的定義，不包括魚類或珊瑚等海洋動物，因為與它們產生相關的危險、大流行等級病毒傳播的風險可以忽略不計。但應當指出，許多魚類物種因人類過度開發，而面臨滅絕的威脅。這提醒我們，商業野生動物貿易對地球及其人民構成的威脅十分重要。<https://www.ipbes.net/pandemics>

## IV. 治療

## 我們如何阻止大流行再發？

為了防止未來的瘟疫大流行，我們必須解決其根源。我們必須遵循預防原則，越早阻止病毒的出現越好（見框2） 改變我們與自然的關係，需要初步的財政成本。但經濟證據傾向於需要改變。迄今為止，COVID-19的全球法案清楚地表明，瘟疫大流行預防是地球的一項保險政策，它只是不做為而產生成本的一小部分。

截至本文撰寫本文時，COVID-19 相關經濟損失和恢復努力的估計成本為 11.5 兆美元。僅在 2020年，全球經濟就損失了5兆美元。據估計，今後10年，全球每年若要有效的減少再次發生大流行病的可能性的費用為266億美元。這僅占 COVID-19估計總成本的2%，即每年0.2%。大部分費用將被投資自然的附帶好處所抵消，包括大

### 框2：預防新發疾病

預防勝於治療的智慧不是新的東西。刷牙勝過拜訪牙醫。繫安全帶會避免血腥的交通事故。防火免於你家因火災造成生命和財產的毀滅性損失。

投資預防可預測的損害，總是比支付災後反應和恢復費用便宜。誘因是明確的，世界上龐大而成功的保險業，正是建立在這個基本前提之上。

同樣的邏輯也適用於新興疾病（見圖1）。從源頭上預測，和初步預防新的疾病外溢（土地退化和破壞，集約農業，野生動物貿易）已被證明是比事後檢測和遏制，甚至比遏制局部疾病傳播更有效。此外，這種方法比瘟疫暴發控制、緩解和恢復流行病時採取措施的成本低了好幾級。

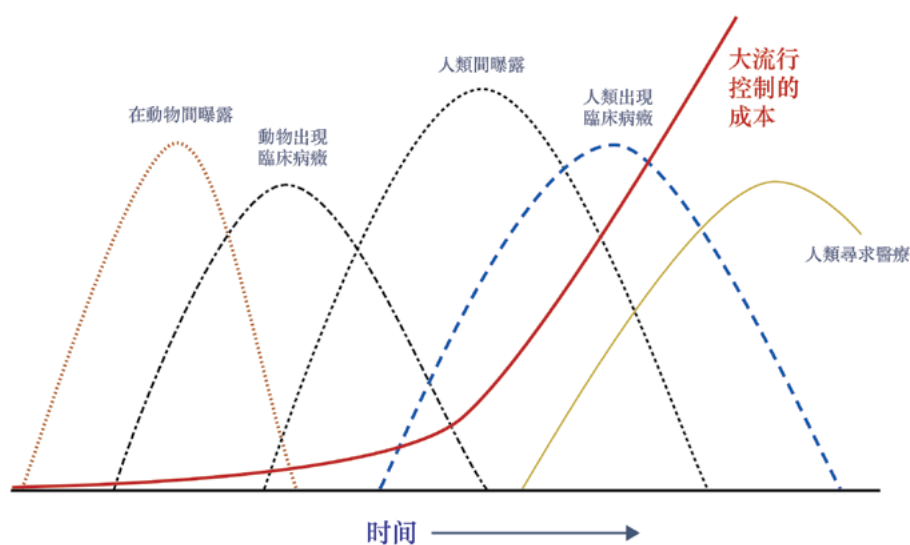


圖1。從源頭上預防病原體溢出的經濟理由（砍伐森林、農業、野生動物貿易）。改編自IMO，2009年。

自然的碳封存、自然災害緩解、社區糧食安全、當地工作和生計等<sup>3</sup>。

供資金。投資預防下次大流行是經濟上負責任的政策方法(見框3)。

雖然目前的支出激增往往針對大流行恢復和準備措施，但它們可以很容易地為大流行預防計劃提

長期維持全面預防需要誘因的。好消息是，專業知識和誘因是現成的。

### 框3：預防對比無所作為的成本

新冠病毒時代，對上述大流行預防經濟損失的早期評估(見圖2)，COVID-19造成的損失總額<sup>4</sup>高達15.8兆美元。一項研究計畫，經十年研議預防措施的經費 - 包括一個極其雄心勃勃和昂貴的項目“停止中國野生肉類貿易市場” - 約佔目前的 COVID-19 相關成本總額的2%。

雖然早期預計的大流行損害和預防費用可能被低估，並將繼續修訂，但它們很好地說明了今後的步驟這些經濟分析強調必須採取行動；這裡沒有理由拖延為無休止的效率研究採取明顯的預防行動。

通過增強抵禦各種衝擊的能力——經濟、社會、氣候或與健康相關的——國家、組織和公司可以 避免將稀缺資源轉移到反覆的衝擊、重組、復甦和重建週期(世界銀行，2021年)。

在預防大流行方面進行有力和穩定的支出的經濟理由，現在比以往任何時候都更加清楚。

我們對大流行預防的投資也將為我們在生物多樣性保護和減緩氣候變化方面的關鍵目標帶來重要的直接好處。

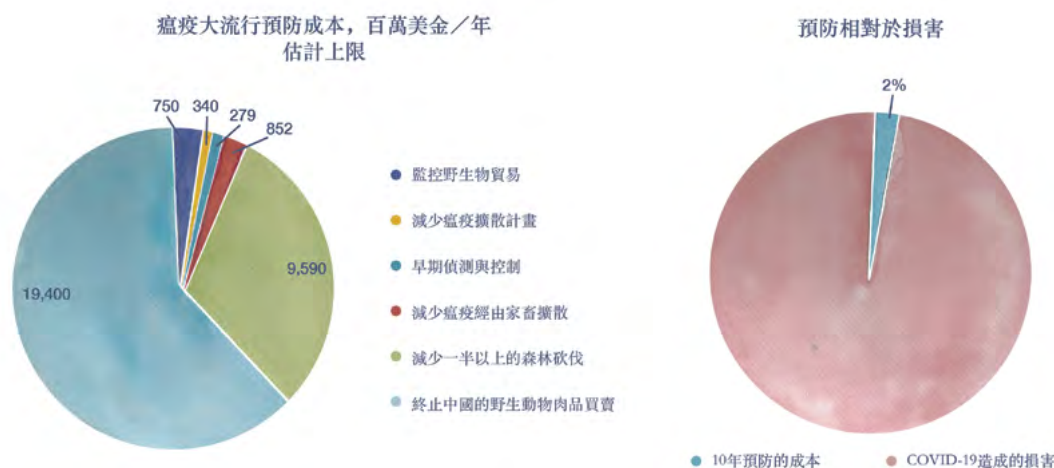


圖2：估計COVID-19的損害相對於預防成本。資訊來源：Dobson et al., 2020年7月

3 Dobson et al. (2020). <https://science.sciencemag.org/content/369/6502/379>

4 包括全球死亡和GDP損失，但排除了因其他因為醫療系統受干擾因素而造成的死亡，以及社交距離所造成的損失。

## V. 如何修復

## 大流行預防計畫的組成部分和成本

EndPanmics 將有效的大流行預防計畫的 4 個組成部分稱為“行動支柱”，其中包括：

- 行動支柱1：減少對野生動物的需求
- 行動支柱2：逐步取消野生動物的商業貿易
- 行動支柱3：保護和恢復自然棲地
- 行動支柱4：使我們的農場和食品系統更安全、更健康

以下部分描述了這 4 個操作支柱，然後是執行這些支柱的成本或步驟。



### 行動支柱1： 減少對野生動物的需求

#### 啟動政府-私營部門 行為改變/意識運動

這些運動解釋了實施禁令的理由和緊迫性，以獲得公眾的支援，行動可以包括電視、社交媒體、學校和社區外聯。

#### 好的實踐範例

- 中國、越南、泰國、美國、英國和其他一些國家發起了以減少野生動物消費為訴求的公私部門行為改變運動。他們使用關鍵意見領導者（包括名人、網紅、政府領導人、醫療衛生專家和其他人）通過多個平臺向目標受眾發送資訊。已記錄到積極影響<sup>5</sup>。

- 修訂中小學強制性國家課程，包括保護野生動物和人類野生棲息地的重要性的課程。將開發破壞動物和環境的風險與公共衛生風險聯繫起來。

消費者行為改變/意識運動至關重要（見下文），但可能需要幾十年才能產生深遠影響，特別是如果它們沒有與明確的法律和易於實施的執法相結合。



### 行動支柱2：逐步取消野生動物的商業貿易

#### 禁止商業貿易和野生動物消費

所有野生動物的商業貿易，不論合法和非法，都有病毒傳播的風險。病毒不會區分被行政批准合法商業的動物和非法走私的動物。SARS與合法的野生動物貿易有關。非洲馬病（AHS），另一種人畜共患的疫情，發生在COVID-19的同一時間，就是通過合法交易的斑馬橫掃東南亞，並殺死了90%以上受感染的馬。

#### 有效逐步取消野生動物的商業貿易需要採取幾個步驟：

- 訂定逐步淘汰時程表；
- 給合法野生動物轉銷商一個最後期限，接受一次性的經濟補償，退出商業野生動物貿易；

<sup>5</sup> 美國國際開發署的亞洲地區瀕危物種販運Asia's Regional Response to Endangered Species Trafficking (ARREST)計畫（2011-2015年）、美國國際開發署亞洲野生動物專案（2016-2020年）以及正在進行的IFAW、野生援助、野生動物聯盟、TRAFFIC、ENV-越南，以及Freeland自由地在中國、越南、泰國的社會行為消費者變化活動，以及野生動物聯盟和Freeland自由地已發揮可觀的影響力。這些數據可在其網站上公開，以及一些有關戰略的報告和經驗教訓。

- 與政府和私營部門的野生動物護理和救援中心合作，確保它們得到適當的裝備，以接受和照顧被貿易商沒收的新動物，同時要求對動物進行絕育，並禁止這些中心繁殖。

### 好的實踐範例

- 中國禁止食用陸生野生動物，以防止其傳播或再次爆發<sup>6</sup>。
- 義大利最近宣佈了新的貿易限制，禁止進口和貿易野生和外來動物，以減少人畜共患爆發的風險<sup>7</sup>。
- 越南總理於2020年7月發佈指令，禁止野生動物進出口，直至另行通知，以回應COVID-19。

反對者反駁，這種禁令將迫使貿易地下化，並增加野生動物的非法貿易。一些人還認為，這種禁令對可能依賴狩獵的窮人或土著社區產生了負面影響。這些論點經不起更廣泛深入的分析。

一些交易可能會轉入地下，但只要禁令得到執行，願意冒險在犯罪市場做生意的經銷商數量就會減少。同樣，敢於在犯罪場所購買的買家數量也會下降。強制禁令將減少貿易野生動物的總數量，從而減輕物種種群的壓力，保護生物多樣性，並降低人畜共患傳播的風險。明確的禁令還聚焦了針對犯罪交易商的警官的執法範圍。

禁止野生動物商業貿易，並不禁止原住民土著狩獵/採集，可持續的打獵活動。這些都是完全不同的事情。



**PROTECT  
NATURE**

## 行動支柱3： 保護和恢復自然棲地

在過去60年中，大多數新的人畜共患病原體已經出現，這主要是由於人類活動的結果，包括土地利用的變化（例如森林砍伐），以及我們管理農業和糧食生產系統的方式 (ttCBD, 2020年)<sup>8</sup>。

土地使用的變化是導致人畜共患疾病爆發的主要因素之一。土地利用變化的主要驅動力之一是糧食生產。在全球範圍內，大約40%的土地使用變化是由於大規模糧食生產造成的，33%是由於自給性耕作造成的<sup>9</sup>。

隨著農業的擴大和人類活動的入侵，野生物種與人類和養殖動物的接觸也越來越頻繁，導致疾病擴散的風險增加。

一個連接良好、管理有效的安全保護區系統，對於保護和保存自然生態系統完整性與不受干擾至關重要。保護區通常跨越國際邊界，提供野生棲息地的連通性。根據《生物多樣性公約》(CBD)，圍繞所謂的30x30目標正在形成新的全球共識，以確保到2030年，至少30%的陸地和海洋區域都得到有效保護<sup>10</sup>。

6 中国修订后的野生动物法仍然允许一些野生动物被用于药品和非食品用途的购买和销售。全球健康和保护方面的专家担心，这种允许会给经销商带来漏洞，导致贸易的恢复。 <https://EndPandemics.earth/action-china-wildlife-protection-law.html>

7 <https://www.lav.it/en/news/ban-trade-import-wild-animals>

8 Statement by CBD Acting Executive Secretary. <https://www.cbd.int/doc/speech/2020/sp-2020-04-07-health-en.pdf>

9 Food and Agriculture Organization of the United Nations. 2017. The State of Food and Agriculture. Leveraging Food Systems for Inclusive Rural Transformation. Rome. [www.fao.org/3/a-i7658e.pdf](http://www.fao.org/3/a-i7658e.pdf).

10 參見生物多樣性公約目標2 CBD/SBSTTA/24/3: “By 2030, protect and conserve through well connected and effective system of protected areas and other effective area-based conservation measures at least 30% of the planet with the focus on areas particularly important for biodiversity.”



## REFORM FARMING

### 行動支柱4： 使我們的農場和食品系統更安全、 更健康

目前大多數土地使用和農業做法，都是為了滿足市場需求和實現糧食安全而設計的。但是，這些傳統做法已經導致生態系統退化、全球暖化、不健康的食物供應鏈和病毒傳播。

各國政府和私營部門必須合作，促進農業生態學做法（見框4），這些做法維持土壤和健康的農業收成，減緩氣候變化，恢復野生生境，並降

低人畜共患疫情的風險。農業生態學促進功能生物多樣性和營養循環，並基於模仿自然生態循環系統。農業生態學即使在小規模上也能改善糧食生產者的生計和自主權。它利用原住民土著和農民的知識，並有可能改變社會和政治結構，這些結構往往是當前糧食系統危機的根源<sup>11</sup>。

“  
EndPandemics  
將有效的大流行  
預防計劃的4個  
組成部分稱為  
“行動支柱”  
”

### 立即付款或稍後支付更多

便利的事實是，全面的10年大流行預防一攬子計劃的費用，只佔各國政府和國際援助機構用於修復COVID-19造成的損害以及改善對下一次疫情的準備的一小部分。我們可以通過投資預防來真正降低再次爆發的風險。

預防計劃的費用不到COVID-19對全球經濟造成的損害總額的2%（換句話說，每年不到0.2%）。目前計劃好的復甦和刺激計劃的一小部分可以為預防大流行病提供資金。所需要的就是政治承諾，優先預防。

### 成本和行動步驟 支柱1： 減少對野生動物的需求

改變或制定法律和政策不會花費很多錢，這需要政治意願，需要財政資源和激勵措施，以及效的溝通，才能使社會參與到法律和政策變革中，然後得到有效的實施。

消費者行為改變運動確實需要花費金錢，但如果進行得當，則費用不高。利用互聯網和社交媒體通過有效的市場測試信息，接觸和影響消費者，可以產生積極的影響。目前正在中國、美國、越南、菲律賓和泰國開展活動，這些活動的成本和影響數據可供共用。大多數倡議活動都是新的、短暫的或片段的，因為它們尚未被轉化為政府的制度。私營部門夥伴關係和捐助者已經有所幫助，但這種運動的影響和可持續性需要（通過政府政策）官方法制化，以擴大規模。這種政策應該包括國家教育課程的改變，納入每個兒童。一定要培訓教師，以提供新的課程，傳達保護野生動物和避免大流行的關鍵資訊。青年是我們的未來。

### 成本和行動步驟 支柱2： 逐步淘汰商業野生動物貿易

此措施可以通過一步步實現。為確保有效執行，財政費用應該著重於（a）執行禁令：和（b）向合法野生動物經銷商一次性賠償，以便他們能夠過渡到新的工作。

世界上幾乎每個國家都沒有足夠的野生動物執法預算。通過以下四種方式，可以提高野生動物執法的效率和資源：

- (1) 簡化國家野生動物法，使執法更加容易。模糊或複雜的法律導致更多的徒勞無功，和機會主義的腐敗：

11 IRAM 2020. Agroecology and safe food system transitions. Feasibility study, p. 8.



## 框 4. 農業生態學實踐

農業生態學實踐，以農業生態系統的生態功能、自然過程的優化，和資源的理性明智管理為基礎。其目的是最大限度地利用自然作為生產要素，同時保持和支援其再生能力。因此，農業生態學包括從地塊到景觀的各種做法：水管理、土壤肥力管理（堆肥、土壤覆蓋、作物輪作和作物演替等）、作物保護（綜合病蟲害管理、天然農藥等）和景觀管理（梯田栽培、作物輪作、作物－牲畜一體化、農林業等）。

然而，農業生態學不能簡化為技術管理與的做法。它代表了對當前生產和加工系統的重新設計，以及對所有食品系統的重新思考。

農林是一種混合種植系統，涉及土地利用制度和做法，其中木本多年生植物被故意與同一土地管理單位的作物和/或動物相結合，以啟動農業生態演替的創建<sup>12</sup>。這樣，可以修改新的和舊的土地利用計劃，通過恢復熱帶和亞熱帶退化的農田<sup>13</sup>。通過擴大和多樣化的收入來源，以及氣候友善，重建野生動物棲息地和自然資本，同時對農民友好，通過擴大和多樣化收入來源，以及氣候友好，通過恢復棲地和封存碳。這些進程對改革熱帶和亞熱帶自給農業，工業農業，以及盡量減少新的人畜共患疾病傳播帶給人類風險至關重要。農業林業在亞洲、非洲和拉丁美洲廣泛實行，但要擴大到對森林砍伐（饑餓、貧困和社會不公正）驅動因素，產生全球影響的水準，需要捐助者和國際發展機構轉變觀念，改變對單一種植作物和牲畜的清地觀念。

某些針對東南亞的問題：

- 以水稻、木薯、玉米、甘蔗、橡膠和油棕櫚等六大農作物取代天然植被，覆蓋了湄公河地區80%的農業用地。
- 農業部門對國家國內生產總值（緬甸38%，柬埔寨23.4%，寮國25%，越南15%）和就業（緬甸60%，寮國75%，柬埔寨40%）以及廣大農村人口作出了重大貢獻<sup>14</sup>。
- 氣候變化和自然災害已經對農業景觀和生計施加了更大的壓力。
- 人口迅速老齡化，特別是在農業部門，此外，還加速向城市遷移。

柬埔寨和越南於2019年加入“千分之四”倡議（[www.4p1000.org](http://www.4p1000.org)），這是對農業和糧食系統可持續性日益增加政治利益的一個例子。該區域絕大多數國家都有行動計劃，旨在加強適應和緩解氣候變化的影響，並設法扭轉耕地農業生態系統土地退化的輪迴。



12 Leakey, 2014. The role of trees in agroecology and sustainable agriculture in the tropics. Annual Review of Phytopathology 52: 113-133.

13 Leakey, 2020. A re-boot of tropical agriculture benefits food production, rural economies, health, social justice and the environment. Nature Food 1: 260-265.

14 Ingalls et al., 2018. State of Land in the Mekong Region.

- (2) 建立多機構、跨邊界的野生動物執法網路，將工作負擔分配給有能力處理跨國組織性犯罪的機構和國家：
- (3) 支持《聯合國反腐敗公約》（《聯合國打擊跨國有組織犯罪公約》）關於野生動物犯罪的新議定書：
- (4) 撥更多的錢來打擊野生動物販運。

“  
**這項預防計劃  
 的成本僅為全部  
 COVID-19造成損  
 害全球經濟的2%**  
**（換句話說，  
 少於每年0.2%）**  
 ”

在某些情況下，由於國家法律和遵守《瀕危野生動植物種國際貿易公約》的法規，允許某些物種進行貿易的法律和條例往往使打擊非法野生動物貿易的執法變得複雜起來。許多官員不知道如何識別交易中的數千種物種，也不記得哪些物種被允許交易。禁止所有野生動物商業貿易，簡化了執法，節約了資源<sup>15</sup>。

#### 機構合作和跨國野生動物執法網路

(WENs)，能夠滲入非法野生動植物販運供應鏈的機構，和國家合作搗毀犯罪集團（這些集團每年摧毀和竊取《瀕危野生動植物種國際貿易公約》所列的瀕臨滅絕物種<sup>16</sup>，價值超過200億美元的生物多樣性），從而節省時間、金錢和生命。

必須謹慎、公平和迅速地，給予合法野生動物轉銷商進行一次性賠償。會有阻力，而一些非法經銷商會排隊領取賠償，意圖繼續非法經營。每個政府必須決定什麼是公平支付。政府和捐助者用於瘟疫大流行恢復的撥款中，有很小一部分的資源可以包括這一專案。EndPandemics 合作夥伴

可以就這一具有挑戰性和敏感但重要的步驟的機制和成本提供建議。

### 行動費用和步驟 支柱3： 保護和恢復自然生境

各種生物多樣性保護投資將對降低人畜共患擴散的風險，以及與氣候變化、安全、就業等相關的多項其他好處，產生直接的積極影響。生物多樣性和生態系統服務政府間平臺最近的報告明確界定了這些目標投資<sup>17</sup>。包括：

- 前線巡守員和社區巡邏：培訓、設備、人壽保險；
- 減貧方案：青年教育和替代性生計支助；
- 授權農村社區作為自然保護者捍衛其土地和人權；
- 恢復自然：生長保護區、緩衝區、走廊和重新野化；
- 按照影響緩解等級制度重新設計基礎設施和發展專案，盡可能避開核心荒野地區；
- 通過啟動更可持續的耕作做法，在生產國內有用的原住民土著糧食，和非糧食產品的基礎上，重建正常運作的農業系統，從而減輕對天然森林和林地的壓力，這些產品也有可能創造新的當地市場和產業<sup>18</sup>。

### 行動支柱4的成本和步驟： 使我們的農場和食品系統更安全， 更健康

投資從目前的工業農業（包括工廠農業）向更再生的農林業和農業生態方法的轉變，將需要巨大的政治意願、努力和資源。但這種投資的回報將是巨大的。因為再生方法導致：

- 更清潔的食物和更健康的消費者；

15 EndPandemics所定義的野生動物不包括魚類。事實上，很多魚種已受到過度捕的威脅，應該受到保護，但是年們並不具有大流行的風險。再說一遍：EndPandemics呼籲禁止野生動物的商業貿易，並不意味著禁止土著生存狩獵或可持續的狩獵活動。

16 It is actually about US\$200 billion worth for all species in trade that are not listed under CITES. See UNODC World Wildlife Crime Report 2020 and World Bank Report 2019.

17 IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. [https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report\\_0.pdf](https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf)

18 Leakey, 2019. From ethnobotany to mainstream agriculture – socially-modified Cinderella species capturing ‘Trade-ons’ for ‘Land Maxing’. *Planta* 250: 949 – 970.

- 可世代使用的更健康的土壤，確保更穩定、可持續的收入；
- 更具彈性和繁榮的本地社區，受惠於可持續生計；
- 減少野生動物偷獵和非法生境破壞，因為當地社區較少依賴這些活動；
- 由於野生棲息地受到的最小破壞，人畜共患傳播的風險降低。



## VI. 良好做法

### 公共和私營部門及個人可以採取的政策

以下是政府和私營部門以及個人在預防瘟疫大流行病方面可以遵循的政策準則。

#### 政府政策/法律模範

##### 大健康 (One Health)

政府在修復地球生態系統的同時，可以採取最有效、最具影響力的政策，即“大健康”這是一種全球方法，將人類健康、動物健康和生態系統衛生方面的專業知識、目標和資源結合起來，以檢測和預防疾病的出現和傳播（見 Box 5）。

在當今全球化的世界中，任何機構或社會部門都無法阻止疾病的出現，或死灰復燃。沒有一個國家能夠單獨扭轉威脅人類和動物的棲息地喪失和滅絕模式。只有全面召集參與人類健康和環境的各種機構和民間社會團體，才能切實發現、解決和減緩人畜共患疾病的傳播。

雖然這種方法背後的理念並不新鮮，但是實施是新的。世界衛生組織（WHO）、聯合國糧食及農業組織（FAO）、世界動物衛生組織（OIE）和聯合國環境規劃署（UNEP）正在政府間協調“大健康”的發展。

《生物多樣性公約》締約方正在制定《生物多樣性和健康全球行動計劃》，使大健康更加具有生物多樣性的包容性<sup>19</sup>。

為了有效，“大健康”需要在國內和國際上得到適當的制度和支援，並有足夠的有利條件在基層執行。

#### 公司和組織政策/實踐模範

全球經濟一直以開採性商業應用為主，這些商業做法會清除或破壞自然資源。再生方法確保自然資源不會受到損害，如果自然資源受干擾或移除，它們將被替換，並增加和保護。公司和組織，不分大小，都可以採用自己的自己預防大流行的政策和方法，這將有助於地方和全球的努力。這些政策可以包括：

- 研發投資、生產和銷售；
- 無森林砍伐供應鏈；
- 無野生動物供應鏈；
- 顧客忠誠度計劃（代幣、積分等）旨在保護與恢復自然的客戶；
- 防止瘟疫大流行的贊助者可以支持我們的活動與媒體宣傳活動等。

#### 個人政策/行為模範

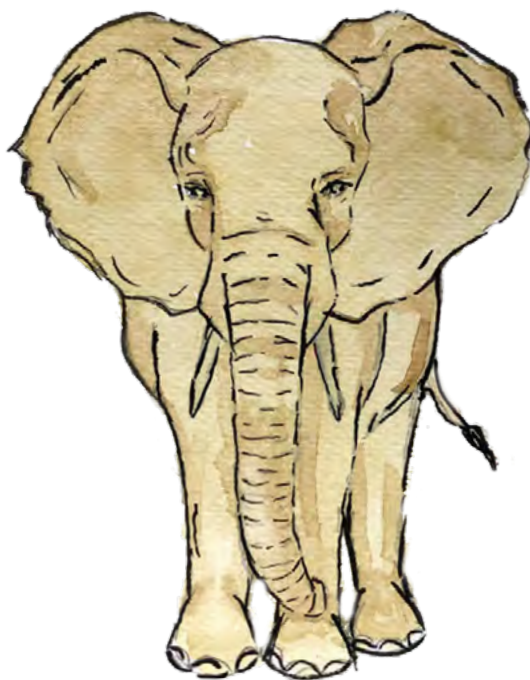
許多人對抗像瘟疫大流行病這樣巨大的問題時感到無助。但是，事實上，個人可以採取一些具體行動，這將產生積極的影響，隨著我們說服其他人效仿，這些行動可能會加倍成長。

以下是個人、家庭或社會團體可以採用的 11 個習慣，以說明預防大流行，使我們的世界變得更美好、更安全、更快樂：

“  
公司和組織，  
不分大小，都  
可以採用自己的自己預防大流行的政策和方法，這將有助於地方和全球的努力。  
”

<sup>19</sup> 2021年10月將在中國昆明舉行的生物多樣性公約第15屆締約方會議將審議新的《全球生物多樣性框架》，其中除其他外，將保證“野生動植物物種的收穫、貿易和使用合法、可持續和安全”。《公約》新目標中“安全”的定義必須與“大健康”方法保持一致，即“不對人類、野生動物或馴養物種造成病原體溢出的風險，不構成成為外來入侵物種的風險”。

1. 少吃肉。世界上一些最致命的疾病爆發與工業化的畜產農業有關。
2. 不要買皮草或異國情調的動物皮。囚禁圈養是不人道的，是非法捕獲的野生動物傳播和清洗的滋生地
3. 仔細選擇您的野生動物旅遊選擇。以圈養野生動物為特色的旅遊景點，經常將這些動物從其自然棲息地移走，讓遊客能夠進入，從而增加人畜共患動物的風險。
4. 旅行時不要購買野生動物產品、紀念品或叢或叢林肉品。並不因為它們是可以出售的，就代表它們是合法，安全，或道德的。
5. 檢查成分 -- 不要購買由森林砍伐產生的產品。熱帶雨林轉為牧場和種植園，增加了人畜共患病原從野生動物轉到馴養動物和人類的風險。
6. 不要養異國寵物。與外來寵物接觸會使主人面臨接觸人畜共患疾病的風險，同時會傷害野生種群。
7. 在社交媒體上負責。野生動物貿易商注意到社交媒體活動，因此像“我也想要一個”這樣的留言，鼓勵他們把野生動物從自然棲息地移走出售。
8. 盡量減少碳和廢物的足跡。支援採用“循環經濟”方法的政策和企業——減少自然資源的開採，最大限度地減少對環境的影響。
9. 支援退化土地的再野化和農業生態恢復。再野化是大規模恢復自然生態系統和生產性農業生態系統，使自然能夠自我療癒。
10. 投資可持續金融。明智地使用您的儲蓄和投資，以確保您的財務選擇完全從化石燃料和與森林砍伐相關的行業退出。
11. 投票給地球。確保你的選出的民代、官員代表你和地球！



## VII. 緊急狀態

### 現在就要行動

要防止未來的瘟疫大流行，在所有人都安全之前，沒有人是安全的。一個國家、省、縣或城市的病毒爆發，可能會蔓延到另一個國家，即使面臨代價高昂的封鎖。全球合作至關重要。

COVID-19擾亂了整個社會，無論信仰或貧富。我們有能力且必須激勵每個人參與這一全球運動，以防止新的大流行機會之窗正是現在。

這種多樣化和積極進取的聯盟，可以創造前所未有的力量，促使我們從被動反應瘟疫大流行，到主動預防瘟疫大流行病：這有兩個方面：

- 為必要的全面改革提高政治意願：
- 實質的預防解決方案呈指數級增長。

要將這場全球危機轉化為全球機遇，需要大量的社會參與和協作。這種合作是聯盟影響交付模式的核心（見框 5）。

“  
要防止未來的瘟疫  
大流行，在所有人  
都安全之前，沒  
有人是安全的。  
”



## 框5。大健康 and 包容性力量的恢復

在COVID-19之前，我們已經知道病毒不需要護照旅行的口頭禪。我們瞭解到病原體在我們相互關聯的世界中傳播的速度和程度，不僅來自恐怖電影，也來自現實生活中的健康恐慌，如SARS或伊波拉。儘管如此，世界基本上將這些可怕的現實視為醫療緊急情況，將由有能力的衛生專業人員處理。



在SARS和伊波拉之後，“大健康”<sup>20</sup>方式，疾病預防和控制的共同努力，增加了獸醫和生態系統衛生專家參與。

一位頭腦清醒的經濟學家<sup>21</sup>在2013年預測，“流行病不只是重大的健康問題，因為它們會擾亂經濟和社會的運作。”現在我們都知道這是多麼真實！

COVID-19直接給數百萬受該病影響的人，包括他們的家庭和前線衛生工作者，造成了毀滅性的損失，事實上，整個世界都受到了影響。

無論您是紐約的股票經紀人、巴西的卡車司機、芬蘭的教師、埃及的酒店老闆、孟加拉國的養雞戶、澳大利亞的餐廳廚師、辛巴威的公園巡守員，或是西班牙的退休人員，您都已經感受到了大流行病非醫療後果造成的嚴重中斷、收入損失和基本經濟保障的痛苦。

“不平等加劇，不同社會群體被排除在服務、市場和機會之外，阻礙了發展和煽動不和。確保復甦不會讓任何人落後，可以減少機會和結果方面的差距，並說明被排除在外的群體實現公平份額的利益。包括不同的觀點，讓社區參與私營和公共部門實體的政策和投資項目的設計，可以緩解執行挑戰。”（世界銀行，2021年）

嚴打政策和聰明的技術將是必不可少的，但還不夠。自上而下的變化是線性的，自下而上的變化可以是指數級的增加。



<sup>20</sup> <https://www.who.int/news-room/q-a-detail/one-health>

<sup>21</sup> <https://blogs.worldbank.org/developmenttalk/danger-pandemic>

# I. 可以提供的協助



## EndPandemics如何協助您

制定和實施您當地相關的瘟疫大流行計畫並非易事，EndPandemics聯盟可以說明您，您也可以幫助我們。

預主要預防瘟疫大流行的主要方法是：

- 減少對野生動物的需求；
- 逐步取消野生動物貿易；
- 保護和恢復自然生態系統；和
- 使我們的農場和食品系統更安全、更健康。

這些解決方案都不是新的，而是已經間歇性的使用過，偶爾用一下，只是在不同的地方、不同的時間。所以，知識是存在的。EndPanmics召集這4種解決方案的專家從業人員和專案，以創建一個全面的“解決方案地圖”。我們不斷提出最佳實踐，以解決方案，以產生最大、最積極的影響。

為了結束瘟疫大流行時代，我們需要將這些預防解決方案的推進器從零星和孤立切換到不間斷全面覆蓋。

擴大解決方案的交付，我通常受到限制，不是缺乏資源，而是缺乏可存儲的專案想法。這在很大程度上像是企業所謂的最後一里的問題<sup>22</sup>。雄心勃勃的政府政策、計劃和專案常年掙扎，而且往往失敗，無法產生預期的影響<sup>23</sup>。沒有適當的分派任務、資源或裝備，傾聽他們的最終受益人的意見，也沒有即時跟蹤他們的干預行動的影響。

為了面對這一挑戰，我們必須扭轉通常涉及或選擇當地社區的自上而下的解決辦法，而是採用大規模共同創造的解決方案，確保所有權和持續實施。

EndPandemics 聯盟正在吸引所有感興趣的個人和組織，不分大小，來自所有部門和地區，共同繪製 EndPandemics 解決方案地圖(見圖 3)。此地

**EndPandemics**  
(<https://EndPandemics.earth>)  
是一個由為公共利益而工作的從業人員組成的公開協作聯盟，正在不斷產生適合各地方自行創建的瘟疫大流行預防解決方案 – 社區行動、公共政策、商業運營，和消費者行為改變——這些解決方案正被公開審查、評級、交換和推廣，以便公共和私人投資進行複製和擴大。

圖是改進、配合與推廣瘟疫大流行預防解決方案的工具（請參閱附錄 1 範例）。

由 EndPandemics 聯盟接收和審查或創建、複製和改進的解決方案，然後成為全球恢復和再生努力的基石。這些解決方案被編目，並詳細說明其創新者、成本和影響，如投資平臺。分享吸取的教訓，確保感興趣的利益相關方能夠順利在地進行。

隨著社區的發展，每個投射解決方案的價值，也隨著其更高的可見性、公開透明度、更強的影響驗證協定，和社會驗證而增加，因為它得到了解決方案共同擁有者投入的社會資本的支援。

<sup>22</sup> 這意味著，在 B2C（企業對客戶）價值鏈的最後階段交付的產品往往最昂貴、最耗時、最不可靠。除了交付基礎設施的改進外，在企業中解決這個問題的主要兩種方法是與客戶溝通和，即時向客戶進行交貨跟蹤。資料來源：<https://onfleet.com/blog/last-mile-problem>

<sup>23</sup> 這個名詞完全是指土著原住民和地方社區。



EndPandemics 建立了一個監控、評估和獎勵 (MER) 系統，該系統利用自己的基於區塊鏈的數位代幣 (EPX)，跟蹤和獎勵解決方案的努力和影響。

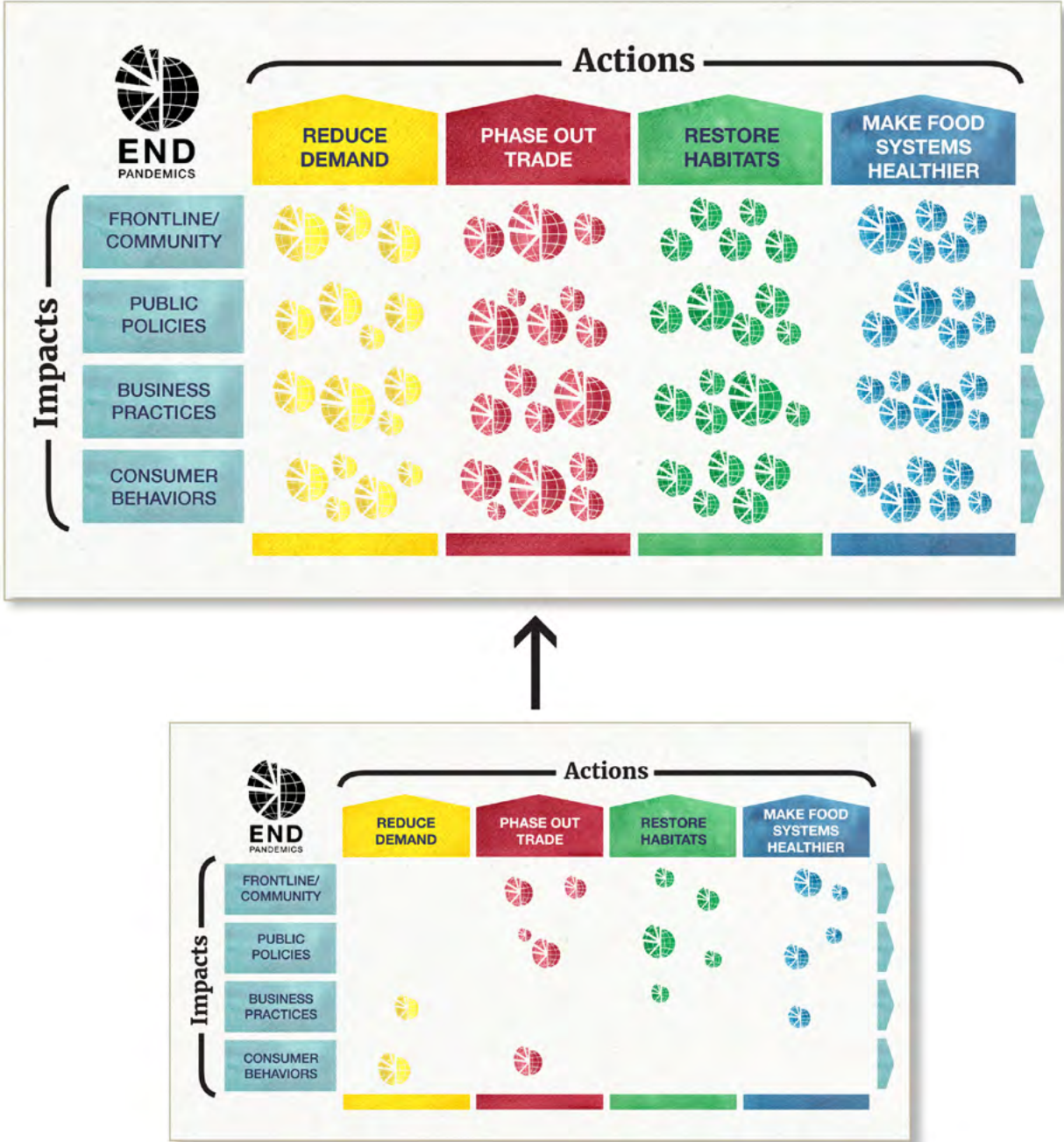
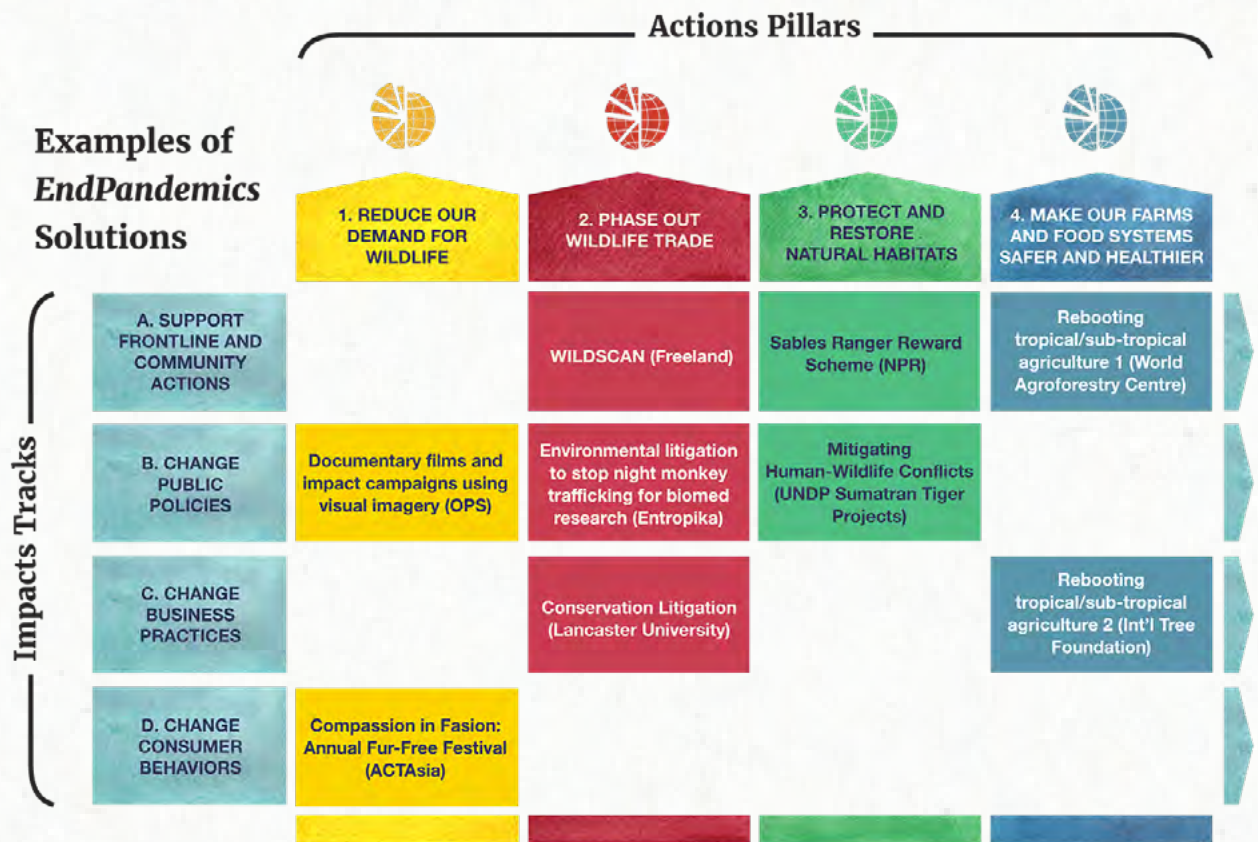


圖3. 增長解決方案地圖 - 從隨機的干預到持久、大規模的改變。

# 附錄

## EndPandemics 解決方案地圖的採樣



**EndPandemics**  
Investing in Planetary Health



● **DOCUMENTARY FILMS AND  
IMPACT CAMPAIGNS USING  
VISUAL IMAGERY**

● Location: Global

● Solution Proponent: Oceanic Preservation Society



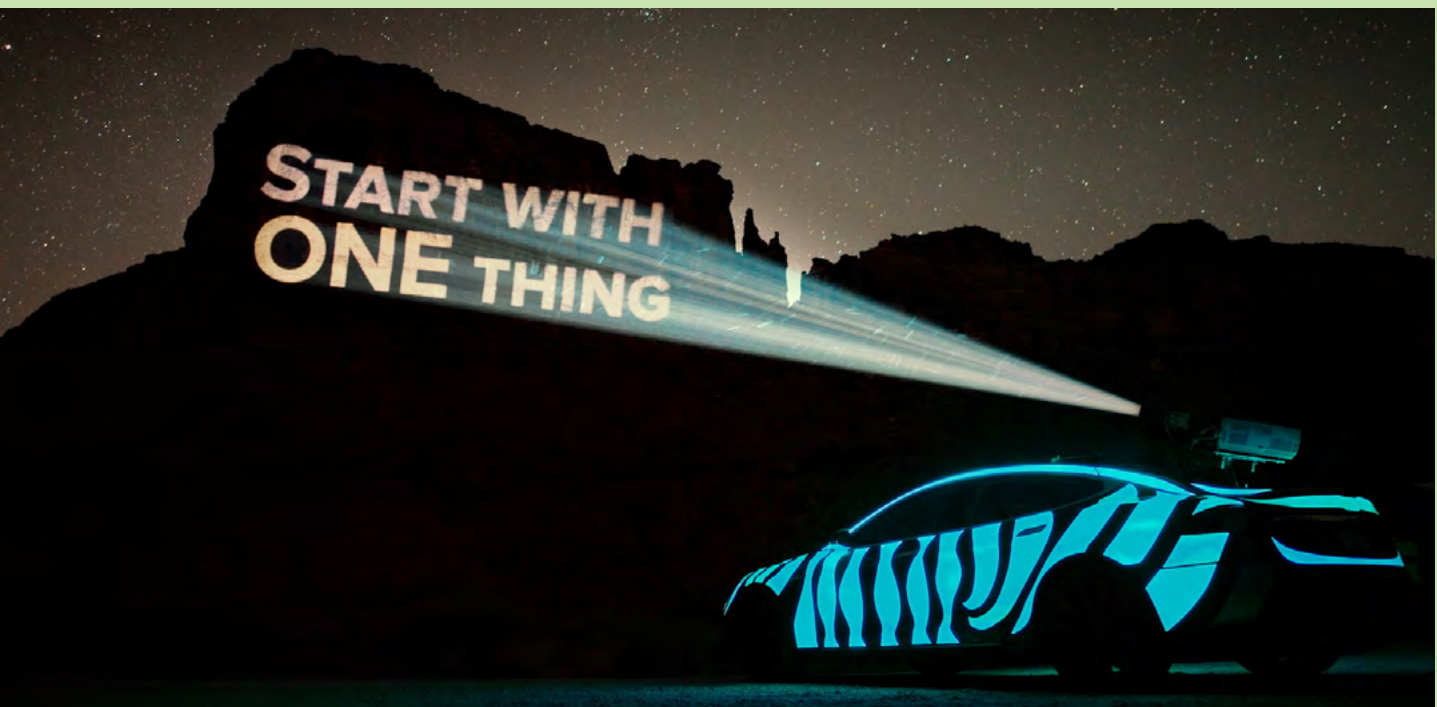
**PROBLEM**

OPS [documentary films](#) and projection events expose critical issues facing our planet, and the front-line defenders who are risking their lives to defend it, through compelling imagery and storytelling. *Racing Extinction* (2015) revealed the role that wildlife trafficking plays in contributing to the current mass extinction event, climate change, and humankind’s important connection to, and reliance upon, nature. *The Game Changers* (2019) focused on the benefits of a plant-based diet for human health and reducing the environmental impacts of intensive animal agriculture which contributes to species extinction, deforestation, zoonotic disease transmission, and climate chaos. Our next film currently in production will expose the destruction of tropical ecosystems by the palm oil industry that is hastening wildlife trafficking, exacerbating climate change, and increasing the potential for future zoonotic disease outbreaks.

**SOLUTION**

Documentary film and impact campaigns using visual imagery (e.g. projections events).

Some of our films require covert operations and investigations, including infiltration of wildlife [markets in Asia](#); others have required film crews to be embedded within field operations where our interventions have led to the confiscation of endangered wildlife or enforcement actions against illegal wildlife traders; interviews with government officials, scientists, and activists requires the establishment of trust; and partnerships with innovative technology companies have enabled some of our incredible [projection events](#) where we have illuminated iconic buildings, such as the [Empire State Building](#) and St. Peter’s Basilica at [The Vatican](#). These images of endangered species and other thematic content have reached millions of people globally and helped to raise awareness.



## RESULTS

Our films have been met with varying success, including an Academy Award for the best documentary (2009 for *The Cove*). For other films (*Racing Extinction*), we partnered with high-profile multimedia companies (Discovery, Vulcan Productions, Obscura and others) to create an action website and impact campaign to channel interest after the film's release. Our projection events were strategically held in tandem with key meetings and partners (UN Climate Summit in September 2014 New York; and at the [Vatican in early December](#) before the Paris Climate Accord (Climate COP21) in 2015. With the intention of scaling social change and sparking an international dialogue, success is measured by the campaigns and partnerships spawned by these films and visual displays, the numbers of viewers reached, and who ultimately participates in some form of action (which is ultimately more difficult to track). Collectively, our global projection events have achieved over [5.3 billion impressions](#).

Beyond raising awareness, our documentary films have catalyzed action, including the abandonment of whale and dolphin meat in school lunch programs in Japan achieved a reduction in numbers of dolphins killed in the drive hunts each year; supported increased protection for shark and ray species at wildlife trade fora (e.g., CITES); and led to the confiscation of wildlife and arrest of traffickers (e.g., the closure of a high-end restaurant in Southern California serving endangered whale meat, and the rescue and release

of an endangered orangutan discovered during covert filming operations). After the release of *The Game Changers*, the interest in plant-based diets escalated, with 'plant-based recipes' one of the biggest Google searches of 2019. While isolating the true impact of the film is difficult, a growing awareness around plant-based diets and their importance to the environment has exploded since the film's release.

## LESSONS

A post-film impact campaign is essential to reaching, and activating, the largest audience over time. We did not have an action site with our first film (*The Cove*, 2009), but quickly learned that the impact campaign that follows a film or projection event is as important as the documentary itself. It is imperative to have a clear and tangible way to channel interest and inform action by the viewing public. Capitalizing on the inspiration of a film requires a long-term commitment to identifying opportunities to channel strategic action in the policy arena, field, or through recruitment of corporate partners and commitments.



*OPS inspires, empowers, and connects a global community using high-impact films and visual storytelling to expose the most critical issues facing our planet.*

### LEARN MORE

#### Website

[www.opsociety.org](http://www.opsociety.org)

#### Vimeo Page

<https://vimeo.com/opsociety>

#### Youtube page

<https://www.youtube.com/channel/UCbbST1c7UWQBG-5GkgIOrt7A>

#### Wildlife markets clip

<https://www.youtube.com/watch?v=jx9VmRKB6wM>

#### Educational outreach videos

<https://www.opsociety.org/outreachvideos/>

#### Our films

<https://www.opsociety.org/our-work/>

### CONTACT

Courtney Vail  
([courtney@opsociety.org](mailto:courtney@opsociety.org))

● **COMPASSION IN FASHION:  
ANNUAL FUR-FREE FESTIVAL**

● Location: China

● Solution Proponent: ACTAsia



**PROBLEM**

Indiscriminate consumption globally and in China is fueling unsustainable industries such as fur farming. In fur farming, disregard is shown for human welfare in terms of employment and safety, exploitation of animals and damage to the environment. The risks of pandemics are becoming clearer but as consumers, people continue to overlook the disconnect between individual actions and impacts to other people, animals and the environment.

The legal trade in fur is a starting point to tackle the trade in wildlife and prevent future pandemics. At the same time as ACTAsia works for a reduction in demand for wildlife as a whole, we aim to build a consumer mindset that understands compassionate choices and the destructive effects that excessive and indiscriminate consumption has on the world, from all of the One Health perspectives.

These choices such as fur in fashion fuel unsustainable industries and put human health at risk from toxic chemicals and the potential for pandemics.

The legal trade in fur is a starting point to tackle the commercial trade in wildlife and prevent future pandemics.

**SOLUTION**

Annual Fur-Free Festivals in Shanghai China have been held since 2014 usually during or close to Shanghai Fashion week Autumn/Winter. The Fashion Festival is made up of several components all aimed to keep the fur-free message in the mainstream media:

- Fur-Free Fashion Show (2020 Stella McCartney).
- Fur-Free Day for all visitors and exhibitors (3rd September at Fashion Zoo Expo in 2020).
- Sustainable and Fur-Free Forum to promote fur-free and alternative materials - with international experts and leading speakers in

sustainability and the fashion industry.

- Opportunity to present Fur-Free Retailers (FFR) who commit to not use fur in their designs.
- Partnerships: in 2020 - Fashion Zoo, Stella McCartney, London College of Fashion, British Consulate, British Council, China Biodiversity Conservation Green Development Fund.

The Fur-Free Fashion Festival in 2020 reached close to 40 million people on social media with 500 attendees in person at the forum and 20,000 online streaming the event. The Fashion show pulled an online crowd of half a million people.

**RESULTS**

ACTAsia has been delivering the Fashion Festival in China for six years and has built up to 2020 where we have made the event offline and online, had international speakers join from around the world online and in person, and been able to pull in brands for sustainable fashion and in 2020 started to broaden the reach to consumers of plant-based diet including OATLY.

Held in China to include: Fashion Show, Forum and Fur-Free day.

Media pick up from 20 media agencies in China

Total reach for the event this year (2020) was close to 40 million people.

In ACTAsia consumer report 2020 we have found that a higher percentage of fur consumers will stop buying fur once they know about the practices in fur farms and more about the industry. This has increased from 65% in 2019 to 84% in 2020.

We measure success by the partnerships and strong political support that the Fur-Free message is within the larger sustainability discussion and has become mainstream – this has been a crucial goal that ACTAsia has been keen to work towards. ACTAsia has steadily built a robust and credible reputation in China and internationally through diligent research work and reporting on evidence and maintaining context and integrity within our

work. We have honoured partners and given credit where it is due, delivering what we set out to achieve.

Over the six years of Fashion Festivals, we have hand-picked key speakers who we respect and know they have something key and individual to bring to the forums, we have showcased fur free brands and maintained a positive message on consumer choices. ACTAsia avoids the radical or bandwagon approach and does not use aggression or finger-pointing tactics. Instead, we are non-confrontational, offering positive consumer choices and back up with the reasoning to explain and inform with benefits to people, animals and the environment.



Through the media we have become a called upon source for accurate up to date information, this is due to the approach we have taken to ensure we research and fact-check before sharing information with others. ACTAsia keeps the fur issue

within mainstream media and have avoided being side-lined or tarnished as a 'radical' group that is then dismissed.

Promoting open and honest discussion and not condemning but celebrating small changes, not driving for perfection in consumer choices but showing that small changes can add up makes people feel they are willing to join us.

## LESSONS

Partnerships work! ACTAsia have been able to partner in 2020 with Fashion Zoo, this has in part been due to the reputation build up in the previous five years, and also driven by ACTAsia's endeavour to reach a higher number of engagements. The partnership was marked by Stella McCartney giving her blessing in the form of the Opening Show and a quote in support of the work that ACTAsia does. This links back to the credible partners that are essential within the industries that we want to change.

Get data and use the statistics. ACTAsia have been carrying out an annual public survey for both consumers of fur and consumers who do not buy fur, gathering their opinions helps us to shape our education campaign and topics within the forum at the festival. It also serves to update brands and companies, ensuring we are providing accurate and up to date information.

Reputation needs to be built in every decision and strategy the organisation has, not reactionary or radical/extreme, messaging is clear and backed up with up to date evidence which is accurately portrayed. Partnerships are carefully chosen.

Target the millennial and generation Z, middle classes who are the consumer spenders and also the group likely to change the future!



*Through education, we promote compassion for animals, kindness towards people and respect for the environment in China and throughout Asia.*

### LEARN MORE

<https://www.actasia.org/news/the-future-of-fashion-can-be-beautiful-sustainable-and-fur-free/>

<https://www.actasia.org/news/fashion-professionals-speak-out-for-fur-free/>

<https://www.youtube.com/>

[watch?v=1KnzzoT\\_x7I](https://www.youtube.com/watch?v=1KnzzoT_x7I) 2020 recap video

[https://www.youtube.com/watch?v=\\_gSZyEyNRJg&t=138s](https://www.youtube.com/watch?v=_gSZyEyNRJg&t=138s) 2019 recap video

<https://www.actasia.org/wp-content/uploads/2019/10/China-Fur-Report-7.5.pdf>

<https://www.actasia.org/>

[wp-content/uploads/2018/11/Toxic-Fur\\_6.1.pdf](wp-content/uploads/2018/11/Toxic-Fur_6.1.pdf)

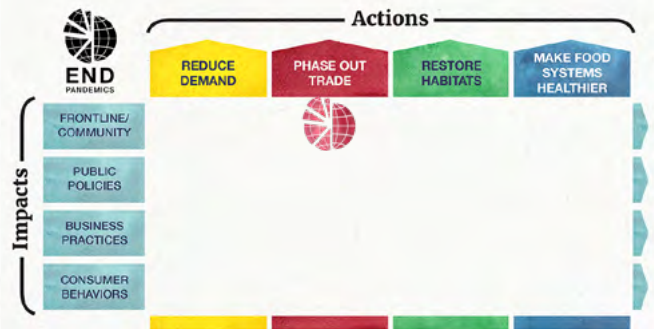
### CONTACT

Dawn Peacock  
([dawn@actasia.org](mailto:dawn@actasia.org))

## ● WILDSCAN

● Location: Southeast Asia, West Africa

● Solution Proponent: Freeland



### PROBLEM

A majority of officers and the public are unable to identify most wildlife species that are in trade. They do not know which ones are legal or illegal, or which ones are high risk for transmitting viruses.

### SOLUTION

WildScan smartphone app enables everyone to identify commonly trafficked wildlife and wildlife parts. Originally designed for frontline law enforcement officers and transport sector workers to correctly identify, report and handle commonly trafficked species, the app also encourages civil society to report wildlife in local markets. WildScan is currently available for free download for Apple and Android devices in multiple languages.

### RESULTS

WildScan contains information on 600+ species and contacts from 25+ countries on two continents. It is available in English, French, Portuguese, Thai, Vietnamese and Lao. It can be used by frontline enforcement officers, transportation and shipping officers (aviation, courier, postal), and by members of civil society, including children. Since its relaunch in late 2020, it has been growing a steady user base, and there has been growing interest in expanding it to other parts of the world.

### LESSONS

1. You do not just launch an app and then let it go viral. It requires marketing and maintenance.
2. We learned to develop the structure of the app (with help of Vimi, the company that co-designed it with us) so that it can be adapted for any region of the world. So, any time a new country wants it, it's just a matter of adding the library of species that is traded there, applicable laws and translating it.



*Protect vulnerable wild animals, communities and ecosystems from trafficking and over-exploitation. Our Vision is a world of pristine ecosystems that is free of wildlife trafficking and human slavery.*

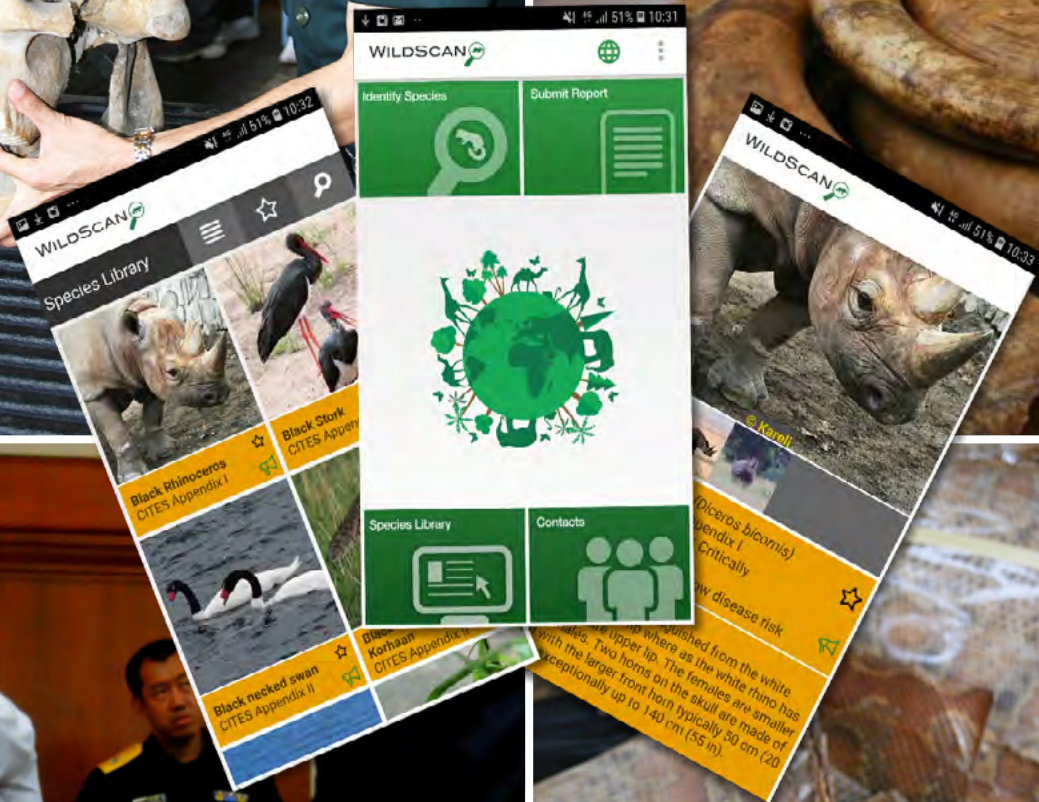
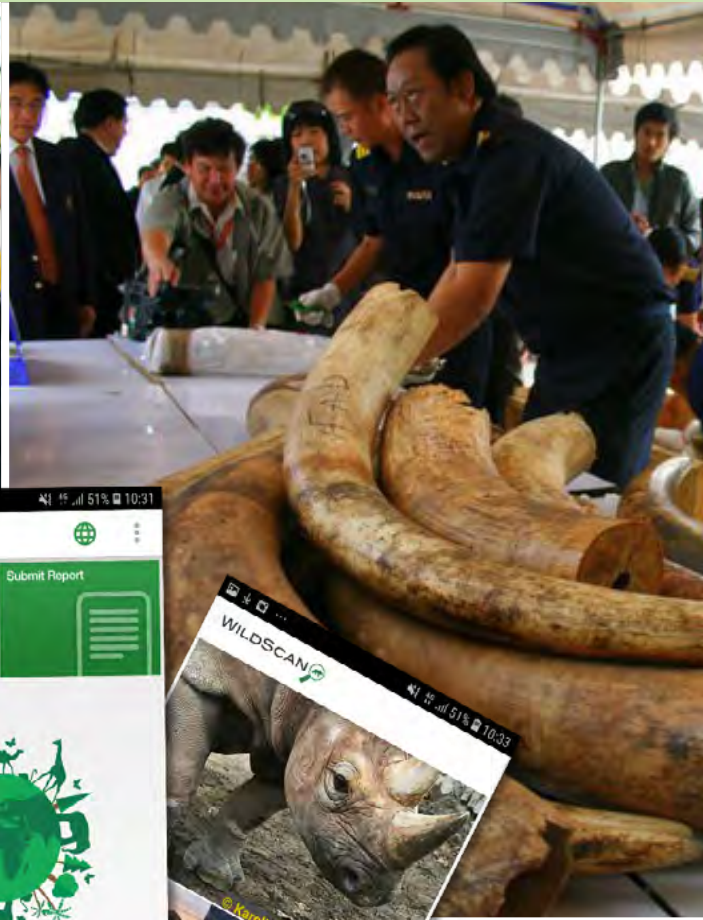
### LEARN MORE

<http://wildlifeProtectiontools.net/>  
(select tool "Species ID")  
<https://youtu.be/whpVmVcFdyg>

### CONTACT

Onkuri Majumdar  
([onkuri@freeland.org](mailto:onkuri@freeland.org))





- ENVIRONMENTAL LITIGATION
- TO STOP NIGHT MONKEY
- TRAFFICKING FOR
- BIOMEDICAL RESEARCH

Location: Amazonian triple border region of Peru, Brazil, and Colombia

Solution Proponent: Fundación Entropika



### PROBLEM

At the Colombian-Peruvian border of the Amazon, wild night monkeys are harvested for malaria research by a single Colombian biomedical laboratory that illegally sources 70% of their test subjects from Peruvian communities. The continuous extraction of night monkeys decimates local primate populations and contributes to the deforestation of the Amazon since wide expanses of trees are felled during the capture process.

After experimentation, trafficked night monkeys are released back into the wild without screening for diseases or assessment on how resident populations are affected by the influx of released animals.

Night monkeys are susceptible to human pathogens such as TB and herpes simplex virus,

and releasing them after prolonged captivity, especially immunocompromised, could introduce harmful diseases into wild populations or establish sylvatic cycles of disease with the potential for spillback from animals to humans.

Entropika takes legal action to stop the trade of night monkeys and the exploitation of indigenous trappers.

### SOLUTION

In 2011, Entropika’s director filed a “popular benefit” lawsuit, setting off a series of ongoing legal battles to protect night monkey populations from wildlife trafficking for vaccine research.

Entropika uses the court system to hold Colombian national and regional environmental authorities and the biomedical facility accountable for corruption, negligence in issuing permits, unregulated post-experimental releases, and exceeding legal trapping quotas by procuring trafficked monkeys from Peru.

### RESULTS

In 2014, Entropika’s director won the lawsuit, and trapping permits for night monkeys were revoked until 2016. This ruling stopped the capture of approximately 4,000 monkeys per year and reduced the risk of endemic disease transmission from primates to indigenous trappers.

National and international media coverage of the landmark case exposed corruption, unethical research, and environmental damages costing the laboratory financial backing and prestige.

In 2017, Nancy Ma’s night monkey was upgraded from Least Concern to Vulnerable on IUCN’s Red List.

In 2019, at Entropika’s request, the Comptroller General ordered disciplinary and penal investigations against Corpoamazonia, the regional environmental authority, and the Ministry of Environment, marking the first time that criminal investigations



will be carried out regarding the illegal trade in night monkeys.

Entropika is currently contesting the lab's latest permits to extract 400 monkeys a year from indigenous territories for the period 2020-2022 in court.

## LESSONS

Perseverance, adaptability, and continuous follow-up are the key lessons when entering into litigation. Despite several setbacks with the judicial system, public servants will finally be investigated for corruption, making it more difficult for the biomedical facility to obtain trapping permits in the future.

Main obstacles faced are the sluggishness of the court system. Powerful environmental offenders can bribe court officers who will seek any oversight to throw out a case, such as not responding in time

to a hearing appointment. Legal teams will utilize obstruction and delay tactics to waste time and resources. In Entropika's case, the defense has repeatedly rescheduled court hearings, causing money to be lost in lawyer fees, flight tickets, and lodging. In addition, Entropika's director became the target of a strategic lawsuit against public participation (SLAPP) by the lab's director to silence claims of wrongdoing by draining financial resources, time, and emotional energy.

In retrospect, paying for representation from a strong law firm from the start would aid in advancing legal processes and save time and energy. However, the resources available only allow for the services of a low-cost lawyer with limited experience, leaving Entropika to shoulder most of the legal work.

Advice to other organizations is to be prepared to face intimidation tactics such as SLAPPs and secure sufficient funds for unexpected expenses and a drawn-out legal process.



Entropika

*A grassroots NGO dedicated to conserving biodiversity and improving local livelihoods in the Amazonian border area between Colombia, Brazil, and Peru.*

## LEARN MORE

### News articles

[https://e360.yale.edu/features/primatereights\\_vs\\_research\\_battle\\_in\\_colombian\\_rainforest](https://e360.yale.edu/features/primate_rights_vs_research_battle_in_colombian_rainforest)

<https://latinamericanpost.com/34713-angela-maldonado-the-tireless-defender-of-the-amazon>

<https://www.ippl.org/gibbon/blog/a-legal-victory-for-night-monkeys/>

<https://whitleyaward.org/winners/night-monkey-colombia/>

<https://www.caracoltv.com/regias/regias-inspiradoras/angela-maldonado-la-cientifica-que-dedica-su-vida-a-la-conservacion-de-la-amazonia>

<https://www.eltiempo.com/vida/medio-ambiente/la-cientifica-colombiana-que-sera-premiada-por-national-geographic>

<https://www.spreaker.com/user/naturalpress/03-angela-maldonado>

<https://sostenibilidad.semana.com/actualidad/articulo/angela-maldonado-gano-premio-buffet-award-de-national-geographic/56346>

### Videos

<https://m.youtube.com/watch?v=HhipnIIYiDo>

<https://www.facebook.com/watch/?v=1030083960792357>

<https://www.facebook.com/fentropika/videos/127142007438605/>

### Publications

<http://www.scielo.org.co/pdf/racefn/v35n135/v35n135a09.pdf>

Research and in situ conservation of owl monkeys enhances environmental law enforcement

at the Colombian-Peruvian border

Biomedical\_Research\_vs\_Biodiversity\_Conservation\_in\_the\_Colombian-Peruvian\_Amazon\_Searching\_for\_Law\_Enforcement\_Where\_There\_is\_Lack\_of\_Accountability

[https://www.researchgate.net/publication/317538960\\_Primate\\_Trade\\_Neotropics](https://www.researchgate.net/publication/317538960_Primate_Trade_Neotropics)

Disappearing\_in\_the\_Night\_An\_Overview\_on\_Trade\_and\_Legislation\_of\_Night\_Monkeys\_in\_South\_and\_Central\_America

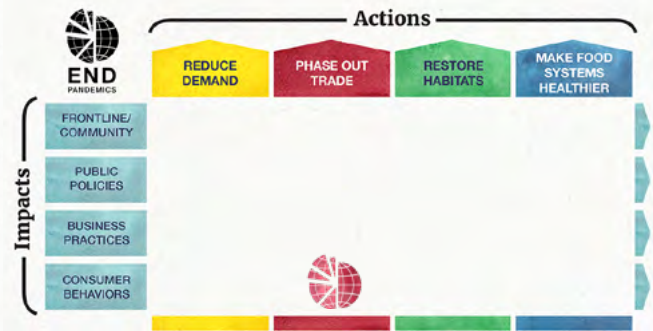
## CONTACT

Andrea Hinek  
(ahinek@entropika.org)

- **CONSERVATION**
- **LITIGATION**

- Location: Mexico, Indonesia, China, DRC, other countries

- Solution Proponent: Lancaster University



## PROBLEM

Illegal wildlife trade (IWT) is typically enforced through criminal and administrative sanctions that result in limited fines and/or imprisonment. This often limits deterrence effects that allow ongoing illegal trade and associated pandemic risks. Moreover, traditional enforcement strategies do not provide meaningful remedies for the harm caused by IWT. This means that the harms—such as injuries to individual animals, impacts on people’s livelihoods, harm to species survival, and

even disease—are regularly left unresolved, and responsible parties are not held liable.

Conservation litigation focuses on creating accountability and remedies via liability lawsuits. Such lawsuits can both help remedy the harm caused by specific IWT cases, and help to reduce large-scale, commercial IWT by holding perpetrators responsible for their actions. These lawsuits can help deter future IWT and thus pandemic risks. In the future, similar litigation could potentially also be used to specifically hold responsible parties legally liable for the harms caused by disease risk, although this is not yet tested.



## SOLUTION

Conservation-litigation.org has proposed how liability lawsuits can be used to address IWT. This includes development of a framework for how to facilitate these types of lawsuits in countries around the world. This includes development of a guide and training resources for practitioners (e.g., judges, prosecutors, conservation NGOs).

In March 2021, the Indonesian NGO, WALHI North Sumatra, used this framework to develop a civil lawsuit in Indonesia. To our knowledge, this is the first such citizen lawsuit in an illegal wildlife trade case. The case is against a zoo that was illegally keeping protected, endangered species, including Sumatran Orangutan. It seeks to make the zoo responsible for providing remedies that would address the harm the zoo caused to individual animals, species survival and human wellbeing.

These resources and the Indonesian lawsuit present the approach and precedent for future lawsuits, likely undertaken by NGOs and government agencies in a number of high-biodiversity countries. This could be funded by core NGO and government budgets, as well as philanthropic efforts to support strategic litigation.

## RESULTS

The key outputs were the development of the framework and guide, as well as its dissemination via engagement with target NGOs.

Proof of intermediate outcomes and changes are the emergency of lawsuits that adopt this approach to addressing IWT. This is indicated by the presence of the 1 lawsuit in Indonesia, and expressions of interest from >4 NGOs in Indonesia and internationally, and of Indonesian government agencies. These suggest that further such lawsuits may be forthcoming.

## LESSONS

These lawsuits require a strong understanding of domestic legislation, including a number of procedural requirements, to ensure that any court submissions meet any legal restrictions and are correctly presented. This requires identifying domestic legal counsel that is familiar with and/or will meaningfully analyse domestic legislation and is properly capacitated and supported to undertake new types of litigation that likely differ from what they traditionally practice.

These lawsuits are not everyday interventions, but rather strategic interventions. As such, it is important that groups undertaking these lawsuits consider not only the many details of case development, but also how the case is going to be strategically presented and levered to create broader change.



*Conservation Litigation, a collaborative project hosted by Lancaster University, works to facilitate the use of liability litigation to remedy the harm caused to biodiversity, including by illegal wildlife trade.*

### LEARN MORE

[www.conservation-litigation.org](http://www.conservation-litigation.org)

#### Guideline

[www.conservation-litigation/resources](http://www.conservation-litigation/resources)

#### Details about WALHI's lawsuit

<http://walhisumut.org/2021/04/13/walhi-north-sumatra-files-lawsuit-against-pt-nuansa-alam-nusantara-for-illegally-keeping-animals>

[in-a-zoo-without-permits/https://twitter.com/walhisumut/status/1382263998905606144](https://twitter.com/walhisumut/status/1382263998905606144)

### CONTACT

Jacob Phelps  
([jacob.phelps@gmail.com](mailto:jacob.phelps@gmail.com))

● **SABLES RANGER REWARD SCHEME**

● Location: Chizarira National Park, Zimbabwe

● Solution Proponent: National Park Rescue



**PROBLEM**

The destruction of nature through poaching and habitat degradation is one of the leading causes of biodiversity loss and is a significant driver of zoonotic diseases.

Morale and job satisfaction are important factors in the performance of rangers who defend National Parks and other protected areas.

The Sables Ranger Reward Scheme enables high performing rangers to boost their earnings and provides extra incentives for them to invest in their family’s education and healthcare, using a tokenized virtual currency.

By boosting ranger morale and incentivizing high performance, the Sables Ranger Reward Scheme aims to reduce the risk of zoonotic disease by reducing poaching and trafficking of wildlife in and around Zimbabwe’s Chizarira National Park.

**SOLUTION**

National Park Rescue’s Sables Ranger Reward Scheme is part of an ongoing 10-year project (from 2018-2028) that aims to improve the motivation and performance of park rangers in Chizarira National Park, Zimbabwe (N -17.6775160, E 27.8782881), by rewarding high performance in their duties.

The total budget for the Sables Ranger Reward scheme is US\$130,000 over 10 years and is financed out of National Park Rescue’s core operational budget.

Sables are a virtual currency that are earned through high performance, they can be exchanged for goods and services at a set value (e.g., 1 Sable = 1 Dollar), or for education and medical bills at double the value (i.e., 1 Sable = 2 Dollars).

This novel scheme encourages high performing rangers to invest in education and medical care for themselves and their families, increasing workplace motivation, alleviating poverty and reducing the incentive for corruption and negligence.

**RESULTS**

In three years, this program has benefited over 30 rangers and their families in Chizarira National Park, Zimbabwe, and has paid out over US\$30,000 in school fees and medical bills.

Rangers have reported that this scheme is a strong motivating factor in their performance.

Since implementing Sables, we have seen a 98% reduction in indicators of bushmeat poaching, a 90% reduction in elephant poaching, a 550% increase in arrests and a 250% increase in the number of snares removed from the park.

By reducing poaching and wildlife trafficking this project is mitigating the risk of future zoonotic disease outbreaks.

This scheme also provides job security and promotes the welfare, education and capacity building of the rangers and their families.

**LESSONS**

The job of a frontline park ranger is dangerous, stressful, and often poorly paid. Providing rangers with the opportunity to boost their income through rewarding high performance is an effective way of improving ranger morale and wellbeing, which ultimately improves protected area security.

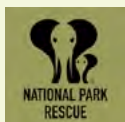
Rewarding rangers with cash can lead to problematic behaviors such as drunkenness. To address this, NPR created the tokenized virtual currency, whereby we pay for services rather than paying the rangers directly in cash.

It is important to identify what factors are important to rangers. In this instance, rangers reported that education and medical care were particularly important, so we prioritized these using our tokenized reward scheme.

If we were to plan this intervention again, we would focus on educating the rangers about how to use a tokenized reward system to maximize the value of their rewards.

Any organization wishing to replicate this solution should ensure that the value of the rewards is appropriate for the behaviors being rewarded (e.g., arrests, collecting snares, etc.), so as to effectively motivate performance without encouraging/enabling corruption. It is also vital to stipulate the

level of reporting/evidence required for rewards to be awarded, e.g., full GPS tracks of patrols, photographs of crime scene, etc., to reduce opportunities for corruption.



*National Park Rescue advances environmental protection and animal welfare by preventing poaching and promoting law enforcement in national parks in Africa.*

### LEARN MORE

[http://www.nationalparkrescue.org/docs/YR2\\_Update\\_Operation\\_CK.pdf](http://www.nationalparkrescue.org/docs/YR2_Update_Operation_CK.pdf)

<https://www.nationalparkrescue.org/>

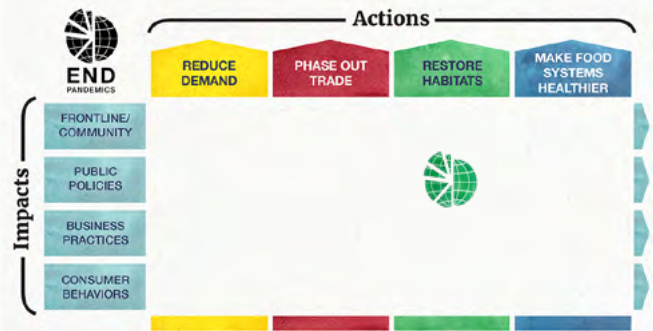
### CONTACT

Niall McCann  
([Niall.m@nationalparkrescue.org](mailto:Niall.m@nationalparkrescue.org))

● **MITIGATING HUMAN- WILDLIFE CONFLICTS**

● Location: Sumatra, Indonesia

● Solution Proponent: UNDP – Sumatran Tiger Project



**PROBLEM**

In Sumatra, approximately 650 tigers (Goodrich et al. 2015) are found in highly fragmented and declining rainforest habitat and often disperse into village and farmland areas in search of territory and prey. Annually, on average, 15 people were injured or killed in interactions with tigers and 83 families lost their livestock to tiger predation between the years 2001 to 2016 (UNDP 2020). Such conflicts have historically seen the Balinese and Javan tigers being hunted to extinction.



The extirpation of apex predators such as tigers from a wildlife community can lead to population explosions of reservoir species more likely to come in contact with humans and livestock.

Recognising that the safety of communities and their assets is critical for saving the

tiger, the Sumatran Tiger Project partners with local communities to prevent and manage Human-Wildlife Conflict (HWC).

Project analyzed spatiotemporal patterns of human- tiger conflict to identify the most conflict prone districts within five tiger landscapes. In this project area, around 80 tiger encounters were documented on an annual basis. To address these conflicts, HWC coordination teams prepared training plans and Standard Operating Procedures to ensure safe human-tiger conflict management for both people and wildlife and created communication networks and tiger proof enclosures to increase responses and effectiveness in HWC handling.

The initiatives will prevent future human and wildlife conflicts that could trigger future zoonotic outbreaks. The transmission of pathogens from animals to humans has brought into sharp focus zoonotic diseases that are spread by animals

forced to move out of their natural habitats that are increasingly being destroyed.

**SOLUTION**

The UNDP Sumatran Tiger Project has introduced five systematic and integrated interventions dealing with human and tiger conflicts working with project partners, national parks and local governments:

1. Forming village, district, and provincial human and wildlife conflict mitigation teams in all landscapes: Gunung Leuser National Park, Kerinci Seblat National Park, Berbak Sembilang National Park and Bukit Barisan Selatan National Park. The initiative has been completed with budgets coming from the project and partners.
2. Conducting advocacy training for relevant stakeholders on increasing communications and reporting skills when responding to human and wildlife conflicts. The initiative has been conducted in all landscapes. Communication networks (in forms of WA Groups) were formed in all landscapes. Members of these networks consist of national parks staff, BKSDA, journalists, and wildlife experts who actively coordinated and discussed solutions to human and wildlife conflicts at fields.
3. Developing curriculum on HWC mitigation and hosting a series of human-tiger conflict mitigation training - using the syllabus - for different targeted groups, e.g., national park/ local government staff, veterinarians, and the local community.
4. Building tiger-proof enclosures in targeted landscapes. The Sumatran Tiger Project built 11 tiger proof enclosures between 2017-2019 - three in Gunung Leuser National Park and eight in Bukit Barisan Selatan National Park. The initiative is ongoing based on the needs at project sites. The initiative was also adopted by members of communities with their own budget or co-funding budget with partners.



5. Strengthening village capacity to handle conflict. From 2016 to June 2019, the project developed two independent village communities (Masyarakat Desa Mandiri) in North Sumatra Province and five independent village communities in Bukit Barisan Selatan Province. The two villages have become part of larger independent village community networks handling human and wildlife conflicts in Sumatra.

Specific to livestock predations, the project has managed to reduce livestock predation cases to zero in the villages where tiger proof enclosures have been developed. And based on project partners' reports for PIR (project implementation report) there are no human casualties in the project's landscapes as human and wildlife conflicts in the area have been handled using standardized conflict mitigation protocols.

## RESULTS

1. Teams that are responsible for the monitoring and management of human and tiger conflict, as well as other wildlife conflicts in their respective landscapes, have increased capacity to resolve the problems.
2. The outcome of this training has resulted in positive local media coverage and articles that support tiger conservation and project activities. Project has also successfully formed four communication networks in the project's landscapes (in forms of WA groups) that increase communication and coordination between relevant stakeholders in handling human and wildlife conflicts at fields.
3. The curriculum is used as guidelines to systematically prevent human and wildlife conflicts.
4. A recent analysis showed members of communities are still actively using these tiger proof enclosures to protect their livestock. These enclosures have effectively reduced risks of HWCs and increased people's quality of life in targeted landscapes.
5. These interventions empower communities to independently handle HWCs based on evidence-based mitigation protocols developed by the project.

## LESSONS

At the heart of this project's HWC solutions is the development and capacity building of HWC management teams at the village level to empower communities to independently handle tiger encounters. Legal frameworks support the trained teams of volunteers, who are empowered by a governor's decree to monitor and manage encounters with tigers by following an evidence-based protocol. Once the presence of a tiger close to a village is confirmed by the village HWC team, a specialized task force will be called to either install camera traps, closely monitor the tiger's movement or ensure measures to scare tigers away from villages are taken. Close, coordinated communication is critical for ensuring responses are timely and adequate when addressing community concerns.

In addition to these HWC teams, installing tiger proof livestock enclosures have provided increased security for communities and their livestock, as tigers tend not to return if they have not been able to penetrate the enclosures. The integration of community-based prevention and response interventions, informed by research and monitoring and backed by local policies has reduced livestock predation and attacks on people to zero since the start of the programme and provided security for the communities and their livelihoods.



*Transforming Effectiveness of Biodiversity Conservation in Priority Sumatran Landscapes*

### LEARN MORE

<https://undp-biodiversity.exposure.co/from-conflict-to-co-existence>  
<https://undp-biodiversity.exposure.co/partners-against-crime>  
<https://sumatrantiger.id/en/2021/02/01/terus-bersinergi-tangani-konflik-satwa-liar/>

<https://sumatrantiger.id/en/2019/11/27/mencegah-konflik-satwa-menjaga-hak-kehidupan/>  
<https://sumatrantiger.id/en/2018/10/22/upaya-mengajak-masyarakat-untuk-mandiri-menangkal->  
<https://sumatrantiger.id/en/2018/03/20/pelatihan-penghargaan-konflik-manu->

[sia-dan-harimau/  
https://youtu.be/Uh2igC-GdxE](https://youtu.be/Uh2igC-GdxE)

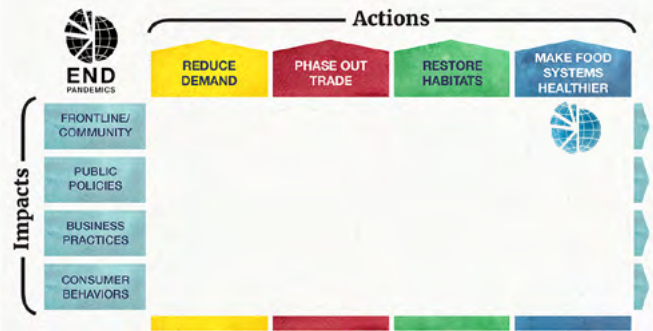
### CONTACT

Asih Budiati  
 (asih.budiati@undp.org)  
 Muhammad Yayat Afianto  
 (muhammad.afianto@undp.org)  
 Hizbullah Arief  
 (hizbullah.id@gmail.com)

● **REBOOTING TROPICAL/  
SUBTROPICAL AGRICULTURE 1:  
RESEARCH OUTPUTS AND  
PILOT PROJECT**

Location: Cameroon (replicable across Africa, Southeast Asia, Latin America and Oceania)

Solution Proponent: Prof Roger Leakey, Fellow of World Agroforestry Centre



**PROBLEM**

1. Many of the problems arising from subsistence agriculture are the consequence of inappropriate international agricultural policies to address hunger and malnutrition in the tropics and subtropics. Typically, these policies have promoted land clearance and the intensification of farming systems using monocultures and the application of high inputs of manufactured inorganic fertilizers, pesticides etc. These costly practices are not appropriate for subsistence farmers with only about 2 ha of land and an income of only US\$2 per day.
2. Typically, the result of this conventional approach to agriculture is the clearance of new areas of forest or woodland, deforestation and land degradation, characterized by the breakdown of ecological functions and the breakdown of society norms including the trafficking of wildlife, etc.
3. The resulting agroecosystem dysfunction increases the risk of new zoonotic diseases due to the increased interface between people and wildlife.

**SOLUTION**

An adoptable and successful 3-step approach to reverse the negative impacts of subsistence farming and to meet the needs of the farmers has been developed, tried and tested in Cameroon. It uses:

(i) leguminous shrub species like *Sesbania sesban* and *Calliandra calothyrsus* at about 20,000 plants per ha. This restores soil nitrogen, organic matter and initiates a functioning and much more productive agroecosystem (e.g., 3-fold higher cereal crop yields); (ii) culturally important, indigenous food and medicinal trees like *Dacryodes edulis* (Safou), and *Irvingia gabonensis* (Bush mango) to diversify the farming system. These are selected for their high quality and marketable fruits/nuts and simply propagated by cuttings to create elite cultivars. This diversification of the agroecosystem increases

its sustainability; (iii) simple post-harvest processing of the tree products for wider and year-round marketing. The income generated from this can then be used to purchase inputs to further increase food crop yields.

The elements of the solution are to: (a) restore soil fertility and ecological health at virtually zero cost, e.g., without use of inorganic fertilizers and pesticides; (b) generate new sources of income for subsistence households; (c) community-based farmer training and capacity building in agroforestry and simple horticulture techniques.

**RESULTS**

Typically, 10-30 people are trained per village. Subsequently, the skills are disseminated by word of mouth to neighbouring villages as they set up satellite village nurseries for trees and crops.

Outcomes and impact have been recorded by farmer interviews and surveys. They include: improved soil fertility and health; reduced hunger and malnutrition; increased income and improved livelihoods; and increased biodiversity and carbon sequestration – as published in the science literature. This has transformed the lives of the participating communities, improved agroecosystem functions and restored local level biodiversity in farming systems. In addition, rural communities have developed new local businesses creating employment and improved local infrastructure.

**LESSONS**

The most important lesson has been the huge importance of a grassroots, participatory process in order to achieve ‘buy-in’ and success. The self-help philosophy is dependent on the farmers having a highly personal incentive to engage with the programme.

Advice is “keep it simple, appropriate to the needs of the community, based on local knowledge – and encourage the villagers to do what is good for their own situation”.



*Generating science-based knowledge about the diverse benefits – both direct and indirect – of agroforestry, or trees in farming systems and landscapes, and disseminating this knowledge to develop policy options and promote policies and practices that improve livelihoods and benefit the environment.*

## LEARN MORE

### Books

Leakey R.R.B. 2012. Living with the Trees of Life – Towards the Transformation of Tropical Agriculture, CABI, Wallingford, UK. 200pp.

Leakey, R.R.B. 2017. Multifunctional Agriculture: Achieving Sustainable Development in Africa. Academic Press, San Diego, California, USA, 480pp.

### Research reviews

Leakey, R.R.B. 2013. Addressing the causes of land degradation, food / nutritional insecurity and poverty: a new approach to agricultural intensification in the

tropics and sub-tropics. In: Wake Up Before it is too Late: Make Agriculture Truly Sustainable Now for Food Security in a Changing Climate, 192-198, UNCTAD Trade and Environment Review 2013, U. Hoffman (ed.), UN Publications, Geneva, Switzerland.

Leakey, R.R.B. 2014. Twelve Principles for Better Food and More Food from Mature Perennial Agroecosystems, In: Perennial Crops for Food Security, 282-306, Proceedings of FAO Expert Workshop, Rome, Italy, 28-30 August 2013, FAO. Rome.

Leakey, R.R.B. 2019. From

Ethnobotany to Mainstream Agriculture – Socially-modified Cinderella Species Capturing 'Trade-ons' for 'Land Maxing'. In: Special Issue on Orphan Crops, Planta 250: 949-970. DOI: 10.1007/s00425-019-03128-z

Leakey, R.R.B. 2020. A re-boot of tropical agriculture benefits food production, rural economies, health, social justice and the environment. Nature Food 1: 260-265.

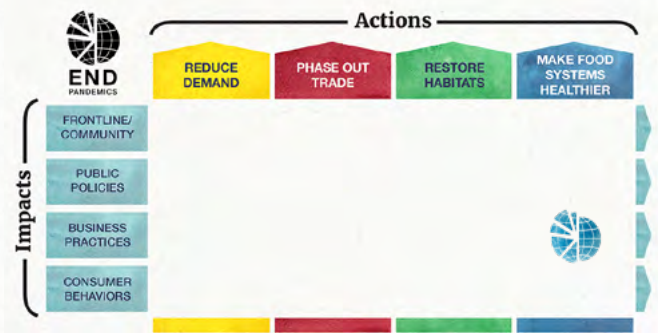
## CONTACT

Prof. Roger Leakey  
(rogerleakey@btinternet.com)

● **REBOOTING TROPICAL/  
SUBTROPICAL AGRICULTURE 2:  
IMPLEMENTATION AND SCALING  
OF COMMUNITY RESTORATION  
OF DEGRADED LANDS**

Location: 35 projects in 9 African countries (replicable across tropics and subtropics)

Solution Proponent: International Tree Foundation



**PROBLEM**

1. Tropical deforestation, desertification and land degradation due to inappropriate agricultural policies and technologies, especially in subsistence households in tropical and subtropical areas.
2. These problems result in hunger, malnutrition, poverty and social injustice, as well as loss of wildlife habitat and climate change. These are intertwined with the breakdown of ecological functions at the plot and landscape level, urban/illegal migration, social injustice and conflict.
3. Social, economic and ecosystem dysfunction, loss of wildlife habitat and their associated social problems alter predator-prey dynamics and hinder the ability of ecosystems to self-regulate, promoting zoonotic spillover.

**SOLUTION**

ITF’s Centenary Programme in the Kenyan Highlands celebrates its foundation in 1922 by promoting community-led action to protect, restore and care for the environment and sustain livelihoods, to reverse deforestation, land degradation and build resilience to climate shocks. It aims to plant 20 million trees by 2024 and improve the livelihoods of 50,000 people. It engages with local communities in the Five Water Towers of Kenya and helps them to plant trees in degraded forest areas and in farmland. Projects involve community training in practical skills and technologies through the establishment of tree nurseries and small-scale agroforestry. Farmer training and capacity building in agroforestry and simple horticulture are the key elements of the solution. Through its schools programme it inspires children, their teachers and parents to understand and protect the natural world, and to learn about how natural resources support life.

To date this programme has planted 1.27 million trees, restored 9000 ha of degraded forest and farmland; involving 17000 people in local commu-

nities. The focus is on environmental and social rehabilitation, including the promotion of biodiversity and soil/water management; as well as poverty alleviation and the mitigation of climate change.

**RESULTS**

Outcomes and impact are recorded by farmer interviews and surveys. These are summarized annually in Annual Report and ITF Impact Statements, as well as on ITF website ([www.internationaltreefoundation.org](http://www.internationaltreefoundation.org)).

**LESSONS**

The most important lesson has been the huge importance of a grassroots, participatory process in order to achieve ‘buy-in’ and success. The self-help philosophy is dependent on the farmers having a highly personal incentive to engage with the programme. ITF has been implementing similar programmes for 99 years and aims to continue into the foreseeable future by funding new projects annually. Advice is “keep it simple, appropriate to the needs of the community, based on local knowledge – and encourage the villagers to do what is good for their own situation”.



*Working with communities in Africa and the UK to carry out sustainable community forestry projects which protect, regenerate and cultivate trees and forests to conserve habitats rich in biodiversity and to enhance human and environmental well-being.*

## LEARN MORE

Impact Reports (2012-2020), 'Trees' Journal (2010-2020), at: Trees Journal and Impact Report - International Tree Foundation.

Blogs archives at Blog Archives - International Tree Foundation.

The Great Reset Project - International Tree Foundation

Website: [www.internationaltree-foundation.org](http://www.internationaltree-foundation.org)

### Book

Leakey R.R.B. 2012. Living with the Trees of Life – Towards the Transformation of Tropical Agriculture, CABI, Wallingford, UK. 200pp.

### Papers

Leakey, R.R.B. 2014. Twelve Principles for Better Food and More Food from Mature Perennial Agroecosystems, In: Perennial Crops for Food

Security, 282-306, Proceedings of FAO Expert Workshop, Rome, Italy, 28-30 August 2013, FAO. Rome.

Leakey, R.R.B. 2017. Socially modified organisms in multifunctional agriculture – addressing the needs of smallholder farmers in Africa, Archives of Crop Science 1: 20-29.

Leakey, R.R.B. 2017. Trees: meeting the social, economic and environmental needs of poor farmers - scoring Sustainable Development goals. In: Multifunctional Agriculture: Achieving Sustainable Development in Africa, RRB Leakey, 417-420, Academic Press, San Diego, California, USA.

Leakey, R.R.B. 2018. Converting 'trade-offs' to 'trade-ons' for greatly enhanced food security in Africa: multiple environmental, economic and social benefits from 'socially modified crops.

Food Security 10: 505-524. DOI 10.1007/s12571-018-0796-1

Leakey, R.R.B. 2020. A re-boot of tropical agriculture benefits food production, rural economies, health, social justice and the environment. Nature Food 1: 260-265.

## CONTACT

Prof. Roger Leakey  
([rogerleakey@btinternet.com](mailto:rogerleakey@btinternet.com))



**EndPandemics**  
Investing in Planetary Health

**Roadmap To End Pandemic: Building It Together**

终止大流行病路径图：携手共进

2021年 8月



<https://endpandemics.earth/join.html>