



Green Tide: An Earnest Proposal concerning Urban Space and Carbon Dioxide Absorption

As of 2006 most professional scientists who make it their business to study climate change seem to agree that global warming is a fact. But whilst sea level temperature, polar ice cover, and atmospheric temperature are open to clear and certain measurement it is not quite so clear or certain what the long-term effects of global warming will be upon the dynamic and complex weather patterns of the biosphere. Yet given the escalating frequency of droughts, hurricanes (bound up with changes in sea temperature) and other destructive weather patterns, it seems assured that global warming will continue to threaten the stability and health not only of the human race but also of every other living thing on the planet. Given that global warming is ubiquitous and threatens all life, it must therefore be considered a threat more grave than any other that we currently face. In short, global warming *demand*s a creative and organised response on our part.

The principal material cause of global warming is the greenhouse gas carbon dioxide which is a by-product of burning fossil fuels such as coal and oil. Even with the adoption of alternative sources of energy such as nuclear power, wind turbines, tidal turbines, and solar power, the energy infrastructure of human civilisation is so geared towards the use of coal and oil that it will probably take decades before our reliance on fossil fuel use can be significantly attenuated.

In the meantime, whilst global warming becomes more apparent and whilst governments work out the most sensible energy policies to pursue, the issue of increased carbon dioxide levels in the atmosphere can be here addressed.

As stated, atmospheric carbon dioxide is the chief gas that underlies global warming. Attesting to the amount of this gas that human culture generates, Earth System scientist James Lovelock describes the situation thusly:

"The world's annual production of carbon dioxide is 27,000 million tons. If this much were frozen into solid carbon dioxide, it would make a mountain one mile high and twelve miles in circumference. To sequester this much each year could not be achieved quickly - probably not sooner than twenty years from now."

(James Lovelock - *The Revenge of Gaia* - Allen Lane, 2006)

Lovelock goes on to argue that even if some new technology were invented to remove carbon dioxide, it would inevitably take decades to establish such a new technology. But can levels of carbon dioxide be reduced by some relatively simple and inexpensive means right now? Indeed they can. Green Tide's proposal is to make use of ridiculously inexpensive technology that can actively pump down carbon dioxide from the atmosphere and 'lock it away'. Such technology has existed for billions of years. It is even self-replicating and self-repairing. *Plants*. All green plants contain nanotechnological 'machinery' that actively absorbs carbon dioxide and thence stores the carbon in cellular tissue. En masse, plants thus help to reduce atmospheric levels of carbon dioxide (as well as making fresh oxygen for us to breathe). What we need is more plant life. Much more. Everywhere. The more plant life we have - *especially in our cities where they are currently scarce* - the more can the chief material cause of global warming be absorbed. This contention is supported by the fact that for billions of years plants have acted in concert so as to regulate the Earth's atmosphere so that it remains in a healthy state.

Of course, a difference can only be made at this juncture in time if the volume of newly introduced plant life is significant in size. Going by Lovelock's analysis above, the annual global creation of 27,000 million tons (dry weight) of *new* plant biomass could effectively balance out the equation. The habitable global land area covers approximately 120 million square kilometres. Balancing out the equation would therefore entail the creation of 225 tons of new plant biomass per square kilometre per year. Despite the obvious unfeasibility of achieving this, the creation of new plant biomass *on any large scale* will nonetheless help to mitigate those annual 'mountains of carbon dioxide'. And the best place to initiate such widespread greening is in our cities which harbour mile upon square mile of vacant surface area which could be utilised for plant cover.

In other words, cities need to be literally smothered in plant-life. *All urban spaces and all concrete surfaces that can feasibly harbour new plant life should be utilised*. This includes concreted areas, railings (cities have mile upon mile of vacant metal railings outside buildings and along pavements), posts, rooftops (schemes are already underway in which small ecosystems are initiated atop tall buildings), walls (where practical), and any other place or space where plants and their foliage can thrive. As to the choice of which low-maintenance and relatively fast-growing plant species to use, what kind of containers to use, what kind of fixing devices to employ and so on, this is something for the experts to decide. Regarding the safe disposal of large quantities of dead plant material, the best option appears to be secure landfill sites that can prevent (or even sequester) the release of carbonic biomass decomposition products like methane.

As it stands, there appear to be a growing number of organisations that offer practical information on the design and implementation of 'green roofs' and such. As the Addendum attached to the end of this proposal shows, a number of companies now provide made-to-measure 'roll mats' of plant life that can be installed on roofs and other urban surfaces.

As well as actively absorbing carbon dioxide each and every day, the proposed massive increase in urban plant life will also serve two other important functions. Firstly, it will allow other forms of life, such as insects, to flourish, which in turn will allow species of birds to flourish (and we all know how much cities have devastated wildlife and biodiversity). Secondly, a palpable mega-abundance of visible urban plant life will likely have a beneficial effect upon the psyche of city dwellers.

In short then, a national concerted effort on the part of the UK government to boost the amount of urban plant foliage currently in existence in the UK would, in all probability, have multiple benign effects and would not simply serve to lessen the amount of carbon dioxide in the atmosphere. More importantly perhaps, this proposal is not unrealistically expensive (although it would require large funds). Moreover, most UK towns and cities *already have in place council workforces whose job it is to oversee plant maintenance in parks and such*. Indeed, councils have budgets for planting schemes (and, ironically, budgets for regular weeding practices and regular mowing practices), and many towns take part in 'bloom' competitions to see who can best botanically beautify an urban environment. In other words, a concerted drive to massively 'greenify' our towns and cities is not a naïve pipe dream but a very real possibility. What the government and local councils need to do is to shift gears and embark upon a truly immense planting scheme.

If the UK government were to earnestly adopt such a policy, other European states might well follow suit (although countries like Switzerland appear to be ahead of the game). If the scheme were to spread, the newly created botanical biomass would surely start to have a significant impact upon ambient levels of carbon dioxide and upon levels of biodiversity. And it is for this sound reason that this Green Tide proposal has been formulated and sent to all those in positions of authority whose function it is to serve the needs of both the people and the environment.

A widespread policy of planting is not hard to envisage. Similarly, the urban spaces which can be utilised to harbour plant life are not hard to spot. Walk or cycle around any town or city and it is evident that there is a vast amount of space and surface area that could be utilised to permanently harbour plants. What is required is the will to adopt such a scheme, to make it a truly monumental scheme that everyone will be made aware of. It is a scheme that, should it be adopted by the government, will demonstrate how committed they are to tackling climate change. And just imagine how beautiful our cities will be if there was foliage absolutely everywhere. Compare this to the current situation in which certain areas of our cities are devoid of even a tree or two, where the only birds to be seen are pigeons gathering on concrete, where there is no fresh oxygen being made, and where carbon dioxide is being pumped out by traffic day in and day out. There is ample urban space to be made use of. Lets use it wisely by allowing plant life to return to its millennia old job of maintaining the atmosphere in a healthy balance.

Yours in earnest,

Simon G. Powell BSc
I. J. Lewis BSc

Any practical and useful responses to this proposal will be put up on the following website address:

www.psychoactive-media.com/greentide/feedback.htm (a short Green Tide movie will be available on this site in due course)

To aid this process, where deemed appropriate please feel free to send a digital/email version of any mailed correspondence to:

heap_big_gaia@hotmail.com

Some further considerations

More about Green Roofs

Regarding the situation in London, many buildings have already gone green on top including the Liffe building in Cannon St, Barclays Tower in Canary Wharf, and North Haringey Primary School in Tottenham. A casual glance at the outside North face of Oval cricket stadium in South London also reveals a rich and colourful smothering of hanging plants. And in Sheffield bus shelters have now been fitted with green roofs as the following report describes:

"The greening of the bus shelters has been a huge success capturing the public's imagination, promoting sustainable technology and adding to the city's green network. As a result Groundwork Sheffield is currently campaigning for all of the city's shelters to include living layers on their roofs. If successful this would equate to over 8000m2 of green space. Large scale greening of the Sheffield's shelters has the potential to contribute towards addressing many of the social and environmental problems faced by city residents including lack of green space, poor air quality, poor water quality and flooding."

(<http://livingroofs.org/livingpages/casebusshelter.html>)

As to benefits besides a reduction in carbon dioxide, the following Chicago news extract testifies to the ability of green roof schemes to cool buildings:

"Scientists estimate that, if all the roofs in Chicago were carpeted with a lawn and planted with a few trees and shrubs, not only would they look nice from the air, but they would cut the city's energy needs by 720 megawatts a year [i.e. less air conditioning is required]. This would save its residents some \$100 million (about £70m). The researchers point out that the new greenery would also mop up air pollution, bringing a breath of fresh air to the city."

(www.scienceonline.co.uk/science_now/green_roofs.html)

Finally, Livingroofs.org have calculated that the available roof space in London that could be 'greened' is equivalent to 28 times the size of Richmond Park (already one of the biggest parks in Europe). If so greened, this would not only allow for carbon dioxide absorption but would also serve to ameliorate London's so-called 'heat island effect'. In short, you cannot go wrong with the widespread adoption of urban greening like the green roof schemes above. Extending plant coverage to pavements, railings, posts, and walls is but a natural extension of extant urban greening processes.

Reiteration of the Key Points of the Green Tide Proposal

· Plants are a very effective pump for removing carbon dioxide from the atmosphere. Thus, we need to make use of every available space so as to increase plant life coverage. Available spaces include:

- > rooftops
- > concreted areas which are currently devoid of anything
- > railings
- > walls - perhaps with trellises
- > lamp posts, telegraph poles, tree trunks (e.g. ivy)
- > increased flower beds
- > more hanging baskets
- > public spaces like parks could be mown less often (this complies with London Wildlife Trust recommendations for helping native UK species)

· A potentially expandable infrastructure to achieve a Green Tide is already in place:

- > every UK council already employs a variety of staff trained to attend to the environment
 - > railings, roofs, walls, lamp posts, and large expanses of concrete are already in position and awaiting a greener function
 - > companies and organisations involved with 'green roof' implementation already exist - the implementation of green walls, green railings, and green concrete cover is not hard to imagine
- We also need to reduce CO2 emissions:
- > at source
 - > by utilising clean energy practices

Essential Web Resources / Contacts

<http://livingroofs.org/>

Leading UK non-profit green roof organisation - probably the best source of information for any Green Tide enthusiast

www.igra-world.com/intro.html

International Green Roof Association

www.bauder.co.uk

UK green roof manufacturers and supplier

www.defra.gov.uk

The Department for Environment, Food and Rural Affairs.

With regard to climate change, DEFRA's chief aims are fully compatible with Green Tide's proposal. According to their website, DEFRA's aims include:

"Reduction in UK and global greenhouse gas emissions to avoid dangerous climate change;

UK successfully adapting to unavoidable climate change and promoting the need for international adaptation."

And:

"Cleaner air through meeting the targets in the National Air Quality Strategy."

DEFRA can be emailed at: helpline@defra.gsi.gov.uk or phoned in the UK via 08459 33 55 77.

The postal address for all initial correspondence to Department for Environment, Food and Rural Affairs is:

DEFRA Helpline
Department for Environment, Food and Rural Affairs
3-8 Whitehall Place
London
SW1A 2HH

As of May 2006, the current Secretary of DEFRA is the **Rt Hon David Miliband MP**. Contact DEFRA for more information. He recently said:

"CO2 levels are now higher than for 740,000 years. Arresting climate change will need investment but failure to take action will result in even greater costs." (www.defra.gov.uk/news/latest/2006/climate-0512.htm)

The Minister of State for Climate Change and Environment is **Ian Pearson MP**. Contact DEFRA for more information.

Parliamentary Secretary (Commons) for Local Environment, Marine and Animal Welfare is **Ben Bradshaw MP** who is responsible for local environmental quality and air quality. Contact DEFRA for more information.

www.landscape.co.uk/ - a national environmental educational charity:

"Our philosophy is based on the belief that the quality of urban and rural landscape is fundamental to the quality of life. Raising awareness of the landscape is therefore essential to the health of the local community, the population and the planet."