Engaging the Challenge of Climate Change, Enhancing the Role of Land Surveyors in Land Use Change and Carbon Credit Markets.

Paul van der Molen (Netherlands) and David Mitchell (Australia)

Key words: Geoinformation/GI; Land management; Security of tenure; Spatial planning; Climate Change

SUMMARY

Land use, land use change and forestry are major contributors to greenhouse gas emissions. Urban areas are the main centres of consumption and greenhouse gas emissions. While in general emissions have grown with 70% between 1970 and 2004, buildings emissions have grown with 75% including electricity related emissions, transport even with 120%. However, urban areas also offer good chances to play an important role in climate change mitigation and adaptation, creating long term sustainability and social development. Rural areas make up a quarter of the Earth's surface and their soil and plants hold three times as much carbon as the atmosphere. More than 30% of all greenhouse gas emissions arise from the land use sector. Livestock-related emissions of carbon and methane now account for 14.5% of total greenhouse gas emissions, more than the transport sector. What is special about the rural areas: while climate change measures in other sectors aim at achieving a lower level of greenhouse gas emission, the land use sector is the only one that is able to also remove greenhouse gases from the atmosphere through sequestration and storage. In general, the largest source of carbon emissions has been from fossil fuels, followed by land use change stemming predominantly from the conversion of forests to agriculture. Deforestation or the conversion of forests to agricultural land, accounts for the loss of 13 million hectares each year. Articles 3.3 and 3.4 of the Kyoto Protocol provide for the use of greenhouse sinks (carbon sequestration and storage in soils and vegetation) to be used by countries to fulfill their obligation to reduce greenhouse gases. Articles 6, 12 and 17 establish a market for trading of 'assigned emission units' (AAU's). So land use , land use change and forestry should be managed well with respect to climate change aspects. Climate change reinforces the urgency of scaling up the delivery of secure land tenure over land and natural resources using low cost decentralized systems of documentation and building where possible on functional informal systems. Regarding mitigation measures related to land and housing, suggestions are increased production and use of biofuels, reduction of transport needs by means of climate-proof land-use planning, energy-efficient houses and commercial buildings by the establishment of energy labeling and building codes, land management to increase soil carbon storage, restoration of degraded lands, application of cultivation methods that improve carbon sequestration (such as more rice cultivation, livestock and manure management), better forest management and better land-use management. In the case of 'unbundled' property rights, with the separation of carbon credit titles, these land administration systems should be able to register such rights (registration) and to attach appropriate geometric attributes and to make those titles accessible for trade in the carbon credit market. The land profession can enhance its relevance through adaptive land administration and land management.