Sustainability and food systems

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IPBES Plenary: 4th Session

Summary for Policy Makers

Pollinators, Pollination and Food Production

Deliverable 3a

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Intensive agriculture

Risks

- Loss of non-cultivated habitat patches
- Large field sizes and monocultures
- High inputs of fertilizers, herbicides etc.
- Intensive grazing

Intensive agriculture

Responses

- Create patches of flower rich habitat based on native species
- Organic farming
- Diversify farming systems
- Reward farmers for good practices

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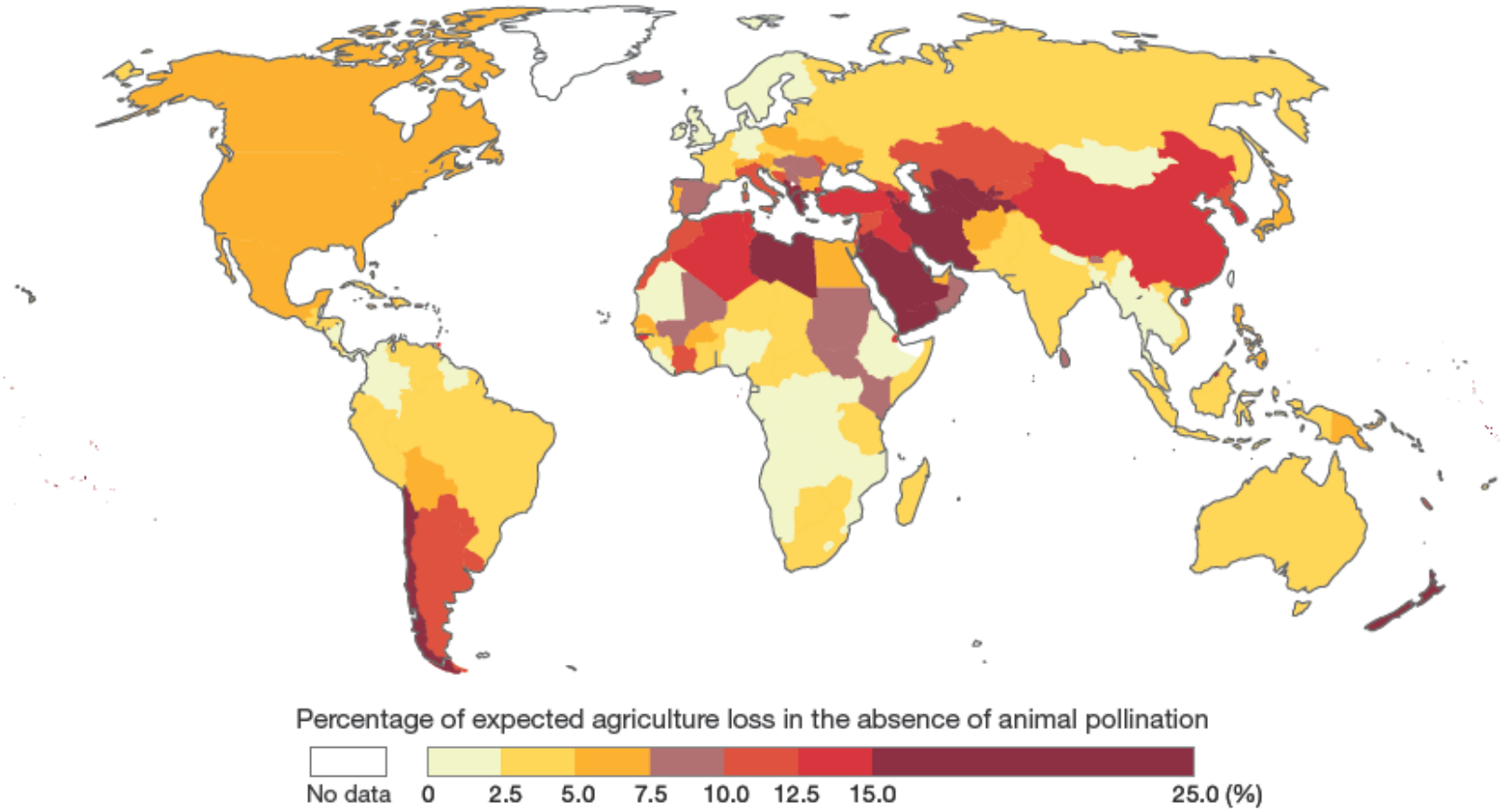
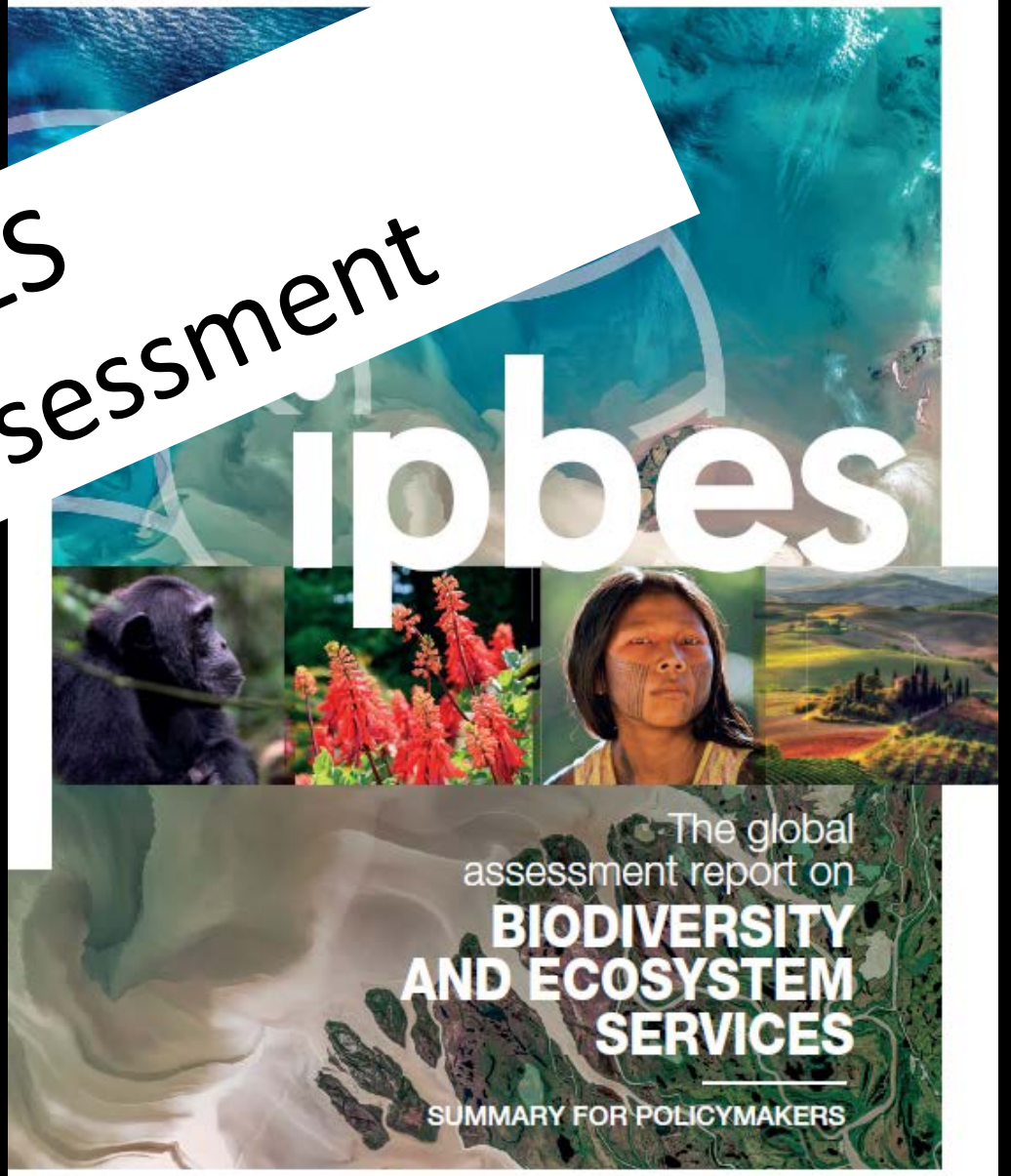
Science and Policy for People and Nature

Global agriculture
is increasingly reliant on pollinators

More than 300% increase in volume of agricultural production dependent on pollinators since 1961



IPBES Global Assessment



D6 ***Feeding humanity and enhancing the conservation and sustainable use of nature are complementary [...] that can be advanced through sustainable agriculture, aquaculture and livestock systems, the safeguarding of native species, varieties, breeds and habitats, and ecological restoration.***

- promoting sustainable agricultural and agroecological practices;
- …..;
- empowering producers and consumers to transform supply chains; and facilitating sustainable and healthy dietary choices.
- …..

IPBES-IPCC CO-SPONSORED WORKSHOP

BIODIVERSIY AND CLIMATE CHANGE

WORKSHOP REPORT

INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

UN environment

Food and Agriculture Organization of the United Nations

UNDP

Key messages

18. Planting bioenergy crops (including trees, perennial grasses or annual crops) in monocultures over a very large share of total land area is detrimental to ecosystems, reduces supply of many other nature's contributions to people and impedes achievement of numerous Sustainable Development Goals.

CS3

Irrigated rice terraces and forests in Southeast Asia

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10

Maintaining forest; avoid application of pesticides

Forest as habitat for rare and endangered species; high agrodiversity for stabilisation of pest pop.at low levels

C sequestration through maintenance of forests; CH_4 emissions through paddy fields

Water source for irrigation; bicontrol of rice pests;

Stabilized food supply; avoidance of chemical pollution

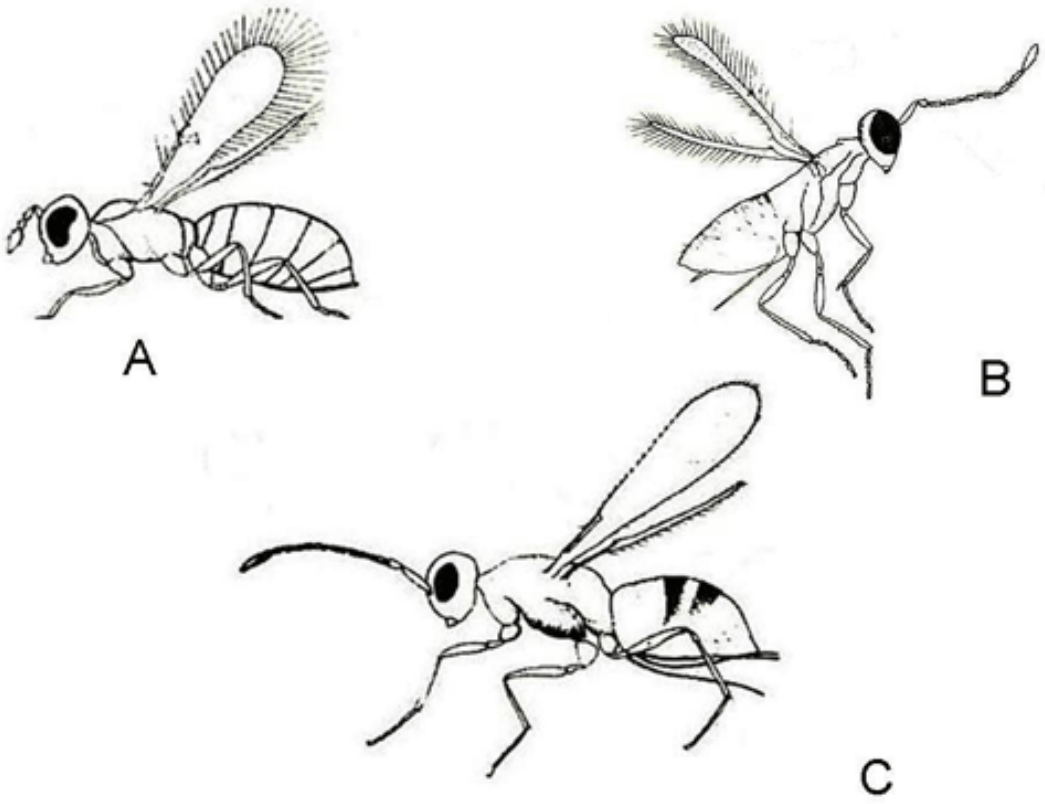
Sense of place, mental and physical recreation; maintenance of traditional customs including arts; high eco-tourism potential

Landscape transformation in many Vietnam districts

Flowers are food sources for beneficials

- Provide food and shelter to natural enemies
- Facilitate regulatory ecosystem services – predation and parasitism

How to communicate egg parasitism



Three common planthopper parasitoids:
A = Oligosita B = Anagrus C= Gonatocerus

Why bees?

- Bees are bigger, easier to observe and also well known.
- Farmers are taught to observe the bee populations as indicators of parasitism.

Entertainment-Education: New approach in communicating sustainable land management and biodiversity conservation

M. Escalada, K.L. Heong & H.V. Chien

Vietnam Turns Back A 'Tsunami of Pesticides'

Convincing Vietnamese rice farmers to use less pesticide came down to letting them see the benefits for themselves

For years, the entomologists at Vietnam's Southern Regional Plant Protection Center in Long Dinh had tried to sell rice farmers on the benefits of reducing pesticide use—to little effect. So in 2001, they took a different tack: They challenged 950 farmers to try for themselves.

In one plot, the farmers grew rice using their usual amounts of seed and fertilizer, spraying insecticide whenever they thought it was needed—which was often. In a nearby plot, they didn't spray at all for 40 days after planting and used less seed and fertilizer as well. To the farmers' surprise, the yield from the experimental fields was as good or better, while costs were lower, generating 8% to 10% more net income. From then on, they were convinced, recalls Chien Van Ho, who collaborated on the project.

out Asia—"but not in the Mekong Delta," says K. L. Heong, an IRRI insect ecologist. Thanks to the more judicious use of chemicals, natural predators helped keep planthoppers in Vietnam in check.

Clean as a swimming pool

The Green Revolution of the 1960s and '70s introduced sturdier plants that could support the heavier grain loads resulting from intensive fertilizer use. Rice production in Asia more than doubled. But it left farmers believing more is better—whether it's seed, fertilizer, or pesticides.

Rice farmers became accustomed to spraying soon after planting, when they first saw signs of the leaf folder, which appears

swimming pool," Heong says. What's more, tests have shown that killing planthoppers now takes pesticide doses 500 times greater than in the past. More and more planthoppers survive to suck sap from the young rice plants, causing them to wither.

As early as the 1980s, IRRI and the FAO convinced some Southeast Asian governments that with so-called integrated pest management (IPM), natural predators could control planthopppers. In 1986, Indonesia banned 57 pesticides and completely stopped subsidizing their use. But progress was reversed in the 2000s, when growing production capacity, particularly in China, unleashed a "tsunami of pesticides," says FAO entomologist Peter Kenmore. Even some in the agrochemical industry concur. "We all agree that in Vietnam, farmers have overapplied pesticides in some production environments," says Kee Fui Kon, who oversees rice-related R&D at the Swiss agrochemical giant Syngenta.

Radio soap opera

In Vietnam, the Mekong Delta trial helped change conventional wisdom among farmers and agricultural officials. The study led

Let 100 flowers bloom. Vietnamese rice farmers are encouraged to use less pesticide and to grow flowers and vegetables on the banks of their paddies.

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INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2022

Impacts, Adaptation and Vulnerability

Summary for Policymakers

WGII

Working Group II contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change

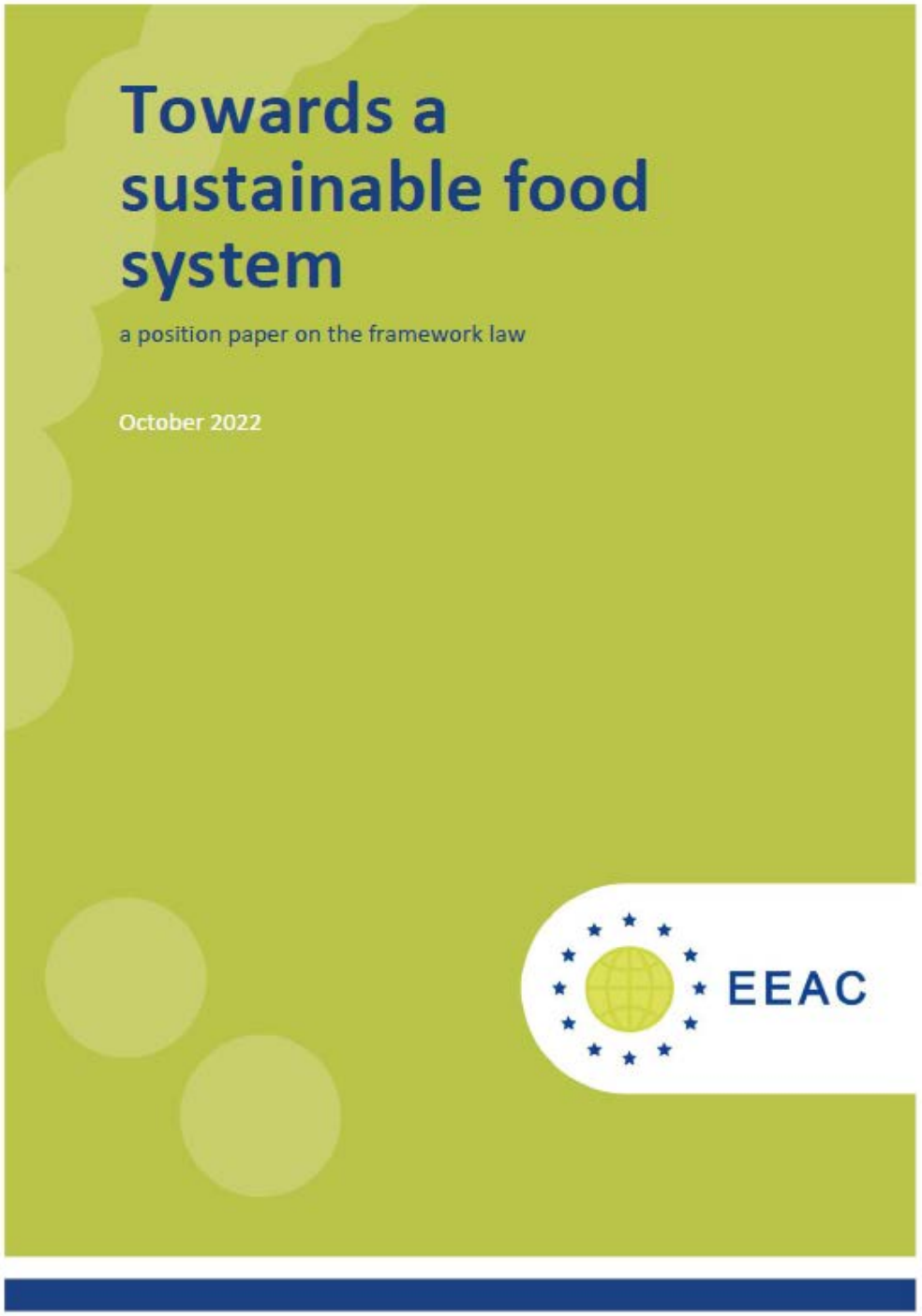
WMO UNEP

IPCC AR6 WGII
Future Adaptation Options and their Feasibility

- **SPM.C.2.2 Agroecological principles and practices**, ….., and other approaches that work with natural processes **support food security**, nutrition, health and well-being, livelihoods and biodiversity, sustainability and ecosystem services (***high confidence***). These services include pest control, pollination, buffering of temperature extremes, and carbon sequestration and storage (*high confidence*).

EEAC

European Environment and Sustainable Development Advisory Councils Network



EEAC: EU-Framework Law

- i. healthy, sustainable diets are available for all European consumers at prices that **reflect their true cost** in line with 'the polluter pays' principle.
- ii. food is produced … with processes that … regenerate **climate-resilient, healthy agro-systems**.
- iii. … livelihoods with **fair incomes and working conditions for farmers and workers**.
- iv. … best available technologies in relation to climate change and ecosystem services are promoted, respecting the **precautionary principle**.

Plausible scenarios, which include transformative change, are compatible with the 2030 sustainability objectives and the 2050 Vision for Biodiversity.

- Changes in production and consumption of energy and food
- Low to moderate population growth
- Nature-friendly and socially fair climate adaptation and mitigation

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JUNE
2022

SUSTAINABLE AGRICULTURE

Science Brief for Target 10 of the Post-2020 Global Biodiversity Framework

Thank you


Pollinators, Pollination
and Food Production
Thematic assessment
3rd Author Meeting