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A Common Vision for Achieving Sustainability in the Construction Professions

Chairman, Ladies and Gentlemen, Honoured guests,

It gives me great pleasure to welcome you to Malta, not only because we are delighted to host you, but also because of Malta's small, highly-populated island context, which brings to the fore the urgency and importance of the construction professions working together for environmental sustainability. The Millennium Development Goal 7 (MDG7), which ensures that countries are committed to ensuring environmental sustainability, includes three targets:

- 1 • To integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.
- 2 • to reduce, by 2015, by half the proportion of people without access to safe drinking water.
- 3 • to achieve, by 2020, significant improvement in the lives of at least 100 million slum dwellers.

When one considers that more than **one billion** people lack access to safe drinking water and more than **two billion** lack sanitation, the challenges seem considerable. However progress is being made - during the 1990s nearly one billion people gained access to safe water and the same number to sanitation.¹

For the construction professions, the challenge of integrating sustainable development into our policies and programmes, of reversing the loss of environmental resources, of reducing the proportion of people without access to safe drinking water, and to improve the quality of life of slum dwellers are very real. For some of us, they are challenges we struggle with on a daily basis. In the short term, the construction professions struggle to provide settlements that are practical and financially accessible, and yet which are also attractive and promote healthy lifestyles. At the same time these settlements need to make judicious use of land and natural resources and reduce both indoor and outdoor pollution, both in their construction phase and during their lifetimes. Looking to the longer term, the professions are growing increasingly aware of their responsibilities to plan, design and construct buildings that can

¹ <http://www.undp.org/mdg/abcs.shtml>.

withstand global climatic change. Each of the construction professions: surveying, engineering, architecture and planning, have a role to play in achieving environmental sustainability, but these professions working together, I would argue, have a much stronger chance of success as each profession feeds into and supports the other.

Environmental sustainability is based on understanding and appreciating the way the earth's life support systems function, in order to be able to respect its limits and capacities. To be useful, this type of information needs to be accurately and reliably stored in a geo-referenced framework. This is where the surveying profession plays an essential role. Before housing schemes and roads, not to mention new settlements, can be built, surveyors need to come in and provide surveys of natural and anthropogenic features, as well as important socio-economic information such as land ownership and use. Now that all this data is stored in geographical information systems (GIS) format using geo-referenced coordinates, it has become a formidable basic tool for ensuring that the construction sector takes on board MDG7. And protecting the environment also requires information from other sectors: from ecology, geology, hydrology, and other applied and social sciences. By synthesizing the vast amounts of data being collected about natural resources, population, health, education, public safety, and more - all within highly accurate and specific geographic contexts - GIS can help communities assess and understand their environment, and change policy and practice at all levels, from the individual to the international. The geographic technologies inherent to GIS can therefore play a creative and constructive role in addressing the monumental challenges humanity faces in implementing MDG7. As GIS technology develops, it is also being used innovatively and flexibly to incorporate indigenous knowledge. Practice shows that planning for sustainable development that incorporates indigenous and local knowledge in a given area is more efficient and complete, and less expensive than traditional methods of data collection, because indigenous and local people are usually more informed about their region than an imported outside informant. GIS have thus become important technologies for managing spatial information at various scales from the plot to the city, and beyond. For the past decade, a network of national, regional, and international organizations and individuals have discussed a vision of constructing a Global Spatial Data Infrastructure (GSDI) This would entail mapping the entire land area of the globe at a 1-km

resolution, with boundaries, drainage systems, transportation networks, population centers, elevation, land cover, land use, and vegetation.

Moving closer to the physical construction of buildings and cities, the engineering profession provides the specifications for materials and develops technologies for constructing and servicing buildings for the 21st century. The greatest challenges associated with achieving MDG7 for this sector are achieving resource efficiency and reducing pollution at an affordable cost. The revised EU Lisbon Strategy on Growth and Jobs emphasises the importance of energy efficiency as a factor in contributing to competitiveness and sustainable development. It strongly encourages eco-innovation and environmental technology, particularly in the energy and transport sectors, with particular attention paid to SMEs.² It is largely the engineering profession that will need to deliver these outcomes. In areas from energy technology and eco-efficient design to water management, engineering can provide the building blocks for the other professions to create more sustainable human settlements. Examples of sectors where eco-innovation and its diffusion are anticipated with particular interest are: efficient lighting and intelligent controls, use of recycled and reclaimed materials, as well as other innovative materials, heating and ventilation and air-conditioning, and small and medium scale renewable energy technologies.

While in the more industrialised countries the focus will be to enable buildings to consume less resources and pollute less, in less industrialised countries the focus will be on using innovative solutions to provide environmentally-friendly housing, sanitation, energy and water at a cost that enables these services to become widely available. Sometimes it is the simple, low-tech solutions such as biogas cooking stoves³ that provide services at the lowest environmental, social and economic costs.

Voluntary schemes associated with environmental management standards, such as ISO 14000, have important roles to play here, and some engineers have taken the initiative to improve the social performance of engineering services companies. For example the NGO Engineers Against Poverty (EAP) work to improve the corporate social responsibility (CSR) programmes of engineering services companies through brokering and supporting multi-

² Presidency Conclusions: European Council Brussels 22 -23 March 2005. 7619/1/05, Rev 1.

³ <http://www.renewableenergyaccess.com/rea/news/storyjsessionid=a3a417miZUva?id=38422>

sector partnerships between the state, private and civil society sectors and by developing other innovative pro-poor engineering initiatives. EAP works with major industry partners such as Anglo American, British Telecom, Wardell Armstrong and Thames Water.⁴ This type of voluntary initiative has great potential to ensure more sustainable patterns of production and consumption.

Architecture's challenge in providing for environmental sustainability is to use environment resources rationally while responding to contemporary communities' needs with regard not only to shelter but also to aesthetics, lifestyles and other non-tangible considerations. Here I would like to support the view of the Royal Institute of British Architects (RIBA) when it states that sustainable development cannot be delivered without ensuring quality design.⁵ Good design is not just about aesthetics but also refers to the thought process that promotes environmental integration through the use of both existing and innovative technologies in the construction process. The result is a building that is more sustainable, lasts longer, is more flexible in use, is cost-effective and will grow old gracefully. In small islands such as Malta, land use is critical for the sustainability of the built environment. Sustainable architectural design in the Maltese context must be efficient in its use of environmental resources during and after construction, and makes optimum use of technology yet respects the natural and social environmental context.

I cannot fail to mention climate change in discussing environmental sustainability. Climate change has been described by Sir David King (the UK Government chief scientific adviser) as a bigger longer term threat than terrorism. While slashing global emissions would reduce the risks substantially inherent in climate change, this is unlikely to be enough in itself. Climate change is already here whether we like it or not, and we need to adapt to its effect as much as mitigate the root causes.

In terms of climate change, architects have a unique window of opportunity in designing climate-friendly (and retrofitting non-climate friendly) buildings. The buildings sector accounts for 40% of the EU's energy requirements and offers the largest single potential for

⁴ <http://www.engineersagainstpoverty.org/>.

⁵ http://www.riba.org/go/RIBA/News/Press_3114.html - Consultation Paper on Planning Policy Statement 1: Creating Sustainable Communities. Response by the Royal Institute of British Architects. May 2004.

energy saving design. Research shows that more than one-fifth of the present energy consumption could be saved by 2010 by applying more ambitious standards to new buildings and when refurbishing buildings⁶ - which represents a considerable contribution to meeting Kyoto targets. Climate-responsive buildings basing heating and cooling on largely passive measures are key here.⁷ This opportunity is being given official encouragement. On a local level, recent budget measures encourage the purchasing of equipment that uses renewable energy, such as solar water heaters where the VAT rate has been reduced to 5 percent. And at EU level this is encouraged by the EU Directive on the Energy Performance in Buildings, which has been in force since 2003.

Voluntary initiatives are also in use to certify the environmental performance of buildings: the UK's BREEAM (Building Research Environmental Assessment Method) is a system used to classify the environmental characteristics of building projects. The scheme is used by businesses and industries to show their commitment in reducing the impact of buildings and processes on the environment during design, construction and operation. A new generation of exiting new ecologically intelligent buildings is emerging, buildings that clean themselves and the environment using materials such as 'smart' cement materials that digest pollutants such as nitrogen oxides,⁸ which filter out pollutants, which maximize the use of natural lighting, that cool themselves, and which avoid getting dirty.

Returning back for a moment to consider climate change we note that while the science may well be understood and those climate changes that have already occurred are well documented, there is a blind spot in the perception of the general public, politicians, policy-makers as to the urgency of dealing with climate change. Spatial planning has a big role to play in this regard. How we plan urban systems promoting mixed use developments, which minimize the need for travel, protecting our biodiversity and integrating adaptation needs to address climate change can make significant contributions to overcome this new challenge of our millennium.

Planning systems across the Commonwealth are increasingly being charged with implementing sustainable development. In Malta, for example, the Development Planning

⁶ <http://www.managenergy.net/products/R210.htm>.

⁷ http://www.edcmag.com/CDA/ArticleInformation/features/BNP_Features_Item/0,4120,70793,00.html

⁸ http://www.architecture.com/go/Architecture/Debate/Sustainability_4831.html.

Act⁹ lists the first function of the Malta Planning Authority as ‘the promotion of proper planning and sustainable development of land and at sea’. Even in the first national sustainable strategy in the UK, planning was seen as a ‘key instrument’ for delivering sustainable land-use change. Whether one views planning as facilitator of markets, a neutral forum for debate, or as an institution for promoting particular ends,¹⁰ sustainable development has become a central goal for this policy area.

There are a number of areas where planners have a central role to play in ensuring environmental sustainability. These include protecting ecological and cultural heritage from insensitive development, ensuring that settlements are healthy and attractive, promoting efficient use of land, promoting sustainable travel patterns that encourage the use of public transport and ensuring that local communities are involved in decision making about their environment. Involving communities in decision making has particular resonance for sustainability, where good practice shows that switching to sustainable lifestyles can only happen if all sectors of society are involved. The planning measures that are mostly used to promote environmental sustainability include: designation and protection of sites and areas of heritage value; identification and prioritization of land for environmental enhancement, promoting energy efficiency particularly with respect to transport, undertaking environmental impact assessments, maximizing the use of ‘brownfield land’, and promoting the recycling of waste.¹¹

However the extent of the planning system’s environmental responsibilities remain extremely contentious. Difficulties usually emerge around three fundamental issues: whether planning should respect some overall ‘limits’ that describe the environmental capacity of an area of land, whether planning should meet demand for development or whether this demand should be managed, and, finally, whether ‘subjective’ judgements about environmental values can be seen as adequate basis to make planning decisions.

These difficulties with fitting the lofty goals associated with sustainability into the limited set of policy parameters and instruments traditionally allocated to land-use planners has opened

⁹ Development Planning Act (Act I of 1992) Cap. 356.

¹⁰ Owens S. and Cowell R., 2002. Land and Limits: Interpreting sustainability in the planning process. London: Routledge.

¹¹ Adapted from Wellbank M. (1993). Sustainable Development. RTPI.

the door to a new conceptual basis for the spatial elements of environmental planning. This is becoming crystallised in the call for a transition from land-use planning to spatial planning. With its emphasis on environmental sustainability, community inclusion, good design and policy integration coupled with a greater clarity on implementation,¹² spatial planning looks much more capable of achieving the goals of MDG7.¹³ And in opening planning up to environmental (and other) concerns, it promotes the integrated social, economic and environmental framework that is needed to promote sustainable development in its three fundamental dimensions. The emphasis in spatial planning on providing greater clarity regarding implementation – with plans becoming specific and measurable via appropriate targets, milestones and indicators showing who is to deliver, when and how, will definitely assist with the delivery of environmental sustainability on the ground.

Within the wider framework offered by spatial planning, the construction professions will be able to work together more effectively; surveyors will need to provide more information via GIS about wider concerns such as environmental and social factors; engineers will find that their innovative technology will find a more receptive audience. For example, spatial planning can identify the capacities of different areas to absorb emergent environmental-technologies. Spatial planning's emphasis on good design that reflects environmental concerns and local specificities means that architectural skills will need to be drawn in to a greater extent than previously. And traditional town planning with its emphasis on protection of amenity and the control of development will continue to occupy a core function, albeit with a remit to reconcile a wider range of factors. Planners' experience in working with local communities will also be very important because of the emphasis of spatial planning on social inclusion and participation.

This new policy direction has been taken on board at an EU scale as the European Spatial Development Perspective, which aims to improve the spatial coordination of sectoral policies, for example so that territorial disparities are also taken into account in planning. Overall, the role of spatial planning is to manage environmental, social, and economic change and to provide a coherent vision and framework for achieving environmentally sustainable human settlements. Spatial plans can be drawn up for any geographical area.

¹² Planning Officers' Society. (2005) Policies for Spatial Plans: A guide to writing the policy content of Local Development Documents. July 2005.

¹³ Town and Country Planning. Sep 2005, Vol.74 No. 9.

Here in Malta, our draft National Strategy for Sustainable Development calls for the preparation of a national spatial development plan, and I would recommend this option for other communities seeking to implement sustainability in this type of integrated way.

Once again, I am proud to support this important initiative and to welcome you to Malta, and wish you a good seminar and a very enjoyable few days here.