Economic impacts of Farming with Alternative Pollinators (FAP) in Morocco

first results of the IKI project on pollinator protection (2017-2022)

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Farming with Alternative Pollinators (FAP)

based on TEEB

Christmann, S. 2018. Under which conditions would a wide support be likely for a Multilateral Environmental Agreement for pollinator protection? Environmental Science and Policy, https://doi.org/10.1016/j.envsci.2018.10.004

Christmann, S. Aw-Hassan, A., Rajabov, T., Khamraev, A.S., Tsivelikas, A. 2017. Farming with Alternative Pollinators increases yields and incomes of cucumber and sour cherry. Agronomy for Sustainable Development. DOI: 10.1007/s13593-017-0433-y

Christmann, S., Aw-Hassan A.A., 2012. Farming with Alternative Pollinators (FAP) – an overlooked win-win-strategy for climate change adaptation. In: Agriculture, Ecosystems and Environment 161, 161-164

http://repo.mel.cgiar.org/handle/20.500.11766/8332

And various brochures for farmers

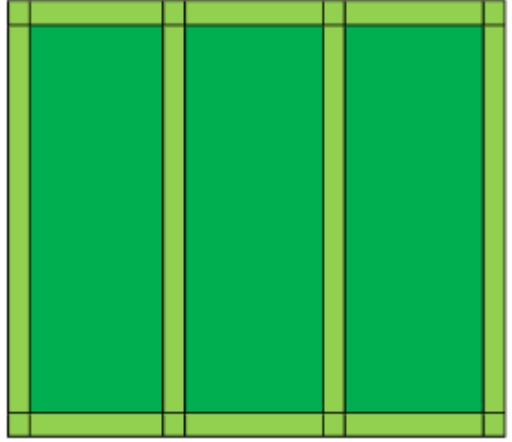
Photo: Nicolas Vereecken

Current approaches to protect wild pollinators are not scalable as

Low and Middle Income Countries cannot afford

- rewards for wildflower strips
- sponsored events to provide information and convince stakeholders

Shift from pollinator-friendly agriculture to farmer-friendly pollinator protection



FAP field

- Main crop in 75% of the field
- Habitat enhancement in 25% of the field
  - * Three-season-forage buffets by ***MARKETABLE*** plants
  - * Shelter (wind, shadow) by crops
  - * Nesting support out of local materials
  - * Water

Control field

Main crop in 100 % of the field

We assess
the impact of habitat enhancement:

- Insect **diversity** and abundance (pollinators, native enemies, pests)

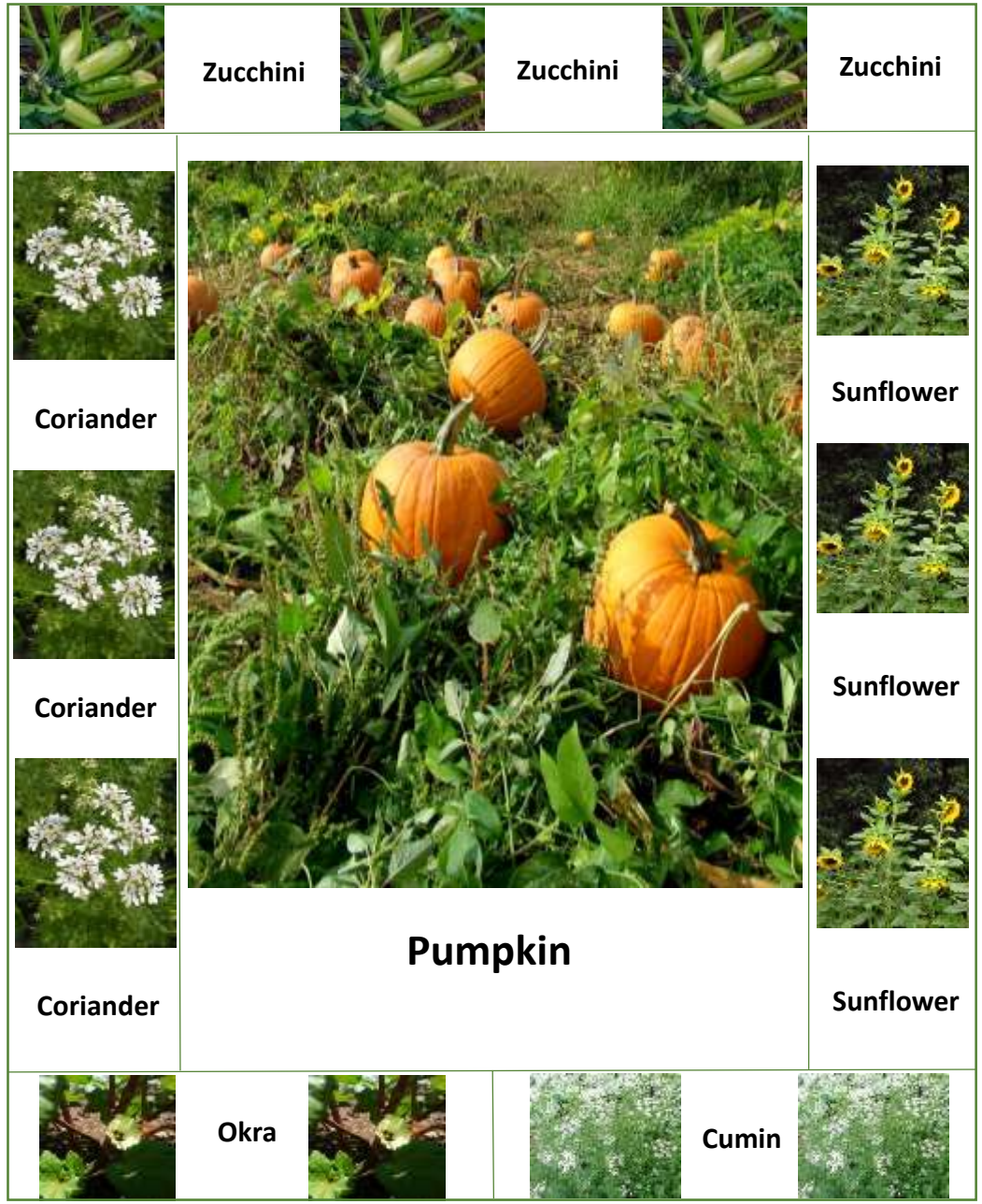
- Total net income per surface

Farmers

- decide on inputs (→ low inputs)

- contribute to selection of habitat enhancement plants

2018 Settat pumpkin field sketch



- **low investment** for farmers
- **high pay-off** already in the first year
- easy to communicate by **ICT**

Main FAP impacts:

Higher pollinator and predator diversity and abundance

→ **More flowers develop a fruit**
→ Better quality
→ Less pests/chemicals needed

The **25% zone of FAP fields** provides substantial net income as well.

→Net income per surface much higher, but depending on crop and ecosystem

FAP

control

Based on FAP trials 2013-2014 in Uzbekistan and 2015-2018 in Morocco:

FAP is scalable across continents

Net income increases FAP versus control fields are very high

(trials in 4 ecological zones of Morocco with different crops)

- **Usually more than 50% higher**

- **Often more than 100% higher**

- In trials surrounded by large monocultures of cereals, crops with „essential“ (Klein et al. 2007) pollinator dependency in Morocco income increase can reach **up to some hundert percent income increase** *(trials 2018, replication planned for 2019)*

→ Farmers understand the value of pollinators and native enemies

The increase is different due to

- The conditions in the respective ecological zone for pollinators
- The pollinator dependency of the respective crop
- The abundance of honeybees during flowering

The higher net income is based on

- Higher productivity of the main crop in FAP fields
- In some cases: better quality or size of the main crop
- The net income from the 25% zone in FAP often exceeds the income from the 25% zone in control, in particular, if the main crop is heavily affected by pests

Full FAP-projects like this IKI-project have 4 steps

build a scalable model for pollinator protection in Morocco

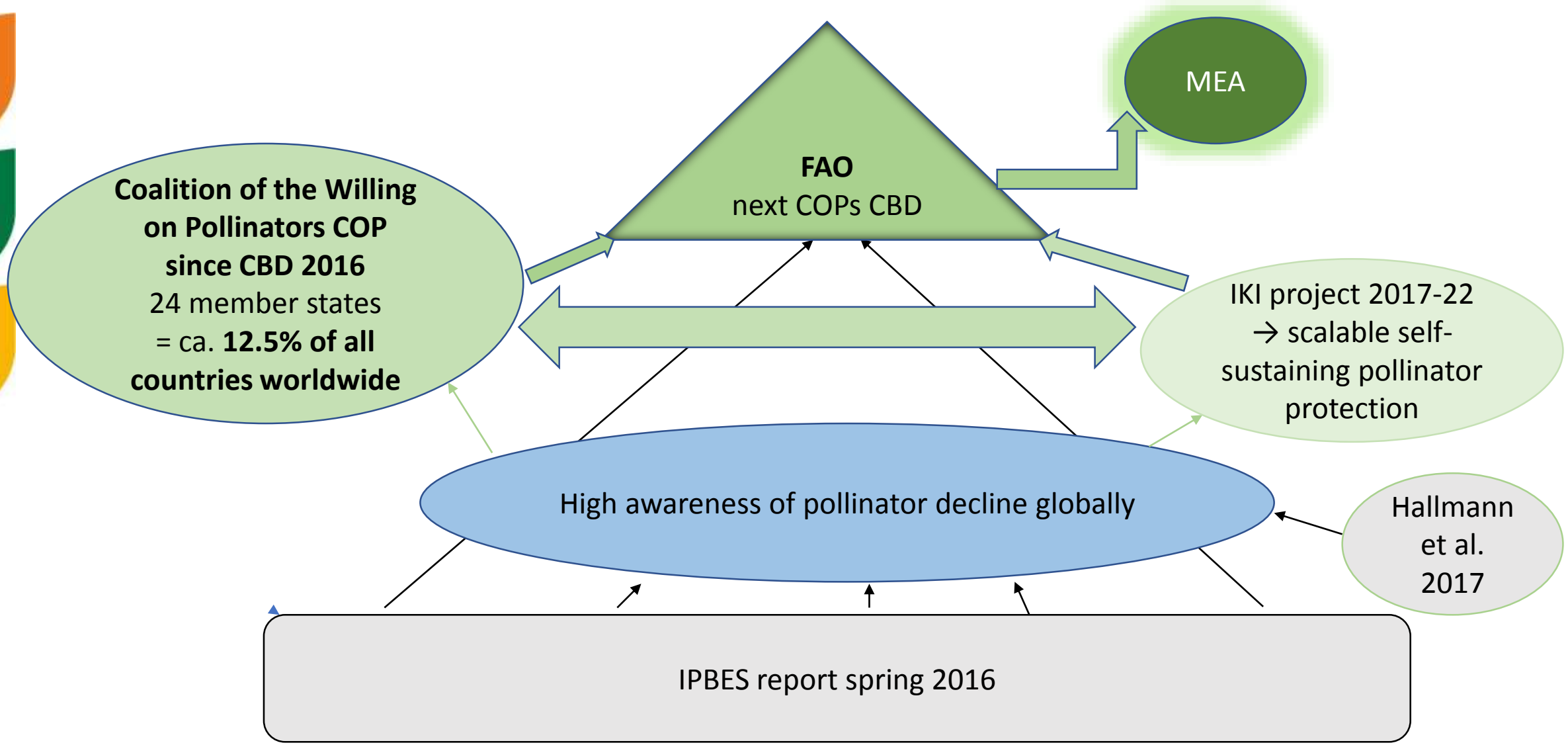
- Demonstrate the higher income by FAP by on-farm-trials comparing FAP and control fields **to** **trigger intrinsic motivation** of farmers for pollinator protection in fields and orchards

- Planting **pollinator corridors** (wild fruit tree species, berries, medicinal plants) between enhanced agricultural and natural sites in cooperation with farming communities having already positively experienced step 1

- Nation wide assessments of the value of pollination services and of regions with pollinator lack to **stimulate cooperation of political stakeholders** across sectors

- **Mainstreaming** pollinator protection by national governments **across sectors**

We can do it!


MEA
FAO
next COPs CBD
Coalition of the Willing on Pollinators COP since CBD 2016
24 member states
= ca. 12.5% of all countries worldwide
IKI project 2017-22
→ scalable self-sustaining pollinator protection
High awareness of pollinator decline globally
Hallmann et al. 2017
IPBES report spring 2016

Pollinator protection should be feasible in all countries

Let‘s do it!

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