



Organic Agriculture



Learning objectives:

At the end of the topic the participants are able to:

1. Define organic agriculture
2. Discuss the principles of organic agriculture
3. Enumerate the benefits of organic agriculture
4. Characterize the global distribution of organic agricultural land
5. Discuss the certification process of organic agriculture
6. Discuss the challenges in organic agriculture



This presentation covers the following topics:

- Definition of OA
- The importance of crop rotation in OA
- OA and the closing of nutrient cycles
- Four principles in OA
- Global distribution of OA
- Certification in OA
- Challenges in OA



What is Organic Agriculture ?

“Organic Agriculture is a production system that sustains the health of soils, ecosystems, and people”.

Source: International Federation of Organic Agriculture Movements (IFOAM)



"Compost-dirt" by normanack -
<https://commons.wikimedia.org/wiki/File:Compost-dirt.jpg#/media/File:Compost-dirt.jpg>



Source: "Organic Apples Pateros WA cropped" by Christopher Thomas -
https://commons.wikimedia.org/wiki/File:Organic_Apples_Pateros_WA_cropped.jpg#/media/File:Organic_Apples_Pateros_WA_cropped.jpg



Source: Antônio Cruz/ABr
https://commons.wikimedia.org/wiki/File:Abr_horta_Antonio_Cruz.jpg#/media/File:Abr_horta_Antonio_Cruz.jpg

Organic Agriculture (OA)

Combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involve.

It relies on ecological processes, biological diversity and cycles to local conditions, rather than the use of inputs with adverse effects.



Source: Mario Lapitan



Source: <https://shannonmulqueen.files.wordpress.com/2013/10/icon2.jpg>

What is Crop rotation?

A crop rotation is a series of **different crops planted in the same field** following a defined order (i.e. maize-cotton-sunnhemp or maize-soyabeans).

Monoculture on the other hand is the repeated planting of the same crop in the same field year after year.

In monocultures, **increases in crop specific pests and diseases** are often observed over time.

Also continuously growing the same crop will **tend to exploit the same soil root zone** which can lead to a decrease in available nutrients for plant growth and to a decrease in root development.

Source: http://www.fao.org/ag/ca/Training_Materials/Leaflet_Rotations.pdf

An example of a successful crop rotation is the Aloha Natural Farm located in Puerto Princesa City, Palawan, Philippines



Rotation: Tomatoes, pineapple, aromatic herbs

Some important facts about crop rotations

- Positive effects of rotations and negative effects of monocultures are more marked in OA than in conventional systems
- Many of the benefits of crop rotations are not completely understood and often cannot be predicted: rotations need to be tested in the field
- Under OA, rotations will often be better than a monoculture even if legumes are not included in the rotation



Some important facts about crop rotations

- However, best economic returns from rotations can be expected if legumes are included, because of the nitrogen they add to the system
- Rotations are often not sufficient to maintain crop productivity – extracted nutrients have to be replaced by organic fertilizers

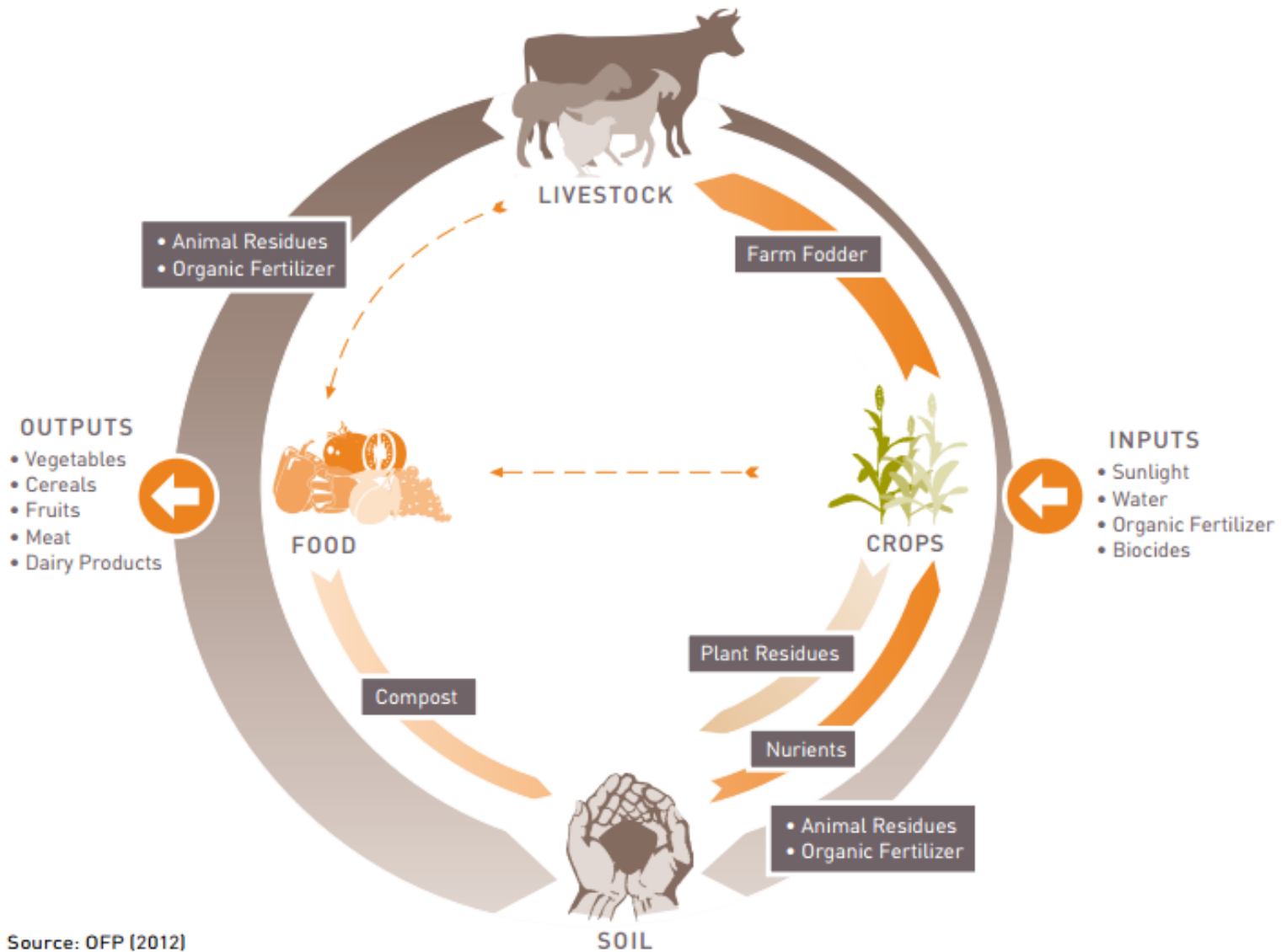


Some important facts about crop rotations

- The most effective rotations combine crops with different growth strategies (deep rooting versus shallow rooting; nutrient accumulating versus nutrient depleting; water accumulating versus water consuming etc.)
- It is important to rotate different species, and especially species that have different pests and diseases



Closed Organic Farm Cycle



Source: OFP (2012)



Principles of organic agriculture

Principle of
health

Principle of
ecology

Principle of
fairness

Principle of
care



Principle of Health

Organic agriculture should sustain and enhance the health of soil, plant, animal, human, and planet as one and indivisible



Source: Mr. Mario A. Lapitan



Principle of Ecology

Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them



Source : Mr. Mario A. Lapitan



Principle of Fairness

Organic agriculture should build on relationships that ensure that ensure fairness with regard to the common environment and life opportunities



Source : Mr. Mario A. Lapitan



Principle of Care

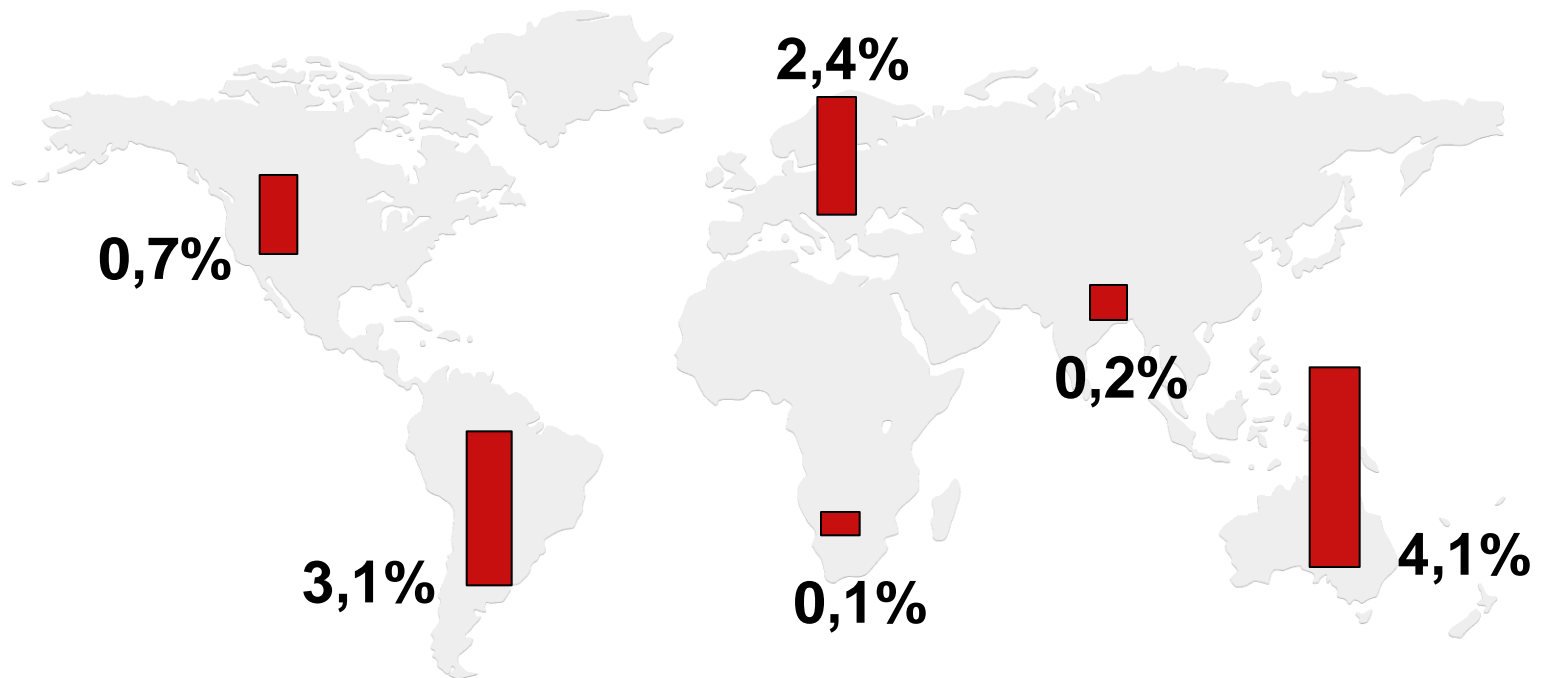
Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment



Benefits of organic agriculture

Benefits to organic farmers	Benefits to consumers	Benefits to the public
Enhanced yields as a result of long-term soil fertility improvements	Guaranteed pesticide-free foods	Decreased soil and water pollution
Cost savings due to reduced input use	Guaranteed genetically modified organism (GMO)-free foods	Enhancement of biodiversity
Preservation and improvement of animal health	Certified, high-quality products	Contribution to water saving
Increase of water retention in the soil	Reduction of health risks	Securing of water quality
Increase and preservation of agrobiodiversity		Reduction of health risks for producers and consumers

Global distribution of Organic agricultural land (%)

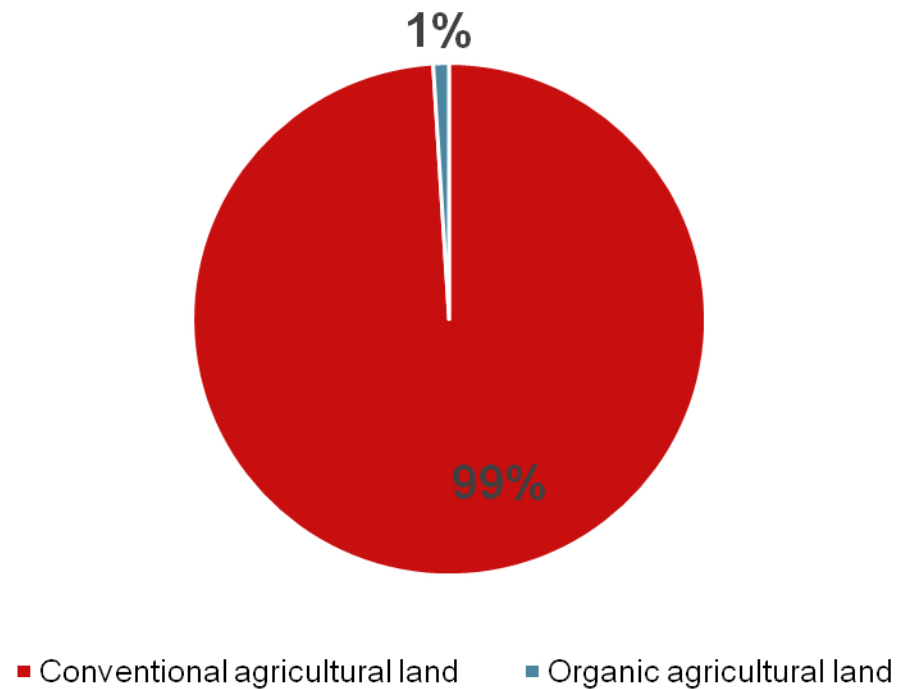


Source: FIBL-IFOAM survey 2015 - <https://www.fibl.org/fileadmin/documents/shop/1663-organic-world-2015.pdf>



Global distribution

Global distribution of agricultural land



Organic Farming in Asia

- The total organic area in Asia is nearly 2.9 million hectares
- This constitutes nine percent of the world's organic agricultural land
- 230.000 producers were reported
- The leading countries are China (1.6 million hectares) and India (1 million hectares)
- The highest shares of organic land of all agricultural land are in Timor Leste (seven percent)
- Nine organic regulations are in place. In seven countries work on national standards and regulations is in progress. ([FiBL, IFOAM, ITC 2009](#)).



Certification





Certification

- Worldwide 82 countries have their own organic standards and regulations (FIBL-IFOAM Survey 2015)
- Mainly cash crops like cocoa, coffee for export are certified in developing countries
- For small farmers only group certification is financially feasible:
- Internal Control System: quality assurance system

Certification Bodies in ASEAN, the Philippines, Malaysia, Cambodia, Thailand,

- ASEAN organic standard
- Organic Certification Center of the Philippines (OCCP)
- The Negros Island Certification of the Philippines(NICERT)
- My organic of Malaysia
- Khemer organic from Cambodia

visit also the website:

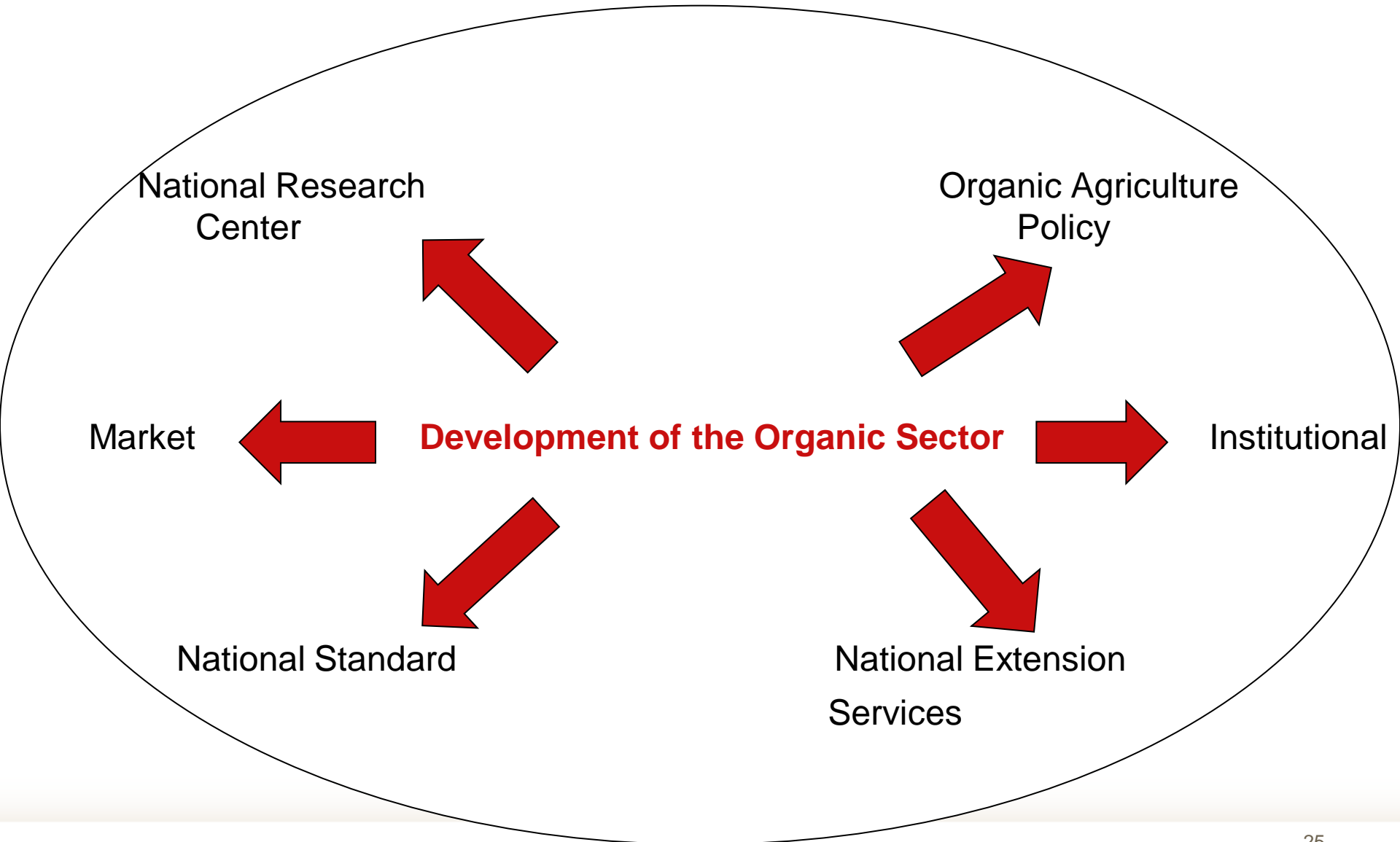
<http://www.asean-agrifood.org/resources/>



Challenges in Organic Agriculture

- Conflicting ideas of what organic means
- Reduction of yield: specially in the first years when transforming the system
 - 5 to 34 % lower yields depending on crop, soil quality and best practices Seufert et al. (2012). Nature 485, 229-232
- Selection of suitable varieties
- Exclusivity of organic certification: costs
- Complex and knowledge demanding
- Variety among definition of quality standards by consumers

How to develop the Organic Sector?





Conclusion

- Organic agriculture is a complex system
- Opportunity vs. challenges
- Benefits for the farmer, the consumer and the public
- Organic agriculture needs as well inputs like organic fertilizer, biopesticides, special agro-technique (e. g. for weeding)
- A high set of standards guarantees specific practices for both food and non-food products
- Yield increase is possible if coming from a simple low input system (valuable for both, organic and conventional agriculture)
- If no subsidies are paid – the case in most developing countries – competition with conventional production is difficult, except those cash crops for export
- The need for Extension services



Thank you!

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**Published 2016 by
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
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Federal Ministry
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