GUIDANCE ON GHG EMMISSIONS FROM LAND USE & LAND USE CHANGE

DF 67, ZURICH, SWITZERLAND, NOVEMBER 3, 2017

SEBASTIEN HUMBERT
SEBASTIEN.HUMBERT@QUANTIS-INL.COM
+41 79 754 75 66

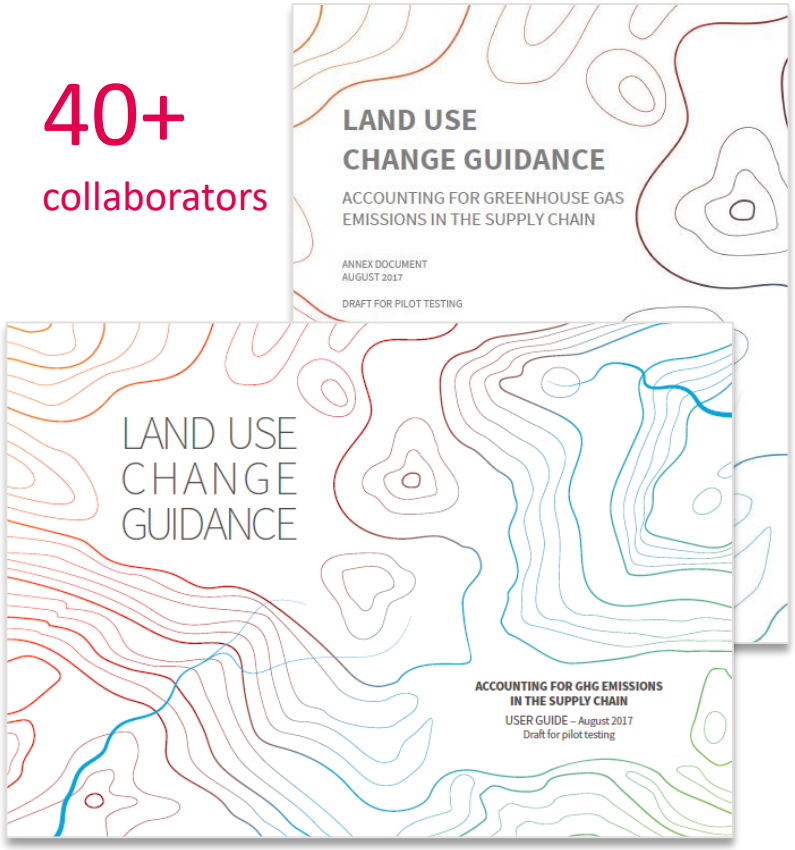
JON DETTLING
JON.DETTLING@QUANTIS-INTL.COM

MICHELE ZOLLINGER
MICHELE.ZOLLINGER@QUANTIS-INTL.COM

What + who

40+

collaborators



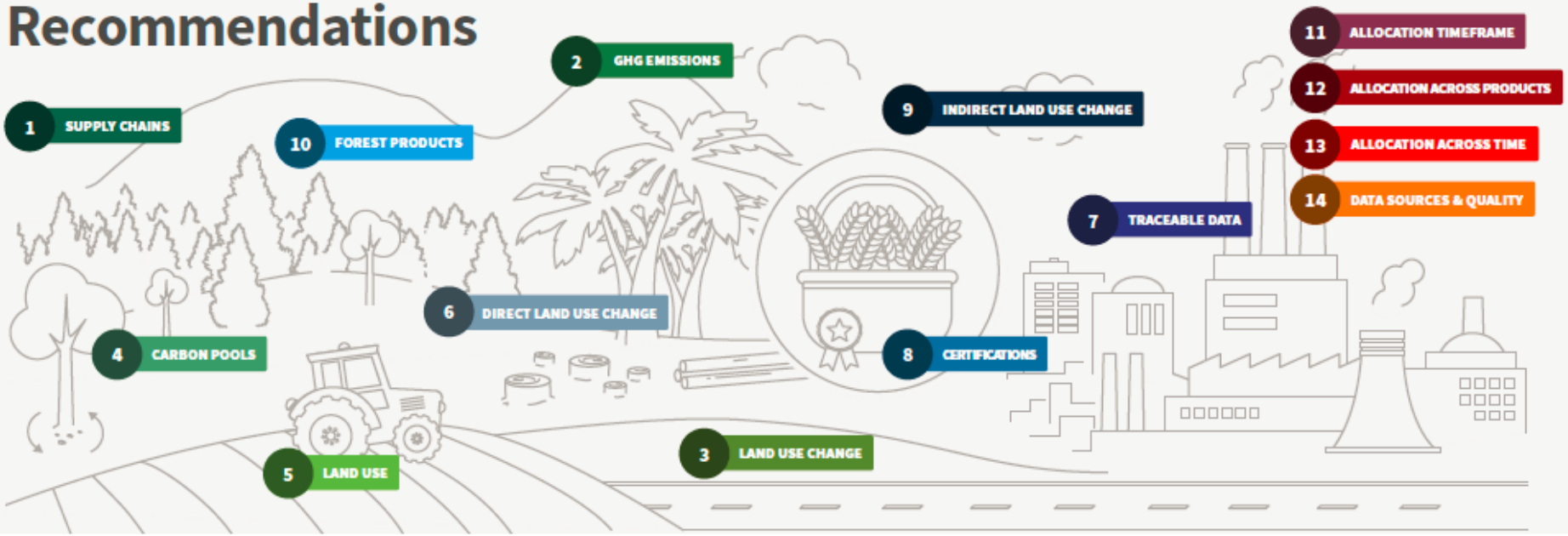
Private sector

MARS, PEPSICO, south pole group, YARA, GENERAL MILLS, Mondelēz International, BARRY CALLEBAUT, LVMH, Tetra Pak®, FERRERO, LENZING, DANONE, Braskem, PIRELLI

NGOs and public sector

Rainforest Alliance, eit Climate-KIC, ECOFYS, WORLD RESOURCES INSTITUTE, THE SUSTAINABILITY CONSORTIUM™, WWF®, ADEME, C-AGG Coalition on Agricultural Greenhouse Gases, CDP DRIVING SUSTAINABLE ECONOMIES

Recommendations



APPLICABILITY, SCOPE AND PRINCIPLES

1 SUPPLY CHAINS

Companies with agricultural, forestry or other land use-related activities in their supply chains should include the related emissions in their accounting of overall carbon footprint.

2 GHG EMISSIONS

GHG emissions should be allocated to all agricultural or forestry products and land-related activities, directly or indirectly linked to changes in carbon stocks occurring either as a result of preparing the land for cultivation or access, growing or harvesting activities and any other uses.

3 LAND USE CHANGE

Companies should track net GHG flows caused by direct land use changes (dLUC) as well as indirect land use changes (iLUC) in relations to their supply chain. These direct and indirect impacts should be identified, measured and reported as separate components in order to identify effective strategies to address these two separate causal routes of land use change.

4 CARBON POOLS

Companies should account for all 4 types of carbon pools (above-ground biomass, below-ground biomass, soil organic carbon and dead organic matter) when calculating GHG emissions from land use change. They should also include emissions from drained peatland and the burning of vegetation whenever they occur as a result of human activity.

5 LAND USE

Companies should track GHG flows related to increases or decreases in carbon stocks linked to land management practices, or other conditions of land use.

ALLOCATING & CALCULATING IMPACTS

6 DIRECT LAND USE CHANGE

Companies should determine direct land use change based on the history of land use on a given land where agriculture, forestry, or other land-related activities have taken place. When location is not identified or land use history is not clear, direct land use change should be assigned based on a probability land use change did occur on the land in question, according to the country, commodity or activity in question.

7 TRACEABLE DATA

Companies should measure GHG emissions caused by direct land use changes based on traceable information on land use conditions within their supply chains (recognizing data may not always be available).

8 CERTIFICATIONS

Certifications may be embedded in calculations as a key resource in understanding past land use and land use changes, in relations to a given relevant product and timeframe. Companies should apply a residual fraction to non-certified products for markets where verified certifications are available.

9 INDIRECT LAND USE CHANGE

Companies should determine indirect land use changes based on the influence of market demand on land use changes extending beyond a given product's point of origin. To that end, they should account for market effect scale, land demand responsibility and all land use categories.

10 FOREST PRODUCTS

When products or commodities stem from forest-derived biomass, removing biomass affects carbon stocks and should be considered if relevant. The carbon sequestration within bio-based products and commodities during use and end of life should also be accounted for when appropriate.

DISTRIBUTING IMPACTS

11 ALLOCATION TIMEFRAME

Companies should use a 20-year timeframe when identifying past land use changes and allocating the associated GHG emissions.

12 ALLOCATION ACROSS PRODUCTS

Companies should use an economic approach to allocate GHG emissions caused by land use changes and land management practices across the products generated from the land. When justified, they may also resort to allocation by mass or land area.

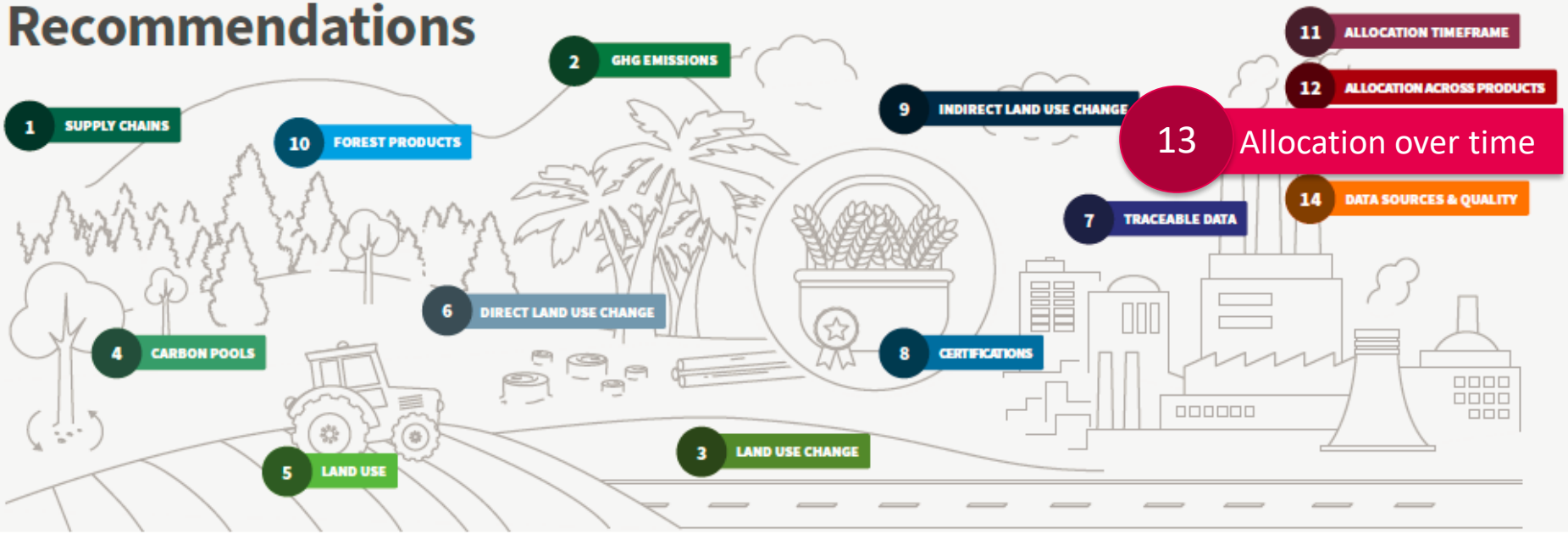
13 ALLOCATION ACROSS TIME

Companies should apply a linear discounting method in allocating impact across time.

14 DATA SOURCES & QUALITY

Companies documenting and reporting on GHG emissions linked to land use changes should include data sources and quality assurance, to ensure transparency in their method and confidence in their results.

Recommendations



APPLICABILITY, SCOPE AND PRINCIPLES

1 SUPPLY CHAINS
Companies with agricultural, forestry or other land use-related activities in their supply chains should include the related emissions in their accounting of overall carbon footprint.

2 GHG EMISSIONS
GHG emissions should be allocated to all agricultural or forestry products and land-related activities, directly or indirectly linked to changes in carbon stocks occurring either as a result of preparing the land for cultivation or access, growing or harvesting activities and any other uses.

3 LAND USE CHANGE
Companies should track net GHG flows caused by direct land use changes (dLUC) as well as indirect land use changes (iLUC) in relations to their supply chain. These direct and indirect impacts should be identified, measured and reported as separate components in order to identify effective strategies to address these two separate causal routes of land use change.

4 CARBON POOLS
Companies should account for all 4 types of carbon pools (above-ground biomass, below-ground biomass, soil organic carbon and dead organic matter) when calculating GHG emissions from land use change. They should also include emissions from drained peatland and the burning of vegetation whenever they occur as a result of human activity.

5 LAND USE
Companies should track GHG flows related to increases or decreases in carbon stocks linked to land management practices, or other conditions of land use.

ALLOCATING & CALCULATING IMPACTS

6 DIRECT LAND USE CHANGE
Companies should determine direct land use change based on the history of land use on a given land where agriculture, forestry, or other land-related activities have taken place. When location is not identified or land use history is not clear, direct land use change should be assigned based on a probability land use change did occur on the land in question, according to the country, commodity or activity in question.

7 TRACEABLE DATA
Companies should measure GHG emissions caused by direct land use changes based on traceable information on land use conditions within their supply chains (recognizing data may not always be available).

8 CERTIFICATIONS
Certifications may be embedded in calculations as a key resource in understanding past land use and land use changes, in relations to a given relevant product and timeframe. Companies should apply a residual fraction to non-certified products for markets where verified certifications are available.

9 INDIRECT LAND USE CHANGE
Companies should determine indirect land use changes based on the influence of market demand on land use changes extending beyond a given product's point of origin. To that end, they should account for market effect scale, land demand responsibility and all land use categories.

10 FOREST PRODUCTS
When products or commodities stem from forest-derived biomass, removing biomass affects carbon stocks and should be considered if relevant. The carbon sequestration within bio-based products and commodities during use and end of life should also be accounted for when appropriate.

DISTRIBUTING IMPACTS

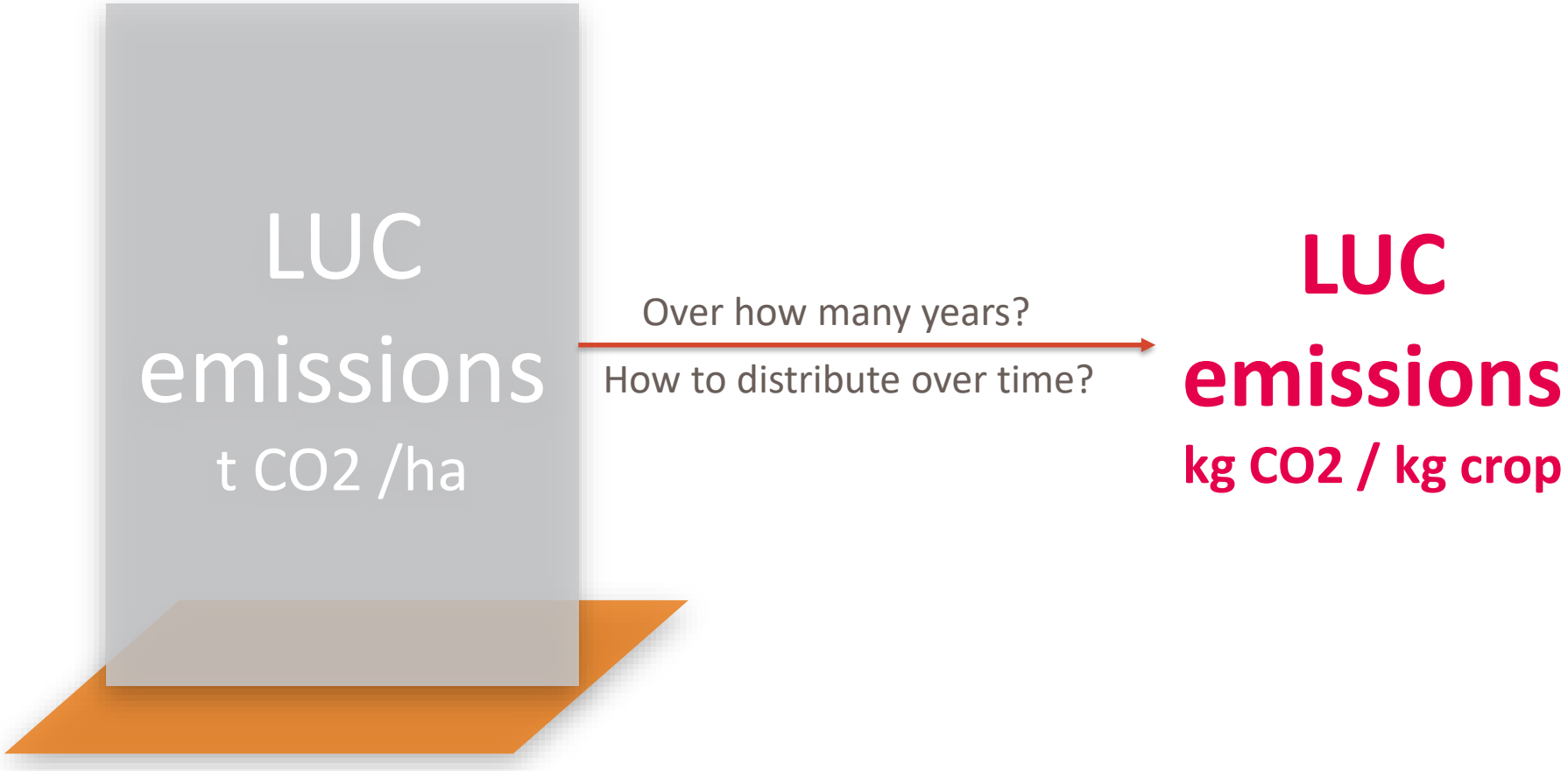
11 ALLOCATION TIMEFRAME
Companies should use a 20-year timeframe when identifying past land use changes and allocating the associated GHG emissions.

12 ALLOCATION ACROSS PRODUCTS
Companies should use an economic approach to allocate GHG emissions caused by land use changes and land management practices across the products generated from the land. When justified, they may also resort to allocation by mass or land area.

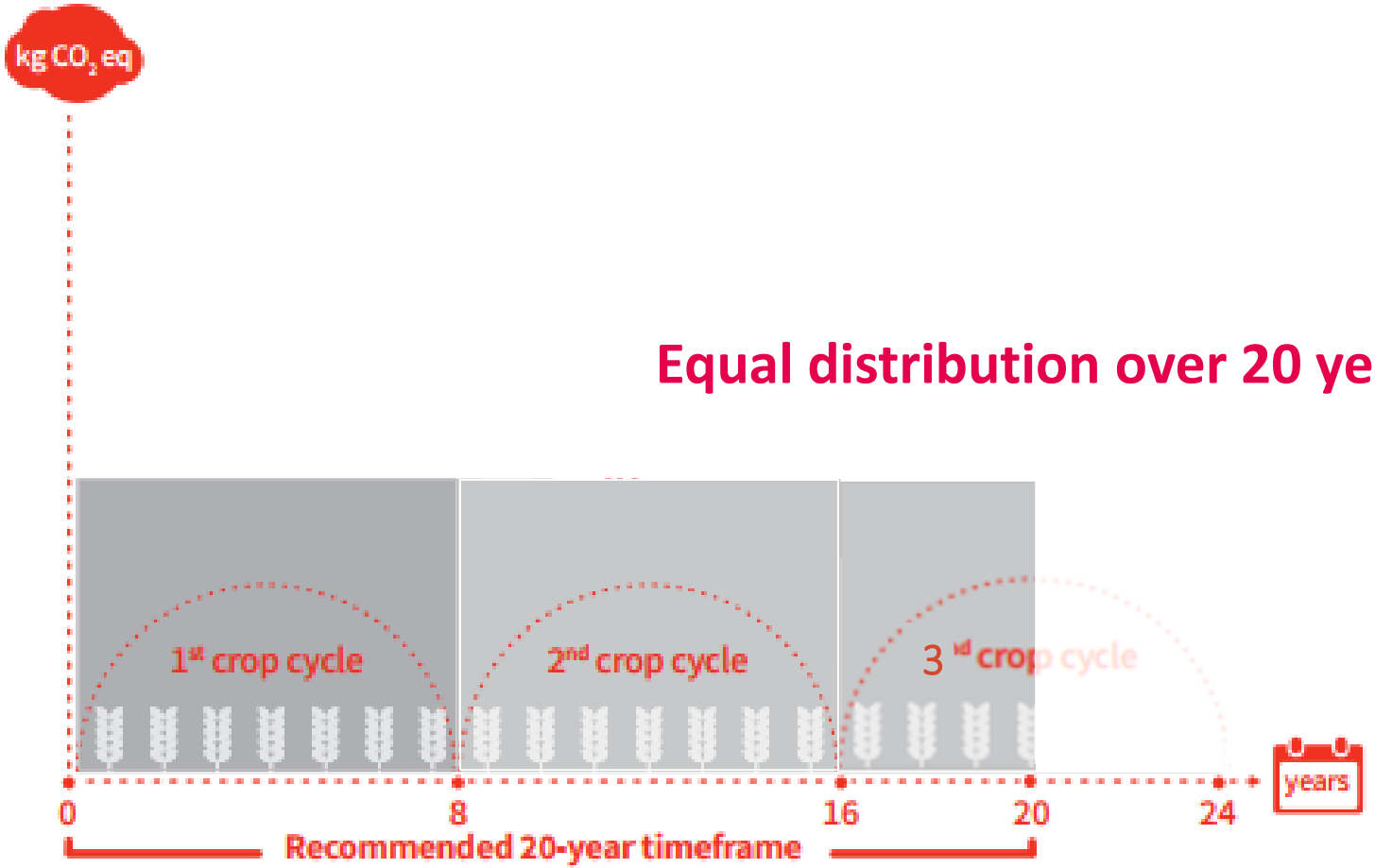
13 ALLOCATION ACROSS TIME
Companies should apply a linear discounting method in allocating impact across time.

14 DATA SOURCES & QUALITY
Companies documenting and reporting on GHG emissions linked to land use changes should include data sources and quality assurance, to ensure transparency in their method and confidence in their results.

Allocation over time

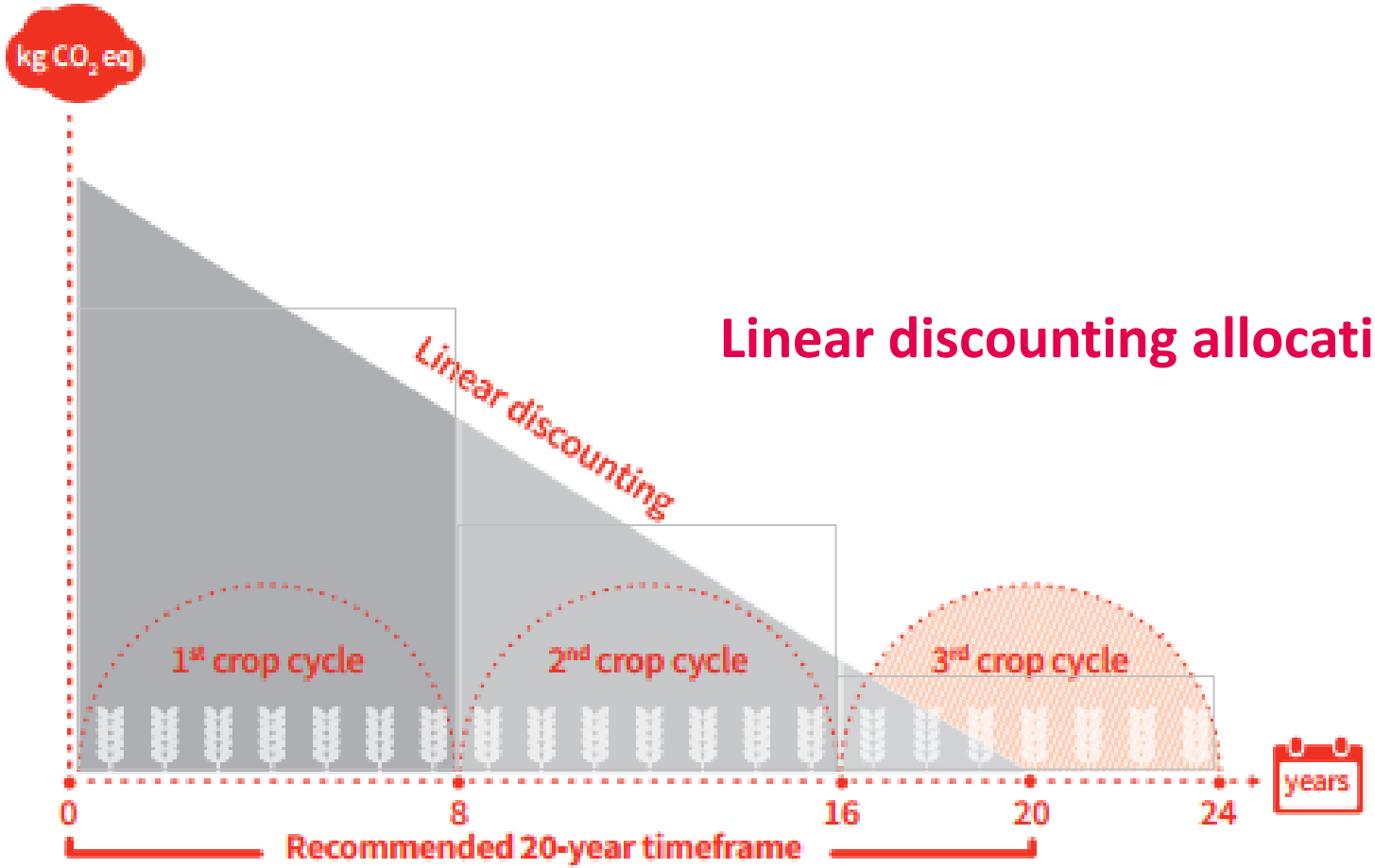


Allocation over time



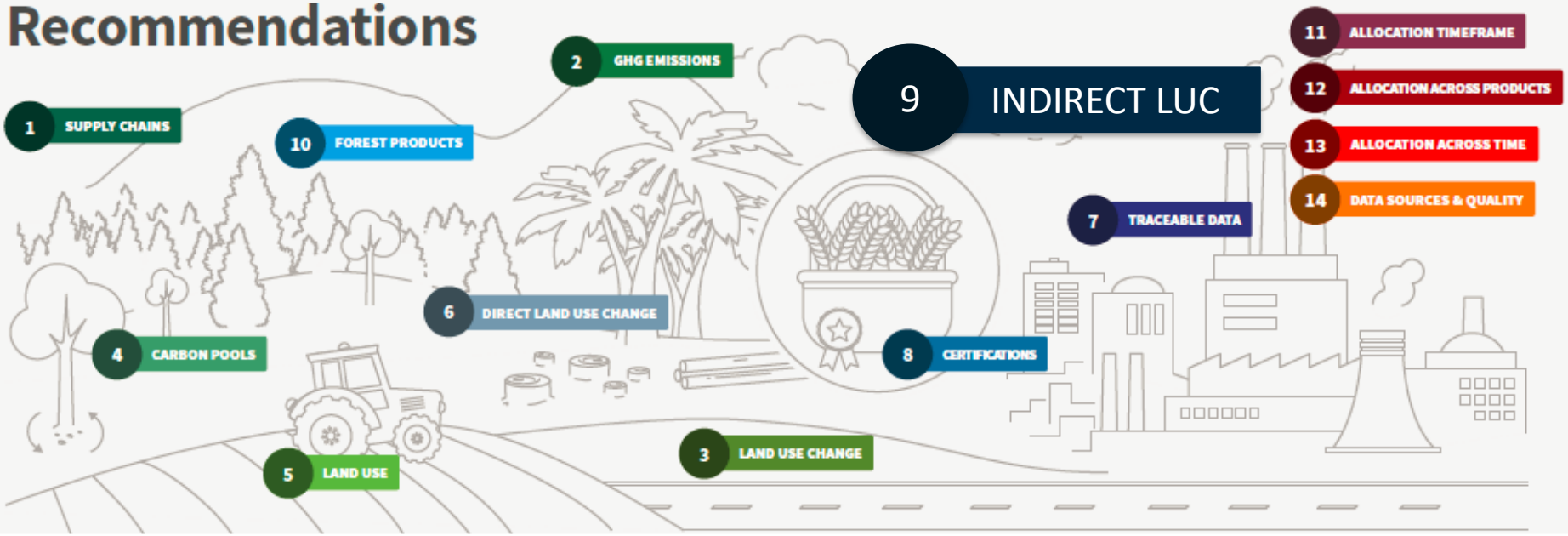
Equal distribution over 20 years

Allocation over time



Linear discounting allocation

Recommendations



APPLICABILITY, SCOPE AND PRINCIPLES

1 SUPPLY CHAINS
Companies with agricultural, forestry or other land use-related activities in their supply chains should include the related emissions in their accounting of overall carbon footprint.

2 GHG EMISSIONS
GHG emissions should be allocated to all agricultural or forestry products and land-related activities, directly or indirectly linked to changes in carbon stocks occurring either as a result of preparing the land for cultivation or access, growing or harvesting activities and any other uses.

3 LAND USE CHANGE
Companies should track net GHG flows caused by direct land use changes (dLUC) as well as indirect land use changes (iLUC) in relations to their supply chain. These direct and indirect impacts should be identified, measured and reported as separate components in order to identify effective strategies to address these two separate causal routes of land use change.

4 CARBON POOLS
Companies should account for all 4 types of carbon pools (above-ground biomass, below-ground biomass, soil organic carbon and dead organic matter) when calculating GHG emissions from land use change. They should also include emissions from drained peatland and the burning of vegetation whenever they occur as a result of human activity.

5 LAND USE
Companies should track GHG flows related to increases or decreases in carbon stocks linked to land management practices, or other conditions of land use.

ALLOCATING & CALCULATING IMPACTS

6 DIRECT LAND USE CHANGE
Companies should determine direct land use change based on the history of land use on a given land where agriculture, forestry, or other land-related activities have taken place. When location is not identified or land use history is not clear, direct land use change should be assigned based on a probability land use change did occur on the land in question, according to the country, commodity or activity in question.

7 TRACEABLE DATA
Companies should measure GHG emissions caused by direct land use changes based on traceable information on land use conditions within their supply chains (recognizing data may not always be available).

8 CERTIFICATIONS
Certifications may be embedded in calculations as a key resource in understanding past land use and land use changes, in relations to a given relevant product and timeframe. Companies should apply a residual fraction to non-certified products for markets where verified certifications are available.

9 INDIRECT LAND USE CHANGE
Companies should determine indirect land use changes based on the influence of market demand on land use changes extending beyond a given product's point of origin. To that end, they should account for market effect scale, land demand responsibility and all land use categories.

10 FOREST PRODUCTS
When products or commodities stem from forest-derived biomass, removing biomass affects carbon stocks and should be considered if relevant. The carbon sequestration within bio-based products and commodities during use and end of life should also be accounted for when appropriate.

DISTRIBUTING IMPACTS

11 ALLOCATION TIMEFRAME
Companies should use a 20-year timeframe when identifying past land use changes and allocating the associated GHG emissions.

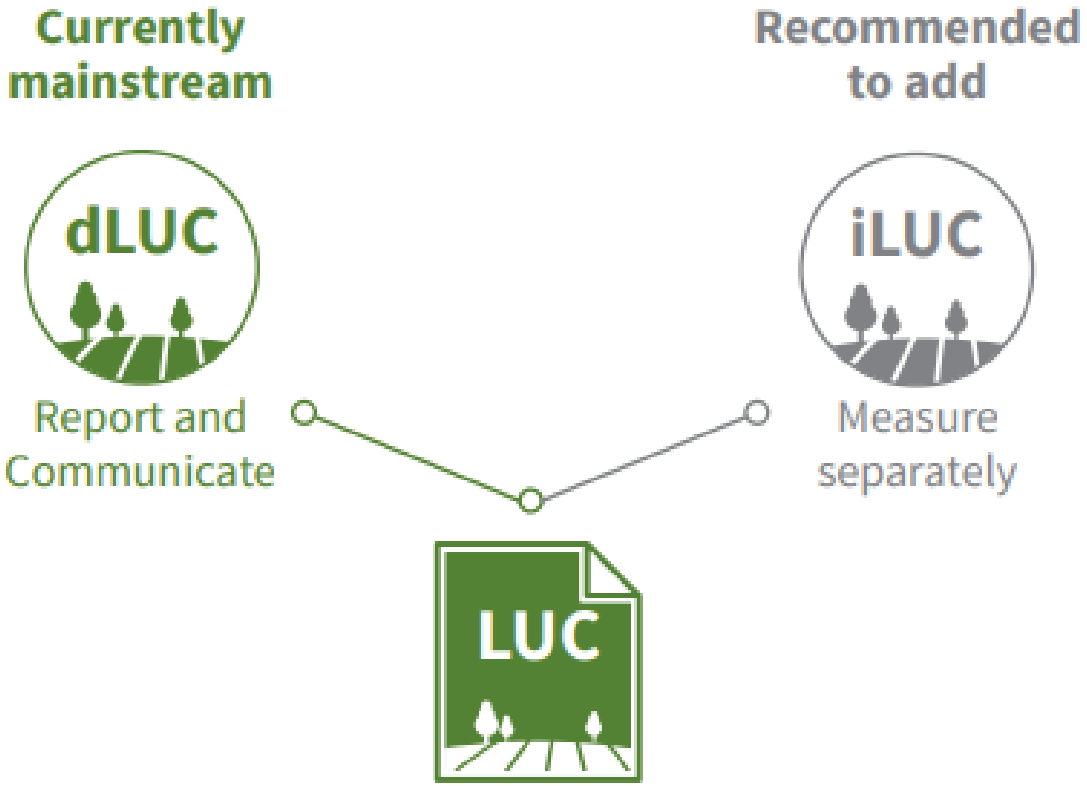
12 ALLOCATION ACROSS PRODUCTS
Companies should use an economic approach to allocate GHG emissions caused by land use changes and land management practices across the products generated from the land. When justified, they may also resort to allocation by mass or land area.

13 ALLOCATION ACROSS TIME
Companies should apply a linear discounting method in allocating impact across time.

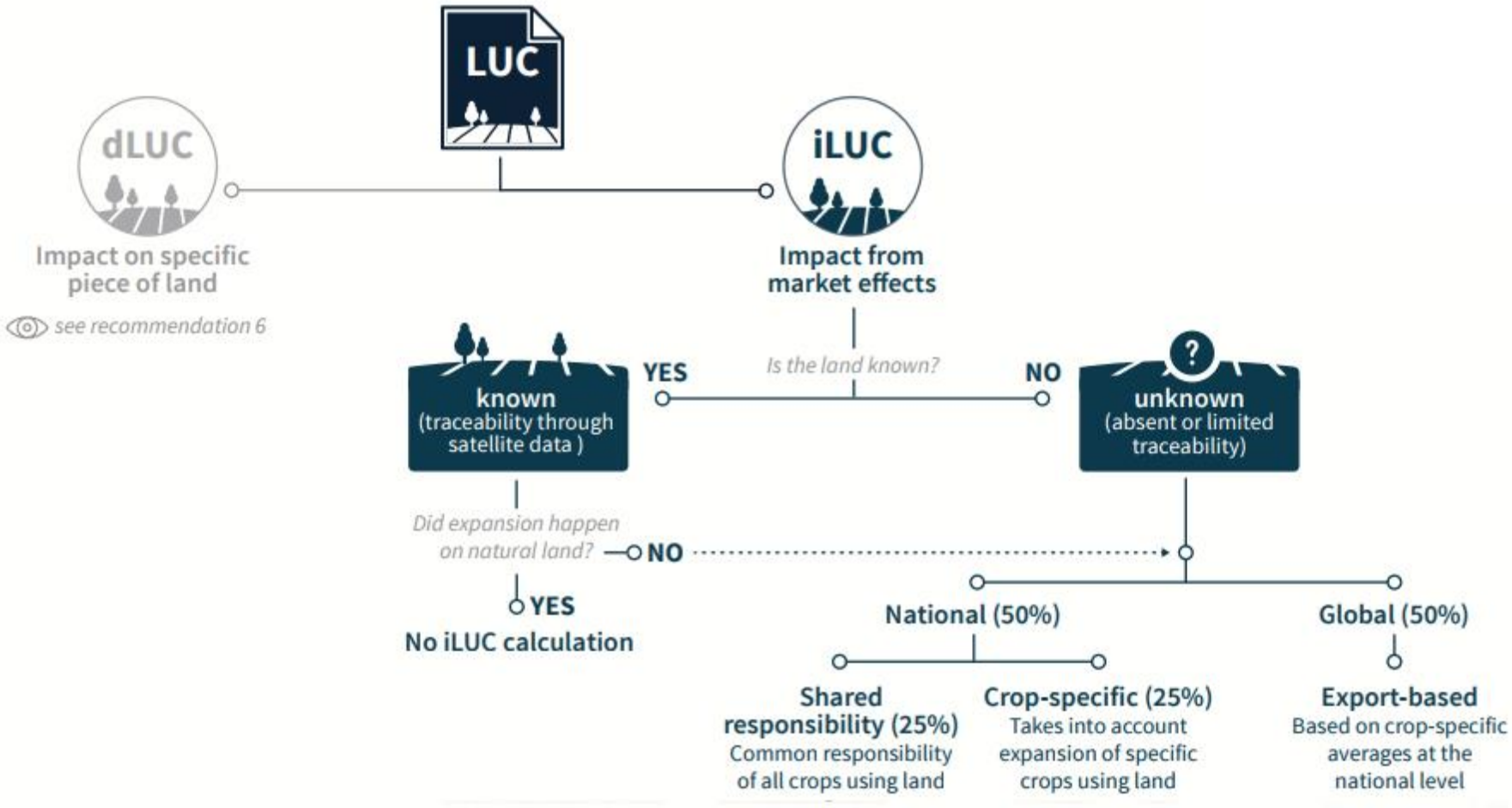
14 DATA SOURCES & QUALITY
Companies documenting and reporting on GHG emissions linked to land use changes should include data sources and quality assurance, to ensure transparency in their method and confidence in their results.

INDIRECT LAND USE CHANGE

Measure both dLUC and iLUC and keep them separate



iLUC could be allocated across regions and/or crops



Conclusion

- A step in building the consensus on Land Use Change GHG modeling
- Targeting significant methodological improvements to support a variety of uses
- Next step: pilot testing on products and commodities

THANK YOU!

IF YOU WOULD LIKE TO LEARN MORE ABOUT NEXT STEPS AND REQUIRED INVESTMENT PLEASE CONTACT

MICHELE ZOLLINGER
CONSULTANT
QUANTIS US
T. +1 857 239 9290 **M.** +1 475 227 7224
michele.zollinger@quantis-intl.com
www.quantis-intl.com

JON DETTLING
DIRECTOR
QUANTIS US
T. +1 857 239 9290 **M.** +1 617 834 6439
Jon.dettling@quantis-intl.com

SEBASTIEN HUMBERT
CONSULTANT
QUANTIS CH
M. +41 79 754 75 66
sebastien.humbert@quantis-intl.com