University of Technology, Sydney

Developing Strategies for Mainstreaming Sustainability

Identifying Constraints and Potential Solutions

Prepared by

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For

Sustainability Advisory Council

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GLOSSARY

SAC	Sustainability Advisory Council
ISF	Institute for Sustainable Futures
BASIX	Tool developed as part of the SAC "Sustainable Building Guidelines Project".
Landcom Sustainability Continuum	Continuum of sustainability options from 'conventional', 'progressive', 'innovative' to 'futuristic'.
ESD	Ecologically Sustainable Development
BCA	Building Code of Australia
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Development Application
DCP	Development Control Plan
DLWC	Department of Land and Water Conservation
DoT	Department of Transport
NPWS	National Parks and Wildlife Service
RTA	Roads and Traffic Authority
LGA	Local Government Authority

EXECUTIVE SUMMARY

The objective of this project was to progress the process of 'mainstreaming' sustainable residential development. For the purpose of this report, mainstreaming is defined as the increased acceptance and adoption of sustainable design strategies and technologies by the majority of the building industry and its consumers, the broader community. To achieve this objective the report aims to identify and verify where possible the barriers to mainstreaming sustainable residential development and to recommend solutions to overcome such barriers.

The project focussed on three areas:

1. Greenfield residential development rather than urban renewal.
2. Institutional constraints (process, people, regulatory etc) more than socio-cultural (education, perception, etc) or technological.
3. The four service areas of Water, Waste and Materials, Transport, and Social sustainability [1].

Interviews of a broad and representative cross section of the development community were combined with other research and related work. This research and consultation was then built on and tested at a workshop involving a similarly representative group. In this report there are four levels of detail related to the key project findings:

1. Constraint categories and sub-categories (Shown in Figure 1).
2. For each category, priority constraints, key findings and recommendations (Shown overleaf and in the relevant report section).
3. For each category, all identified and verified constraints (Shown in the summary matrices in the relevant report section). [2]
4. For each identified and verified constraint, contextual detail including ideas for solutions, examples of where the constraints have been overcome and remaining questions surrounding each constraint (Shown in Appendix A).

Four major categories of constraint emerged from the interviews and initial research along with associated sub-categories.

Figure 1: Categories and Sub-Categories of Constraint

Constraint Category	Constraint Sub-Categories
Regulation	• Lack of regulation/ poorly enforced regulation • Prescriptive and/ or inappropriate regulation • Lack of regulatory 'level playing field'
Integration of People and Process	• No common understanding or defined common goals around sustainability • Lack of alignment/ integration between 'players' in the development process. • Lack of integrated and holistic planning process
Market Based Incentives	• Lack of financial incentive • Real costs not reflected • Time, cost and risk associated with innovation • Expense and/ or inaccessibility of products
Awareness and Education	• Lack of industry awareness/ motivation • Lack of industry skill • Lack of public awareness/ demand

[1] The Energy service area was dealt with in another project completed by Mark Ellis Associates.

[2] These summaries include a summary of the energy constraints as provided by Mark Ellis Associates

Our analysis identified and summarised over 100 different constraints across these four categories and across the service areas of water, waste and materials, transport and social. These constraints were tested and verified ("reality checked") at the workshop attended by a representative group of the development process. At this workshop, priority constraints within each sub-category were identified and an overall priority constraint for each major category was identified.[3] Constraints were prioritised using the criterion of 'if solved, which constraint would make the biggest difference in the short term with good long term flow-ons?'

The overall **priority constraints** identified for each category were:

1. Regulation: Developers see regulation as a time/cost barrier that needs to be streamlined and made more appropriate.[4]
2. Integration of People and Process:
    a. No serious strategic 'whole of government' plan for Sydney based on sustainable objectives, since the 1964 Blueprint for Sydney.[5]
    b. No common understanding of what sustainable development is, for measuring progress, understanding what best practice is, or understanding trade-offs.[6] .
3. Market Based Incentives:
    a. Lack of incentive for developers to provide best practice. Developers are generally interested in capital cost and market competition, not long-term economics of project.[7].
    b. Lack of market (consumer) incentive to demand best practice[8].

The key findings and recommendations for each of these areas are addressed in turn below.

Priority Constraint for Regulation.

Developers see regulation as a time/cost barrier that needs to be streamlined and made more appropriate.

Large numbers of respondents in the interviews talked about the inhibiting length of time needed to take 'new' sustainability ideas through the existing DA process. Our research showed that the key driver behind this constraint is that (successful) links are missing between the various agencies involved with the development industry and with the DA process specifically. Two comments sum up this constraint well:

- *"….it leads to [project] 'death by a thousand cuts'. Innovation is just not worth the effort, relative to traditional ways".*
- *"It takes significant time to convince councils that innovations are indeed better, the assumption by some is they are short cuts. We need to educate local staff on the ground on dealing with new sustainability options and innovation more generally."*

[3]The focus of the project was not awareness and education so this category of constraints was not tested at the workshop.

[4] This constraint was identified under the sub-category of 'Prescriptive and/or inappropriate regulation'

[5] This constraint was identified under the sub-category of 'A lack of integrated holistic planning process'

[6] This constraint was identified under the sub-category of 'No common understanding or defined common goals'

[7] This constraint was identified under the sub-category of 'Lack of financial incentive'

[8] This constraint was identified under the sub-category of 'Lack of financial incentive'

Examples were also given at the workshop to back up the points made:

- In relation to the Department of Defence development at Randwick: *"Need to deal with 'hundreds of stakeholders'– all three levels of government and different agencies within each, none of whom talk to each other"*
- *"Overlapping ecological concerns in all developments have no cross links between the agencies that deal with them"* For example DLWC looks at Rivers, NPWS at biodiversity, Fisheries at fishing/fish life, and there is no successful link between them.

Our research has shown that the solution is not based on less regulation. As quoted at the workshop and reiterated in a number of the interviews "*regulation is essential to make sustainability happen"*. This need for regulation was backed by research conducted by Biz Shrapnel earlier this year that showed Australian construction companies believe that regulation will compel the industry to build energy efficient homes[9].

Our research indicates that what is critical in a solution to this particular regulation constraint is *consistency* from a number of levels of government and government agencies. Different levels of government and their agencies need to:

- Present a consistent face to developers, especially early on in planning and design.
- Be able to carry this consistency through to implementation.

The other priority constraints highlighted at the workshop under the other regulation sub-categories were as follows:

- Poorly focused and inconsistent legislation to require developers to include sustainability measures (e.g. BCA sustainability measures, e.g. Mandatory disclosure of sustainability rating at POS)
- Lack of consistent, appropriate metropolitan parking policies
- Industry needs a consistent regulatory framework to remain competitive and avoid time/cost barriers and to meet societal long term needs
- Apparent unwillingness for coordinated strategic planning across government (starts with transport but is broader)

Although highlighted as important to address, potential solutions to these constraints were not discussed at the workshop. However, ideas for solutions suggested during the interviews are captured in Appendix A.

Priority Constraints for Integration of People and Process

a) No serious strategic 'whole of government' plan for Sydney based on sustainable objectives (since the 1964 Blueprint for Sydney).

b) No common understanding of what sustainable development is, for measuring progress, understanding what best practice is, or understanding trade-offs.

These constraints are very much linked, with the key driver behind them being the need for firstly, direction in the form of definition of a goal ('whole of government plan') and secondly, the measures and tools by which to reach that goal ('common understanding'). This need for direction was highlighted in both the

[9] 'Attitudes of Residential Builders to Energy Issues and Usage in Australia, 2001-2002', Biz Shrapnel, February 2002.

workshop and interviews through numerous statements about the currently conflicting and piecemeal approach:

- *"Without an overall clear plan there is a lack of integrated approach to service provision."*
- *"A regional strategy may exist, but it does not adequately incorporate sustainability."*
- *"…[the current situation] leads to a somewhat divisive approach to planning, where decisions and debates occur at individual development level rather than a strategic level."*
- *"The need for a 'common understanding' is less as an issue of definition and more one of the provision of targets or benchmarks."*

Examples were used to back up these points:

- In relation to the St.Marys development: *"Discrete solutions to service provision were only brought together at the end of the project which was too late. With a clearer agenda and benchmarks, technical and political decisions would have been easier. We can't influence the political debate without agreed outcomes"*
- Victoria: *"A solution is possible…The Department of Infrastructure in Victoria integrates land use planning and transport planning and the outcomes are tied into all areas."*

Two linked solutions were suggested in discussions. Firstly, it was seen as critical to revisit the 1964 Blueprint for Sydney on the basis of sustainable objectives. This would provide the overarching 'what' so that the agencies and local government can plan for the 'how'. Any form of this revision would need to involve the whole of government and in turn would allow for:

- A more transparent and integrated development process.
- Constraints and issues to be identified area by area.

Secondly, it was identified that there is a need to set growth and development priorities, targets and benchmarks for Sydney at a regional level, a local development level and individual lot scale. Elements of this could potentially be:

- BASIX forming the individual lot scale and potentially the local development set of targets.
- Local scale targets guided by regional scale strategies (targets may be modified by area).
- Regional strategies dealing with service provision and how these development areas interact (It was also noted that metropolitan level strategies may be needed at least at N/S/E/W Sydney level).

In summary, a 'solution' would involve defining the outcomes and providing a suite of strategies for people to achieve them. Part of defining the outcomes (and setting targets) would be documented 'best practice' examples. The need for a suite of strategies to be applied as and when suitable was highlighted as it would allow for flexibility ("*it's not the case that one size fits all*") and would also allow offsets and trade-offs to be made.

Key to this 'solution', and a key opportunity for the SAC, is agreement to these benchmarks and targets with all parties. Involving and getting agreement from all parties on the most effective strategies, targets, benchmarks and rating tools will also address the potential issue of more than one party developing similar or overlapping tools and structures.

Priority Constraints for Market Based Incentives

a. *Lack of incentive for developers to provide best practice. Developers are generally interested in capital cost and market competition, not long-term economics of project.*

b. *Lack of market (consumer) incentive to demand best practice.*

Both these constraints, based on the lack of financial incentives for either the development industry or its consumers, were highlighted as absolutely critical throughout the research, interviews and the workshop. More often than not it was discussed in terms of the increased cost of developing or purchasing sustainable residential development being a disincentive to both developers and consumers. Some statements that best sum up the constraint are:

- *"…[Industry] need market incentives and mechanisms to encourage best practice, regulation will only take care of worst practice."*
- *"…the added cost is a big disincentive for developers and consumers, its not just a lack of incentive."*
- *"…market ceilings constrain ESD inclusions. The main cost constraint is at micro or consumer level, developers need to keep their commercial edge…housing is already expensive."*
- *"…home owners may have long term outlook but still won't pay more for sustainability."*

Many ideas were suggested throughout the interview process and discussed at the workshop in terms of mechanisms or strategies to provide a financial incentive to both developers and consumers. Notable examples of these suggestions include:

- Developer Incentives:
  - Developers able to make different (variable) bids for government land depending on 'level' of ESD measures.
  - Rebate system for developers if ESD standards are maintained and/or improved over a number of years of a development's life.
- Consumer / Market Incentives:
  - Systems for financially valuing ESD and enforcing sustainability as a criterion in property valuations (e.g. mandatory disclosure of sustainability rating at point of sale or lease, as in Canberra).
  - Innovative and progressive financing such green mortgages and personal loans (e.g. as offered by Bendigo Bank).
  - First home loans (and stamp duty rebates) go to those developments with a certain level of sustainability rating[10]

Much of the discussion around the need for market based incentives is based on the view that innovative 'sustainable' building and design costs more than traditional. However, preliminary findings from the ISF/CSIRO Edmondson Park Feasibility Report indicate the total annualised capital costs for innovative water servicing design can be the same as those attributed to traditional design.[11] The key difference and the key constraints revolve around who pays rather than how much. If the boundaries for payment are changed it may make a substantial difference to the business case for sustainable options. Addressing these questions and constraints is very different to addressing constraints based on increased cost. Likewise, potential strategies employed to overcome these constraints may be very different.

[10] Participants identified this solution as being the one with potentially the greatest impact in the short term. However, ISF understands that it may have been already proposed and rejected as an idea, for reasons unknown to us.

[11] This work included all capital costs required to deliver all water services. All capital costs means from the house line to the dam, and all water services means water, sewerage and stormwater.

Next Steps

The priority constraints presented here are just three of over 100 constraints that were distilled and analysed from the project as a whole.[12] To take this work forward, and make the best use of the opportunities presented by the strategic nature and make up of SAC, the priority and other constraints need to be reviewed in two logical next steps:

1. **Making Links:**

   Link this work with the 'Basix' project and other key SAC initiatives[13] to check what constraints are already being addressed and how the work in these other projects could be developed or built on.

2. **Develop Solutions to Overcoming Constraints:**

   Further develop, critique and prioritise the solutions (ideas) that have been suggested throughout the project. In addition, formulate some appropriate plans addressing how to put in place the priority solutions and strategies.

This is the first time that such a strategic and comprehensive set of barriers and constraints to mainstreaming sustainability in the residential development industry has been assembled. The extent of consultation and information sources ensures the results are comprehensive. The iterative review and participatory prioritisation processes ensure that the results are strategic.

Therefore, the results of this project form an excellent base from which holistic strategies for 'mainstreaming' sustainability in residential development can be developed. They provide direction as to which constraints need to be addressed in the short term and sufficient detail to form the basis of a work-plan for developing solution strategies and implementation plans.

[12] Summaries of all the identified constraints can be seen in Appendix A.

[13] Such as the "Financing Strategies and Financial Tools for Developing More Sustainable Buildings", the "Local Government Implementation Framework for Monitoring", the "Community Training" project and the work of the Australian Green Building Council.

1. OBJECTIVES AND APPROACH

The Institute for Sustainable Futures and Sphere Property Corporation were commissioned by the Sustainability Advisory Council (SAC) in August 2002 to undertake research into the "Barriers to Mainstreaming Sustainability in Residential Development". The objective of this project was to progress the process of 'mainstreaming' sustainable residential development. For the purpose of this report, mainstreaming is defined as the increased acceptance and adoption of sustainable design strategies and technologies by the majority of the building industry and its consumers, the broader community. To achieve this objective the report aims to identify and verify where possible the barriers to mainstreaming sustainable residential development and to recommend solutions to overcome such barriers.

ISF therefore structured its research to reveal the answers to the following questions: What practical options are there for sustainable building design and development? What constraints need to be overcome to put these options in place? What could be done to overcome these constraints?

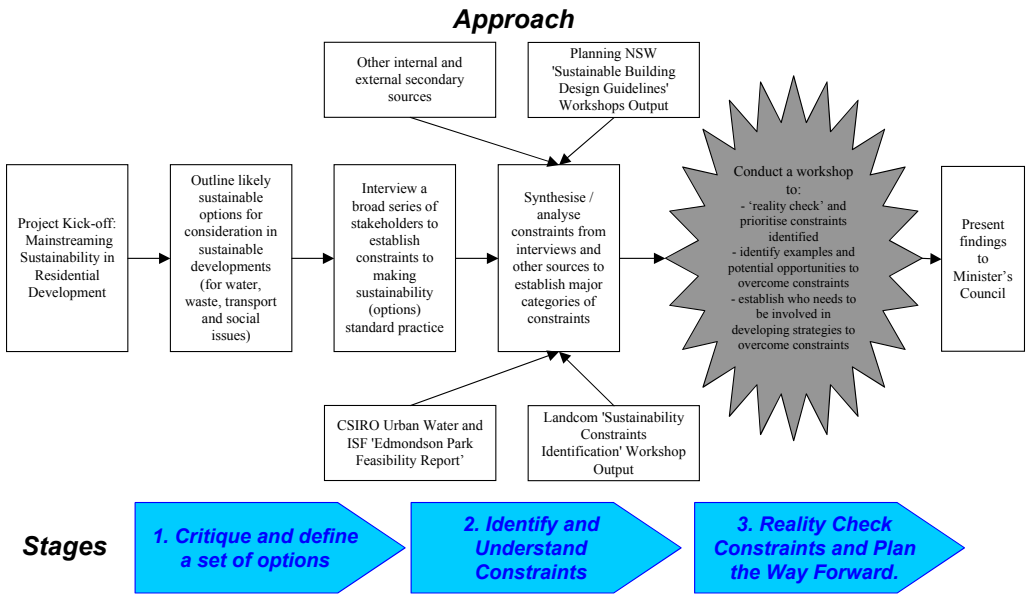
Following direction from SAC the project was focussed on three areas:

1. Greenfield residential development rather than urban renewal.
2. Institutional constraints (process, people, regulatory etc) more than socio-cultural (education, perception, etc) or technological.
3. The four categories of Water, Waste and Materials, Transport, and Social sustainability.

Energy is the focus of another project. However, a summary of the output of that project and how it relates to this work is included in the findings.

We had three main stages of work in the project, shown in the flow chart below.

Figure 2: Project Approach and Key Stages of Work



The sustainability options were defined using Landcom's Sustainability Continuum as a base, an internal (ISF) workshop and by requested input and comment from the SAC working group assigned to the project. The options were subsequently used to help structure the interviews can be seen in Appendix B.

Consultation with industry, government and community representatives was integral to the success of the project. This consultation included interviews with over 30 representatives from across the development industry and a separate workshop with over 20 from the same sector. The types of organisations included in the research are shown in Figure 2 below. A full list of those interviewed can be seen in Appendix C and workshop attendees in Appendix D.

Figure 3: Range of organisations involved in interviews and workshop:

The findings from the ISF/CSIRO 'Edmondson Park Feasibility Report', output from the SAC 'Sustainable Building Design Guidelines' Workshops, and output from Landcom's 'Sustainability Constraints Identification' Workshop were used to in addition to the output from the interviews and were fed into the summary of constraints.

In this report there are four levels of detail related to the key project findings:

1. Constraint categories and sub-categories (See Summary Finding and Recommendations).
2. For each category, priority constraints, key findings and recommendations (See Relevant Sections, Regulation, Integration of People and Process and Market Based Incentives)
3. For each category, all identified and verified constraints (See Summary Matrices in the Relevant Sections, Regulation, Integration of People and Process and Market Based Incentives). [14]
4. For each identified and verified constraint, contextual detail including ideas for solutions, examples of where the constraints have been overcome and remaining questions surrounding each constraint (See Appendix A).

[14] These summaries include the a summary of the energy constraints as provided by Mark Ellis Associates

2. SUMMARY FINDINGS AND RECOMMENDATIONS

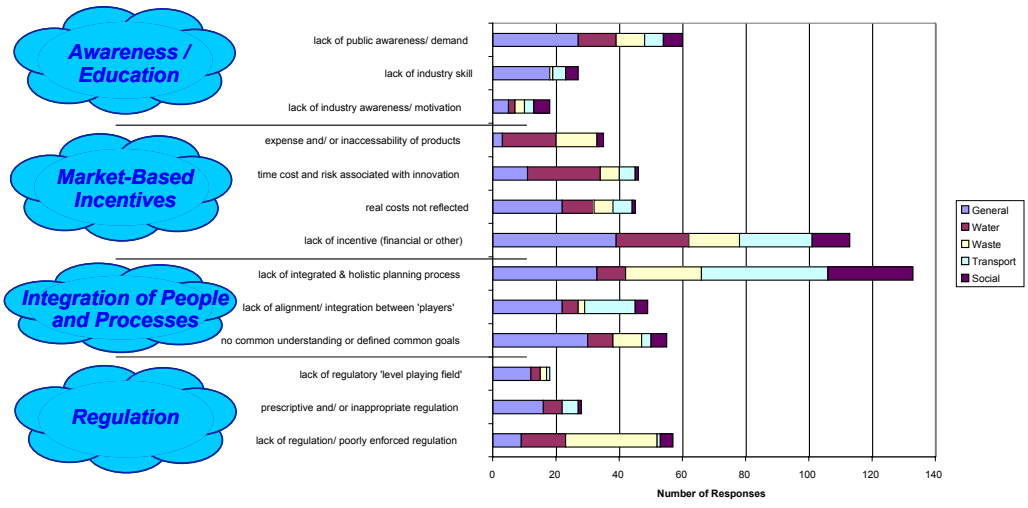
Four major categories of constraint emerged from the interviews and initial research along with associated sub-categories.

Figure 4: Categories and Sub-Categories of Constraint

Constraint Category	Constraint Sub-Categories
Regulation	• Lack of regulation/ poorly enforced regulation • Prescriptive and/ or inappropriate regulation • Lack of regulatory 'level playing field'
Integration of People and Process	• No common understanding or defined common goals around sustainability • Lack of alignment/ integration between 'players' in the development process. • Lack of integrated and holistic planning process
Market Based Incentives	• Lack of financial incentive • Real costs not reflected • Time cost and risk associated with innovation • Expense and/ or inaccessibility of products
Awareness and Education	• Lack of industry awareness/ motivation • Lack of industry skill • Lack of public awareness/ demand

Initial analysis of the output showed the most widely expressed constraints were related to the need for more integrated and holistic planning process and concerns over cost, a lack of financial incentive (Figure 5). [15]

Figure 5: Number of Responses per Constraint / Barrier, Split by Sustainability Issue Type



[15] Note: Analysis is from volume of responses only. Questions asked in interviews were open ended (not closed response) so significance of breakdown is indicative only. Source: Interviews with 32(+) industry representatives. Responses also include findings from CSIRO/ISF 'Edmondson Park Feasibility Report', output from SAC 'Sustainable Building Design Guidelines' Workshops, and output from Landcom 'Sustainability Constraints Identification' Workshop..

Our analysis identified and summarised over 100 different constraints across the four categories and across the service areas of water, waste and materials, transport and social. These constraints were tested and verified ("reality checked") at the workshop attended by a representative group of the development process. At this workshop, priority constraints within each sub-category were identified and an overall priority constraint for each major category was identified.[16] Constraints were prioritised using the criterion of 'if solved, which constraint would make the biggest difference in the short term with good long term flow-ons?'

The overall **priority constraints** identified for each category were:

1. Regulation: Developers see regulation as a time/cost barrier that needs to be streamlined and made more appropriate.[17]
2. Integration of People and Process:
    a. No serious strategic 'whole of government' plan for Sydney based on sustainable objectives, since the 1964 Blueprint for Sydney.[18]
    b. No common understanding of what sustainable development is, for measuring progress, understanding what best practice is, or understanding trade-offs.[19] .
3. Market Based Incentives:
    a. Lack of incentive for developers to provide best practice. Developers are generally interested in capital cost and market competition, not long-term economics of project.[20].
    b. Lack of market (consumer) incentive to demand best practice[21].

The key findings and recommendations for each constraint are addressed in turn in the following sections.

[16] The focus of the project was not awareness and education so this category of constraints was not tested at the workshop.

[17] This constraint was identified under the sub-category of 'Prescriptive and/or inappropriate regulation'

[18] This constraint was identified under the sub-category of 'A lack of integrated holistic planning process'

[19] This constraint was identified under the sub-category of 'No common understanding or defined common goals'

[20] This constraint was identified under the sub-category of 'Lack of financial incentive'

[21] This constraint was identified under the sub-category of 'Lack of financial incentive'

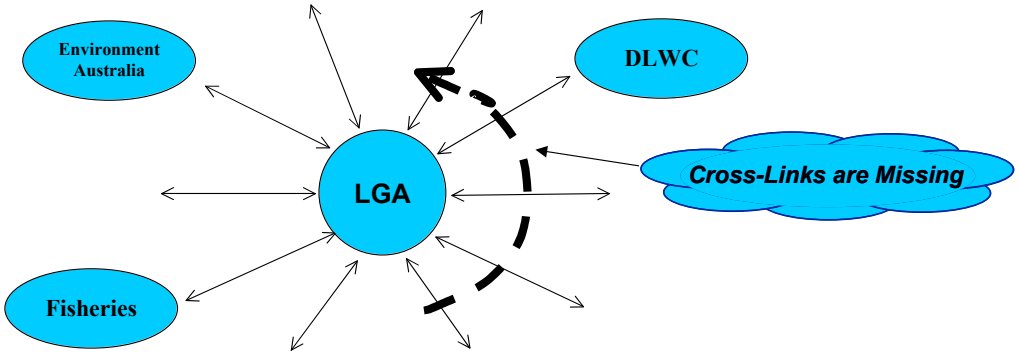
3. REGULATION CONSTRAINTS

Regulation Priority Constraint: "Developers see regulation as a time/cost barrier which needs to be streamlined and made more appropriate."

Constraint Analysis

Large numbers of respondents in the interviews talked about the inhibiting length of time needed to take 'new' sustainability ideas through the existing DA process. Our research showed that the key driver behind this constraint is that (successful) links are missing between the various agencies involved with the development industry and with the DA process specifically:

Figure 6: Key Constraint Driver in Regulation



Two comments sum up this constraint well:

- *"….it leads to [project] 'death by a thousand cuts'. Innovation is just not worth the effort, relative to traditional ways".*
- *"It takes significant time to convince councils that innovations are indeed better, the assumption by some is they are short cuts. We need to educate local staff on the ground on dealing with new sustainability options and innovation more generally."*

Examples were given at the workshop to back up the point:

Examples Given at Workshop
Examples of Inconsistent Messages Between Agencies: • In relation to the Department of Defence Development at Randwick: *"Need to deal with 'hundreds of stakeholders'- all three levels of government and different agencies within each, none of whom talk to each other"* • *"Developer wanted to put in pavers for water sensitive urban design, Council said 'no, we want concrete, because we cannot handle the long term maintenance'."* • *"Overlapping ecological concerns in all developments have no cross links between the agencies that deal with them".* For example DLWC looks at Rivers, NPWS at Biodiversity, Fisheries at Fishing/fish life, and there is no successful link between them. **Examples of Inconsistent Messages Within Agencies:** • *"Land in Camden recently released through UDP for development. Turned out to be 60 year-old Cumberland woodland and therefore obviously not available for development."* • *"Bioswales without kerbs seen by some councils as a step back in terms of service level provision."*

It is clear from the research that *less* regulation is *not* the key to overcoming the regulation time/cost barrier. As quoted at the workshop and reiterated in a number of interviews "*regulation is essential to make sustainability happen"*. This need for regulation was backed by research conducted by Biz Shrapnel earlier this year that showed Australian construction companies believe that its is regulation that will compel the industry to build energy efficient homes[22].

Our research indicates that what is critical for a solution to this particular regulation constraint is *consistency* from a number of levels of government and government agencies. The regulation time/cost barrier is very much linked to another priority constraint that was highlighted: *'Industry needs a consistent regulatory framework to remain competitive and avoid time/ cost barriers and to meet societal long term needs'*.

A number of the interviewee comments make the point clear:

- *"…the diversity of council controls creates a real barrier to project home builders in particular who need consistency to remain competitive. Mainstreaming ESD will only be achieved through consistent control."*
- *"…a plethora of individual councils setting regulations adds to cost, time and duplication. Structure and Master Planning should not be left to local council who lack holistic focus"*

Solution Discussion

The need expressed throughout the workshop and research more generally was that different levels of government and their agencies should:

- Present a consistent face to developers, especially early on in planning and design.
- Be able to carry this consistency through to implementation.

It was recognised that a framework is needed which is consistent at all levels but also enables local context to come through:

"…it's difficult for regulation to achieve the balance between being widely applicable and relevant at the local level. For example the geographic boundaries for the BCA energy efficiency code don't make sense. [Government/agencies] needs to articulate where regulations are applicable and where they are not based on locality."

Workshop participants noted that part of the solution revolves around working out how to educate local councils about innovative approaches in existing policies and regulations.

In terms of potential next steps, one suggestion at the workshop was to adapt or extend the current Integrated Development Assessment Scheme (IDAS) that was developed for designated industrial developments. Workshop participants were aware that some protocols were under development, but some of these have been discouraged, and other informal arrangements between individuals have proved difficult to formalise. Specifically noted was the fact that the existing Land and Housing Supply Sub-committee was about to be disbanded.

However *consistently* government and agencies behave, the current planning and approvals process is only *predictable* for conventional applications. Processing innovative applications was seen to be unpredictable in terms of time and costs and the development industry in NSW is understandably risk averse. The issue is not that it is lengthy, but rather that it is unpredictable, so funds cannot be redirected with certainty. A first step would be to guarantee certainty in time for processing innovative applications.

The other priority regulation constraints highlighted at the workshop and not discussed above were:

[22] 'Attitudes of Residential Builders to Energy issues and Usage in Australia, 2001-2002', Biz Shrapnel, February 2002.

- Poorly focused and inconsistent legislation to require developers to include sustainability measures (e.g. BCA sustainability measures, e.g.. mandatory disclosure of sustainability rating at point of sale)
- Lack of consistent, appropriate metropolitan parking policies (Transport focussed constraint)
- Apparent unwillingness for coordinated strategic planning across government (Transport focussed constraint but extends broadly)

Again, within these prioritised constraints there is a clear message about the need for consistency. As these priorities indicate this is particularly relevant in the transport service area but constraints are identified across all the service areas in relation to this point. This is shown on the following page that summarises all the constraints identified under the category of Regulation. A preliminary version of this summary was critiqued at the workshop to test the constraints (perception vs reality) and to prioritise the key constraints:

- Overall Category Priority Constraint are highlighted with: 
- Other Sub-category Priority Constraints are highlighted with: 
- The 'Energy' column is provided by Mark Ellis Associates, based on initial findings from the project being undertaken for Landcom. These are shown in italics.

Constraint/Barrier	General	Water	Waste/Materials	Transport	Social	*Energy*
Lack of and/or poorly enforced regulation/policy .	• **Poorly focused and inconsistent legislation to require developers to include sustainability measures (e.g. BCA sustainability measures, e.g.. Mandatory disclosure of sustainability rating at POS).** • Legislation, regulation, and policy is difficult to implement	• Water efficient fixtures not nationally regulated: (e.g.: "showerhead regulation should be in BCA") • AAA labelling not mandatory • Lack of restrictions on water use.	• Costs/market forces not used enough in waste management (Incentives, penalties) • Difficult to enforce waste regulations • No standardisation of public place recycling provision • Insufficient regulation for 'greening' of products/ materials (as in Europe) • Lack of design standards/regulation that ensures: longevity of housing materials and minimal energy & water operational costs.	• No overall planning to require early public transport, pedestrian, or cycling provision • **Lack of consistent, appropriate metropolitan parking policies.** • Difficult to require private bus operators to service new sites • Focus on transport provision will lead to lower air quality, particularly in SW sector.	• Low requirements and/or lack of incentives for affordable housing	• *BCA too weak (requirements are insufficient for producing energy efficient housing* • *Energy data increasingly not made available due to commercial confidentiality, particularly end-use consumption*
Prescriptive and/or inappropriate regulation	• Prescriptive regulation inhibits innovation. Need performance-based targets. • **Developers see regulation as a time/cost. Needs to be streamlined and appropriate.** • LGAs are ultimate land use decision makers: prescriptive regulations should be driven at this level to achieve sustainable outcomes	• Prescriptive regulation inhibits innovation- e.g. requiring potable water supply regardless of end use • Council and health regulations disincentive for greywater reuse.	• Building standards and regulations contribute to decisions which are inconsistent with reuse / recycling	• Section 94 plans do not generally consider sustainable transport strategies. • Conflicts in social /environmental policy and sustainable transport goals (e.g.. Noise regulation moves houses away from bus routes) (contested)	• Negative gearing tax laws drive the speculative housing market and discourage long term thinking (contested)	• *Energy supply regulation does not include energy efficiency uniformly across all jurisdictions, and there is little requirement to address demand management or carbon intensity of supply* • *Exclusion of energy crops from renewable energy credits disallows development of renewable biomass industry.*
Lack of regulatory "Level playing field"	• **Industry needs a consistent regulatory framework to remain competitive and avoid time/ cost barriers and to meet societal long term needs** • Difficulty of making national regulation relevant to local level	• Lack of consistency across councils regarding rain tanks and greywater re-use • No uniform standards for rainwater, stormwater, or greywater	• No system to certify recycled content or sustainable sourcing of materials.	• Metro/regional /local variations in management of transport issues • Regulation splits/ conflict between RTA and DOT (contested) • **Apparent unwillingness for coordinated strategic planning across govt (starts with transport but is broader)**	• DCP and zoning regulations restrict household type mix and therefore social mix	• *Regulation of energy market disadvantages distributed generation, favours large generators* • *Mechanism for addressing lost sales due to energy efficiency in NSW still perceived by utilities as lacking an incentive*

Figure 7 Summary Constraints Matrix: Regulation

4. INTEGRATION OF PEOPLE AND PROCESS CONSTRAINTS

Integration of People and Process Priority Constraints:

a. 'No serious strategic 'whole of government' plan for Sydney (since the 1964 Blueprint for Sydney).

b. No common understanding of what sustainable development is, for measuring progress, understanding what best practice is, or understanding trade-offs.

Constraint Analysis

These constraints are very much linked, with the key driver behind them being the need to provide consistent direction at two key levels. Firstly, direction in the form of definition of an overall goal ('whole of government plan') and secondly, direction in terms of benchmarks and tools by which to reach that goal and to verify that it has been reached ('common understanding').

The need for clearer overall direction was highlighted in both the workshop and interviews through numerous statements about the currently conflicting and piecemeal approach:

- *"Without an overall clear plan there is a lack of integrated approach to service provision."*
- *"A regional strategy may exist, but it does not adequately incorporate sustainability."*
- *"Joint initiatives are difficult as everyone has different ideas and priorities about sustainable development and how to achieve it; without a consolidated view it's hard to find a way forward."*
- *"…[the current situation] leads to a somewhat divisive approach to planning, where decisions and debates occur at individual development level rather than a strategic level."*

These points were raised with the view that a plan such as the 1964 Blueprint for Sydney needs to be revisited in light of the sustainability debate. It was assumed that at this level, conflicts such as Bio-diversity vs Urban Development could be resolved. An example in Victoria was given to illustrate that this kind of approach can be achieved:

- *"The State of Victoria has a strategic plan. The Department of Infrastructure in Victoria integrates land use planning and transport planning and the outcomes are tied into all areas."*

The problems of a lack of common understanding for measuring progress, setting targets and making trade-offs were borne out in numerous comments:

- *"The need for a 'common understanding' is less an issue of definition and more one of the provision of targets or benchmarks."*
- *" …no one has clearly defined what sustainability means in practice…and the resulting lack of consistency creates confusion for developers."*
- *"…industry needs a common benchmark."*

An example was given at the workshop that relates to both levels of direction needed:

- In relation to the St.Marys development: *"Discrete solutions to service provision were only brought together at the end of the project which was too late. With a clearer agenda and benchmarks, technical and political decisions would have been easier. We can't influence the political debate without agreed outcomes"*

Solution Discussion

Two linked solutions were suggested in discussions. Firstly, the need to revisit the 1964 Blueprint for Sydney on the basis of sustainable objectives was seen as critical. This would provide the overarching 'what' so that the agencies and local government can plan for the 'how'. Any form of this revision would need to involve the whole of government and in turn would allow for:

- A more transparent and integrated development process.
- Constraints and issues to be identified area by area.

In terms of a common understanding as highlighted above, the need is for a set of targets, benchmarks and tools rather than necessarily better definition of sustainability as a whole. For instance, guidelines in terms of:

- *'These are the current impacts…'* (targets)
- *'These are the various methods/strategies to achieve…'* (benchmarks and solutions)
- *'These are the benefits of the various methods…'* (incentives)

Part of defining outcomes and setting targets could be documentation of 'best practice' examples. It was also suggested that defining outcomes could follow the BCA model of setting targets, verifying them, and making them accepted practice. Key to this is to firstly have consistency in targets at a State and possible a national level and secondly, not to 're-invent' structures or tools where work on targets, rating schemes etc. has been completed already.

Two key elements of these guidelines identified at the workshop were the need to have a range of strategies, methods, or tools for achieving goals and secondly that these need to operate at different levels (from the individual lot scale up to the regional strategy scale discussed above).

The need for a suite of strategies to be applied as and when suitable was highlighted as it would allow for flexibility (*"it's not the case that one size fits all"*) and would also allow offsets and trade-offs to be made.

Workshop participants discussed three levels or scales for which targets and benchmarks would need to be set. The three levels were the Sydney regional level, the development level and an individual lot scale. Elements of this could potentially be:

- BASIX forming the individual lot scale and potentially the development scale set of targets.
- Development scale targets guided by regional strategies (targets may be modified by area).
- Regional strategies dealing with service provision and how these development areas interact (It was noted that metropolitan level strategies may be needed at least at the level of N/S/E/W Sydney).

Also key to this 'solution' and a key opportunity for the SAC, is agreement of these benchmarks and targets with all parties involved. This was specifically identified as a constraint under the water service area:

- Water Integration of People and Process Constraint: *Lack of agreement between government and developers as to the most effective strategies.*

Involving and getting agreement from all parties on the most effective strategies, targets, benchmarks and rating tools, will also address the potential issue of more than one party developing similar or overlapping tools and structures.

Other constraints categorised under Integration of People and Process, relate to this discussion in terms of the lack of available information with which to review the overall strategy and provide a set of benchmarks, and a suite of strategies for people follow. Constraints identified in the Transport, Social and particularly the Waste and Materials area demonstrate this:

- Transport Constraint Example: *Lack of certainty regarding consumer demand for public transport vs roads in release areas (and will limiting roads worsen congestion and pollution in the short term)*
- Social Constraints Examples:
    - *Lack of information on community needs and also how to translate this into planning a Greenfield site.*
    - *No defined view of 'community' (Locality? City? Nation? Future generation?)*
- Waste and Materials Constraint Example: *Difficulty of sourcing sustainable materials due to knowledge, availability, time, cost.*[23]*)*

The following pages show a summary of all the constraints identified under the category of Integration of People and Process. A preliminary version of this summary was critiqued at the workshop to test the constraints (perception vs reality) and prioritise the key constraints to address:

- Overall Category Priority Constraint are highlighted with: 
- Other Sub-category Priority Constraints are highlighted with[24]: 
- The 'Energy' column is provided by Mark Ellis Associates, based on initial findings from the project being undertaken for Landcom. These are shown in italics.

[23] In our analysis this constraint was identified under the ' Market Based Incentives - Expense and/or inaccessibility of products' category but is particularly relevant to the finding discussed in this section.

[24] None highlighted for the Integration of People and Process category. Two overall priority constraints unanimously decided upon by workshop participants.

Constraint/Barrier	General	Water	Waste/Materials	Transport	Social	*Energy*

No Common Understanding or Defined Common Goals	• **No common understanding of what SD is. For:**
	– **measuring progress**
	– **"best practice" view**
	– **making 'trade offs'**
	• Financiers typically look at financial return rather than "triple bottom line"
		• Lack of agreement (government & developers) as to most effective strategies.
		• No easy view of "whole of system impacts" to see trade offs.
			• No common targets for avoiding and reducing waste
			• Sustainable sourcing / LCA constraints:
			  • Lack of Data
			  • Embodied Impacts so variable.
				• Public transport hard to 'sell' politically (long term strategy vs 30 second grab)
				• Lack of certainty re. Consumer demand for public transport vs roads in release areas (and information about whether limiting roads worsens congestion/pollution in the short term)
					• Lack of information on community needs, and also how to translate this into planning a Greenfield site.
					• On greenfields can't consult with community that is not there yet.
					• Community consultation is challenging and resource intensive
					• No defined view of community (locality? City? Future generations?)
						• *Inconsistent energy or CO2 targets across local areas.*
						• *Inconsistent advice as to best strategies.*
						• *Piecemeal approach to low energy development.*

Lack of Alignment/Integration Between "Players"	• Lack of integration between agencies (have different core business & approach, but need communication process, common objectives!) • Lack of integration between levels of government- similar to above • Lack of integration within industry • Hard to engage public & find out what they want/ need	• Conflicting agency legislation/ policy objectives (developers perceive this, agencies don't agree- agency policy fed by state policy) • Lack of integration between councils (cross-border issues) agencies agree, developer disagrees (positive experience with WSROC)	• Fragmentation of contractors - Each building co. has it's own waste management contract - Hard to co-ordinate across a release area.	• Areas of responsibility for developer not well defined • District planning left to local government (Small, under skilled and under resourced) • Confusion/conflict between RTA, DOT & council's involvement	• Can't engage planned / future community in Greenfield sites • Vested interest groups have disproportionate representation.	• *Expectation that generation is centralised, so development process does not include planning for local or regional sustainable energy supplies.* • *General Lack of regional energy planning.*

Lack of Integrated Holistic Planning Process	• **No overall strategic plan for Sydney based on sustainable objectives** • Fragmentation of: – responsibilities in the planning and development process (e.g. ad-hoc system for infrastructure provision) – issues/categories of water, waste, transport social, etc • Multitude of different councils with different politics/ views- constraint from developers perception • Planning regulations and guidelines not streamlined but being addressed by Plan First. • Educational/ professional division- lack of transdisciplinary approach • Short term state govt outlook based on election periods	• Lack of total water cycle approach- but well recognised & in early stages of being addressed • Fragmented land ownership makes endorsement of masterplan difficult	• Streaming waste during construction not given enough thought. - Space for sorting & storing - Staging requirements • Waste mgt plan required from designer (but is builder's responsibility) • Lack of information regarding materials sourcing/impact. • Building materials impact tends to fall outside planning system.	• Lack of long term planning. • Conflict between agency policies in some cases e.g. noise/ air quality vs housing proximity to transport • User requirements are more of a constraint than agencies not being 'user focused' • Effective planning more difficult as travel patterns become harder to map	• Community/ community agencies not involved in development process in any integrated way • Needs of diff social groups not integrated with planning • Emphasis on "infrastructure" rather than "building communities" • Lack of planning for future growth • Urban sprawl without attention to facilities, employment opportunities, social & economic diversity	• *No requirement for new development to minimise additional energy demand, or aim for carbon neutrality.* • *Little integration with transport energy use* • *Insufficient account taken of the effects of layout on energy consumption, i.e. the need for planning to optimise solar orientation and allow for active and passive solar contribution.*

Figure 8: Summary Constraint Matrix: Integration of People and Process

5. MARKET BASED INCENTIVES CONSTRAINTS

Market Based Incentives Priority Constraints:

a. Lack of incentive for developers to provide best practice. Developers generally interested in capital cost and market competition, not long term economics of project, need incentives.

b. Lack of market (consumer) incentive to demand best practice.

Constraint Analysis

Both these constraints, based on the lack of financial incentives for either the development industry or its consumers, were highlighted as absolutely critical throughout the research, interviews and the workshop. More often than not it was discussed in terms of the increased cost of developing or purchasing sustainable residential development acting as a disincentive to mainstreaming. Some statements that best sum up the constraint are:

- *"...[Industry] need market incentives and mechanisms to encourage best practice, regulation will only take care of worst practice."*
- *"...the added cost is a big disincentive for developers and consumers, it's not just a lack of incentive."*
- *"...market ceilings constrain ESD inclusions. The main cost constraint is at micro or consumer level, developers need to keep their commercial edge...housing is already expensive."*
- *"...home owners may have long term outlook but still won't pay more for sustainability."*

Even without market incentives things are changing as the following examples demonstrate:

- *"....the 'smart' developers see embracing ESD as an incentive to help create policy rather than have it imposed on them".*
- *"....progressive investment companies and developers are starting to see ESD as an essential business strategy."*
- *"Since energy ratings were mandated in ACT, a good rating has shown to increase sale price.*
- *"....many tenants are now stating triple bottom line objectives."*
- *"Most developers consider the NatHERS rating simply because it has become an essential marketing requirement."*

As discussed at the workshop, financial incentives form a level of 'solution' that logically follows on from policy direction and consistency and the creation of targets and benchmarks (Figure 9):

Figure 9: Levels of Solution Leading to Market Based Incentives.

Solution Discussion

Many ideas were suggested throughout the interview process and discussed at the workshop in terms of mechanisms or strategies to provide a financial incentive to both developers and consumers. Examples of these suggestions include:

- Developer Incentives:
  - Developers able to make different (variable) bids for government land depending on 'level' of ESD measures;
  - Rebate system for developers if ESD standards are maintained and/or improved over a number of years of a development's life, (possibly a rebate to consumers as well);
  - Short term financial compensation for developer in line with government savings on infrastructure avoidance (dams, roads etc);
  - Lower Section 94 contributions for sustainable developments;
  - Remove sustainability costs from the GST paid by the developer on land purchase, and return them to the developer as compensation;
  - Density bonuses ('plot ratio' or floor space ratio bonuses); and
  - Percentage of re-sale value going to architect/developers if ESD measures maintained.
- Consumer / Market Incentives:
  - Systems for financially valuing ESD and enforcing sustainability as a criteria in property valuations (such as mandatory disclosure of sustainability rating at point of sale or lease, as in Canberra);
  - Innovative and progressive financing such green mortgages and personal loans (such as being offered by Bendigo Bank);
  - First home loans (and stamp duty rebates) go to those developments with a certain level of sustainability rating[25];
  - Subsidies for sustainable technology (such as solar HWS or rainwater tanks) in tandem with education of tradespeople (on how to install and benefits to consumers); and
  - Make the good environmental performance of the building 'visible', for marketing / shareholder benefits.

Two of these suggested solutions were discussed in more detail at the workshop:

Solution Idea: Developers able to make different (variable) bids for Government land depending on 'level' of ESD measures.
Example where this has happened: Mungerie Park (Rouse Hill) Regional Centre Benefits: • Tenders could be assessed on environmental as well as financial basis • Banks Sustainable Index Funds could be used as an incentive to commit bids • Could speed up DA process • Incentive for developers to decrease cost of ESD measurement Concerns: • Only possible if Government owned land • Not possible if fragmented ownership (Government could pool the land)

[25] Participants identified this solution as being the one with potentially the greatest impact in the short term. However, ISF understand that it may have been already proposed and rejected as an idea for reasons unknown to us.

Solution Idea: First home loans (and stamp duty rebates) go to those developments with a certain level of sustainability rating[26]
Strengths: • Direct and potentially large impact. • Influences education / perception / awareness as well as giving financial incentive. • ESD benefits/savings will more than pay for the grant (or stamp duty rebate). • Spreads 'cost' over community not just home purchaser. • Good subsidy to industry without the disincentive to innovate. • System/subsidy in place now – this would link it to positive measures. Concerns/Weaknesses: • How to implement? Need benchmarks, rating tools etc. • How to police/monitor who gets grants/rebates? • Equity and availability of homes? • Short term? No real incentive to maintain ESD measures or change behaviour. • Difficult to include transport and social measures.

A number of examples came up throughout the research demonstrating where financial incentives already exist:

- *"...subsidies or incentives like Sydney Water's residential retrofit are helping to overcome barriers."*
- *"Cash back deals from SEDA etc. are well received."*
- *"...in Massachusetts [USA] developers get a 5% tax rebate for sustainable development, tenants get an extra 2% on top of that."*

There are also examples where developers are taking a longer term interest in projects:

- *"On the new Police HQ building in Parramatta, Multiplex are taking a 'cradle to grave' approach—are contractually responsible for operation of building for 15 years, have signed SEDA commitment agreement, building will have independent annual energy audit"*
- *"Investa property group have their own facilities managers/property managers— so there is a sort of 'extended producer responsibility', staff have bonuses linked to building performance"*

Warnings and questions around both developer and consumer 'solutions' also came up in the research:

- *"....subsidies don't always work—people get used to them and it makes things uncompetitive."*
- *"...in sustainability terms it's more effective to have combined financial incentives rather than through individual agencies [SEDA, DLWC etc.]"*

Key elements to any 'Market Based Incentive' solution were linked to those discussed in regulation and the integration of people and process. For example in terms of setting targets or benchmarks it was highlighted as important to quantify what is the greatest benefit for the level of investment, (balance cost and effort

[26] Participants identified this solution as being the one with potentially the greatest impact in the short term. However, ISF understand that it may have been already proposed and rejected as an idea for reasons unknown to us.

against resource savings and environmental benefit) so that effort can be directed to the most effective solutions. Also, the time/cost issue was seen as critical with another of the priority constraints highlighted being that *'The DA is process already lengthy, incentives are needed to fast track DA process for projects involving sustainable innovation'.*

The other market based incentive priority constraints identified, not already discussed above, were both from the sub-category of *'Real costs not reflected'*. Firstly, *'Cost benefit doesn't accrue to those paying, need to internalise* was identified' as a key constraint to address. Much of the discussion around the need for market based incentives is based on the view that innovative 'sustainable' building and design costs more than traditional. However, preliminary findings from the ISF/CSIRO Edmondson Park Feasibility Report the total annualised capital costs for innovative water servicing design can be the same as those attributed to traditional design.[27] The key difference and the key constraints revolve around who pays rather than how much. If the boundaries for payment are changed it may make a substantial difference to the business case for sustainable options. Addressing these questions and constraints is very different to addressing constraints based on increased cost. Likewise, potential strategies employed to overcome these constraints may be very different.

Secondly, the other constraint identified under the sub-category of *'Real costs not reflected'* was *'True / marginal costs of transport use, individual journey costs, and the land use it stimulates are not reflected'.* An example was given at the workshop that demonstrates the importance of addressing this and other related constraints particularly in the transport area:

"Section 94 contribution costs borne by first home buyers, the most financially vulnerable group, but benefits (particularly of sustainable transport) go to all in the area…needs more equitable spread of costs and benefits."

Again the following page shows a summary of all the constraints identified under the category of Market Based Incentives, including the priority ones discussed. A preliminary version of this summary was critiqued at the workshop to test the constraints (perception vs reality) and prioritise the key constraints to address:

- Overall Category Priority Constraint highlighted with: 
- Other Sub-category Priority Constraints highlighted with: 
- The 'Energy' column is provided by Mark Ellis Associates, based on initial findings from the project being undertaken for Landcom. These are shown in italics.

[27] This work included all capital costs required to deliver all water services. All capital costs means from the house line to the dam, and all water services means water, sewerage and stormwater.

Constraint/Barrier	General	Water	Waste/Materials	Transport	Social	*Energy*
Lack of financial incentive	• **Developers generally interested in capital cost, not long term economics of project, need incentives (e.g. stamp duty offsets)** • **Lack of market / consumer incentive (& guidance, promotion) for best practice.**	• Key constraints seen as the upfront costs, additional maintenance costs & that new systems do not "pay for themselves" • However, underlying constraint is how the cost-benefits are distributed. (see 'real costs') • Other underlying constraint is time cost of doing something different (see 'time cost').	• Limited incentives for recycling C and D waste • No incentive for suppliers to reduce packaging • Land economics (& cultural expectations, marketing) encourages building of bigger than necessary houses	• Roads easier to finance using present cost benefit models (socially accepted, can charge tolls, can be used commercially, added to incrementally etc) • Public transport needs subsidy- cost ineffective: - at start of development - in off-peak times/routes • Both above are disincentive for Public Transport.	Community facilities not cost-effective in smaller developments No incentive for developers to cater for long term needs of residents Affordable housing requirement seen as another tax	• *Capital cost falls on developer or purchaser, but savings go to occupier (may not be purchaser).* • *No requirement or custom of presenting lifetime costs of buildings.*
Real costs not reflected	• No incentive to save resources, price of resources & disposal too low. • **Cost benefit doesn't accrue to those paying, need to 'internalise'**	• Water prices too low. • Greywater & rainwater tanks don't "pay for themselves"	• Landfill costs too low. • Benefits of using recyclable or recycled materials doesn't accrue to builder/ developer	• **'True' / marginal costs of transport use, individual journey costs, & the land use it stimulates not reflected.**	Affordable housing is important but problematic, as land in Sydney is too expensive	• *No penalty for emissions (e.g. carbon tax).* • *Energy costs do not reflect health & environmental costs of fossil fuel energy.* • *Cheaper in the short term to use energy than save it.*
Time cost & risk associated with innovation	• No incentive to innovate – Cost, time, risk (R&D, trials, pilots, ongoing management, etc) • **DA process already lengthy, need incentives to fast track DA process for projects involving sustainable innovation**	• Takes time to research new options for rainwater, greywater • Maintenance time & cost (needs to be redistributed equitably) • Perception of liability (health) issues – not a proven reality	• Design for waste avoidance & materials innovation takes time & skill • Lack of data on materials-sourcing, recycled content, embodied impacts, health impacts • Lack of demonstrated performance of 'sustainable' materials.	• Huge risk with costs involved • Uncertain demand for 'new ideas' (e.g: teleworking centres)	Liability issue with provision of community facilities (e.g.skate boarding)	• *No incentive to overcome technology risks in energy saving technologies.* • *Because markets are small here, tech's establishea internationally are slow to transfer without an incentive or government support.*
Expense &/or inaccessibility of products	• Presently many products/ systems cost more than 'conventional' • Limited availability/ choice of products	• Cost of sustainable water systems (both upfront cost & 'hidden' maintenance cost) • Limited choice of suppliers/systems	• **Difficulty of sourcing sustainable materials (Knowledge, availability, time, cost)** • Linked with the 'time/cost' risk of innovation.	• Huge / lumpy costs of transport is a general problem, not a real constraint for Sustainable Transport.	See 'lack of financial incentives"	• *Market for sustainable energy technologies (e.g. solar water heaters) too small for economies of scale; rapid change if mandated.* • *High transaction costs in gaining expert advice, technology sources & skilled installers. Adds to costs & risks.*

Figure 10 Summary Constraints Matrix: Market Based Incentives

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In conclusion, our research has shown that the primary barriers to mainstreaming sustainable development can be usefully categorised under the headings of:

- Regulation
- Integration of People and Process
- Market Based Incentives
- Awareness and Education

Three or four sub-categories under each of these categories were identified and over 100 constraints summarised and tested under these sub-categories.

ISF's research, combined with industry interviews and workshops prioritised the following constraints from within these categories:

1. Regulation: "Developers see regulation as a time/cost barrier which needs to be streamlined and made more appropriate."
2. Integration of People and Process:
    a. 'No serious strategic 'whole of government' plan for Sydney (since the 1964 Blueprint for Sydney).
    b. No common understanding of what sustainable development is, for measuring progress, understanding what best practice is, or understanding trade-offs.
3. Market Based Incentives:
    a. Lack of incentive for developers to provide best practice. Developers generally interested in capital cost and market competition, not long term economics of project, need incentives.
    b. Lack of market (consumer) incentive to demand best practice.

Potential solutions for the overall priority constraints were developed and reviewed and key points for further development discussed.

Recommendations

The priority constraints presented here are just three of over 100 constraints that were distilled and analysed from the project as a whole.[28] To take this work forward, and make the best use of the opportunities presented by the strategic nature and make up of SAC, the priority and other constraints need to be reviewed in two logical next steps:

1. Making Links:

Link this work with the 'Basix' project and other key SAC initiatives[29] to check what constraints are already being addressed and how the work in these other projects could be developed or built on.

[28] Summaries of all the identified constraints can be seen in Appendix A.

[29] Such as the "Financing Strategies and Financial Tools for Developing More Sustainable Buildings", the "Local Government Implementation Framework for Monitoring", the "Community Training" project and the work of the Australian Green Building Council.

2. Develop Solutions to Overcoming Constraints:

Further develop, critique and prioritise the solutions (ideas) that have been suggested throughout the project. In addition, formulate some appropriate plans addressing how to put in place the priority solutions and strategies.

This is the first time that such a strategic and comprehensive set of barriers and constraints to mainstreaming sustainability in the residential development industry has been assembled. The extent of consultation and information sources ensures the results are comprehensive. The iterative review and participatory prioritisation processes ensure that the results are strategic.

Therefore, at the very least the results from this project can provide an extensive resource that captt ways t prioritises the major constraints as seen by those across the development industry, and is a resource that provides some initial ideas about how these constraints might be overcome.

More than this, the results of this project form an excellent base from which holistic strategies for 'mainstreaming' sustainability in residential development can be developed. They provide direction as to which constraints need to be addressed in the short term and sufficient detail to form the basis of a work-plan for developing solution strategies and implementation plans.

Further, in combination with the energy work from Mark Ellis Associates, the project could form the interdisciplinary backdrop to the work-plans and activities of the SAC, The Green Building Council and other bodies working in this area.