



Federal Ministry
for Economic Cooperation
and Development



ASU Swette Center for
Sustainable Food Systems
Arizona State University

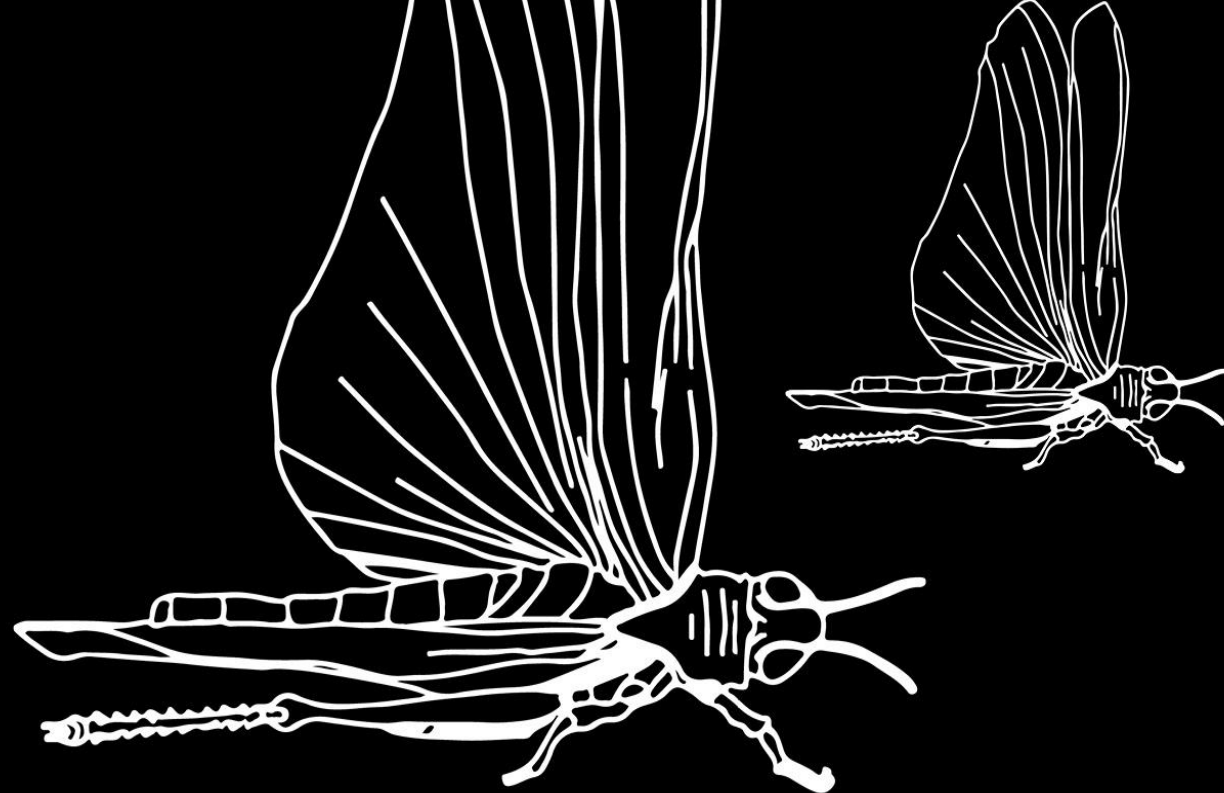
UNDERSTANDING THE INTERCONNECTEDNESS

Between the Ongoing Desert
Locust Crisis 2019-2021+ and
the Climate Crisis



6 November 2021
10:30 - 12:00 UTC
Glasgow, UK

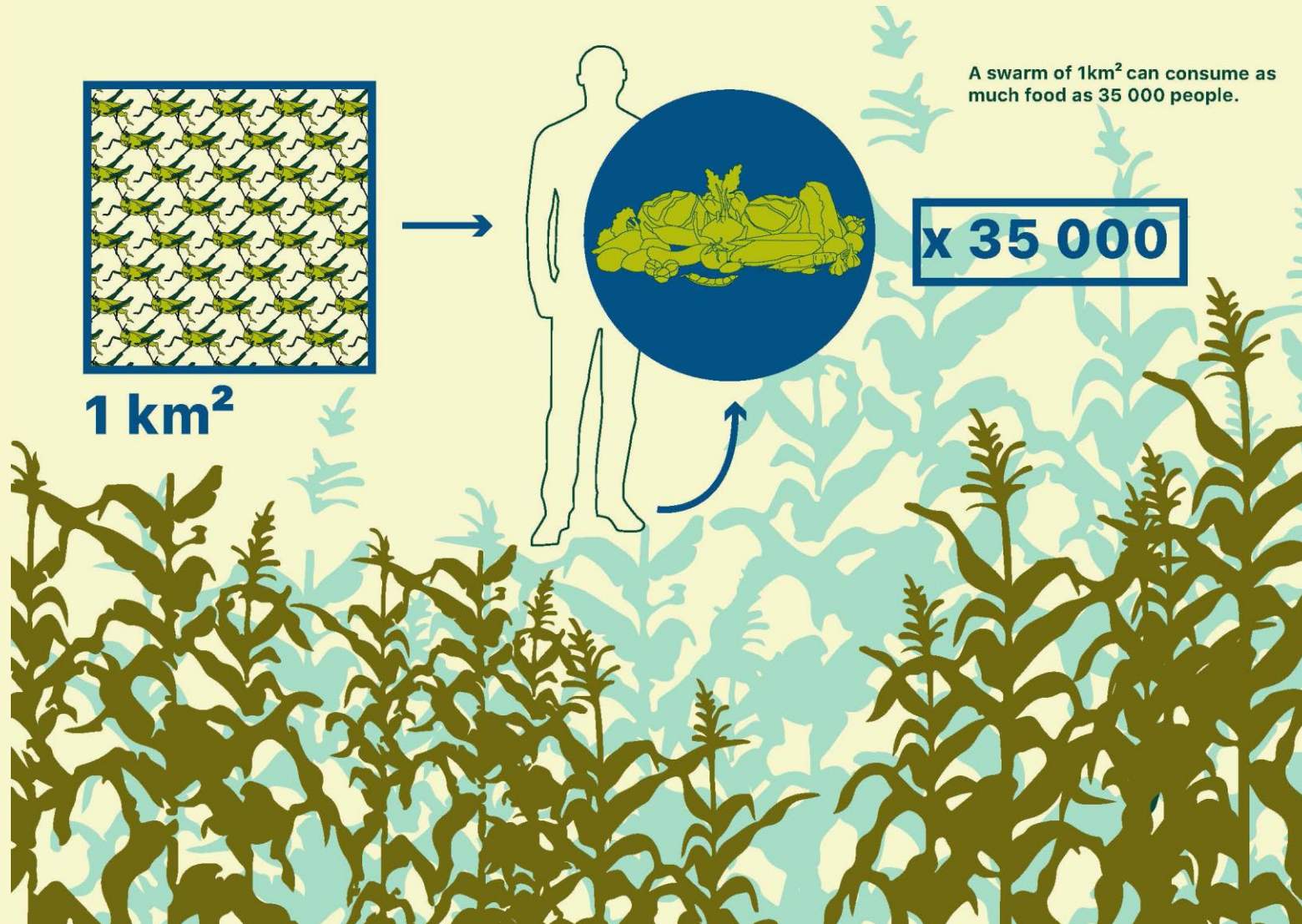
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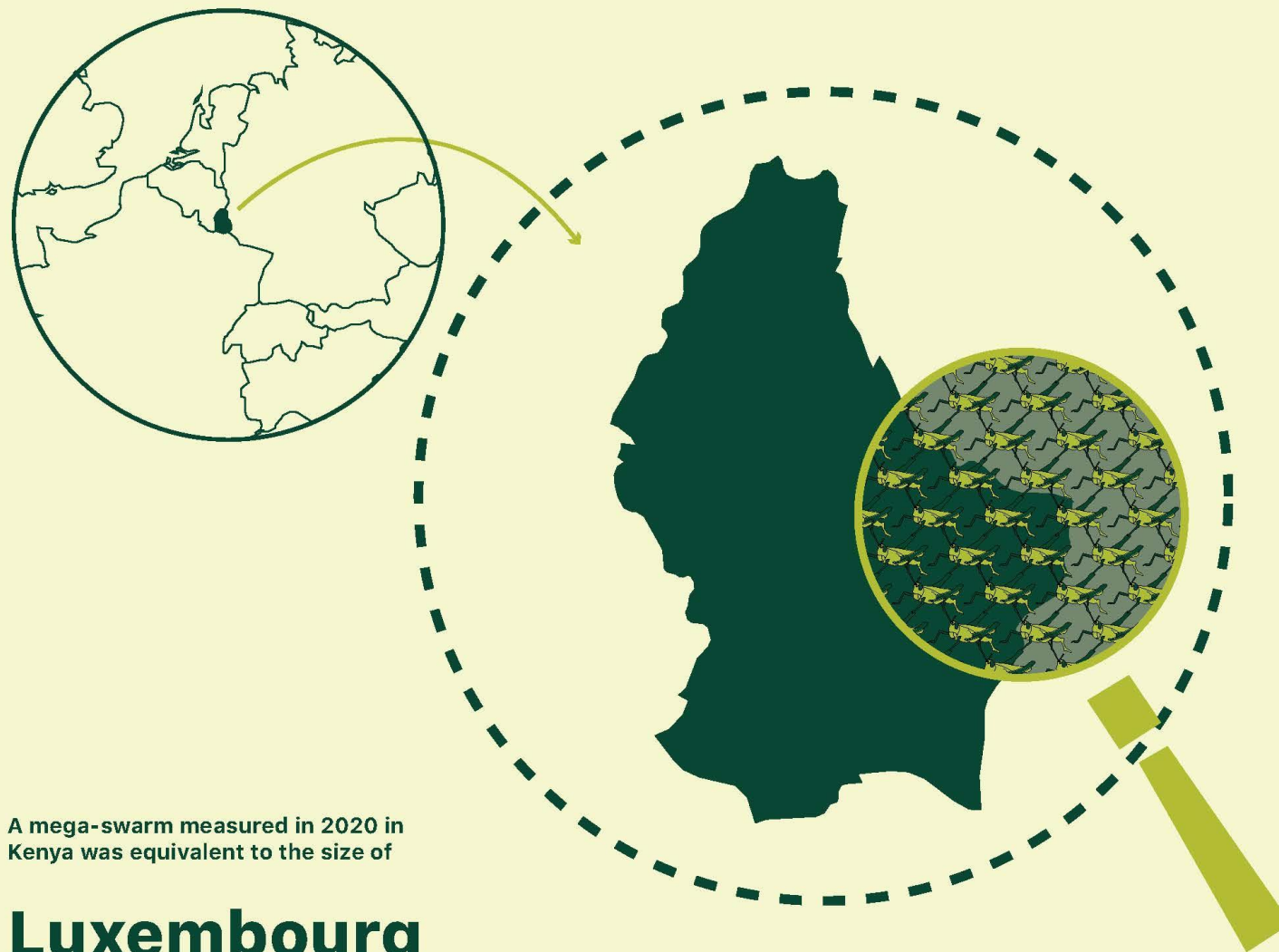


FRONTIERS
OF CHANGE

5-7
NOVEMBER
2021







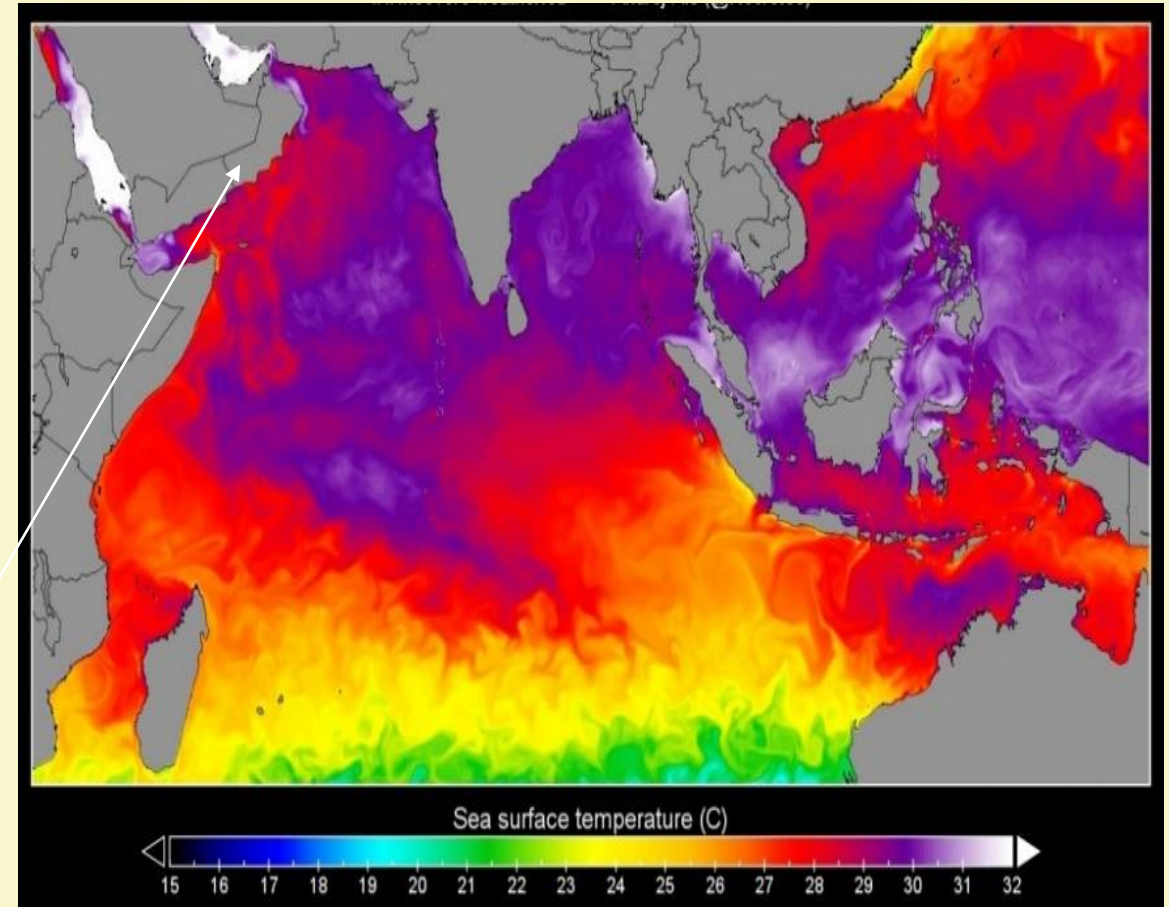
A mega-swarm measured in 2020 in
Kenya was equivalent to the size of

Luxembourg

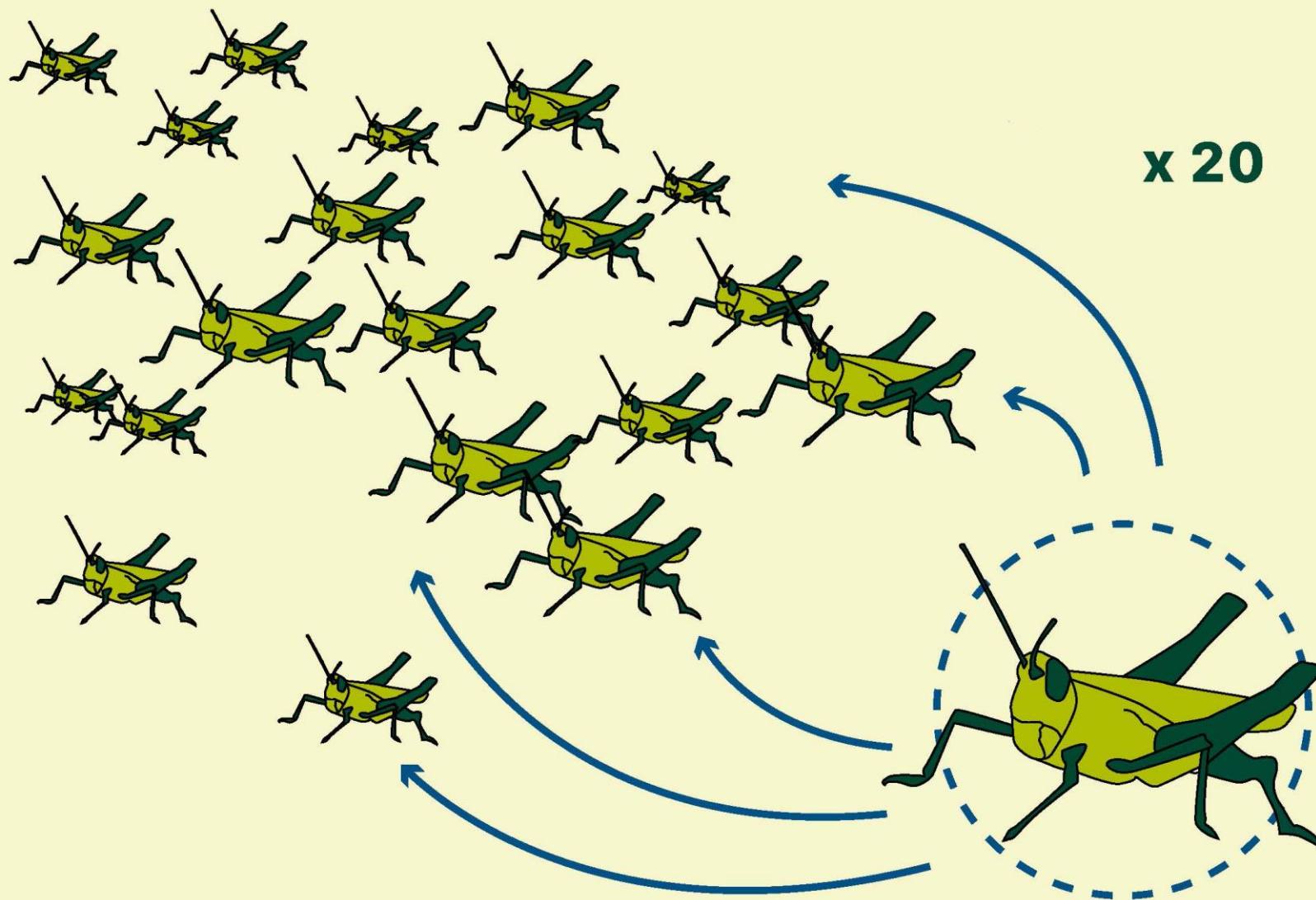


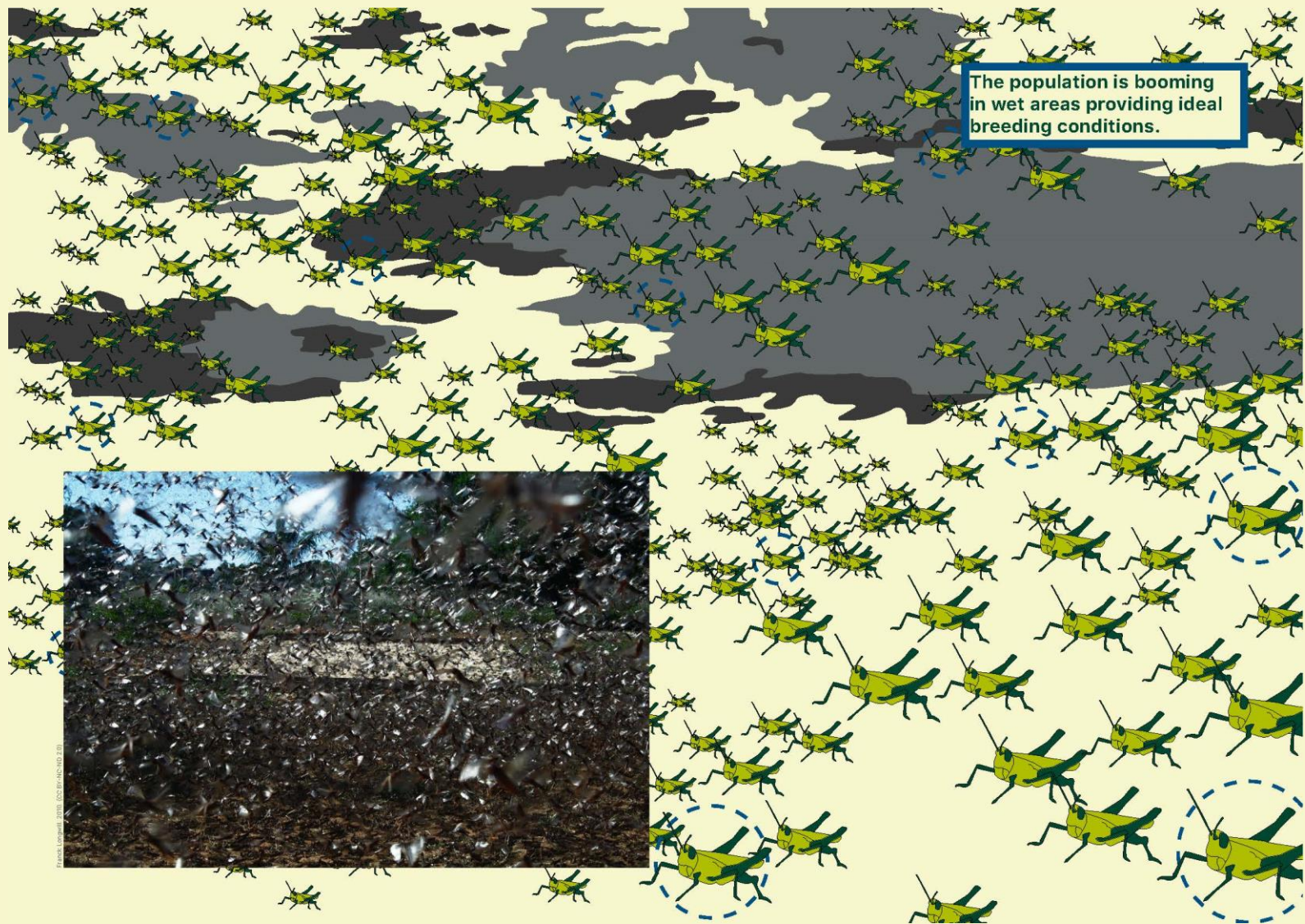
HOW DID IT COME TO THIS?

- The Indian Ocean Dipole (IOD) was in positive phase, June-December in both 2018 and 2019
- In October 2019, the dipole reached its most extreme positive level in 40 years - 8 cyclones between 2018-2020
- The “empty quarter” (*Rub al Khali* in Saudi Arabia) filled with lakes and vegetation



Source: <https://www.severe-weather.eu/news/unusually-strong-indian-ocean-dipole-australia-europe-fa/>

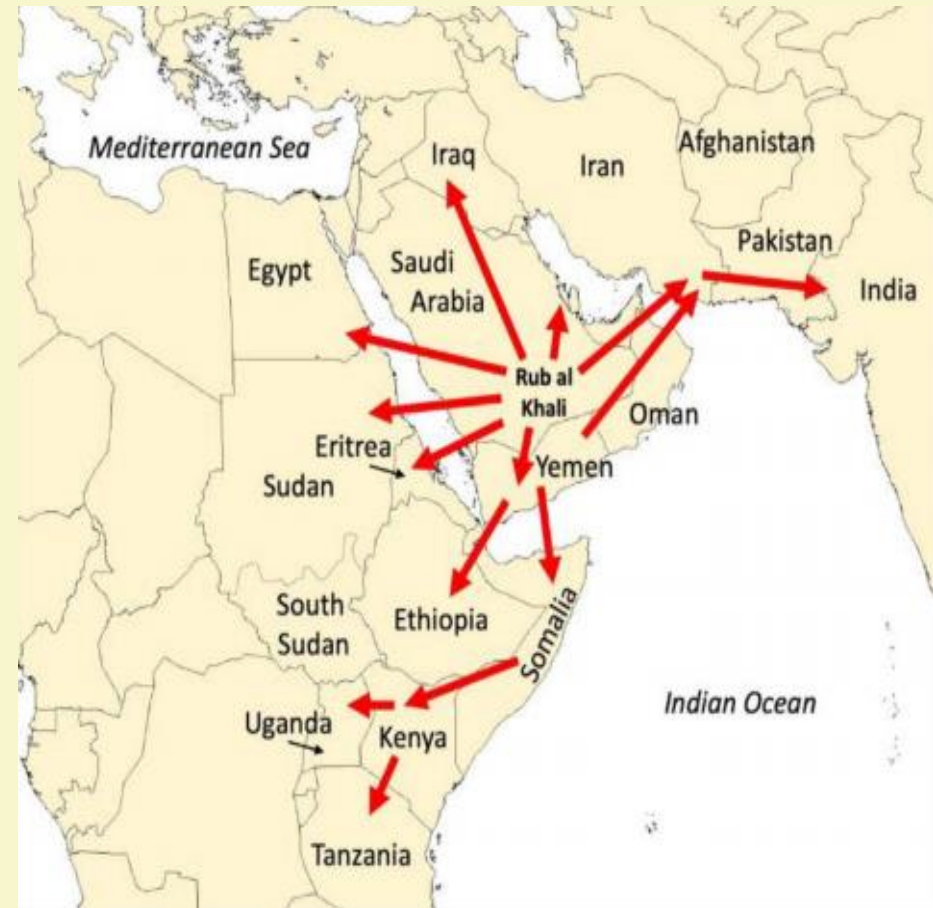






8 cyclones

**Cyclone winds “powered”
swarms (less energy for
flight = more energy for
breeding)**



Source: Showler et al. (2021)



KEY CONCEPTS IN CONTROL

- “**Outbreak prevention**” (Hi-tech proven Early Warning System) No chemical pesticides. No crop losses. Fractional fiscal and environmental costs
- “**Pro-action**” (action towards controlling disparate swarms from developing into upsurges and plagues). Chemical pesticides primary control method. Some crop losses. Non-trivial fiscal and environmental costs
- “**Reaction**” (protecting crops and livelihoods from swarms) Significant and pervasive use of chemical pesticides. Huge crop losses. Massive fiscal and environmental costs



HUGE AMOUNTS OF TOXIC PESTICIDES UNLEASHED INTO THE ENVIRONMENT: “LAST LINE OF DEFENCE FOR COUNTRIES”

- Chlorpyrifos*
- Deltamethrin
- Fenitrothion (aka Sumithion)*
- Malathion*
- Biopesticide Metarhizium
- Teflubenzuron (insect growth regulator)

**** Highly toxic according to Pesticide Action Network (PAN) – a cholinesterase inhibitor, a carcinogen, a groundwater pollutant or reproductive or developmental toxicant***



THE STATUS QUO NO LONGER TENABLE

- Climate change could trigger more frequent and intense transboundary outbreaks
- New paradigm needed:
 - Effective early warning
 - Environmental monitoring
 - Governance



(i) A WELL-FUNCTIONING
EARLY WARNING SYSTEM FOR
EFFECTIVE OUTBREAK
PREVENTION – “A DIGITAL
LEAPFROG”

There is a need for innovation in preventing future outbreaks, including the use of satellites, precision drones, robotics, modern management tools for protecting livelihoods and the environment.



(ii) COUNTING THE **ENVIRONMENTAL AND HUMAN COSTS THROUGH TRUE COST ACCOUNTING (TCA)**

Making invisible cost visible:

- Strengthened focus on biodiversity loss with all its consequences, e.g. pollinators
- Environmental pollution
- Human health costs

The TCA approach can uncover these hidden costs to "alarm" policy-makers, international conventions, and other stakeholders into action/reform.



(iii) A MODEL FOR BETTER GOVERNANCE

- A call for **better and more rapid regional coordination** to avoid countries reacting in silos when time is of the essence to intervene before transboundary crises ensue
- A **new mindset**, a new “business model” needed to build resilience for communities as well as for nature’s defence mechanisms



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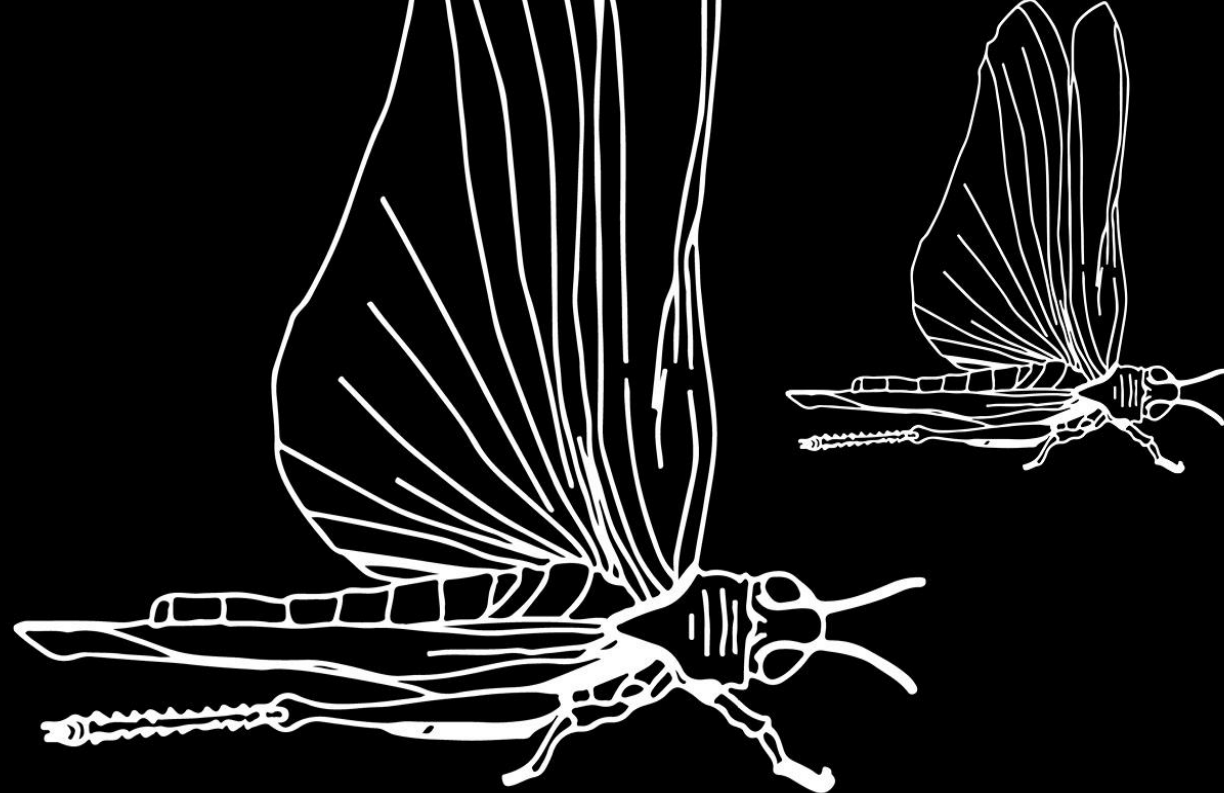
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