Initiative for Climate Action Transparency

Transport Pricing Guidance

15 August 2017

Outline

- Introduction to ICAT
- Transport Pricing Guidance
- Supporting guidance
  - Stakeholder Participation Guidance, Technical Review Guidance
- How to provide comments
- Questions

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Introduction to ICAT

ICAT objectives

Provide policymakers around the world with tools and support to assess the impacts of their climate policies and actions, to further transparent and ambitious climate action.

Two components:

- ICAT series of guidance
- Country support to build capacity

Multi-stakeholder partnership

DONORS

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

CIFF CHILDREN'S INVESTMENT FUND FOUNDATION

MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE

ClimateWorks

GRANT MANAGEMENT

UNOPS

IMPLEMENTATION PARTNERS

UNEP DTU PARTNERSHIP

VCS VERIFIED CARBON STANDARD

WORLD RESOURCES INSTITUTE

SUPPORTING PARTNERS

Rainforest Alliance

CCBA The Climate, Community & Biodiversity Alliance

NEW CLIMATE INSTITUTE

INFRAS

ghg management institute

CDP DRIVING SUSTAINABLE ECONOMIES

THE CLIMATE GROUP

ICAT Guidance

-- Introductory Guide --

Impact Assessment Guidance

Greenhouse gas impacts:

- Renewable Energy
- Buildings Efficiency
- Transport Pricing
- Agriculture
- Forestry

- Sustainable Development
- Transformational Change

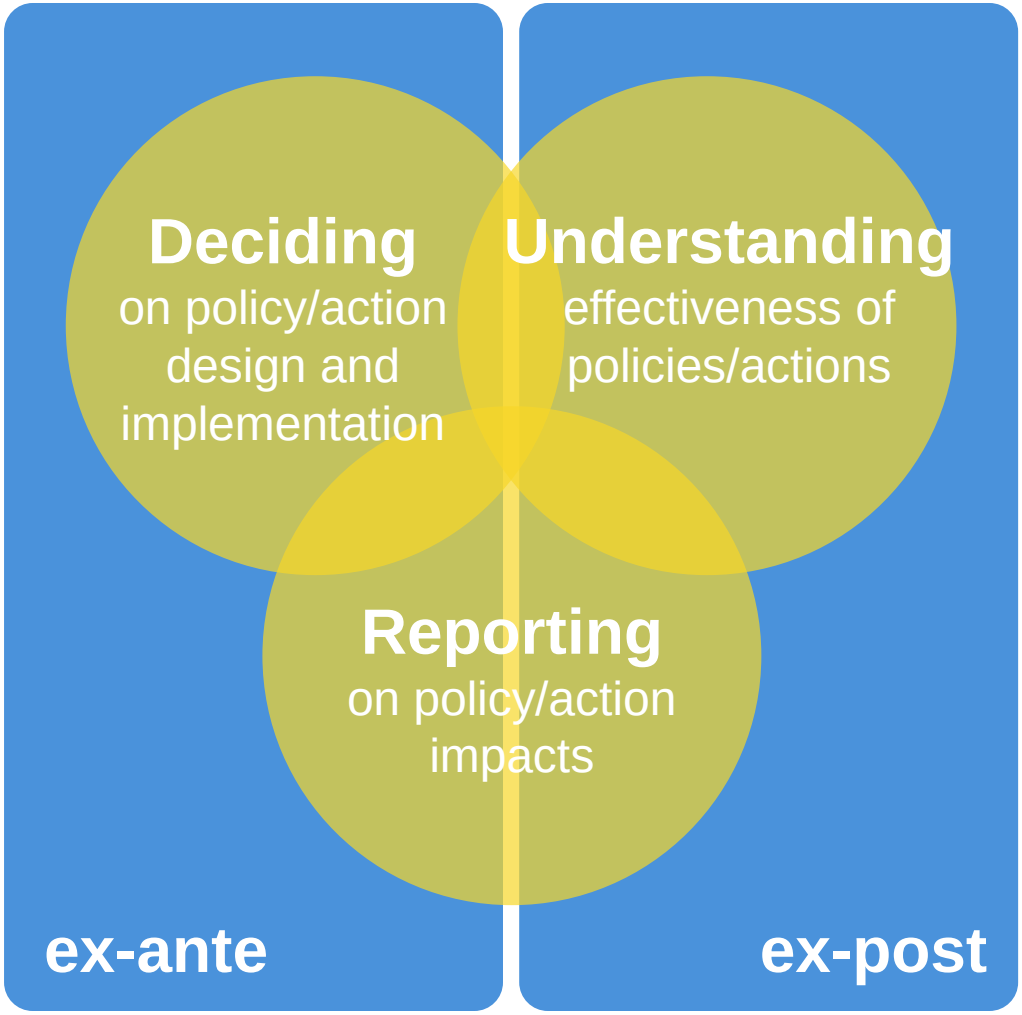
Supporting Guidance

- Stakeholder Participation
- Technical Review
- Non-State and Subnational Action

Who can use the guidance?

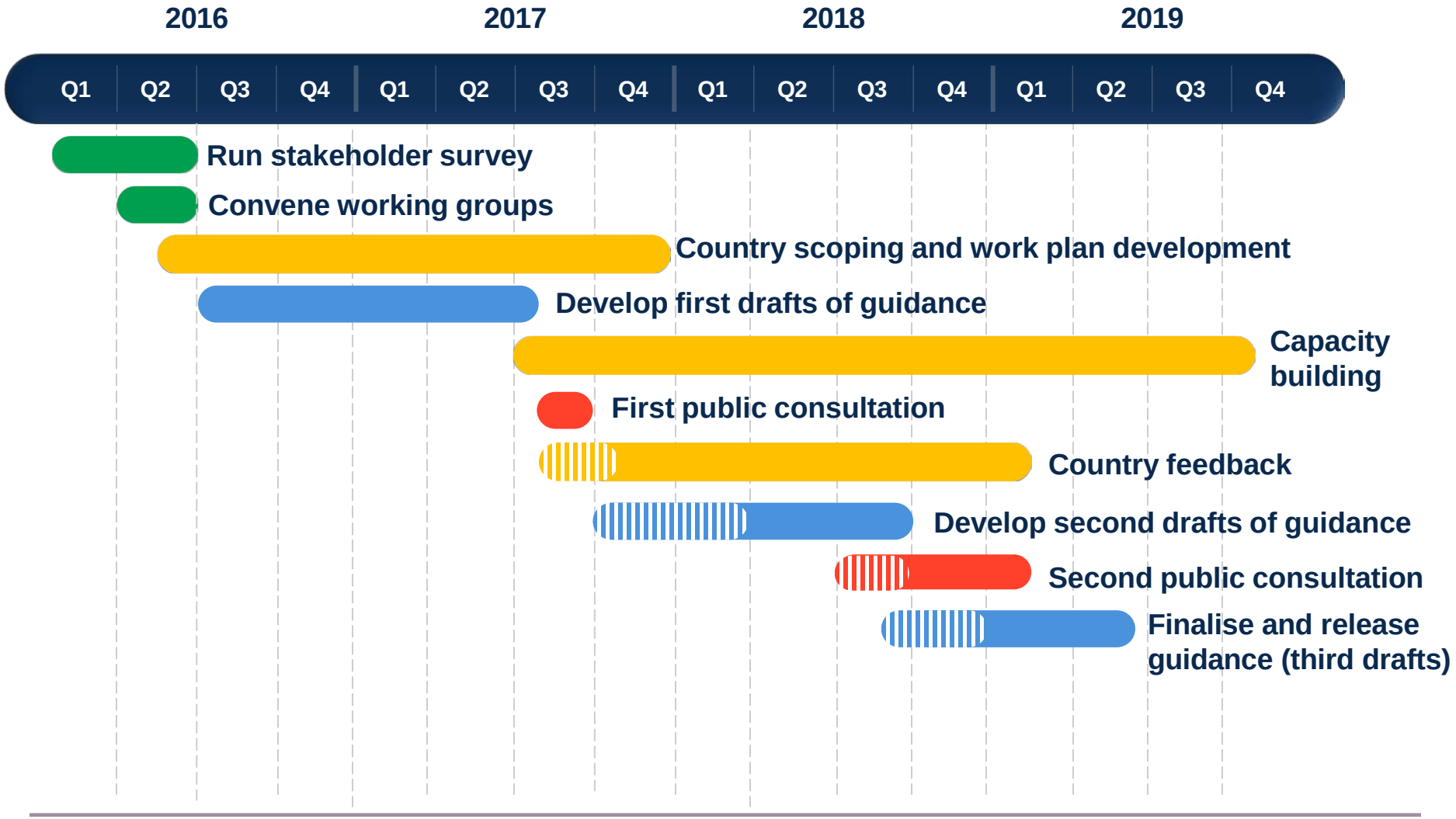
- Governments
- Donor agencies and financial institutions
- Businesses
- Research institutions and non-government organisations (NGOs)
- Stakeholders affected by policies and actions, such as local communities and civil society organisations

Goals for the guidance



Adapted from: GIZ 2016, *Reference Document on Measurement, Reporting and Verification in the Transport Sector*

An inclusive, multi-stakeholder process



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Transport Pricing Guidance

Guidance for assessing the greenhouse gas impacts of transport pricing policies

Purpose of the guidance

- Provide methodological guidance for assessing the impacts of pricing policies in the transport sector
- Simple, straight-forward approach for policymakers and practitioners
- In the context of NDC, NAMA and further national or regional transport strategy or policy development

Applicability - pricing policies addressed

- Fuel subsidy removal
- Increased fuel tax or levy
- Road pricing (road tolls and congestion pricing)
- Vehicle purchase incentives for more efficient vehicles

Guidance document - overview

Part I: Introduction, objectives, steps and overview of transport pricing policies

Understand the purpose and applicability of the guidance (Chapter 1)

Determine the objectives of the assessment (Chapter 2)

Understand transport pricing policies (Chapter 3)

Understand assessment steps and principles (Chapter 4)

Part II: Defining the assessment

Clearly describe the policy to be assessed (Chapter 5)

Identify GHG impacts, define the GHG assessment boundary and assessment period (Chapter 6)

Part III: Assessing impacts

Calculate base year emissions using approach A, B or C and project baseline scenario (Chapter 7)

Choose price elasticity values and calculate GHG impacts using approach A, B or C (Chapter 8)

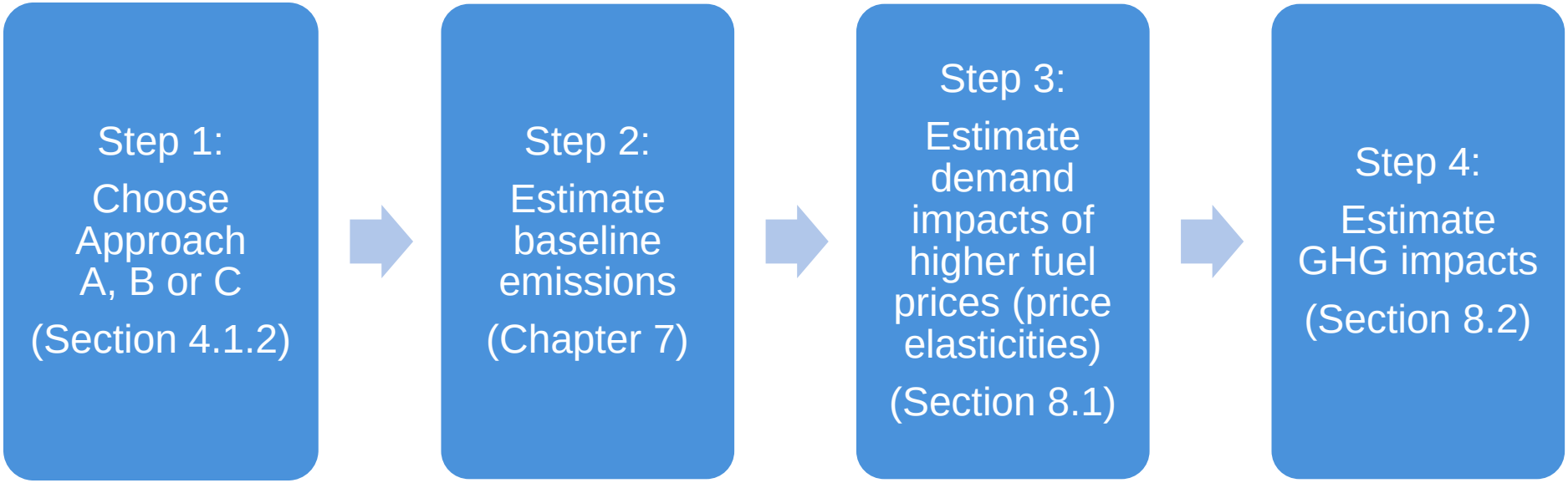
Assess GHG impacts ex-post (Chapter 9)

Part IV: Monitoring and reporting

Identify parameters and monitor the performance over time (Chapter 10)

Report the results and methodology used (Chapter 11)

Part III: Assessing Impacts - Steps



Approaches A, B and C

Approach	Data requirements	Boundaries / Coverage		
		Geographical system boundaries	Passenger / Freight	Fuel types
Approach A	Only general fuel consumption data (Basis for calculation: top-down energy use data)	National	National transport (passenger and freight)	Fuel mix (gasoline/diesel)
Approach B	Specific gasoline and diesel consumption data (Basis for calculation: top-down energy use data)	National	National transport (passenger and freight)	Gasoline and diesel
Approach C	Comprehensive bottom-up travel activity data (e.g., distance travelled by mode j) (Basis for calculation: top-down energy use and bottom-up travel activity data)	Regional, urban	Only passenger transport in an urban context However, the assessment can be conducted for several (large) cities to enable a more extensive geographical coverage	Gasoline, diesel and electricity

Example: Approach A assessment (ex-ante)

A government plans to implement a national fuel levy. The only data available is total annual energy use in transport sector (aggregated gasoline and diesel consumption)

Step 2: Baseline emissions (I)

Example: Approach A

- Estimate base year emissions (top-down)
  - Compile activity data (fuel used)
  - Estimate shares of different fuel types (if possible)
  - Compile emission factors, in order of preference:
    1. National energy or environmental statistics
    2. National fuel providers
    3. Default values (provided in guidance)

Activity data
Annual vehicle fuel use
(e.g., TJ)

×

Emission factor
Carbon dioxide equivalent content of fuel
(e.g., tCO_2e/TJ)

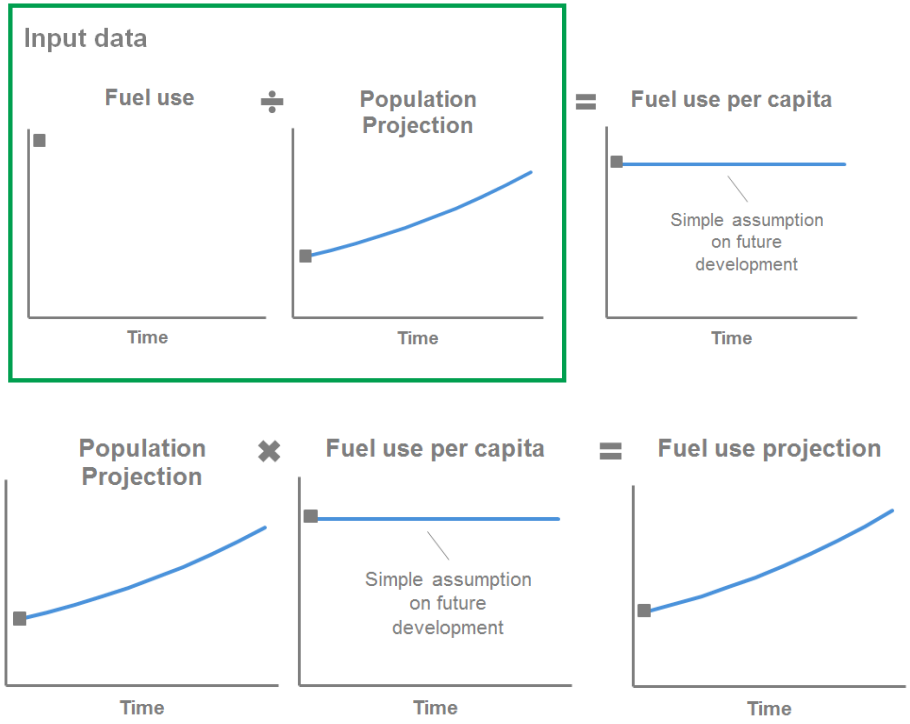
=

Base year emissions
(tCO_2e)

Step 2: Baseline emissions (II)

Example: Approach A

- Estimate base year emissions
  - Option 1: Simplified method for projecting scenarios



  - Option 2: Advanced methods (comparable growth rates, trend analysis, modelling)

Step 2: Baseline emissions (III)

Example: Approach A

	unit	Year y (historic; base year)	Year y+1 (proj.)	Year y+2 (proj.)	Year y+3 (proj.)	Year y+4 (proj.)	Year y+5 (proj.)
Population (in millions)	Millions per capita	50.0	50.8	51.5	52.3	53.1	53.9
Per capita ratio: gasoline consumption	GJ per capita	7.8	7.8	7.8	7.8	7.8	7.8
Per capita ratio: diesel consumption	GJ per capita	7.8	7.8	7.8	7.8	7.8	7.8
$F_{gasoline,y}$ (projected)	TJ	391,000	396,865	402,818	408,860	414,993	421,218
$F_{diesel,y}$ (projected)	TJ	391,000	396,865	402,818	408,860	414,993	421,218
$BE_{gasoline,y}$ (projected)	$ktCO_2$	27,096	27,503	27,915	28,334	28,759	29,190
$BE_{diesel,y}$ (projected)	$ktCO_2$	28,973	29,408	29,849	30,297	30,751	31,212
$BE_{total,y}$ (projected)	$ktCO_2$	56,069	56,910	57,764	58,631	59,510	60,403

Input data for base year

Calculated emissions for base year

Step 3: Fuel demand impact (I)

Example: Approach A

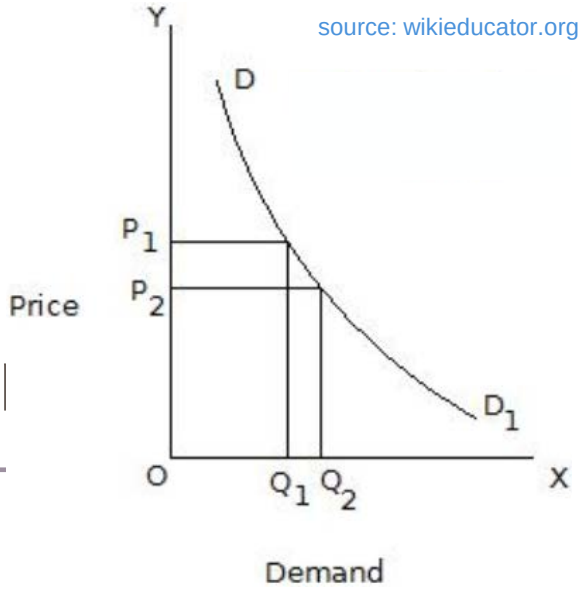
- Ex-ante: how does a change in fuel price affect fuel demand?

Own-price elasticity

Price changes by +10%, demand changes by -5%, price elasticity of demand equals demand change divided by price change: -5%/+10% = -0.5.

- Possible (major) impacts:
  - Reduced vehicle travel
  - Increased switching to more efficient fuelled vehicles
  - Increased switching to different trans

source: wikieducator.org



Step 3: Fuel demand impact (II)

Example: Approach A

- Choosing accurate own-price fuel elasticities:
  1. Use country-specific price elasticity data (empirical)
  2. Use default elasticity values provided in the guidance:

Fuel mix price (2016 US ¢ per litre	Income per capita (2016 USD/population)		
	≤ 12,000	12,000 – 24,000	≥ 24,000
≤ 30	-0.15	-0.11	-0.22
30 - 80	-0.22	-0.24	-0.22
≥ 80	-0.26	-0.32	-0.33

Values adapted from Dahl 2012

- Example: Average income in 2016 = USD 13,000 per capita;
  Average fuel mix price = USD 0.40 per litre
  → own-price elasticity of demand = -0.24

Step 4: GHG impacts (I)

Example: Approach A

- The increase of fuel prices leads to decreasing fuel demand, which subsequently reduces GHG emissions.
- The GHG impact is the difference between GHG emissions in the policy scenario and the baseline scenario.
- Needed input data (from earlier steps):
  - Baseline fuel use (gasoline/diesel) for each year y
  - Baseline emissions (from gasoline/diesel) for each year y
  - Fuel mix own-price elasticity
  - Relative (%) fuel mix price increase

Step 4: GHG Impacts (II)

Example: Approach A

Label	Approach A	unit	Data collection/calculation	*Example year*
A	Baseline fuel use (F_y)	TJ	Input value: from Section 7.2.1 and 7.4	*782,000*
B	Baseline emissions ($BE_{fuel\ mix,y}$)	tCO_2	Input value: from Section 7.2.1 and 7.4	*56,069,400*
C	Fuel mix price elasticity ($\varepsilon_{fuel\ mix}$)	-	Input value: from Section 8.1.2	*-0.24*
D	Relative fuel mix price increase	%	Input value: according to planned policy	*4.5%*
E	Anticipated fuel use	TJ	= ((C x D) + 1) x A	*773,550*
F	Anticipated GHG emissions	tCO_2	= ((C x D) + 1) x B	*55,463,850*
G	Anticipated GHG impacts (emissions reductions)	tCO_2	= F – B	*-605,650*
H	Anticipated relative impact	%	= G ÷ B	-1.1%

from step 2 – baseline emissions

from step 3 – fuel demand impacts

Interpretation of results

Example: Approach A

- High uncertainties
  - Activity data estimation (e.g., fuel consumption)
  - Emission factors, other conversion factors (e.g., net calorific values NCV, etc.)
  - Projection of base year emissions
  - Estimation of price elasticities (even more so if default values are used)

→ It is crucial to be transparent about high uncertainties and to be cautious with the interpretation of the results (i.e., indicate a range of the possible GHG impact rather than a single result)

Example: Approach C assessment (ex-ante)

A government also wants to assess the substitution of individual motorised transport by car with public transport

Comparison of Approach C with A/B

- Different system boundaries:
  - Focus on passenger transport (no freight transport is included in the assessment)
  - Inclusion of (urban) public transport system in the analysis, therefore focus on urban transport
- Not only gasoline and diesel, but also electricity as a fuel (users can also extend the guidance to different fuels in a similar manner)
- Bottom-up and top-down approach
- Cross-price elasticities

Step 2: Baseline emissions

Example: Approach C

- Bottom-up travel activity data:
  - Average vehicle kilometres travelled (car/bus)
  - Distance travelled
  - Load factors / occupancy
  - Average fuel consumption per vehicle kilometre
- Top-down fuel consumption and PKM data:
  - Electricity and diesel use in rail transport
  - Passenger kilometres (PKM) in rail transport

Step 3: Fuel demand impact

Example: Approach C

- Cross-price elasticities

Cross-price elasticity

Price of substitute good changes by +10%, demand changes by +20%, cross-price elasticity of demand equals demand change divided by price change: +20%/+10% = +2.

- Default values:

Gasoline price (2016 US ¢ per litre)	Income per capita (2016 USD/population)		
	< 12,000	12,000 – 24,000	> 24,000
< 30	Bus 0.09	Bus 0.07	Bus 0.14
	Rail 0.15	Rail 0.11	Rail 0.22
30-80	Bus 0.14	Bus 0.15	Bus 0.14
	Rail 0.22	Rail 0.24	Rail 0.22
> 80	Bus 0.16	Bus 0.20	Bus 0.21
	Rail 0.25	Rail 0.31	Rail 0.32

Step 4: GHG impacts

Example: Approach C

- More input data needed compared to Approaches A and B
- Results reflect mode shifts and increasing capacity needs for public transport (in PKM) due to fuel price increase
- Increased public transport demand compensates a part of the emission reduction through reduced fuel consumption

Stakeholder Participation

Guidance to support stakeholder participation in design, implementation and assessment of policies and actions, including of GHG impacts

Source: Africa Center

Elements covered in the guidance

Part I: Introduction, objectives and key concepts

Understand the purpose and applicability of the guidance (Chapter 1)

Determine the objectives of stakeholder participation (Chapter 2)

Understand key concepts, elements and principles (Chapter 3)

Part II: Key elements of effective stakeholder participation

Develop a stakeholder participation plan (Chapter 4)

Identify and understand the stakeholders of the policy (Chapter 5)

Create multi-stakeholder bodies (Chapter 6)

Provide information to stakeholders (Chapter 7)

Design and conduct consultations (Chapter 8)

Establish a grievance redress mechanism (Chapter 9)

Part III: Reporting on stakeholder participation

Report how stakeholder participation was designed and conducted (Chapter 10)

Stakeholder participation in transport policies

Chapter/step in this guidance document	Why stakeholder participation is important at this step	Relevant chapters in Stakeholder Participation Guidance
Chapter 7 – Estimating the baseline scenario and baseline emissions	• Inform assumptions on expected effects of existing and planned policies	Chapter 8 – Designing and conducting consultations

Technical Review

Guidance to support the review of the impacts of policies and actions

Source: Asia Development Bank

Overview of the guidance

Part I: Introduction, objectives, and key concepts

Understand the purpose and applicability of the guidance (Chapter 1)

Understand key concepts, steps and technical review principles (Chapter 2)

Part II: Overview of technical review

Understand the types of technical review that can be pursued (Chapter 3)

Learn about reviewer qualifications to inform team design and meet review objectives (Chapter 4)

Part III: Technical review process

Establish the objectives, scope and criteria of the technical review (Chapter 5)

Prepare the documents and evidence for technical review (Chapter 6)

Develop a technical review plan (Chapter 7)

Conduct the technical review using an established process (Chapter 8)

Report on the results of the technical review (Chapter 9)

Public consultation via Collaborase

Collaborase is an online software that supports an unlimited number of reviewers and allows reviewers to more easily provide comments and navigate documents.

www.collaborase.com/icat

Accessing the documents

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Initiative for Climate Action Transparency Guidance

Public Consultation

Accessing the guidance documents

To comment on the guidance, submit your email address on the document page(s) linked below. A confirmation email will be sent to your email account with a link to access the document.

ICAT Introductory Guide	ICAT Sustainable Development Guidance
ICAT Renewable Energy Guidance	ICAT Transformational Change Guidance
ICAT Buildings Efficiency Guidance	ICAT Stakeholder Participation Guidance
ICAT Transport Pricing Guidance	ICAT Technical Review Guidance
ICAT Agriculture Guidance	ICAT Non-State and Subnational Action Guidance
ICAT Forest Guidance	

Accessing the documents

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ICAT Forest Guidance

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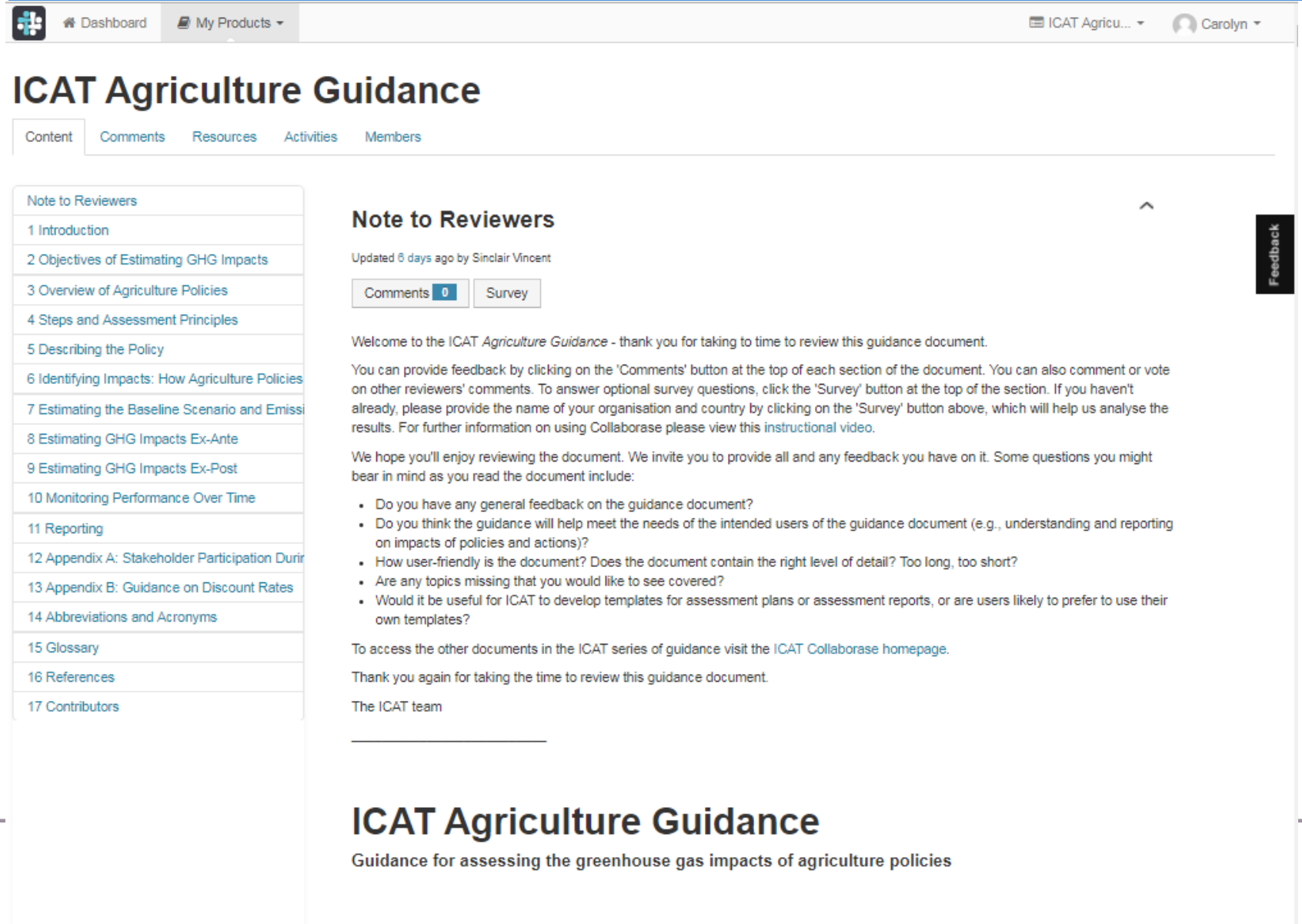
Your view in Collaborase



How to comment in Collaborase

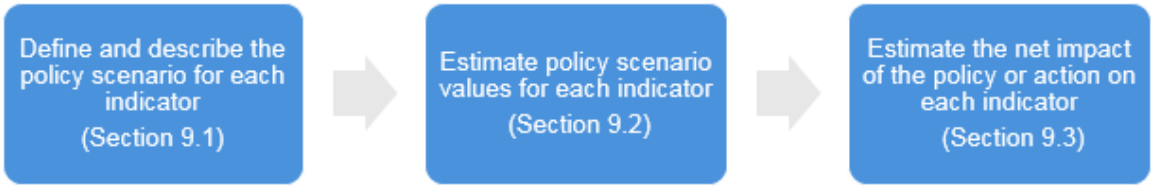
9 Estimating Impacts Ex-Ante

Updated 15 days ago by Sinclair Vincent

Comments 0

This chapter describes how to estimate the expected future impacts of the policy or action (ex-ante assessment). In this chapter, users estimate policy scenario values for the indicators included in the assessment boundary. The impacts of the policy or action are estimated by subtracting baseline values (as determined in Chapter 8) from policy scenario values (as determined in this chapter). Users not quantitatively assessing impacts ex-ante can skip this chapter.

Figure 9.1: Overview of steps in the chapter



Checklist of key recommendations

- Define a policy scenario that represents the conditions most likely to occur in the presence of the policy or action over time for each indicator being estimated, taking into account all specific impacts included in the quantitative assessment boundary
- Estimate the net impact of the policy or action on each indicator by subtracting baseline values from policy scenario values, taking into account all specific impacts included in the quantitative assessment boundary
- Separately assess the impacts of the policy or action on different groups in society where relevant

How to comment in Collaborase

9 Estimating Impacts Ex-Ante

Updated 15 days ago by Sinclair Vincent

Comments 0

Reviewer Comments

New comment

0 Open | 0 Closed | Newest

No Comments Yet

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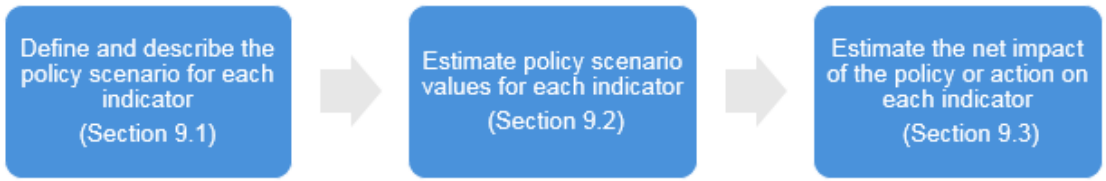

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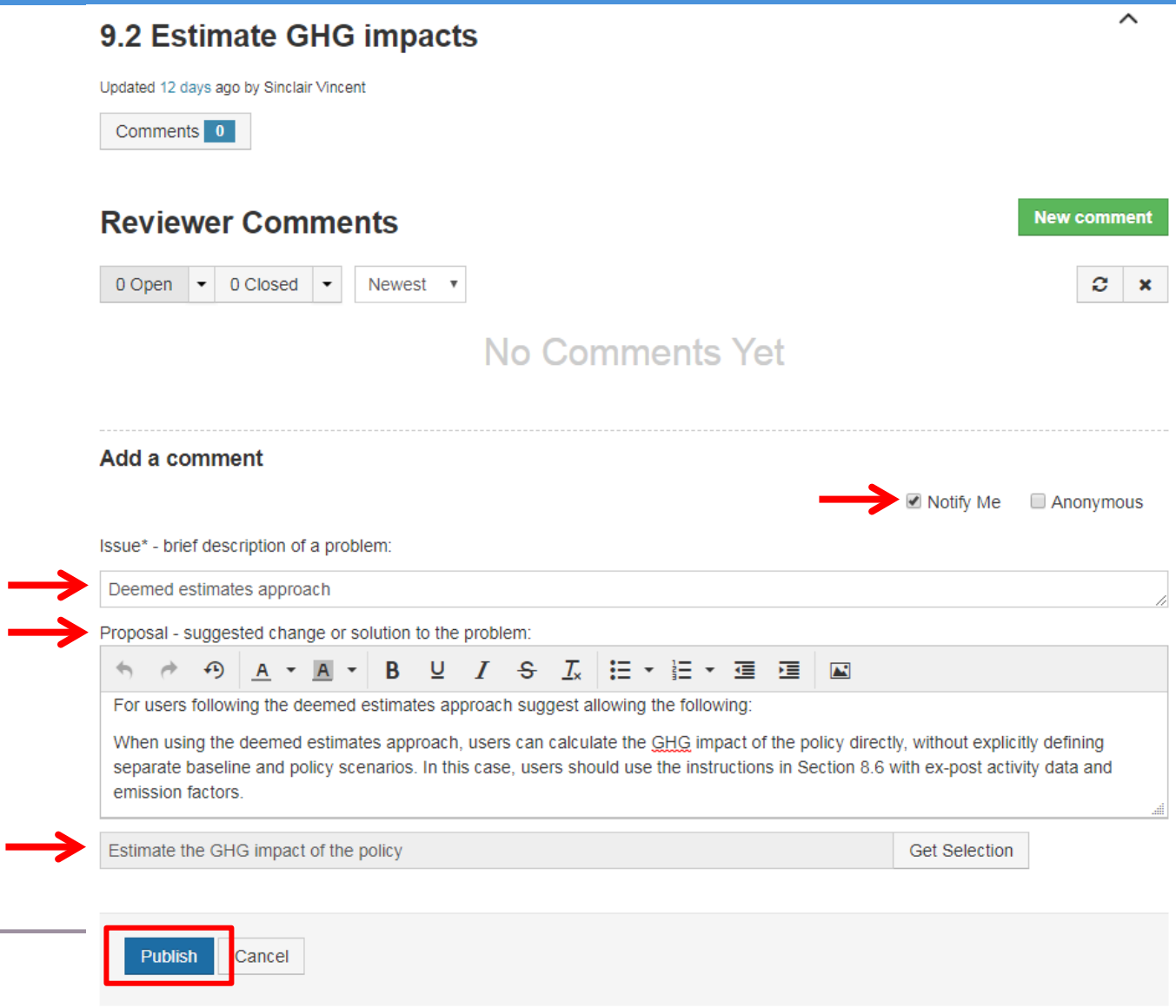

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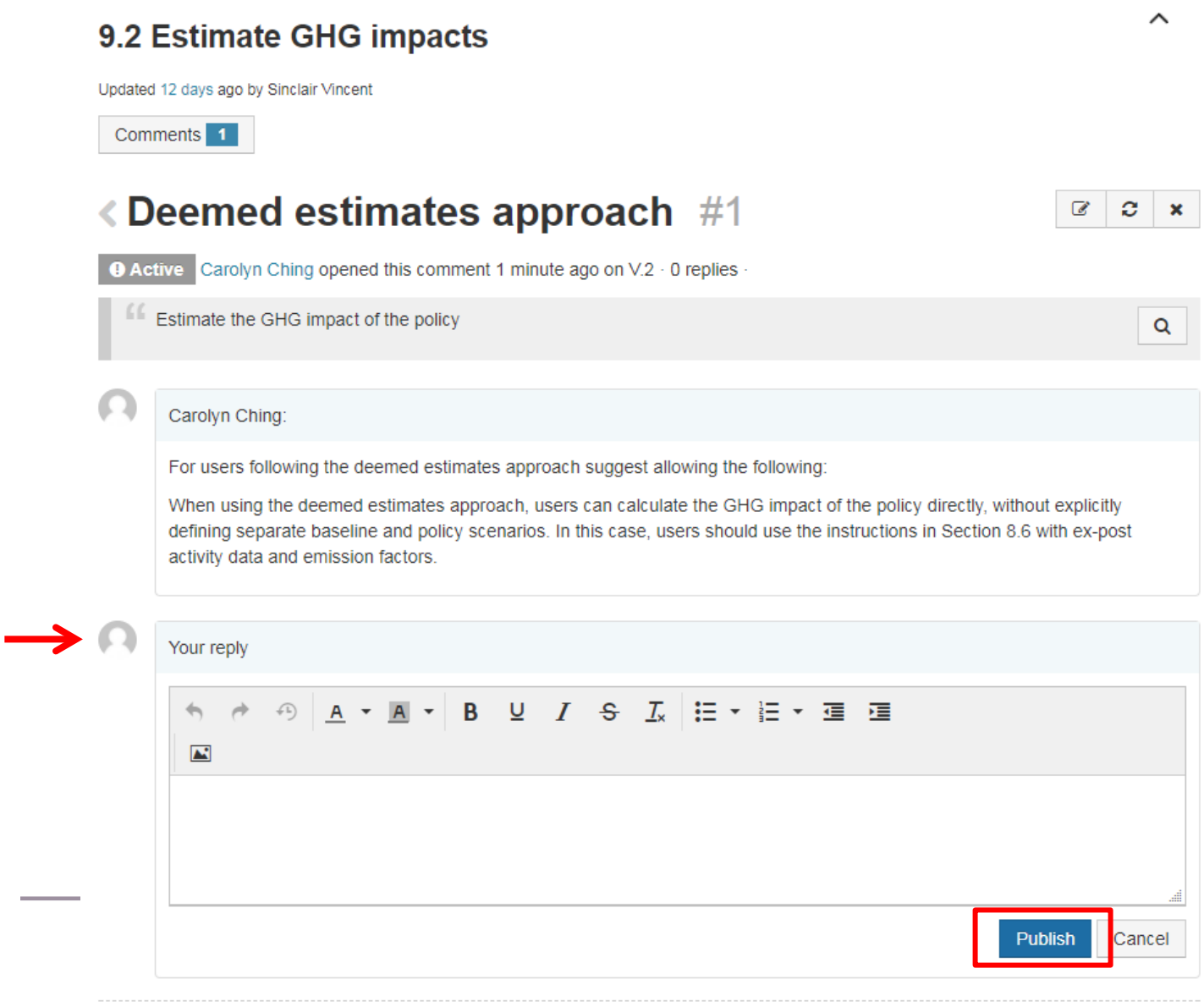

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How to comment in Collaborase

Answering survey questions in Collaborase

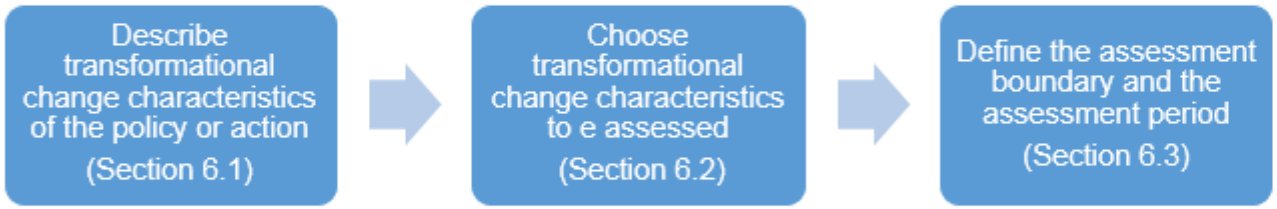
6 Choosing Which Transformational Change Characteristics to Assess

Updated 15 days ago by Sinclair Vincent

Comments 0 | Survey

This chapter provides guidance on identifying and choosing transformational change characteristics that are relevant for a policy or actio
It also defines the transformational change assessment boundary and the assessment period.

Figure 6.1: Overview of steps in the chapter



Checklist of key recommendations

- Identify and describe transformational characteristics of the policy or action
- Choose characteristics to be assessed based on their relevance to a policy or action and the society in which it is implemented
- Define the assessment boundary in terms of geographical and sectoral coverage of transformational characteristics selected for assessment
- Define the assessment period

Answering survey questions in Collaborase

6 Choosing Which Transformational Change Characteristics to Assess

Updated 15 days ago by Sinclair Vincent

Comments 0 | Close Survey

This chapter describes characteristics of transformational impact. Are the descriptions of characteristics sufficient and clear enough to enable assessment of impacts for transformation specific to a policy or action? If not, how can we improve them?

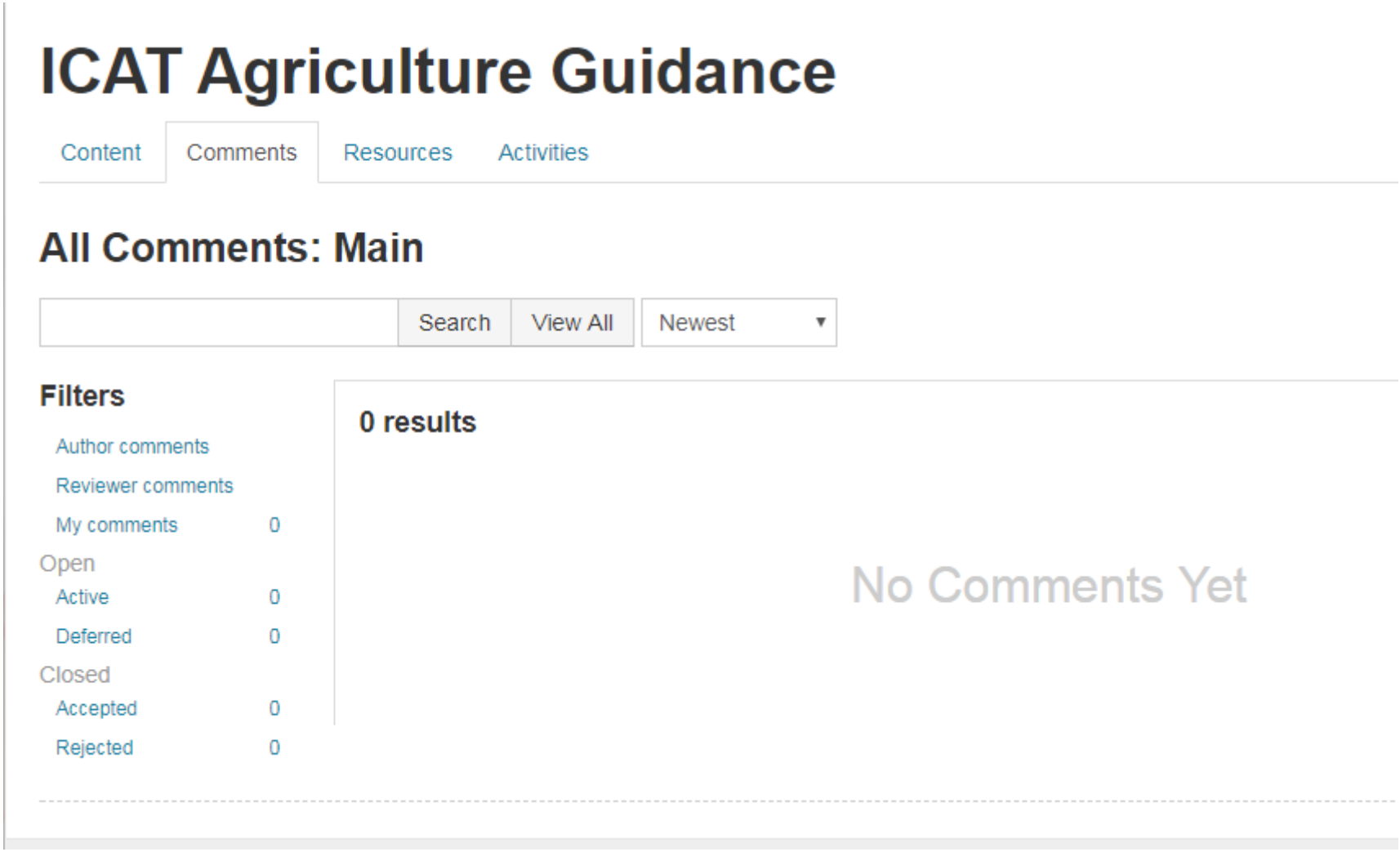
It would be helpful if these descriptions could be more detailed.

In Table 6.4 users are asked to describe characteristics of transformational outcomes for GHG and SD at scale and over time. Is further guidance needed on how to use other ICAT guidance for GHG and SD impact assessment and how to assess impacts of multiple outcomes for GHG and SD?

- [x] Yes
- [ ] No

The guidance provided is sufficient.

Collating and reviewing comments



Questions?

Consultation ends 24 September

Thank You

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