



# CLIMATE, CITIES, AND COMPANIES:

## THE ROLE OF SMART CITIES IN FOSTERING A SUSTAINABLE ECONOMY

Mathilde Bossut, Frankfurt School of Finance & Management



Supported by:



based on a decision of the German Bundestag







**01**

**CITIES AS ENABLERS OF A  
FIT-FOR-FUTURE BUSINESS ENVIRONMENT**







# 02

## CITIES AS DRIVERS FOR STRONGER CORPORATE ENVIRONMENTAL AND SOCIAL RESPONSIBILITY







# 02

## CITIES AS CATALYZERS FOR A LOCAL GREEN ECONOMY

# SEIZING OPPORTUNITIES ARISING WITH THE GREEN ECONOMY

- Promote municipal **bankable projects** in the framework of your city's sustainability strategy and tap into private financing from local actors.
- Inform local companies about **business opportunities** and advantages associated with climate change mitigation and adaptation, e.g. possibility to **tap into international climate finance**
- **Position your city as a green economy hub**, by encouraging more sustainable practices in your key sectors and activities and by connecting companies, employees, research institution and universities.

## Questions to start:

- **What are the main sustainability-linked trends** in your key sectors ? **Are local business performant** against those trends? What would they need to become leader on those trends?
- What are your **other strengths** that could justify positing your city in a specific sector e.g., headquarters of national or international institutions, research institute, academics, human capital?

# AN EXAMPLE: FRANKFURT (GERMANY)



**Initial situation:** Frankfurt is the most important financial centre in continental Europe and is home of the European Central Bank, the Bundesbank, hundreds of domestic and foreign banks.

**Adopted measures :** Frankfurt has positioned itself in the field of sustainable finance by bringing financial institutions together within the Green Finance Cluster Frankfurt that became the Green and Sustainable Finance Cluster Germany, leading to the adoption of the Frankfurt Declaration.

**Results :** In 2021, Frankfurt has been chosen to become the seat of the IFRS Foundation’s International Sustainability Standards Board (ISSB).







# THANK YOU FOR YOUR ATTENTION !

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# OVERCOMING BARRIERS FOR SMART CITY FINANCING

THE CASES OF SALTILLO, PIURA, AND KOCHI

*Yamini Jain & Gabrielle Carbonell, Frankfurt School of Finance & Management*



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# Agenda

- 🌿 Project Ideas
- 🌿 Barriers to Projecy Ideas
- 🌿 General financing instruments
- 🌿 International financial institutions and sources of project funding
- 🌿 Public sources of funding for municipal projects in Mexico
- 🌿 National development banks and other sources of funding for municipal projects in Mexico
- 🌿 Public sources of funding for municipal projects in Perú
- 🌿 National development banks and other sources of funding for municipal projects in Perú
- 🌿 National and Regional Finance in Kochi
- 🌿 Recommendations for advancing project ideas
- 🌿 Possible financing instruments recommended by thematic group

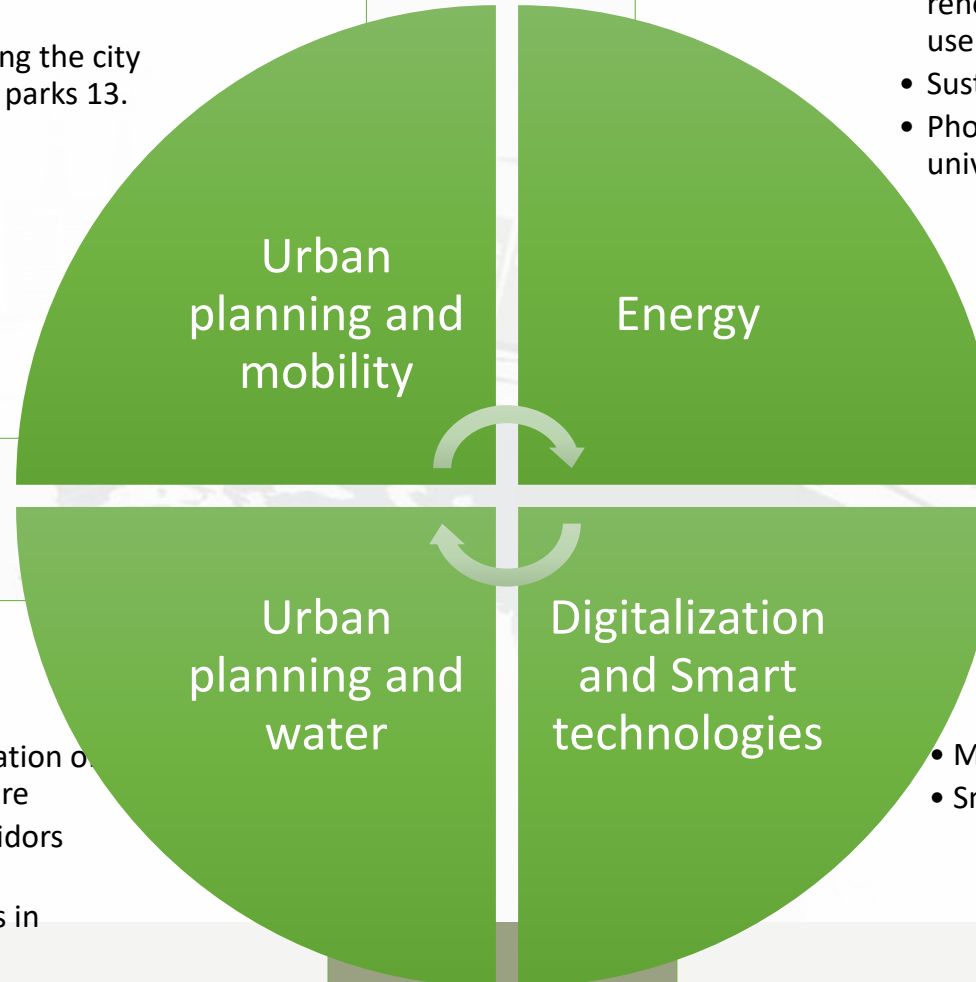


# Project ideas of the Morgenstadt Initiative in Saltillo

- The project ideas within the Road Map were identified through the Morgenstadt City Lab methodology.
- The City Lab focused on "Energy", "Water" and "Mobility"
- The project ideas were then grouped under three large thematic groups: **urban planning and water, urban planning and mobility** and **energy**. A fourth thematic group considers the cross-cutting tools of **digitalization** and **Smart Technologies** that allow optimization of planning and operation of projects and initiatives.

- Renewal of the public bicycle network
- Technological update of public transport
- Tram line connecting the city with the industrial parks 13. Electric buses

- Sustainable neighborhood
- Awards in energy efficiency, renewable energy and sustainable use of water
- Sustainable industrial park
- Photovoltaic solar energy in universities as a real laboratory



- Restoration and integration of blue green infrastructure
- Sustainable urban corridors and green areas
- Nature-based solutions in recharge zones

- Mobility as a Service
- Smart and sustainable buildings

# Economic-financial barriers to the implementation of sustainable development projects in Saltillo

## Barriers to urban planning and water projects

- ④ Capital intensive construction and implementation
- ④ Traditionally do not generate revenue in the operational phase
- ④ Scarce public resources for the development of pre-feasibility studies and project profiling
- ④ Scarce public resources for project implementation
- ④ Savings from water management costs and from avoided flooding are yet to be evaluated
- ④ Potential increase in municipality operational costs
- ④ Public financing plans for adaptation are lacking

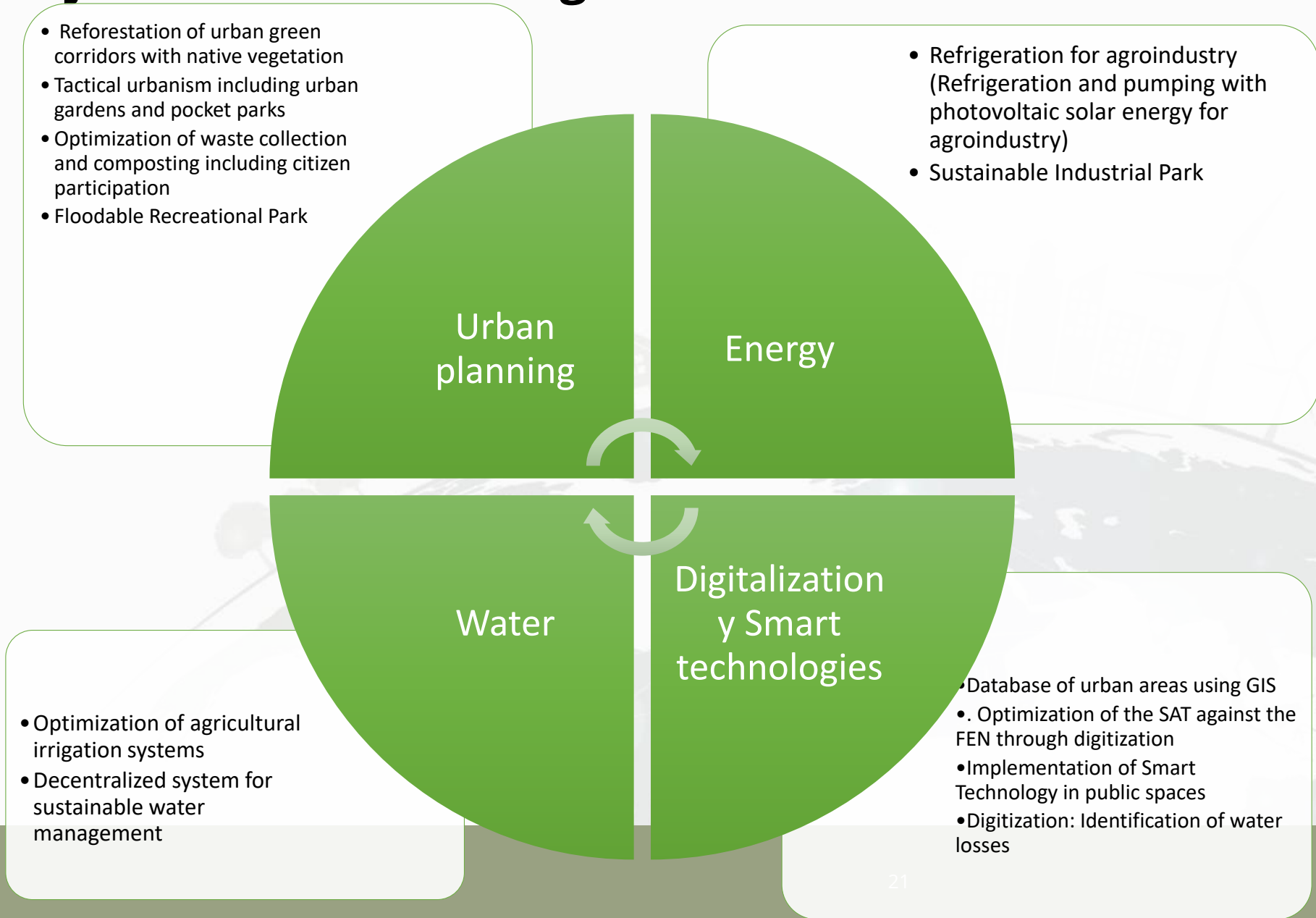
## Barriers to urban planning and mobility projects

- ④ High capital requirements for vehicle acquisition or infrastructure investments
- ④ Scarce public resources for the development of pre-feasibility studies and project profiling
- ④ Scarce public resources for project implementation
- ④ These projects can generate income in the operational phase but require business models to capture these
- ④ Income generated is limited socially and politically in relation to transport rates and potential subsidies for this service
- ④ Potential increase in municipality operational costs

## Barriers to energy projects

- ④ Scarce public resources for the development of pre-feasibility studies and project profiling
- ④ Scarce public resources for project implementation
- ④ These projects are known to generate income in the operational phase as energy expense savings, but require financial instruments to overcome the upfront cost barrier
- ④ In subsidized sectors, payback periods are artificially prolonged and return on investment reduced for end-users
- ④ Regulatory uncertainty

# Project ideas of the Morgenstadt Initiative in Piura



- 🌿 The project ideas within the Road Map were identified through the Morgenstadt City Lab methodology.
- 🌿 The City Lab focused on "Energy", "Water" and "Mobility"
- 🌿 The project ideas were then grouped under three large thematic groups: **urban planning and water, urban planning and mobility and energy**. A fourth thematic group considers the cross-cutting tools of **digitalization** and **Smart Technologies** that allow optimization of planning and operation of projects and initiatives.

# Economic-financial barriers to the implementation of sustainable development projects in Piura

## Barriers to urban planning projects

- ④ Capital intensive construction and implementation
- ④ Traditionally do not generate revenue in the operational phase
- ④ Scarce public resources for the development of pre-feasibility studies and project profiling
- ④ Scarce public resources for project implementation
- ④ Potential increase in municipality operational costs

## Barriers to water projects

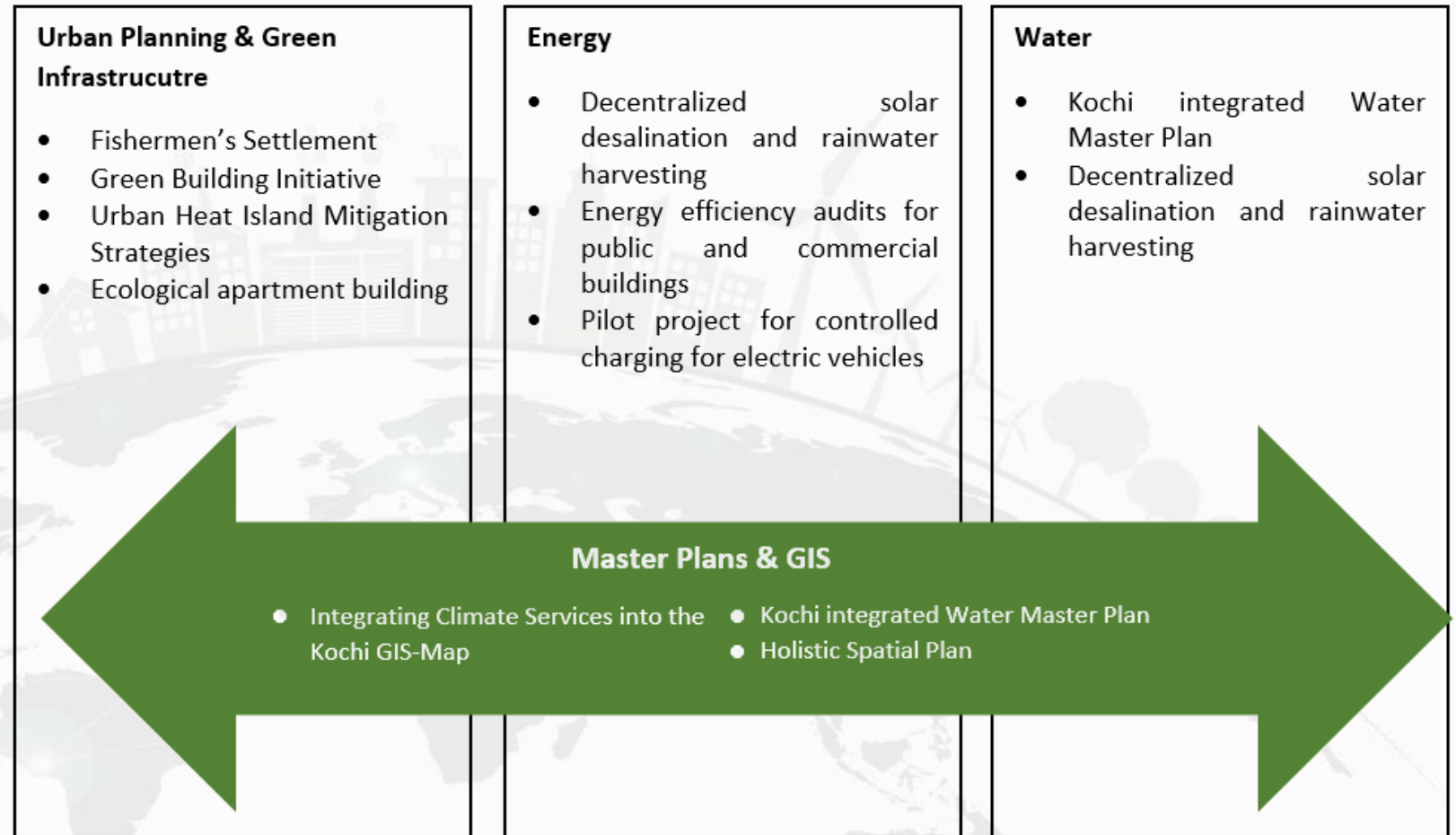
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- ④ Potential increase in municipality operational costs

## Barriers to energy projects

- ④ Scarce public resources for the development of pre-feasibility studies and project profiling
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# Project ideas of the Morgenstadt Initiative in Kochi

- 🌿 The project ideas within the Road Map were identified through the Morgenstadt City Lab methodology.
- 🌿 The City Lab focused on the "Energy", "Water" and "Green Buildings / Infrastructure" sectors.
- 🌿 The project ideas are grouped under three main thematic clusters: urban planning and green infrastructure, water and energy, in addition to a cross-cutting tool.





# Economic-financial barriers to the implementation of sustainable development project in Kochi

## Barriers to urban planning and green infrastructure projects

- 🌱 Capital intensive construction and implementation
- 🌱 Traditionally do not generate revenue in the operational phase
- 🌱 Scarce public resources for the development of pre-feasibility studies and project profiling
- 🌱 Scarce municipal resources for project implementation
- 🌱 Potential increase in municipality operational costs

## Barriers to energy projects

- 🌱 Equipment acquisition and installation is capital intensive
- 🌱 Scarce public resources for the development of pre-feasibility studies and project profiling
- 🌱 Scarce municipal resources for project implementation
- 🌱 In sectors where energy is subsidized, payback periods for end-users are artificially prolonged
- 🌱 Potential increase in municipality operational costs

## Barriers to water projects

- 🌱 Equipment acquisition and installation is capital intensive
- 🌱 Scarce public resources for the development of pre-feasibility studies and project profiling
- 🌱 In sectors where drinking water supply and/or wastewater management receive subsidy, payback periods for end-users are artificially prolonged.
- 🌱 Potential increase in municipality operational costs

# General Financing Instruments

## Governmental Instruments

- Taxes
- Fees, permits and charges
- Intergovernmental contributions or funding

## Non-governmental instruments

- Donations
- Loans
- Guarantees
- Bonds
- Carbon Finance
- Climate Finance

## Mixed Instruments and other sources

- Public Private Partnerships
- Incremental tax financing
- Tax reduction schemes
- Non-monetary sources of support

# International financial institutions and sources of project funding

| Multilateral Development Banks and Financial Institutions  | Subregional banks  | Aid Coordination Groups  | Specialized climate finance fund   |
|--|--|--|--|
| <ul style="list-style-type: none"> <li>• World Bank</li> <li>• KFW</li> <li>• AFD (French Development Agency)</li> <li>• Interamerican Development Bank (IDB)</li> </ul> | <ul style="list-style-type: none"> <li>• Andean Development Corporation (CAF)</li> <li>• Asian Development Bank</li> </ul> | <ul style="list-style-type: none"> <li>• USAID</li> <li>• UKPACT</li> <li>• GIZ</li> <li>• Spanish Agency for International Development Cooperation AECID</li> </ul> | <ul style="list-style-type: none"> <li>• Global Environmental Facility, GEF</li> <li>• Green Climate Fund, GCF</li> <li>• Adaptation Fund</li> <li>• NAMA Facility</li> <li>• International Climate Initiative (IKI)</li> <li>• Euroclima</li> </ul> |

# Public sources of funding for municipal projects in México

**Federal sources of funding:** → -Participations and Federal Contributions, regulated mainly by the Fiscal Coordination System and Agreements

**Federal special agreements and programs:**

- SEDATU programs:
  - Urban Improvement Program
  - Social Housing Program
- CONAFOR program:
  - Support Program for Sustainable Forestry Development
- CONUEE program:
  - National Energy Efficiency Project (Public Lighting)
- CONAGUA program:
  - Potable Water, Drainage and Treatment Program

**Municipal sources of funding:**

- Real estate taxes
- Construction fees
- Income rights
- Income rights
- Municipal borrowing

# National development banks and other sources of funding for municipal projects in Mexico



Finances or refines public or private investment in:

- Infrastructure
- Public services
- Strengthening of federal, state and municipal governments

Through loans and programs such as:

- Global credit line
- Municipal solid waste program
- FONADIN (mobility)



Facilitates access to financing and other business development services to:

- SMEs
- Entrepreneurs
- Priority investment projects

Through second floor loans and programs such as:

- CSOLAR
- Specific financing for the structuring and financing of investment projects that contribute to reaching a 35% stake

## Other sources of funding



# Public sources of funding for municipal projects in Perú

## Federal sources of funding:

- Municipal Compensation Fund, the Canon and Surplus transfers, and other transfers based on the Annual Budget Law
- The Annual Public Budget the main instrument of the State to grant greater well-being to citizens through the allocation of public resources to regional and local governments

## Municipal sources of funding:

- Income from municipal property management
- Taxes (property, sales, automotive, betting, public shows and games (among others).
- Contributions, rates, licenses and rights created by Municipal Ordinances
- Economic rights generated by the privatizations, concessions and services that they grant. •
- Resources from its financial operations,.



# National development banks and other sources of funding for municipal projects in Perú



As a second-tier financial institution, it is focused on financing:

- the development of infrastructure
- productive investment
- SMEs and entrepreneurship

Through:

- Guarantees for SMEs working capital credits
- Financial inclusion programs
- Support to investments including road and connectivity infrastructure, energy, and basic services such as drinking water and sanitation.
- Support to productive investments which generate employment, social inclusion and decentralized development.
- Financial structuring, trusts, among others.

## COFIDE SUSTAINABILITY FINANCIAL INSTRUMENTS:

- COFIDE VERDE
- COFIGAS
- BioNegocios
- Green Bond
- Sustainable Bond

## OTHER SUSTAINABILITY FINANCIAL INSTRUMENTS:

- Ecoahorro by the Municipal savings and credit banks

# National and Regional Finance in Kochi

## Central Government Schemes

- AMRUT
- Suchitwa Mission
- Solar Subsidy Scheme
- Pooled Finance Development Fund (PFDF)
- Building Energy Efficiency Programme (BEEP)
- Street Lighting National Programme (SLNP)
- Smart City Mission

## State Government Schemes

- Electric Vehicle Policy Kerala
- Rebuild Kerala Development Programme (RKPD)
- Kerala Infrastructure Investment Fund Board (KIIFB)

## Other Sources

- MLA-LAD
- MPLADS
- Housing And Urban Development Corporation (HUDCO)

# Recommendations for advancing project ideas

- 🌱 The projects identified for Saltillo and Piura are, most of them in a pre-investment stage with an idea or concept maturity level.
- 🌱 To bring these projects to an implementation stage, it is necessary to carry out studies, pre-feasibility analysis, define the scope, profile and design of the project/program, as well as the investment amounts and the type of financing mechanism required.
- 🌱 For projects that are in the pre-investment stage, technical assistance to evolve towards an implementation phase is needed. This can come from the municipality's institutions and/or from academic organizations, non-profit or think-tank organizations, global and regional multilateral cooperation organizations, as well as bilateral ones among others.
- 🌱 During the pre-investment stage, according to the characteristics of the project/program, the optimal mechanism to finance the project should be defined.

# Possible financing instruments by thematic group, the case of Saltillo

## Urban planning and water

- Federal or state contributions or financing (public finance)
- Access to SEDATU Urban Improvement Program.
- Access to BANOBRAS global credit line.
- Access the BANOBRAS-FAIS highly marginalized areas.
- Financing by incremental taxes
- Tax reduction schemes for private investment in infrastructure
- Payment for private maintenance actions, ("adoption" of public parks, medians or sidewalks)
- Financing as part of a green bond portfolio
- Donations from the industrial private sector
- Others yet to explore

## Urban planning and mobility

- Transportation rates that reflect the costs of project implementation considering subsidy programs for vulnerable groups.
- Financing through public-private partnership
- BANOBRAS Simple Credit Line for the the development of
- Access support from FONADIN of BANOBRAS
- Others yet to explore

## Energy

- Access to loans by the municipality for purely public energy projects.
- Facilitate access to (guaranteed) loans for the private sector at preferential rates, Eg: NAFIN's CSOLAR loan. •
- Green Climate Fund
- NAFIN Sustainability Fund for large projects.
- Facilitate access to FIDE Comprehensive Housing Improvement Program
- Facilitate access to FIPATERM financing programs.
- Public-private partnership schemes for large infrastructure projects
- Others yet to explore

# Possible financing instruments by thematic group, the case of Piura

## Urban planning

- Federal or state contributions or financing (public finance)
- Financing by incremental taxes such as the case of municipal participation in the increase in the value of urban land mandated in the Sustainable Development Law (Law 31313).
- Tax reduction schemes for private investment in infrastructure
- Payment for private maintenance actions, ("adoption" of public parks, medians or sidewalks)
- Financing as part of a green bond portfolio
- Others yet to explore

## Water

- Rates and charges for water and sanitation services as a resource for financing water infrastructure projects.
- Access to loans by the municipality for purely public water projects.
- Federal or state contributions or financing (public finance). Inclusion of projects in the Annual Public Budget
- Donations mainly for water projects in rural areas with a high level of marginalization.
- Financing as part of a green bond portfolio
- Public-private partnership schemes for large infrastructure projects
- Others yet to explore

## Energy

- Access to loans by the municipality for purely public energy projects.
- Facilitate access to green loans for the private sector Eg: Ecoahorro product
- Green Climate Fund
- Green COFIDE financing through its financial intermediaries
- Emission reduction certificates
- Public-private partnership schemes for large infrastructure projects
- Others yet to explore



# Possible financing instruments by thematic group, the case of Kochi

## Urban planning and Green infrastructure

- Municipal budget can be supported by grants from the Department of Fisheries and governmental housing schemes
- Contribution by property owner supported through green mortgages
- Access to finance through programs run by FIs focused on housing
- Central government contributions allocations to KMC, state government allocations
- Local tax collections by KMC (property tax and other municipal taxes)
- Cash or in-kind contributions from international NGOs or donors
- Technical assistance received from IFIs such as the World Bank or Asian Development Bank
- Others yet to explore

## Water

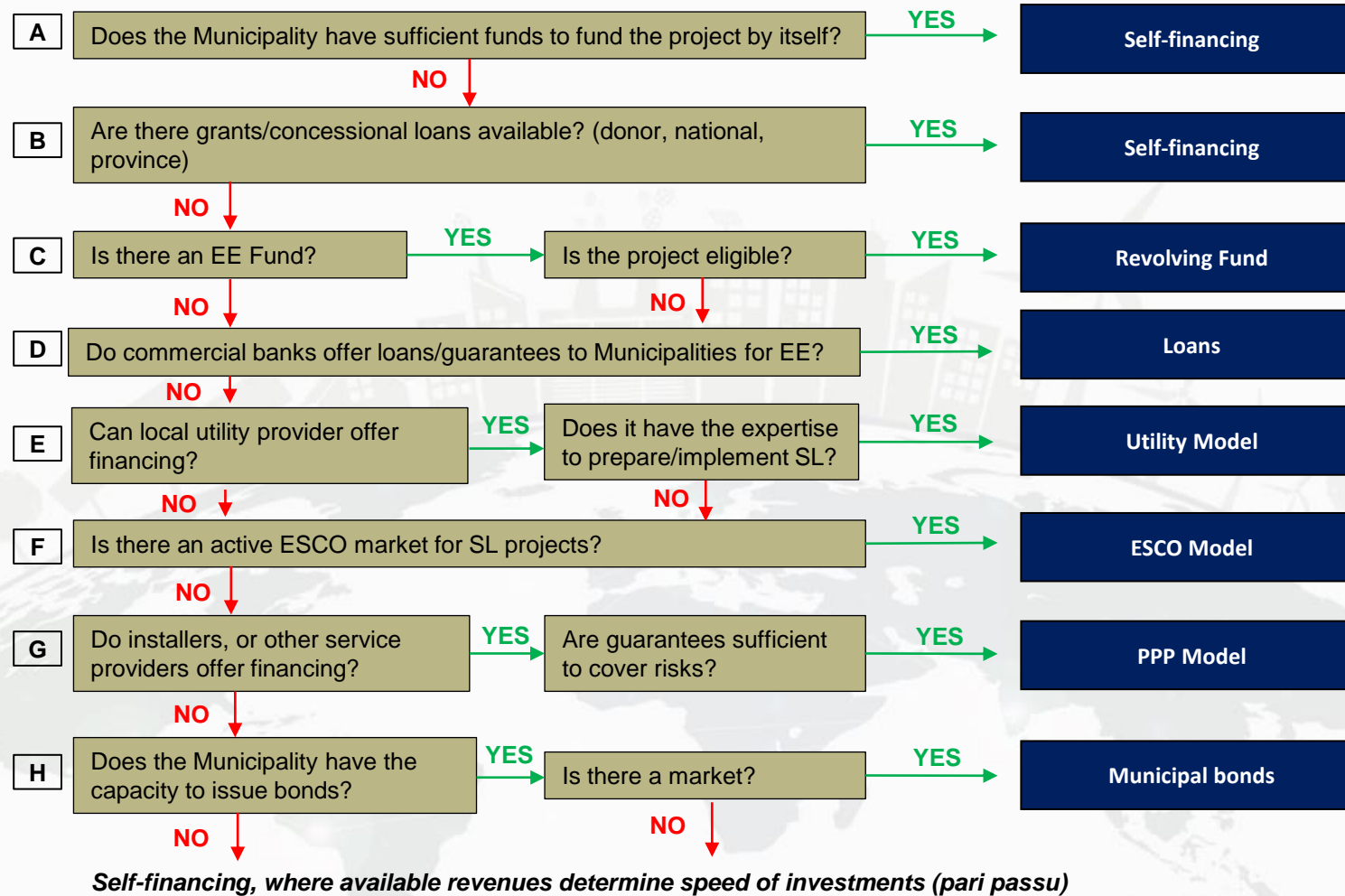
- Rates and charges for water and sanitation services as a resource for financing water infrastructure projects.
- Possibility of surplus electricity generation through the solar desalination project
- Contributions from state government in case of a large state-wide project.
- Contribution from Kerala Water Authority as part of their water desalination plan.
- Access to loans (of IFIs) by KWA for public water projects
- Access international finance through targeted water programs
- Public-private partnership schemes for large infrastructure projects
- Others yet to explore

## Energy

- Investment grade energy audit can be undertaken by an ESCO
- Energy audits can also be financed through Kerala State Electricity Board and Energy Management Centre
- Private sector charging station manufacturers can participate in the project and bring financing
- Access to loans by the municipality for purely public energy projects.
- Emission reduction certificates
- Public-private partnership schemes for large infrastructure projects
- Others yet to explore

# Selecting Financing Mechanisms for Specific Situations

## Example of Energy Efficient Street Lights



Source: Based on ESMAP 2014



# Thank you!

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# GREEN AND SOCIAL BONDS FOR SMART CITY FINANCING

*Julián Costabile*

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Supported by:



based on a decision of the German Bundestag

# ABOUT SMS

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**SMS - San Martin, Suarez y Asociados** is a Firm specialized in auditing services, fiscal advising and consultancy for companies, with an international presence.

We are the founding firm of SMS Latinoamérica and SMS Argentina, national and international auditing and consulting firms with operations in 21 countries of Latin America and the Caribbean. We are registered in the Public Company Accounting Oversight Board (PCAOB) and have been admitted as a full member of the Forum of Firms, an International Federation of Accountants (IFAC) committee.

**SMS Sustainability** is the firm's division that offers consulting services for the development and implementation of Sustainability and Sustainable Finance strategies, as well as assistance for the writing and assurance of non-financial reports. We are part of the Executive Committee of the Latin American <IR> Group, its objectives being sharing technical information regarding Integrated Reporting and acting as a link between the IFRS and the region. We are also part of the Sustainable Finance Initiative in Ecuador.

[www.smslatam.com](http://www.smslatam.com)








# Our Sustainable Finance Services

- **CONSULTING FOR THE ISSUANCE OF SOCIAL, GREEN AND SUSTAINABLE BONDS:** we assist and accompany entities in the development and issuance of this type of financial instruments, along with other legal and financial advisors.
- **OPPORTUNITY IDENTIFICATION AND FEASIBILITY ANALYSES:** We identify key aspects of your current or potential business that may be financed through such instruments.
- **SECOND PARTY OPINION IN THE ISSUANCE OF SUSTAINABLE BONDS AND REPORT ASSURANCE:** As an auditing firm network with a strong sustainability division, we are qualified to issue assurance reports for Sustainable Bonds in the entire region, and evaluating their alignment with the ICMA and CBI international principles as well as local guidelines
- **SUSTAINABLE CREDIT LINES DEVELOPMENT FOR BANKS:** We help identify eligible sectors and assist in the design and development of financial products as well as designing an evaluation tool to measure impacts.
- **CLIMATE IMPACT ANALYSIS FOR INVESTMENT PORTFOLIOS:** We advise insurance companies and other institutional investors through an analysis of the environmental and social impact of their investments.
- **OTHER SUSTAINABLE FINANCE PRODUCTS:** We have carried out consulting jobs for governments and multilateral credit agencies, we have in the training of people for organizations, we have helped write impact reports for ESG investment funds, issued assurance reports for impact bonds, among other works.

# EVOLUTION OF SGS BONDS ISSUANCE

## TRENDS IN THE LATIN AMERICA REGION

LAC sustainable debt market

|                             |  Green |  Social |  Sustainability | Total GSS        |
|-----------------------------|---|--|--|------------------|
| <b>Total size of market</b> | <b>USD30.2bn</b>  | <b>USD8.6bn</b>  | <b>USD9.7bn</b>  | <b>USD48.6bn</b> |
| <b>Number of deals</b>      | <b>169</b>  | <b>37</b>  | <b>40</b>  | <b>246</b>       |
| <b>Number of issuers</b>    | <b>91</b>   | <b>28</b>  | <b>26</b>  | <b>132</b>       |
| <b>Number of countries</b>  | <b>12</b>   | <b>10</b>  | <b>9</b>   | <b>14</b>        |
| <b>Number of currencies</b> | <b>11</b>   | <b>10</b>  | <b>6</b>   | <b>14</b>        |

Latin America & Caribbean State of the market, CBI, June 2021 - [Link](#)

## Thematic Bonds

### Climate Bonds INITIATIVE



Green, Social and Sustainable Bond issuance in Latin America and the Caribbean surpassed **USD 48.500 bn** in 1H21 compared to USD 16mill in 2020.

# LOCAL ALIGNMENT FRAMEWORKS

## Thematic Bonds

### GUIDELINES AND REGULATIONS CNV AND BYMA - ARGENTINA



#### NATIONAL SECURITIES COMMISSION – CNV

- » Guidelines for the issuance of social, green and sustainable securities  
Resolution 788/2019 and its Annex- [Link](#)
- » Sustainable Guidelines – Guide for the issuance of Social, Green and Sustainable Bonds  
Resolution 896/2021 and Annex II - [Link](#)



#### Argentine Markets and Exchanges- BYMA

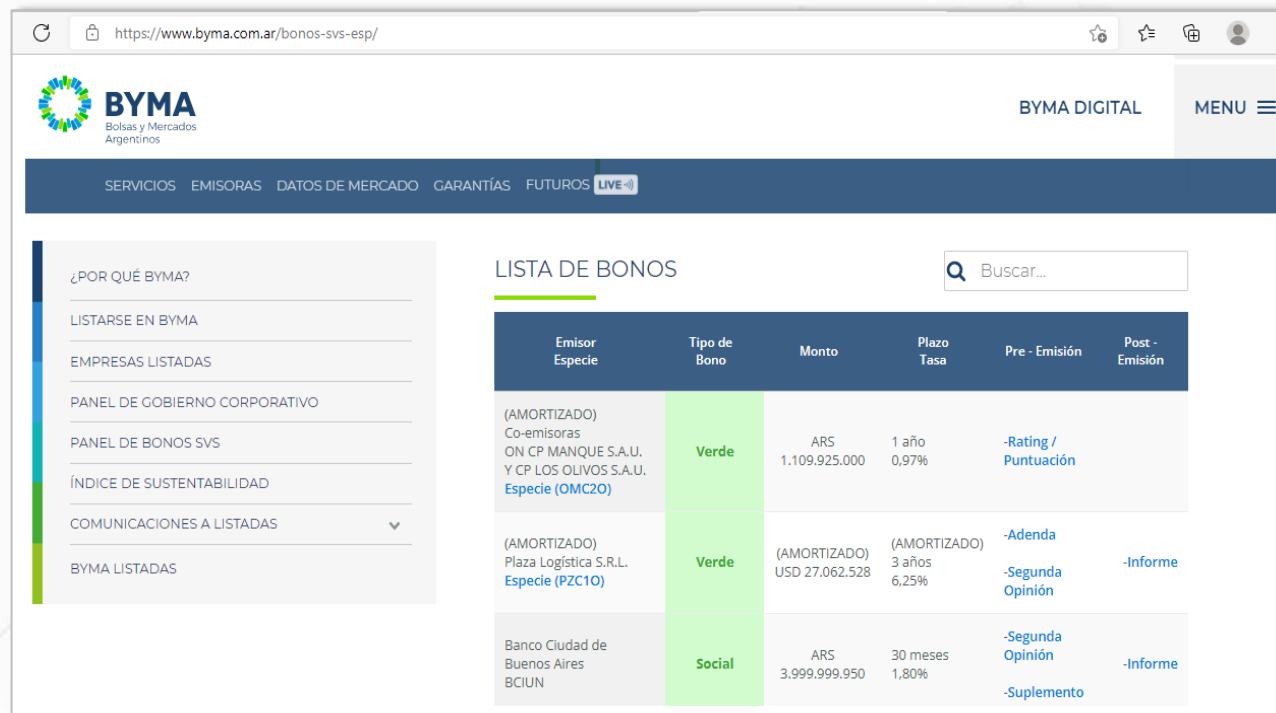
- » Guide for the listing of Social, Green and Sustainable Bonds in BYMA’s Panel. 2019 - [Link](#)
- » Regulations for the listing of Negotiable Obligations and public securities and for their listing to BYMA’s Social, Green and Sustainable Bond Panel. 2019 - [Link](#)
- » Regulation for the listing of Social, Green and Sustainable Trust Securities and Common Investment Fund’s Shares. 2020 - [Link](#)

# EVOLUTION OF SGS BONDS ISSUANCE

Thematic Bonds

## TRENDS IN ARGENTINA

» **BYMA's** SGS Bond Panel – [Link](#)



| Emisor Especie  | Tipo de Bono | Monto                          | Plazo Tasa                      | Pre - Emisión                      | Post - Emisión |
|---|--------------|--------------------------------|---------------------------------|------------------------------------|----------------|
| (AMORTIZADO)<br>Co-emisoras<br>ON CP MANQUE S.A.U.<br>Y CP LOS OLIVOS S.A.U.<br>Especie (OMC20) | Verde        | ARS<br>1,109,925,000           | 1 año<br>0,97%                  | -Rating /<br>Puntuación            |                |
| (AMORTIZADO)<br>Plaza Logística S.R.L.<br>Especie (PZC10)                                       | Verde        | (AMORTIZADO)<br>USD 27,062,528 | (AMORTIZADO)<br>3 años<br>6,25% | -Adenda<br>-Segunda<br>Opinión     | -Informe       |
| Banco Ciudad de<br>Buenos Aires<br>BCIUN  | Social       | ARS<br>3,999,999,950           | 30 meses<br>1,80%               | -Segunda<br>Opinión<br>-Suplemento | -Informe       |

» **BYMA** Sustainability Linked Bonds– [Link](#)  
2 Sustainability Linked Bonds listed for **USD 35 million**

» **BYMA** Sustainability Index– [Link](#)  
Listing of the 15 highest-scoring companies according to a ESG factor evaluation

**31 Listed SGS Bonds in Oct-22** for a total amount near **USD 1,000 million**

# INFORMATION SOURCES FOR THEMATIC BONDS - ARGENTINA

## Thematic Bonds

### BYMA'S GREEN, SOCIAL AND SUSTAINABLE BONDS PANEL

| Issuer   | Type of bond | Year      | Total issued amount (millions) |
|--|--------------|-----------|--------------------------------|
| Plaza Logística S.R.L.                             | Sustainable  | 2021      | ARS 1,800                      |
| ON CP MANQUE S.A.U. y CP LOS OLIVOS S.A.U.         | Green        | 2020      | USD 35                         |
| Banco Ciudad de Buenos Aires                       | Social       | 2020      | ARS 4,000                      |
| PELLEGRINI S.A.G.F.C.I                             | Social       | 2021      | ARS 2,033                      |
| GENNEIA S.A.                                       | Green        | 2021      | USD 500                        |
| LABORATORIOS RICHMOND S.A.                         | Sustainable  | 2021      | USD 85                         |
| SION S.A.  | Social       | 2021/2022 | ARS 695                        |
| UN TECHO PARA ARGENTINA                            | Social       | 2021      | ARS 18                         |
| LUZ DE TRES PICOS S.A.                             | Green        | 2021/2022 | USD 187                        |
| ZUAMAR S.A.  | Green        | 2021      | ARS 115                        |
| TERMOELÉCTRICA S.A.                                | Green        | 2021      | ARS 50                         |
| ASOCIACIÓN CIVIL SUMATORIA PARA UNA NUEVA ECONOMÍA | Social       | 2021      | ARS 30                         |
| NUEVA ECONOMÍA                                     | Sustainable  | 2022      | ARS 60                         |
| PAMPA ENERGIA S.A.                                 | Green        | 2021      | ARS 3,107                      |
| YPF ENERGIA ELECTRICA S.A.                         | Green        | 2022      | USD 64                         |
| MADECO ARGENTINA S.A.                              | Green        | 2022      | ARS 70                         |
| EDENOR S.A.  | Social       | 2022      | USD 53                         |
| 360 ENERGY SOLAR S.A.                              | Green        | 2022      | USD 20                         |
| CITRUSVIL S.A.                                     | Green        | 2022      | USD 6                          |

31 listed bonds in October 2022

18 issuing companies

10 Social Bonds  
17 Green Bonds  
4 Sustainable Bonds

Source: Panel Bonos SVS BYMA.  
<https://www.byma.com.ar/bonos-svs-esp/>



# LOCAL CASES

## Thematic Bonds

### GREEN BONDS

#### GENNEIA

Biggest issuer of Green Bonds in Argentina. Currently, it has 5 bonds issued in 2021 for a combined amount of **USD500mill**.

**Use of proceeds:** Installation and commissioning of 11 wind farms and a solar power plant across four provinces. [\(Link to annual report\)](#)

### SOCIAL BONDS

#### BANK OF THE CITY OF BUENOS AIRES (BANCO CIUDAD DE BUENOS AIRES)

**Characteristics:** Fixed rate bond with a 30-month maturity for a total amount of **USD54mill** (ARS 4bill), issued September 2020.

**Use of proceeds:** Granting lines of credit to prevent or relieve the impacts of the COVID-19 pandemic, including financing for the healthcare sector, companies, and small and micro businesses. [\(Link to annual report\)](#)

#### ARGENTINE FEDERATION OF WINE PRODUCING COOPERATIVES – Fecovita

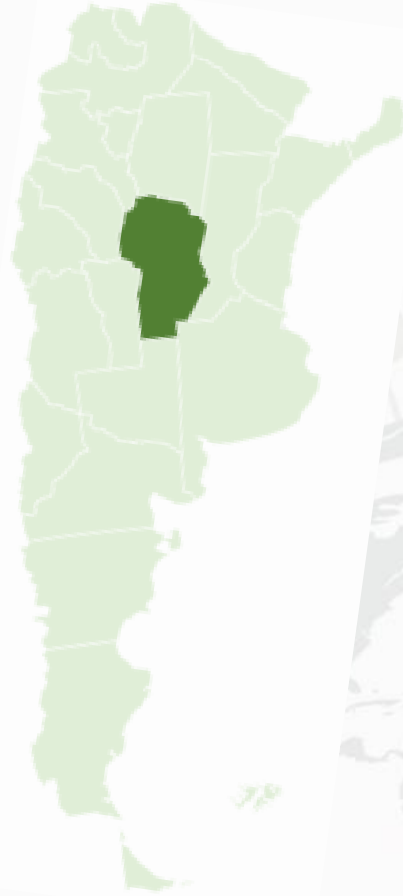
**Characteristics:** Trust securities for a total amount of **USD3mill** issued November 2020.

**Use of proceeds:** Financing for over 1000 small rural producers with an average of seven hectares for grape production with limited access to funds. [\(Link to Second Party Opinion\)](#)

# GREEN CITY DEVELOPMENT THROUGH BONDS

Thematic Bonds

## CORDOBA CITY'S GREEN TREASURY BILL



The province of Córdoba is the second most populous district of Argentina.

Córdoba has a strong and diverse economy, being an important industrial center for the country as well as having a competitive agricultural sector.

Córdoba City, its capital, is the second largest urban center in Argentina, being home to around 1.5 million people.

# GREEN CITY DEVELOPMENT THROUGH BONDS

Thematic Bonds

## CORDOBA CITY'S GREEN TREASURY BILL



Municipalidad  
de Córdoba

The Municipality of the City of Córdoba is in the process of issuing a Green Bond to fund three projects that will have a positive environmental impact.

**Characteristics:** Variable rate bond for a total amount of **ARS 2Bill.**

**Use of proceeds:** Funding for three ongoing projects to improve the cities energy efficiency and improvement of the local sewerage system

# USE OF PROCEEDS

## Thematic Bonds

| Project  | ICMA Category                               | Total Funding (ARS)     | Funding Allocated (ARS) | Funding to be raised (ARS) |
|--|---|-------------------------|-------------------------|----------------------------|
| LED Lighting   | Energy efficiency                           | \$ 1.829.544.817        | \$ 905.536.879          | \$ 924.007.938             |
| Solar panel installation                                   | Renewable Energy                            | \$ 12.226.500           | \$ 12.226.500           | 0                          |
| Urban Sewer Network Improvement                            | Sustainable water and wastewater management | \$ 250.000.000          | \$ 40.242.154           | \$ 209.757.846             |
| <b>Total</b>   |   | <b>\$ 2.091.771.317</b> | <b>\$ 958.005.533</b>   | <b>\$ 1.133.765.784</b>    |
| <b>Total funding to be provided through the Green Bond</b> |   | <b>\$ 2.000.000.000</b> | <b>\$ 958.005.533</b>   | <b>\$ 1.041.994.467</b>    |

- Already allocated funding (“Refinancing of expenses”): 48%
- Future funding to be allocated: 52%
- Period of retrospection: 24 months

# USE OF PROCEEDS

## Thematic Bonds

### LED LIGHTING INSTALLATION

- Replacement of Sodium Vapor Lamps for LED lights throughout the city.
- Repair and replacement of already installed LED in public lighting.
- Installation of new LED lights in several places through the city.

### SOLAR CHARGING STATIONS

- Installation of solar water heaters and solar panel to provide hot water and energy for cellphone charging in public spaces.

### IMPROVEMENTS ON THE LOCAL URBAN SEWER SYSTEM

- Public Works for replacement or rehabilitation of sewer facilities installed on the Suquía River.

# REPORTING

## Thematic Bonds

Reporting entity: **Córdoba Municipality.**

Report Content: **Use of Proceeds and Environmental Benefits.**

Reporting period: **annual** (to be presented along with the year's General Accounts Report) + updated report when all the funds have been allocated.

| Project                         | ICMA's Category                             | Key Performance Indicator   |
|---------------------------------|---|---|
| LED Lighting                    | Energy Efficiency                           | <ul style="list-style-type: none"> <li>• LED Lights installed.</li> <li>• Estimated annual energy savings (MWh/year).</li> </ul>                            |
| Solar panel installation        | Renewable Energy                            | <ul style="list-style-type: none"> <li>• Number of solar panels acquired and installed.</li> <li>• Annual renewable energy generation (GJ/year).</li> </ul> |
| Urban Sewer Network Improvement | Sustainable water and wastewater management | <ul style="list-style-type: none"> <li>• Flow of sewage effluents circulating through optimized sewage relievers (m3/month).</li> </ul>                     |



# THANK YOU!



[www.smslatam.com](http://www.smslatam.com)

[www.smslatam.com/sustentabiliad](http://www.smslatam.com/sustentabiliad)

University of Stuttgart  
Institute for Human-Centered  
Urban Modelling (IHUM)

Fraunhofer



# MICRO AND MACRO ACTIONS TO CLIMATE CHANGE

*Dr. Rene Castro Salazar*

*Environmental and Agricultural Organization of the United Nations*



Supported by:



based on a decision of the German Bundestag

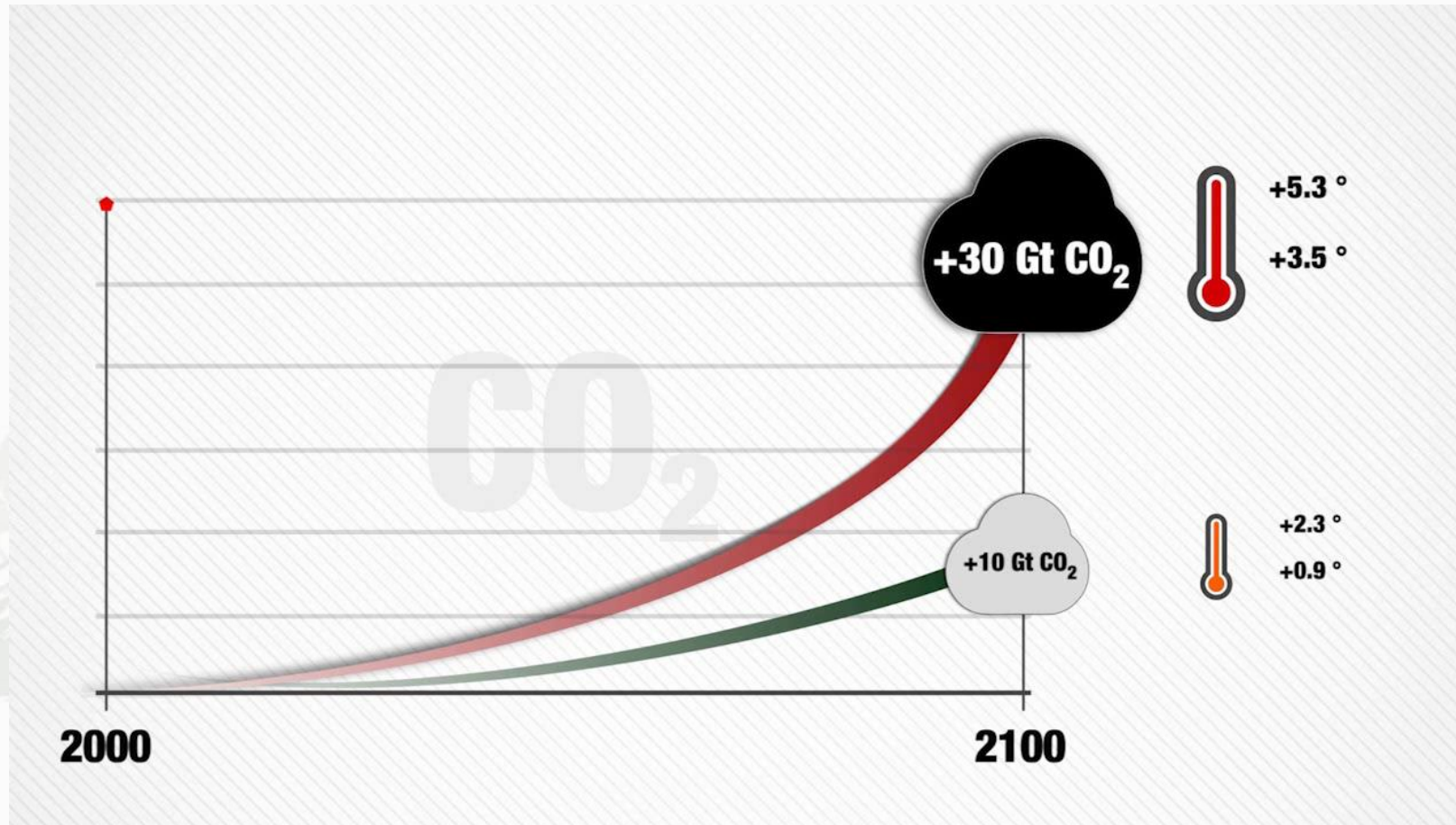
# 01

## CLIMATE CHANGE IS A GLOBAL SHOCK

- The World's still walking in the wrong path



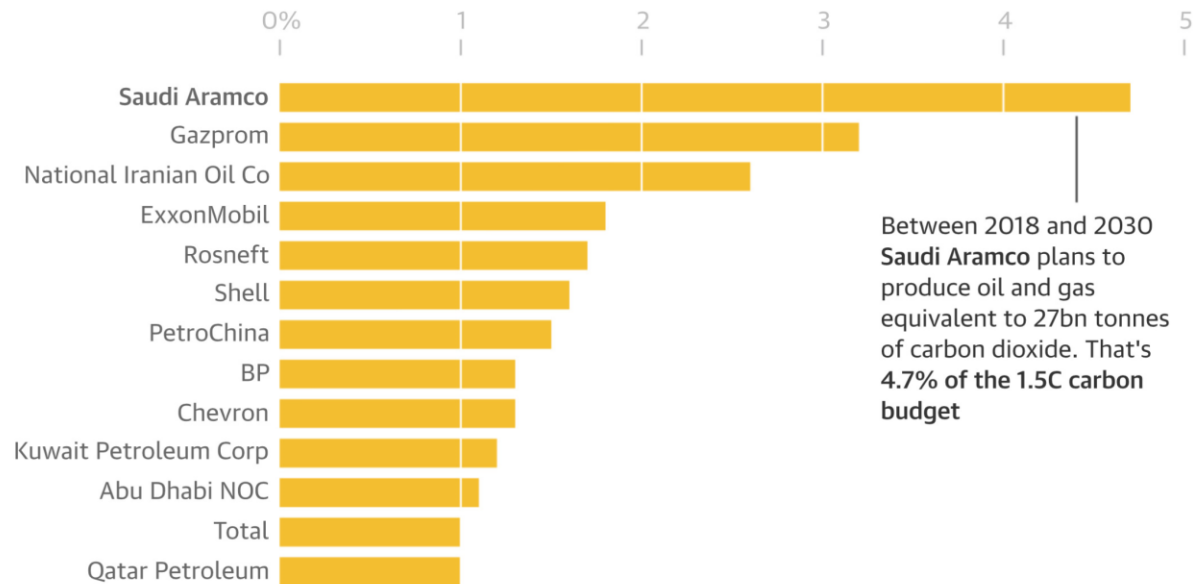
# FOLLOWING THE DESTRUCTIVE PATH



# OIL COMPANIES INCREASING THEIR USE OF CO2 PLANETARY BUDGET

## 13 companies are projected to blow almost a quarter of the remaining 1.5C carbon budget

CO<sub>2</sub> equivalent from total production between 2018 and 2030 and how much of the 1.5C carbon budget this accounts for



Guardian graphic. Source: Oil Change International. Companies emitting more than 1% of remaining 1.5C carbon budget shown

Ref: *The Guardian*, October 10, 2019

# 02

## PARIS AGREEMENT: MICRO SOLUTIONS IN CITIES AND FARMS

Developed and developing countries, micro solutions a low hanging fruit to act now.



# FOOD, NUTRITION AND AGRICULTURE IN TERMS OF CLIMATE CHANGE

Low carbon coffee + trees  
= CO2 neutrality in Costa Rica

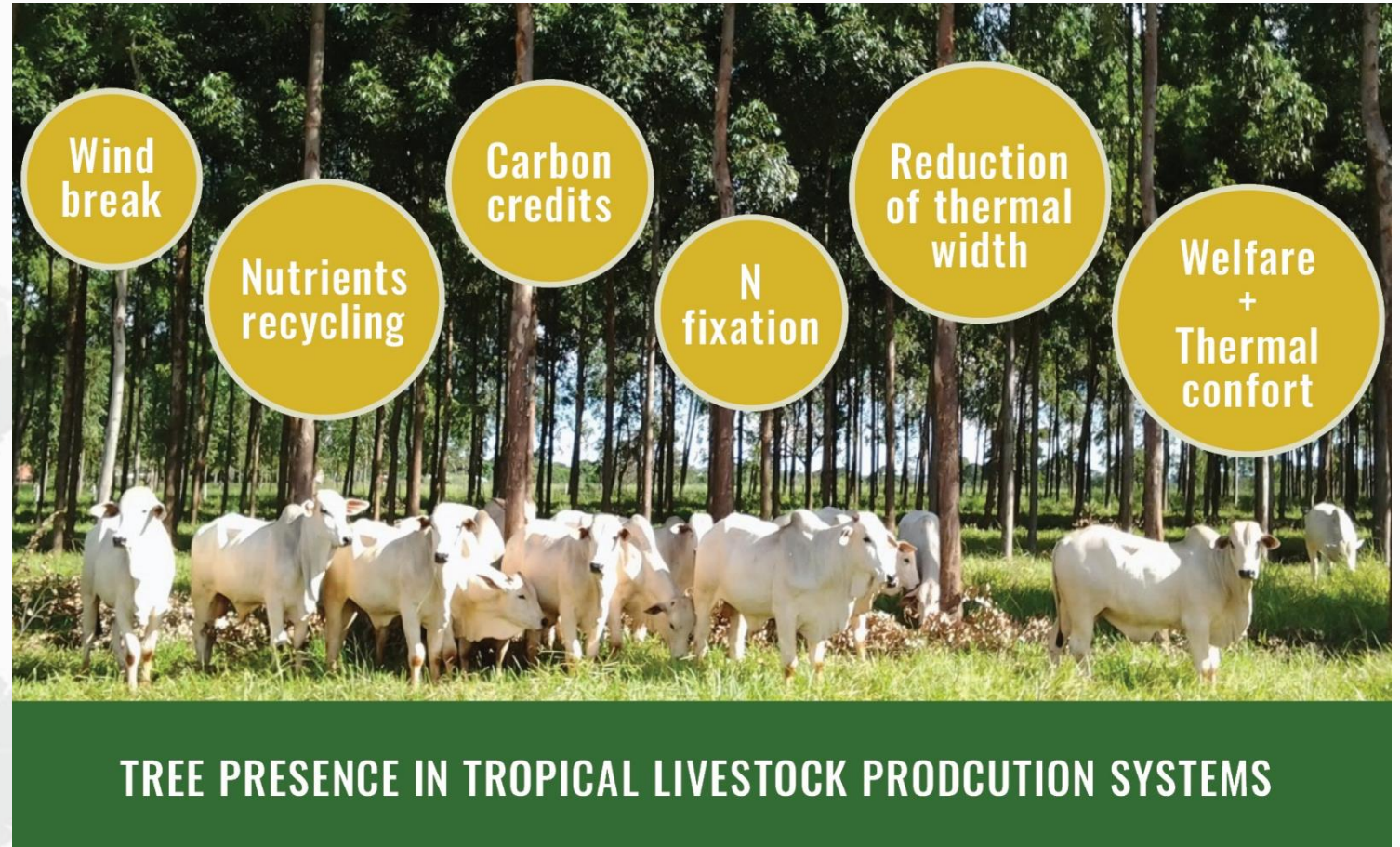


Ref: RCS Self elaboration 2020

# FOOD, NUTRITION AND AGRICULTURE IN TERMS OF CLIMATE CHANGE

## Brazilian CO<sub>2</sub> neutral beef

Ref: Fabiana, Embrapa, Brasil 2017



# URBAN VEGETATION PRODUCE BENEFITS: REDUCE HEAT, BIODIVERSITY AND FIXED CO2E NOT ALL AGREED

- **Strongly agree that UV provides benefits:**
  - 82% are pleased to observe the vegetation,
  - 80% consider that improves air quality and provides shade, -
  - 79% that it encourages them to spend more time outdoors
  - 78% that it supports wildlife that they enjoy.
- **Doubt the benefits:**
  - UV could become a refuge for criminals (17%),
  - May favour the presence of pests (12%), or
  - damage the urban infrastructure (10%).

Ref, Castro Rene and Porras Jose Ali, 2021. Examined the perception that people living in urban areas of Costa Rica have of Urban vegetation as a provider of ecosystem services by conducting an online survey (n = 1200). The questionnaire included 20 positive and 20 negative statements about UV.

<https://elpais.com/planeta-futuro/2021-08-06/manchas-verdes-en-las-ciudades-que-ilusionan-a-sus-habitantes.html>

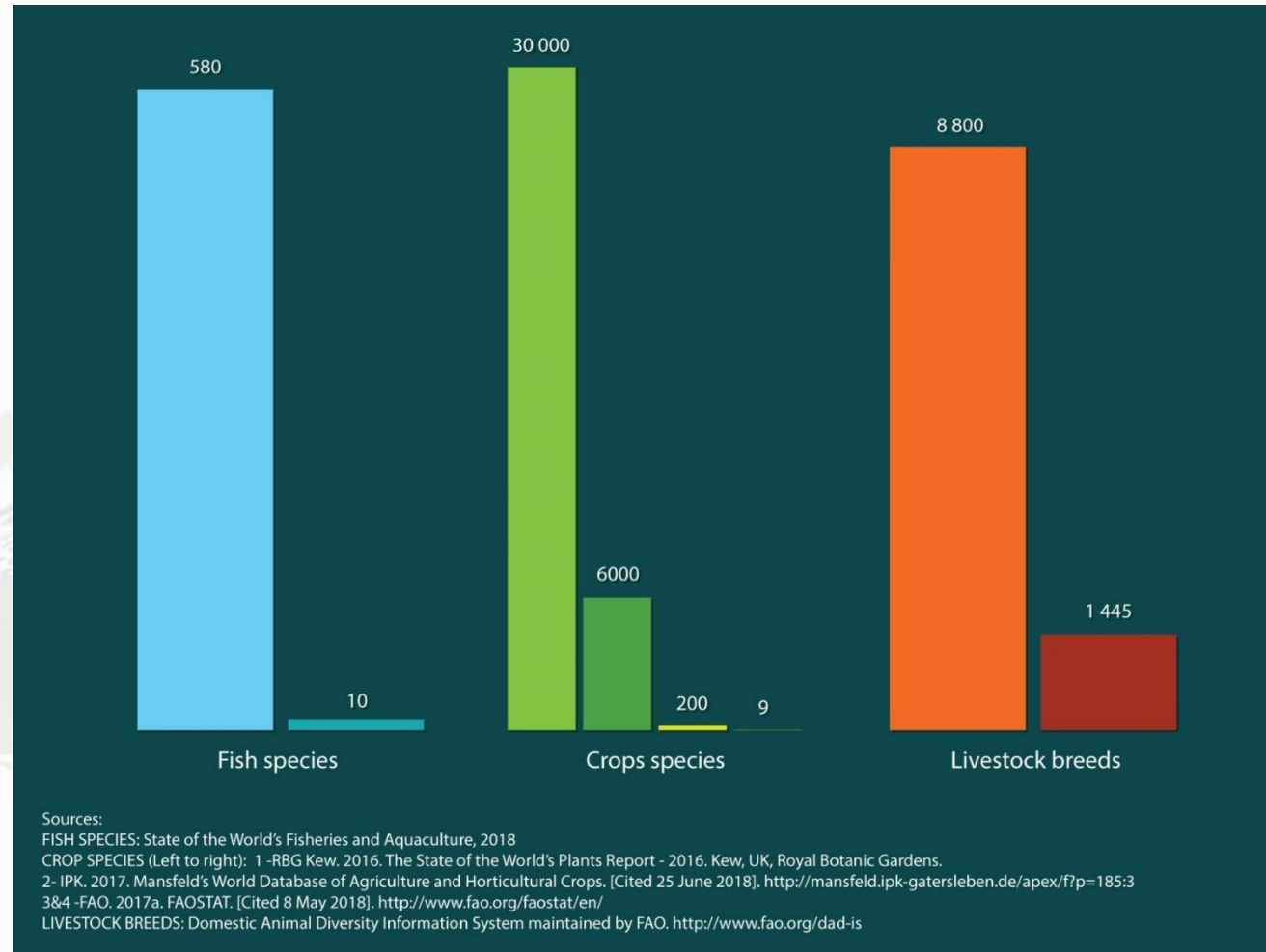


# 03

## MACRO SOLUTIONS FROM FOOD AND AGRICULTURE

- Food could be part of the immediate impact, breathing time for the long-term solution:
  - ✓ Phased out fossil fuels.

# A LESS DIVERSE DIET IS BAD FOR BIODIVERSITY AND NUTRITION



# GROWING (MAL)NUTRITION...AND FOOD WASTE...THE ETHICAL DIMENSION



FAO: no food waste campaign 2018



# METHANE EMISSIONS FROM AGRICULTURE REDUCTION POTENTIAL PER YEAR



# METHANE EMISSIONS REDUCTIONS WOULD PROVIDE “BREATHING TIME” AND WORTH \$8 BB-\$40BB

+ Table 2

Annual CH<sub>4</sub> mitigation potential and income estimates at price scenarios of \$ 10, \$ 50 and \$ 100 per CO<sub>2</sub>e ton

## Agricultural methane emissions and the potential for mitigation volume and economics

| Mitigation source      | Mitigation potential*     |                               | Gross income in millions for CO <sub>2</sub> e ***<br>price scenarios US \$/per CO <sub>2</sub> e ton |           |           |
|------------------------|---------------------------|-------------------------------|---|-----------|-----------|
|                        | Tg CH <sub>4</sub> /year* | Tons CO <sub>2</sub> e/year** | \$ 10   | \$ 50     | \$ 100    |
| 1 Rice management      | 10.6                      | 360 400 000                   | \$ 3 604  | \$ 18 020 | \$ 36 040 |
| 2 Enteric fermentation | 10                        | 340 000 000                   | \$ 3 604  | \$ 17 000 | \$ 34 000 |
| 3 Manure management    | 2                         | 68 000 000                    | \$ 680  | \$ 3 400  | \$ 6 800  |
| 4 Residue burning      | 1                         | 34 000 000                    | \$ 340  | \$ 1 700  | \$ 3 400  |
| Total millions         |                           |                               | \$ 8 024  | \$ 40 120 | \$ 80 240 |
| Total billions         |                           |                               | \$ 8  | \$ 40     | \$ 80     |

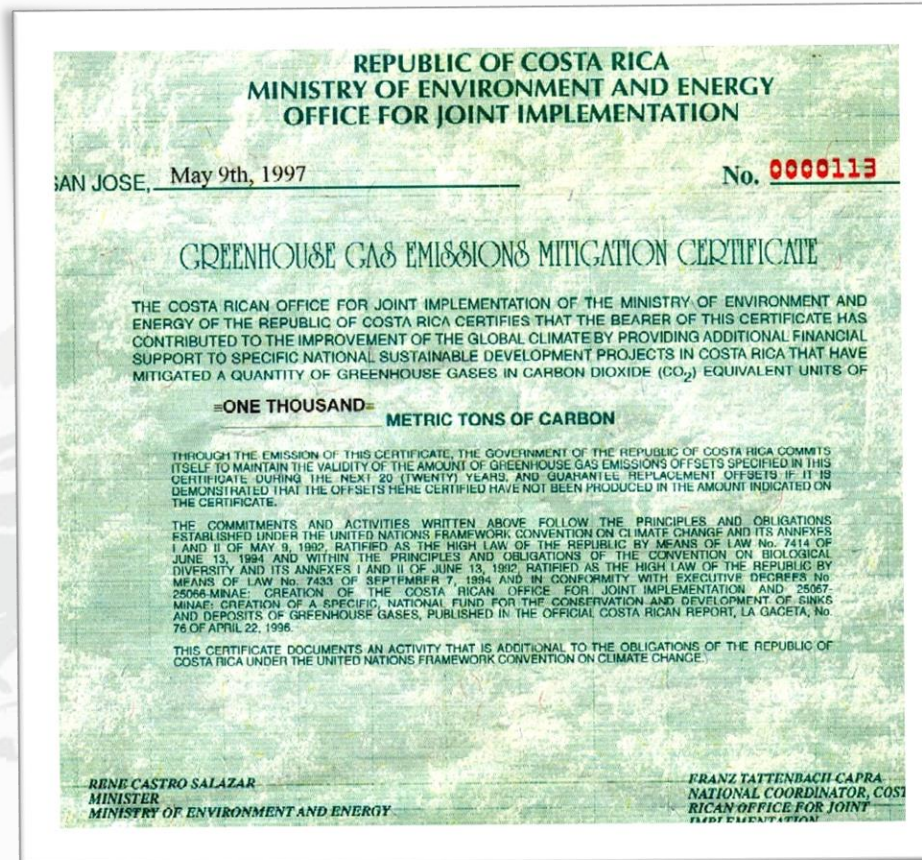
\* calculation published by Peter Smith, Dave Reay and Hon Smith, September 27, 2021  
<https://royalsocietypublishing.org/doi/10.1098/rsta.2020.0451>

\*\* Conversion factor: the authors used one ton of CH<sub>4</sub> as equivalent to 34 tons of CO<sub>2</sub>e based on GWP at 20 years, as calculated by FAO, in Five practical actions Agricultural methane emissions and the potential for mitigation volume and economics.

\*\*\* Gross income calculations made by the authors of this study based on the Royal Society study methane mitigation potential.

Ref. Rene Castro, septiembre 2022

# CO2E TRADE IS AN INSTRUMENT TO ACCELERATE IMPLEMENTATION AND REDUCE COSTS...IMPERFECTLY



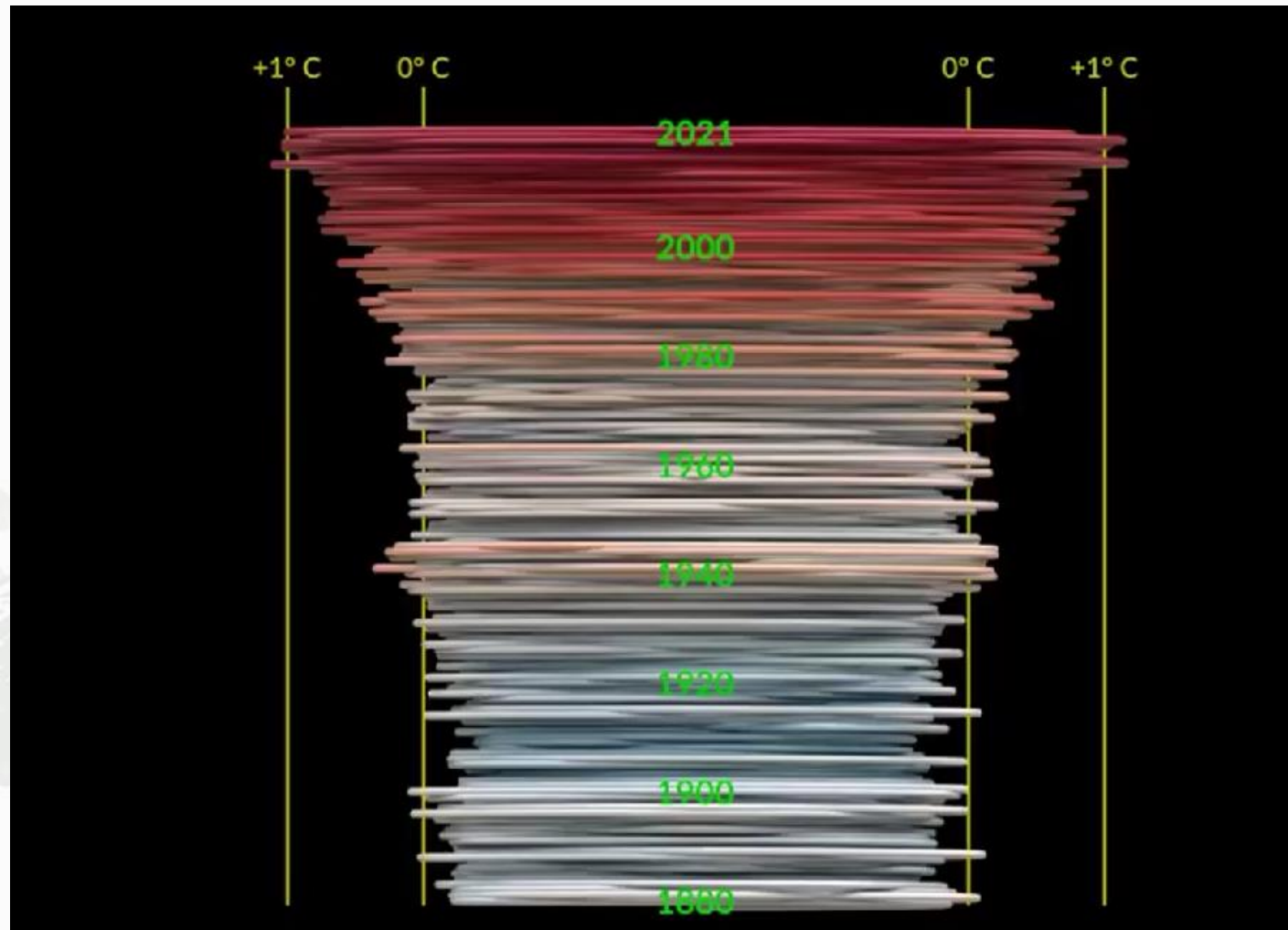
Ref: First transaction in the World, Costa Rica and Norway 1997. When the Kyoto Protocol was undermined; the market collapsed.

# 04

## IF WE FAIL?

- Forced permanent migration and climate change will produce social, environmental and economic chaos.

# THE CLIMATE SPIRAL 1880 - 2021

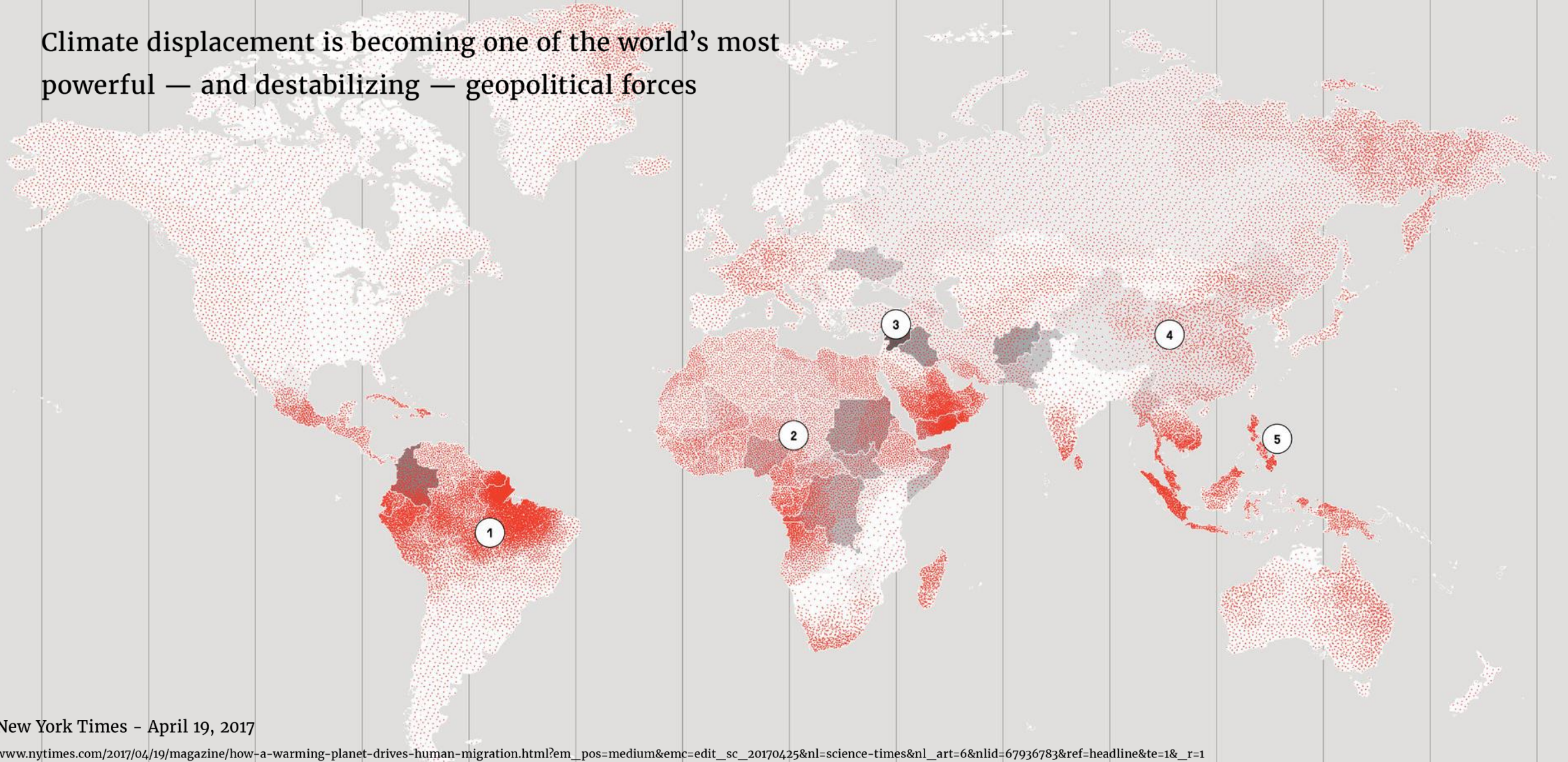


Ref: Centro Nacional de Ciencias Atmosféricas, Universidad de Reading, @climate Hawkins, March 2022



# How a Warming Planet Drives Human Migration

Climate displacement is becoming one of the world's most powerful — and destabilizing — geopolitical forces





# THANK YOU FOR YOUR ATTENTION !

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