

How can a minor community come to play a major role?



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1: Identify something simple to go for



Everybody knows that we have to do something about global warming

So Växjö decided to go for “Fossil-fuel-free Växjö” –96

Important:



1: Identify something simple to go for



Everybody knows that we have to do something about global warming

The political decision was unanimous

Important:

- All political parties must agree



1: Identify something simple to go for



Everybody knows that we have to do something about global warming

The fossil fuel resources are limited

Important:

- All political parties must agree
- The underlying facts must be undisputable

1: Identify something simple to go for



Everybody knows that we have to do something about global warming

The global warming is a long-term problem

Important:

- All political parties must agree
- The underlying facts must be undisputable
- It must be in line with current and long-term trends

1: Identify something simple to go for



Everybody knows that we have to do something about global warming

“Fossil-fuel-free” is a simple phrase to use

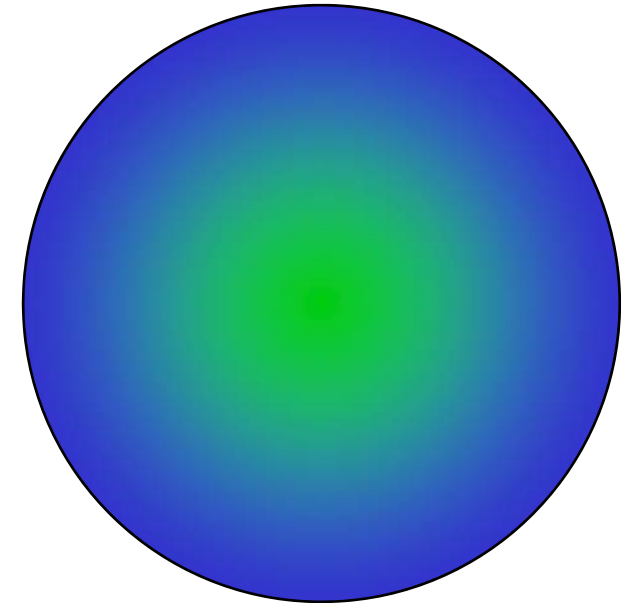
Important:

- All political parties must agree
- The underlying facts must be undisputable
- It must be in line with current and long-term trends
- It must be simple to communicate



**Assume – for simplicity that
this world is a little sphere.**

We all remember from school
that it's 40 000 km around.



So – with $40\,000 = 2 \cdot \pi \cdot r$ – we
readily estimate the radius $r = \frac{40\,000}{2 \cdot \pi} \approx \frac{40\,000}{6} = \frac{2}{3} \cdot 10\,000 = 6\,667$

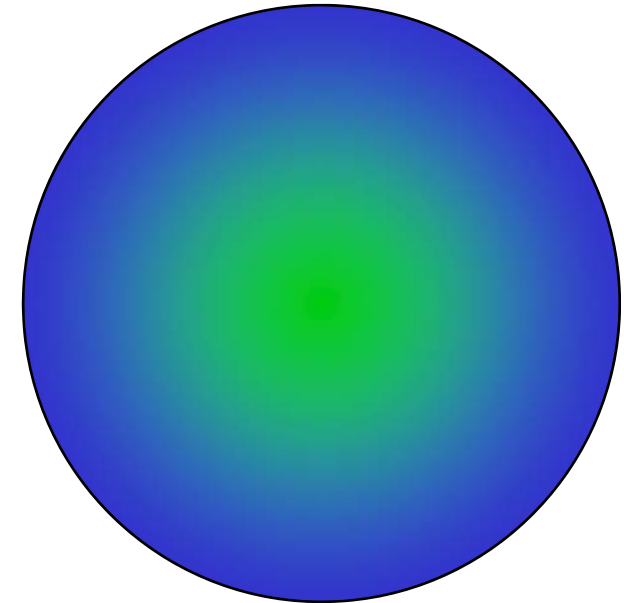
This is overestimated, since π is a bit bigger than 3, so let's say
6 500 km for an estimate...



So – what’s the area of that little sphere?

We all remember from school the equation $A = 4 \cdot \pi \cdot r^2$

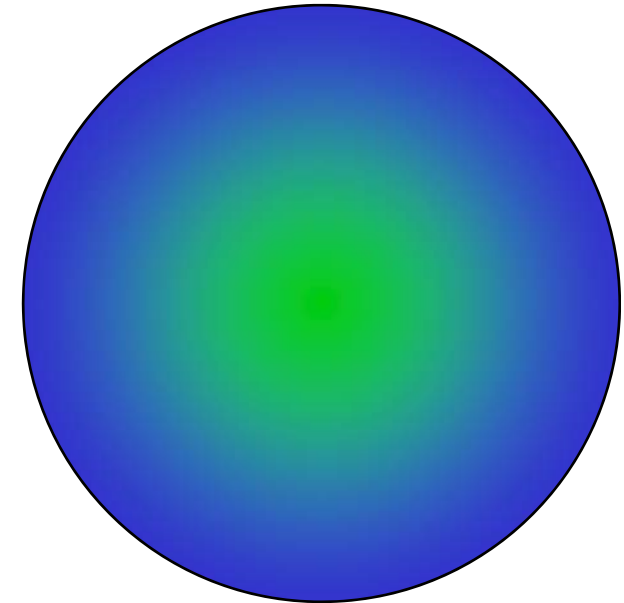
So – with $r = 6\,500$ km – we estimate the area as $A = 4 \cdot \pi \cdot 6\,500^2 \approx 12 \cdot (6.5)^2 \cdot 1000^2$
 6.5^2 has to be in between 36 and 47 – so let’ say 42...
Thus $12 \cdot 42 \cdot 1\,000\,000 \approx 500 \cdot 1\,000\,000 = 500$ million km².





How much land is on that little sphere?

We all remember from school that it's about 70 % sea on this planet – so land is 30 %



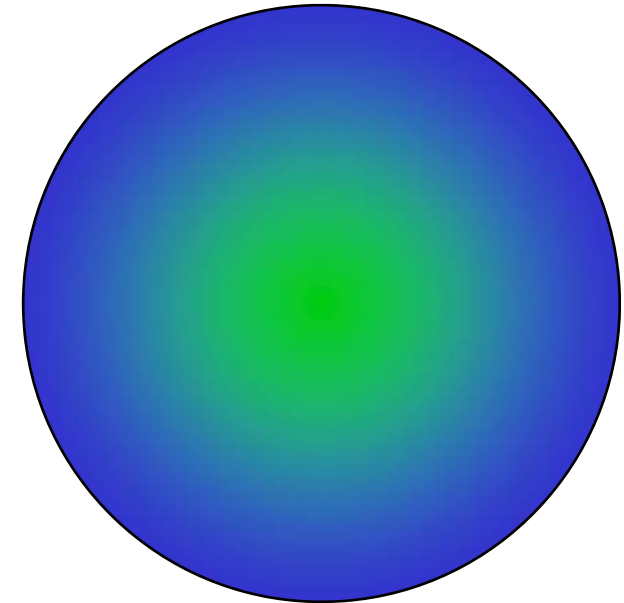
Thus the total land area is about 30 % of 500 Mkm².

That is 150 Mkm²....



How many will share the land on that little sphere?

Let's us use six billion people for the estimate – just to make it simple...



Thus the total land area is 150 million km²; or 0.15 billion km².

And we are 6 billion people. So that's $\frac{0.15 \text{ billion km}^2}{6 \text{ billion people}}$

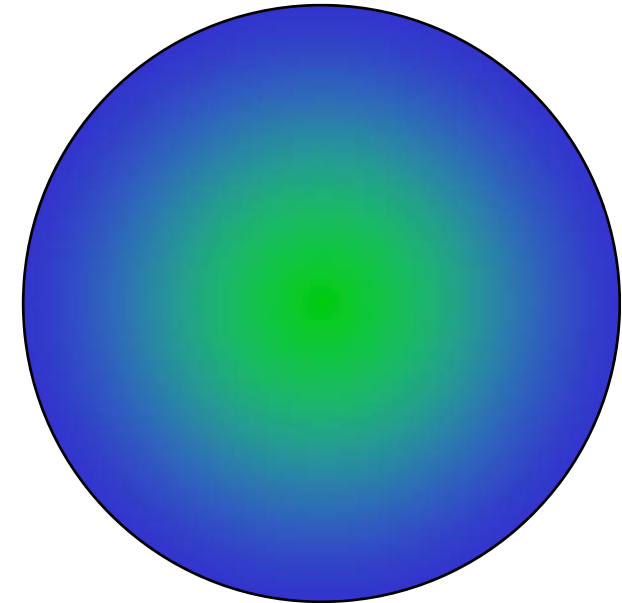


So what's the final result for that little sphere?

We had that $\frac{0.15 \text{ billion km}^2}{6 \text{ billion people}}$

$0.15 \text{ km}^2 = 150\,000 \text{ m}^2$ per 6
persons – that's $25\,000 \text{ m}^2$ each...

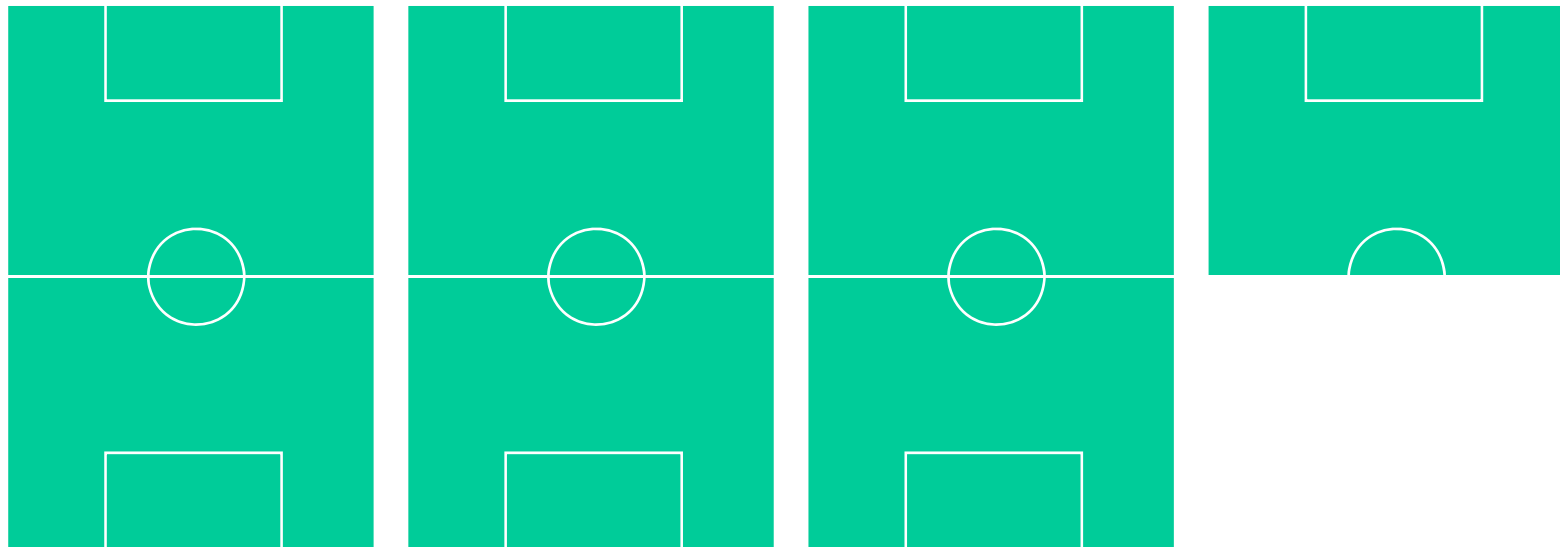
Thus the land area per six persons is 0.15 km^2 which finally
yields about $25\,000 \text{ m}^2$ per person...



Example: Go for “sustainable footprint”
These facts are undisputable...



Splitting the world land area equal between us all, yields about three-and-a-half football fields per person:

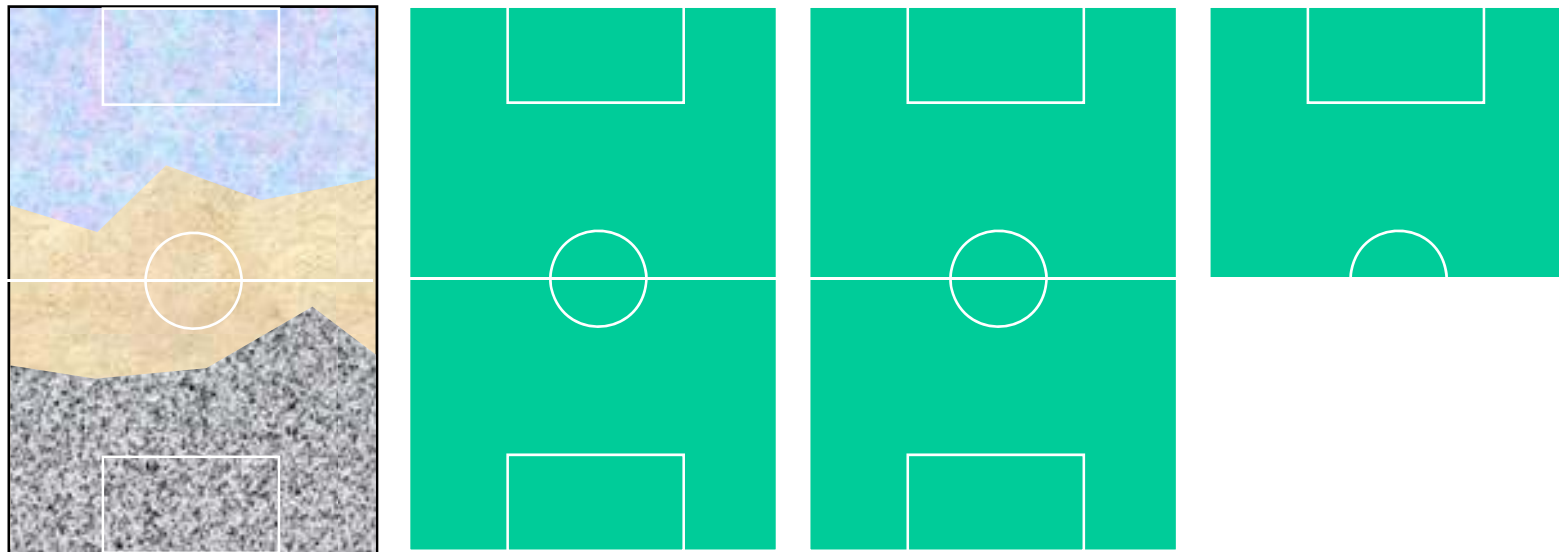


A football field is about $100 \cdot 70 \text{ m}^2$ or $7\,000 \text{ m}^2$, so $25\,000 \text{ m}^2$ is about three-and-a-half football field...

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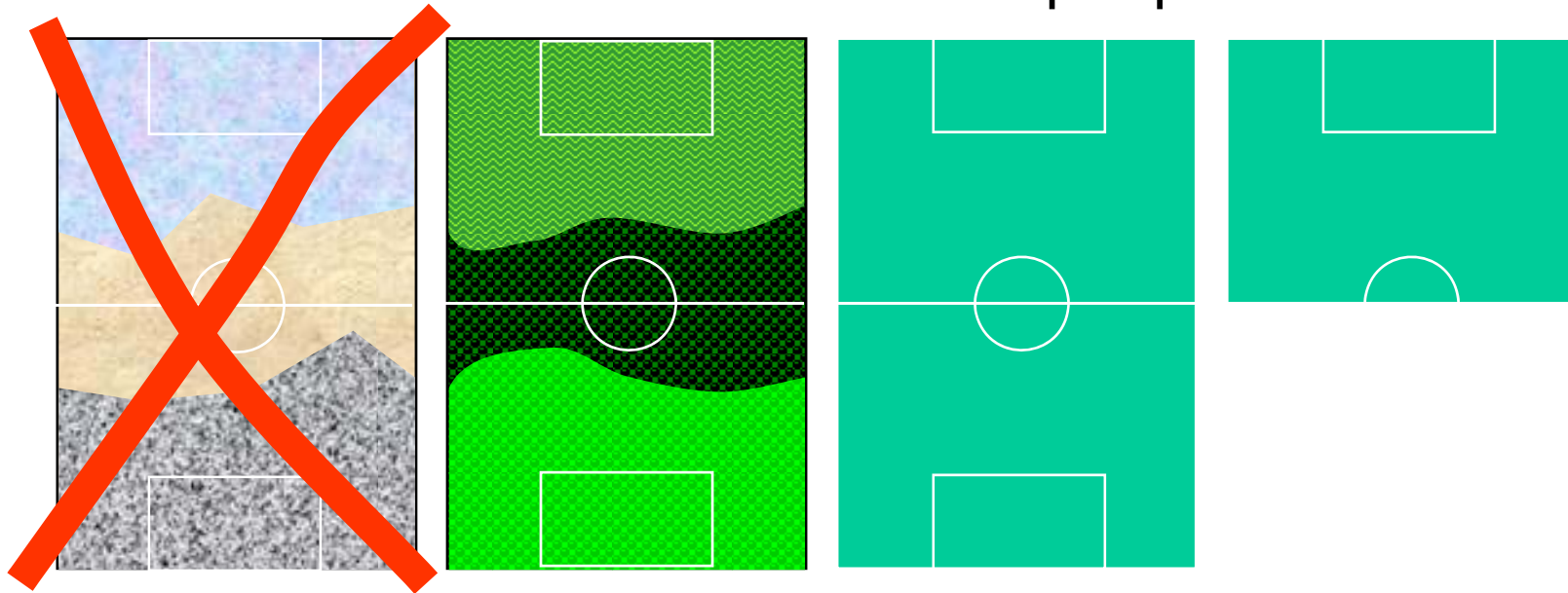


One is covered with deserts, ice or is high-alpine – so this is useless for any type of organic production...

Example: Go for “sustainable footprint”
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Splitting the world land area equal between us all, yields about three-and-a-half football fields per person:



The second is forested with boreal softwood, temperate hardwood and tropical forests...

Example: Go for “sustainable footprint”
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Splitting the world land area equal between us all, yields about three-and-a-half football fields per person:



The third one is covered with poor grass – this is the dry steppes and savannahs of inner Asia, Africa etc...

Example: Go for “sustainable footprint”
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Splitting the world land area equal between us all, yields about three-and-a-half football fields per person:



The half one is mainly covered with good grass – this is the mid-west, the Pampas and those areas...

Example: Go for “sustainable footprint”
These facts are undisputable...



Splitting the world land area equal between us all, yields about three-and-a-half football fields per person:



... and a bit more than the penalty area is good enough to provide all our food and all our fibre without irrigation...

Example: Go for “sustainable footprint”
These facts are undisputable...



Splitting the world land area equal between us all, yields about three-and-a-half football fields per person:



So – this conclusion cannot be disputed!!



Environmental action requires environmental expertise – and this is usually not at hand

So Växjö decided to engage the Swedish Association for Nature Conservation, started -97

Important:



Environmental action requires environmental expertise – and this is usually not at hand

A special advisory office was inaugurated to provide input to the political planning process



Important:

- The experts must be allowed to work independently



Environmental action requires environmental expertise – and this is usually not at hand

The community supported a research centre at the University and an EU Energy Agency

Important:

- The experts must be allowed to work independently
- First-class expertise is needed on a local basis



Environmental action requires environmental expertise – and this is usually not at hand

The budgeting process includes also ecological factors in the bookkeeping since 2003



Important:

- The experts must be allowed to work independently
- First-class expertise is needed on a local basis
- The administration must follow-up the progress

3: Concretize your goals



The goals must be possible to quantify:

- Reduce the fossil CO₂ emissions by 50% per capita until 2010 and 70% per capita until 2025 compared to 1993
- Reduce the use of electricity by 20% per capita until 2015 compared to 1993
- Stop using oil in the city administration by 2010.

Important:

- The goals must comply with the bookkeeping system





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Current Växjö goals

Important:

- The goals must comply with the bookkeeping system
- The statistics office must be able to collect data



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- The goals must be simple to communicate



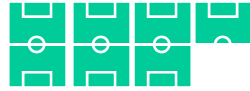
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Current Växjö goals

Important:

- The goals must comply with the bookkeeping system
- The statistics office must be able to collect data
- The goals must be simple to communicate
- Individuals must be engaged – local contests

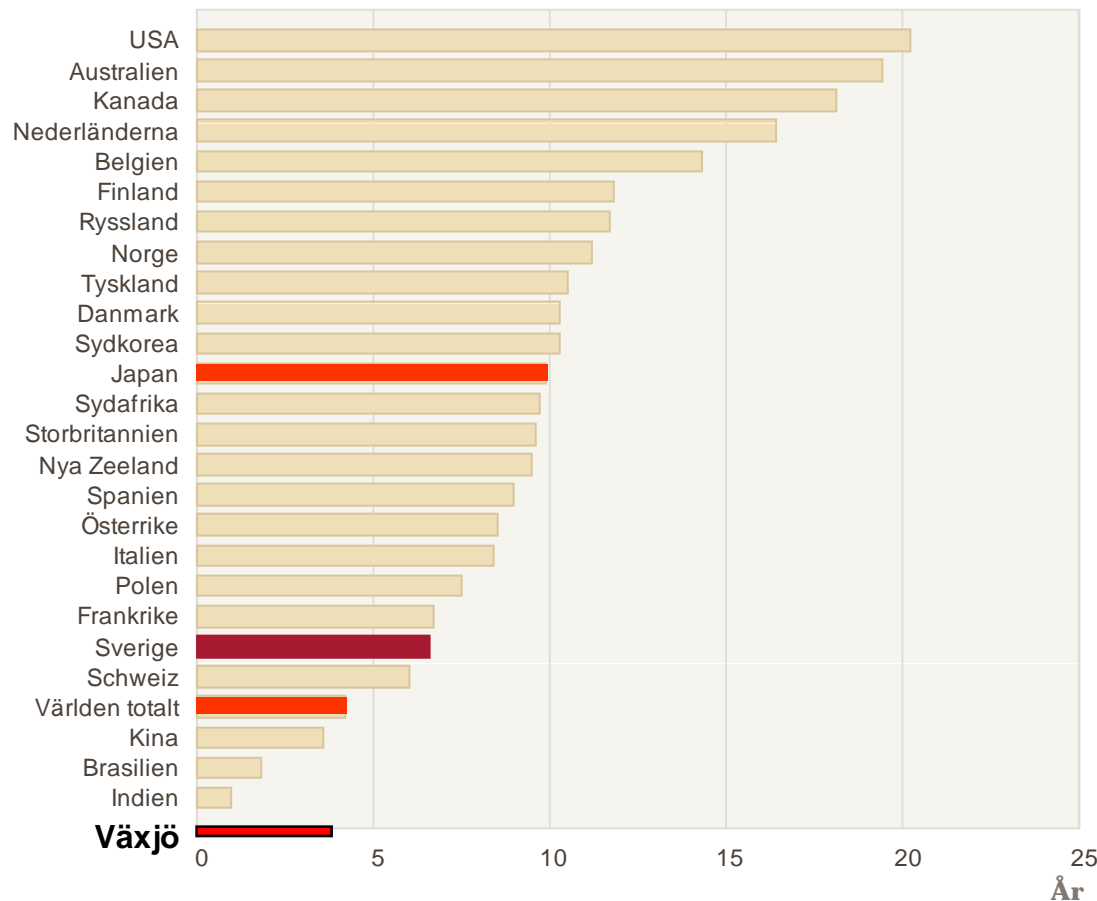


Ecological footprints can be calculated for:

- Textile supplies
- Food supplies
- Energy supplies
- Sea-based resources
- ...



Total CO₂- equivalents, ton/capita -04



So far, the reduction has been more than 30 % and Växjö is now below the world average - decreasing

Källa: EIA, International Energy Annual 2004

Hämtat: 2007-06-29



Växjö achieved its world-wide reputation by:

- Adopting a goal that could not be disputed



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- Following the development actively

And this has lead to:

- Technical visits
- International co-operations
- Awards



The end...



Part of Environmental Programme
for the City of Växjö



FOSSIL FUEL FREE VÄXJÖ

Part of Environmental Programme
for the City of Växjö



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for the City of Växjö

