



*The webinar will begin shortly...*  
*Can We Achieve Economic Development  
& Climate Goals Together?  
Applying Win-Win Strategies*  
*February 2017*  
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**GREEN  
WIN**



**GREEN GROWTH**  
Knowledge Platform

# *Can We Achieve Economic Development & Climate Goals Together? Applying Win-Win Strategies*

*February 2017*

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***Moderator:***

- **Sandy Bisaro**, Institutional Economist & Researcher, Global Climate Forum

***Presentations by:***

- **Jochen Hinkel**, Senior Researcher, Global Climate Forum, Coordinator of the GREEN-WIN project
- **Nadia Ameli**, Senior Researcher Associate, University College London, Institute for Sustainable Resources
- **Mark de Bel** - Expert Advisor Economy, Deltares
- **Yuge Ma** - Postdoctoral Research Assistant, Environmental Change Institute, University of Oxford

# Introduction to the GREEN-WIN Project

Jochen Hinkel

Global Climate Forum, Berlin

Division of Resource Economics, Albrecht Daniel Thaer-Institute and Berlin  
Workshop in Institutional Analysis of Social-Ecological Systems (WINS),  
Humboldt-University, Berlin.

GREEN-WIN Dialogue Workshop  
7 February 2017



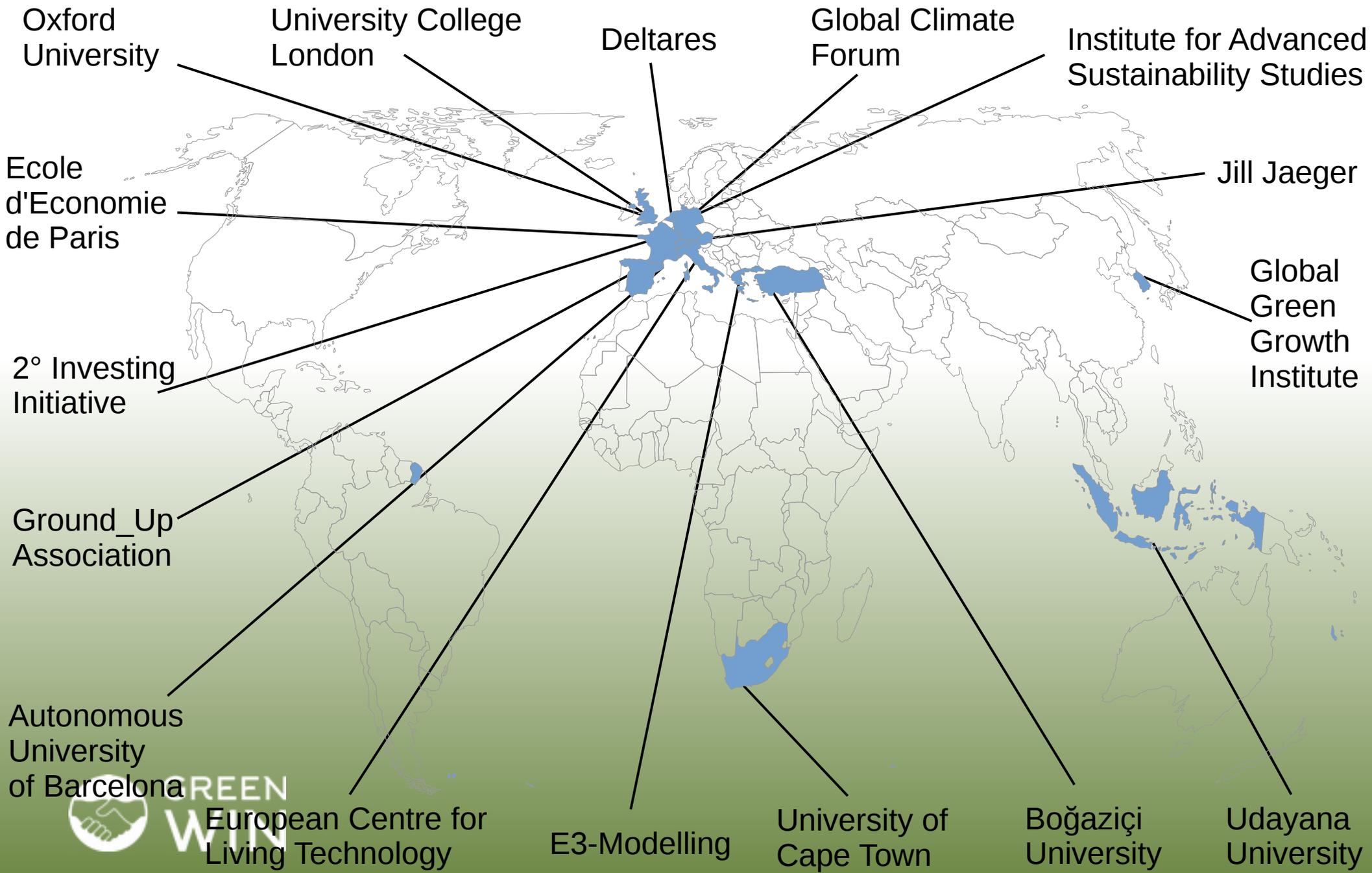
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**Who are we?**

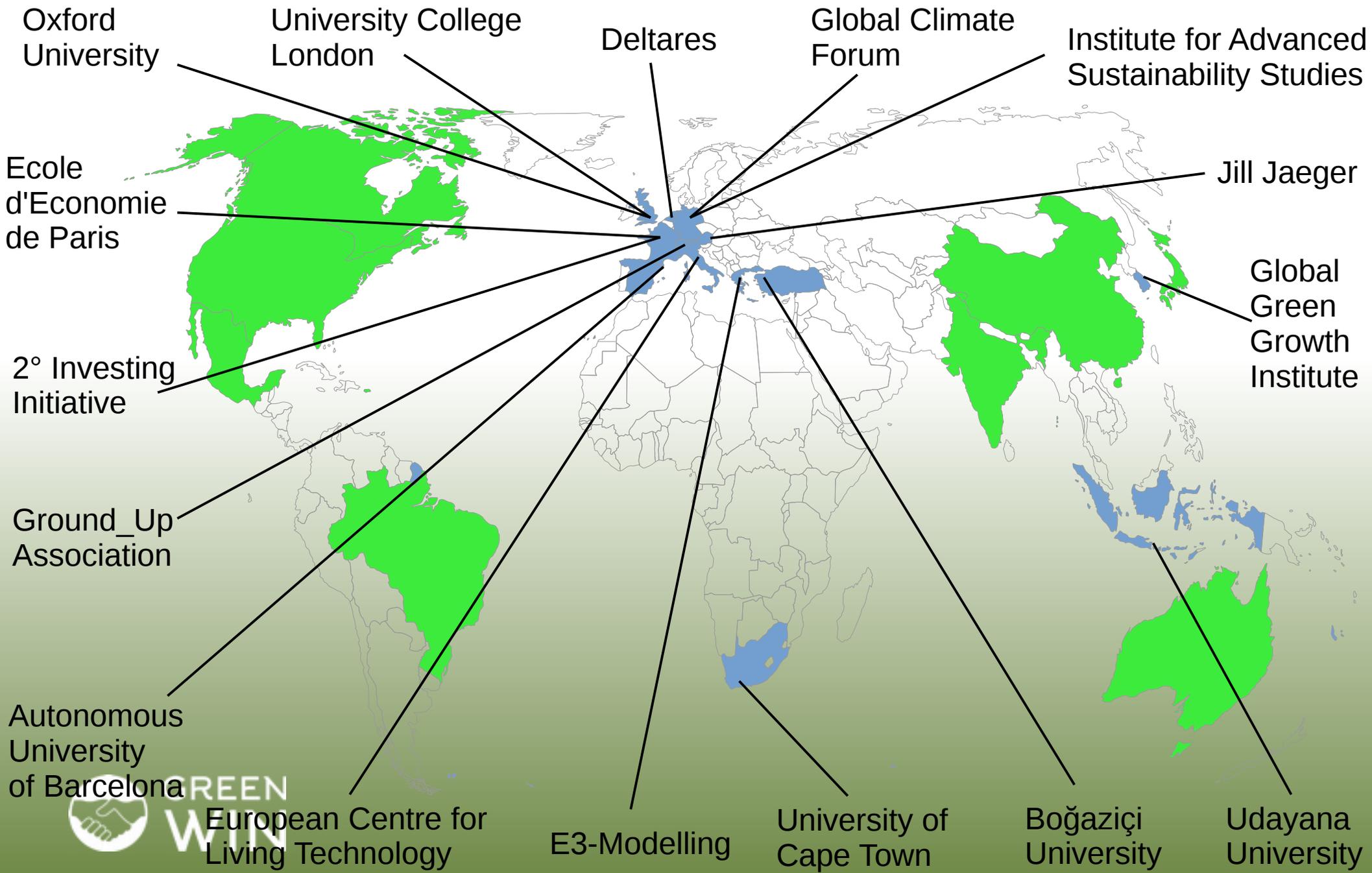
# GREEN-WIN project

- Research project funded under the European's Commissions Horizon 2020 Research Programme
  - Call theme: Linkages between climate change actions and sustainable development (SC5-03b-2014)
- 3 year Project
  - Start: 1 September 2015
  - End: 31 August 2018
- 3.9 Million Euro

# 16 core partners



# 16 core partners + 26 associated partners



**What are we after?**

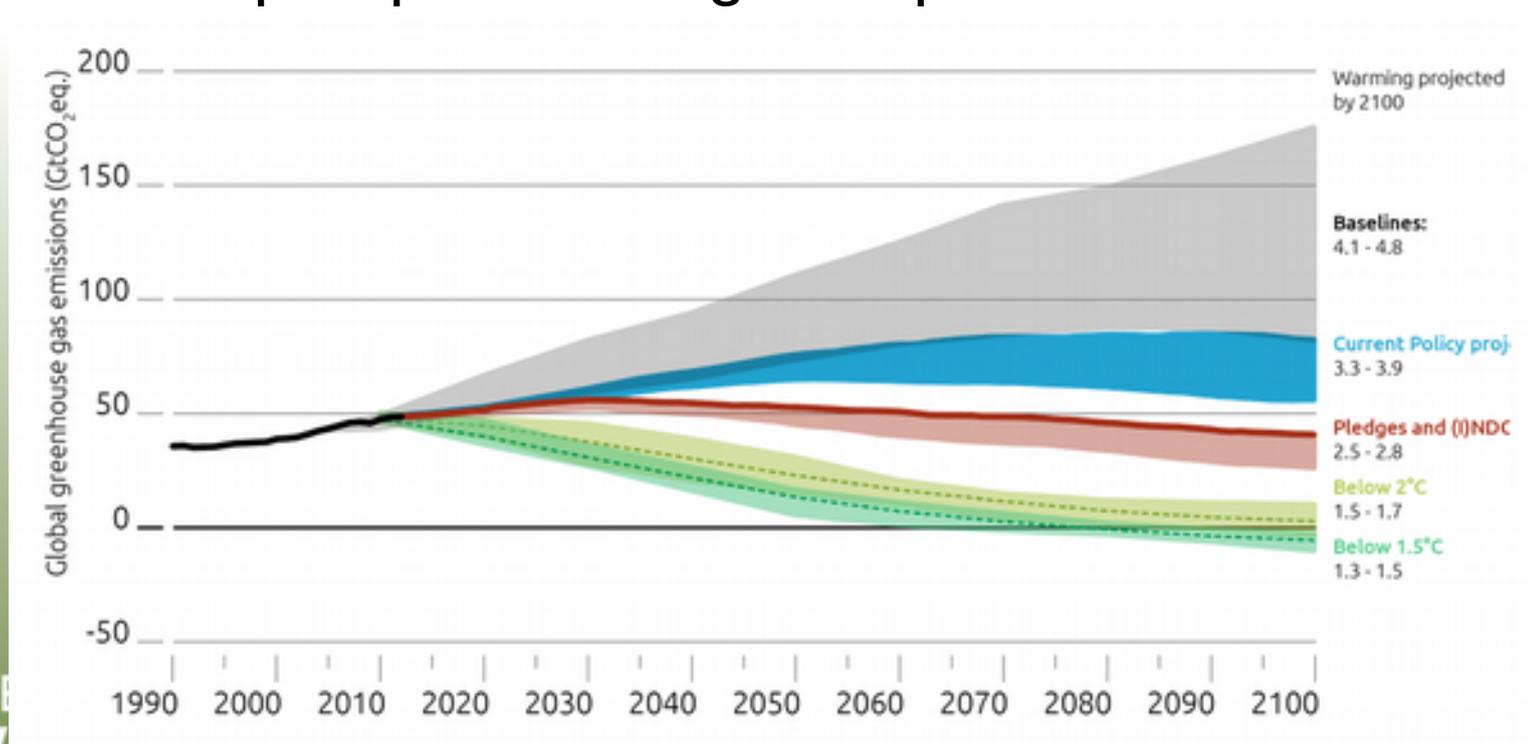
# Core objectives

- To contribute to overcoming **barriers** to climate mitigation and adaptation action by discovering, critically assessing and enabling **win-win strategies**
- Win-wins = strategies that meet both **climate (mitigation and adaptation) goals as well as (short-term) economic goals**.
  - E.g., green growth, green business models
- To co-develop shared narratives around win-win strategies amongst scientific, policy, business and civil society sectors.

**Why?**

# State-of-the-art (1)

- Most climate literature has focused on finding long-term, comprehensive strategies
  - Global mitigation and adaptation pathways for the 21st century that solve all problems at once
  - From the perspective of global planner



# State-of-the-art (2)

- Empirical evidence:
  - Societal change rarely follows global, long-term strategies
  - The availability of global, long-term strategies has not led to action
    - There is no global planer
    - Strategies are not attractive for individual actors such as countries, households or entrepreneurs.
  - Paris agreement: voluntary country-level contributions
  - Empirical literature reports on barriers: lack of profit, lack of finance, lack of cooperation, etc.

# GREEN-WIN

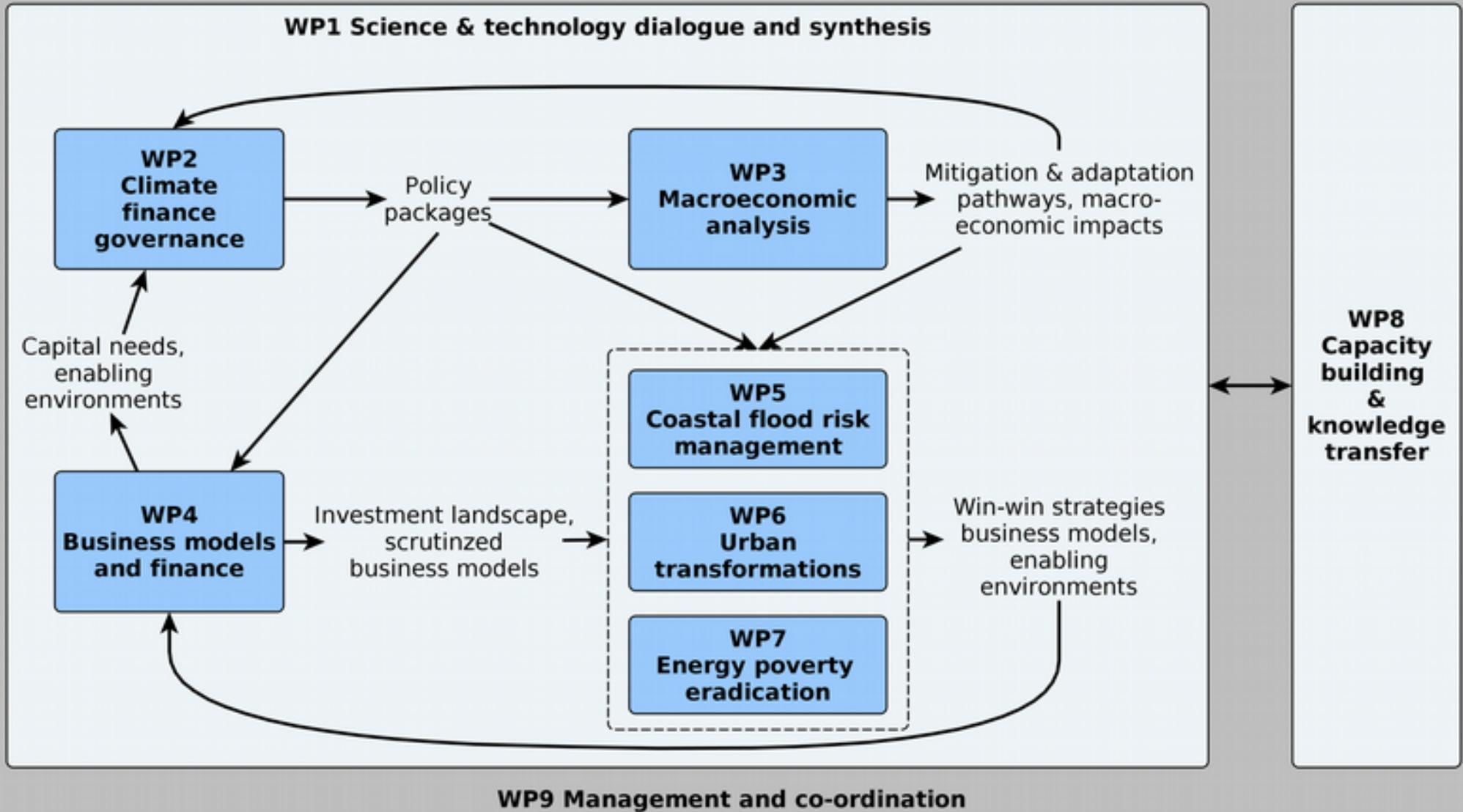
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  - Green business-models that help people to make a living now and contribute to emission reduction.
- Focus on overcoming financial barriers to implementing win-win strategies
- Partial
  - May not solve everything, but may get the ball rolling in the right direction

**How do we do this?**

# Evidence on win-win strategies

- We want to find evidence, when, where and under which conditions win-wins occur.
- Case studies
  - Empirical evidence on existing win-wins and green business models
  - Action research on implementing/developing green business models
- Policy analysis
  - Finance
- Macro-economic modelling
  - Theoretical evidence on green growth

# Workplan



# Methodology

- Development of a typology of win-win solutions
  - Actors involved and their economic and green incentives
- Which types of win-wins are attractive for which type of investor/funder?
  - Profit-oriented vs. profit and impact oriented vs. donors
- How can financing barriers be overcome?
  - Which financing arrangements are needed for match making between win-win and investors/funders?
  - Enabling environment

# Types of win-wins for different actors

- Households

- Reducing costs through climate action
  - Mitigation: energy-efficiency measures
  - Adaptation: E.g. flood-proofing buildings

- Firms

- Reducing costs through climate action
- Generating revenues through climate action
  - Selling green(er) products (**Green business models**)
    - Mitigation: Energy service companies

# Types of win-wins for different actors

- Public actors
  - Reducing costs through climate action
  - Generating revenues through climate action
    - Selling green(er) products
    - Selling the co-benefits of climate actions
      - Adaptation: Selling new land generated through flood protection measures
    - Taxing the beneficiaries of climate action
      - Adaptation: Taxing the beneficiaries of flood protection measures
  - Generating higher GDP growth through climate action
    - Green investment stimulus

# Metrics for win-wins

- Climate goal achievement
  - Adaptation: reduction of climate risks
  - Mitigation: reduction of emissions
  - Critical otherwise we may be green-washing.
- Economic goal achievement
  - Households: net gain
  - Firm: profit
  - Public actor: GDP growth, degree of leveraging public investment, etc.

# Enabling environment

- State support
  - Many green business models may only exist because the state supports them financially
    - either directly through grants, sub-market rate loans, ...
    - or indirectly through tax exemptions, feed-in tariffs, etc.
- Other aspects
  - Culture, networks, institutions, ...
- Up-scaling
  - What are the current barriers and how can these be overcome?

**Thanks!**

**[hinkel@globalclimateforum.org](mailto:hinkel@globalclimateforum.org)**



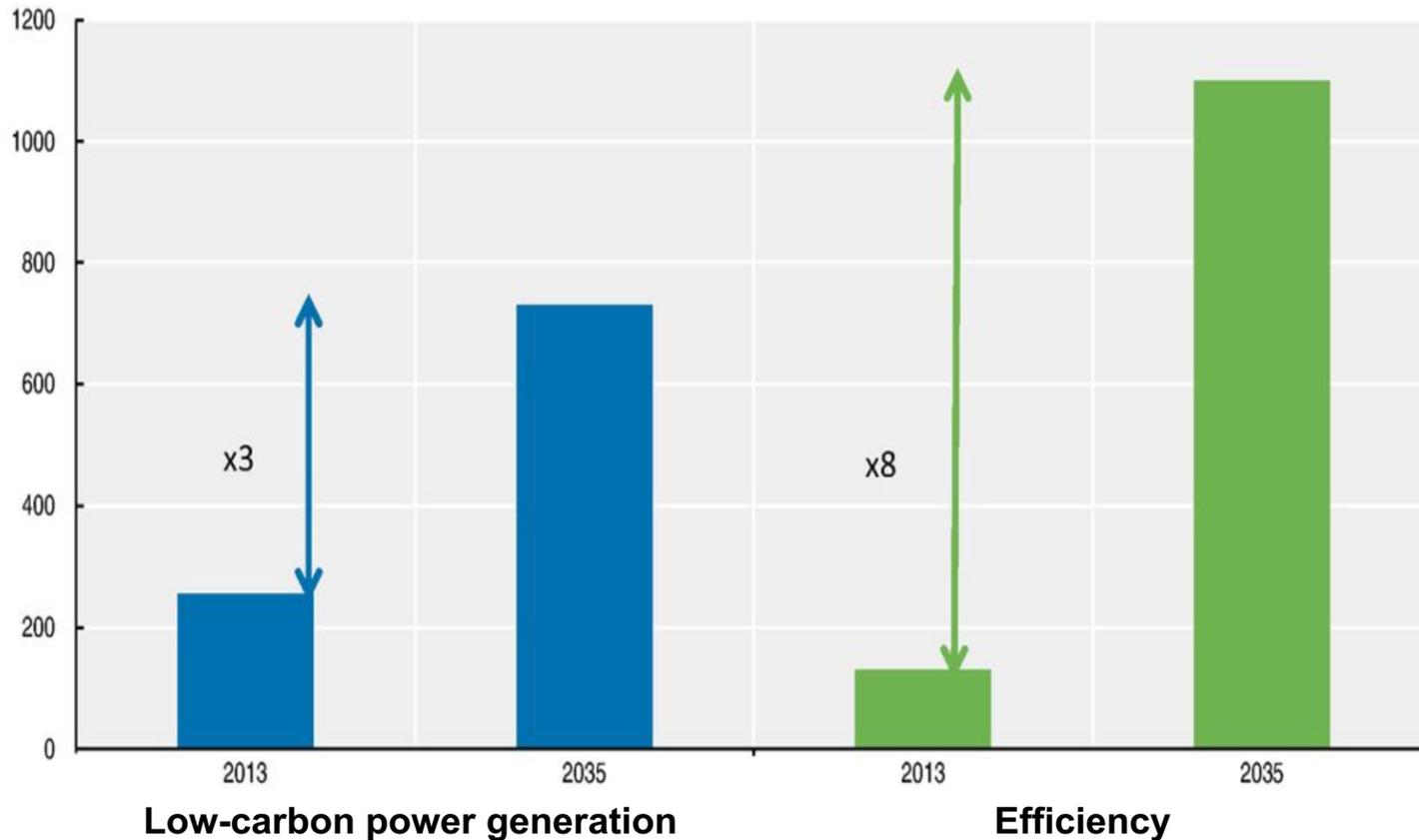
# **Climate change and institutional investors: not a well-established link**

Nadia Ameli, UCL

# Climate change: a well known story

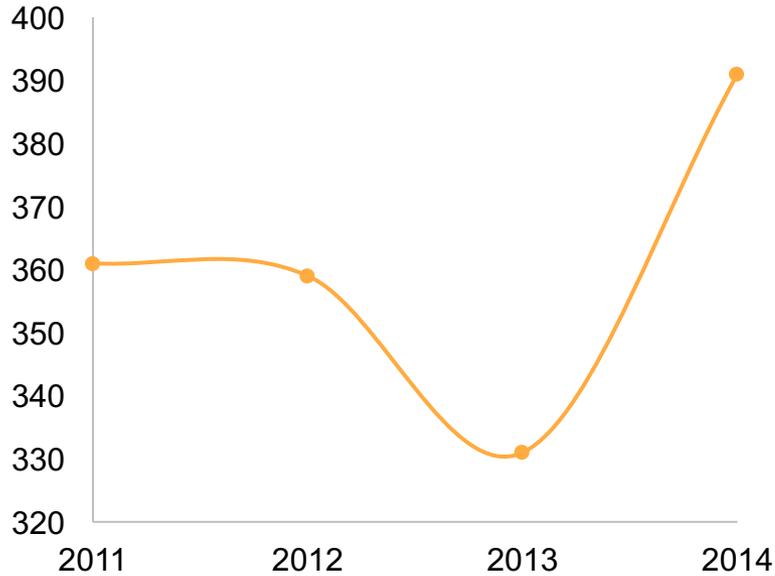


# Where the world wants to go? The Paris agreement

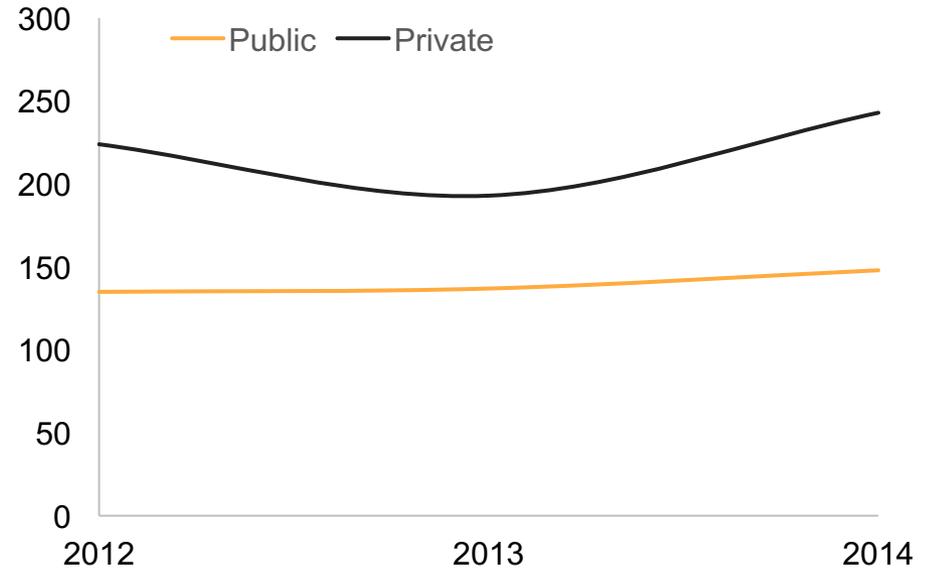


# Where we are now: climate finance

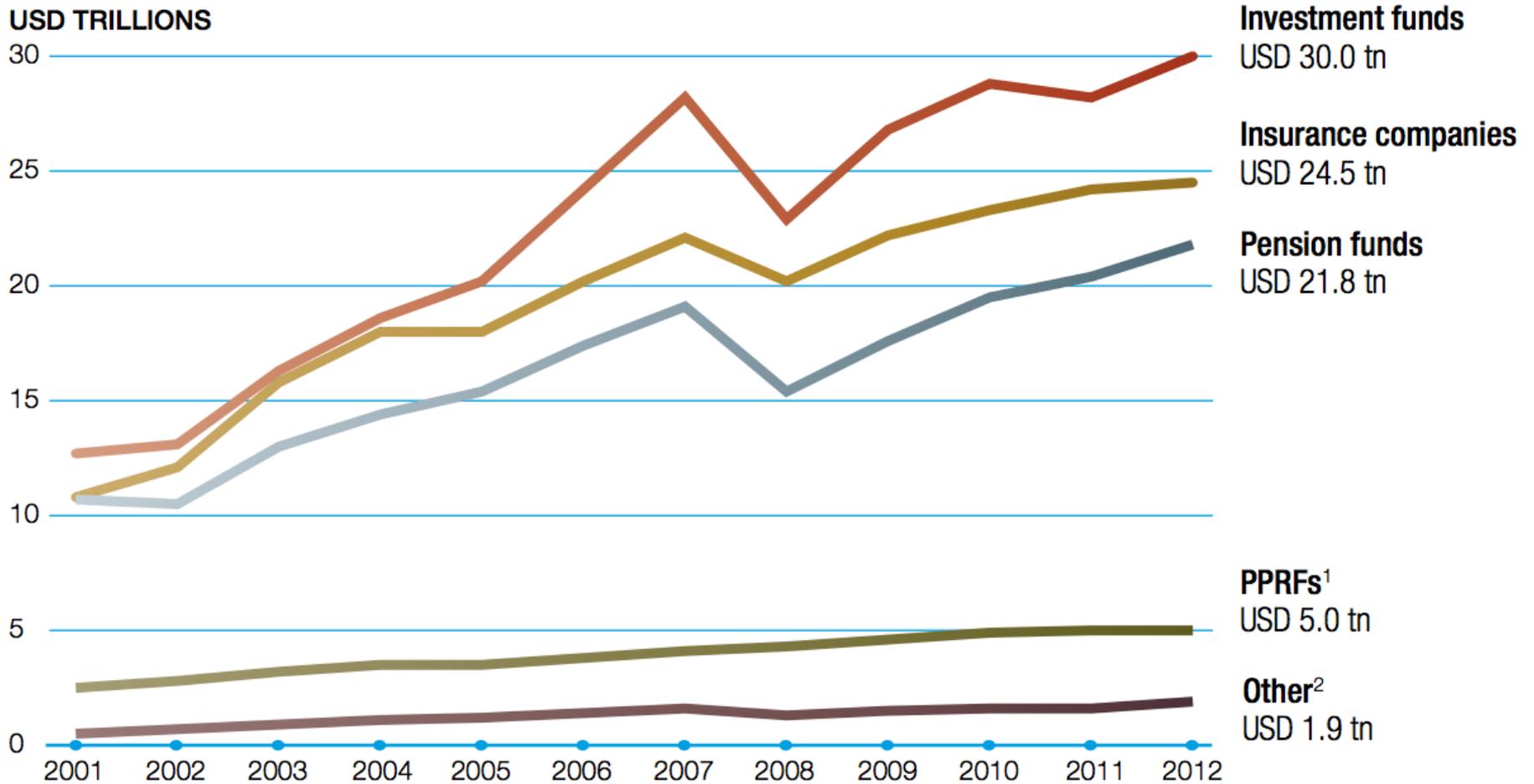
USD billion



USD billion



# Can institutional investors close the financing gap?



Source: <http://www.oecd.org/finance/OECD-LTI-project.pdf>

## Our methodology: interviews



Source: <https://www.pexels.com/>

## Our methodology: interviews

- EU and US
- 30 interviews
  - pension funds (8)
  - insurers (10)
  - academics (2)
  - asset managers (5)
  - advisors/DFIs (5)

(USD 4 trillion asset owners + USD 5.5 trillion asset managers)

## **The financial metric: risk-adjusted return**

1. Government support for low-carbon investments
2. Investment & market conditions
3. Institutional investor characteristics & capability

# Clear, stable, credible policy and regulatory framework



## Investment channels: lead or be led?



Source: <https://www.pexels.com/>

## Investment channels: lead or be led?

- **Direct** (in-house expertise) – very little, only bigger investors
- **Indirect** (through funds/external managers)
  - 2% fee on top (e.g. \$100m assets -> \$2m fee)
  - 10-15% performance fee

# Low-carbon investments: young opportunities



Source: <https://www.pexels.com/>

## Low-carbon investments: young opportunities

- **Lack of tradable financial instruments** (e.g. green bonds)
- **Small project size** (minimum size about \$100 m)
- Lack of **high quality data** on low-carbon investments and **standard reporting** (e.g. data disclosure)

## Profile of institutional investors



Source: <https://www.pexels.com/>

## Profile of institutional investors

- **Lack of management experience and track record**
- **Mandate** (e.g. fiduciary duty, especially in the US)
- Difficult to apply **analytical approaches** such as internal carbon pricing and portfolio carbon footprinting

## The way forward

- Incentivise **low-carbon** investment “*policy frameworks need to be ‘Three L’s’ - Long, Loud and Legal*”
- **Alter the balance of economics** between low-carbon investments and their high-carbon equivalents
- **Data disclosure and transparency**
- Greater **involvement of Development Finance Institutions**

## Climate finance @ UCL



**Professor:** Michael Grubb

[m.grubb@ucl.ac.uk](mailto:m.grubb@ucl.ac.uk)



**Senior Research Associate:** Nadia Ameli

[n.ameli@ucl.ac.uk](mailto:n.ameli@ucl.ac.uk)



**Senior Research Associate:** Paul Drummond

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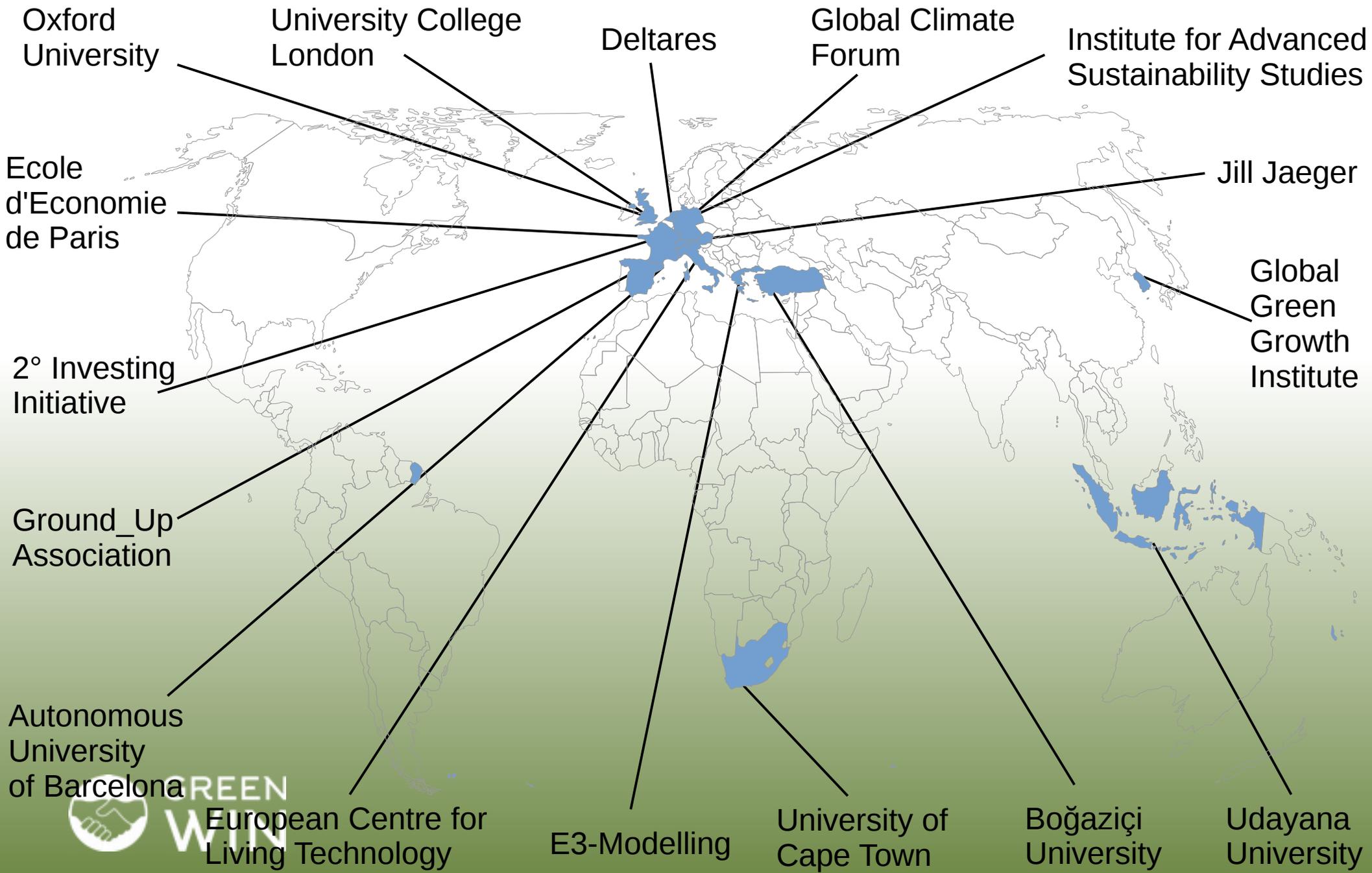
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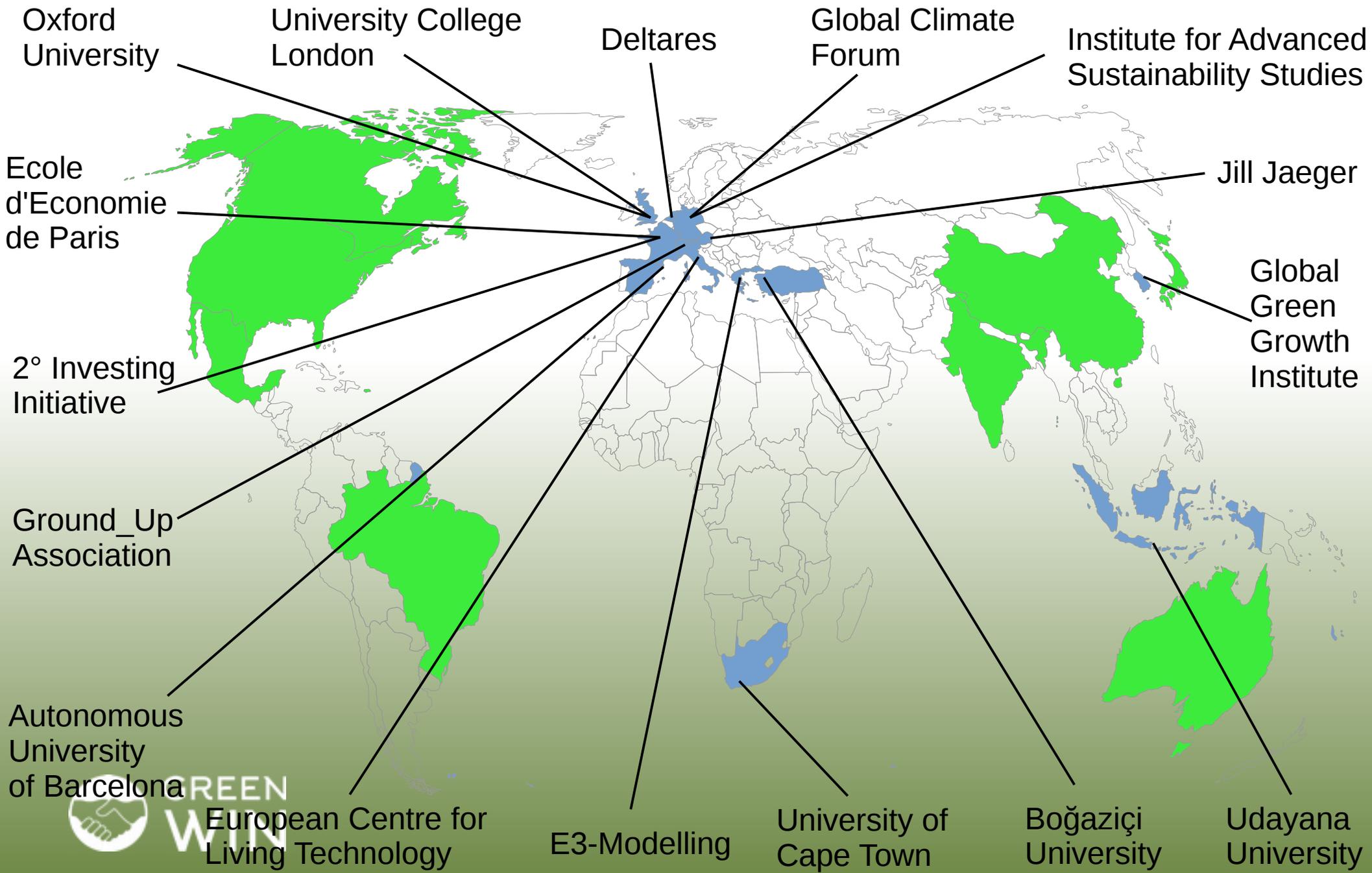
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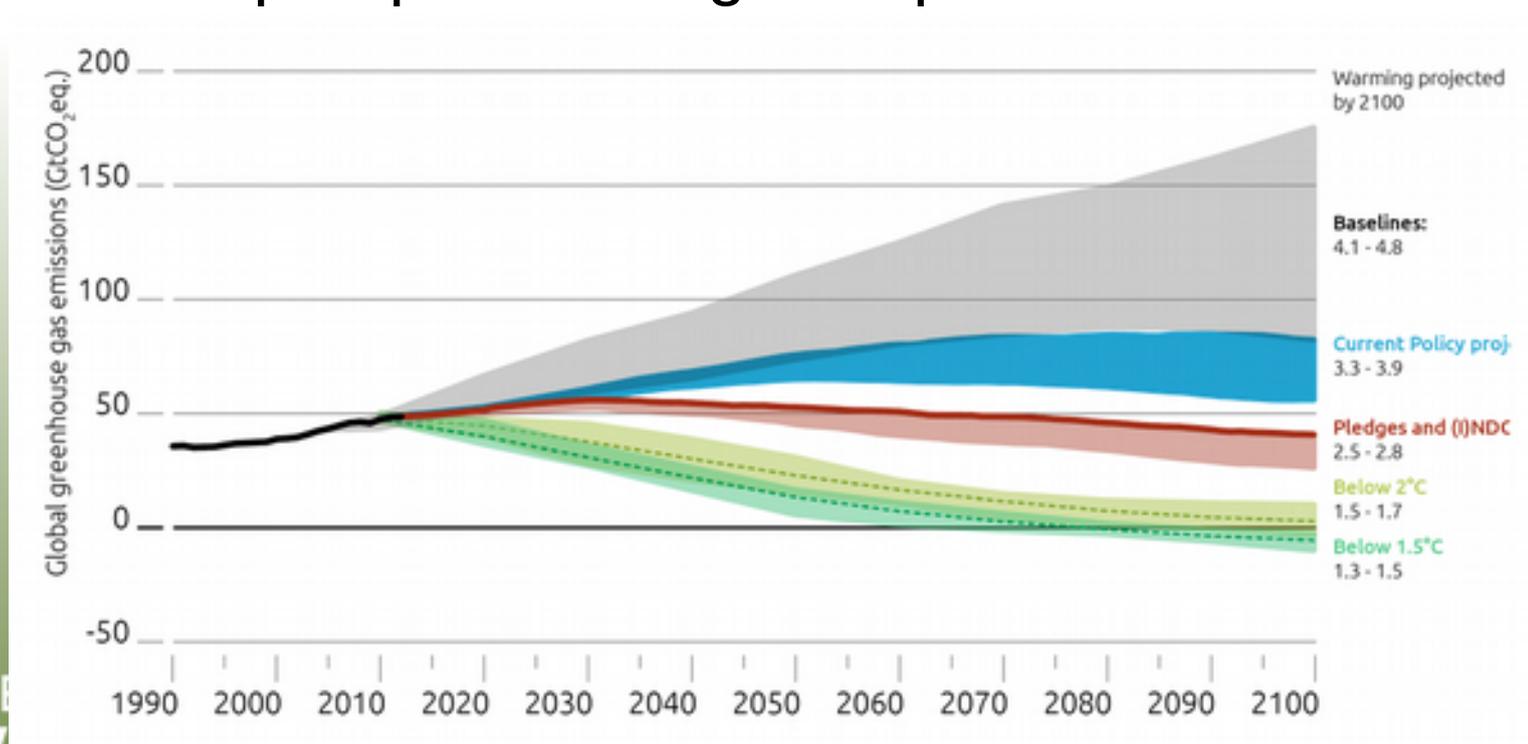
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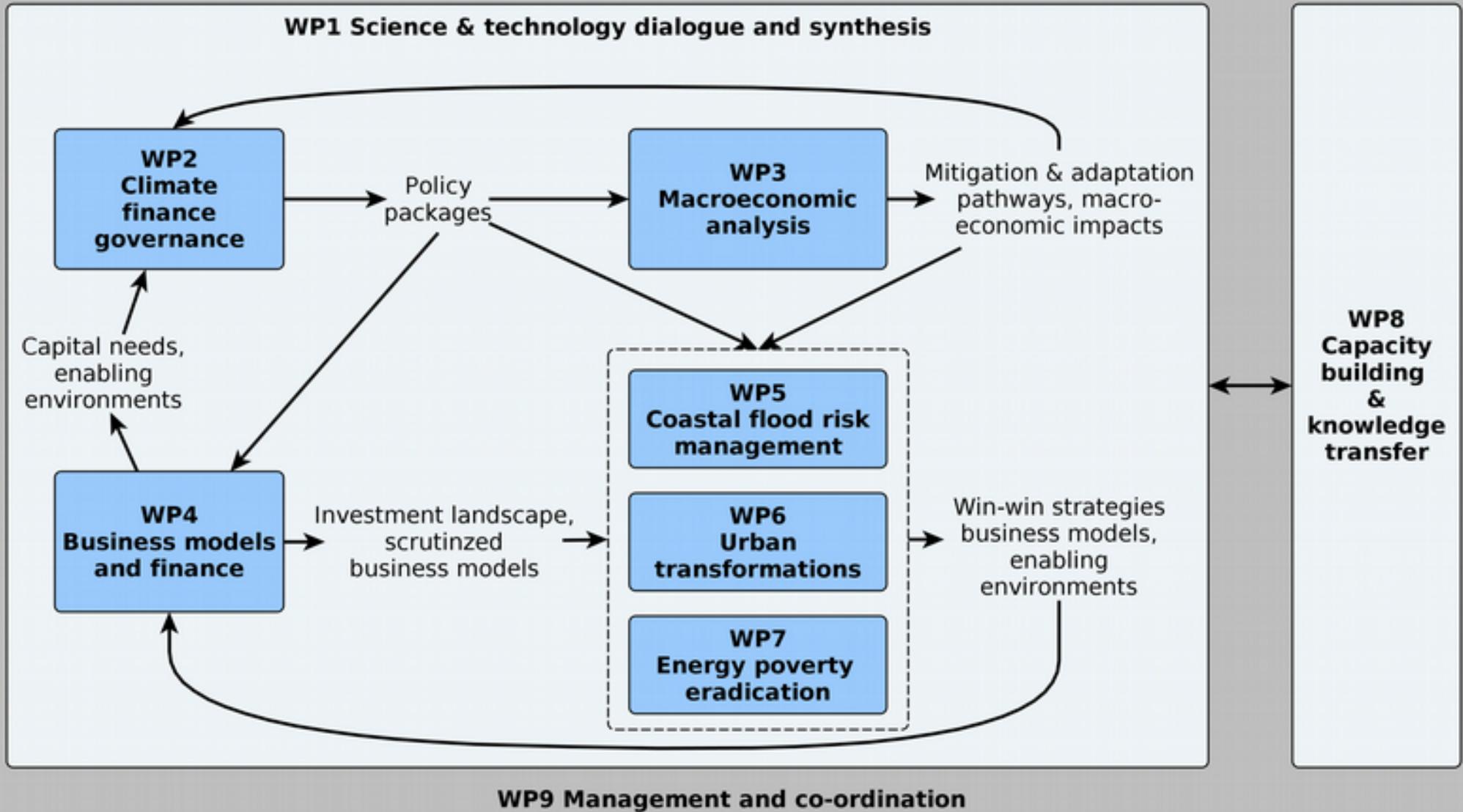
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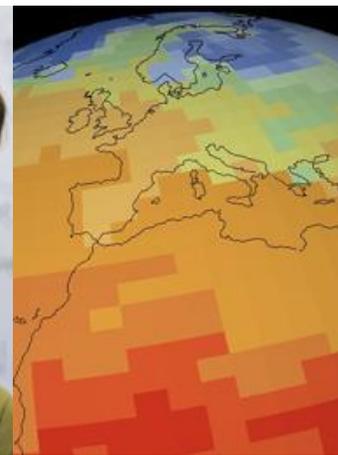
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WIN



# Co-evolution between urban sustainability and business innovation for GREEN-WIN: Evidence from the sharing mobility sector in Shanghai



# Structure

1. Background
1. Shanghai Case Study
  - 2.1 Contextualising Shanghai
  - 2.2 Three representative business models
2. Co-evolution mechanism
  1. Next step

# 1. Background

- WP6: Urban Transformation

*Under what Enabling Environment, can Opportunity Spaces that contain win-win strategies and green business models achieve Transformation towards Sustainability (T2S) in urban settings?*

- Case studies: Shanghai, Istanbul, Barcelona, Venice

## 2. Case of Shanghai

(>30 million population, largest megacity, big energy consumer & carbon emitter)

**Shanghai's** mobility sector is experiencing disruptive innovation brought about by the emerging sharing economy business models.

**Synchronization of the emergent sharing economy**, in the areas of:

- Ride-sharing (DiDi Chuxing)
- Electric-Vehicle (EV) –sharing (EVCARD)
- Bike-sharing (Mobike)

with public transport & urban sustainability providing large opportunities for Transformation towards Sustainability.

# 2.1 Contextualisation



## Shanghai: Multi-layered Global Megacity Context

- 1st layer: **Global City** - Aspiring for an International economic, cultural and technological center)
- 2nd layer: **Bottom-Line Control** - Population, Land, Energy & Resources
- 3rd layer: **ICT-led Smart City** - Developing the digital territory of the city
- 4th layer: **Disruptive Innovation** - Emergence of the sharing economy

## 2.2 Three representative Business Models in Shanghai's Sharing Mobility Sector

Sharing Mobility category	Selected Company name/logo/official website	Company details	Funding
Ride-Sharing	<p><a href="http://www.xiaojukeji.com">DiDi Chuxing</a></p>  <p><a href="http://www.xiaojukeji.com">http://www.xiaojukeji.com</a></p>	<p>Founded: September, 2012 Company type: Start-up Description: <u>DiDi</u> is the world's largest mobile transportation service platform, offering a broad range of mobile technology-based transportation options across over 400 major Chinese cities, including taxi hailing, private car hailing, Hitch (social ride-sharing), Chauffeur, <u>DiDi</u> Bus, <u>DiDi</u> Test Drive, and <u>DiDi</u> Enterprise Solutions. As the leader in China's sharing economy initiative, <u>DiDi</u> completed a total of 1.43 billion rides on its platform in 2015, while applying its big-data capabilities to solving the country's transportation and environmental challenges. In February 2016 <u>DiDi</u> became the world's second largest online transaction platform, next only to <u>Alibaba</u>.</p>	<p>Total Equity Funding \$7.44B in 7 Rounds from 18 Investors Representative Investors: <u>Tencent</u>, <u>Alibaba</u>, <u>Apple</u>, <u>SoftBank</u>, <u>Foxconn</u> Technology Group, China Life Insurance, China Merchants Bank, GSR Ventures, Ping An Capital, etc.</p> <p>2 Acquisitions Merged <u>Uber</u> China in Aug 2016 and <u>Duaidi Dache</u> in Feb 2015.</p>
EV-Sharing	<p>EVCARD</p>  <p><a href="http://www.evcardchina.com">http://www.evcardchina.com</a></p>	<p>Founded: July, 2013 Company type: State-Owned Enterprise Description: EVCARD provides an app-based EV rental services. It provides EVs with appropriate car licenses, rental stations with parking and charging facilities. Users can search for the closest EVs on the App, unlock and lock the EV through smartphones or a smart card. Apart from this B2C services, since early 2016, it also launched a B2G service that provide EV Car-share rental services for the Shanghai government.</p>	<p>EVCARD is a 100% state-owned company - its investors consist of Shanghai Municipal government, <u>Jiading</u> District government, and related SOEs such as SAIC Motor. Due to confidentiality policy, details of its funding is not open to the public.</p>
Bike-Sharing	<p><u>Mobike</u></p>  <p><a href="http://mobike.com">http://mobike.com</a></p>	<p>Founded: December, 2015 Company type: Start-up Description: <u>Mobike</u> is the world's first station-less bike share service: pick up a bike and return it to any public bicycle parking. It solves the last mile problem and incarnates a revolutionary lifestyle. It's also a much healthier means of transportation that reduces congestion &amp; pollution, and helps improve urban design through data.</p>	<p>Total Equity Funding \$325M in 3 Rounds from 8 Investors Most Recent Funding \$215M Series D on January 4, 2017 Representative Investors: <u>Tencent</u>, <u>Warburg Pincus</u>, <u>Bertelsmann</u> Asia Investment Fund, <u>Hillhouse</u> Capital Group, <u>Panda Capital</u>, etc</p>

Source: Information of DiDi Chuxing and Mobike is from [www.crunchbase.com](http://www.crunchbase.com) and their official website; Information of EVCARD is based on its official website (05-01-2017 last assessed).

### MISSION

DiDi Chuxing's mission is to build a data-driven and user experience-driven comprehensive one-stop transportation platform to help citizens, communities and regulators meet transportation, environmental and employment challenges; reduce congestion and pollution; and build more mobile, vibrant cities for the Chinese people. Our 2018 target is to serve 30 million passengers and 10 million drivers daily, within 3 minutes of waiting time for each ride – *Anytime. Anywhere.*

### SERVICES

DiDi Chuxing (formerly Didi Kuaidi) offers a diverse range of transportation services through one mobile app:



### KEY METRICS 2016

**300 million**  
PASSENGERS



**14 million**  
REGISTERED DRIVERS



**11+ million**  
Rides completed per day

**1.43 billion**  
Rides completed in 2015



#### RAPID GROWTH ACROSS VERTICALS

- » **Taxi:** 1.6 million drivers across 380 cities
- » **Private Car:** in 400+ cities with an ExpressPool option
- » **Hitch (Social Ridesharing):** 2.2 million daily inter- and intra-city rides at peak
- » **Chauffeur:** in 200+ cities; over 500,000 daily rides at peak
- » **Enterprise Solution:** 15,000+ corporate clients
- » **Test Drive:** Building P2P car owner communities and working with more than 200 carmakers

#### TECHNOLOGY ADVANTAGE

- » Intelligent ride-matching system enables multi-person carpooling within and across cities
- » Real-time traffic mapping and route optimization
- » Proprietary algorithm processes up to 250 million routing requests and 90 terabytes of data every day

### CORPORATE HISTORY

- Didi Dache and Kuaidi Dache founded in 2012 as taxi-hailing apps and later developed private-car hailing business
- Didi and Kuaidi merged in February 2015, later rebranded as Didi Chuxing, and diversified to become China's dominant transportation platform
- Well capitalized by world-class strategic and financial investors, including Tencent, Alibaba and Apple

Data sources: CNNIC, Analysys Int'l, DiDi

# 1<sup>st</sup> wave sharing mobility

- Started in 2012
- Became of Unicorn Start-up in 2014 (36 Billion USD in 2016)
- Legalised at the national level in July 2016
- Merged Uber China in August 2016
- Negatively affected by megacity regulations in October 2016

Co-evolution between urban sustainability and business ecosystem innovation for GREEN-WIN: Evidence from the sharing mobility sector in Shanghai

# HOW TO GO



每分钟  
0.5元



首30分钟  
15元

荣威E50  
续航里程120公里

## 试运营期间已启用热点

汽车城大厦 (地面)	六里桥商务区	嘉华苑 (地面)
汽车城大厦 (地下)	联东集团科技园	嘉华苑 (地下)
国际汽车城发展有限公司	上海汽车博物馆	同济大学嘉定校区
安亭文体中心	大学路社区	同济大学四平路校区

1月中旬, 50个热点全线启用

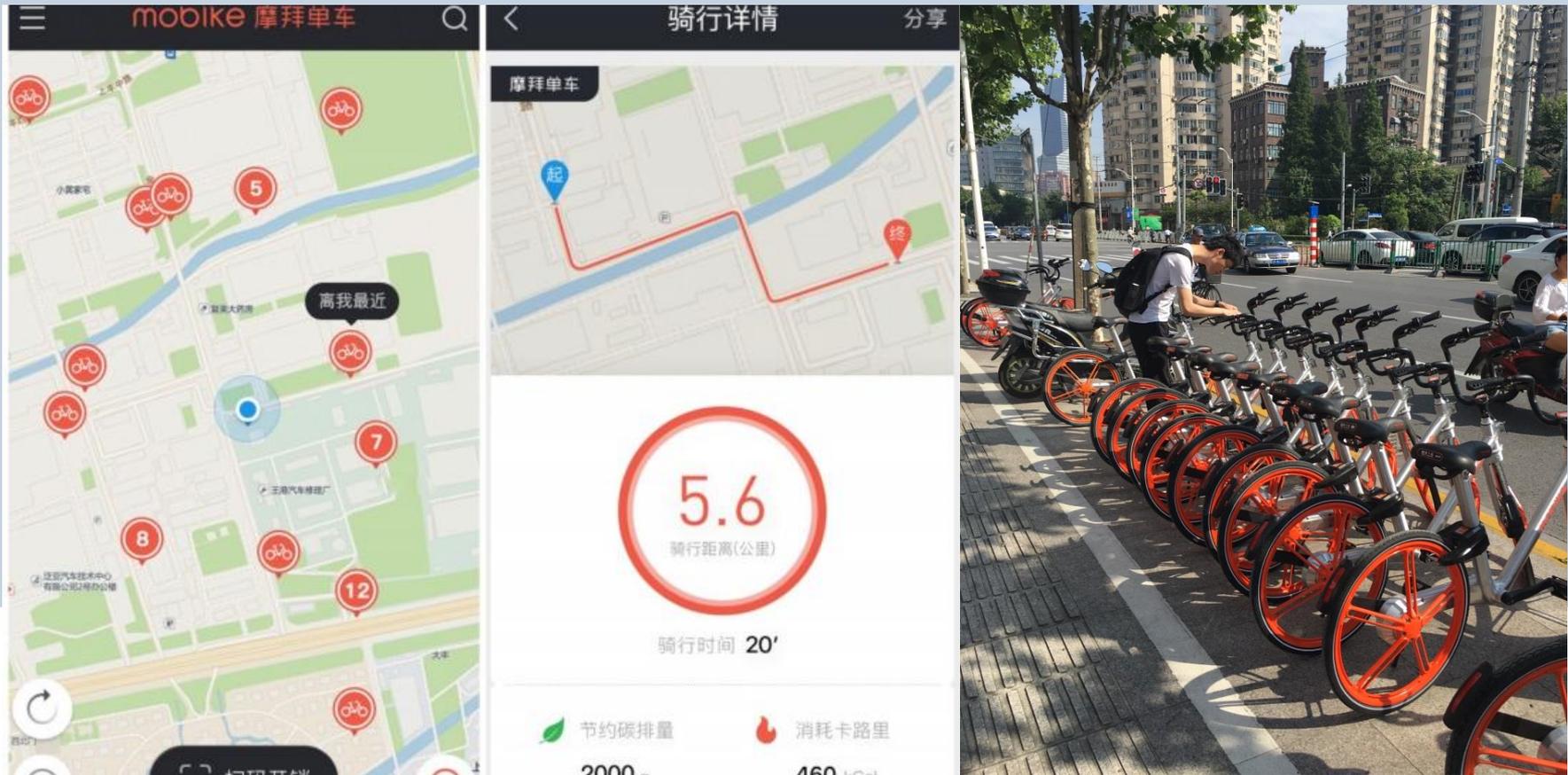


## 2<sup>nd</sup> wave sharing mobility

- Started in 2013/14 as a Shanghai gov SOE
- Enormous policy support (free car licenses, free/subsidised EVs and parking resources)
- Written into the city planning in 2015/16
- 2600 rental stations, 8,000 EVs in 23 cities by the end of 2016.

# 3<sup>rd</sup> Wave of Sharing Mobility: Mobike

- Placed the first set of bikes in Shanghai in April 2016
- Within 10 months, more than 100,000 bikes in Shanghai, and operate in 23 cities across China.
- Supported by many district government, though not all
- Raised more than 400 million USD of private investment



# 3. Co-evolution between urban sustainability and business innovation for GREEN-WIN

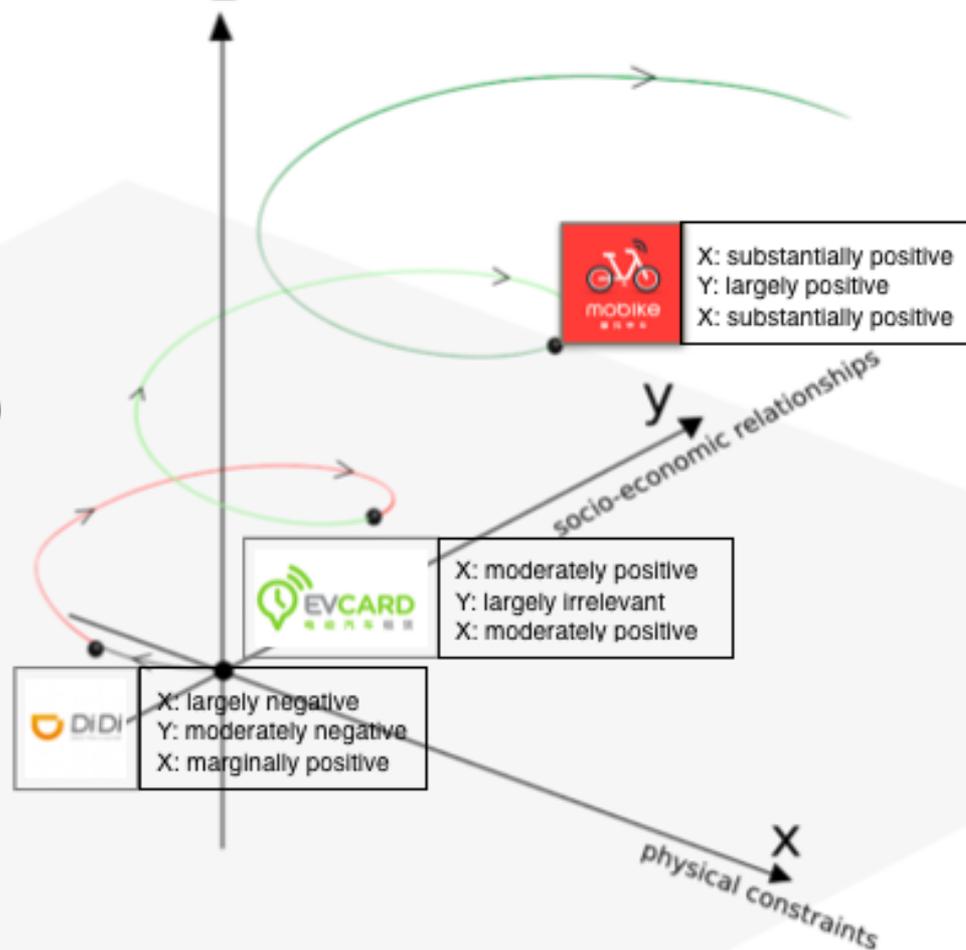
- **Third wave (starting in 2016/17)**  
Start-ups leveraging the sharing mobility BM, aligning with gov agenda, and encouraging socio-economic investment to realize sustainable values (deep-green transformation)

- **Second wave (starting in 2014/15)**  
Gov EV strategy leveraging the sharing mobility innovation to provide sustainable transport solution (light-green change)

- **First wave (starting in 2012)**  
Disruptive innovation changing socio-economic relationships and challenging physical constraints (mixed impact)

- **Starting point**  
Strict car ownership control, insufficient public transport, and growing informal market to meet the unmet demand (unsustainable trajectory)

knowledge systems Z



## 4. Next step: evaluating the enabling environment

<b>Aspect</b>	<b>Scope</b>	<b>Method</b>
<b>1. Vision</b>	Collective and effective mission building towards a sustainable future.	Analyzing <i>Strategic Plans</i> & related documents; stakeholder interviews.
<b>2. Cultural – cognitive</b>	Stakeholders & organizations’ activities and action preferences for T2S.	Stakeholder workshops, interviews, and small sampling surveys (pilots).
<b>3. Policy-regulatory</b>	Policy & regulation effects & interactions; Formal & informal policy-regulatory processes affecting T2S.	Mapping and analyzing T2S related policies & regulations, stakeholder interviews, fieldwork observations.
<b>4. Organization</b>	Formal & informal, state & non-state, commercial & non-commercial organizational capacities & interactions.	Mapping the organizational architecture; evaluating T2S capacities of the key organizations through fieldwork.
<b>5. Economic</b>	Availability & accessibility of financial mechanisms affecting T2S.	Identifying & evaluating financial mechanisms and business practices with stakeholders

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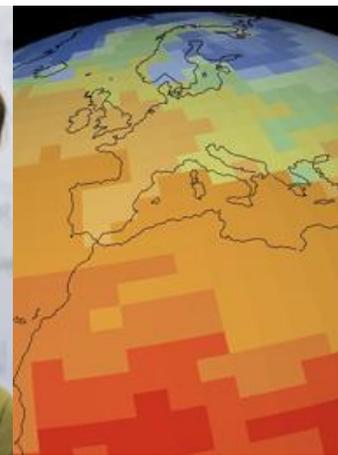
For more information:

**Co-evolution between urban sustainability and business ecosystem**

**innovation: Evidence from the sharing mobility sector in Shanghai**

*ECI working paper, January 2017*

Yuge Ma, Ke Rong, Diana Mangalagiu, Thomas F. Thornton, Dajian Zhu



Thank you very much!

[yuge.ma@ouce.ox.ac.uk](mailto:yuge.ma@ouce.ox.ac.uk)

**How can we finance both climate goals and development goals considering the decreases in foreign aid budgets?**

**Are there common metrics to assess win-win business models?**

**Q&A**  
*Themes*

**Do new financing mechanisms like crowd-funding hold promise for WIN-WIN business models?**

**Other than financing, what are the biggest barriers for scaling up successful win-win business models?**

*Thank you for attending this webinar on “Can We Achieve Economic Development & Climate Goals Together? Applying Win-Win Strategies”*

- This webinar was recorded and will be uploaded to the GGKP website: [www.greengrowthknowledge.org](http://www.greengrowthknowledge.org)
- If you have any further questions about the webinar please email: [contact@ggkp.org](mailto:contact@ggkp.org)
- The GGKP asks you to complete a survey which will be sent out after this webinar.