

Low-carbon Green Office Moving towards Actions

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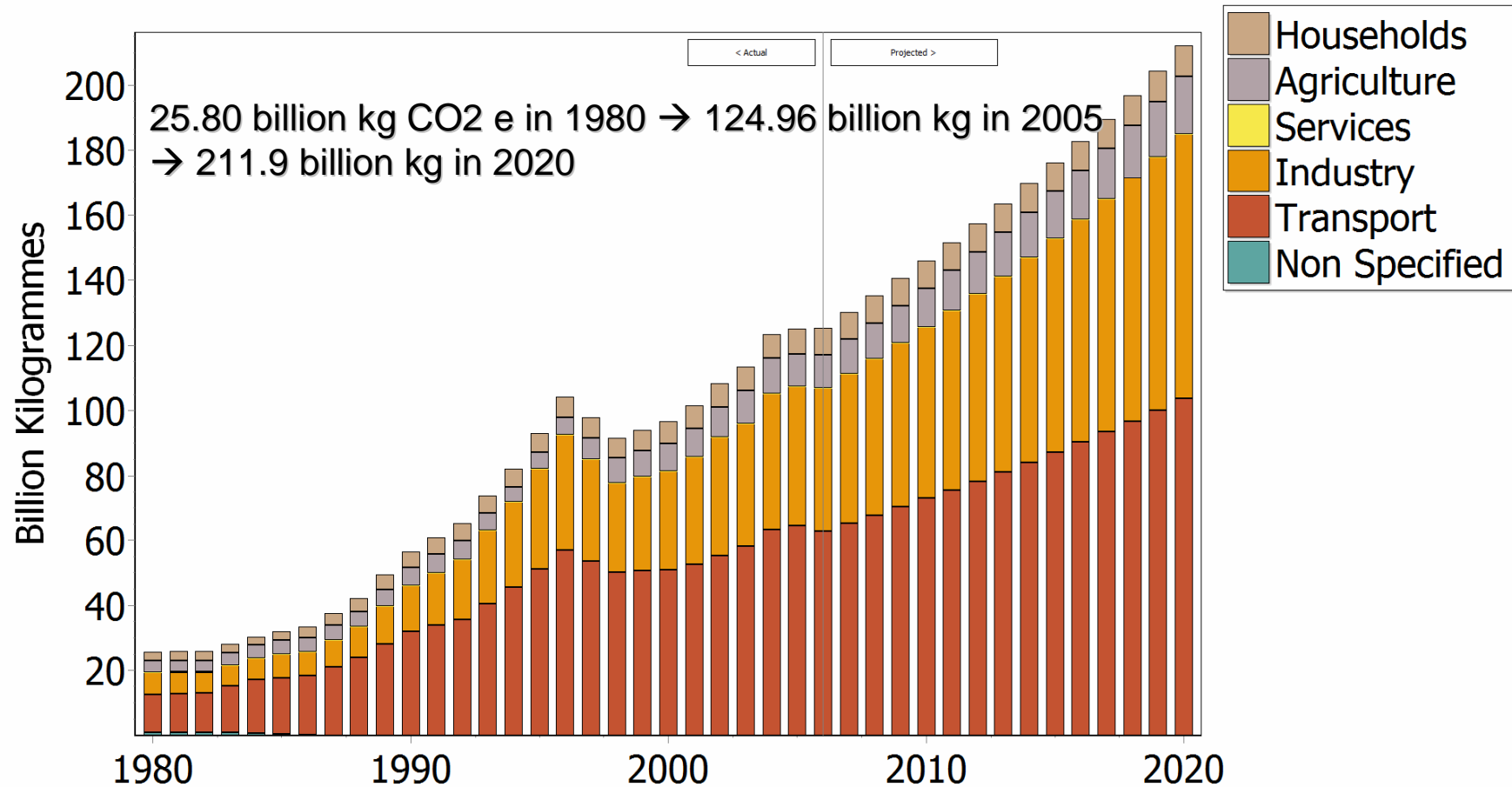
Stockholm Environment Institute Asia
Centre

Content

- Background-CO2 Emission of Thailand and Bangkok
- Actions towards Low-Carbon Green Office
- Simple CO2 Emission Calculator
- Examples on organisation partnership and city/country support towards low-carbon society

Background-Thailand

Environmental Results: Global warming potential CO2 eq
Scenario: Baseline, Fuel: All Fuels, GWP: All GWPs



Source: Long-range Energy Alternative/LEAP Database, SEI, 2006

Background-Bangkok

City	Millions of tons of carbon dioxide	Tons per capita of carbon dioxide
Bangkok	43	7.1
Toronto	24	9.6
New York	58	7.1
London	44	5.9

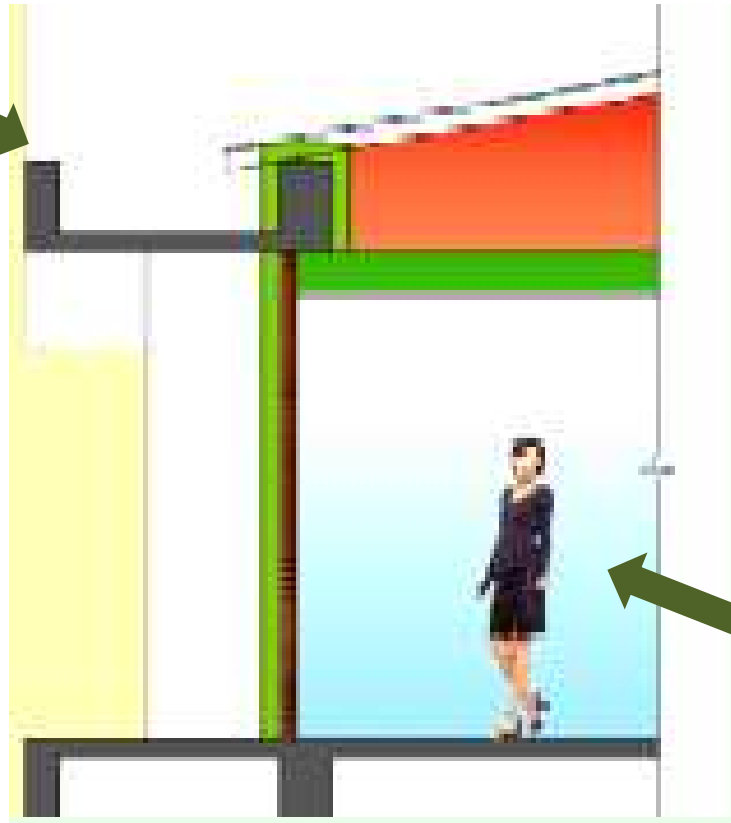
Source: Bangkok Metropolitan Administration 2005

Actions towards Low Carbon Green Office

- Renovate Your Office!
- Establish Your Carbon Policy!

Concept

Renovate your office building to make it low-carbon emission!



Establish your carbon policy to encourage staffs' low-carbon behavior !

Action 2: Renovate Your Office!

If you are going to renovate your office recently, if you do have some budget allocated for making your office greener, please consider the following...

- Improve Building Insulation
- Improve air ventilation and Lighting system

Improve Building Insulation

Reduce heat gains from roof, wall, floor and window, so as to reduce air-conditioning cooling load and save energy!



Wall/Floor/Ceiling/Roof

(Energy saving potential: 5-10%)

- Install Internal/external insulation
- Painting roofs and external walls white



Window

(Energy saving potential: 5-10%)

- Install double- or triple-glazed windows.
- Put on motorized window
- Place awnings (sun shades) over your window

Improve air ventilation

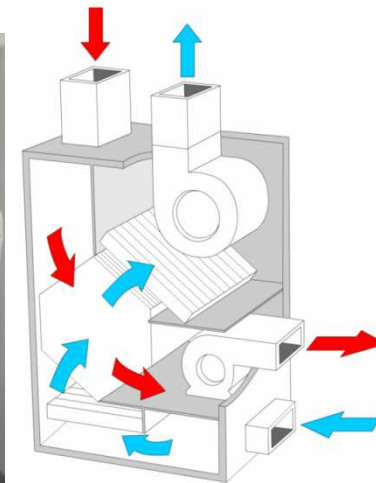
Reduce energy consumed by air-conditioning system and minimise the cooling load loss due to exchanging fresh air. And to improve the efficiency of lighting system.



Air-conditioning system

(Energy saving potential: 10-30%)

- Switch to energy-saving air-conditioning system
- Non-electric chillers consume primary energy (including wasted), which efficiency is higher than that of electric chillers.



Fresh Air System

(Energy saving potential: 5-15%)

- Put as much distance as possible between the intake pipe and the exhaust.
- Install a Fresh Air Heat Exchanger, which will cool down the air from outside as it is being taken into the building, again reducing the cooling load on your air conditioning system.

Improve Lighting system



Light Emitting Diode could be supported by solar power

Lighting System

(Energy saving potential: 3-8%)

- Install energy-efficient lighting. This is 5 to 10 times more efficient than incandescent lighting.
- Energy-efficient lighting will produce less heat and minimise air-conditioning needs.

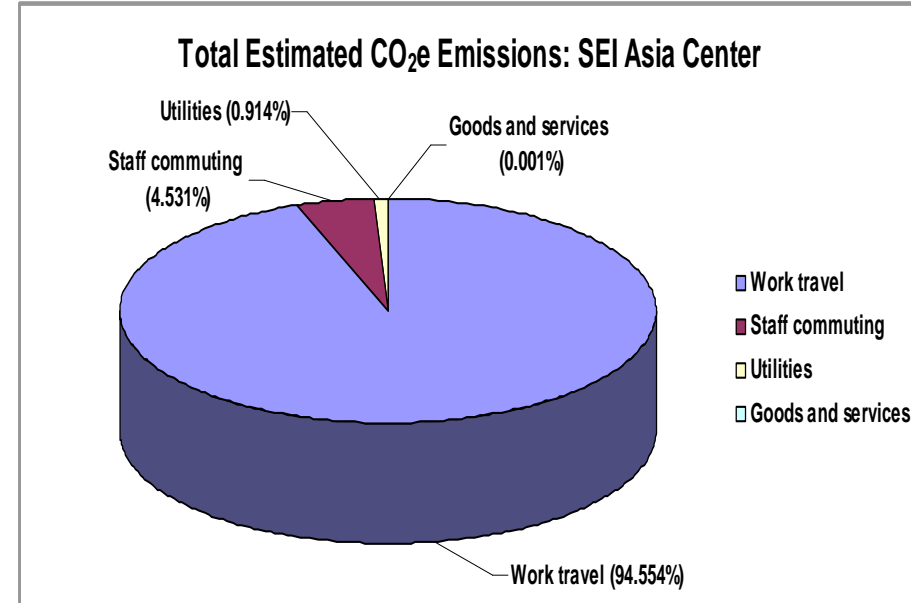
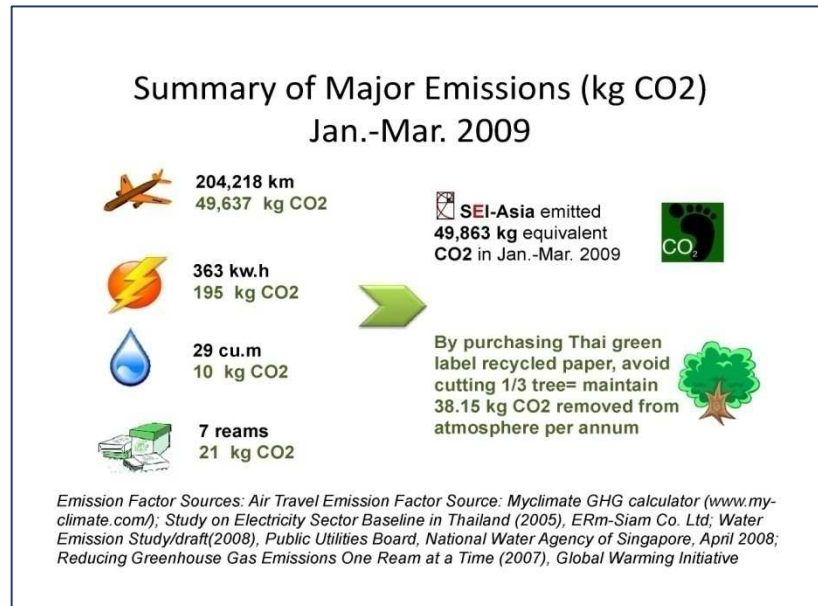
Action 3: Establish Your Carbon Policy!

- Monitor the carbon emission
- Set up mechanism to reduce carbon emission

Every organisation can do this! At nearly no cost! Please take action to avoid unnecessary GHG emission!

Monitor the Carbon Emission

Understand the current emission pattern of your organisation and enable you to design a carbon reduction mechanism for your organisation.



Set up monitoring parameters, you may consider the following, but not necessary limited to:

- Air Travels and Ground Transportation
- Utilities
- Paper Consumption
- Goods and Services
- Recycling and Waste

Calculate carbon emission and publish report on carbon Emission

- Set your level of carbon emissions from the previous year as a baseline
- Calculate carbon emissions Produce an annual or biannual report to demonstrate your commitment to the targets

Example: Air travel emission

Tools

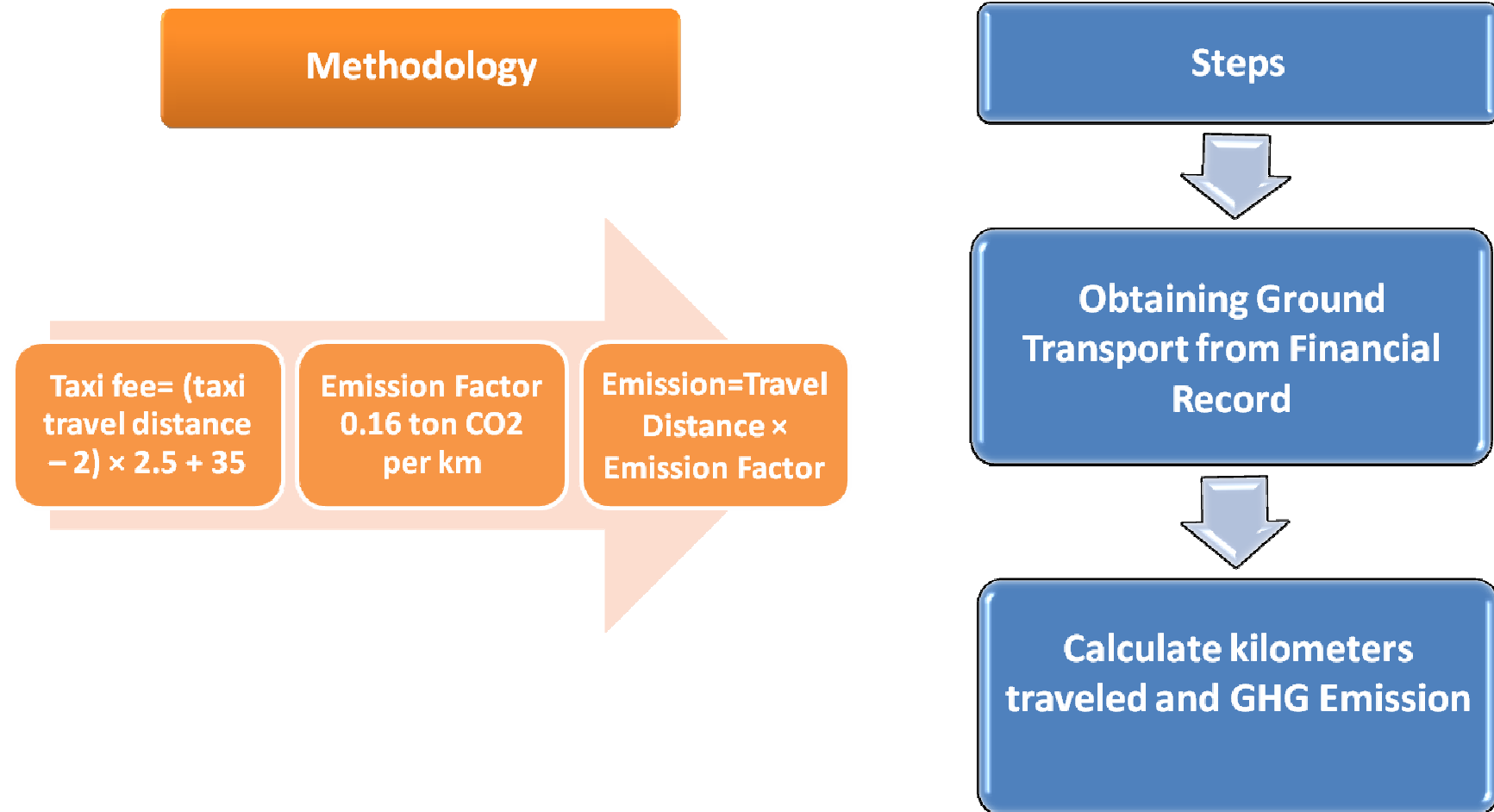
The screenshot shows the myclimate website interface. At the top, there is a search bar and navigation links for 'back | Newsletter' and 'DE | EN | FR'. The main heading is 'Choose your offset-portfolio'. Below this, the calculator has input fields for 'From: Bangkok [Suvarnabhumi International], Thailand, BKK' and 'To: Phnom Penh [Pochentong], Cambodia, PNH', with 'return, economy' selected. It shows 'flight distance: 1061 km' and 'Number of travellers: 1'. A 'Choose your offset-portfolio: 0.3 t' section offers two options: 'myclimate Gold Standard' (CHF 11.00) and 'myclimate Switzerland' (CHF 33.00). To the right, a 'CO2 calculator' section includes icons for 'Flight', 'Car', and 'House', and a 'Partner' section with logos for 'Sunstar HOTELS' and 'atlantic'.

Steps

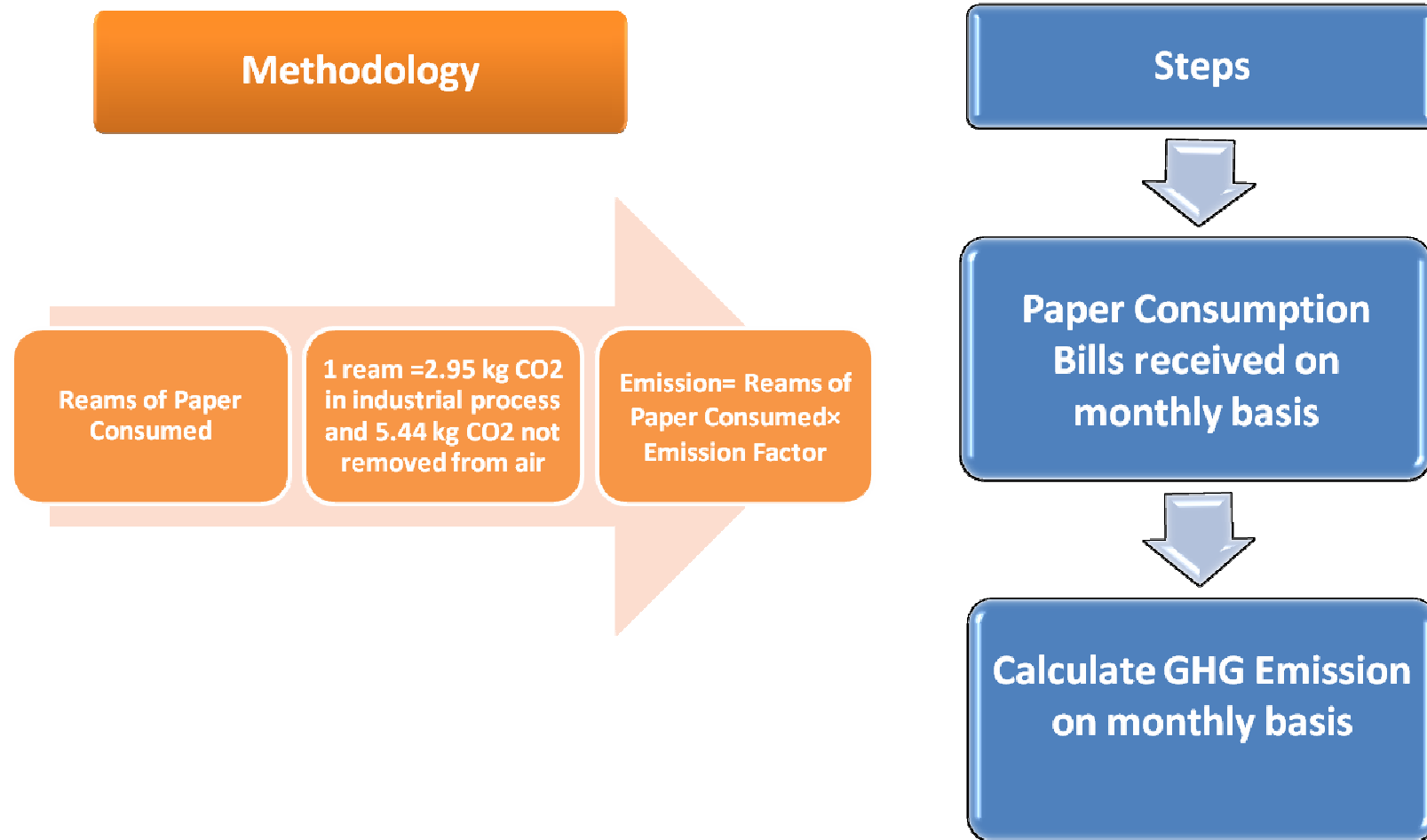
Obtaining Individual Travel Details from Financial Record

Calculate kilometers traveled and GHG Emission by Myclimate or other calculators

Example: Ground Transportation (Taxi in Bangkok)



Example: Paper Consumption Emission



Mechanism to reduce carbon emission

Design your own carbon reduction mechanisms and implement environmental policies to reduce carbon emissions in your office. Here are some options:

- Share knowledge with staffs
- Set up reduction targets
- Use the power of notification
- Create incentives

Share knowledge with staffs

Total Emission in 2008

Each tree planted in the humid tropics absorbs 22 kg of carbon dioxide every year.



SEI-Asia
emitted **135,940 kg**
equivalent CO₂ in
2008



6,179 trees
to absorb
the CO₂
emitted



Source: Trees for Future(<http://www.treesfff.org>)

- ✓ Make your staff understand the issue
- ✓ Create “low-carbon culture” in your office

Set-up Reduction Target



Paper: Individual
Reduction Target



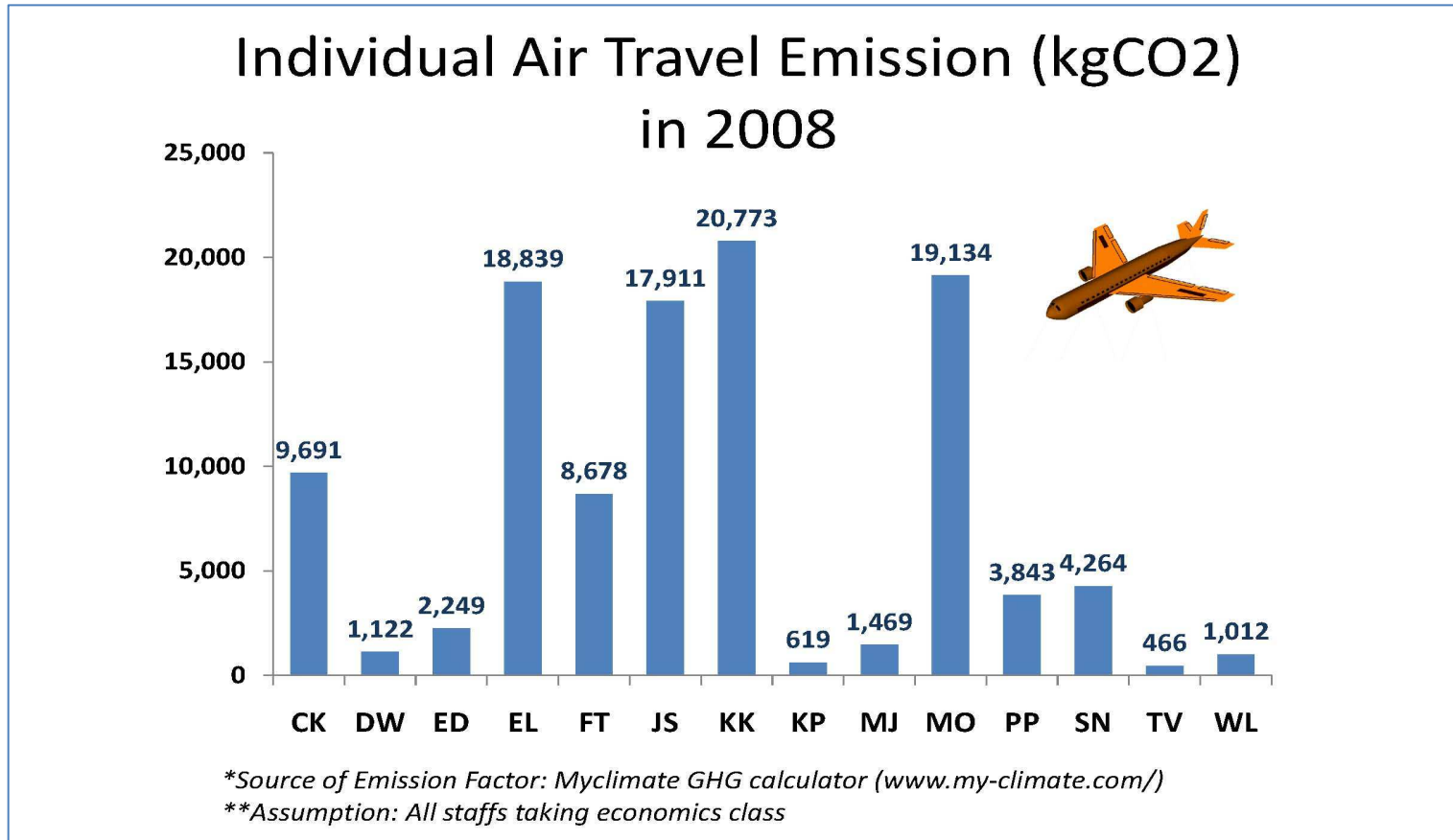
Air Travel: Project
Reduction Target



Utilities: Organisational
Reduction Target

- ✓ *It depends on where the decision power lies*
- ✓ *Target could be compulsory or voluntary*
- ✓ *You may consider linking it to individual staff or project performance evaluation system*

Use the Power of Notification



- ✓ Circulate individual or project emission
- ✓ You don't really have to do anything but staff may start concerning how to reduce their emission!

Create Incentives

- Set up Carbon Reduction Award

Awards



- Give prizes or a bonus to staff who contribute good carbon reduction ideas

Prize/Bonus



Simple Carbon Calculator and Eco-Office Rating



Eco-Office Rating System

General Questions on Your Office:

In order to make the Eco-Office Rating System more relevant to your office, please answer the following questions.

Does your office manage its own electricity bill?

Yes

Does your office control air conditioner temperature settings?

Yes

Does your office manage its own toilets?

Yes

Singapore Eco-Office Rating

A Guide to Filling in the Eco-Office Rating System

My climate carbon calculator

Home | Membership | Contact | Feedback | Newsletter

Search: go DE | EN | FR

- Portrait
- Offsetting
 - Principle
 - "Climate neutral" label
 - CO2-calculator
 - Flight calculator
 - Car calculator
 - Household calculator
 - Business calculator
 - Event calculator
 - Donation calculator
- Carbon Management Services
- Climate education
- Carbon offset projects
- Information & climate tips
- Services

Climate education

Choose your offset-portfolio

From: Bangkok [Suvarnabhumi International], Thailand, BKK
To: Phnom Penh [Pocheantong], Cambodia, PNH
return, economy
flight distance: 1061 km
Number of travellers: 1

Choose your offset-portfolio: 0.3 t

myclimate Gold Standard portfolio: Your contribution to carbon offsetting goes toward myclimate carbon offset projects in developing countries and emerging markets. All projects reduce emissions by replacing climate-impacting fossil fuels with renewable energy or by promoting energy-efficient technologies. For example, you support the local production, distribution and use of solar cookers and efficient cookers in south-west Madagascar.

Offset with portfolio **myclimate Gold Standard**
Offset costs: CHF 11.00

Offset with portfolio **myclimate Switzerland**
Offset costs: CHF 33.00

myclimate Switzerland portfolio: At least half of your emissions are offset within Swiss carbon offset projects; the remaining part is offset within carbon offset projects in developing

Protect our planet

CO2 calculator

Flight

Car

House

Business

Event

Donation

Calculate and offset your CO2 emissions simply and efficiently! Click on a computer symbol above!

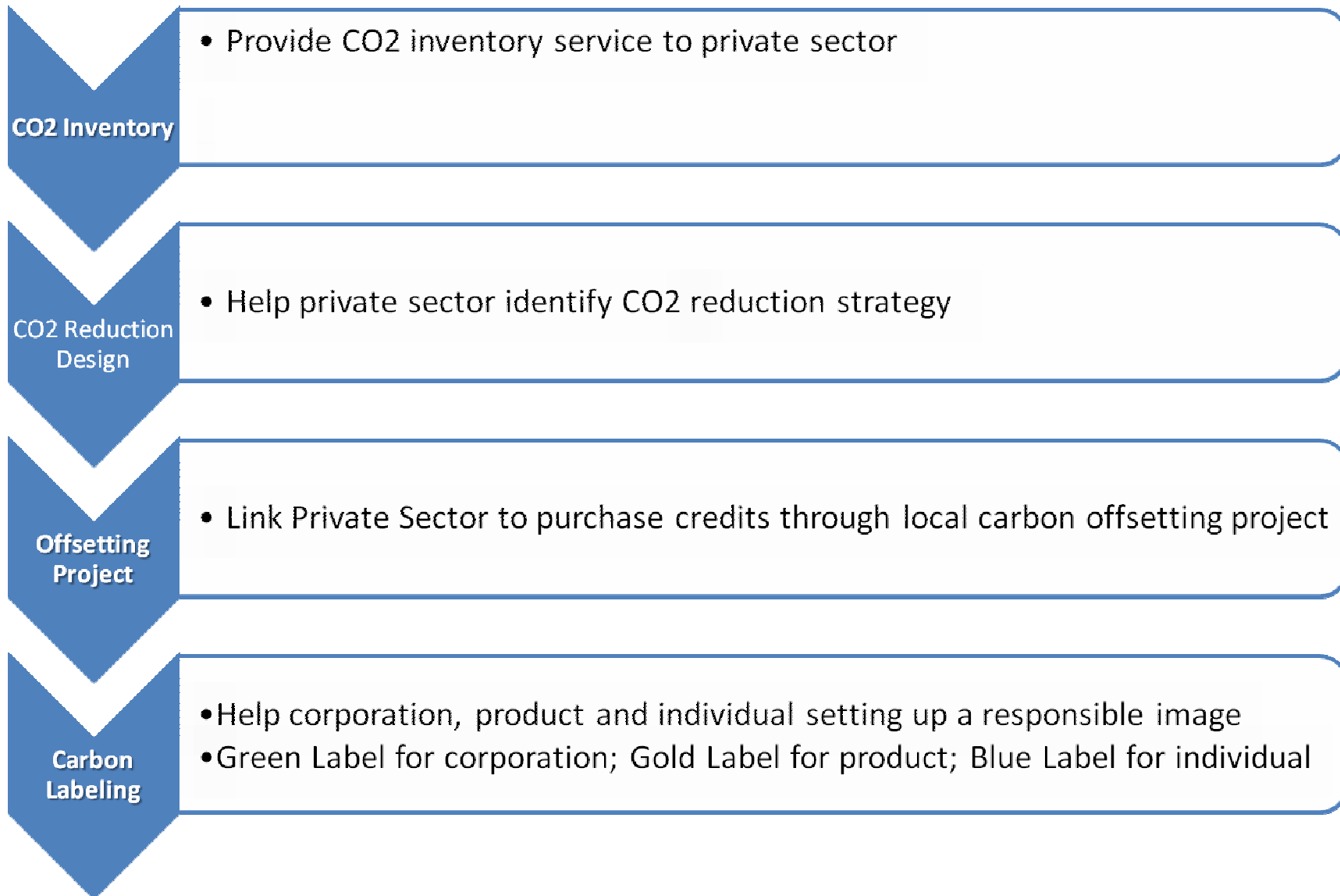
Partner

Example-Organisation Carbon Reduction Partnership



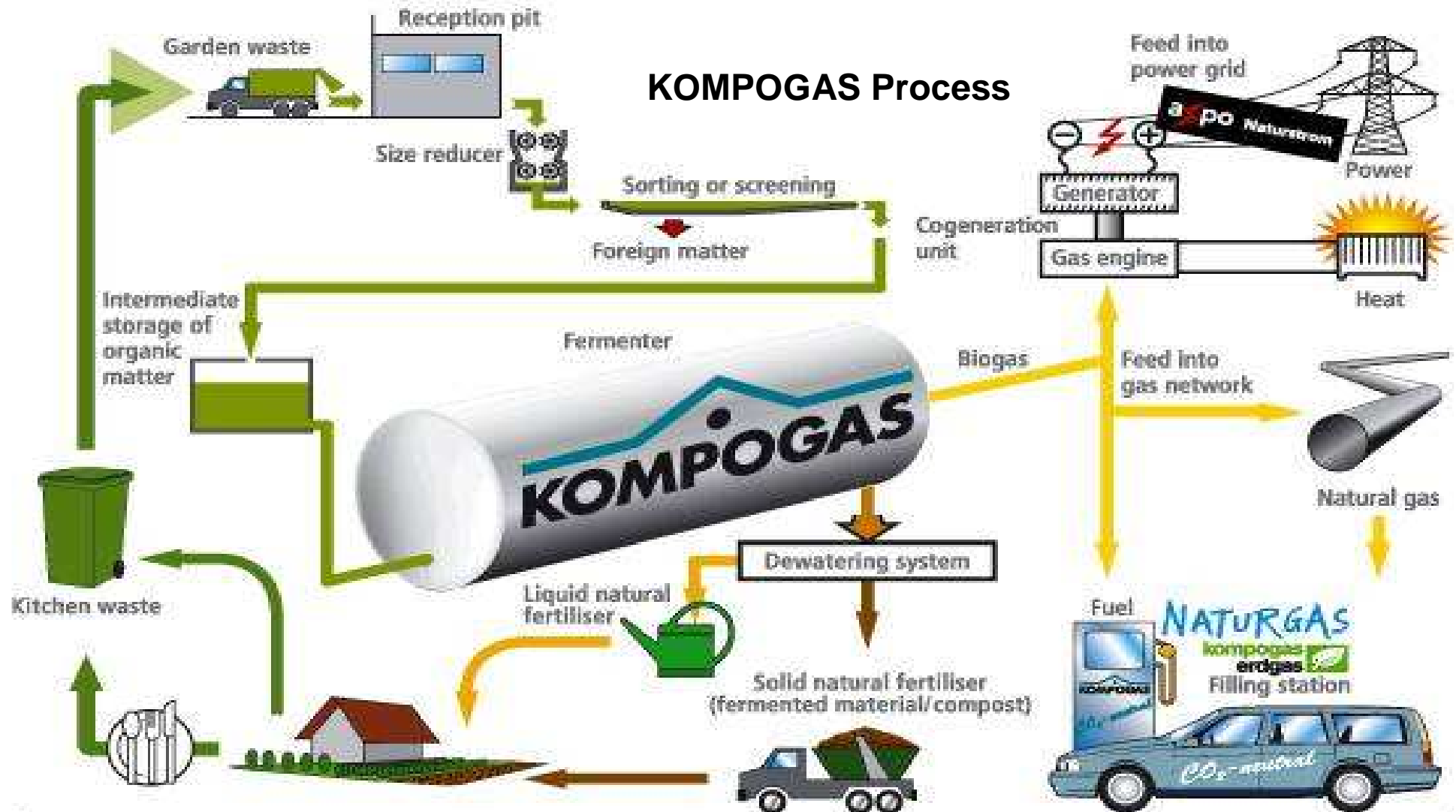
- **Seal Carbon** is devoted to promoting the carbon neutral concept and a low carbon economy in China

Example-Organisation Carbon Reduction Partnership



Example- City Infrastructure Support

1 ton biogenous waste → 100 m³ methane → 200 kWh electricity + 250 kWh heat or 45 litre oil + 600 kg organic fertilizer → avoid 0.2 ton CO₂



New energy from biogenous waste

Example- Country Policy Support

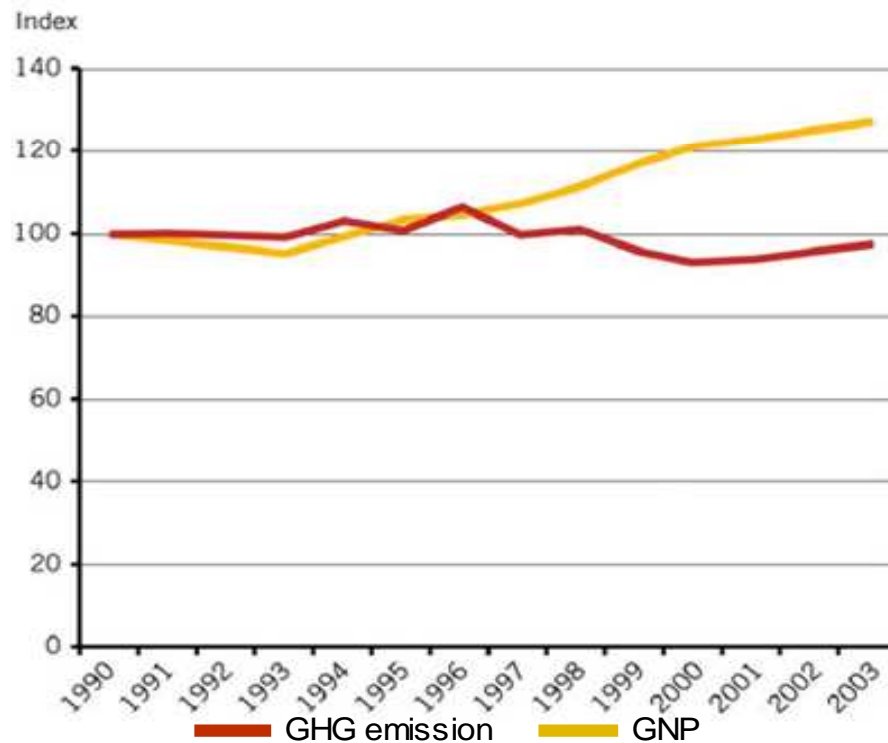
Taxation reform stimulate economy growth, reduce emission

- Energy tax has been levied in Sweden since 1980's. Carbon Dioxide Tax (8 Eurocents per ton) was introduced since 1991. Whilst at the same time, the labor tax was reduced to create incentive for enterprise development
- Compared to 1990, GHG emission reduced 3.7% in 2000-2006, with GDP growth of 25%

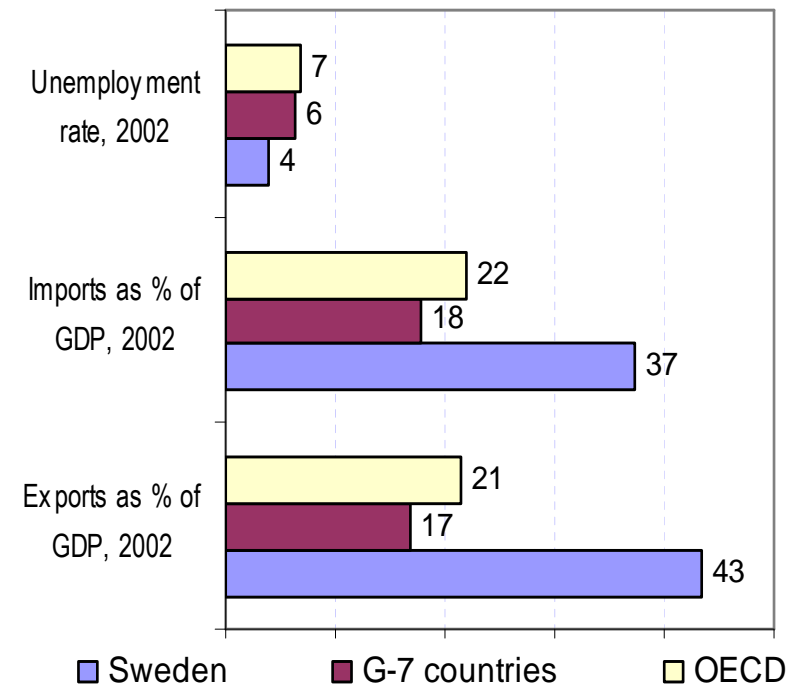
Sweden Levy Budget in 2004		
(Million SEK)		
	minus	plus
Income tax	1360	
Social Security	640	
CO2 tax		820
Diesel tax		270
Electricity tax- Industry		90
Water spot- household		770
Pesticide tax		12

Example- Country Policy Support

Economy Development and GHG Emission after Tax Reform in Sweden



Some Indicators Economic Performance 2002



Thank you!

Q & A