



## A Sustainability Charter

### Introduction

A Sustainability Charter represents an opportunity to influence environmental policy in Australia and if successful the world and if properly implemented, could deliver significant behavioural and technological change towards a more sustainable built environment.

“For that which is common to the greatest number has the least care bestowed upon it. Every one thinks chiefly of his own, hardly at all of the common interest; and only when he is himself concerned as an individual.” (Aristotle 350 BC)

The issue of looking after and therefore valuing the commons, first discussed by Plato, Aristotle’s teacher, continues as one of the main topics for debate amongst modern political philosophers and is far from resolved. A more recent book “The Tragedy of the Commons” by Garrett Hardin (Hardin 1968) raised the problem in relation to the population debate. He argued that the "invisible hand" (laissez-faire) approach to resource problems does not always provide optimal solutions. In Hardin's hypothetical commons, the action of self-interested individuals cannot promote the public good. A more recent book by John Ralston Saul (Saul 2005) discusses globalism and highlights the current inadequate response to issues of the common good.

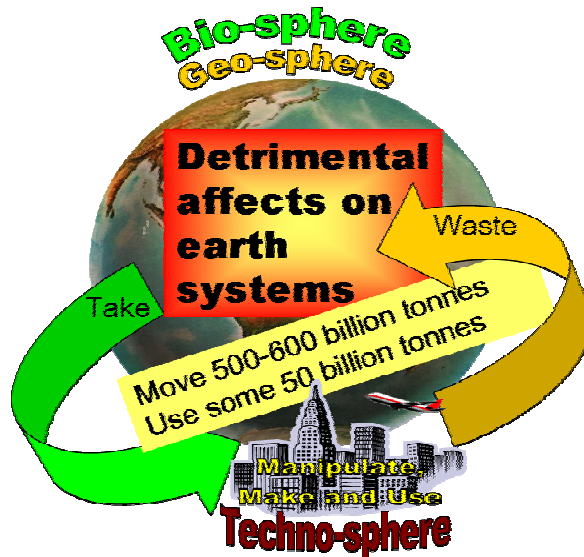
As sustainability issues become more urgent, studied and understood by the masses a cultural drift is noticeable resulting in a will to embrace change. The legal and institutional mechanisms are however lacking and a charter may help bring them about on a timelier basis, thereby matching the urgency of the problem.

Many proposed solutions involve enforcement of conservation measures by an authority, which may be an outside agency or selected by the users of common resources themselves, who collectively agree to cooperate to conserve them thereby acting with more sustainable outcomes in mind.

In this manner common resources have been licensed as for example in our Abalone fisheries, whereby the right to fish now carries with it high value.

Another frequently proposed variant solution is to convert each common into private property, giving the owner of each an incentive to enforce its sustainability. This is effectively what took place in the English enclosures of the commons.

Underlying the techno-process that describes and controls the flow of matter and energy are molecular stocks and flows. If out of tune with nature these moleconomic flows have detrimental affects on earth systems.



### Earth Systems

Atmospheric composition, climate, land cover, marine ecosystems, pollution, coastal zones, freshwater and salinity.

To reduce the impact on earth systems new technical paradigms need to be invented that result in underlying molecular flows that mimic or at least do not interfere with natural flows.

Figure 1 – The Techno-Process (Harrison 2005)

The major problem today is not so much one of use but of degradation of the commons, on a global rather than village green scale. Underlying the vast 600 billion tonne flow of materials through our take-make-use-waste techno-process (see Figure 1), 70 % of which is the construction industry, are molecular flows that are damaging the planet such as too much CO<sub>2</sub> in the air or heavy metals released to our common waters (See Figure 2).

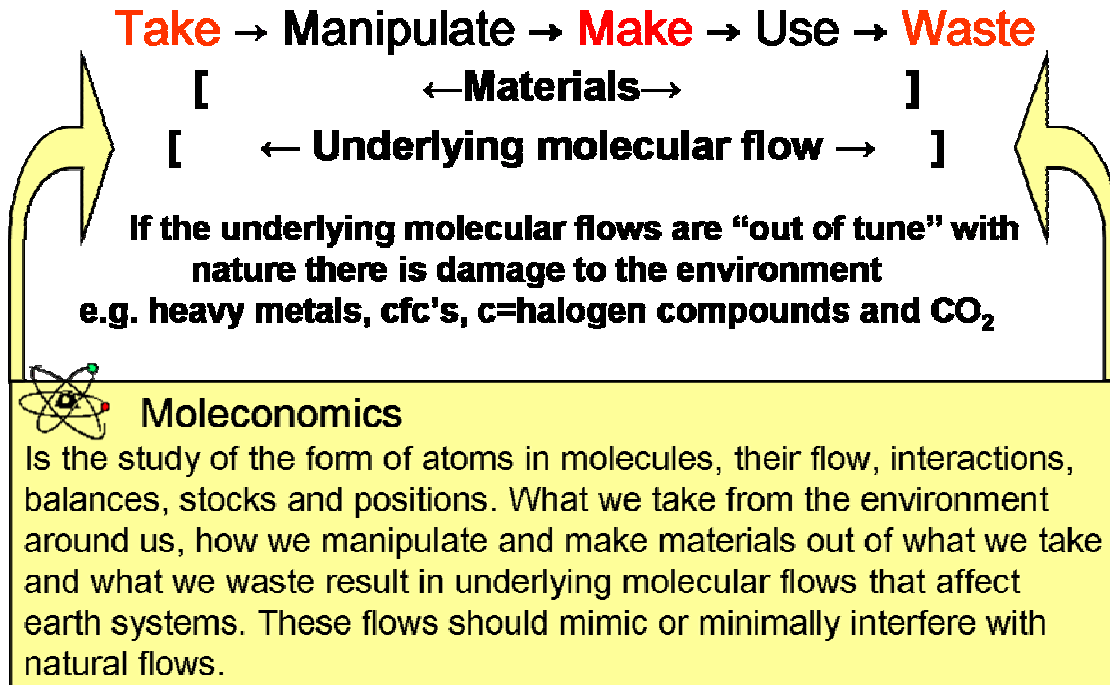


Figure 2 - Moleconomic Flows that are Damaging Underlay Materials Flows (Harrison 2005)

The techno-process is characterised by causes and effects in different time and geographical scales. The causes take place essentially in market places and have a cost

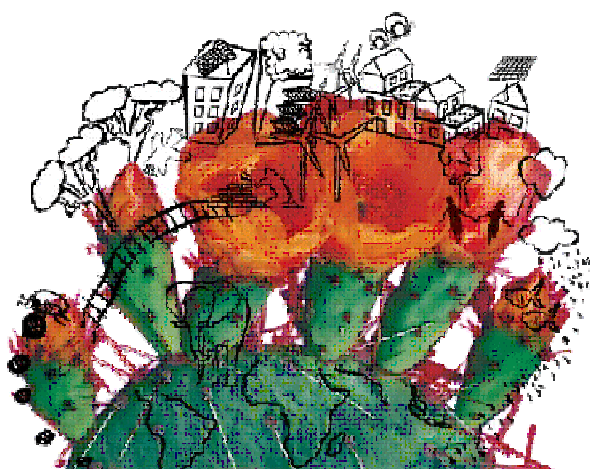
of 'causing' and a value from having 'caused' Unfortunately many of the effects or consequences of 'causing' do not take place locally or in the same short time frame and are thus disassociated from market places and do not have a cost or value to individuals as Aristotle so astutely observed.

'Causes' on the global commons take place with the here and now benefit or loss being measured in market places but the long term consequence being ignored as not being condensable to present value.

We believe that a main aim of the charter should be to enshrine principles that address this complex and as yet unsolved problem of the global commons first enunciated by Aristotle and now threatening to annihilate us.

Strong words indeed but pause for a moment to consider the issues:

## **In the next 50 years it is crunch time for:**



- Fresh Water
- Global warming
- Energy
- Waste & Pollution

## **Are you thinking about these issues? What can you do to help address them?**

### **Figure 3 - Global Issues (Harrison 2005)**

The Easter Island and Norse Greenlanders are examples of societies which have collapsed through failure to properly value and conserve their natural capital and are documented by Jarrod Dimond in the popular book "Collapse" (Dimond 2005). The value of our "Natural Capital" remains unaccounted for and abused. Internalising external costs (accounting for externalities) is a huge problem not yet resolved by successive societies.

The advantage of a charter should be that it takes a longer term view, survives successive governments and potentially enshrines fundamental postulates or principles that translate as legislative value or as means to deliver valuation of the natural capital not only of Australia but the world (as much of it is "common") and thereby facilitate incorporation into our value exchange system that we call accounting.

Whether a charter should address issues of the global commons because it is the right thing to try to do or for some other reason such as satisfying human survival needs is not answerable as all of these currents are flowing. By facilitating mechanisms that enshrine

value for externalities a charter at the very least will help address the problem of accounting for them enunciated by Aristotle.

There remain questions as to whether a charter should spell out values, a process for arriving at the values required or act a mere guide to legislation that does so on a more flexible basis. We have not addressed this issue as it requires further research and some thought but our initial view is that defining the urgency, principles and process for addressing the problem will more likely ensure that something is actually done. As for most noble ideas there is otherwise a danger the charter is little more than rhetoric warming the air. Processes are also generally better than prescriptions as they are less adversarial and more flexible.

## The Economics of Imperfect Markets and Innovation

Modern economic theory (evolutionary economics in particular) is based on the fact that change is the major driver of economic growth. This process, called creative destruction by Schumpeter (Schumpeter 1954), is whereby new innovation destroys old and less efficient process, is the drive engine of modern economies.

This explanation for growth, first espoused by Schumpeter, is more important today than ever as the level of sustainability in a society is economically related to the cultural demand for sustainability and the technology used.

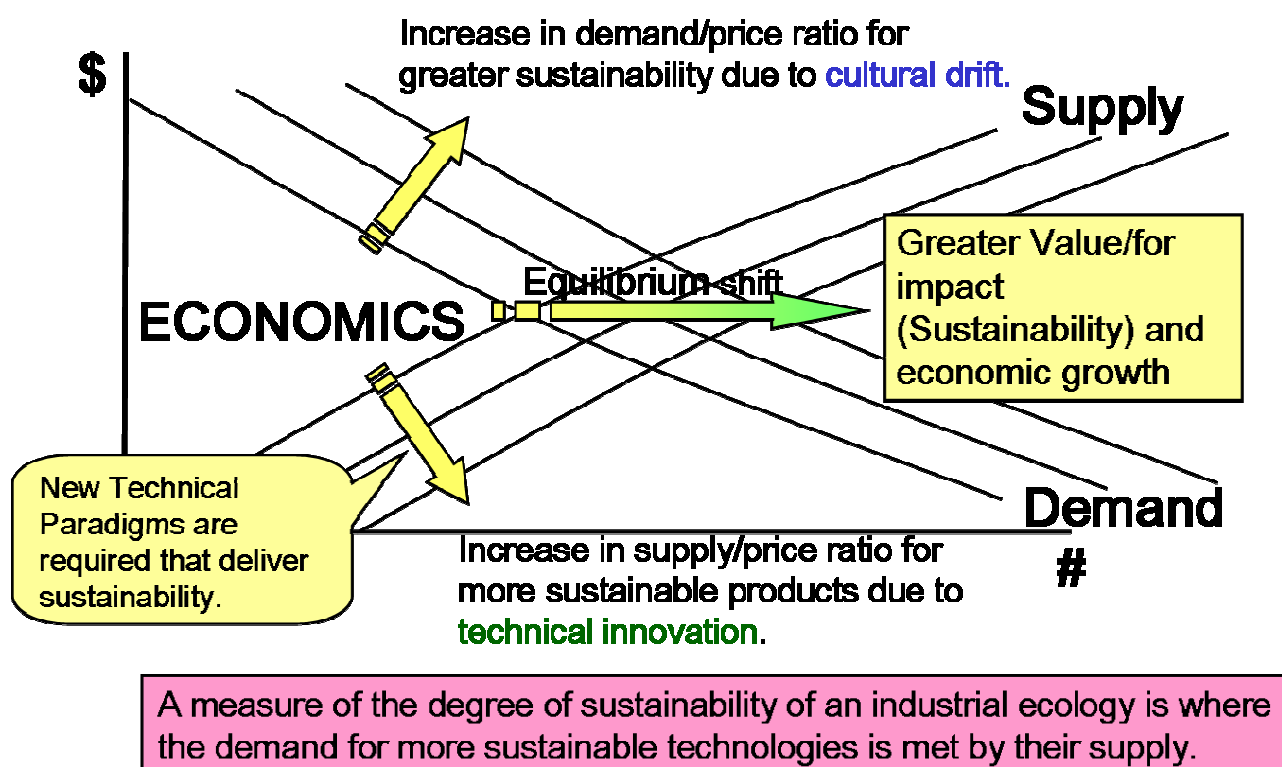


Figure 4 - The Nexus of the Supply and Demand for more Sustainable Technologies (Harrison 2005)

## Innovative Steps and paradigm shifts




Throughout history, economic growth and the level of sustainability of a society has been connected to the level of innovation and cultural demand or acceptance of that innovation.

Through innovative change we not only grow our economies in the manner enunciated by Schumpeter but as demand shifts through cultural change, move towards greater sustainability through changes in the technological basis of our economies by a combination of innovative paradigm shifts and slower evolutionary development.

Examples of paradigm shifts include the invention of the bow and arrow, wheel, metals, glass and gunpowder whilst the development of cooking recipes, crops, breeds of cattle and sheep and many minor inventions are examples of slower, more evolutionary change.

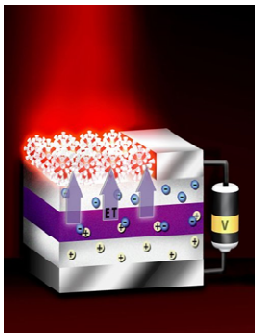
The need for innovation delivering greater sustainability has never been greater. Specific examples of recent innovation that are also more sustainable include the development of neon light globes, the recent breakthrough in solar technology and the materials that are being developed by TecEco including eco-cements and shear binders for robotics.

**Incandescent    Fluorescent    Led Light**

		
100 watts 1700 lumens	25 watts 1700 lumens	<20 watts 1700 lumens

### **Light Globes**

**Light Globes in the last 10 years have evolved from consuming around 100 watts per 1700 lumens to less than 20 watts per 1700 lumens. As light globes account for around 30% of household energy this is a considerable saving.**



### **Solar Panels Producing More than one Electron for each Photon of Light**

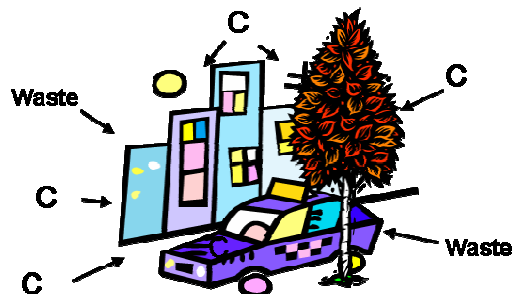
**In all solar cells now in use - in everything from satellites to pocket calculators - each incoming photon contributes at most one energised electron to the electric current it generates. This barrier has now been broken by Victor Klimov of Los Alamos National Laboratory, New Mexico USA .**

### **Figure 5 - Recent Paradigm Shifts in Technology (Harrison 2005)**

Even many economists unfortunately do not understand that change and economic growth are compatible. Imperfect markets do not optimise sustainability. They are short term and the value of sustainability is hard to recognise in them. Larger established businesses based on older technologies have evolved means to maintain market share such as political clout and are scared of innovation and change. Countries (including the U.S and Australia) have not ratified the Kyoto protocol on the false presumption that restricting carbon emissions would be a burden for their economies. Change and economic growth are compatible.

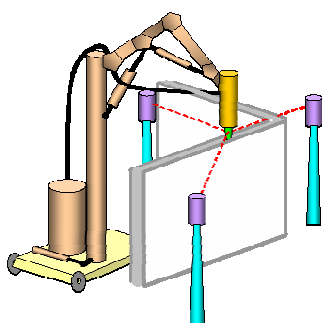
Fortunately many processes have been forced to change because of their impact on the “common” environment. The result has often been the substitution by more efficient

processes, even on a purely economic basis (e.g. since the ban of CFCs, fridges have become more efficient, although manufacturers warned that nothing could effectively replace them). However the shift toward more efficient and sustainable technologies does not always happen naturally and must be encouraged by policy initiatives of government. This is explained, using an evolutionary framework, by Mulder & van den Bergh (Mulder and van den Bergh 2001) who emphasizes that:



### Eco-Cements

Eco-cements set by absorbing CO<sub>2</sub> out of the air and are suitable for the Pareto proportion (80%) of materials used for construction in the built environment. Coupled with capture of CO<sub>2</sub> during manufacture the resulting sequestration is significant



### Robotics

Construction in the future will be largely done by robots because it will be more economic to do so. Like a color printer different materials will be required for different parts of structures, and wastes such as plastics will provide many of the properties required for the cementitious composites of the future used. A non-reactive binder such as TecEco tec-cements can supply the right rheology, and like a printer, very little will be wasted.

**Figure 6 - Recent Paradigm Shifts in Technology (2) (Harrison 2005)**

“One of the most important insights of evolutionary thinking is that current systems are not necessarily optimal from an efficiency perspective, even if prices are “correct” ..... (I.e. prices reflect externalities, are based on perfect competition, etc.). The reason is that systems can be locked-in, that is to say that they are the result of unique, historical, path-dependent processes. .... Present inefficient technologies may be locked in as a result of network externalities and sunk costs. Well-known examples are systems which require a significant amount of private and public investment and network support such as transport and infrastructure, energy generation and provision.”

AASMIC was formed to connect the supply and waste chains and we stand for innovation, sustainability and materials. As an association we believe that more sustainable processes, practices and technologies should be started or assisted then driven by government policies. We are calling for a less “dry” globalist approach, a return to the fundamental role of government as existing for the common good, less privatisation and the resulting squandering of public assets to line the pockets of a few, a more efficient attempt to govern by action as well as legislation. In relation to this there is a strong need to connect public good needs with a growing sense of Australian Nationalism. We hope a charter is a positive move in this direction.

Such proactive involvement by governments will be the fastest way to improve Australian and global sustainability. Other alternatives, such as culture shift, are leading us away from heavy consumerism, but are not happening quickly enough and therefore probably

unrealistic in the shorter term. Besides, AASMIC have a strong view that sustainability will not happen because it is the right thing to do, only if forced by legislative and other change. In this we concur with Aristotle quoted above.

The challenge is to harness human behaviours which underlay economic supply and demand phenomena. This can occur through innovation. By changing the technical paradigm in favour of making, for example, carbon dioxide and other wastes resources new materials with lower take and waste impacts and more energy efficient performance will emerge.

## **The Failure of Globalisation to Address the Common Good**

Globalisation implies that commerce will lead civilizations, that every activity, once released from government interference will find its own natural balances and that nation states would become irrelevant and the power of markets would determine the course of human events.

According to John Ralston Saul, globalism is “an inevitable form of internationalism in which civilization is reformed from the perspective of economic leadership.” Saul then argues that AIDs, the African debt, the return of fundamentalism and terrorism, and many other common problems are not disappearing in spite of a theoretical resulting rise in global prosperity (Saul 2005).

According to Karl Polanyi “the idea of a self-adjusting market implied a stark utopia” (Polyani 1944). Amongst other failures of globalism, the failure to address issues of the commons is paramount. Evidence of this is the rise of more nationalistic approaches to environmental and societal problems and the collapse of globalism.

Many countries have fallen into the false belief that globalism will solve problems in markets, yet markets do not address common needs as clearly pointed out in this document. The way forward may be to cherry pick globalism, maintaining free trade (the why Australia should not grow rice argument) but take into account social and sustainability values. If nothing else, a sustainability charter will reinforce this process of understanding that we live in one world and the capacity of that world to support us is rapidly diminishing. As a process this is also just starting to happen within the WTO.

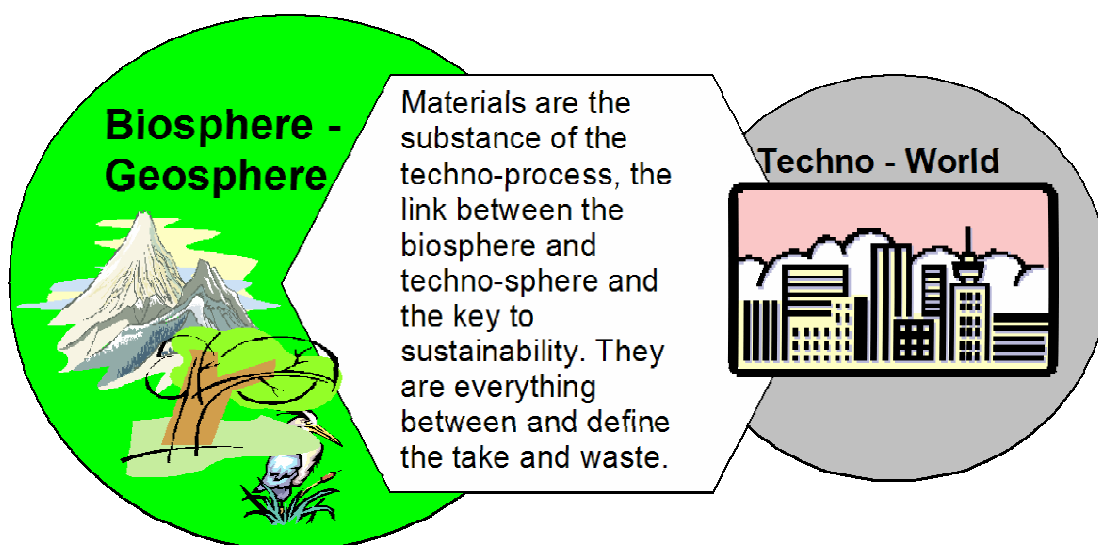
## **Construction Materials and Sustainability**

The construction industry has huge potential for improved sustainability. Globally over 35% of total CO<sub>2</sub> emissions and around 70% of all material flows are attributable to it. Cement production accounts for around 10% of global emissions (Pearce 1997) and concrete is the second most used substance on the planet after water.

Great strides have been made in design for lower lifetime energies, the next frontier will be the materials used in construction as they have such a profound effect on the overall performance of structures.

More efficient methods of constructing our buildings and infrastructure need to be employed in a necessarily more sustainable world of the future. A first step is to avoid being content doing the same thing more efficiently. Becoming more efficient doesn't

usually change the paradigm we work from. There are significant gains possible through rethinking what we are actually trying to achieve and by making fundamental changes towards becoming more effective – benefiting the environment, the economy and society generally.



The choice of materials controls emissions, lifetime and embodied energies, user comfort, use of recycled wastes, durability, recyclability and the properties of wastes returned to the bio-geo-sphere.

There is no such place as “away”, only a global commons

### Figure 7 - The Role of Materials for Sustainability (Harrison 2005)

Materials are everything between the ‘take’ and ‘waste’ and what we work with in the construction industry and AASMIC are focussed on their role for sustainability.

We have also demonstrated that underlying the flow of materials are “moleconomic” flows that are damaging to the planet. To reduce the impact of these moleconomic flows we need new materials that require less energy to make them, that last much longer and that contribute properties that reduce lifetime energies. The key to the delivery of these more sustainable materials is to innovate.

It follows that a charter should also define processes and mechanisms whereby more sustainable technologies, particularly new materials, are given the platform necessary for commercialisation.

We recognise that drivers of change must be a combination of ‘stick’ (legislated disincentives) and ‘carrot’ (legislated incentives). In our previous submission several stick and carrot possibilities were listed and will not be repeated in this document, however should be referred to by your committee. In this proposal, our attention will now focus on a specific suggestion that recognises the pressing need to connect the best intelligence on sustainability with developments at the construction site.



## Energy and Sustainability

The electricity debate is to some extent an argument between centralized, large generating organizations and localized small producers and is currently raging in countries like Germany. The centralists provide base load power, usually from coal but sometimes hydro and the local producers more sustainable solar or bio power.

Because of power transmission losses, at some point, the generation of electricity on a decentralized basis is more efficient than generation from large power plants. This point will only be crossed by innovation encouraged by the right institutional support.

Many countries have privatized transmission and this has been a grave error as it will stand in the way of the evolution of more efficient forms of power such as recently announced by Los Alamos National Laboratory in the US<sup>1</sup>.

Unfortunately, sustainable energy other than from hydro so far does not suit large centralized power generation power plants and is therefore discredited by them further slowing their introduction.

Policies are therefore needed to encourage more sustainable generation of electricity such as a system of eco credits and debits as described herein.

## A Sustainability Value System

There are many ways of incorporating long term external costs as present day values that are traded in real markets and we have presented several in our previous submission. Although we commend you to all of them, unfortunately as unpaid champions of sustainability we only have the resources to address important one in some detail.

### Sustainability Auditing and “Eco Credits”

We mention earlier that sustainability tools need to be broadened, and that there should be other factors than CO<sub>2</sub> with institutionalised value in relation to the well being of the global environment.

We therefore propose that the Sustainability Charter include enabling clauses for the establishment by the Commission of a process of “Sustainability Assessment” to determine the allocation of broad based “Eco Credits” or “Eco-Debits”.

A Sustainability assessment process should be used to determine the overall environmental impact of a process or development, based on a wide range of factors. The results of the assessment would then be used to determine the number of Eco Credits or Debits that are granted upon completion of a project. It differs from Environmental Impact Statements (EIS) in that it relates to any construction and the process should be much more simple and informal – codified yet flexible. Systems for determining the relative sustainability merits of structures already exist. What is proposed is a mechanism for putting a value on these ratings.

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<sup>1</sup> More than one electron for each photon of light.

Initially the Sustainability Assessment Scheme could focus just on building construction as we already have current rating systems. In time a broadening is envisaged to include landscaping, subdivisions, utilities etc.

### ***Land Titles Offices***

In many cases causes tend to be localised and could be considered with land whereas the effects tend to be regional or even global.

By localising the economic impact of global effects, costs and benefits can be incorporated as values in an economic system providing strong incentive or disincentive as required for making more sustainable decisions in what are short term markets

It is suggested that Eco Credits or Debits attach to the title of the land. The formal registration of credits would be conducted via the respective State Land Titles Offices, similar to the way that a mortgage or covenant may be registered so that it attaches to the registered title, under the Torrens system. The Eco Credit or Debits would be able to be:

- Left registered on the title,
- If Credits offset against the payable stamp duty and other government charges, or
- Traded on a market.

Market trading of Eco Credits would be a useful way to establish a mechanism for charging developers who are responsible for significant environmental impacts. If a developer wants to build a resort in an environmentally sensitive area or with unsustainable technologies then, if it is to be approved, the developer can be required to purchase a certain number of Eco Credits as part of the approval conditions to meet the Debits he would be penalised with. This would tend to drive up the price of Eco Credits and thereby provide further incentive for more sustainable construction. The idea is to make the adoption of sustainable construction techniques the most cost effective way to build.

### ***Determinations by the Sustainability Commission***

The ambit of an Eco Credit/Debit ought to be as wide as possible, and flexibility should be built in to the system such that the definitions can expand. The Sustainability Commission would have a role to play in establishing the system and in the ongoing determination of what factors can count towards Eco Credits and how such factors are measured. People would be able to appear before the Commission seeking a determination on any matter in relation to the Sustainability Audit or Eco Credits and Debits. Home owners and builders should be able to argue their case for more Eco Credits and developers of new construction materials and technologies should be able to petition the Commission requesting that their product be registered as a source of Eco Credits when used in construction.

The range of factors that would attract Eco Credits or Debits could be very broad. They would include an assessment of the source of the materials used, their embodied energies, embodied water and any Greenhouse Gas (GHG) emissions that result from their manufacture and transport to the construction site. Use of waste materials would be viewed positively, as would aesthetic factors such as sensitivity to the surrounding natural

environment. The correct management of stormwater and grey-water, use of solar-passive design techniques, insulation, renewable energy systems and native plants are further examples of factors that would attract Eco Credits or Debits.

### ***Measurement by Designers***

The actual measurement of the factors of a construction that count towards Eco Credits could be undertaken by architects, building designers or other authorised contract assessors.

### ***Auditing by Inspectors***

The system should be as insulated as possible against graft. The auditing of assessments could be undertaken by municipal council building inspectors or some other government agency. As municipal councils already undertake routine inspections and assessments of new constructions they would be well placed to service this aspect of the job.

### ***National Database***

The collation of this information into a National Database will provide useful and detailed metrics of the construction industry. Once a picture of the sustainability of the industry is constructed the data can be analysed in detail to identify areas for improvement and refinement. Areas that are identified as in need of improvement can be ascribed a higher rate of Eco Credits.

The database will also be a useful resource for the administrators of the system to determine what each factor is worth in terms of Eco Credits at the time of the assessment.

Software tools could be designed to hook into the designer's CAD software and calculate the number and value of the Eco Credits or Debits that relate to the factors registered within the system.

### ***Factors***

The term 'factors' is the suitably vague term used to describe the properties that count towards the allocation of Eco Credits or Debit for a project. Rather than using 'products' as the primary measure, the term 'factors' can include the way that the huge variety of different products are used. Solar-passive heating is a simple example, where standard construction products can be used in a way that dramatically lowers the heating and lighting requirements of buildings. Once a standard product has an Eco Credit/Debit rating then that rating can be used by the designer in the assessment.

### ***Trading***

The Sustainability Commission in parallel with establishing a value system would need to consider the establishment of a trading system so the value attached to Eco Credits or Debits can be realized in the marketplace. We consider that Debits as well as credits are required otherwise trading will not occur.

## Advantages of a Sustainability Value System

### ***Information Leveraging***

The promotion of sustainable materials in construction is usually hampered to a large extent by a lack of information. The people making the purchasing decisions within the housing market are generally uneducated about the environmental impacts of their decisions.

The environmental situation we are faced with today, particularly with reference to global warming, requires high quality decision making. We simply cannot afford to leave decisions with large cumulative environmental impacts in the hands of non-experts without any form of guidance.

The classical conception of a market with an 'invisible hand' has broken down with respect to sustainability in construction because of our failure to account for the externalisation of costs to the environment. The generation of wastes that are not correctly re-integrated into natural systems has in the past been free when it should have been a cost. The result is that the 'invisible hand' of Adam Smith has been 'blind', as well as invisible; having no idea as to what activities to avoid, because it can not see the cost.

We need to discover new ways of incorporating those costs into our accounting systems. Costs are very useful as people prefer to avoid them. They much prefer benefits.

By framing the Sustainability Auditing Scheme primarily in terms of benefits and costs – Eco Credits and Debits – we can structure the economics of the construction industry in a way that takes advantage of the best information that we have about the hidden and distributed costs of environmental impacts.

### ***Self-Interest Leveraging***

The idea of Eco Credits and Debits is also designed to harness the motivational power of tax avoidance. The theory is: if people were to direct as much effort towards sustainability as they do towards minimising their taxation bills then the problem would soon vanish.

### ***Flexibility***

The Sustainability Commission will make determinations in relation to the Scheme in much the same way that a court makes its decisions, based on rules of precedent to ensure a balance between certainty and flexibility. Owners, builders and construction technology vendors will have the ability to seek determinations from the Commission as to their eligibility to register with the Scheme. Legal representation ought to be permissible only on appeal, in order to keep the determinations short and informal.

The system should be as flexible as possible so it can be readily adapted to an international system should one be adopted.

### ***Recycling of Government Instrumentalities***

The proposed Sustainability Auditing Scheme would need to ensure that the sort of unnecessary duplication of roles that has plagued the Australian federal system in the past

is avoided. Whilst we see the role of the Sustainability Commission as being crucial in terms of establishment of the Scheme and ongoing arbitration, the actual machinations of it can best be performed by existing government instrumentalities that already perform similar tasks; namely, municipal councils and the state land titles offices. There will likely be roles for the AGO<sup>2</sup>, ANSI<sup>3</sup>, ABGR<sup>4</sup>, AASMIC<sup>5</sup> and various other government and non-government organisations.

The Sustainability Commission will be in a position to determine other possible connections and synergies that can be utilised in a similar manner.

### Industry Standards and a Sustainability Value System

As an adjunct to the Scheme, a review of the various construction industry standards will be useful. This is an area in which a lot of ink has already been spilt, as there are difficult issues involved. There is a general consensus that a move towards performance-based standards is far preferable to maintaining formula-based standards, which tend to act as barriers to innovation. The question is how to do this in a cost-effective manner, as the cost of performance testing can be prohibitive.

The mechanisms of the Sustainability Auditing Scheme may be able to help solve this dilemma.

The main issue is the delayed effect of any new problems. When problems only present after several decades from the date of construction, the original owner will most likely have sold the property to a third party. If the original owner/builder used a technology that was outside of the formula-based standard, perhaps in order to gain more Eco Credits under the Scheme, then subsequent purchasers of the building need to understand that they are accepting the attendant risks.

### *Innovation Caveats*

A condition of the granting of Eco Credits on innovative technologies that fall outside of formula-based standards ought to be the registration of a caveat against the title that specifies that the innovative technology that was used. The caveat will provide specific details of the technology, what level of performance is expected of it and the results of any subsequent testing that has been performed during the period of registration. This will give the third party purchaser notice of the risk and will be a prompt to find out whether the risk is likely to impact in any way on his or her enjoyment of the property.

In effect, the costs associated with possible risk remain with the original owner/builder. In return for taking the risk, the original owner/builder has the right to redeem any Eco Credits or choose to leave them on the title for the benefit of the purchaser who may then agree to take on the risks.

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<sup>2</sup> Australian Greenhouse Office

<sup>3</sup> Australian National Sustainability Initiative

<sup>4</sup> Australian Building Greenhouse Rating scheme

<sup>5</sup> Association for the Advancement of Sustainable Materials in Construction

## Conclusion

The great problem of the future will be that of maintaining the common good and the scene it will be stage is the global commons. Our natural capital, vital to sustain life and all economic activity is becoming serious diminished. Virtually all improvements in sustainability have associated reductions in energy and reductions in energy have associated sustainability benefits. Reductions in energy are associated with reductions in emissions and for this reason if no other any new global system to replace Kyoto should be broadly based

AASMIC believe that underlying government policy that should perhaps be enunciated in a charter should be a serious consideration as to how to assist new and emergent technologies that are more sustainable and resource efficient so they can compete with existing technically paradigms that have the advantage of economies of scale.

Australia cannot stay out of global sustainability treaties forever and this will be more for economic reasons than any other. There is much current discussion as to the form a replacement treaty for Kyoto will take and our view is that it should be much more broadly based. It follows that our sustainability charter, if adopted should not just be a political greenwash document but something with real punch to bring forward into and be compatible with the global debate bearing in mind a likely widening of the agenda.

An overriding principle that must be considered is that of biomimicry. Sustainable processes are more efficient and therefore more economic. Natural ecosystems can be 100% efficient. If we wish to survive in harmony with nature for the longer term, what is needed are new ideas for policies that foster the development of processes and technologies that allow material and energy flows to more closely mimic flows in natural ecosystems. We have lost the connection with the planet and live in a surreal techno-world. Our air conditioned homes and offices leave nature outside and we have been lulled by such comfortable 'civilised' surroundings that all is well. It is not. Nature is a living library of wisdom and we must learn by connecting and evolving more harmoniously.

Economic rationality is not seen as being in conflict with biomimicry as nature is the most frugal economist of all.

The Sustainability Charter and the Sustainability Commission will be tasked with providing solutions to problems that affect the wellbeing of people as a whole in terms of our interfaces with the global commons. Governments are the structure with the mandate and the power to direct the behaviour of individuals in particular directions unfortunately the need for government to drive programs to overcome problems of this nature is not well understood and should be addressed by a charter.

Presently, much of the power that governments have is not being utilised. Taxation is generally seen as a source of revenue that can be used to solve society-wide problems, rather than as a method to solve them.

The Eco Credits and Debits Scheme that we are proposing is an example of a tax on behaviour that we wish people to avoid; namely, making or building using unsustainable

technologies. Conceivably the scope of the scheme could be extended on a global scale to encourage adoption of a wider range of sustainable technologies in a diverse range of industries. Eco Credits and Debits could conceivably attach to energy generation, transport systems, manufactured goods, food and services that embody or result in low levels of GHG emission, embodied-energy and embodied-water, or which have any other positive impact on the environment, such as improved biodiversity or waste utilisation as well as overall greater sustainability.

The Sustainability Charter should set Australian governments the target of implementing programs that discourage undesirable externalities and encourage behaviour that results in commonly enjoyed benefits. The system of debits and credits proposed would harness the huge energies that Australians employ towards paying less tax and direct it towards solving our common problems. In this way, much of the change towards sustainability would occur with a minimum of government intervention.

By institutionalising natural capital values eventually they will also become a more important part of our culture.

John Harrison B.Sc. B.Ec. FCPA

AASMIC Chairman, July 2006

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