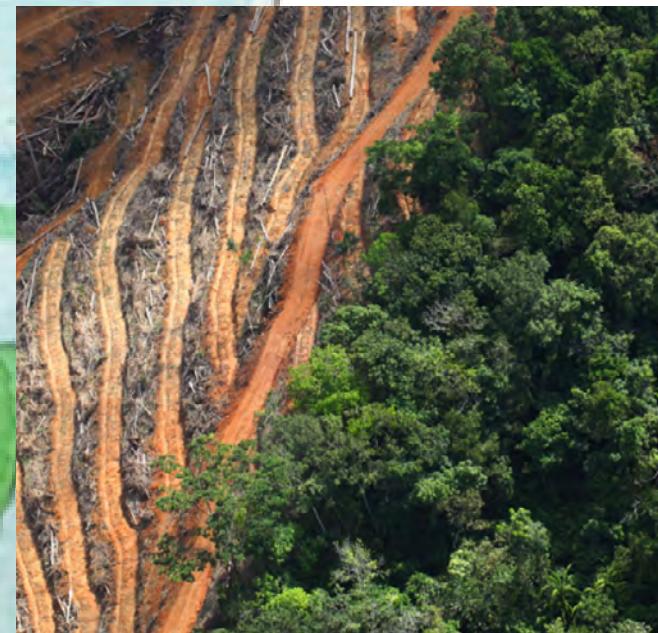


# 终止大流行病路径图



携手共进





EndPandemics。2021. 终结瘟疫大流行路线图：携手共进。  
(由 EndPandemics 行动联盟。2021年8月15日版) <https://endpandemics.earth/join.html>

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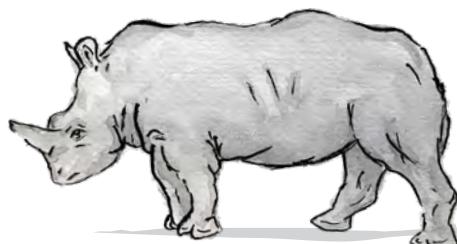
欲了解更多资讯，请写信给 : support@endpandemics.earth

# 内容

I. 防止下一次大流行病：政府、企业、民间社会、个人可以得到的资讯	4
II. 为什么：为什么要有这个路径图，以及如何使用它	6
III. 原因：大流行病是如何开始的？	10
IV. 解决方案：如何阻止大流行病再发？	12
V. 如何修复：大流行病预防计划的组成与成本	14
VI. 良好实践：公共和私营部门及个人可以采用的政策	20
VII. 紧急状态：现在就要行动	22
VIII. 可提供的协助：终止大流行病联盟 如何协助您	24
附录：终止大流行病联盟解决方案路径图示例	26

线上附件：

- A. 终止大流行病联盟的使命声明和参与条件  
<https://support.endpandemics.earth/en/articles/4596222-terms-of-engagement>
- B. 终止大流行病联盟时间表  
<https://endpandemics.earth#timeline>
- C. 终止大流行病联盟共用资源清单  
<https://endpandemics.earth/participate.html>
- D. 终止大流行病联盟提交解决方案的指南  
<https://support.endpandemics.earth/en/collections/2995762-solutions-map>
- E. 常见问题（常见问题）  
<https://endpandemics.earth/faqs.html>



# I. 预防下一个大流行病

● 给政府、企业、民间社会和个人  
● 的资讯

- 在我们的有生之年，没有比预防下一次大流行病再出现更重要的事了。
- 在每个人都安全之前，没有人是安全的。我们每个人在全球复苏和转型中都发挥著作用，以创造一个更安全、更具韧性的世界。
- 无论你认同什么理论，COVID-19是一种人畜共患疾病，现在在人与人之间传播。我们知道此类疫情是如何诱发的，因此我们可以降低此类疫情复发的风险。
- 出现人畜共患病疫情的主要诱发原因是野生动物栖息地被破坏(通常用于不可持续的农业) 和野生动物的商业贸易 (不论合法和非法)。
- 禁止野生动物贸易，改变我们的粮食供应系统，并优先考虑自然保护，是全球健康投资计划的主要部分，该计划将大大减少未来人畜共患病发生的风险和强度。
- 预防远比治疗便宜：一个以预防为中心的全球健康投资计划，每年的花费不到全球修复大流行病损害成本的1%。



- 预防必须是任何大流行病恢复和预防方案的完整要素。
- 预防必须包括社区行动、公共政策和法律、商业运营和消费者行为的变革。
- 禁止野生动物商业贸易，并不是禁止为生存而进行的狩猎。两者是不同。
- 禁止野生动物的贸易，不会增加偷猎或贩运。禁令的实施将减少贸易额，从而减少对生物多样性和对人的威胁。
- 从集约化农业实践向农林业和农业生态方法的转变，产生了可持续的土壤、作物和社区，并生产了更安全、更健康的粮食。
- 个人可以做11件特别的事情来预防大流行病。
- 终止大流行病联盟准备帮助实施地方、国家、区域和全球预防大流行病的计划。

## II. 为什么



### 为什么有这个路径图，以及如何使用它

COVID-19比过去100年中任何恐怖主义行为或自然灾害所造成的破坏都多，它震撼了我们的世界，并使国际社会相信，我们必须尽我们所能防止另一场大流行病的出现。但是怎么做呢？我们究竟能做些什么来警告世人避免出现新的灾难性的疫情？我们世界的重生需要有一种重生方法，这是在路径图中所阐述的。

此多国语言路径图是终止大流行病联盟为全球各国政府、组织、企业、民间社会和个人设计的一个生动互动的工具，为如何预防下一次大流行提供了具体、实用的指导。

在我们的有生之年，没有比此更重要的事。每个人都可以在我们的全球复苏中发挥作用，如果以正确的方式实施，将导致一个更加公义和可持续的世界，大大降低另一场大流行病的风险。

在COVID-19大流行的大部分时间里，世界的重点一直是通过疫苗的推广和史无前例的经济复苏计划，去修复已经造成的损害。但是，我们需要是积极主动，而不是被动。我们如何预防下一次疫情的爆发，避免对生命和经济造成更大的破坏和破坏？这个路径图通过解释大流行病是如何开始的，以及如何首先阻止它们发生来回答这个问题。

终止大流行病联盟是一个“协作型组织”，专业的实践者创建一个持久的疫苗配方，也就是这个“路径图”，我们分享在以下章节。

我们邀请您审查并使用此路径图，并加入创建它的充满生命力的全球社区，因为我们不断完善和共同实施解决方案。你可以利用全球运动的力量，来绘制适合您特定环境、需求和本地环境的解决方案。这个路径图可以引导并使你更有力的，和你周围的人与那些依赖你的人，分享如何从远离这个自我毁灭性的大流行病时期，进而进入一个更安全的世界。

不管是立法者还是政府领导、社区组织者，或“同一健康（One Health）”或“同一福利（One Welfare）”的专业人、政策宣导者或国际协商者、企业主或基金经理、农民或学者、科技大师，或媒体编辑、智库研究员或监测官员，或只是关切的个人 - 此路径图包含有关人类大流行病驱动因素的实用资讯，以及我们如何能够联合起来防止新的大流行病，同时创造一个更安全、更健康、更平等的星球。

此路径图是终止大流行病联盟（<https://EndPandemics.earth>）的共享资产，这是一个全球倡议联盟，由一群多元化的以解决方案为导向的专业人员于2020年初在COVID-19大流行开始时发起，终止大流行病联盟旨在通过解决其根源和对全球健康的投資来预防未来出现的大流行病。

当世界试图控制大流行，并从其灾难性的社会和经济影响复苏时，在对抗其突变的竞赛

中，终止大流行病联盟专注于促进和扩大大流行的预防解决方案。这些解决方案对于政府、企业或消费者的任何恢复和整备行动都至关重要。

路径图是一个开放的工具：你不必是一个 终止大流行病联盟的参与者，也可以利用它，并帮助其发展和成长。

- 请稍用片刻阅读此文件。
- 探索在附录1中的“解决方案地图”，帮助预防疾病的项目样本 (并浏览我们的线上解决方案资料库或来自世界各地前线的更多现实生活中的解决方案)。
- 将您自己的解决方案提交到解决方案地图，享受End终止大流行病联盟的互动支援，以吸引全球各界的关注和支持，使其更具可行性。
- 与联盟的实践社区合作，扩大、塑造、加强和推广可复制的解决方案，监测和验证其对实地的影响，并奖励进展。

通过开发终止大流行病联盟解决方案交流计划，参与塑造地球积极影响投资的未来。

使用其不同的背景、技能和目标来实施、构建和使用此路径图的人员和组织越多，它对每个人就越有用和强大，变成每个人的都加入。

感谢您！

终止大流行病联盟

<https://EndPandemics.Earth>

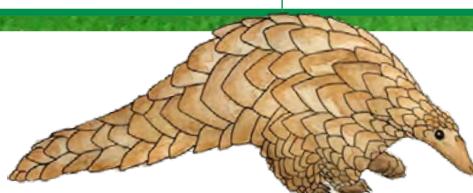
### 致谢

本文件由终止大流行病联盟 EndPandemics 成员共同编写完成。Steven Galster 和 Andrey Kushlin 是主要作者和编辑，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 都提供了修正意见。Cecilia Fischer 和 John Scanlon 所做的草稿同行审查，并提供了独特见解，协助改善内容。文件设计和版面由 Luxana Kiratibhongse 制作，Olivia Millard 负责插图。中文版由绿色消费者基金会及中国绿色发展暨生物多样性保护基金会行动亚洲专项基金翻译编辑。

# 为什么我应该关注终止大流行病联盟?

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如果我是：	我可以做什麼
关心的个人	加入有活力的社群，并帮助这个世界
地区社区 / 社会企业	提高解决方案的可见性和市场价值
“同一健康”的实践者	将我的本地合作伙伴与最佳实践同行进行对接
立法者/政策宣导者	验证我的政策建议并获得本地购买
政府官员	为我的新计划交付寻找可靠的实施人员
国际组织 (NGO, IGO)	为我的新计划交付寻找可靠的实施人员
捐赠者/慈善经理	增加高影响力项目的渠道
企业主管	测试我的新产品/服务，并向本地购买
技术平台 / 金融科技初创企业	测试我的新工具，并扩展我的应用生态系统
监测和核查人员	验证和扩展我的观察协定
大学/智库研究员	收集经验数据，应用于大流行病的影响研究
媒体/创意机构编辑	收获故事以引起广大观众的共鸣



# 终止大流行病联盟EndPandemics迄今参加团体与个人

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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	Memememeshop	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 大流行病是如何开始的？

世界卫生组织（WHO）于2021年初派遣了一个专家小组访问中国，研究导致新冠病毒的。研究小组的结论是，最有可能的是病毒来自野生动物传给人类，或者可能来自进口的冷冻食物链。该小组确定，最不可能的理论是病毒从实验室中逃逸。无论来源如何，COVID-19就像之前的许多爆发一样，是另一种人畜共患疾病，现在在人与人之间传播。

我们不需要等待更长的调查结果才采取行动。病毒性人畜共患病的风险是有广泛证据的，早于我们目前的危机想像一下，一群检查员进入一个燃料库爆炸，寻找线索，发现地上有一个香烟包。他们可能需要数年时间，才能确定具体是哪支香烟或其他因素导致了爆炸。但你可以肯定，随着仓库的重建和重新开放，禁烟条例将得到严格执行。我们需要采取类似的预防措施重建我们的世界。COVID-19是病毒炸弹，我们已经知道什么是引爆器。

#### 框1：大流行病的根本原因

COVID-19在2019年底作为疾病出现的一种模式，成为全球大流行病，突出了生物多样性、全球环境变化和人类健康之间的联系。COVID-19和其他流行病与生物多样性密不可分，它们是由微生物引起的。微生物本身是生物多样性的重要组成部分，由包括人类在内的多种动物物种作为宿主和传播媒介。COVID-19 是由野生动物来源的病毒引起的一系列疾病中的最新一种，这些疾病是由人为的环境变化引起的，这些变化使野生动物、牲畜和人类更加密切地接触。这些疾病包括非典、埃博拉病毒和尼帕病毒、寨卡病毒和流感，反映了（动物起源的）人畜共患病毒性疾病在过去几十年中影响人类的新兴传染病中所起到的主导作用。在过去几年中，发表了一系列科学论文，指出正是这些威胁全球生物多样性丧失的环境变化（例如，土地利用的变化，如森林砍伐、退化或侵占野生动物栖息地；气候变化；不可持续的野生动物贸易和消费；农业集约化；全球化贸易和旅行），推动着这些新型病毒性疾病日益蔓延、扩大。

资料来源：IPBES，2020年<sup>1</sup>。



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

具体来说，出现人畜共患病疫情的两个主要诱因是：（1）野生栖息地的被破坏，主要用于集约化农业、畜牧业和自然资源开采；（2）野生动物的商业贸易。前者将野生动物逐出自然家园，与人类和家养动物密切接触。后者将野生动物从自然家园中强行拉出，与人和其他动物密切接触。

在这两种情况下，处于应激状态下的动物都可以排出病毒，使一个缺乏免疫力的人生病。当这种情况发生时，可能会发生人畜共患的疫情或爆发全面的大流行病。这些因素也引发了艾滋病病毒、埃博拉病毒、SARS（非典）、MERS（中东呼吸道症候群）、H5N1病毒（禽流感的一种），在此之前，还有黑死病等。

新型传染病同许多使我们的生活更加轻松的方法和产品一样，通常来自于大自然。自然本身并不是问题。大流行病时代是由人类造成的，也是可以由人类解决的一场危机（见框1）。这些疾病很少成为流行病或大流行病，因为大自然的平衡不受干扰。

为了减轻人类对自然的干涉的影响，我们必须解决大流行病的根本原因，也被称为“触发因素（triggers）”。

## 大流行病触发因素1： 野生栖息地破坏

不可持续的耕作方式，清除野生栖息地，或人工和集约化繁殖野生动物，导致生态系统紊乱和功能障碍。当自然生态系统受到干扰时，人畜共患疾病的风险就会增加。自然界中，在受干扰的栖息地中茁壮成长和繁殖的物种（如蝙蝠、啮齿动物和灵长类动物，往往携带高的病毒载量。）伤害或清除这些物种的自然栖息地，将这些动物推向附近的社区或农场，在那里它们可能会引入病毒给家畜或人类。

## 大流行病触发因素2： 野生动物的商业贸易

将野生动物从自然家园中带走——不管是活的还是死的——并把它们推进市场进行出售，是向人类传播人畜共患病的另一种有效方法。一些国家对野生动物的需求

不断增加，导致“野生动物养殖场”的出现，这些农场饲养的外来物种出售给同一城市、边境和电商市场，与野生动物贸易相关的运输、禁闭、缺乏动物福利标准，以及其他已知的压力因素使动物容易患病，增加了病毒传播的风险，更容易成为宿主并传播病毒。

野生动物在我们的生态系统中，有着至关重要的作用。如果我们能学会保护野生动物和它们生活的土地，并借此来理解和尊重对人类的好处，我们都会更安全。买卖它们或摧毁它们的家园，让这些动物成为潜在的炸药堆<sup>2</sup>。

“  
大流行病时代  
是由人类造成  
的，但是可以  
透过人类解决  
的危机。  
”

<sup>2</sup> 一些专家将声称，并非所有的野生动物贸易都会构成将危险的病毒传播给人类的风险。EndPanmics采取了“审慎预防方法”，我们认识到自然界中有170万种病毒，如果我们破坏自然平衡，其中至少一半会对人类健康造成严重威胁。科学家们仍在了解这些病毒。我们对“野生动物”的定义不包括鱼类或珊瑚等海洋动物，因为与它们相关的危险、大流行级病毒传播的风险可以忽略不计。但应当指出，许多鱼类物种因过度开发而面临灭绝的威胁。这提醒我们，商业野生动物贸易对地球及其人民构成的威胁十分重大

## IV. 解决方案

### 我们如何阻止大流行病再发？

为了防止未来出现大流行病，我们必须解决其根源。我们必须遵循预防原则，越早阻止病毒的出现越好（见框2）。改变我们与自然的关系，需要初步的财政成本。但经济论据倾向于需要改变。迄今为止，COVID-19的全球损失清楚地表明，大流行的预防是针对地球的一项保险政策，它只是不做为成本的一小部分。

截至本文撰写本文时，COVID-19 相关经济损失和恢复努力的估计成本为 11.5 万亿美元。仅在2020年，全球经济就损失了5万亿美元。据估计，今后10年3，全球每年若要有效的减少再次发生大流行病的可能性的费用为266亿美元。这仅占COVID-19估计总成本的2%，即每年的0.2%。大部分费用将被投资自然带来的附带好处

#### 框2：预防新发疾病

预防胜于治疗的智慧并不是一件新事。刷牙胜过去拜访牙医；系安全带可以避免可怕的交通事故；防火可以避免你的家因火灾而出现生命和财产的毁灭性损失。

投资预防可预测的损害，总是比支付灾后反应和恢复重建的费用便宜。激励是明确的，世界上庞大而成功的保险业，正是建立在这个基本前提之上。

同样的逻辑也适用于新兴疾病（见图1）。从源头上预测，和初步预防新的疾病外溢（土地退化和破坏，集约农业，野生动物贸易）已被证明比事后检测和遏制，甚至比遏制局部疾病传播更有效。此外，这种方法比疫情暴发后进行控制、缓解和恢复流行病时采取措施的成本低了好几级。

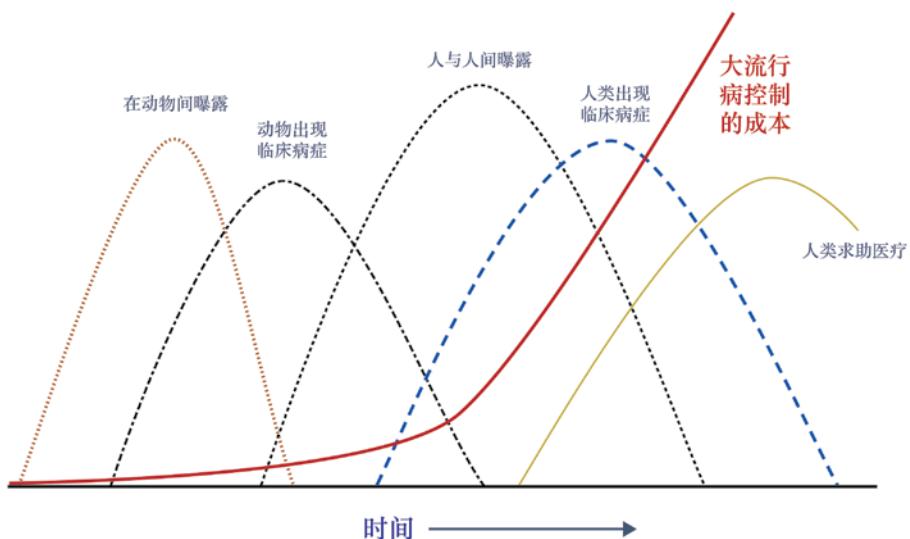


图1。从源头上预防病原体溢出的经济理由（砍伐森林、农业、野生动物贸易）。改编自IMO，2009年。

所抵消，包括大自然的碳封存、自然灾害缓解、社区粮食安全、当地工作和生计等<sup>3</sup>。

虽然目前的支出激增往往是针对大流行病的恢复和准备措施，但它们可以很容易地为大流行病的

预防计划提供资金。投资预防下次大流行病的发生是经济上负责任的政策方法(见框3)。

长期维持全面预防需要有激励。好消息是，专业知识和激励是现成的。

### 框3：预防对比无作为的成本

新冠病毒时代，对上述大流行病预防经济损失的早期评估(见图2)，COVID-19造成的损失<sup>4</sup>总额高达15.8万亿美元。这项研究计划是关于一个十年预防措施的经费预案——包括一个极具野心且昂贵的项目“停止中国野生肉类贸易市场”——约占目前的COVID-19相关成本总额的2%。

虽然早期预计的大流行病损害和预防的费用可能被低估，并将继续修订，但它们很好地说明了今后的步骤，这些经济分析强调必须采取行动；这里没有理由为无休止的效率研究而拖延采取明显的预防行动。

通过增强抵御各种冲击的能力——经济、社会、气候或与健康相关的——国家、组织和企业可以避免将稀缺资源转移到反覆的冲击、重组、复苏和重建周期(世界银行，2021年)。通过增强抵御各种冲击的能力——经济、社会、气候或与健康相关的——国家、组织和企业可以避免将稀缺资源转移到反覆的冲击、重组、复苏和重建周期(世界银行，2021年)。

在预防大流行方面进行有力和稳定的支出的经济理由，现在要比以往的任何时候都更加清楚。

我们对大流行预防的投资也将为我们在生物多样性保护和减缓气候变化方面的关键目标带来重要的直接好处。

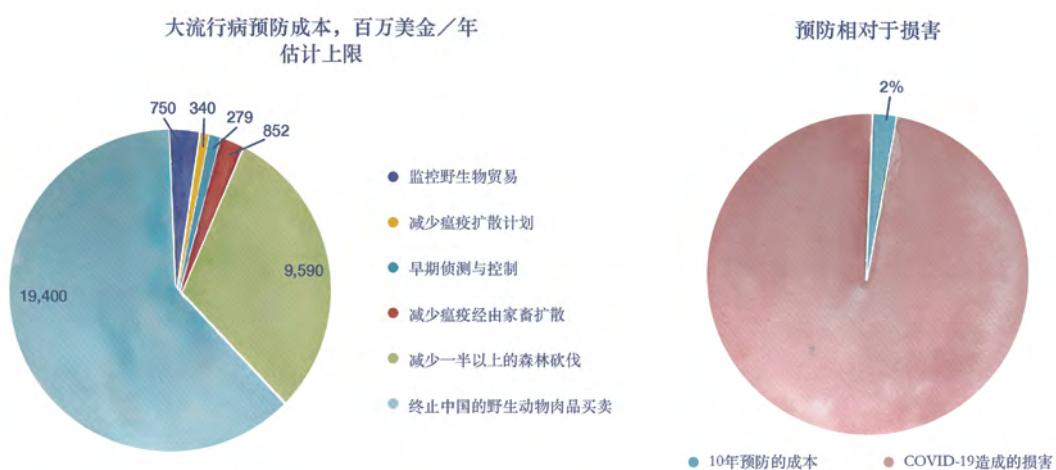


图2：估计COVID-19的损害相对于预防成本。资讯来源：Dobson et al., 2020年7月

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

4 包括全球死亡和GDP损失，但排除了因其他非医疗系统因素受干扰而造成的死亡和伤害，以及社交距离所造成的损失。

## V. 如何修复

### ● 大流行病预防计划的组成部分和成本

EndPandemics 将一个行之有效的大流行病预防计划的 4 个组成部分称为“行动支柱”，其中包括：

- 行动支柱1：减少对野生动物的需求
- 行动支柱2：逐步取消野生动物的商业贸易
- 行动支柱3：保护和恢复自然栖息地
- 行动支柱4：使我们的农场和食品系统更安全、更健康

以下部分描述了这 4 个操作支柱，然后是执行这些支柱的成本或步骤。



**REDUCE  
DEMAND**

#### 行动支柱1： 减少对野生动物的需求

启动政府-私营部门的  
行为改变/意识运动

这些运动解释了实施禁令的理由和紧迫性，以获得公众的支援，行动可以包括电视、社交媒体、学校和社区的外联。

##### 好的实践范例

- 中国、越南、泰国、美国、英国和其他一些国家发起了以减少野生动物消费为诉求的公私部门行为改变运动。他们使用关键意见领导者（包括名人、政府领导人、医疗卫生专家和其他人）通过多个平台向目标受众发送资讯，已记录到积极影响<sup>5</sup>。

<sup>5</sup> 美国国际开发署的亚洲地区濒危物种贩运计划Asia's Regional Response to Endangered Species Trafficking (ARREST) (2011-2015年)、美国国际开发署亚洲野生动物专案（2016-2020年）以及正在进行的IFAW、野生援助、野生动物联盟、TRAFFIC、ENV-越南，以及Freeland自由地在中国、越南、泰国的社会行为消费者变化活动，以及野生动物联盟和Freeland自由地已发挥可观的影响力。这些数据在其网站上公开，同时可以找到一些有关战略的报告和经验教训。

- 修订中小学强制性国家课程，包括保护野生动物和人类野生栖息地的重要性的课程。将开发破坏动物和环境的风险与公共卫生风险联系起来。

消费者行为改变/意识运动至关重要（见下文），但可能需要几十年才能产生深远影响，特别是如果它们没有与明确的法律和易于实施的执法相结合。



**STOP  
TRAFFICKING**

#### 行动支柱2： 逐步取消野生动物的商业贸易

##### 禁止商业贸易和野生动物消费

所有野生动物的商业贸易，不论合法和非法，都有传播病毒的风险。病毒不会区分被行政批准合法商业的动物和非法走私的动物。SARS与合法的野生动物贸易有关；非洲马瘟 (AHS)，另一种人畜共患的疫情，发生在COVID-19的同一时间，就是通过合法交易的斑马横扫东南亚，并杀死了90%以上的受感染的马。

##### 有效地逐步取消野生动物的商业贸易需 要采取几个步骤

- 订定逐步淘汰时程表；
- 给合法野生动物经销商一个最后期限，接受一次性的经济补偿，退出商业性的野生动物贸易；

- 与政府和私营部门的野生动物护理和救援中心合作，确保它们得到适当的装备，以接受和照顾被贸易商没收的新动物，同时要求对动物进行绝育，并禁止这些中心繁殖。

#### 好的实践范例

- 中国禁止食用陆生野生动物，以防止其传播或再次爆发<sup>6</sup>。
- 意大利最近宣布了新的贸易限制，禁止进口和贸易野生及外来动物，以减少人畜共患病爆发的风险<sup>7</sup>。
- 越南总理于2020年7月发布指令，禁止野生动物进出口直至另行通知，以回应COVID-19。

反对者反驳，这种禁令将迫使贸易地下化，并增加野生动物的非法贸易。一些人还认为，这种禁令对可能依赖狩猎的穷人或原住居民社区产生负面影响。这些论点经不起更广泛深入的分析。

一些交易可能会转入地下，但只要禁令得到执行，愿意冒险在犯罪市场做生意的经销商数量就会减少。同样，敢于在犯罪场所购买的买家数量也会下降。强制禁令将减少贸易野生动物的总数量，从而减轻物种群的压力，保护生物多样性，并降低人畜共患病传播的风险。明确的禁令还聚焦了警官针对犯罪交易商的执法范围。

禁止野生动物商业贸易，并不是禁止原住居民狩猎/采集或可持续性的打猎活动。这些都是完全不同的事情。



#### 行动支柱3： 保护和恢复自然栖地

在过去60年中，大多数新的人畜共患病原体已经出现，这主要是由于人类活动的结果，包括土地利用的变化（例如森林砍伐），以及我们管理农业和粮食生产系统的方式 (CBD，2020年)<sup>8</sup>。

土地使用的变化是导致人畜共患疾病爆发的主要因素之一，土地利用变化的主要驱动力之一是粮食生产。在全球范围内，大约40%的土地使用变化是由于大规模粮食生产造成的，33%是由于自给性耕作造成的<sup>9</sup>。

随着农业的扩大和人类活动的入侵，野生物种与人类和养殖动物的接触也越来越频繁，导致疾病扩散的风险增加。

一个连接良好、管理有效的安全保护区系统，对于保护和保存自然生态系统完整性与不受干扰至关重要。保护区通常跨越国际边界，提供野生栖息地的连通性。根据《生物多样性公约》(CBD)，围绕所谓的30x30目标正在形成新的全球共识，以确保到2030年，至少30%的陆地和海洋区域都受到有效保护<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 参见生物多样性公约目标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**

## 行动支柱4： 使我们的农场和食品系统更安全、 更健康

目前大多数的土地使用和农业做法，都是为了满足市场需求和实现粮食安全而设计的。但是，这些传统做法已经导致生态系统退化、全球暖化、不健康的食物供应链和病毒传播。

各国政府和私营部门必须合作，促进农业生态学做法（见框4），这些做法可以维持土壤和健康的农业收成，减缓气候变化，恢复野生栖息地，

并降低人畜共患疫情的风险。农业生态学促进功能性的生物多样性和营养循环，并基于模仿自然生态循环系统。农业生态学即使在小规模上也能改善粮食生产者的生计和自主权。它利用原住居民和农民的知识，并有可能改变社会和政治结构，这些结构往往是当前粮食系统危机的根源<sup>11</sup>。

“  
EndPandemics  
将有效的大流行  
预防计划的 4 个  
组成部分称为  
“行动支柱”。  
”

### 立即付款或稍后支付更多

便利的事实是，全面的10年大流行预防一揽子计划的费用，只占各国政府和国际援助机构用于修复COVID-19造成的损害以及改善对下一次疫情的准备的一小部分。我们可以通过投资预防来真正降低再次爆发的风险。

预防计划的费用不到COVID-19 对全球经济造成的损害总额的2% (换句话说，每年不到0.2%)。目前计划好的复甦和刺激计划的一小部分可以为预防大流行病提供资金。所需要的就是政治承诺，优先预防。

### 成本和行动步骤 支柱1： 减少对野生动物的需求

改变或制定法律和政策不会花费很多钱，这需要政治意愿，需要财政资源和激励措施，以及有效的沟通，才能使社会参与到法律和政策变革中，然后得到有效的实施。

消费者行为改变运动确实需要花费金钱，但如果进行得当，则费用不高。利用互联网和社交媒体通过有效的市场测试信息，接触和影响消费者，可以产生积极的影响。目前正在中国、美国、越南、菲律宾和泰国开展活动，这些活动的成本和影响数据可供共用。大多数倡议活动都是新的、短暂的或片段的，因为它们尚未被转化为政府的制度。私营部门伙伴关系和捐助者已经有所帮助，但这种运动的影响和可持续性需要（通过政府政策）官方法制化，以扩大规模。这种政策应该包括国家教育课程的改变，纳入每个儿童。一定要培训教师，以提供新的课程，传达保护野生动物和避免大流行的关键资讯。青年是我们的未来。

### 成本和行动步骤支柱 2： 逐步淘汰商业野生动物贸易

此措施可以通过一步步实现。为确保有效执行，财政费用应该着重于(a) 执行禁令：和 (b) 向合法野生动物经销商一次性赔偿，以便他们能够过渡到新的工作。

世界上几乎每个国家都没有足够的野生动物执法预算。通过以下四种方式，可以提高野生动物执法的效率和资源。

- (1) 简化国家野生动物法，使执法更加容易。模糊或复杂的法律导致更多的徒劳无功，和机会主义的腐败；

<sup>11</sup> IRAM 2020. Agroecology and safe food system transitions. Feasibility study, p. 8.

#### 框 4: 农业生态学实践

农业生态学实践以农业生态系统的生态功能、自然过程的优化，和资源的理性明智管理为基础。其目的是最大限度地利用自然作为生产要素，同时保持和支援其再生能力。因此，农业生态学包括从地块到景观的各种做法：水管理、土壤肥力管理（堆肥、土壤覆盖、作物轮作和作物演替等）、作物保护（综合病虫害管理、天然农药等）和景观管理（梯田栽培、作物轮作、作物 – 牲畜一体化、农林业等）。

然而，农业生态学不能简化为技术管理与的做法。它代表了对当前生产和加工系统的重新设计，以及对所有食品系统的重新思考。

农林是一种混合种植系统，涉及土地利用制度和做法，其中木本多年生植物被故意与同一土地管理单位的作物和/或动物相结合，以启动农业生态演替<sup>12</sup>的创建。这样，可以修改新的和旧的土地利用计划，通过恢复热带和亚热带退化的农田<sup>13</sup>。通过扩大和多样化的以及气候友好同时对农民友好的收入来源，重建野生动物栖息地和自然资本，通过恢复栖息地和封存碳。这些进程对改革热带和亚热带自给农业，工业农业，以及尽量减少新的人畜共患疾病传播带给人类的风险至关重要。农业林业在亚洲、非洲和拉丁美洲广泛实行，但要扩大到对森林砍伐（饥饿、贫困和社会不公正）的驱动因素，产生全球影响的水准，需要捐助者和国际发展机构转变观念，改变对单一种植作物和牲畜的清地观念。

某些针对东南亚的问题：

- 以水稻、木薯、玉米、甘蔗、橡胶和油棕榈等六大农作物取代天然植被，覆盖了湄公河地区80%的农业用地。
- 农业部门对国家国内生产总值（缅甸38%，柬埔寨23.4%，老挝25%，越南15%）和就业（缅甸60%，老挝75%，柬埔寨40%）以及广大农村人口作出了重大贡献<sup>14</sup>。
- 气候变化和自然灾害已经对农业景观和生计施加了更大的压力。
- 人口迅速老龄化，特别是在农业部门，此外，还加速向城市迁移。

柬埔寨和越南于2019年加入“千分之四”倡议 ([www.4p1000.org](http://www.4p1000.org))，这是对农业和粮食系统可持续性日益增加政治利益的一个例子。该区域绝大多数国家都有行动计划，旨在加强适应和缓解气候变化的影响，并设法扭转耕地农业生态系统土地退化的轮回。



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) 建立多机构、跨边界的野生动物执法网路，将工作负担分配给有能力处理跨国组织性犯罪的机构和国家；
- (3) 支持《联合国反腐败公约》（《联合国打击跨国有组织犯罪公约》）关于野生动物犯罪的新议定书；
- (4) 拨更多的钱来打击野生动物贩运。

“  
这项预防计划  
的成本仅为全部  
COVID-19造成损  
害全球经济的2%  
(换句话说，少  
于每年0.2%)。  
”

在某些情况下，由于国家法律和遵守《濒危野生动植物种国际贸易公约》的法规，允许某些物种进行贸易的法律和条例往往使打击非法野生动物贸易的执法变得复杂起来。许多官员不知道如何识别交易中的数千种物种，也不记得哪些物种被允许交易。禁止所有野生动物商业贸易，简化了执法，节约了资源<sup>15</sup>。

#### 机构合作和跨国野 生动物执法网路

(WENs)，能够渗入非法野生动植物贩运供应链的机构，和国家合作捣毁犯罪集团

(这些集团每年摧毁和窃取《濒危野生动植物种国际贸易公约》所列的濒临灭绝物种<sup>16</sup>，价值超过200亿美元的生物多样性)，从而节省时间、金钱和生命。

必须谨慎、公平和迅速地，给予合法野生动物转销商进行一次性赔偿。会遇到阻力，而一些非法经销商会排队领取赔偿，意图继续非法经营。每个政府必须决定什么是公平支付。政府和捐助者用于大流行病恢复的拨款中，有很小一部分的资

源可以包括这一专案。终止大流行病联盟合作伙伴可以就这一具有挑战性和敏感但重要的步骤的机制和成本提供建议。

#### 行动费用和步骤支柱 3： 保护和恢复自然栖息地

各种生物多样性保护投资将对降低人畜共患扩散的风险，以及与气候变化、安全、就业等相关的多项其他好处，产生直接的积极影响。生物多样性和生态系统服务政府间平台最近的报告明确界定了这些目标投资<sup>17</sup>。包括：

- 前线巡守员和社区巡逻：培训、设备、人寿保险；
- 扶贫方案：青年教育和替代性生计支助；
- 授权农村社区作为自然保护者捍卫其土地和人权；
- 恢复自然：生长保护区、缓冲区、走廊和重新野化；
- 按照影响缓解等级制度重新设计基础设施和发展专案，尽可能避开核心荒野地区；
- 通过启动更可持续的耕作做法，在生产国内有用的原住居民粮食和非粮食产品的基础上，重建正常运作的农业系统，从而减轻对天然森林和林地的压力，这些产品也有可能创造新的当地市场和产业<sup>18</sup>。

#### 行动支柱 4 的成本和步骤： 使我们的农场和食品系统更安全， 更健康

投资从目前的工业农业（包括工厂农业）向更可再生的农林业和农业生态方法的转变，将需要巨大的政治意愿、努力和资源。但这种投资的回报将是巨大的。因为再生方法将导致：

- 更清洁的食物和更健康的消费者；

<sup>15</sup> 17EndPandemics所定义的野生动物不包括鱼类。事实上，很多鱼种已受到过度捕的威胁，应该受到保护，但是它们并不具有大流行的风险。再说一遍：EndPandemics呼吁禁止野生动物的商业贸易，并不意味着禁止土著生存狩猎或可持续的狩猎活动。

<sup>16</sup> 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.

<sup>17</sup> 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)

<sup>18</sup> 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，确保更稳定、可持续的收入；
- 更具弹性和繁荣的本地社区，受惠于可持续生计；
- 减少野生动物偷猎和非法生境破坏，因为当地社区较少依赖这些活动；
- 由于野生栖息地受到的最小破坏，人畜共患传播的风险将降低。



## VI. 良好做法

## 公共和私营部门及个人可以采取的政策

以下是政府和私营部门以及个人在预防大流行病方面可以遵循的政策准则。

### 政府政策/法律模范

#### 同一健康 (One Health)

政府在修复地球生态系统的同时，可以采取最有效、最具影响力的政治，即“同一健康”。这是一种将人类健康、动物健康和生态系统卫生方面的专业知识、目标和资源结合起来的全球方法，以检测和预防疾病的出现和传播（见框5）。

在当今全球化的世界中，任何机构或社会部门都无法阻止疾病的出现或死灰复燃。没有一个国家能够单独扭转威胁人类和动物的栖息地丧失和灭绝的模式。只有全面召集参与人类健康和环境的各种机构和民间社会团体，才能切实地发现、解决和减缓人畜共患疾病的传播。

虽然这种方法背后的理念并不新鲜，但是实践是新的。世界卫生组织 (WHO) 、

联合国粮食及农业组织 (FAO)、世界动物卫生组织 (OIE) 和联合国环境规划署 (UNEP) 正在政府间协调“同一健康”的发展。《生物多样性公约》缔约方正在制定《生物多样性和健康全球行动计划》，使同一健康更加具有生物多样性的包容性<sup>19</sup>。

为了有效果，“同一健康”需要在国内和国际上得到适当的制度化和支援，并有足够的有利条件在基层执行。

### 企业和组织政策/实践模范

全球经济一直以开采性商业应用为主，这些商业做法会清除或破坏自然资源。再生方法确保自然资源不会受到损害，如果自然资源受干扰或被移除，它们将被替换，增加并得到保护。企业和组织，不分大小，都可以采用自己预防大流行病的政策和方法，这将有助于地方和全球的努力。这些政策可以包括：

- 研发投资、生产和销售；
- 无森林砍伐供应链；
- 无野生动物供应链；
- 顾客忠诚度计划（代币、积分等）旨在保护与恢复自然的客户；
- 防止大流行的赞助者可以支持我们的活动与媒体宣传活动等。

### 个人政策/行为模范

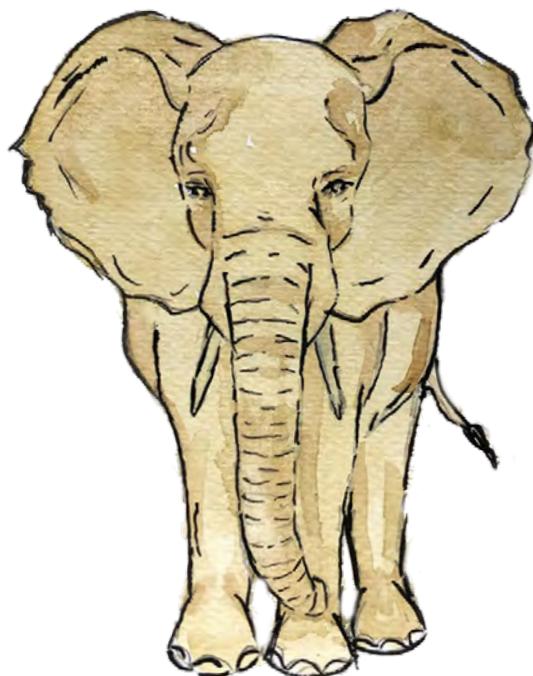
许多人对抗像大流行病这样巨大的问题时感到无助。但是，事实上，个人可以采取一些具体行动，这将产生积极的影响，随着我们说服其他人效仿，这些行动可能会加倍成长。

以下是个人、家庭或社会团体可以采用的 11 个习惯，以说明预防大流行病，会使我们的世界变得更美好、更安全、更快乐：

1. 少吃肉。世界上一些最致命的疾病爆发与工业化的畜产农业有关。

<sup>19</sup> 2021年10月将在中国昆明举行的生物多样性公约第15届缔约方会议将审议新的《全球生物多样性框架》，其中除其他外，将保证“野生动植物物种的收获、贸易和使用合法、可持续和安全”。《公约》新目标中“安全”的定义必须与“同一健康”方法保持一致，即“不对人类、野生动物或驯养物种造成病原体溢出的风险，不构成成为外来入侵物种的风险”。

2. 不要买皮草或外来动物的皮。囚禁圈养是不人道的，是非法捕获的野生动物进行疾病传播和被洗白的温床。
3. 仔细选择您的野生动物旅游选择。以圈养野生动物为特色的旅游景点，经常将这些动物从其自然栖息地移走，让游客能够进入，从而增加人畜共患动物的风险。
4. 旅行时不要购买野生动物产品、纪念品或捕猎到的肉制品。仅因为它们是可以被出售的，不代表它们是合法、安全或道德的。
5. 检查成分 – 不要购买由森林砍伐产生的产品。热带雨林转为牧场和种植园，增加了人畜共患病原从野生动物转到驯养动物和人类的风险。
6. 不要养外来宠物。与外来宠物接触会使主人面临接触到人畜共患疾病的风险，同时会伤害野生种群。
7. 在社交媒体上负责。社交媒体活动会被野生动物贸易商注意到，因此像”我也想要一个”这样的留言，会鼓励他们把野生动物从自然栖息地移走并出售。
8. 尽量减少碳和废物的足迹。支持采用”循环经济”方法的政策和企业——减少自然资源的开采，最大限度地减少对环境的影响。
9. 支援退化土地的再野化和农业生态恢复。再野化是大规模恢复自然生态系统和生产性农业生态系统，使自然能够自我愈合。
10. 投资可持续金融。明智地使用您的储蓄和投资，以确保您的财务选择从化石燃料和与森林砍伐相关的行业完全退出。
11. 投票给地球。确保你选出的官员代表你和地球！



## VII. 紧急状态

### ● 现在就要采取行动

要防止未来的大流行病，在所有人都安全之前，没有人是安全的。一个国家、省、县或城市的病毒爆发，可能会蔓延到另一个国家，即使面临代价高昂的封锁。全球合作至关重要。

COVID-19扰乱了整个社会，无论信仰或贫富。我们有能力且必须激励每个人都参与这一全球运动以防止新的大流行病出现的机会之窗正是现在。

这种多样化和积极进取的联盟，可以创造前所未有的力量，促使我们从被动反应大流行病，到主动预防大流行病。这有两个方面：

- 为必要的全面改革提高政治意愿；
- 实质的预防解决方案呈指数级增长

要将这场全球危机转化为全球机遇，需要大量的社会参与和协作。这种合作是联盟影响交付模式的核心（见框 5）。

“  
要防止未来的大流行病，在所有人都安全之前，没有人是安全的。  
以防止新的大流行病出现的机会之窗正是现在。  
”



## 框5: 同一健康和包容性力量的恢复

在COVID-19之前，我们已经知道“病毒不需要护照旅行”的口头禅。我们了解到病原体在我们相互关联的世界中传播的速度和程度，不仅来自恐怖电影，也来自现实生活中的健康恐慌，如SARS或埃博拉。尽管如此，世界基本上将这些可怕的现实视为医疗紧急情况，将由有能力的卫生专业人员处理。



在SARS和埃博拉之后，“同一健康”<sup>20</sup>方式，疾病预防和控制的共同努力，增加了兽医和生态系统卫生专家的参与。

一位头脑清醒的经济学家<sup>21</sup>在2013年预测，“大流行病不只是重大的健康问题，因为它们会扰乱经济和社会的运作。”现在我们都应该知道这是多么真实！

COVID-19直接给数百万受该病影响的人，包括他们的家庭和前线卫生工作者，造成了毁灭性的损失，事实上，整个世界都受到了影响。

无论您是纽约的股票经纪人、巴西的卡车司机、芬兰的教师、埃及的酒店老板、孟加拉国的养鸡户、澳大利亚的餐厅厨师、津巴布韦的公园巡守员，或是西班牙的退休人员，您都已经感受到了大流行病非医疗后果所造成的严重中断、收入损失和基本经济保障的痛苦。

“不平等加剧，不同社会群体被排除在服务、市场和机会之外，阻碍了发展和煽动不和。确保复苏不会让任何人落后，可以减少机会和结果方面的差距，并说明被排除在外的群体实现公平份额的利益。包括不同的观点，让社区参与私营和公共部门实体的政策和投资项目的设计，可以缓解执行挑战。”(世界银行，2021年)

严打政策和聪明的技术将是必不可少的，但还不够。自上而下的变化是线性的，自下而上的变化可以是指数级的增加。



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

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

## VIII. 可以提供的协助



### 终止大流行病联盟如何协助您

制定和实施您当地相关的大流行病计划并非易事，EndPandemics联盟可以协助您，您也可以帮助我们。

预防大流行病的主要方法是：

- 减少对野生动物的需求；
- 逐步取消野生动物贸易；
- 保护和恢复自然生态系统；
- 使我们的农场和食品系统更安全，更健康。

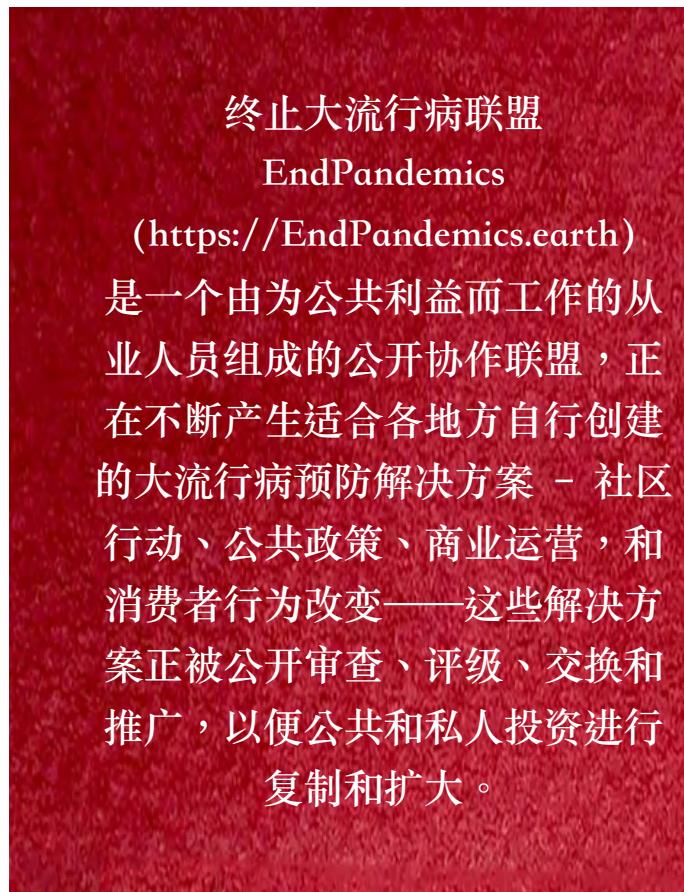
这些解决方案都不是新的，而是已经间歇性地偶尔使用过，只是在不同的地方、不同的时间。所以，知识是存在的。EndPanmics召集这4种解决方案的专家从业人员和专案，以创建一个全面的“解决方案地图”。我们不断提出吸收并雕琢产出最佳实践方案，以产生最大、最积极的影响。

为了结束大流行病时代，我们需要将这些预防解决方案的推进器从零星和孤立切换到不间断的全面覆盖。

扩大解决方案的交付，我通常受到限制，不是缺乏资源，而是缺乏可存储的专案想法。这在很大程度上像是企业所谓的最后一英里的问题<sup>22</sup>。雄心勃勃的政府政策、计划和专案常年挣扎，而且往往失败，无法产生预期的影响。没有适当地分派任务、资源或装备，倾听他们的最终受益人的意见，也没有即时跟踪他们的干预行动的影响。

为了面对这一挑战，我们必须扭转通常涉及或选择当地社区<sup>23</sup>的自上而下的解决办法，转而采用大规模共同创造的解决方案，确保所有权和持续实施。

终止大流行病联盟正在吸引所有感兴趣的个人和组织，不分大小，来自所有部门和地区，共



同绘制 EndPandemics 解决方案地图（见图 3）。此地图是改进、配合与推广大流行病预防解决方案的工具（请参阅附录 1范例）。

由 终止大流行病 联盟接收和审查或创建、复制和改进的解决方案，然后成为全球恢复和再生努力的基石。这些解决方案被编目，并详细说明其创新者、成本和影响，如投资平台。分享吸取的教训，确保感兴趣的的利益相关方能够顺利地进行。

随着社区的发展，每个投射解决方案的价值，也随着其更高的可见性、公开透明度、更强的影响

<sup>22</sup> 这意味着，在 B2C（企业对客户）价值链的最后阶段交付的产品往往最昂贵、最耗时、最不可靠。除了交付基础设施的改进外，在企业中解决这个问题的主要两种方法是与客户沟通和即时向客户进行交货跟踪。资料来源：<https://onfleet.com/blog/last-mile-problem>。

<sup>23</sup> 这个名词完全是指原住居民和地方社区。

验证协定，和社会验证而增加，因为它得到了了解决方案共同拥有者投入的社会资本的支援。

终止大流行病联盟建立了一个监控、评估和奖励(MER)系统，该系统利用自己的基于区块链

的数位代币(EPX)，跟踪和奖励解决方案的努力和影响。

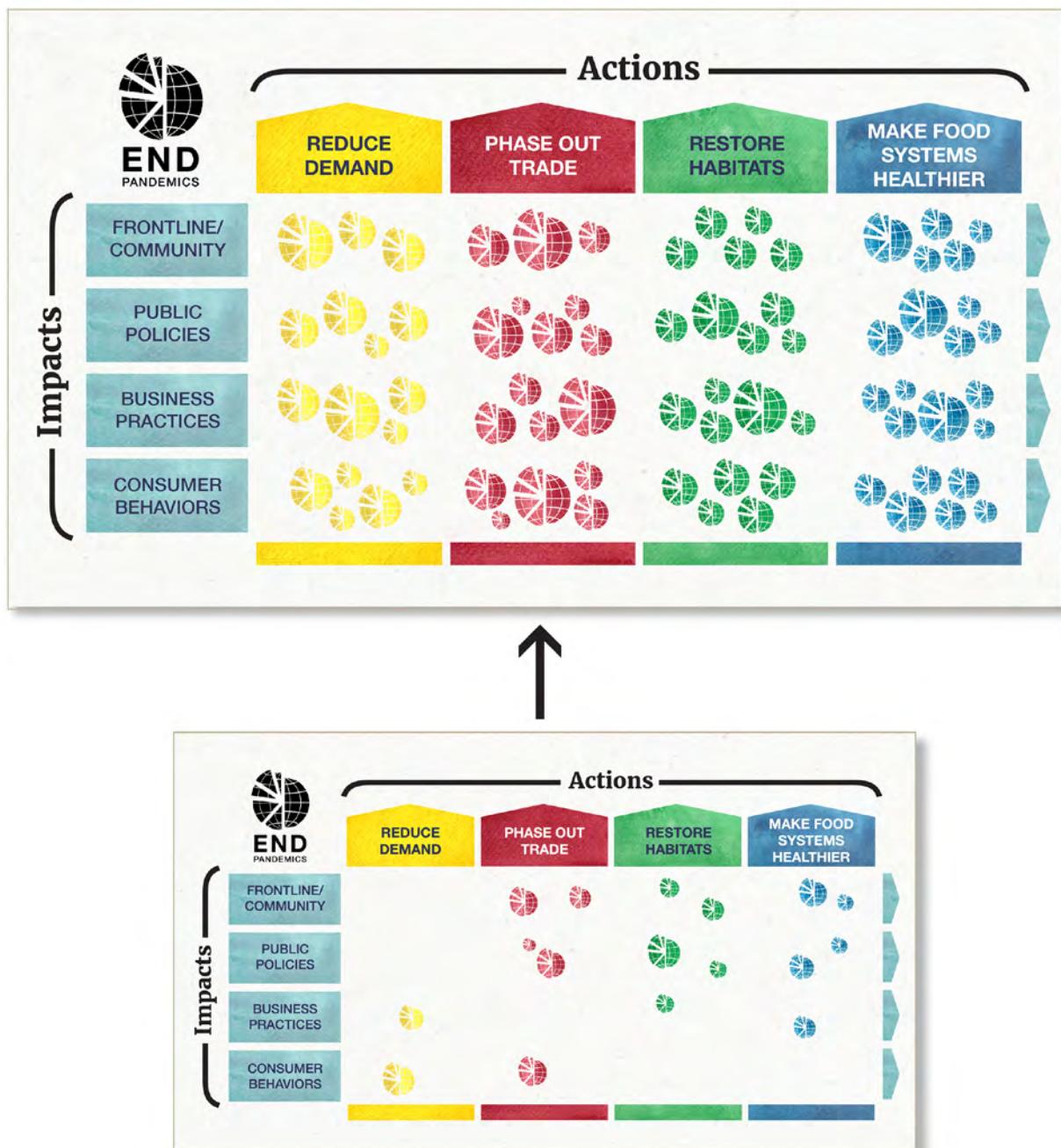
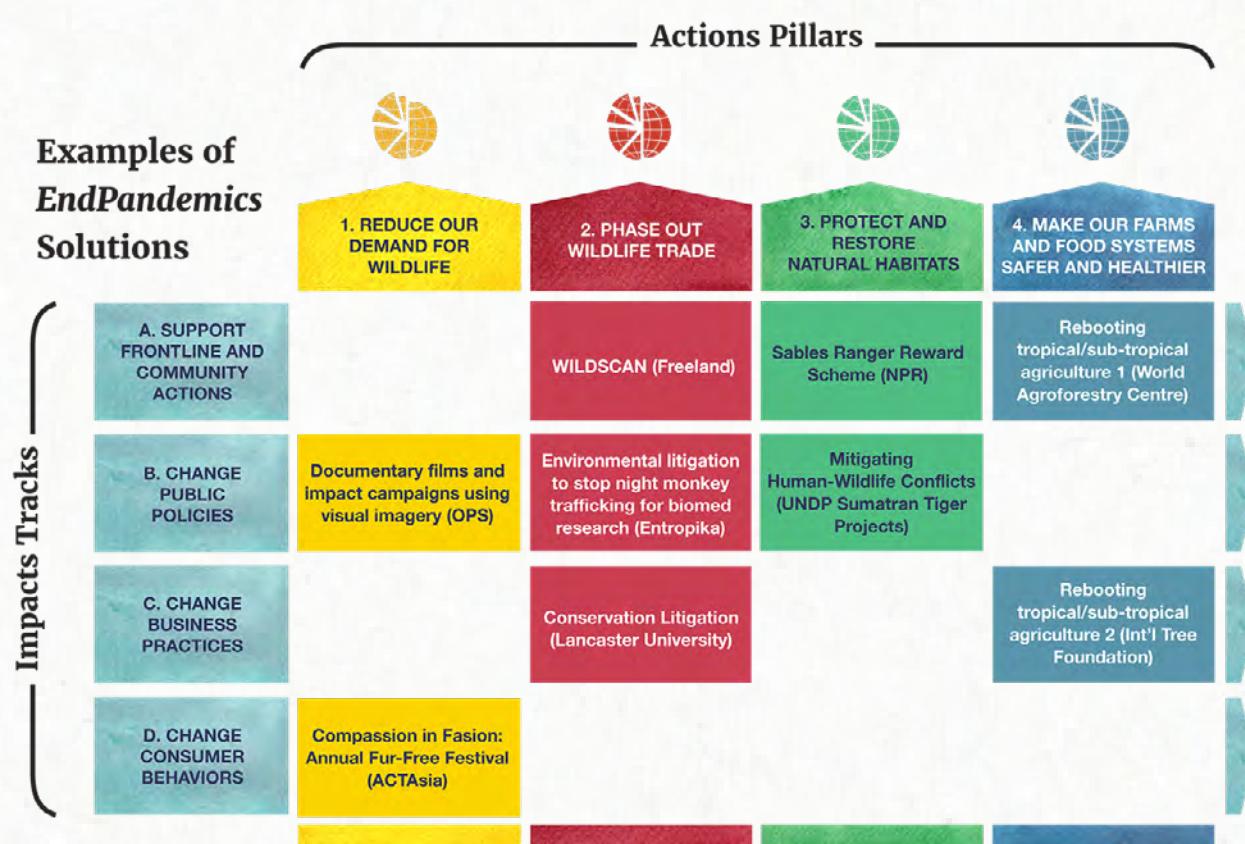


图3. 增长解决方案地图 – 从随机的干预到持久、大规模的改变。

## 附录



### 终止大流行病联盟解决方案路径图的示例



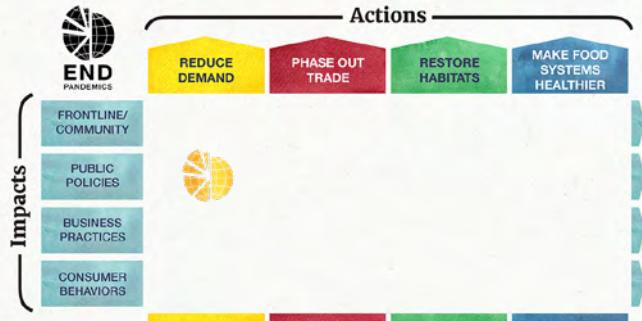
**EndPandemics**  
Investing in Planetary Health



- DOCUMENTARY FILMS AND IMPACT CAMPAIGNS USING VISUAL IMAGERY

- Location: Global

- Solution Proponent: Oceanic Preservation Society



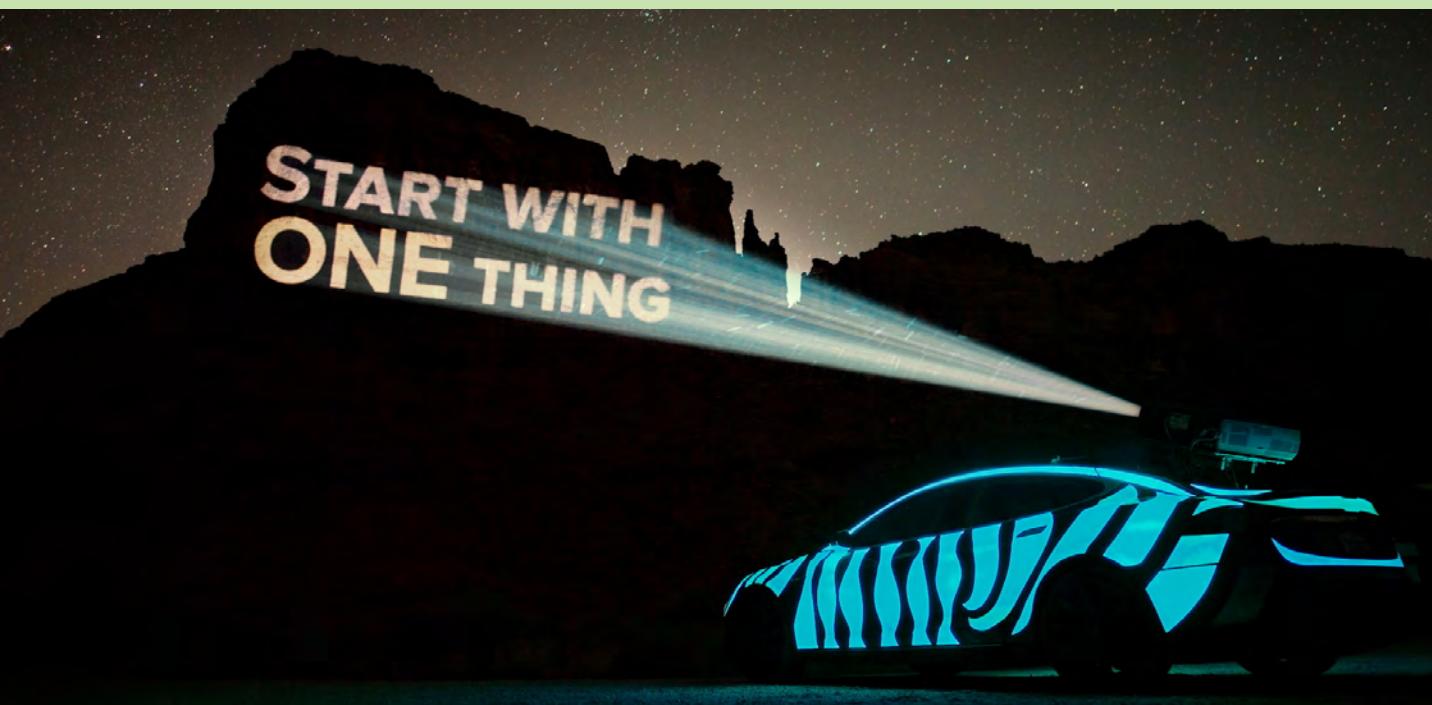
## PROBLEM

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

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- **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](#) 2020 recap video  
[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/>

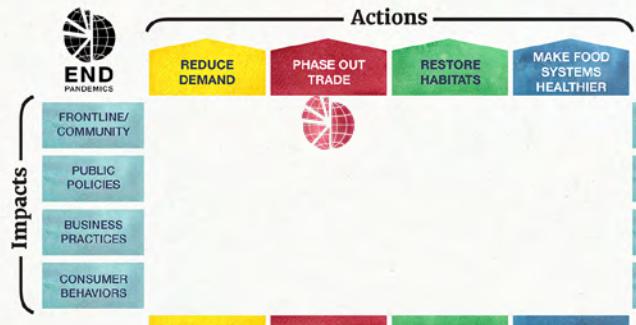
[wp-content/uploads/2018/11/Toxic-Fur\\_6.1.pdf](#)

### CONTACT

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## WILDS CAN

- 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://wildlifeprtectiontools.net/>  
(select tool “Species ID”)  
<https://youtu.be/whpVmVcFdgy>

### CONTACT

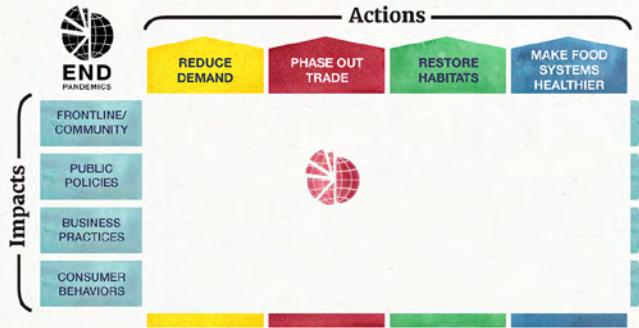
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- ENVIRONMENTAL LITIGATION
- TO STOP NIGHT MONKEY TRAFFICKING FOR BIOMEDICAL RESEARCH

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.



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/primate\\_rights\\_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-premida-por-national-geographic>

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

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

### Videos

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

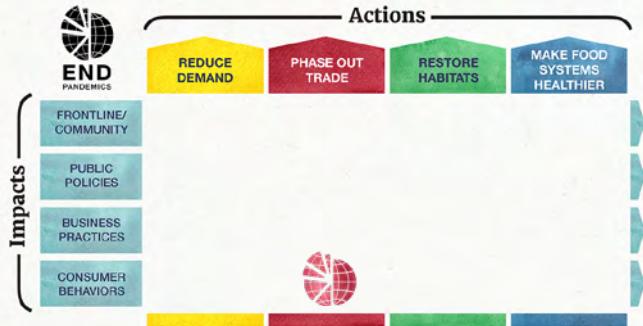
## CONTACT

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## ● 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.

## 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.

## 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 emergence 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.



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->

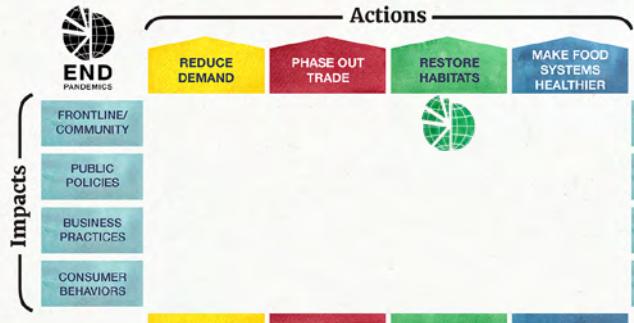
[in-a-zoo-without-permits/](#);  
<https://twitter.com/walhisumut/status/1382263998905606144>

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## ● 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/>

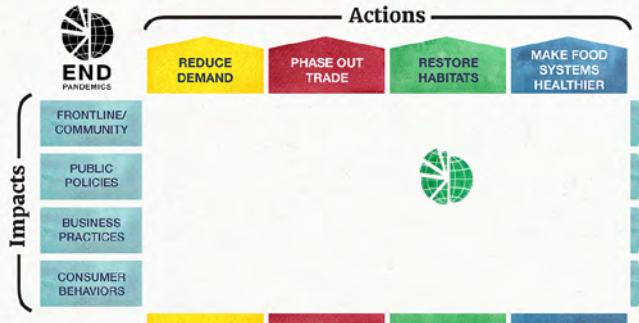
## CONTACT

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## ● 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.

## 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.

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.

## 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-bersiner-gi-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-menangkan/>  
<https://sumatrantiger.id/en/2018/03/20/pelatihan-penanggulangan-konflik-manu->

sia-dan-harimau/  
<https://youtu.be/Uh2igC-GdxE>

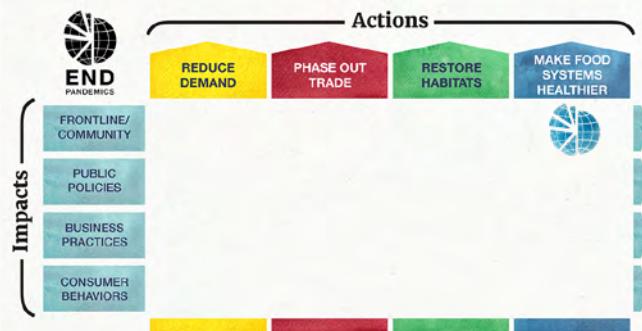
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## ● REBOOTING TROPICAL/ SUBTROPICAL AGRICULTURE 1: RESEARCH OUTPUTS AND PILOT PROJECT

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 calothyrus 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

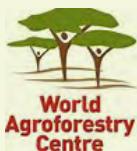
Typically, 10-30 people are trained per village. Subsequently, the skills are disseminated by word of mouth to neighbouring villages as they set up satellite village nurseries for trees and crops.

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.

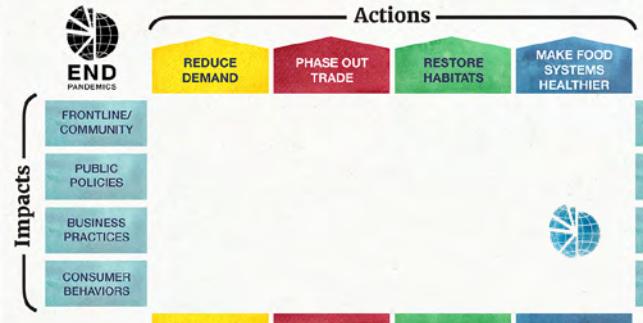
## CONTACT

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## ● 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 multifunc-  
tional 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: Multi-  
functional 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.

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