

# Half of all Raw Materials that are Used on this Planet Goes into Building



**Edward Schwarz — General Manager of the Holcim foundation for sustainable construction**

## Why is “green” construction crucial today?

I think that sustainable construction has always been important – but it’s only lately that people have become aware of it again. If you think about it – half of all raw materials that are used on this planet go into building. And over the life cycle of a building, it accounts for around 40% of total energy consumption and CO2 emissions. Building also produces half of the waste, so this is clearly the place where the greatest difference can be achieved to make a more sustainable world. “Green” building means a big change. Even a small percentage change generates an enormous difference.

## When did buildings stop being “green”?

In former days, pre-history, we lived in caves. That was probably very sustainable in some way. But as soon as we began to develop more complex social structures and move away from subsistence, and the beginnings of urbanization – that’s when the balance began to tip and more energy and materials was used in buildings (heating, cooling, lighting, etc) than was used for their construction. We have since reached a point where the construction of a building only accounts for about 10% of the total energy and raw materials used throughout its life. It is the ongoing life of the building that uses electricity and produces waste. The building itself is only a small contributing factor to the total energy or raw material footprint of the building over its life span (construction, use, demolition and recycling).

Every industry is trying to reduce its footprint as much as possible and at the same time to create innovation. You try something – maybe it works, maybe it doesn’t, there’s a lot going on, there is not one particular thing, there are trends. Now there is a trend with alternative energy – everybody’s on energies.

## There are different standards of “green” construction. Why do we need them?

There are certificate systems like LEED (Leadership in Energy and Environmental Design) – I think they are good

indicators. They indicate because they enable us to measure something that is otherwise just a perception. But I don’t think that there should be a complete focus on the figures generated by the process of certification. What counts is the building’s entire conceptualization phase from planning to construction – how much thought you’ve put into it and what you actually change. If you take ISO certification – everybody has that today. Twenty years ago nobody had it. There is no differentiation anymore. But getting there made everybody look through their processes, and achieve some degree of optimization – and I think with these certificates on “green” construction it’s a little bit the same.

So, it’s good to have them as indicator but you cannot rely on them 100% because you are measuring apples and potatoes. For example, you can have a fantastic building, but your employees all live in a nearest city 200 km away, there’s no public transport and they have to come by car. The building may in itself be brilliant – but its integration with the economic, social and environmental structures is completely flawed, and the certification counts for very little.

## What does “green” construction have to do with the level of development?

Take Bangladesh – their key concern is to have a roof over their heads and they don’t evaluate levels of sustainability, they just don’t want to get wet. I exaggerate, but you know what I mean. In a city like Singapore where there is no space they have to be sustainable in order to grow. But I’ve seen excellent examples in Australia where they have space but want to discourage urban sprawl which moves people further away from employment and infrastructure and also encroaches on valuable agricultural land. Developing countries are also taking advantage of the lessons learnt and do not want to make the same mistakes that today’s so-called developed countries did 20–30 years ago.

## Developing countries can “leapfrog”?

Exactly! I’ll give you an example from Bangladesh. Bangladesh used to have the lowest rate of telephone ownership per capita of any nation – around one connection per thousand people. But today, a surprisingly high percentage of the population has a mobile phone. They almost bypassed the conventional telephone system and its demand for physical infrastructure. They jumped and went straight to mobiles. And that’s what countries can do who haven’t yet been able to address sustainability in construction. They can “leapfrog” development phases by taking all the examples from the developed countries and implementing them in a new and improved sequence.

## What role does the government play in “green” building in Switzerland?

Switzerland is rather complicated in organization, despite being relatively small: you have governments on various levels. They don’t always do the same thing at the exactly the same time. But in general there has been a large amount of legislation brought in to force, certain changes which have more to do with building, less to do with politics, and then more to do with politics and less with building. So, it’s a complex situation. But there is a growing awareness because

Switzerland is in the middle of Europe, we have very limited natural resources and have to import practically everything. There is strong public awareness of “green” issues generally, and of course there is a growing governmental pressure, also in terms of building and construction.

But personally I'm against governmental pressure because the industry has its own interest in being better, being, let's say, “green”. For example, Holcim reduced CO2 emissions. In Switzerland there was no legislation that forces the cement industry to produce less CO2. But Holcim did it all the same. The industry was faster than the legislation. Switzerland set a target to reduce CO2 to a certain level by 2010. The cement industry without legislation forcing it to action alone managed to reach the national goal! I'm much more in favor of initiatives taken directly by entrepreneurs than because legislation says you have to.

### Why did the industry do that?

The industry can only contribute to a better environment and to society if it is able to remain successful economically; we talk of the so called “triple bottom line”. So, of course, reducing CO2 for the cement industry means developing new ideas on how cement that performs as good or even better can be produced using less raw material and energy. That's exactly what Holcim is doing: and when you can save costs in energy use, it enables financing of further innovation – or of activities like the Holcim Foundation for Sustainable Construction.

Government interference is not what is needed. A company that wants to succeed and wants to perform across the “triple bottom line” has to balance this. Legislation and sometimes even financial incentives from the state illustrate the direction the government prefers the industry to move in – but determining the best course of action on how to achieve ongoing sustainability is a matter for private initiatives – after all, it's our lifeblood!

### Vision

Holcim's vision is “building foundations for society's future”. In order to do that you have to live up to the “triple bottom line”, balancing various issues to do with sustainability. It's important to have a balance: there are issues relevant to people – social responsibility; to our planet – environmental performance; and to prosperity – economic growth, which all have to be considered simultaneously.

In the center of all this is sustainability. So, it makes sense for a company in the construction industry to be engaged in sustainable construction. If you take the figures and the potential improvements across the technological, environmental, socioeconomic, and cultural issues affecting building and construction, you can see what an enormous difference we can make by building more sustainably. That is the whole idea of the Holcim Foundation. The idea is to influence the value chain of construction, to make all stakeholders aware of the fact that sustainable construction and “green” architecture can make a difference globally.

I have mentioned many times the phrase “sustainable construction”. Everybody has a different idea of what “sustainability in construction” is. The Holcim Foundation tries to take a holistic view of sustainability and translate the definition using a series of five “target issues” for sustainable construction. These five factors include the triple bottom line of environmental performance, social responsibility and economic efficiency. It's also critically important that

innovative approaches can be multiplied: breakthroughs and trend-setting approaches, irrespective of scale, must be transferable to a range of other applications – in one word: we seek progress. Finally, since we are referring to the built environment, a high standard of architectural quality in the way cultural and physical factors are addressed is important. With space and form of utmost significance, the construction must have a lasting aesthetic impact on its surrounding environment.

All activities of the Holcim Foundation must live up to these “target issues”. The Foundation also finances grants to PhD students working on research projects in sustainable construction and it also stages academic forums relevant to the topic of sustainable construction. And finally, but perhaps most prominently, the Foundation conducts regional and global competitions for projects and visions in sustainable construction, the Holcim Awards.

The 3rd International Holcim Awards for Sustainable Construction is open to anybody and any project, be it landscape infrastructure, urban design, building, civil engineering, products, technologies etc., that are relevant to sustainable construction. The only condition for participation is that production or construction may not have started before July 1, 2010. This emphasizes that we are not looking for completed structures, but for projects approaching the construction phase where the degree of sustainability could still be influenced and there is the greatest opportunity for knowledge exchange.

The total prize money per competition cycle is USD 2 million. In the 2nd competition there were almost 5000 submissions of which about two thirds were formally correct. 520 entries were evaluated by the independent jury for Europe – including 44 projects from Russia. Given the status of the Russian economy and the strong interest that appears to have developed in terms of sustainable construction, we look forward to receiving many more entries from Russia in the current competition.

Entering the competition is simple using a five step online entry form. In the spirit of an international competition, the entry form may be completed only in English, and a “Step-by-step” guide to completing the form is available in a number of languages at [www.holcimawards.org/guides](http://www.holcimawards.org/guides)

The competition is open until March 23, 2011, and winners will be celebrated at a regional Awards ceremony in September 2011 in Milan.

*Edward Schwarz, “Green Project – 2010”, 18.11.2010*