

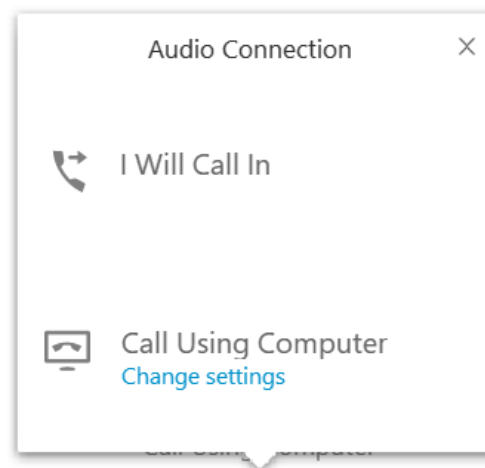
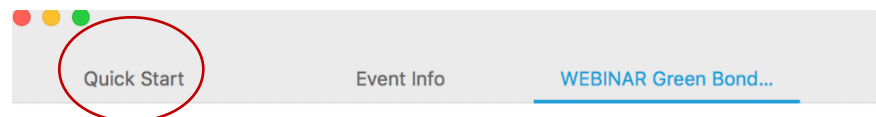
Welcome to the Protected Agriculture Criteria - Mexico webinar

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To ask questions

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01

Financing a Sustainable European Economy

EU High-Level Expert Group on Sustainable Finance Final Report – Partners Briefing

Sean Kidney, Climate Bonds Initiative
02 February 2017

www.climatebonds.net

Climate Bonds INITIATIVE

Participants Chat **Q&A**

Participants: 3

Speaking:

Panelists: 3

DG Diletta Giuliani (me)

CI Climate Bonds Initiative (Host)

DS daniel sullivan

Attendee: 0 (0 displayed)

Chat

Q&A

All(0)

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THE PROTECTED AGRICULTURE CRITERIA - MEXICO

Climate Bonds Standard



Climate Bonds Standard

Protected Agriculture - Mexico

Public Consultation Webinar, September 17th

Ujala Qadir, Climate Standards Manager, Climate Bonds Initiative

Katie House, Senior Research Analyst, Climate Bonds Initiative

Lawrence Pratt, Consultant

Enrique Nieto Ituarte, Inter-American Development Bank



The Climate Bonds Initiative – what we do

We are an investor-focused not-for-profit mobilising debt capital markets for climate solutions:

- **Outreach to inform and stimulate the market**

- Policy models and government advice
- Efforts in emerging markets to grow issuance
- Green innovations e.g. securitization, covered bonds, Islamic Finance

- **Market data and analysis**

- Green bonds data base, feeding MSCI/Barclays and S&P DJI indices
- State of the Market report, commissioned by HSBC
- Regional and thematic focus reports, e.g. China, Canada

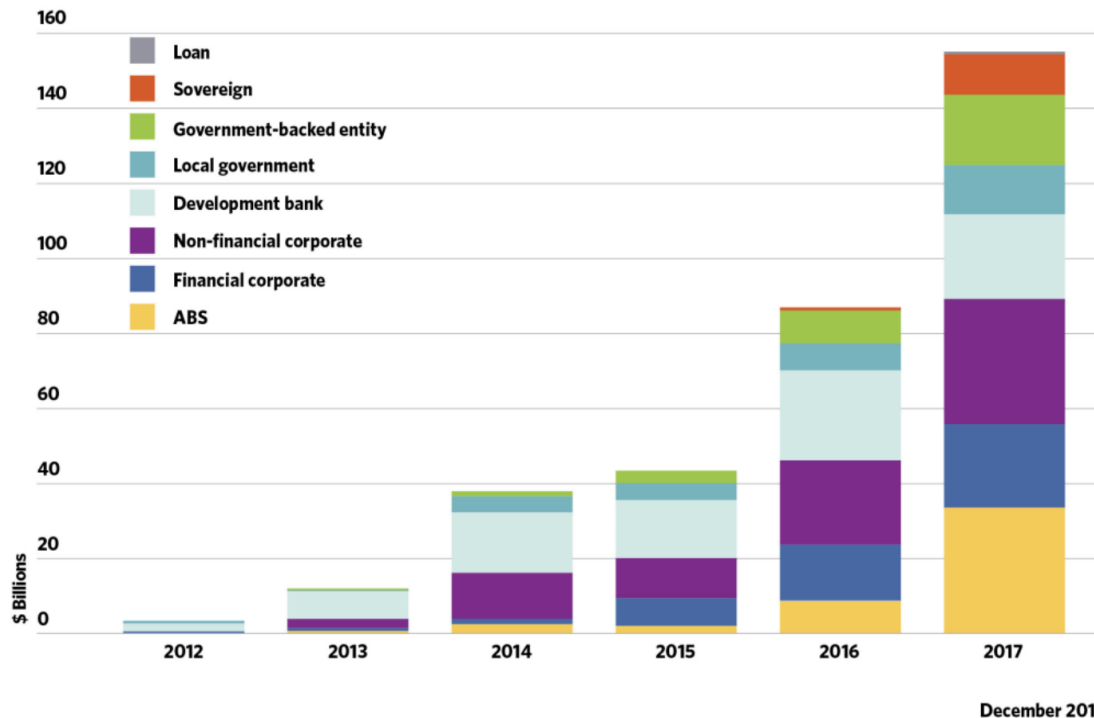
- **Climate Bonds Standard & Certification Scheme**

- Definitions for investors and guidelines for bond issuers
- Assurance through certification



Green Bonds Growth

The labelled green bond market is growing rapidly



1. Proceeds go to green projects
2. Often an external review
3. Annual reporting required

New projects or re-financing

Issuers

- Investor diversification
- Market positioning
- Pricing

Investors

- Addressing climate risk
- Secondary market value

The key figures:

USD 155.5bn total green bond issuance; **Over 1500** green bond issues; **78%** growth on 2016

37 countries from all continents; **239** different issuers; **146** new issuers

USD 10.7bn – largest single green bond

Climate Bonds Standard & Certification Scheme

- The Climate Bonds Standard and Certification Scheme is a *Fair Trade-like* labelling scheme for bonds. It is designed as an easy-to-use screening tool for investors and issuers to assist them in prioritising investments that truly contribute to addressing climate change.
- The Climate Bonds Standard is made up of two parts:
 1. Climate Bonds Standard V2.1 details management and reporting processes
 2. Sector Criteria detail the requirements assets must meet to be eligible for Climate Bonds Certification

Supporting the rapid transition to a 2C pathway: The Climate Bonds Standard recognises that small improvements will not be sufficient to meet the targets of the international community, step changes are needed.

The Sector Criteria are rooted in emissions trajectories consistent with rapid decarbonisation, and will address adaptation and resilience.

How to get a bond Climate Bond Certified?



See all Certified Climate Bonds at: <https://www.climatebonds.net/standards/certification>

Climate Bonds Sector Criteria

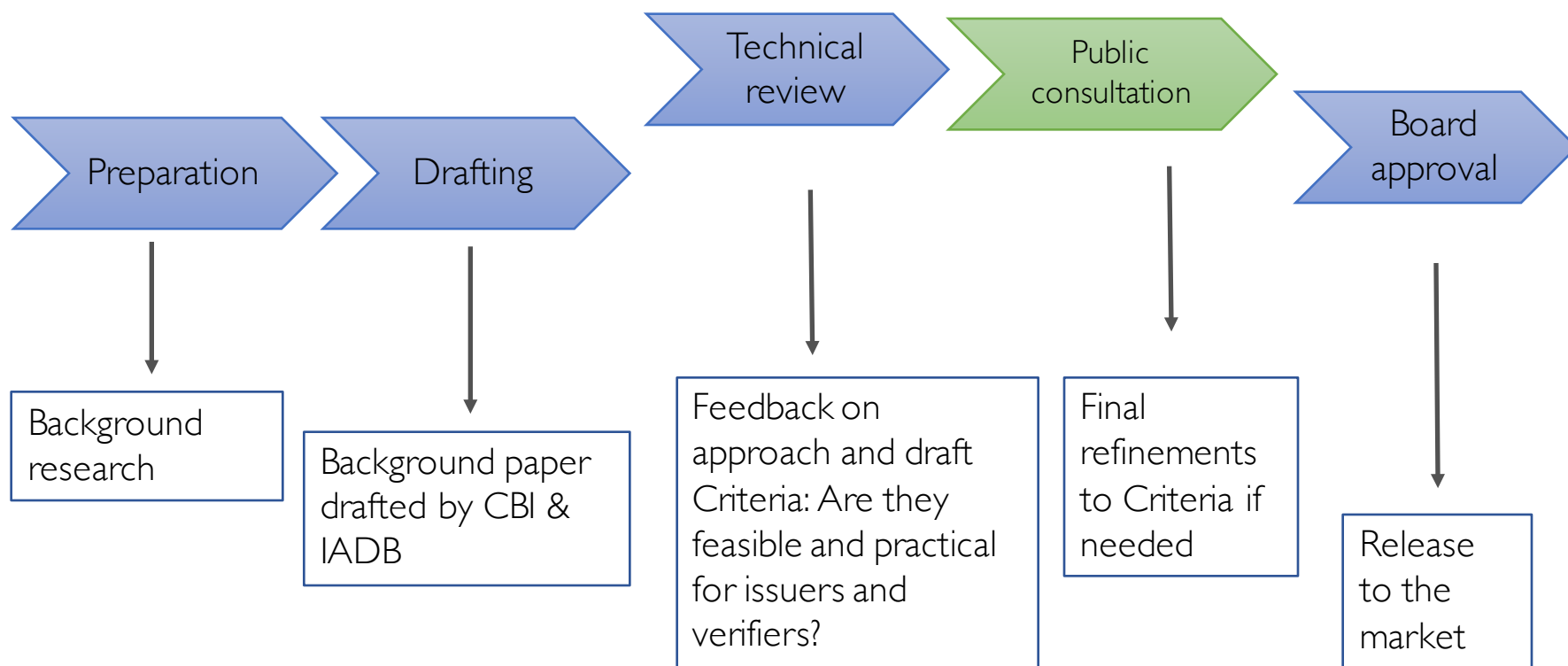
	Can be certified now	Criteria in development	TWGs launching soon
Energy	 WIND  SOLAR  GEOTHERMAL  MARINE	 HYDROPOWER  BIOENERGY	 DISTRIBUTION & MANAGEMENT
Transport	 RAIL  VEHICLES  BUS/RAPID TRANSIT		 WATER TRANSPORT
Utilities	 WATER	 RECYCLING & REUSE  DISPOSAL	 IT  COMMUNICATIONS
Buildings	 RESIDENTIAL  COMMERCIAL		
Natural Resources		 FORESTRY  AGRICULTURE  FISHERIES	
Industry			 CEMENT  STEEL  MANUFACTURING & PROCESSING

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Protected Agriculture - Mexico: development process

Mexican Protected Agriculture Criteria: development process



Mexican Protected Agriculture Criteria: development process

Protected Agriculture Technical Working Group (TWG)

Dr. Christine Negra, Versant Vision LLC

Lawrence Pratt, Independent Consultant

Juan Manuel Ortega, Independent Consultant

Peter Chege, Hydroponics Kenya

Rama Chandra Reddy, World Bank Group

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Mexican Protected Agriculture Criteria:
research focus and climate alignment

Policy Drivers (Mexico)

- Severe to extreme water scarcity in most of the country
- Highest level Government commitment to more climate-friendly and resilient agricultural production to ensure food security.
- Protected Agriculture is an important part of the strategy
- Economic drivers – export earnings, increased income from productivity

Research Focus (I)

- Tomato as indicator crop (importance, reference crop and comparative data)
- Business as Usual (BAU) is traditional open field seasonal tomato production
- Four Protected Agriculture technologies
 - Low tech (rudimentary shading on stilts)
 - Shade Houses (entirely mesh-enclosed structures)
 - Medium tech (enclosed structures, using soil)
 - High tech (entire isolate, plants grown in substrates)









Research Focus (2)

- Comparisons across multiple sustainability-related dimensions
 - Productivity
 - Land and soil requirements
 - GHG footprint
 - Vulnerability
 - Water use
 - Chemical inputs (fertilizers and pesticides)
 - Energy use
 - Waste
 - Labor issues
- All normalized to impact per kg or ton of final product, with % comparisons

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Climate Alignment of Protected Agriculture:

Increased Productivity is the key factor driving improvements.

BAU (open field)	High Tech (current best practices)	Low Tech	Shade House	Medium Tech
22 tons/ha rainfed 40 tons/ha irrigated	500 - 800 ton/ha (12x to 35x improvement vs BAU)	100 to 300 tons/ha (2.5x to 13x improvement vs BAU)	Seasonal 120 to 150 tons/ha Year Round 250 to 300 tons/ha (3x to 14x improvement vs BAU)	400 ton/ha (estimated median) (10x to 18x improvement vs BAU)

Climate Alignment of Protected Agriculture:

Protected agriculture reduces **water consumption** per unit of production compared to open-field (m³ of water per ton of tomato produced)

	BAU (open field)	High Tech (current best practices)	Low Tech	Shade House	Medium Tech
	75 m ³ /ton	16 m ³ /ton (approx 80% improvement over BAU)	59 m ³ /ton (approx 20% improvement over BAU)	50 - 70 m ³ /ton (approx 7- 33 % improvement over BAU)	35 m ³ /ton (median approx 50% improvement over BAU)

Climate Alignment of Protected Agriculture:

Protected agriculture is **less vulnerable**:

BAU multi-year average – 4.4% catastrophic loss due to weather or disease
(largely weather driven)

High and medium-tech PA – 0.2% catastrophic loss. 20x vulnerability reduction.

Climate Alignment of Protected Agriculture: mitigation potential

Protected agriculture can achieve **lower GHG footprints** per unit of production compared to open-field production because:

	Cultivation plus construction		Cultivation plus plastic only		Cultivation only	
	kgCO ₂ e/ton of tomatoes	Diff. vs. open-field	kgCO ₂ e/ton of tomatoes	Diff. vs. open-field	kgCO ₂ e/ton of tomatoes	Diff. vs. open-field
Open-field	337.71		337.71		337.71	
High tech	173.71	-49%	161.97	-52%	98.19	-71%
Medium tech	326.09	-3%	302.61	-10%	175.05	-48%
Low tech	396.85	18%	302.90	-10%	272.74	-19%
Shade-house – year-round	277.30	-18%	245.99	-27%	235.94	-30%
Shade-house - seasonal	394.80	17%	332.18	-2%	317.20	-6%

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Protected Agriculture - Mexico: resulting Criteria

Scope of the Mexican Protected Agriculture Criteria

- PVC film or glass greenhouses
- Shade-houses
- Supporting infrastructure, such as:
 - Systems for closure/isolation, precision fertiliser or other chemical application
 - Non-soil substrates
 - Air and light control systems
 - Precision plant nutrition systems
 - Insect protection

The requirements of the Mexican Protected Agriculture Criteria: Mitigation

- Assets must comply with the mitigation Criteria as follows:
 - Scale must be greater than one hectare with fully integral (non-permeable) air envelope and production in non-soil substrates; or
 - Scale must be greater than 10 hectares of shade-house (permeable air envelope) production
- Where heating is used, it is only for defense against cold in winter months
- Only uses passive cooling, active ventilation is permitted only for managing heat and relative humidity
- Where irrigation is used, it must be drip or micro-aspersion only, with monitoring
- Commitment to reuse or recycle used plastic sheeting and tubing, with a demonstrable policy or plan
- No use of 'red band' agriculture chemical products and use of non-EPA and FDA registered products for export market

The requirements of the Mexican Protected Agriculture Criteria: Adaptation and Resilience

All protected agriculture assets and projects automatically pass on a climate resilience basis

Compliance with best practice is recommended as follows:

- Have sealed operations with soil cover and integral air envelope
- Produce in substrates
- Use water recovery and re-use systems

Mexican Protected Agriculture: exclusions

Pesticide and/or fertilizer production

- Out of scope due to their energy and chemical intensive nature
- There is no Criteria to ensure the the production process is low carbon or climate resilient

Installation vehicles

- Covered under the Low Carbon Transport Criteria
- Can impact the GHG emission profiles of crops if they are not low emission vehicles

Irrigation and other water related infrastructure

- Covered under water Criteria, which includes drop and micro-aspiration irrigation
- All water infrastructure will remain certifiable under the Water Criteria

Mexican Protected Agriculture: reporting requirements

- The issuer must provide, to the approved verifier, the information necessary to demonstrate compliance with all applicable requirements
- Three stages of reporting:
 1. Pre-issuance reporting
 2. Post issuance reporting
 3. Annual reporting thereafter
- All requirements must be maintained in compliance for the duration of the bond

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Q&A

Public Consultation is open until 3rd October 2018

Website: <https://standard.climatebonds.net/sector/protectedagriculture> or

Email katie@climatebonds.net