

**Presentation by Martin Lees**  
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**Global Trends: the Year 2030 and the Responsibility  
of Today's Decision-makers**

Mr. Chairman, Your Excellencies, Ladies and Gentlemen,

It is a great honour and responsibility to make this introductory presentation before such a distinguished and expert audience at the ICLEI World Congress 2012. I will present a panorama of global issues in a very short time: my text and the related slides will be made available on the ICLEI website.

We are heading into a perfect storm of connected environmental, economic and social challenges as the scale of human impacts on the natural world increases and economic vulnerability and inequality rise across the globe. In spite of years of negotiations and the committed efforts of individuals and organizations such as ICLEI, we can see every day that the overall situation is deteriorating with rising vulnerabilities, risks and inequities in our economies and societies. We are living beyond our means and overusing the resources of the planet. As a result, the prospects for young people and for future generations are increasingly compromised.

***Slide 2: Key points of the presentation.*** Rio +20 should launch the world on a new trajectory. World leaders face a historic challenge and opportunity, to define a genuinely sustainable strategy for world development to meet the challenges of the 21<sup>st</sup> Century. This must address the overriding issue which will determine the future of humanity: how to meet the needs and aspirations of a growing world population while remaining within the capacities and boundaries of our fragile planet.

Partial, ad hoc, incremental change has not proved adequate to address our deepening problems. The time has come for radical change and urgent, concerted action. Further denial and delay will have disastrous consequences for all. We cannot wait to take action until the threats are imminent and unambiguously clear, for by then, it may well be too late. This may indeed be the last chance for the world community to face up to the realities of the modern world and to reach agreement on action to assure a safe, sustainable and prosperous future for humanity.

On a more positive note, if we should be able to shift the trajectory of human progress onto a sustainable and equitable path, this would bring enormous opportunities and benefits. Humanity

has vast potentials of creativity, knowledge, scientific and technological capacities, accumulated experience, expertise and resources of all kinds. Our fundamental problem is not therefore a lack of capacities or resources, or of available solutions, or of good intentions. We are failing because of a lack of vision and leadership. World leaders are so focused on immediate political, economic and financial issues that they are failing in their strategic responsibility to address the crucial issues which will determine the future.

Fortunately, while leadership is failing at the global level, innovations and breakthroughs are emerging in national and local development strategies. For example: our host country Brazil has pioneered a direct assault on poverty and inequality with remarkable results; China is reorienting its economy onto a new path through its Xiao Kang program for all-around, sustainable prosperity as reflected in the investment strategies of the 12<sup>th</sup> Five Year Plan; Korea is building a new internationally competitive economy focused on information technologies and environmental goods and services; Japan is exploring new strategies for energy-efficient growth following the impacts of the Fukushima disaster; and the European Union in its Vision 2020 program is moving toward a low emission, resource efficient and employment generating path.

All these, and a myriad of other examples in states, cities, communities and corporations, demonstrate that investing in a sustainable future, through education and human resource development, research and innovation, green technology and the modernisation of ICT and infrastructure can improve competitiveness and employment and the health and welfare of citizens.

Since the year 2000, the world community has made substantial progress towards many of the Millennium Development Goals of the United Nations but, as I will show, this progress has been made on unsafe and unsustainable economic and environmental foundations and could even be reversed.

We are in effect at a historic turning point in thinking, strategy and international cooperation. **Slide 3: Limits to growth scenario.** As I will explain – and as the Club of Rome pointed out forty years ago – it is simply not feasible to continue indefinitely on the present exponential path of consumption-driven, fossil-fuel-based growth, with the attendant pollution and waste, although this path is favored and defended by dominant economic, financial and commercial interests. Independent analysis has recently confirmed, unfortunately, that we are on one of the “Limits to Growth” scenarios entitled “overshoot and collapse.” We need transformational change onto a sustainable path for world development, and soon. This is the responsibility of all of us.

Cities are on the front lines of the issues threatening the future of humanity: they will prove to be a key to the future. **Slide 4: Trends in urbanization.** Consequently, your efforts to create the productive, sustainable and resilient cities of the future are vital if we are to manage the accelerating environmental, economic and social challenges which threaten the lives and hopes of millions of people today and the prospects of future generations. You are directly in contact with the realities and aspirations of your citizens. I urge you to use your influence and expertise during the Rio + 20 Conference to press for the radical and urgent action we need.

Let me now turn to the issues we face in the 21<sup>st</sup> Century. These are more intense and threatening than those we have faced in the past for six reasons:

- They are on an unprecedented scale – the past is no guide to the future;
- They are essentially interconnected – we need coherent, integrated policies;
- The processes of change are accelerating – flexibility and resilience are key;
- They are truly systemic and non-linear – we need new models and strategies;
- They are truly global – we need solidarity, cooperation and concerted action;
- They demand urgent action – we must avert the risk of irreversible breakdown;

We have enormous capabilities to resolve the issues we face and we understand the issues sufficiently well. We must now act effectively and quickly to deal with them. But we must have the humility to understand that there are limits to our ability to dominate the natural world, for nature is indifferent to the future of humanity. And let me emphasize one further important point. We are in a situation which has not occurred before. **Slide 5: World population.** For example, the pressures of world population on the environment are unprecedented as is the level of concentration of greenhouse gases in the atmosphere. **Slide 6: Greenhouse gas concentrations.** We cannot simply assume, although we do, that because we have grown so far and so fast, this growth can continue indefinitely. We must now decide to change course.

## **An Overview of the Critical Issues which will determine the Future.**

### ***1. Climate, Resources and Environment***

I will now review the major global trends and the critical issues which will determine the future I will start with the crucial issue of climate change for, if we are to achieve sustainable world development, it is essential to preserve a stable climate.

- **Slide 7: Consequences of a warming world.** The evidence of climate change is clear across the world: unprecedented temperatures, glacier melt, changing rainfall patterns, droughts, floods, storms, fires and widening desertification are degrading the fragile ecosystems of the planet, devastating the lives of millions of people today and undermining the prospects for progress and peace in the future. The intensity and frequency of extreme weather events are rising, as explained by science: in January this year, one month's rain fell in a single day in Rio de Janeiro State, the deadliest disaster in Brazilian history.
- The changing weather patterns and the extreme events we see across the world today are the result of the temperature rise of only 0.8°C so far, since the start of the industrial revolution in 1750. Even this small increase is worsening food and water security. **Slide 8: Water stress on human development.** And glaciers, the source of fresh water for hundreds of millions of people are retreating: water flows from the Cordillera Blanca in north-west Peru, on which the cities of Lima and La Paz rely, have peaked thirty years earlier than forecast. **Slide 9: Glacier melt in the Alps.** Since 1850, the glaciers of the European Alps have lost 30-40% of their area and about half their volume.

- **Slide 10: Global warming scenarios.** If we continue on the present path, global average temperature could rise by over 6°C by 2100, above the worst-case scenario of IPCC. Such a rise would provoke intolerable conditions for humanity and all other living species. This estimate is a global average figure. It would imply a temperature rise of double this amount in some regions of the world, such as the Greenland and West-Antarctic ice sheets. **Slide 11: Greenland ice sheet melt.** Satellite measurements now show that Greenland is losing mass at a rate of 52 cubic miles per year and that this rate is accelerating. This has immense implications for sea level rise which is likely to be at least one meter this century and may well be more.
- **Slide 12: Global surface warming.** The planet is clearly warming. The world community has been struggling for more than twenty years to reach agreement on action to reduce the threats of climate change by taking measures intended to limit the rise in global average temperature to 2°C, a level at which the impacts of climate change are considered to be tolerable. It is hoped that this can be achieved by cutting emissions so that the concentration of GHGs in the atmosphere does not rise above 450 ppm. But this strategy is flawed: 450 ppm offers, at best, only a 50% chance of limiting the average rise to 2°C.
- A rise of even 2°C will have massive impacts, particularly on the poor in a world of 9 billion people, and will have devastating consequences for the survival of the ecosystems on which we absolutely depend. A 2°C rise would accelerate desertification and the degradation of productive land, threaten food and water security and health and provoke a level of sea-level rise which would endanger coastal cities.
- Further, the speed at which temperatures are rising will be particularly damaging to the biodiversity of the terrestrial and ocean ecosystems which at present absorb some 50% of our emissions: IPCC has concluded that a rise of 0.1°C in a decade puts 15% of the affected species at risk, and global temperatures are now rising faster than this.

These then are the realities we face but deep divisions exist between key countries on how to meet the climate challenge. International negotiations are failing to agree on the strong climate action needed to avert the risks of climate destabilization and environmental degradation. We should now be making enormous efforts to cut emissions to move on to a safer path. **Slide 13: Emissions – where we are headed.** But, by default of effective action, carbon emissions, far from declining, have cumulatively risen by 49% since 1990, reaching a record high in 2011. And a recent independent study presented at the international climate talks in Bonn in May shows that, not only are pledged emission reductions inadequate, but that countries are unable even to fulfill these pledges. Even if, optimistically, all reduction targets and pledges were implemented, we would still be on a path to an average temperature rise of 3.5-4.5°C, with intolerable consequences.

The negotiations do not in fact reflect the urgency, scale and intensity of the climate risks ahead as perceived by science. Strong climate action must be taken within the next crucial decade. But the Durban Platform for Enhanced Action envisages a new international agreement to be

established only in 2015 with a commitment to binding emission cuts from 2020. The next decade is crucial. This is too little, too late.

Let me now outline three deeper considerations to clarify the extent and seriousness of the climate challenge.

First, and perhaps most important, we must understand that we do not simply face a gradual process of global warming as is commonly assumed. To mitigate this warming trend and to adapt to its consequences will be immensely challenging. **Slide 14: System dynamics: positive feedback loops.** But we also face the additional risk that the complex, interacting systems which drive the climate are non-linear and that we may therefore be exposed to sudden and dramatic impacts. It is therefore of overriding importance that we do not push the climate beyond the tipping points which can trigger “runaway” climate change, beyond human influence.

This can happen if we trigger a number of “positive feedback” processes such as: the albedo effect linked to the loss of reflecting ice; **Slide 15: Arctic sea ice: age and extent.** the effects on plankton of the acidification of oceans which prevents them from absorbing carbon to build their skeletons and shells; the degradation of vital ecosystems such as the Amazon rain forest which constitute immense carbon sinks; and the release of methane from clathrates in the oceans and from melting permafrost – which is estimated to contain around 1.6 trillion metric tons of carbon. **Slide 16: Arctic permafrost melt.**

As the planet warms, these processes are already now beginning to operate. **Slide 17: Arctic sea ice volume: rapid decline.** This is a grave threat to the future of us all. We must therefore take rapid and decisive precautionary action to cut emissions into the atmosphere. And we have very little time to act.

Second, climate change is not an isolated, stand-alone issue. It is integrated fundamentally with other environmental factors and with economic and development issues as well. Policies must account for the critical links between climate and other issues, such as ecosystems degradation, water and poverty for example, if they are to succeed.

Third, if we are to contain the risks of climate change, we must understand and correct its underlying causes. Climate change produces strong environmental symptoms but its fundamental causes lie in the roots of our societies and in the structures of our economies and energy systems and in the values, behaviour and choices which drive the exponential growth of demand, of material consumption and of waste and pollution. It follows that to prevent the destabilization of the climate will require coordinated policies and action as an integral part of national and urban development, far beyond the field of environment.

## **2. Ecosystems**

**Slide 18: Threatened terrestrial ecosystems.** All life on this planet depends on the ecosystems and natural capital which provide food, fresh water, raw materials for construction and fuel, especially to the poor. But we are destroying this wonderful heritage at an alarming rate.

- **Slide 19: Global ecological footprint.** Humanity is overusing the biological resources of the planet, that is to say its regenerative capacities, by some 50% each year: we are using up our biological capital, not only our revenue, at the cost of future generations and this is

unsustainable. In the absence of strong action, this overuse will increase as population rises from 7 to 9 billion and the consumption of a rising world middle class escalates.

**Slide 20: Projected overuse.**

- As temperatures rise, rainfall patterns are changing and water resources are increasingly stressed. Food production in critical regions will fall while the needs of a growing population will increase. A tragic example is that impressive GDP growth rates in Africa have not led to improvements in food security. At present, one in four of the 860 million people of Sub-Saharan Africa are hungry, undernourished and experiencing extended periods of malnutrition with 15 million people at risk of starvation in the Sahel and a similar number in the Horn of Africa.

### **3. Energy and Resources**

The days of cheap and easily available energy on which our civilisation has been built are over: we are addicted to fossil fuels and we will have to change.

- **Slide 21: Energy projections to 2030.** When economic growth resumes, escalating demand will outpace supplies as we move into the period of peak oil. This does not mean that there is no more oil, but that, for a variety of technical, political and practical reasons, conventional oil supply cannot meet escalating demand. Consequently, the price of oil will rise, with significant impacts on development, especially on the poorest countries and major consequences for the design and functioning of cities.
- The long term issue can be seen thus: over the period to 2050, global energy output should double if we are to meet the needs of 9 billion people and of a growing world middle class. But, at the same time, emissions must be drastically cut, by between 50% and 80% to avert irreversible climate change. This dilemma can only be resolved by the structural transformation of energy systems and the economy and by breakthroughs in science, derived from basic research, to find innovative energy solutions. In this perspective it is clear that the intensive search for additional reserves of fossil fuels to improve energy security will only aggravate the fundamental risks of dangerous climate change while delaying the introduction of new clean energy solutions.

### **4. Water**

- **Slide 22: Water stress.** The fresh water, vital to human life and to the ecosystems on which humanity depends is under increasing stress across the world, through overuse, contamination, climate change and mismanagement. Water use is doubling about every twenty years.
- The impacts of climate change through widening desertification, the contamination of aquifers through sea level rise, glacier melt, the increased variability of rainfall patterns, floods, drought and extreme weather events, will all impact on water security and intensify competition for limited supplies. This has of course, major implications for land use and migration and thus for cities as water is essential to agriculture and life.

## 5. Oceans

- The state of the oceans, which support 95% of life on this planet is also desperate. Human impacts have changed the oceans more in the last thirty years than in previous human history: over-exploitation has wiped out more than 75% of megafauna, such as whales, sharks and large fish; industrial and chemical pollution coupled with rising levels of CO<sub>2</sub> is changing ocean chemistry while the scale of dead zones, caused principally by the runoff of nutrients from the land, is doubling every ten years.
- Mean ocean acidity has increased by 30% in the last 200 years. This has severe consequences for both marine life and the global climate.

## 6. International Development:

These adverse trends in the environmental area must be seen in the context of demographic change and international development.

- **Slide 23: Demographic scenarios.** First, we must face the fact that, within 40 years, global population will rise from the present 7 billion to over 9 billion: how will our fragile planet, already under intense stress, respond? In the absence of effective action, this will aggravate poverty, reduce political stability and accelerate environmental degradation.
- **Slide 24: Diverse fertility rates.** Nearly all this demographic increase will occur in developing countries and it will be spread unevenly across the globe, concentrated in the poorest countries and communities and increasingly in urban areas. There will be a significant demographic divide between countries experiencing rapidly growth in their populations and others where population growth is low or even negative.
- According to the World Bank, some 1.3 billion people are trapped in absolute poverty while around 2 Billion people today are living on less than \$2 per day, with their basic needs for security, employment, health, food and nutrition unmet. Escalating demand of a growing population and increased prices for food and energy have already provoked a food crisis across the world. And food production is already being affected by the impacts of climate change.
- The number of people suffering from hunger and deprivation has now risen again to over one billion as a consequence of the financial crisis and around 5,000 children die each day from hunger and disease. These levels of misery are occurring in a global economy which has an annual output of around \$60 trillion.

I have presented a swift overview of the formidable challenges in the areas of environment and of development, which are essentially connected. Now let me turn briefly to the challenges in the world economy and the world financial system.

## 7. The Financial and Economic Systems

We are living at a time of crisis in world economic and financial affairs with growing imbalances, instability and vulnerabilities.

- The massive and sudden financial crisis, now coupled with a deep economic recession, has destroyed confidence in long-established policies, relationships and institutional arrangements. The world financial system remains at risk and the fate of the Euro is uncertain. Economic leaders have so far been unable to find convincing solutions to deep systemic vulnerabilities and risks.
- The processes of globalisation have been widening the gaps between rich and poor: **Slide 25: Global wealth distribution.** 2% of the richest people own around 50% of the world's wealth while the poorer 50% own only 4%. As President Horst Köhler of Germany told the Club of Rome in 2008, "if globalisation continues on the present path, it will tear the world economy apart."
- The balance of economic power and influence across the world is changing at a pace which was unanticipated only a few years ago, with the rise of powerful new economic actors, notably the major emerging economies of the "global south". One indicator is that China now has foreign exchange reserves of over \$3.3 trillion.
- **Slide 26: A surge in the global middle class.** If, as is commonly assumed, the global economy should double in size by 2030, this would imply that around an additional billion people would attain the living standards of the middle class, with the corresponding patterns of consumption and waste.

Sustained global economic growth has undoubtedly produced enormous benefits for hundreds of millions of people in both developed and developing countries who have become healthier, better educated and wealthier. But the benefits of progress have not been equitably distributed and the adverse impacts of environmental degradation have fallen disproportionately on the poor. And, as I have emphasized, this progress has been achieved at a devastating cost to the environment.

What then is our strategy to deal with all the crucial challenges which I have outlined?

It is to return as soon as possible to the established path of economic growth as measured by GDP to achieve a doubling of the world economy by 2030 through the stimulation of demand for further consumption. **Slide 27: World GDP per capita extrapolated.** However, past experience shows that this strategy, dominated by narrowly defined economic calculus has failed. This strategy would imply for example that, according to IPCC, passenger vehicles would increase across the world from 600 million today to 1.7 billion in 2050, heavily concentrated in congested cities. **Slide 28: Light vehicles projections.**

While this established strategy may appear logical and feasible to policy makers pre-occupied with acute economic and financial issues, it is clearly inadequate and unsustainable when we consider the realities of climate, environment, energy and resources, poverty and inequality which I have outlined above. **Slide 29: Weaknesses of our growth model.** This demonstrates the clear need for new models and strategies for growth and development which recognize the

need to integrate economic, social and environmental facets of policy into one coherent strategy for sustainable development.

Besides underlining the reality and urgency of environmental threats, I must emphasise that the coexistence of excessive wealth for one small, privileged part of humanity with the poverty, social exclusion and deprivation of several billion people constitutes a profound moral failure which, if uncorrected, will create the conditions for polarization and conflict.

In this perspective you can see that the imperative to transform our economies is not only driven by the need to cut emissions to achieve low-carbon economies and preserve a tolerable climate and a viable environment: it is vital also if we are to meet the needs and aspirations for justice, human rights and human security of more than 9 billion people without further destroying the environment of our fragile planet. Only then can we achieve genuine sustainability.

We have clearly seen, at the level of a major, historic city in a wealthy, developed country, the implications of the deep gulf between rich and poor which were demonstrated to the world by the impact of Hurricane Katrina on New Orleans. We cannot afford to replicate such divisions on a global scale. *Slide 30: The Katrina syndrome.*

We are, in fact, at a turning point in human affairs: The established models and strategies for economic growth, development and globalization, driven by strong Western influence and, over the past thirty years, by the ideology of market fundamentalism, are failing on many counts. They are no longer environmentally, economically, socially or politically sustainable. They must and can be changed. Rio + 20 provides the opportunity to make this clear and to initiate steps towards the new ideas and policies which are essential.

## **8. The role of Cities in contributing to the Management of Global Issues.**

Let me conclude by suggesting some implications of this wide ranging overview for the management and prospects of cities. Cities are directly experiencing the acute problems of our age which I have outlined at the world level. Many major cities across the world are leading the way at the frontier of eco-innovation, with energy-efficient buildings, smart grids, modern infrastructure and transportation systems, conservation of the environment, and explicit, focused policies to reduce poverty and to promote social welfare and integration.

But the flood of immigration into many cities of the developing world coupled with an acute lack of resources, is overwhelming the infrastructure, the governance and the provision of essential services. *Slide 31: The megacities of the developing world.* The sordid reality for hundreds of millions of people in impoverished cities is insecurity, ill health, pollution, unemployment and hopelessness with little or no support from the city authorities.

Not only decision-makers have responsibility for action. We all face heavy responsibilities in confronting the major challenges afflicting our world. These responsibilities are both personal and professional.

At the personal level, I hope you will decide to gain a deeper understanding of the critical issues I have reviewed and use your influence to improve public awareness and to press for the needed change.

At the professional level, you can contribute directly – and you are already doing so – to improving the prospects for the future of the world by creating the new low-carbon, resource-efficient and socially-just cities of tomorrow.

In particular:

- You can adopt strong climate policies to mitigate greenhouse gas emissions and you can take innovative measures to decouple growth and employment from the increased utilization of energy and resources.
- Through coherent long-term planning, you can find a constructive synthesis of the economic, environmental, employment and social facets of policy and also anticipate and adapt to the impacts of climate change.
- Through innovative urban design, you can improve resilience to inevitable shocks and restructure energy, transport, water and waste systems, reducing the ecological footprints and climate impacts of your cities.
- By focusing on education and human resource development, you can create economic and employment potentials and strengthen social cohesion.
- Through reorganization, reallocation of responsibilities and professional training, you can refocus your urban administrations on the challenges of sustainable development and enable public officials to better understand and manage systemic, connected issues.
- And, by promoting public awareness and participation you can draw on the creativity of your citizens, strengthen social cohesion, equity and inclusion and build solidarity and support for action and transformational change.

In conclusion ladies and gentlemen, the challenges I have described may appear overwhelming but we do have the capabilities to resolve them – if we can find the will to agree and to act. Human creativity and energy can change the world, even in a few decades. *Slide 32: Three decades of human efforts.*

I hope that, in the Message to Rio from this impressive ICLEI World Congress, you will present a vision of a sustainable and equitable future to provide hope and motivation, especially to the young people who are anxious to contribute. I hope that you will underline the need for new thinking, new strategies and institutional reform to master the challenges ahead and that you will call for rapid action and radical solutions.

And finally, I hope that you will challenge world leaders in government, business, academia, civil society and the media to inform and engage the public in a concerted effort to achieve transformational change.

I would like to conclude with a simple message, from the great Dr. Samuel Johnson who in the early 18<sup>th</sup> Century propounded a simple truth: “When a man knows he is to be hanged in a

fortnight, it concentrates his mind wonderfully.” Let us concentrate our minds on early action to salvage the future.

The future is not pre-ordained. I am sure that, through your thoughtful and influential efforts, you can find the will, the imagination and the organisational capacities to agree together and to act in time to choose a better and more just world today and a sustainable future for succeeding generations.