PMWorldToday

Published in PM World Today - February 2008 (Vol. X, Issue II)

PM WORLD TODAY - EDITORIAL – FEBRUARY 2008

Climate Change

What it means for the World of Project Management!

By: David L. Pells

Over the past ten years or so, “Global Warming” has been one of the world’s most highly visible and controversial topics. As the evidence that the climate is indeed warming has mounted during the last few years, the subject has expanded into “Climate Change”. Now there is mounting evidence and alarm related to melting glaciers in Antarctica, the Arctic north and Greenland – the Northwest Passage above Canada is actually becoming a possible shipping lane. Nations, global organizations and non-governmental organizations worldwide are launching research projects, projecting drastic changes for life on earth, and calling for action.

In recent months, I have been monitoring announcements and news from the United Nations, World Bank and other organizations related to climate change. Those announcements are increasing, as massive amounts of money are being directed towards environmental projects, alternative energy supplies, energy-saving technologies, and other “green” programs and initiatives. Just in the last 45 days, we have published the following new articles on www.pmforum.org:

- UN expects more CDM projects
- Japan to offer $10B in Global Warming aid to Development Nations
- EU, Japan & US to form new energy-saving organization
- Tara Arctic Project: UN backed research vessel complete Arctic drift
- UN calls for more clean water projects to avoid conflicts

Of course, there were many more announcements and stories that we did not publish – there is now way too much happening in this area to cover in the daily news or in a project management publication.

In addition, climate change seems to be causing more natural disasters around the world, resulting from more draughts, fires, floods, hurricanes, tornadoes and extreme weather. Not only do these disasters take a tragic human toll, they require massive investment for response and recovery. Some parts of the world seem to be at greater risk. For example, islands in the Caribbean Region are not only seeing their ecosystems affected, they are also now at risk of inundation from rising sea water.

According to the UN Intergovernmental Panel on Climate Change (IPCC), a 2007 Nobel Prize laureate, the impacts of climate change in the (Caribbean) region – including inundation of small island states and densely-populated coastal areas; more intense hurricanes; water shortages; soil erosion; droughts; and the loss of biodiversity – will intensify as time goes by. (UN press report, Jan 31, 2008)

Potential Impact on Projects & PM

It now seems clear to me that Climate Change, and the many related issues and trends, will have a significant impact on the world of programs, projects and project management. First, there are many new iniatives and massive investments occurring in response to climate change, most of which result in new programs and projects. Modern PM is obviously needed for managing those efforts.

There is also a growing awareness of, and interest in, planetary changes related to climate, natural resources, human interaction with the environment, and the general health of the planet. This is leading to increased investment in science and research, climate monitoring technologies and programs on earth and in space, global cooperation and initiatives, new technologies, and renewed focus on environmental impact, mitigation and stewardship. Again, much of this investment is occurring in the form of programs and projects, where PM is needed.

Climate changes seem to be causing more natural disasters. Mankind's increasing ability to monitor the climate is leading to better and more rapid reporting about, understanding of and responses to those calamities. Disaster management, and Disaster Response and Recovery, have become much bigger industries and professional fields. They are also almost entirely project-based. Again, PM is needed worldwide for responding to these changes.

There are many other examples of industries and organizations that are being affected by climate change. When the issue is combined with other significant factors, for example population changes or the increasing shortage of fossil fuels and rising cost of oil and gas, the repercussions across geographic regions, economies and society in general can easily be seen.

These changes and effects all suggest to me that the number of projects will only increase, and the demand for professional project management will continue to grow. This seems especially true in developing economies where such projects will go hand-in-hand with infrastructure development, economic growth and global technology transfers.

Some Facts and Statistics

With regards to the potential impact of climate change on projects and PM, here are some interesting statistics:

From the United Nations Environmental Program, at www.unep.org:

- Eleven of the last twelve years rank among the warmest years in global surface temperature since 1850.
- The rate of warming averaged over the last 50 years is nearly twice that for the last 100 years.
- The average global temperature went up by about 0.74°C during the 20th Century with the warming affecting land more than ocean areas.
- The average temperature of the global ocean has increased to depths of at least 3,000 meters.
- Mountain glaciers and snow cover have declined, on average, in both hemispheres, and have contributed to sea level rise by 0.77 millimetres a year from 1993 to 2003.
- Average Arctic temperatures increased at almost twice the global average rate in the past 100 years.
- Satellite data since 1978 show that the average Arctic sea ice extent has shrunk by 2.7 per cent per decade.
- Shrinkage of the ice sheets of Greenland and Antarctica have contributed to a sea level rise of 0.4 millimetres a year between 1993 and 2003.
- The average global sea level is projected to rise by 28-58 cm due to ocean expansion and glacier melt by the end of the 21st century (compared to 1989-1999 levels).
- 20-30 per cent of species are likely to face an increased risk of extinction

From www.environmentaldefense.org:

- $1.5 billion - Amount US government now spends a year on renewable energy research.
- $2 billion - Amount GE Energy Financial Services invested in wind, solar, biomass and geothermal energy in 2007.
- $200 billion - Amount China has committed to invest in renewable energy sources over the next 15 years.
- 78 - Number of days by which the US fire season has increased over the past 20 years - tied closely to increased temperatures and earlier snowmelt.
- 200 million - Number of people around the world who could be displaced by more intense droughts, sea level rise and flooding by 2080.

The UN estimates that $10-15 trillion needs to be invested in alternative energy by 2050.

Obvious & Direct Affects of Climate Change

According to the US Environmental Protection Agency, here are six areas where climate change has an immediate impact:

Ecosystems - Some ecosystems have already been affected by changes in climate. As the climate warms, major changes may occur in ecosystem structure and function, species' ecological interactions, and species' geographic ranges, with predominantly negative consequences for biodiversity. In addition, climate changes such as increased floods and droughts increase the risk of extinction for some plant and animal species, many of which are already at-risk. For more information, visit the Ecosystems and Biodiversity page of EPA's Climate Change site.

Human Health - The prevalence of some diseases and other threats to human health depend largely on local climate. Extremely warm temperatures can lead directly to loss of life or heat-related illness, while less-severe winters could reduce the number of cold-related deaths. Climate-related disturbances in ecological systems, such as changes in the range of some parasites, can indirectly affect the incidence of serious infectious diseases. Climate change has already caused an earlier onset of the spring pollen season in Europe and North America. In addition, warm temperatures can increase air and water pollution, which in turn harm human health. For more information, visit the Health page of EPA's Climate Change site.

Agriculture - Agriculture is highly sensitive to climate change and weather extremes, such as droughts, floods, and severe storms. The forces that shape our climate are also critical to farm productivity. Some aspects of projected climate change are predicted to increase food production (e.g., longer growing season, increased precipitation), but weather extremes (increased potential for droughts, floods, and heat waves) will have adverse effects, so the net effect on agriculture will vary depending on how these factors play out at a regional scale. For more information, visit the Agriculture and Food Supply page of EPA's Climate Change site.

Polar Regions - Polar regions are expected to warm more than any other parts of the world. In part, this is because ice has greater reflectivity than ocean or land. Melting of highly reflective snow and ice reveals darker land and ocean surfaces, which increases absorption of the sun's heat and further warms the planet, especially in those regions. Melting due to climate change is expected to reduce the size and extent of the polar ice caps, even after taking into account the potential for more snow and ice accumulation atop the ice sheets due to increased precipitation. For more information, visit the Polar Regions page of EPA's Climate Change site.

Precipitation - Researchers estimate that rising global temperatures in the past century have led to about a 5 percent increase of atmospheric water vapor over the oceans. Because precipitation is generated mainly by weather systems that feed on the water vapor stored in the atmosphere, this has generally increased the intensity of precipitation and the risk of heavy rain and snow events. As the climate continues to warm, atmospheric concentrations of water vapor are predicted to continue to rise, leading to an increase in the global average amount of precipitation, at least partly through less frequent, more intense storm systems. Higher temperatures also increase evaporation, accelerating the drying of land surfaces and leading to droughts in some areas.

A warmer climate may reduce snowpacks in mountains such as those in western North America, also leading to seasonal droughts. Thus, climate change increases the risks of both droughts and floods, albeit at different times and places. For more information, visit the Future Precipitation and Storm Changes page on EPA's Climate Change site.

Sea Levels - Sea levels are rising worldwide and along much of the U.S. coast. Tide gauge measurements and satellite altimetry suggest that sea level has risen worldwide approximately 4.8-8.8 inches during the last century. A significant amount of sea level rise has likely resulted from the observed warming of the atmosphere and the oceans. The primary factors driving current sea level rise include the expansion of ocean water caused by warmer ocean temperatures (warmer water is less dense), melting of mountain glaciers and small ice caps (resulting in more water in the oceans and less on land), and the melting of the Greenland Ice Sheet and the Antarctic Ice Sheet.

Scientists predict that the global average sea level will rise by 7 to 24 inches by 2100 due to thermal expansion alone. The contribution of melting ice sheets, which is very uncertain, could add substantially to this estimate. For more information, visit the Coastal Zones and Sea Level Rise page and the Future Sea Level Changes page on EPA's Climate Change site.

Industries Directly Affected

Without doing much research, I think there will be many programs and projects in the following industries in the future, as a direct result of Climate Change:

- Agriculture, food production and nutrition
- Architecture, building design and urban planning
- Climatology, meteorology and weather management
- Construction and construction materials
- Emergency response products, services and support
- Energy, alternative energy and power production
- Engineering, in all fields
- Fishing and sea-based manufacturing
- Forestry, timber production, pulp, paper and wood products
- Housing and buildings technologies and industries
- Medicine, healthcare and pharmaceuticals
- Mining and natural resource extraction industries
- Oil & gas, petrochemicals and related industries
- Satellite and space technologies, earth monitoring & communications
- Shipping and logistics – supply chains of every kind
- Transportation, including air, auto, rail and ship
- Water and wastewater related industries

Other industries that cross all of the above include communications, computer software and hardware, and information technologies. In addition, social and political systems, organizations and support industries will all be affected by climate change, or by the impact of climate change on the above industries. And literally every one of the above mentioned sectors will have thousands upon thousands of projects around the world in coming decades.

New Industries, Programs and Projects

Climate change, and related affects and impacts, will lead to new projects, new technologies and new industries. Here are some of my guesses:

- Climate control technologies (starting)

- Eco-friendly products and services (well underway)
- New energy sources and technologies (well underway)
- New materials, based on nano and genetic-engineering (accelerating)
- More Oceanic exploration, living, manufacturing and activity in general
- Sustainable buildings and communities (already underway in China & UAE)

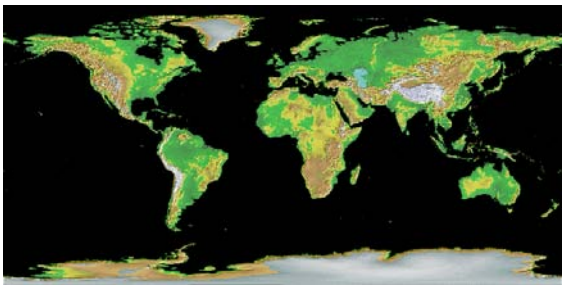
Climate change may be most closely tied to energy use, so all technologies, organizations and industries related to energy will be changing rapidly in coming years, with many programs and projects. The demand for PM in all of these areas will increase.

The Bigger Picture – and it really is Big!

Last December, the landmark UN Climate Change Conference in Bali, Indonesia ended with 187 countries agreeing to launch a two-year process of formal negotiations on a successor pact to the Kyoto Protocol, which expires in 2012.

> "As part of the initial phase of international climate change negotiations in 2008, there needs to be a focus on designing the mechanisms to support and enable action by developing countries," **Yvo de Boer**, Executive Secretary of the UN Framework Convention on Climate Change (UNFCCC), said at a regional ministerial-level meeting in Santo Domingo, Dominican Republic. "We need a new climate change Marshall Plan that will reshape the world's future economy and redirect investment flows into a sustainable future," Mr. de Boer said, referring to the economic assistance programme that the United States brought to Europe after World War II. The Executive Secretary called for a new financial framework to jump-start green, low-carbon economic growth globally. (UN Press Release, Jan 31, 2008)

Climate Change is rapidly leading to greater global awareness of the relationship between human activities and the health of our planet. While this awareness will vary among individuals, organizations, nations and societies, the trend now seems clear. The results will certainly include increased investment in research, monitoring and management of both the climate and our natural resources. Climate change will result in new technologies and changes in many industries, economies and societies.



There will be huge impacts on some industries, some new industries, and a new global regulatory regime related to protecting the planet. Such trends as economic development (or imbalances), labor migration, conflicts and refugees, water, sanitation and health will be viewed from a planetary perspective, with impacts on the world becoming more apparent.

All of these changes will call for more programs and projects. Because it can be applied across all industries and project types, Project management will become one of the most important and widely-applied professional disciplines in modern history. And PM will become more important, for achieving objectives, protecting the planet and improving the lives of more people.

In the area of disaster recovery and response, projects and project management should play an increasingly important role. Organizations and professionals will begin to realize that a management process created to accomplish objectives better, faster and more affectively than by alternatives (as PM was) must be applied to save lives and livelihoods. The value of good project management in this area should be measured in the highest possible terms.

MEM and Calls for Action

From World Press on Feb 1, 2008:

Representatives from 17 major economies plus the United Nations called for rapid progress in implementing the Bali Roadmap as they wrapped up a two-day closed-door meeting on climate change Thursday, January 31, 2008 in Honolulu, Hawaii. Known as the Major Economies Meeting (MEM) on Energy Security and Climate Change, the Honolulu meeting served as a follow-up to the first round of U.S.-hosted climate change talks among major economies last September in Washington. The idea of bringing together the world's major economies for climate change talks was initiated by U.S. President **George W. Bush** in May 2007, when the United States was under growing pressure to contribute more to solving the problem of greenhouse-gas emissions.

According to a press release issued after the meeting, the participants "welcomed the Bali Action Plan to launch a comprehensive process to enable a full, effective and sustained implementation of the UN Framework Convention on Climate Change (UNFCCC) to result in a decision in 2009 for a long-term cooperative action," said **James Connaughton** (pictured), chairman of the White House Council on Environmental Quality after the event.

Some 160 representatives from the EU, the United Nations, Australia, Brazil, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, South Africa, Britain and the United States attended the conference. **Shaun Vorster**, special adviser to the South African environment minister, said the sense of urgency was everywhere throughout the meeting. "The clock is ticking," said **Koji Tsuruoka**, an official from the Japanese Foreign Ministry. "There is no time left that the world can lose," **Yvo De Boer**, UNFCCC executive secretary, said, adding “there is actually a bit more than one year left to complete negotiations to agree on a new climate treaty to replace the Kyoto Protocol.”

"The world needs all countries to work together and agree on actions to address this common challenge," **Penny Wong**, Australian Minister for Climate Change and Water, said in a statement at the end of the two-day meeting. "We need to ensure that this includes a long-term global goal, which would give the world a shared aspiration on climate change, would help to maintain political momentum and would send a clear, long-term signal to the global business community," Wong said.

Clearly the governments of the world's leading economies are now taking climate change seriously.

I remember Dr. Frank King's dramatic and dire predictions about Planet Earth during his powerful keynote address at the PMI'90 Seminars/Symposium in Calgary, Canada in 1990 – and his call for action. Climate Change represents that call for action again. It also represents both an opportunity and a challenge for the world of project management.

How does it feel to be so badly needed? I think this is very exciting! This represents the real future of Project Management!

Good luck on your projects!

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