

EXCELLING THE UPTAKE OF LEED INDIA - INTEGRATING LESSONS LEARNT FROM THE DEVELOPMENT OF GREEN STAR

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Summary

A number of environmental rating tools exist globally which aim to push market transformation towards a sustainable future. In 1998, the World Green Building Council was formed with the mission to create a sustainable built environment through market transformation. Tools such as LEED (Leadership in Energy and Environmental Design) in the United States and BREEAM (Building Research Establishment Environmental Assessment Method) in the UK, are seen as leaders in the development of sustainability rating tool. The Green Building Council of Australia (GBCA) launched the Green Star suite of tools in 2003. Green Star has been based, in parts, upon combining the best from both the LEED and BREEAM tools and adapting them to the Australian context.

Of the new 'tiger economies' in the Asian region, India in particular is turning her attention to lowering overall environmental impact. As a new member country to the World Green Building Council, the Indian Green Building Council (IGBC) is developing its own built environment sustainability rating tools based on LEED. The IGBC's auspicing body is the Confederation of Indian Industries (CII).

This paper investigates the development and implementation of Green Star and outlines the issues and barriers which occurred during the process. Lessons learned from the development of Green Star suite of tools in Australia are expected to help create a set of the best rating tools for India and excel the uptake of the tools in that market. The study found numerous lessons of use to CII, and indeed any other country setting up their own sustainability rating tools.

1 Introduction

The IPCC Report (2007) documents the observations of climate change and states quite clearly that the warming of the climate system is unequivocal. Adaptation and mitigation options and responses to climate change include developing policy frameworks that integrate climate change considerations into design, land use policies and building codes.

It is well documented that the building and construction industry is a major contributor to greenhouse gas emissions and landfill globally (IPCC 2007, OECD 2008). Energy efficiency of the building stock is dependent by the construction and building efficiency regulations and best practice in the market place today. In a recent report released by McKinsey Global Institute (Bressand et al 2008), global energy demand has been expected to accelerate over the next 20 years. Most of the demand would be by the developing countries, namely, China and India.

In Australia, the operation of inefficient and poorly constructed buildings is responsible for 23% of national greenhouse gas emissions (CIE 2007), a typical figure for most developed nations. The interim report of the Garnaut Climate Change review (2008) identified an important role for Australia in establishing a realistic approach to climate change, particularly with regard to mitigation of climate change. The Garnaut Report also focused on putting in place major reductions in emissions in Australia.

This paper presents the findings of a study prepared for the Victorian Building Commission by the Centre for Design at RMIT University. The purpose of the study was to provide support to the Confederation of India Industries (CII) arising out of a Memorandum of Understanding signed between the Victorian government and the Confederation of Indian Industries (CII) in 2006. CII is India's building industry body currently responsible for developing a sustainable building rating tool, based on the USA's LEED system.

Established in 2003, the GBCA has been at the forefront of green building rating tool implementation and may now offer valuable learnings to others embarking on the implementation of new building ratings schemes. A literature review combined with personal interviews with past and present GBCA executives and senior stakeholders was undertaken to provide an insight into the underpinnings of rating tool development in Australia. Among them were GBCA founding board members, present members of the Green Star Technical Advisory Group, and industry representatives. Questions were tailored around the differences between Green Star tools and LEED, approaches taken by the GBCA, establishing industry support in Australia, lessons learnt and how India could fast track its own rating tool processes from these experiences.

1.1 International Green Building Rating Tools

Sustainability rating tools are frameworks to assess sustainability of the buildings or the built environment. They are typically developed to provide guidance and incentive towards more sustainable building practice and design. They ensure minimum environmental performance, benchmark environmental performance and establish best practice. They enable a means to measure and benchmark the environmental performance of the built environment, allow comparisons of environmental performance between buildings, provide independent third party certification of the sustainability claims of a building, provide a guide and a framework for building professionals and push market transformation and encourage improvements in the sustainability of the built environment.

Tools usually provide a score, or they may provide a simple pass/fail or compliance outcome. Most scores are in the form of stars as in the case of Australia (5 star for housing), or, they may be in the form of silver/gold or platinum rating (LEED in the US).

India is still in the early stages of developing its suite of building rating tools and is currently contextualising the US LEED rating system for Indian conditions. This adaptation is important as the physical, economic, technological and social environments in India are very different from that of the US.

In recognition of the need for a centralised organisation for green building, the World Green Building Council (WGBC) was founded in 1999 by the founder of the US Green Building Council (World Green Building Council 2007). Different Green Building Councils are set up under this umbrella organisation. GBCA and IGBC have both received support from the WGBC.

It is recognised that the development of new rating tools or the application of building rating tools in different regions remains a difficult task. Lui et al (2006, p. 374) outline the following:

- Expanding numbers of tools are developed with different scopes, emphases, functions, underlying assumptions as well as limitations relating to the specific conditions in their origin regions
- Duplications and overlap of tools
- Lack of transparency and an implicit assumption about the capabilities of user groups to choose appropriately can cause uncertainty and confusion
- Conditions and requirements for developing EB tools within a specific region are multifaceted and complex
- Difficulty of customizing existing tools into specific regionally appropriate formats without avoiding their inherent problems

2 Green Star

The Australian best practice rating tool is Green Star, administered by the Green Building Council of Australia (GBCA). GBCA's aim is to assist the property industry to reduce the environmental impact of buildings and improve occupant health and productivity, while showcasing innovation in sustainable building practices (GBCA 2006).

In the first few years since GBCA's inception the focus has been to set up a suite of tools for the Australian building and construction industry, and to raise the awareness of the tools. At the time of this study (September 2007), the GBCA had over 400 members and more than 400 projects registered for accreditation.

The original template for the Green Star suite of tools was created by Sinclair Knight Merz (SKM) for the Building Research Establishment in the UK. This template began as an Australian version of BREEAM, until the Green Building Council Australia commissioned its development as a working tool, with aspects of LEED to be incorporated as appropriate. The resulting suite of tools uses the core principles and structure of BREEAM with the points and star awards of LEED, contextualised to suit the Australian building industry environment.

The decision to develop a new rating tool system rather than adopt LEED or BREEAM in their original format was made for a number of reasons. At the time of Green Star's development, BREEAM and LEED were 10 and 5 years old respectively, and as such, an update was considered warranted by the Green Star development team. When reviewing the rating tools, the GBCA also formed the view that a single rating tool cannot adequately address all building types, and that a suite of tools adapted for different buildings within the Australian context would be more suitable.

2.1 The Structure of Green Star

In Green Star, the lowest denominator is points, groups of which form credits. Groups of credits form categories. Similar to BREEAM, the category score weighting system ensures that alterations to individual credits do not result in a change in the overall influence of its category. In other words, adding another credit item, or increasing the number of points a credit is worth within a category, will not affect the overall impact of that category in the overall score.

This feature enables variation of the tool across different Australian states. This is an important consideration in Australia where local climatic and environmental conditions can vary significantly across the country. This feature is not included in the LEED tool, but its importance is recognised and the USGBC are currently developing a bioregional weighting system to address this.

The design of the Green Star tool, its categories, and weightings have been developed by referring to the BREEAM and LEED models, with extensive consideration to a variety of scientific and stakeholder input. Table 1 shows the approximate weighting of each Green Star Category as it compares to LEED and BREEAM. The data demonstrates that the Green Star category weightings are more closely aligned to BREEAM than LEED.

Table 1: Comparison of Building Assessment Tool Category Ratings

Category	LEED	BREEAM	Green Star
Management	7	15	10
IEQ	22	15	17
Energy	24	12.5	20
Transport	6	12.5	9
Water	7	5	9
Materials	16	10	16
Ecology	13	15	12
Emissions	4	15	7
Total	99%	100%	100%

(Shown as a percentage of total allocated points)

Data source: Green Star Office Design V2 Technical Manual (GBCA 2006)

2.2 Technical Content Development Process

New rating tools are developed and existing tools revised over time in response to changes in market demands and specific requests from industry. Each new tool or revision is developed involving contribution from industry experts and stakeholders.

The process for developing a new tool, shown in Figure 1, commences with a 16-week period of review and development by a Technical Working Group, comprising of industry representatives. Once the GBCA complete the draft, it is released for stakeholder feedback before a Pilot revision is implemented.

The process of revising a tool is illustrated in Figure 2. Industry working groups are involved in the revisions, and Green Star applicants are invited to provide feedback throughout the process, ensuring that major stakeholders are consulted. Tool revisions also incorporate technical clarifications from the previous revisions¹.

3 The Accreditation Process

Compiling the documentation for a Green Star submission is a time consuming and thus costly task for the applicant. Once submitted, up to four GBCA Assessors review the submission. Where the documentation for applied credits is not met, applicants are given the opportunity for one re-submission, which is again reviewed by the GBCA Assessors. The process of accreditation is also time consuming and costly for the GBCA.

In hindsight, it may have been possible to reduce the level of documentation required in the development of the tool, but this holds the risk of compromising the quality of the final assessment. It has been suggested that the initial review could be done in-house with the assistance of a Green Star Assessor. This holds the advantage of having direct access to the project knowledge, so that issues encountered in interpreting the technical documents, and insufficient documentation, may be addressed prior to submission to the GBCA, reducing the GBCA's workload. An online user interface could also be considered to lessen this resource demand.

4 The Green Star Tools

It was recognised in the early stages of Green Star development that the design, construction, and ongoing operation phases of building life should be addressed within the suite of tools. Three different assessment tools: Office Design, As Built, and Existing were created to address this.

The documentation required to achieve a Green Star Office Design rating is arguably less rigorous than that required for Green Star Office As Built, and it can be easier to prove the intention of a project than it is to actually complete it as per its original intent. It is also often difficult to gather documentation from project participants after the project is finished. The GBCA recognise this and take the stance that the Green Star As Built rating is more prestigious than the Design rating. Unfortunately the difference between a Design and an As-Built accreditation is not widely recognised in the market. One of the positive outcomes of enabling a Green Star Office Design rating is that it may be achieved in time for development approval, and this has been adopted by some government departments as conditions for development of their own assets.

The Green Star Office Existing rating tool has recently been added to the suite and is designed to address building ownership and operation, in response to the recognised need to improve asset performance. The Green Star Office Existing tool remains focused on the physical features of the building, not the ongoing performance as is assessed under other rating tools such as AGBR and NABERS². In this manner, Green Star remains distinct from and complementary to these other tools.

5 Green Star Implementation

5.1 Industry Support

It was recognised that the support of industry is essential in the acceptance and subsequently the success of Green Star. To gain this support, industry was continually consulted and represented in all stages of Green Star development.

Importantly, private developers were involved in the early stages, and some of the largest property groups used the tool in pilot projects across the country. This was done in recognition that the key influences within the industry were these property developers themselves, and industry support was unlikely to happen if the tool is developed in isolation and without their involvement. Government groups have also been key supporters of the GBCA and continue to be involved in the GBCA through participation in Technical Working groups. However, there is also a recognised balance in the involvement of industry, government, and private company representatives. Whilst the contribution of each of these groups is valuable, care must be taken to ensure that individual agendas do not hijack the process or outcome.

¹ During the assessment process, it is sometimes evident that a project meets the intent of that credit but not in the manner outlayed by the credit criteria. In this case the applicant may submit a Credit Interpretation Request (CIR), which is reviewed by the GBCA Assessor and if accepted is published as a Technical Clarification, setting precedent for other applicants.

² ABGR and NABERS are Australian rating tools that measure building performance.

Figure 1: New Green Star Tool Development

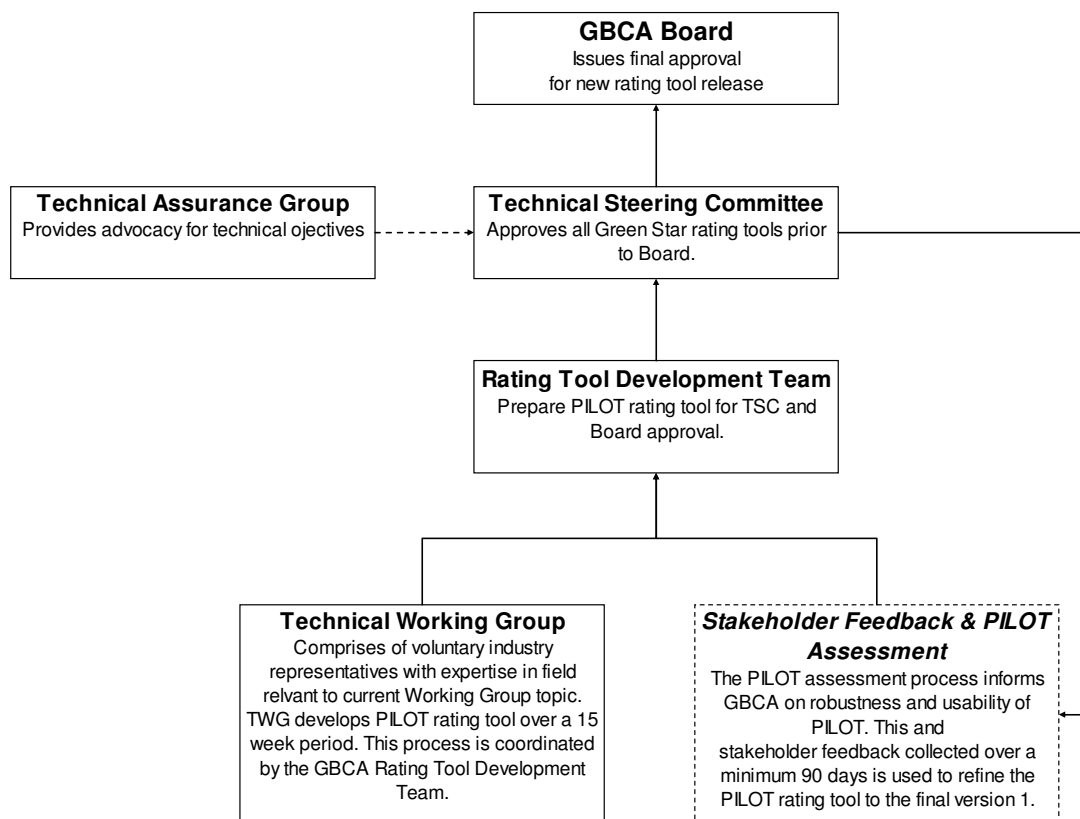
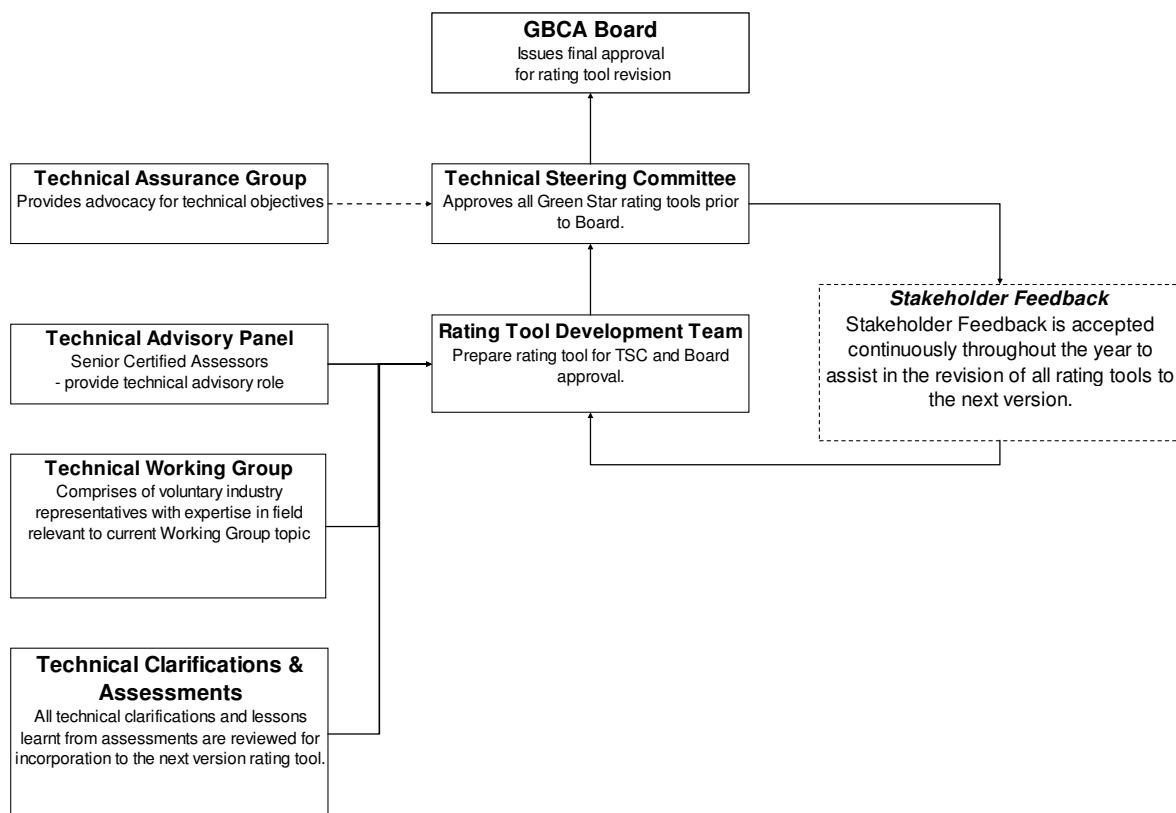


Figure 2: Green Star Tool Revision Process



5.2 Market Uptake

The market uptake of Green Star in Australia was relatively smooth, largely because there was already recognition in the marketplace that a structured set of guidelines were needed to drive changes in the industry. Industry involvement and government support also assisted the process. A quick and comprehensive campaign to increase market awareness of the tool by presentations through conferences and other means of general industry education also greatly enhanced the rate of uptake.

One of the barriers to incorporating green building objectives into building projects has been the perception that green buildings are costly. This perception has shifted somewhat in the past few years with the increased availability of local examples where a business case can or has been demonstrated.

The availability of technical expertise at the commencement of the development program has also been identified as important in rolling the tools out in the market. While, there must be a strong base of technical knowledge behind the tool development, there also needs to be sufficient technical support available to those using Green Star for the first time.

6 Current Challenges for Green Star

6.1 Tool Revisions and Streamlining of the Green Star Suite of Tools

There is concern over the number of Green Star rating tools and there is a perceived need to streamline the suite. The US LEED model avoids having a multitude of different rating tools by flexibility in how the criteria are applied, so that many types of buildings can be assessed with the same tool. However, recently the US Green Building Council has recognised that this approach can lead to confusion, and is in the process of developing a guide to show applicants how to use the tool for different building types. With the current proliferation of tools at the GBCA, care needs to be taken that the distinction between them is maintained, particularly when it comes to Design/As Built/Existing ratings of buildings of the same class.

It is also important that as the Green Star tools are revised and fine-tuned over time. The release of new tools and revisions needs to be done in a timely manner so that people are not waiting for impending releases that are continually delayed. It is acknowledged though that as sustainable technology and practice become efficient and widespread, rating tools will need to change accordingly to reflect changes in the industry.

6.2 GBCA Strategic Direction

A common theme of recent climate change studies has been the building and construction industry's contribution to greenhouse gas emissions. The Green Star approach for reducing environmental impact through all stages of construction may position property well around the objective of meeting carbon-neutrality targets in response to climate change initiatives. It is appropriate that the GBCA determines its direction and role in this process.

There are also a number of other building performance rating tools in use in Australia to address operational performance of commercial buildings, and the residential industry. It is important that the GBCA maintains and continues to clarify the distinction between Green Star and other rating schemes, and works to maintain the synergy between the different schemes. The GBCA's position as an industry leader needs to be maintained.

The Green Star rating tools are currently targeted at the top 25% of buildings, and as such are aimed at best practice. In the past few months there has been increasing focus on the performance of existing building stock in cities, and various national and international groups are preparing to take on this issue. The GBCA are now facing the challenge of finding an effective way to expand Green Star for application on a much broader scale.

6.3 Resources

The GBCA's workload increased dramatically in 2007 following the announcement of new revisions of the Green Star Office rating tools. As Green Star becomes increasingly recognised in the Australian market, resourcing demands will continue to be an issue for the GBCA.

Resources are required in the areas of technical assistance and training, and as described in Section 3, the accreditation process is also demanding on the GBCA's time. The accreditation process must strike a balance between managing the legal and reputational risk of certifying projects that do not meet the requirements, and the resources required for the thorough interrogation currently demanded in the certification process.

7 Summary of Lessons Learnt

It is anticipated that the lessons learnt by the GBCA will be of use to CII and other Green Building Councils in the development of tools. The lessons identified throughout are listed below. They are not arranged into any order of significance.

7.1 Establish the Rating Tools Governing Body within the Marketplace

1. Establish connections and support from key industry and government groups early, and involve them in the creation of the Rating Tools and development of CII internal protocol.
2. Whilst developing the industry associations, be selective – avoid groups who may seek to ‘hijack’ the process to suit their own agendas.
3. Work quickly in the initial awareness campaign. Implement a quick and comprehensive campaign through conferences, industry education activities, and other means of general industry education. This can greatly enhance the rate of uptake and acceptance of the tool.
4. Prepare examples of the business case green buildings, with local examples where possible.
5. Work with and promote the building industry’s need for green building practice.
6. The uptake may seem to start slowly, but be prepared for it to gather momentum quickly.

7.2 Protect the Brand

7. Ensure suitable legal protection to deal with unsuccessful submissions.
8. Ensure all appropriate copywriting and trademarking is in place, and regulate false advertising to protect the brand.
9. Be mindful of the need to differentiate the ratings, so that the variation between rating types is understood in the wider community.

7.3 Technical Adaptation of the Rating Tool for India

10. Consider the differences in conditions between the US and India, and make allowances to adapt the tool for local climatic, social, government, and other regional conditions that can influence the relative impact of building activities.
11. Consider a means for future adaptation to be built into the tool as regional building impact conditions change; such as a category weighting system.
12. Find a suitable balance in the level of documentation required to prove a case. Too much will be labour intensive and will discourage uptake, but it must be comprehensive enough to maintain the quality of the assessment and the brand.

7.4 Benchmarking

13. Be certain that the benchmarks for final ratings are reflective of the current building industry in India and are positioned to drive positive change.
14. Check benchmarking for individual categories and credits.
15. Consider the recognition of third party certification. This can greatly reduce the assessment workload, but care must be taken to maintain the standards (and protect the brand) of the rating tool.

7.5 Ongoing Technical Development of the Rating Tool

16. Develop a process for updating and adding to the proposed tool early. As a minimum it needs to:
 - Capture feedback from rating tool users;
 - Be thorough in its assessment technical detail;
 - Be implemented in a timely and efficient manner;
 - Engage stakeholders throughout the process.
17. Consider adaptations of the tool for different applications, whether it be to address different phases of the building lifecycle, or different types of buildings. However, ensure that this does not lead to the release of too many tools, causing confusion in the market.

7.6 Resources and Training

18. Ensure there is efficient and effective training available. Allocate resources to this as education will greatly enhance the rate of uptake and reduce future technical advisory resource requirements.
19. Develop additional resources online and in any other suitable means to reduce technical advisory workload at the CII.
20. Engage sufficient technical expertise early to ensure that as many issues are addressed in the development phase as is possible.
21. Anticipate a rapid uptake in the future, and if possible prepare extra staff to administrate the tool as demand increases.
22. Consider alternative options for assessments. This includes initial assessments in-house, external outsourcing and online or otherwise automated user interface.

8 Conclusion

This project set out to review and document the learnings of the Green Star rating tools developed and implemented by the GBCA. These lessons have been particularly analysed for the Indian context, however, these lessons can be applied to the development of suitable tools in other countries.

Literature reviews, primarily through desk research and interviews with key persons involved in the inception of Green Building Council and the development of the Green Star suite of tools were undertaken. It is anticipated that CII will be able to 'fast track' their tool development, documentation and processes.

In terms of its strategic role, the GBCA fulfils a need in the market place by nudging innovation and being the industry leader for best practice in building design and construction in Australia. A challenge that GBCA faces is meeting industry expectations in the development and constant finetuning of its tools in the face of sustainability challenges and technological advancement.

Lessons learnt include the setting up of appropriate governing structures with transparent feedback mechanisms from industry, ensuring there are appropriate procedures for protecting the brand, adaptation of tools sensitive to the cultural, climatic, government and industry structures in India, benchmarking to set baseline standards and directions for tool development into the future, appropriate technical support and communication structures to assist in tool development. Training and education to assist and enhance the rate of uptake of tools also need to be considered in parallel.

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