

Tracking of mitigation actions in the agriculture sector

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Content

- 1** Scope of ‘tracking’
- 2** Challenges in the monitoring and tracking of mitigation actions in the agriculture sector
- 3** Accounting principles
- 4** Planning steps for the tracking of mitigation actions
- 5** Key areas for future improvements

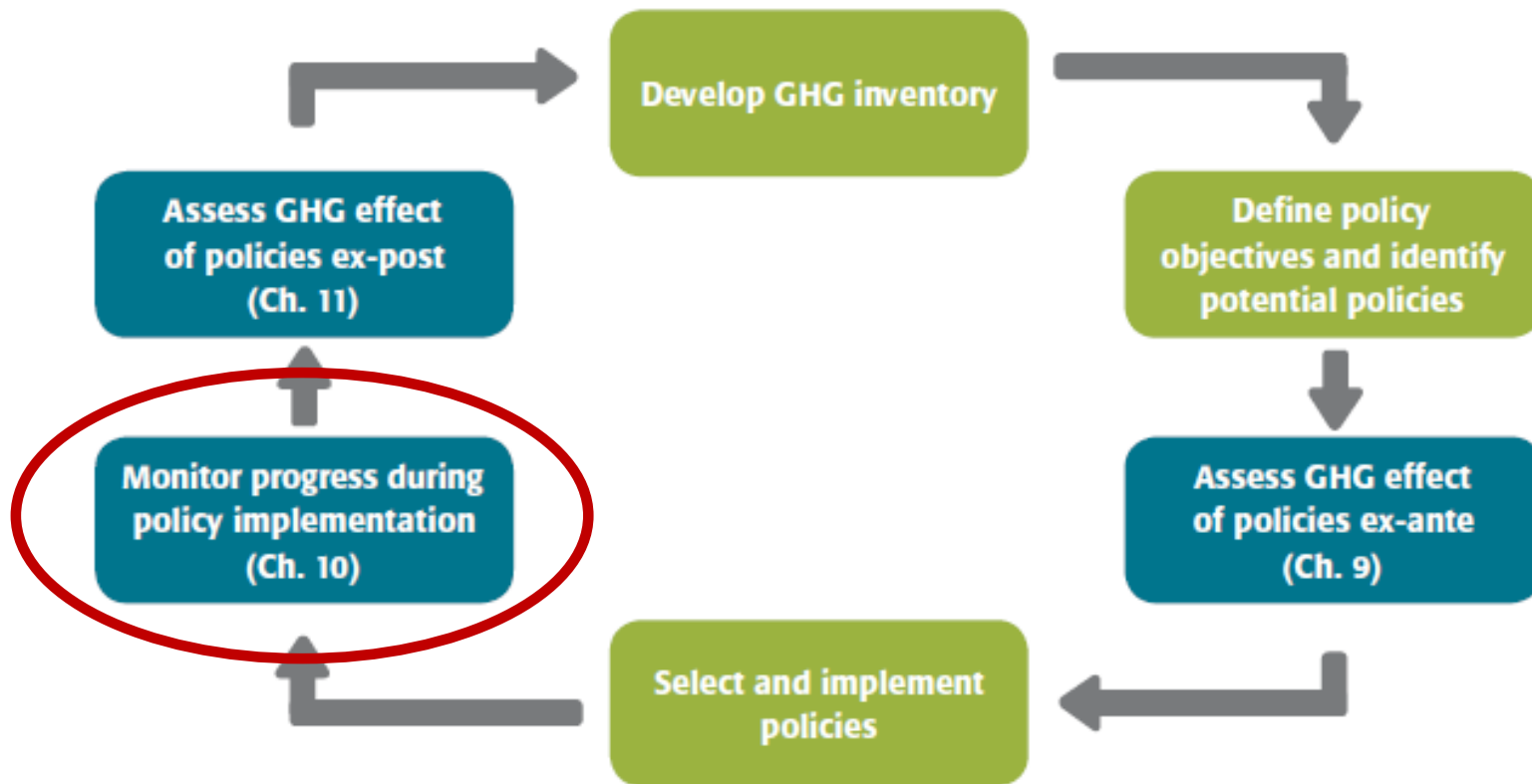
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Scope of 'tracking'



Tracking at different points in time

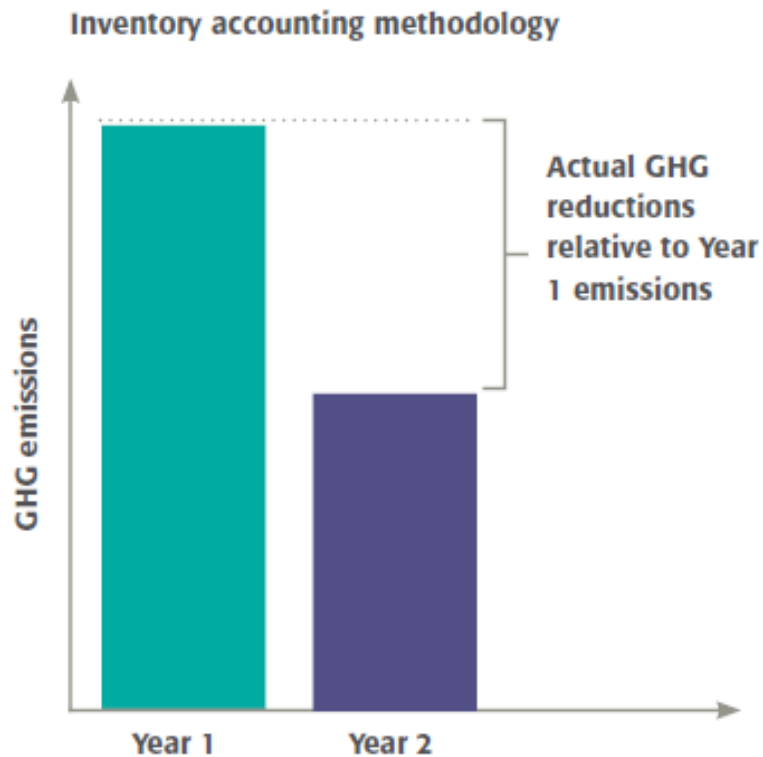
Assessing of GHG emission impacts of mitigation actions throughout policy development and implementation process



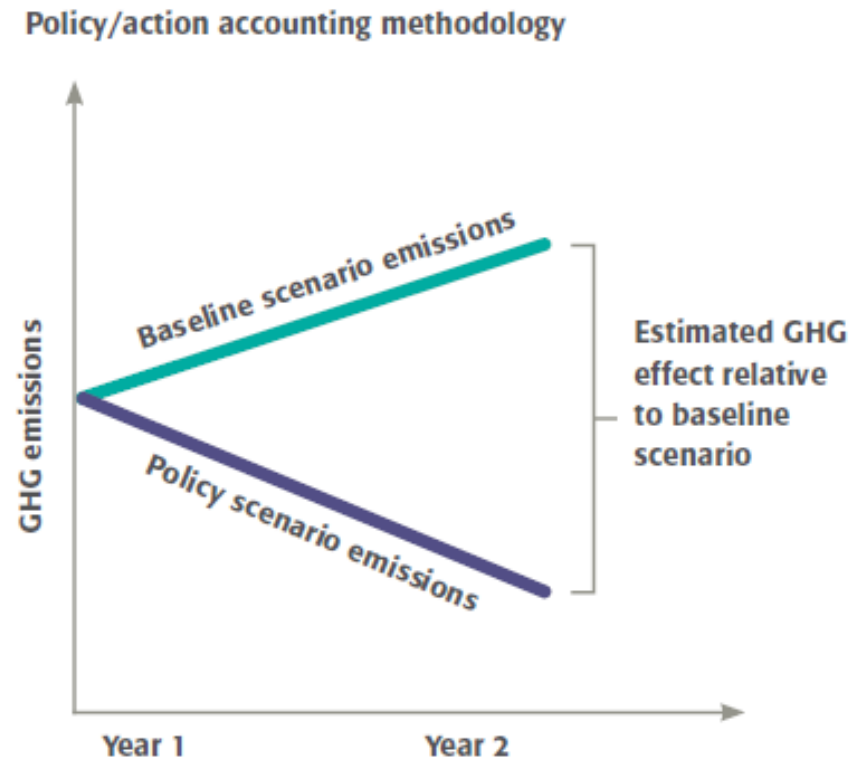
Source: WIR, GHG Protocol, Policy Action Standard

Tracking methods

GHG inventory accounting



Mitigation action accounting



Focus of presentation: GHG inventory accounting

WHY?

- Most essential step of accounting for many types of NDCs under Paris Agreement
- Necessary to track overall progress with countries' emissions
- Comprehensive accounting of all impacts on GHG emissions
- Impacts of mitigation actions not 'visible' at country level if not reflected in GHG inventory

BUT:

- Does not attribute changes of emissions to specific mitigation actions
- Does not explain why emissions change over time

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Challenges in the monitoring and tracking of mitigation actions in the agriculture sector



Challenges: Tracking emissions

Monitoring and tracking of emissions in agriculture sector

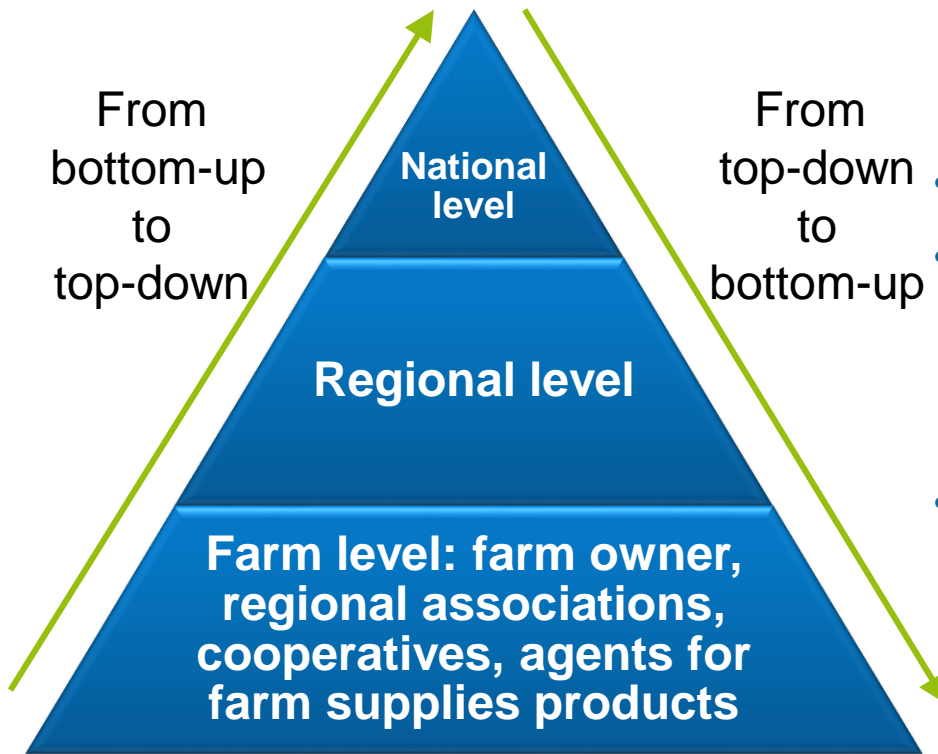
- Many individual animals and farmers with individual practices and behaviour
- Biological processes influenced by many different factors (climate, humidity, nutrient availability, microorganisms...)
- Strong intra-annual and inter-annual variability
- Impacts of mitigation actions on emissions sometimes not always fully understood
- High uncertainties
- Simple tier 1 methods of IPCC guidelines do not track impacts of mitigation actions, higher tier methods are often data intensive and require models, disaggregated data not always available
- On-site measurements of impacts of mitigation actions often complex and expensive (e.g. repetition in several years necessary)

Challenges: Tracking actions

Mitigation actions

- Complex clusters and categories of mitigation actions which include several individual mitigation practices and mitigation elements,
 - E.g. NAMA Café, sustainable grazing, climate-smart agriculture, agroforestry
- ➔ Not simple to identify exact GHG impacts of mitigation actions
- Mitigation actions do not cover the entire area of a country and are only implemented in specific geographic locations:
 - In one region / by some farmers / in certain types of farms
- Mitigation actions may have limited time periods
 - Promotion/ funding for certain activities stops or changes
 - Farmers may decide to no longer participate
- Reversibility of effects of some mitigation actions (no tillage, feeding of animals) and difficult to control implementation of practices by farmers

Challenges: ensure consistency across different administrative levels in a country



- Planning and design of mitigation often happens from top-down to bottom-up
- Implementation at local level
- Definition and implementation of monitoring and accounting has to happen in both directions and a common design process is necessary
- Define information and data flows between the mitigation actions and the GHG inventories

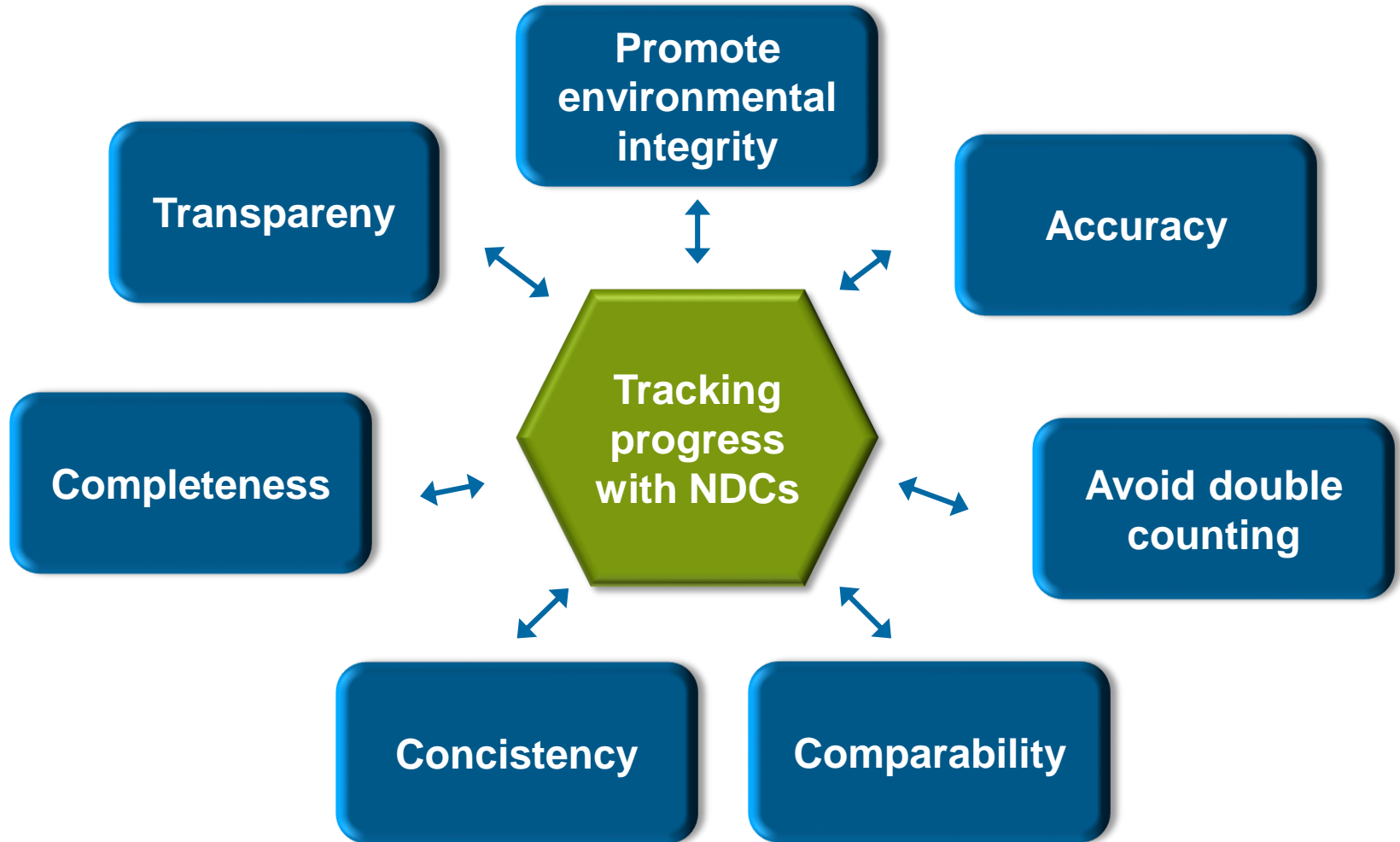
Objective: ensure a coherent implementation of the methods and accounting approaches in both directions across the different levels in a country (national, regional, local or farm level)

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Accounting principles



Inventory and accounting principles under Paris Agreement



Principles - transparency

Transparency

- Means that data sources, assumptions and methods used for the calculation of emissions should be explained.
- Report should allow the replication of the calculations
- Present activity data, emission factors and other parameters separately
- Particular challenge in agriculture sector if models are used for higher tier methods ⇒ specific IPCC guidance for model description available

Principles - consistency

Consistency

- Temporal: consistent methods across different years/ time series of emissions
- Reference: use consistent methods between reference level and implementation
- Geographical: use same methods and parameters at different levels of the country (national, regional, subregional, local)
- Definitions: use the same definitions for the same type of activities (e.g. forest definition, degradation, animal waste management systems)

Principles – avoid double counting

Avoid double counting

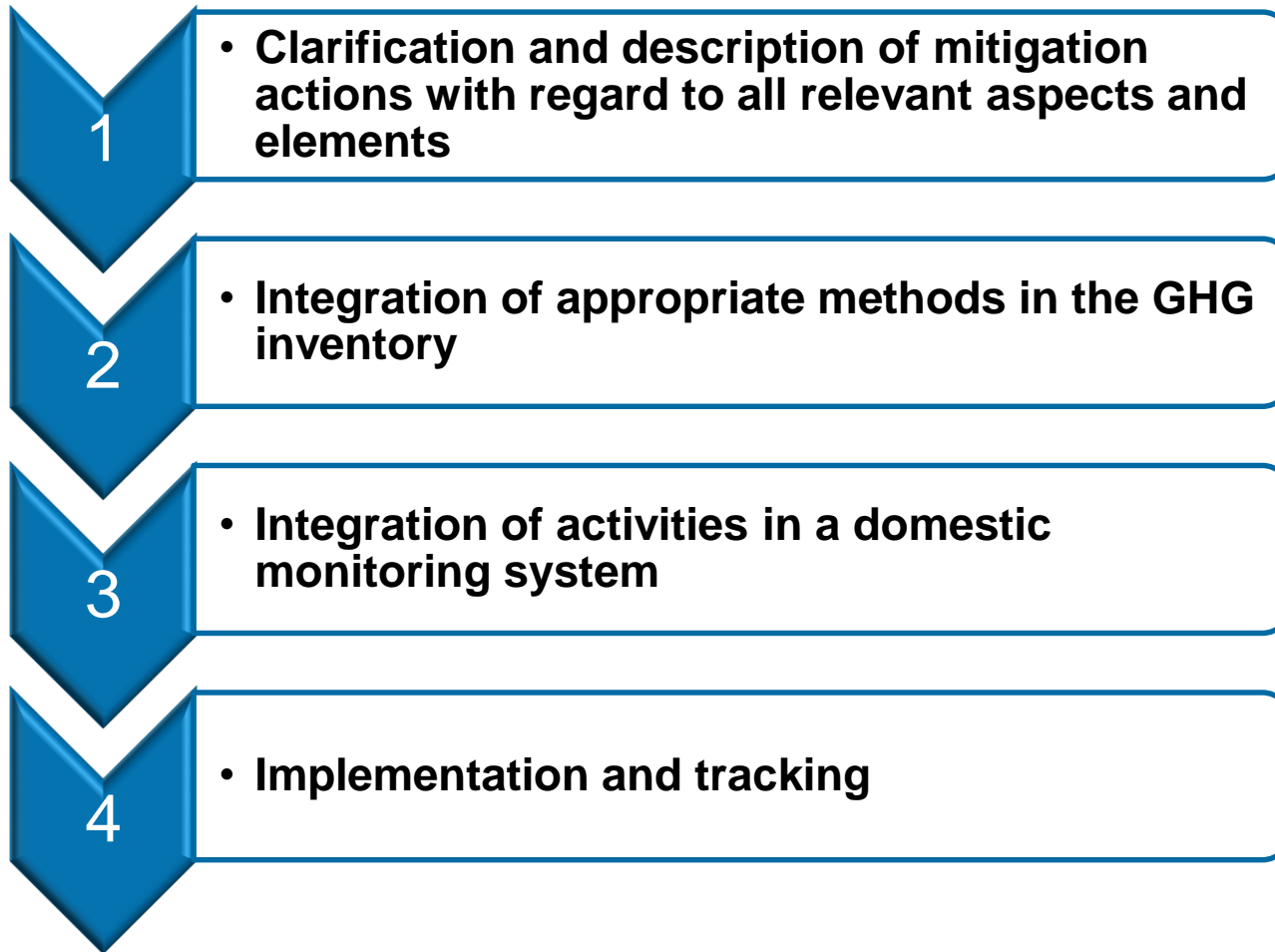
- Different projects and programmes with mitigation actions in the agriculture sector can lead to overlap of areas of the same mitigation actions in the same time period
 - Acceptance and registration of projects and programmes necessary to avoid overlap
- Avoid overlap between accounting of REDD+ and forest related activities and agriculture activities
 - Farmers may allocate reforestation on agricultural lands as agriculture mitigation activity
 - Avoid allocation of the same mitigation activities to two inventory categories, base allocation on IPCC guidance

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Planning steps for the tracking of mitigation actions



Planning steps



Description of mitigation actions

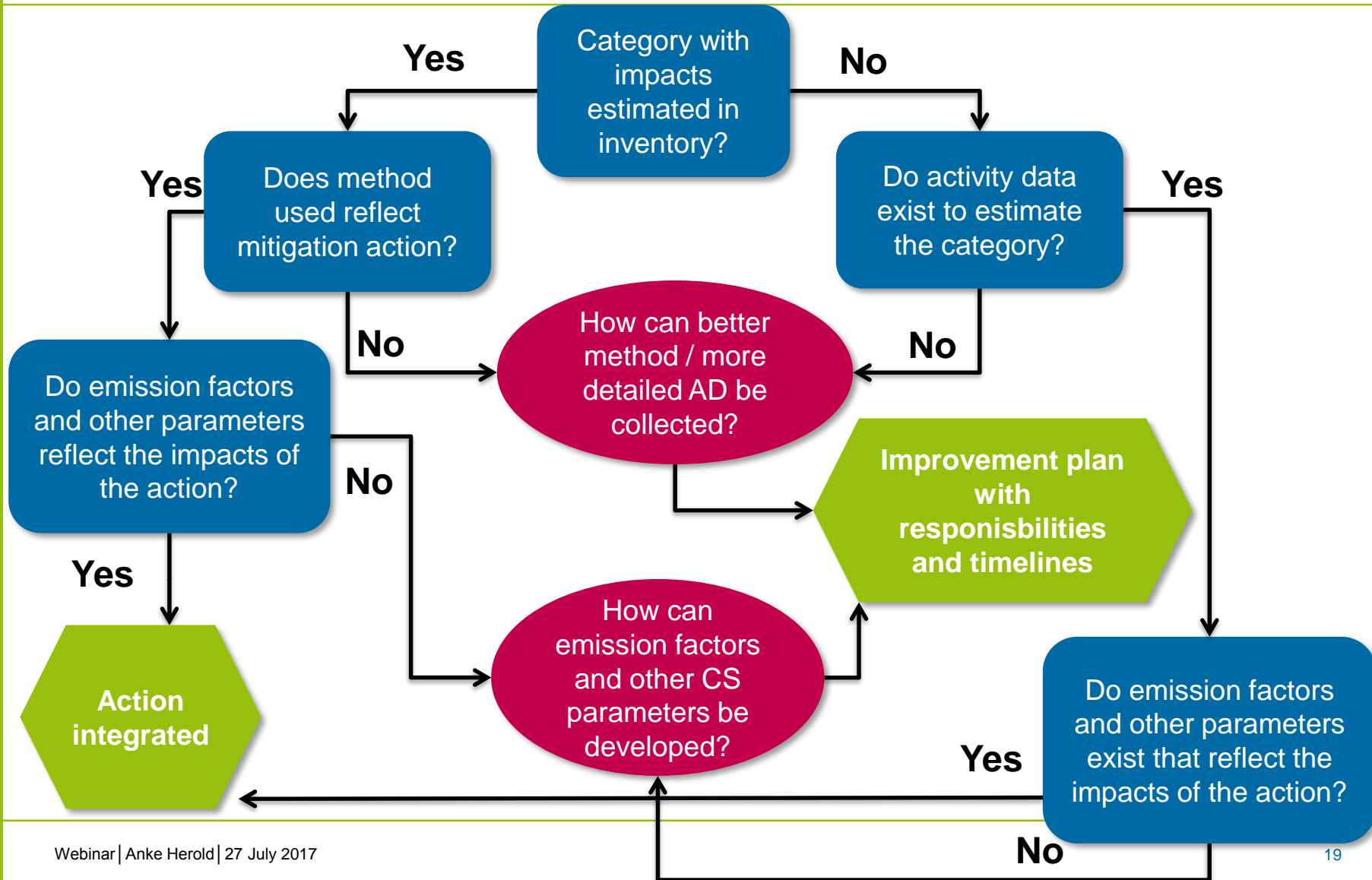
Description

- Objectives
- Elements of the action
- How does it impact the emissions reductions?
- Responsibilities
- Source of financial support

Impacts on GHG inventory

- Which sources, sinks, gases, C stocks does the action influence?
- Which categories of the inventory are influenced?
- Which method is used in the inventory?
- Is it necessary to improve ⇒ improvement plan
- Are data for improvement available?

Integration of mitigation action in the inventory



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Key areas for future improvements (based on project experiences)



Key areas for future improvements

Missing estimates for C stock changes in soil C pools in many developing countries in GHG inventories

- Mitigation actions that improve soil quality (organic fertilizers, improved grazing management, cover crops, additions of crop residues to soils) will not be reflected in the inventory
- Support & resources necessary for estimation of C stocks in soils in developing countries
- Additional research required

Missing estimates for C stocks in perennial vegetation (e.g. for agroforestry systems, silvipastoral systems)

- Move to agroforestry systems will not be seen as impacts in GHG inventories
- Change to silvipastoral systems or more trees on pasture will not be reflected as impacts in GHG inventories

Key areas for future improvements

N₂O emissions from agriculture soils

- Data on average fertilizer consumption related to specific crop types missing, without such baseline data difficult to determine potential emission reductions due to improved fertilization
- Data on application of organic N fertilizers often missing, changes in organic fertilizer use not reflected

Enteric fermentation CH₄

- Tier 2 and CS emission factors already used by many countries if this is a significant source, improved livestock characterization for higher tiers often implemented
- Improved feeding situation difficult to monitor when grazing is dominant management system
- Several parameters for estimation difficult to measure, e.g. food digestibility
- More country-specific research in developing countries needed

Key areas for future improvements

Manure management: N_2O and CH_4

- CH_4 from storage and treatment of manure and from manure deposited on pasture
- More relevant when large number of animals are managed in confined areas, intensive dairy, beef, swine, poultry farms
- In developing countries for cattle less relevant due to importance of pasture
- Mitigation actions such as installation of anaerobic digesters provide relevant data for estimation.

Conclusions

- Agriculture sector is often dominant in GHG inventories of developing countries
- Mitigation actions focus on this sector
- Inventories of developing countries lack higher tier methods and related data to reflect these mitigation actions appropriately
- Additional research related to specific practices and circumstances in developing countries needed to develop country-specific parameters in agriculture
- New approaches for data collection from farmers needed
- Additional support required for developing countries related to the development and implementation of higher tier methods in agriculture

Many thanks for your attention!

Any questions?

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