

México and Sustainable Development:
Ideas founded in youth.



México y Desarrollo Sustentable:
Ideas encontradas en los jovenes.

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EXECUTIVE SUMMARY

To raise national awareness in México about sustainable development, a group of ten students in the *Turismo Sustentable y Gestión Hotelera* career of the *Departamento de Turismo Sustentable, Gestión Hotelero y Gastronomía* (Sustainable Tourism, Hotel Management and Gastronomy programme) at the Universidad del Caribe in Cancun, México have co-authored a book on this subject.

In a simple, easy-to-read, and even topical style that also references recent scientific works and news stories, this written work particularly explains the following:

1. *What* sustainable development is as a three-dimensional concept, approach and practice.
2. *How* scientific evidence shows that human development activities are (un)sustainable and harming Earth's natural environment.
3. *Why* sustainable development is important to México.
4. *Specific advances* México has made toward sustainable development.
5. *Identification of* some important sustainable development actions that México and Mexicans can pursue in order to strengthen their society and natural environment.
6. *That* México can become a global leader in sustainable development.

Ideas presented by the authors are solution-centred, in an effort for them to make positive contributions on ways for México to develop more sustainably. The ideas they offer purposely reflect and address the unique cultural and national realities of México. Thus, among the 22 specifically identified sustainable development solutions for México, basic ideas are included for the levels of household and neighbourhood. Importantly, all solutions offered are grounded in the *20 essential elements* that the authors have identified as being required for *Building a sustainably strong society*.

The book ends with nine (9) general conclusions for the sustainable development of México.

Through this work the authors hope that México's political leaders, Mexican citizens, and other interested readers will learn of new ideas and also be reminded of existing ways that can, if collectively applied, help make Mexican society more sustainable and even help to make México a global example in sustainable development.

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Our fullest and sincerest "thank you" goes to **Lic. Jane E. Holmes Lewendon**, *Chief of the Department of English* at Universidad del Caribe. Jane very kindly accepted and then acted on the request to establish a special course at the university, one in which we could write this book on sustainable development and México. That support of Jane's was essential to our being able to come together as a group to complete this book.

We owe much gratitude and give heartfelt thanks to **Dr. Michael K. Barbour** (<http://www.michaelbarbour.com> AND <http://www.coe.wayne.edu/instructionaltechnology/fac-barbour.htm>), an Assistant Professor in the Instructional Technology program at Wayne State University (<http://wayne.edu/>) in Detroit, Michigan, USA. Michael donated his valuable time to manage all of our tech-support needs. He secured our wiki addresses for us and fully uploaded all our information on to the e-book wiki. Michael, a Canadian Newfoundlander working in the USA, has set a fine example in inter-university relations between our three NAFTA countries and cultures.

We strongly thank all the **Professors of the English Department and its SAC** (Self Access Centre) at Universidad del Caribe. Their professional expertise in both English and sustainable development, as well as their personal approachableness, have been instrumental to us in our ability to write a book in our second language of English.

Our sincerest appreciation is given to **Maestra Ana Priscila Sosa Ferreira**, *Chief of the Departamento de Turismo Sustentable, Gestión Hotelera y Gastronomía* (Sustainable Tourism, Hotel Management and Gastronomy programme) at Universidad del Caribe, and to all her **Professors in the Sustainable Tourism Department**. Collectively, they have helped introduce us to sustainable development and expanded our understandings about its importance for human life on Earth.

We want to sincerely thank our teacher: **Maestro Thomas C. Esakin** (www.thomasesakin.com). This book would not have existed without him, for he has helped teach us about sustainable development and was also our essential support and guide as we wrote this book over this past semester. Through him we have learned of a new, sustainable, way of living: one which we can now all begin to put in to personal practice toward achieving sustainable development in México. We will not forget these teachings. Thank you, friend.

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1. Let us introduce ourselves...

1.1 Introduction

We are a group of ten students in the *Turismo Sustentable y Gestión Hotelera* career of the *Departamento de Turismo Sustentable, Gestión Hotelero y Gastronomía* (Sustainable Tourism, Hotel Management and Gastronomy programme) at the Universidad del Caribe, a nationally respected public university located in the City of Cancun, in the State of Quintana Roo, México. This book on sustainable development is written as a class project for our Spring 2008 "Sustainable Tourism Topics II in English" course at our university.



The primary purpose of this book is to raise national awareness in México about sustainable development. In an effort to make positive contributions on ways México can develop sustainably, the ideas we present herein are solution-centred. The audiences for our book are Mexican politicians at all levels of government, our fellow Mexican citizens, and any one person interested in learning about sustainable development and México.

Particularly explained in this book are:

1. *What* sustainable development is as a three-dimensional concept, approach and practice.
2. *How* scientific evidence shows that human development activities are (un)sustainable and harming Earth's natural environment. *Why* sustainable development is important to México.
3. *Specific advances* México has made toward sustainable development.
4. *Identification of* some important sustainable development actions that México and Mexicans can pursue in order to strengthen our society and natural environment for our citizens.
5. *That* México can become a global leader in sustainable development.

We aim in this book to make the concept, approach and practice of sustainable development something that is simple and easy to understand for both Mexicans and our country's political leaders. We try and explain why it is important for sustainable development to be fully integrated at all levels of Mexican society, including at the

levels of government (national, state and local), business, industry, NGO and community.

We hope that, through our own small contribution with this book, México's political leaders and our fellow citizens will learn of new ideas and also be reminded of existing ways that can, if collectively applied, help make Mexican society more sustainable and even help to make México a global example in sustainable development.

Purposely this book uses currently topical news stories, along with recent scientific data and sources, in an effort to be more interesting to read. Appropriately, the book and its messages are written for the cultural and national realities of México.

Intentionally, all resource material used for this book (all but 7 of the approximately 125 cited sources used) are taken from the World Wide Web, thereby ensuring our sources are easily-accessible to the general public who read our book. By our providing web-based sources, we also strive to practice a key principle of sustainable development: transparency. Also, we see the World Wide Web as a more sustainable research tool for it doesn't use carbon-capturing trees to produce its written text.

As students, we find ourselves studying in different years of our university programme. While we each live in either Cancun or Playa del Carmen (Playa is a town 60 kilometres south of Cancun), our families moved to this area known as the *Riviera Maya* from many different regions of Mexico. Our diversity in age and background, along with state of origin within México, have all provided us with differing experiences and perspectives. Yet our common bond has become our understanding the value to humanity of our species practicing sustainable development.

1.2 Who "we" are...

We start by explaining who "we" are and "why" sustainable development is important to each of us:

Angel Sebastian Argüello Corona (Sebas)

Born in México City (DF), lived in Tuxtla Gutierrez for 9 years and has lived in Playa del Carmen, Quintana Roo, México for the past 5 years. 18 years old. "For me, sustainable development offers a clear way for humans to properly and fairly use Earth's resources today, while also ensuring that resources are left in perpetuity for use by future generations of humans."

Jesús Antonio Chuck Lievano (Jesús)

Born in Villahermosa, Tabasco and has lived in Cancun, Quintana Roo, México for 1 year. 18 years old. "I think sustainable development is one of the best ways that human societies can

operate under. It is a process for achieving a balance in human societies and for improving all aspects of the human reality (social, economic and environmental). It is a means to help better the quality of life for humans across Earth."

Arturo Díaz Colonia (Arturo)

Born in México City (DF) and has lived in Cancun, Quintana Roo, México for 14 years. 21 years old. "I see that Earth needs sustainable development. People need a better quality of life. But if humans don't soon change our living patterns, we may be saying good-bye to our future!"

Mario Alberto Maldonado Pacheco (Mario)

Born in Mérida, Yucatan and has lived in Cancun, Quintana Roo, México for 12 years. 18 years old. "As I see it, sustainability is what will save humanity from itself."

Pablo Martínez Parres (Pablo)

Born in México City (DF) and has lived in Cancun, Quintana Roo, México for 12 years. 20 years old. "The beauty of sustainable development is its attempt to balance its social, economic and environmental components. For me, sustainability is about how humans can retain favorable planetary conditions on Earth for the continued development of human life at a local and global level. First, I see this as requiring a balance of human needs within our planet's carrying capacity in order to protect future generations. This means human activities need keep inside Earth's limits to avoid destruction of biodiversity and our planet's complex ecological systems that support life."

Nohemí Rogerio Mendoza (Nohemí)

Born in México City (DF) and has lived in Cancun, Quintana Roo, México for 11 years. 22 years old. "I would like this book to help open people's minds on how they might create a global vision on the fair and equitable use of Earth's resources. A new global vision is urgently needed for all of Earth's life – human and non-human – to live and prosper well in to the future. The environment has become a very important topic in both industrial development and as a social topic. Humans – women and men, girls and boys, people of all ages – are not emotionless machines but beings with feelings. And human feelings seem to be telling us in the strongest of terms that we now must take care of our planet if our human species wants to continue to be part of Earth's future."

Claudia Jacqueline Rojas Calderón (Claudia)

Born in México City (DF) and has lived in Cancun, Quintana Roo, México for 16 years. 22 years old. "For me, sustainable development is important because I want a better world for my future children and for the Earth. Our home planet must be

taken care of because it provides us with all essential things necessary for human survival, whether food or medicine and every thing else. "

Gabriela Salas Velázquez (Gaby)

Born in México City (D.F.), has lived in Cancun, Quintana Roo, México for 14 years. 19 years old. "I see sustainable development as an essential way to help humans survive on our planet. When I learn of and even see the fast rate at which humans are using Earth's resources and impacting our planet's natural environment, I become very concerned for human life over the long-term. Sustainable development principles applied in all aspects of our lives will help give next generations of humans the opportunity to live the experience of life, just as current human beings have been given this same, precious, gift."

Joanne Cristina Salazar Castro (Joanne)

Born in Tizimin, Yucatan and has lived in Cancun, Quintana Roo, México for 16 years. 18 years old. "For me, sustainable development is important because human life – including things such as human development - depends on our use of Earth's natural resources. All that humans eat, all materials we use for our daily lives, even the very breath we breathe comes from nature. If humans want to continue living as a species on Earth, it is now necessary that we make changes in our lifestyles."

Patricia Vega Acosta (Paty)

Born in Chetumal, Quintana Roo, México and has lived in Cancun, Quintana Roo, México for 3 years. 22 years old. "Sustainable development is a big concept, which tries to address relationships between humans and their natural and created environments. It offers a balanced way for humans to use Earth's natural resources and for the development of human societies, including our economies."

**2. The future is now:
Democratic Governance for Sustainability.**

We are that *next generation* of humans who will soon be in leadership positions in our country and around the world. As young sustainability leaders, we are concerned about the scientifically-chronicled and increasingly serious environmental challenges facing Earth and humanity. These include global warming, depleting water supplies, loss of the natural biodiversity essential to evolutionary life on Earth, and so much more.

The mostly human-caused environmental challenges facing Earth have potentially devastating consequences for all of human life. Thus, we honestly do not believe that only a select few privileged

citizens of Earth who currently hold elected and other official positions of power can pretend they have the sole moral authority to speak out on behalf of all of Earth's over 6.6 billion human citizens and countless other life forms.¹

We consider it essential that México's national, state and local politicians, as well as other leaders in the international arena, become aware of those issues which our generation thinks are essential for the long-term well-being of our shared Earthly home.

The time has come for all *interested* citizens of Earth to be collectively engaged by their governmental leaders in the creation of sustainable development solutions at this important juncture in human history on Earth. Science is telling us that the environmental and related social and economic challenges now facing Earth - ones which are themselves being mostly caused by humans - require immediate action.

There is an urgent necessity for ongoing global conversations among all those of Earth's humans who care about solving our species' current (un)sustainable patterns of behaviour. Whether old or young, poor or rich, woman or man, people of different colours and races and creeds and beliefs, labourer or professional, formally-educated or self-taught, elected or unelected... we collectively need to join together in shared action toward changed human behaviour.

In 1992, 176 countries including México signed on to many UN agreements including *Agenda 21*, a framework document which committed signatory countries to specific sustainable development practices.



¹ worldometers - world statistics updated in real time. (2008). *worldometers* [online]. Available from: <http://www.worldometers.info/> [Accessed: 24 March 2008].

In "Section III' of *Agenda 21*, national government's committed to "broad public participation in decision-making."² *Agenda 21* explicitly recognises that for sustainable development to be practiced and eventually realised, citizens from all walks of life must be actively engaged in sustainable development decision-making on an ongoing basis.

The United Nations' also captures the importance of engaging average people in decision-making as this relates to tourism, an economic activity of major significance to México, our state and our own cities of Cancun and Playa del Carmen:

"A community involved in planning and implementation of tourism has a more positive attitude, is more supportive and has a better chance to make a profit from tourism than a population passively ruled – or overrun – by tourism. One of the core elements of sustainable tourism development is community development...."³

We, as young Mexican leaders in sustainability, seek from our national, state and local governments the creation of real and ongoing opportunities for our involvement in democratic *Governance for Sustainability*. It is in this frame-of-reference that we write this book and offer our own ideas and solutions for the sustainable development of our beloved home: México.

3. Sustainable Development explained.

3.1 *Beginnings and expansion of sustainable development.*

We live in a country with a proud culture and history. However, whether in México or in any other country on Earth, to apply sustainable development principles at national, state / provincial and local levels, or even in the individual lives of people, is not at first easy. Yet these principles do have clear value. That is because the aim of sustainable development is to: better the lives of societies and their collective peoples, protect and enhance the natural environment, and help national and regional economies strengthen by becoming more aligned with Earth's natural systems as understood by science.

Whether a country sees itself as rich or poor, north or south, developed or developing, all national entities and their peoples will benefit if they apply the general principles of the concept, approach

² UN Department of Economic and Social Affairs, Division for Sustainable Development. (2004). *Agenda 21: Preamble, Chapter 23*. Available from: <http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter23.htm> [Accessed: 27 February 2008].

³ UNEP – United Nations Environmental Programme, Production and Consumption Branch: Tourism. (2001a). *How Tourism Can contribute To Socio-Cultural Conservation* [online]. Available from: <http://www.uneptie.org/pc/tourism/sust-tourism/soc-global.htm> [Accessed: 23 April 2008].

and practice of sustainable development as a means to purposely plan their societal, economic and environmental activities toward becoming sustainable societies.

The origins for the concept of “sustainable development” are generally credited to the *World Conservation Strategy: Living Resource Conservation for Sustainable Development*, published in 1980 by the United Nations Environment Programme (UNEP), the International Union for Conservation of Nature and Natural Resources (IUCN), and the World Wildlife Fund (WWF). Simon Dresner, in his book *the Principles of SUSTAINABILITY*, suggests that early development of the concept goes back even further in history to 1974 and a World Council of Churches (WCC) ecumenical study conference on Science and Technology for Human Development, which coined the phrase ‘sustainable society’.⁴

The 1972 United Nation’s Conference on the Human Environment was a wake-up call for many countries on Earth to the realisation that human development patterns are indeed affecting Earth’s natural environment and affecting it for the worse. Yet it was the *World Commission on Environment and Development* (also known as The *WCED* or also as the *Brundtland Commission*, named for the Commission’s chairperson, former Prime Minister of Norway Dr. Gro Harlem Brundtland) that popularised sustainable development through their 1987 Final Report, *Our Common Future*.⁵ The Brundtland Commission explained sustainable development in detail and gave it the following definition, which continues today as the most common definition used for sustainable development throughout all human societies:

*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*⁶

The WCED was comprised of prominent and respected politicians and scientists from across Earth. It was the first international body to hold public hearings on every continent and to allow average people of Earth to share their views on the important subject matter of environment and development. Particularly important, it was the first international body to allow average people to share their views with prominent global leaders.

⁴ Dresner, Simon, 2002. *Principles of SUSTAINABILITY*. EARTHSCAN: London, UK.

⁵ You can access ‘Our Common Future’ for free online from: UN Documents Cooperation Circles. (1987a). *Report of the World Commission on Environment and Development: Our Common Future* [online]. Available from: <http://www.un-documents.net/wced-ocf.htm> [Accessed: 02 May 2008].

⁶ UN Documents Cooperation Circles. (1987b). *Our Common Future: From One Earth to One World - An Overview by the World Commission on Environment and Development: Section 1.3.27 The Global Challenge - Sustainable Development* [online]. Available from: <http://www.un-documents.net/ocf-ov.htm> . [Accessed: 03 May 2008].

The message the WCED heard from Earth's citizens was clear: human development patterns were negatively and increasingly impacting Earth's natural environment and, as a consequence, these very same environmental impacts were themselves now affecting humans. Additionally, the WCED clearly heard that growing social and economic inequities were being created among humans of Earth: inequities which themselves arose from these same existing human development patterns.

Unexpectedly for such a body of prominent and diverse citizens, the WCED arrived at unanimous conclusions in their report. Simply stated, their primary solution was that humans needed to pursue a "sustainable development" path to minimise our negative impacts on Earth's natural environment and to also help sustain both our and other species through the process.

The WCED was clear that sustainable development was *not* only an environmental concept. The Brundtland Commission said that sustainable development comprised three integral and essential components, each of a: social, environmental and economic. All of these three parts were seen by the WCED as requiring as equal consideration as possible in order for anything resembling a practice of sustainable development to be achieved.

The WCED also saw that sustainable development entailed a "future" direction, one where humans are required to think of the consequences of our actions on future generations of humans and not just on our immediate selves.

Since the Brundtland Commission there have been many other sustainable development-related international meetings and treaties organised through the United Nations, many of which México has been both a participant in and signatory to. These include the: 1988 Intergovernmental Panel on Climate Change, 1992 World Conference on Environment and Development (also known as The Rio Conference or The Earth Summit), 1992 United Nations Framework Convention on Climate Change, and the 2002 United Nations Summit on Sustainable Development.

Yet since the Brundtland Commission's popularisation of sustainable development, it has quickly become an essential concept, approach and practice for governments, businesses and industries around Earth.

3.2 Sustainable Development: A journey and not just "green".

Sustainable development is often compared to a "journey" over a destination. It is something we humans are working toward but will never arrive at, for humans will always be using and regenerating

and caring for the Earth's complex and ever-changing environment as part of our own evolutionary process on Earth.

Sustainable development is often mistaken as a "green" term: wrongly thought of as a concept about the environment. Yet the WCED was clear in its vision that sustainable development has the three separate yet interconnected parts: each of the social, economic and environmental. The Brundtland Commission understood that all three elements need to be in some degree of balance for human societies themselves to be more in balance and to then be practicing sustainable development.

The association many people have with sustainable development and the environment is understandable, for the concept was in early usage at a time when people started to see first-hand the damage that overall human activities were having on Earth's broader environment. Many environmentalists, with their ecological focus, have also added to confusion over the term for they have understandably helped promote sustainable development as a means to have environmental health considered in development activities.

A jurisdiction with a great environmental record but with vast social inequity and little economic diversification is no closer to sustainable development than is a jurisdiction with strong economic output and greater social equity but a poor environmental record.

4. Sustainable Development: "Triple-bottom-Line".

When México reaches the point where our leaders and citizens "automatically think" of sustainable development in all their activities, undoubtedly Mexicans will achieve a better national quality of life. For then, not only will leaders at all levels - whether these are political, business, NGO, and even religious or moral leaders - be thinking of the environmental impacts of their decisions, they will also be equally considering related social and economic consequences of their activities.

This three-factor reality of sustainable development has also come to be known as its *Triple-Bottom-Line*. This is essentially a business term used to describe when government, industry or business is engaged in planning and practices that take in to account a balance between sustainable development's social, environmental and economic considerations.

5. Sustainable Development: "Precautionary Principle / Approach".

This is a phrase essential to sustainable development. It captures a positively-focussed "preventative" approach for human development activities and the environment over the current human tendency to only "react" when negative environmental consequences arise from our actions (such as is currently happening with humans and our significant contributions to global warming).

The most common definition for the term is found in Principle 15 of the United Nations' *Rio Declaration* (as also agreed to at the Earth Summit by 178 national governments, including the Government of Mexico), which speaks to a "*precautionary approach*" as being:

"Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation".⁷

In a brief to the NAFTA's (North American Free Trade Agreement) *Commission for Environmental Cooperation* (CEC), Greenpeace defines the term as being where:

"...in the face of serious or irreversible threats to the environment, and in situations of scientific uncertainty, we should take action to minimise or prevent those threats".⁸

Admittedly, this is a controversial term. Difference in interpretation seems to arise depending on whether *precaution* favours ecosystem health or industrial activity. As the CEC has found:

"...Industry presenters emphasized balance, noting that environmental viability or "benefits" must be weighed against economic (trade) viability and possibilities for continued development.....Presenters from environmental NGOs placed greater weight on long-term ecological viability, which they view as the key factor in "sustainability..."⁹

For a sustainable México, we think that the *precautionary principle / approach* must be practiced in some manner as defined by Mexicans

⁷ UNEP - United Nations Environment Programme. (1992). *Rio Declaration on Environment and Development* [online]. Available from:

<http://www.unep.org/Documents/multilingual/Default.asp?DocumentID=78&ArticleID=1163>

[Accessed: 21 April 2008].

⁸ Greenpeace. (2004). *Comments to the NAFTA Commission for Environmental Cooperation Article 13 Report - Maize and Biodiversity: The effects of transgenic maize in Mexico* [online]. Available from: http://www.cec.org/files/PDF//Greenpeace-comments_en.pdf (page 1).

[Accessed: 21 April 2008].

⁹ CEC - Commission for Environmental Cooperation. (1996). *Report to Council: Who We Are / Joint Public Advisory Committee* [online]. As found at:

http://www.cec.org/who_we_are/jpac/reports/1996/sec2_1.cfm?varlan=english [Accessed: 21 April 2008].

and our *elected* leaders. We are of the view that Principle 15 of the *Rio Declaration* puts the emphasis on ecosystem health.¹⁰

6. Humanity's current (un)sustainable development: Scientific evidence.

6.1 Scientific evidence: Clearing confusion.

Throughout this book and for clarity's sake, we borrow from Professor William Rees (one of the co-inventors of the world-renowned *Ecological Footprint* tool for measuring human impacts on Earth). We highlight the "un" in "un"-sustainability by spelling the word as: (un)sustainability.¹¹

And the clear scientific evidence and its warning calls to humans about our (un)sustainable development patterns have been publicly available and growing for decades. This science leads any objective reader to the unmistakable conclusion that human development patterns are (un)sustainable and negatively affecting Earth's natural environment to the detriment of our own human species.

A sad reality for us is that so many leaders of human societies', whether in government, business or industry, do not seem to like the message heard from science. To borrow from the title of former USA Vice-President Al Gore's internationally-acclaimed movie on the subject of global warming, the message being given by science appears for many traditional leaders to be "An Inconvenient Truth". However, leaders who ignore these messages from Earth as shared by science do so at the peril of all of the planet's human beings.

We do not think this book actually need outline any of the abundant, growing and strong scientific evidence about the negative impacts of human development patterns on Earth's natural environment. However, we also know that people throughout Earth are receiving conflicting media messages about the state of the planet's environmental health.

To help clear out some of this confusion, we outline only three of the many scientifically-quantifiable examples about human-induced impacts on our planet's natural environment. The examples given are the ones which we think are currently the most pressing for human life on Earth.

¹⁰ Readers interested in learning more about the precautionary principle / approach can read: CEC - Commission for Environmental Cooperation. (2003). The Precautionary Principle in North American and International Law, *North American Environmental Law and Policy*. Vol 10, pp.197-276. Available from: http://www.cec.org/pubs_docs/documents/index.cfm?varlan=ENGLISH&ID=1027 . [Re-accessed: 03 May 2008].

¹¹ Rees, William E. 2008. Toward Sustainability with Justice: Are Human Nature and History on Side? In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 81 - 93). (As found starting on page 82).

6.2 Global Warming.



The sun shines above the palms on the Gulf of Mexico coast in Tabasco.

In April 2008, a report presented to the Arctic Council identified that "...the Arctic climate is changing even more rapidly than scientists had predicted..." and that "...the vast Greenland ice cap is also thought to be shrinking more quickly than anticipated."¹² This same year, scientists at the USA's National Snow and Ice Data Center (NSIDC) stated that if current warming trends continue, the Arctic Ocean will be ice free by 2060.¹³ Then if we look southward to the bottom of the Earth and the Antarctic, in February 2008 a 414 square kilometre piece of the Antarctic Wilkins Ice Shelf unexpectedly collapsed.¹⁴ "We predicted this [global warming

¹² Weber, Bob (2008). Arctic is thawing faster than expected, report says. *The Globe and Mail*, Friday April 25, 2008 [online]. Available from: <http://www.theglobeandmail.com/servlet/story/RTGAM.20080425.wclimate25/BNStory/National/home> [Accessed: 28 April 2008].

¹³ Zellen, Barry S. (2008). We should warm to the idea of melting poles. *The Globe and Mail*, Monday April 28, 2008 [online]. Available from: http://www.theglobeandmail.com/servlet/story/RTGAM.20080428.wcomment0428/BNStory/specialComment/?cid=al_qam_nletter_newsUp [Accessed: 29 April 2008].

¹⁴ Borenstein, Seth (2008). Massive chunk of Antarctic ice shelf collapses. *The Globe and Mail*, Tuesday March 25, 2008 [online]. Available from: http://www.theglobeandmail.com/servlet/Page/document/v5/content/subscribe?user_URL=http://www.theglobeandmail.com%2Fservlet%2Fstory%2FRTGAM.20080325.wiccoll0325%2FBNStory%2FScience%2Fhome&ord=1.05516342&brand=theglobeandmail&force_login=true [Accessed: 26 March 2008].

related ice collapse] would happen, but it's happened twice as fast as we predicted", said Dr. David Vaughan, a scientist of the British Antarctic Survey.¹⁵

The year 2007 also broke many global warming records. January 2007 experienced an average global temperature 0.85 Celsius above normal, well above the monthly norm for any month of the year since humans began keeping weather records back in 1880. England had its warmest April in 348 years of record keeping. The World Meteorological Association noted that, for the first time in recorded human history, "... the disappearance of ice across parts of the Arctic opened the Canadian Northwest Passage for about five weeks...."¹⁶

In the 2006-2007 rainy season of Los Angeles, California, the City experienced its driest year on record, receiving only 8.15 centimetres (3.21 inches) of rain.¹⁷

The objective science related to climate change, more commonly known as *Global Warming*, has little doubt that the Earth *is* indeed warming. And science increasingly points to human activities as being the primary cause of the heating Earth.

The recent United Nations Intergovernmental Panel on Climate Change (IPCC) *Fourth Assessment Report*, released in November 2007, is only one of many reports outlining the science of *Global Warming*.¹⁸ This Report concludes that the:

"Warming of [Earth's] climate is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level."¹⁹

Even when natural causes are included, science determines that global warming is being primarily caused and accelerated by humans.

¹⁵ Morales, Alex (2008). *Antarctica's Wilkins' Ice Shelf Risks Collapse, U.K. Group Says* [online]. Bloomberg.com. Available from: http://www.bloomberg.com/apps/news?pid=20601086&sid=amx1sGjrgtIM&refer=latin_america [Accessed: 18 April 2007].

¹⁶ Borenstein, Seth (2007). Year weather records fell. *The Toronto Star*, Thursday December 27, 2007 [online]. Available at: www.thestar.com [Re-accessed: 26 March 2008].

¹⁷ World Economic Forum, 2008a. *Managing Our Future Water Needs for Agriculture, Industry, Human Health and the Environment - Discussion Document for the World Economic Forum Annual Meeting 2008*. Cologny/Geneva, Switzerland: World Economic Forum (Page 5).

¹⁸ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 - Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> [Accessed: 06 March 2008].

¹⁹ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 - Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> (page 2). [Accessed: 06 March 2008].

"Most of the observed increase in globally-averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic [human] GHG [greenhouse gas] concentrations".²⁰

This IPCC Report implies that the problem of global warming can continue for centuries, causing melting polar caps (both the Arctic icecap, including Greenland, and Antarctic cap) which will result in:

"...sea level rise that would continue for centuries due to timescales associated with climate processes and feedbacks, even if GHG [greenhouse gas] concentrations were to be stabilised."²¹

A media report in 2006, which noted even then that the Antarctic icecap was also "...shrinking at a faster rate..." than scientists expected, further identified that Antarctica "...contains enough ice to raise ocean levels by about 60 metres, a deluge that would put every major coastal city in the world deep under water and uproot hundreds of millions of people."²²

In a point clearly evident to those of us who live in the Caribbean hurricane zone of México, this IPCC Report additionally identified that human-induced global warming observationally seems responsible for "...an increase in intense tropical cyclone activity in the North Atlantic since about 1970...."²³

So as the climate change situation is as presented by science, residents of Cancun and the Riviera Maya – a coastal city and region located on the Mexican Caribbean – need be immediately concerned about two things related to global warming. These are our area's already experienced reality of increased intensity of hurricanes *and*

²⁰ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 – Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> (page 5). [Accessed: 06 March 2008].

²¹ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 – Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> (page 12). [Accessed: 06 March 2008].

²² Borenstein, Seth (2006). Ominous Arctic melt worries experts. *The Toronto Star*, Wednesday December 12, 2006 [online]. Available from: www.thestar.com [Re-accessed: 26 March 2008].

AND

Mittelstaedt, Martin (2008a). Antarctic ice sheet shrinking at faster rate. *The Globe and Mail*, Monday January 14, 2008 [online]. Available from:

http://www.theglobeandmail.com/servlet/Page/document/v5/content/subscribe?user_URL=http://www.theglobeandmail.com%2Fservlet%2Fstory%2FRTGAM.20080113.wicesheet13%2FEmailBNStory%2FNational%2Fhome&ord=130719476&brand=theglobeandmail&force_login=true [Accessed: 14 January 2008].

²³ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 – Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> (page 2). [Accessed: 06 March 2008].

the prospect of our area eventually being flooded from rising sea levels caused by melting ice at both poles of Earth.

Hurricanes Gilbert, Wilma and Dean demonstrated to our region the serious social, economic and environmental consequences of increasingly strong hurricanes. And our Riviera Maya cities would be significantly impacted should ocean levels rise 6 metres let alone 60 metres.

We respectfully suggest that, with the growing scientific evidence of global warming and its potential devastating consequences for humans, it is not just short-sighted but increasingly irresponsible – possibly even immoral - that our national and state politicians do not take this objective science seriously and now act on it.

Mexicans need our governments to help us develop international, national, state and local solutions to *stop* scientifically-documented rising temperatures on Earth. The long-term survival of the human species and other species on Earth necessitates this.

Mexicans also need our politicians to urgently and collectively work with the people of México on developing *solutions* for us to learn about how our country's people can *live* with the now seemingly inevitable consequences of global warming on Earth.

6.3 *Biodiversity Loss and connexions with human population growth.*

6.3.1 *Biodiversity explained.*

All living things on Earth, whether plant, animal or micro-organisms, form Earth's biodiversity. Biodiversity is the variety of life on Earth which collectively forms the essential building block upon which all of Earth's life, including human life, depends.



**Monarch Butterfly:
Santuario Mariposa Monarca in Michoacan.**

Biodiversity can be divided into the following levels:

- Ecosystems;
- Species (plant, animal and microorganisms); and
- Genetic diversity.

As the Secretariat of the United Nations' *Convention on Biological Diversity* points out to humans:

"Protecting biodiversity is in our self-interest. Biological resources are the pillars upon which we build civilizations. Nature's products support such diverse industries as agriculture, cosmetics, pharmaceuticals, pulp and paper, horticulture, construction and waste treatment. The loss of biodiversity threatens our food supplies, opportunities for recreation and tourism, and sources of wood, medicines and energy. It also interferes with essential ecological functions."²⁴

²⁴ UN Convention on Biological Diversity. (2007a). *Sustaining Life on Earth* [online]. Available from: <http://www.cbd.int/convention/guide.shtml?id=changing> [Accessed: 16 April 2008].



Iguanas are found throughout México.

It is important humans understand that science is increasingly becoming aware that life on Earth is interconnected in so many unexpected ways. It is also essential for humans to understand that, even with so many modern scientific discoveries, the majority of interconnexions in Earth's natural environment remain unknown by science and so continue as a mystery to humans.

The United Nations Environmental Programme (UNEP) identifies the effects of biodiversity loss as being:

1. Threatened food supplies;
2. Interference with essential ecological functions including species balance, soil formation, and greenhouse gas absorption;
3. Reduction in the productivity of ecosystems, thereby shrinking nature's food and other resources from which humans rely; and
4. Destabilised ecosystems that then weakens their ability to deal with natural disasters.²⁵

²⁵ UNEP – United Nations Environmental Programme, Production and Consumption Branch: Tourism. (2004). *Environmental Impacts Of Tourism At the Global Level – Loss of Biological Diversity* [online]. Available from: http://www.unep.org/pc/tourism/sust-tourism/env_global.htm [Accessed: 23 April 2008].



Crocodile on the Usumacinta River in Tabasco.

And the last word on biodiversity relates to tourism. Importantly for tourist areas such as Cancun and the Riviera Maya, the UNEP also relates that the "...loss of biodiversity in fact means loss of tourism potential..."²⁶

6.3.2 Human population growth.

The Judaic Torah and Old Testament of the Christian Bible speak of historic locusts and plagues affecting humans of old. Yet humans of today are increasingly appearing as the modern version of these plagues and locusts of old. This is because we have now become the single biggest threat to Earth's biodiversity. Our (un)sustainably large growth in human population numbers over the past 100 years, along with modern human technological advances, are resulting in increasing human-caused pressures and stresses on our planet's natural environment and biodiverse species.²⁷

The global population of humans has increased from:

- 150 million people in 1 A.D. (100 years after the birth of Jesus Christ), to;
- 300 million people in 1350 A.D. (a 100% increase in human population that took 1,250 years), to;

²⁶ *ibid.*

²⁷ Karr, James R., 2008. Protecting Society from Itself: Reconnecting Ecology and Economy. In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 95 - 108). (Quote on page 98).

- 600 million people in 1700 A.D. (a 2nd 100% compounded increase in humans that took only 350 years), to;
- 900 million people in 1800 A.D., to;
- 1.6 billion people in 1900 (a 166% compounded increase in humans, but now in only 200 years), to;
- over 6.6 billion people today (a 312% compounded increase in human population in only 108 years time), with;
- our human population now projected to be at 8 billion people in 2020 A..D.²⁸



**Humans are everywhere:
The Pre-Hispanic (ancient Mayan) *Danza el Pocho*;
in progress in Tenosique, Tabasco.**

We ask you and in full honesty. Do you really think that, with continued high growth expected in human population numbers, the Earth can continue to sustainably support many more humans in addition to its countless other biodiverse life forms?

When it comes to population growth, a challenge for humans and other species is as Rees identifies:

²⁸ Tanton, John H. (1995). *Maps from "End of the Migration Epoch", as reproduced in Human Population through History 1 A.D. to 2020* [online]. Demographic, Environmental, and Security Issues Project. Available from: <http://desip.igc.org/populationmaps.html> [Accessed: 16 April 2008].

"The main biological factor at cause of the (un)sustainability crisis is a natural predisposition that humans share with other species. Unless constrained by negative feedback...populations tend to expand to fill all suitable habitats and to use all the resources prevailing technology makes available to them."²⁹

Yet a population growth challenge specific to humans may be our evolution in to *Homo economicus*: a phrase of at least 100 years of age and one used as a play on words for the traditional Latin name for the human species; *Homo sapiens*.³⁰ Increasingly, this term of *Homo economicus* is being used in the field of sustainable development to refer to a modern human mindset. It captures modern human tendencies to almost singularly focus on the concepts of economy over all else. Even to the point, such as is also attributed to *The Economist*, that our species seems to welcome (un)sustainable population growth as being necessary to human economic growth.

"It has long been assumed that population growth goes hand in hand with economic progress. Not only that, but it is also assumed to be inevitable."³¹

However, a paradox seems to exist for *Homo economicus*. Researcher Andrew Nikiforuk, as quoted by Rees, pointedly states that "The more godlike he becomes the less godly *Homo economicus* behaves".³² Or, as Karr specifically puts it: "...the paradox: for the past 150 years, human knowledge has expanded beyond imagination, but we seem incapable of using that knowledge to protect human society from itself."³³

²⁹ Rees, William E. 2008. *Toward Sustainability with Justice: Are Human Nature and History on Side?* In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 81 - 93). (Quote on page 85).

³⁰ Curry, Patrick, 2006. *Ecological Ethics: An Introduction*. Cambridge, UK: Polity Press. (Quote on page 106).

AND

In light of the following quote from the World Economic Forum:

"Studies have shown that although [Wikipedia] entries vary in quality and contain errors, the frequency of errors is comparable to that of traditional encyclopaedias."

As found in:

World Economic Forum, 2008b. *Crowd wisdom: user-centric innovation - Technology Pioneers 2008*. London, UK: British Telecom. (Quote found on page 5).;

the following is one of only two Wikipedia references used in this book:

Wikipedia - the free encyclopedia. (2008a). *Home economicus* [online]. Available from: http://en.wikipedia.org/wiki/Homo_economicus . [Accessed: 05 May 2008].

³¹ triplepundit - people planet profit. (2006). *Economist on Population Decline - Not Always a Bad Thing* [online]. Available from: <http://www.triplepundit.com/pages/economist-on-population-declin-001688.php> . [Accessed: 10 May 2008].

³² Rees, William E.. 2008. *Toward Sustainability with Justice: Are Human Nature and History on Side?* In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 81 - 93). (Quote on page 85).

³³ Karr, James R., 2008. *Protecting Society from Itself: Reconnecting Ecology and Economy*. In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 95 - 108). (Quote on page 106).

And what does the scientific record say is the historical consequence of other species in nature when any one of Earth's many biodiverse species overruns or over-extends its habitat? Or when localized human populations have historically chosen to live in (un)sustainable ways? The simple answer is as captured as the title of the New York Times best selling book written on this very subject by UCLA (University of California, Los Angeles) Geography Professor, Jared Diamond. The answer is: *Collapse*.³⁴



**Staircase to nowhere:
Calakmul Mayan ruins in Campeche.**

The scientific record is that over-extended species and over-extended human societies simply tend to collapse in on themselves. And as Karr directly points out: "Ignoring these collapses... violates a fundamental rule in history and science."³⁵

³⁴ Diamond, Jared M., 2005. *Collapse: How Societies Choose To Fail Or Succeed*. NYC, NY: Penguin Books.

³⁵ Karr, James R. 2008. Protecting Society from Itself: Reconnecting Ecology and Economy. In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 95 - 108). (Quote on page 98).



**The Great Temple:
In the once prosperous Mayan city of Calakmul,
located in modern day Campeche
(near the Guatemala border).**

We think it so very important for people to realise that, after a collapse, the Earth continues on rotating in space quite nicely with or without any lost species or faded human societies. For Earth doesn't need humans or any other species to survive. Earth survives on its own. It is us humans and other species that require Earth for our very survival.

6.3.3 Collapsing eco-systems?

Around Earth, we think it can be argued through reference to science that humans are seeing clear evidence of collapsing ecosystems through the high degrees of biodiversity loss being experienced on our planet.

Globally, science has helped identify about 1.75 million species that live worldwide today (and scientists think that there are anywhere from 3 to 100 million species on Earth, with most of these still to be identified).³⁶ México, with only 1.4% of Earth's surface land, holds

³⁶ UN Convention on Biological Diversity. (2007b). *Sustaining Life on Earth* [online]. Available from: <http://www.cbd.int/convention/guide.shtml> [Accessed: 16 April 2008].

almost 12% of all known species on the planet and ranks third of all countries on Earth for biodiversity.³⁷

Yet today, through human pressures, Earth's diverse species that have taken billions of years to evolve are now disappearing at 50-100 times their natural rate.³⁸ Then add on additional species losses arising from the impacts of human-induced global warming and concerns about the health of species biodiversity should increase. The IPCC, in its noted *Fourth Assessment Report*, suggests that *should* average warming temperatures on Earth exceed 1.5-2.5 degrees Celsius, climate change alone will threaten 20-30% of all species on Earth with their likely extinction.³⁹ The IPCC further outlines, of specific concern to biodiverse Mexico, that global warming poses a "risk of significant biodiversity loss...in many areas of tropical Latin America".⁴⁰

Now with that said, do remember our earlier noted statistic of the record breaking average global temperature of 0.85 Celsius above normal in January 2007. That record suggests that the undesirably higher temperature increases on Earth, ones at which the IPCC says will result in significant biodiversity loss on Earth, are frighteningly reachable.

And biodiversity loss is already happening in Mexico. México's Past President Vicente Fox had bravely admitted that:

"Se han extinguido 15 especies de plantas y 32 de vertebrados en México. En nuestro país se han dado 5.2% de las extinciones del mundo en los últimos 400 años. [*In our country, 15 plant species and 32 vertebrates have become extinct. In the last 400 years, 5.2% of global species extinction have occurred in México.*]"⁴¹

³⁷ Nadal, Alejandro. (no date). *Natural Protected Areas and Social Marginalization in Mexico* [online]. El Colegio de México. Available from: <http://www.colmex.mx/programas/procientec/docsenlinea/nadal%20natural%20protected%20area.pdf> (page 2). [Accessed: 09 May 2008].

³⁸ UN Convention on Biological Diversity. (2007a). *Sustaining Life on Earth* [online]. Available from: <http://www.cbd.int/convention/guide.shtml?id=changing> [Accessed: 16 April 2008].

³⁹ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 - Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> (page 11). [Accessed: 06 March 2008].

⁴⁰ IPCC - Intergovernmental Panel on Climate Change: UNEP - United Nations Environmental Programme. (2007). *Climate Change 2007 - Synthesis Report: Summary for Policymakers of the IPCC Fourth Assessment Report* [online]. Available from: <http://www.ipcc.ch/ipccreports/ar4-syr.htm> (page 13). [Accessed: 06 March 2008].

⁴¹ Presidencia de la República, Estados Unidos Mexicanos. (2001). *Plan Nacional de Desarrollo 2001-2006: Mensaje del Presidente de la República* [online]. Available from: <http://pnd.fox.presidencia.gob.mx/index.php?idseccion=8>. [Accessed 14 April 2008].



Grijalva River flows in to the Usumacinta River at Uyotot-Ja: Pantanos de Centla Biosphere Reserve in Tabasco.

One example of many on biodiversity and its threatened loss in México is the *Usumacinta Ecoregion* in Tabasco. This is an area containing over 370 species of plants, 60 species of fish, 26 amphibians, 85 reptiles, some 279 birds, and more than 130 mammals, of which 30 are native to México. Yet of the more than 1,460 species of aquatic and land organisms found here, approximately 90 – over 6% – of all these species are now endangered.⁴²

6.3.4 Final thoughts: Biodiversity & Humans.

Accordingly to the *Popol Vuh*, the Mayan peoples' story of creation, maize and cacao came from the region we today know as Tabasco.⁴³ Imagine how different Earth would now be for modern humans if the Mayan civilisation of old had lived in a way to have made the biodiverse crops of maize and cacao go extinct. In such a scenario, two basic food staples of 21st century humans would not exist.

⁴² National Geographic. (2001). *Usumacinta mangroves* [online]. Available from: <http://www.nationalgeographic.com/wildworld/profiles/terrestrial/nt/nt1437.html> [Accessed: 16 April 2008]. AND

AND
World Wildlife Fund. (2001). *Usumacinta mangroves* [online]. Available from: http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt1437_full.html [Accessed: 16 April 2008].

⁴³ Castledine, David B. (Translator). (2001). *POPOL VUH: The Sacred Book of the Ancient Mayas-Quiche*. México City: Monclem Ediciones, page 88.

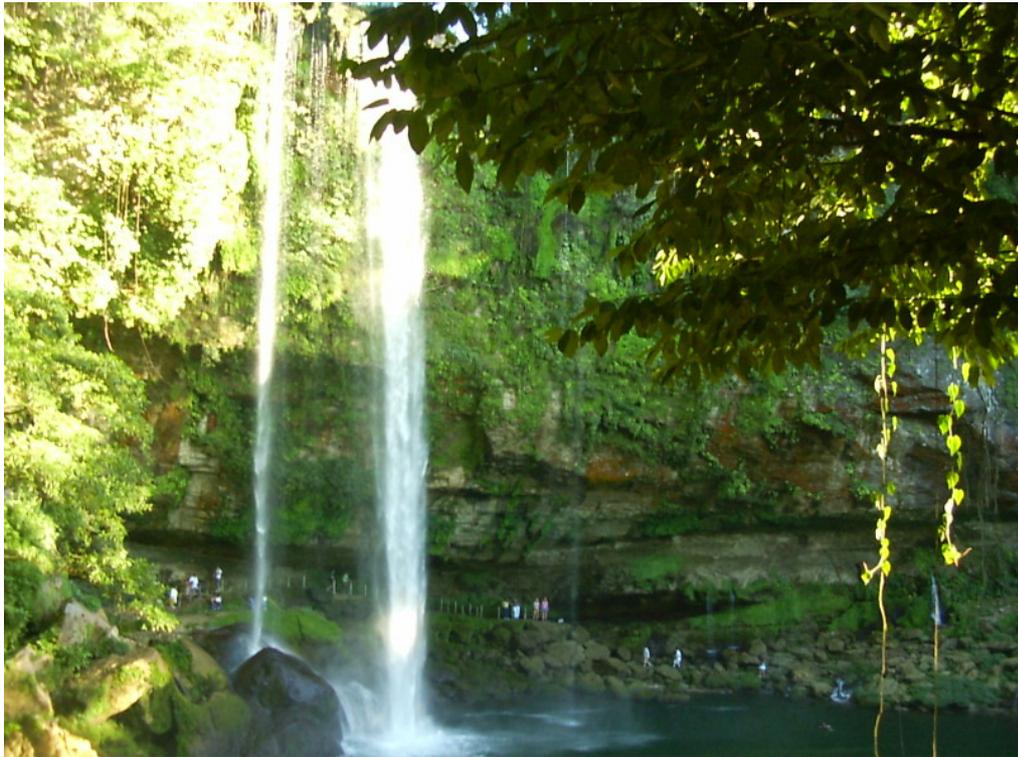


Cacao plant in Comalcalco, Tabasco.

Modern humans do not know those among nature's many current biodiverse species which have the potential to be of significant importance to future humans and other life forms on Earth. Species lost today could have future potential as food sources or use for health reasons or even be essential in ways that current humans could not even contemplate (such as being an unknown linchpin in some way related to basic evolutionary survival). By us humans not caring about the losses of other species today, simply because we now think of many species as being *disposable life*, we take a very short-sighted view to the great complexity of life on Earth.

Just as ancient Mayans cared enough for the Earth to preserve the cacao and maize that are so important to human diets of today, similarly so we modern humans need ensure we take the same care of Earth's existing biodiversity, whether that be plant or animal or insect. And that we do so to leave those future generations of human beings who follow us with an equally healthy and biodiverse environment of evolved life-forms on Earth.

6.4 Fresh-Water Loss.



Misol-Ha waterfall in Chiapas.

Water is essential to human lives. The human body is comprised of 61.8% water by weight and our species is said to need to drink anywhere from 1 to 3 litres per day for our survival.⁴⁴ That said, while Earth's surface is comprised of 71% water, only about 2.50% of this fresh water of the planet can be drunk and used by human beings.⁴⁵ The fresh water humanity uses is mostly found in glaciers, but is also located in groundwater, lakes and rivers.

Humans use otherwise drinkable and ecosystem usable fresh water in many activities that are seen as essential to our lives and our societies. This includes for: industrial agriculture, cooking, cleaning, washing, farming, transport of people and goods, industry, generation of energy, watering of household plants, sewage, watering of golf course lawns, and so much more.

⁴⁴ e.notes.com. (2008). *The Human Body – What Percent of Human Body Weight is Water?* [online]. Available from: <http://www.enotes.com/science-fact-finder/human-body/what-percent-human-body-weight-water> . [Accessed: 23 April 2008].

⁴⁵ Natural Resources Canada. (2006). *Freshwater* [online]. Available from: <http://atlas.nrcan.gc.ca/site/english/maps/freshwater/1> . [Accessed: 23 April 2008].

AND

The Atlas of Canada. (2000). *Pie Chart of The World's Water Supply* [online]. Available from: http://atlas.nrcan.gc.ca/site/english/maps/freshwater/world_water.gif/image_view . [Accessed: 23 April 2008].

“People now use more than half of the planet’s accessible freshwater”.⁴⁶ Approximately 70% of all of this freshwater drawn by humans is used for agriculture, with industry using about 23% of this freshwater supply and humans directly using only about 7% of all the freshwater our species takes from Earth.⁴⁷ This use of freshwater is entirely separate from the freshwater used by the countless other biodiverse life forms living in Earth’s many ecosystems.

The substantial and growing quantities of human use of water are resulting in decreasing fresh water supplies on Earth. This has become such a serious problem that the United Nations has publicly stated that the Earth is in a water crisis. In 2003, the UN issued a report under this very title: *The World’s Water Crisis - The First UN World Development Report: Water for people, water for life*.⁴⁸

A recent World Economic Forum document on water, issued in 2008, identifies at its outset the reality of an existing water crisis on Earth:

“Significant business disruptions due to water scarcity... *are a reality today*, and are projected to *worsen in the future*, as a result of climate change and demographics.” (emphasis as placed in the original document.)⁴⁹

This shortage of fresh water is also affecting México, with our country realising both a scarcity of fresh water and polluted fresh water supplies in our north, and experiencing inaccessible and poor quality fresh water in the centre and extreme southeast of our country.⁵⁰

The former Secretary-General of the United Nations, Boutros Boutros Ghali, predicts that “Water will be more important than oil this century”.⁵¹ Yet importantly, for it implies that human solutions

⁴⁶ Rees, William E.. 2008. Toward Sustainability with Justice: Are Human Nature and History on Side? In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 81 - 93). (Quote on page 83).

⁴⁷ World Economic Forum, (2008a). *Managing Our Future Water Needs for Agriculture, Industry, Human Health and the Environment - Discussion Document for the World Economic Forum Annual Meeting 2008*. Cologny/Geneva, Switzerland: World Economic Forum (Page 4).

⁴⁸ UNESCO - United Nations Educational Scientific and Cultural Organization. (2003). *The World’s Water Crisis – The First UN World Development Report: Water for people, water for life* [online]. Available from: <http://www.unesco.org/water/wwap/wwdr/wwdr1/pdf/chap1.pdf> . [Accessed 15 April 2008].

⁴⁹ World Economic Forum, (2008). *Managing Our Future Water Needs for Agriculture, Industry, Human Health and the Environment - Discussion Document for the World Economic Forum Annual Meeting 2008*. Cologny/Geneva, Switzerland: World Economic Forum (Page 3).

⁵⁰ Central Intelligence Agency. (2008). *The World Factbook: Mexico* [online]. Available from: <https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html> . [Accessed: 04 May 2008].

⁵¹ BBC News. (2003). Talking Point: Ask Boutros Boutros Ghali. *BBC News- bbc.co.uk*, June 10, 2003 [online]. Available from: http://news.bbc.co.uk/2/hi/talking_point/2951028.stm . [Accessed: 05 May 2008].

are indeed possible and achievable, The World Economic Forum notes that: "The main cause of water shortage is overuse".⁵²

Unfortunately, climate change is also adding to fresh waters diminishment. Global warming is causing the melting of glaciers and ice: a necessary concern to humans since 68.7% of all of Earth's freshwater supplies come from glaciers.⁵³

Climate change related impacts on water availability, as well as human population increases and our species' related need for more and more water, results in what is now referred to as *water stress*. 1.2 billion people, about 20% of Earth's human population, live in areas identified as having "water stress" and that "...by 2025, the number of people in water stressed regions will rise to 3 billion people" or about 40% of all of Earth's human population.⁵⁴ Add in the ongoing fresh water needs and uses of Earth's natural environment, which are excluded and separate from identified human needs, and water stresses on Earth would look certain to increase unless humans quickly respond with solutions to the existing water crisis.

Solutions will necessarily require less human pollution of Earth's freshwater. Water contamination has become a major factor in reductions in Earth's fresh water supplies. Some countries, such as México, do not widely provide water treatment of grey-water (dirty water), which then results in polluted water residues flowing in to the sea, mangrove areas, lakes, lagoons and rivers. These pollutants then become absorbed by plants and eaten by fish and other animals, which are then themselves often eaten by humans. Dirty water out of the sight of humans does not mean it has no impact on humans.

In some places where water is not properly treated, humans who consume this dirty water get sick and can die. In 2003, more than 25,000 people died everyday of malnutrition and another 6 000, people, the majority of whom were children, died from water-borne illnesses.⁵⁵

⁵² World Economic Forum. (2008a). *Managing Our Future Water Needs for Agriculture, Industry, Human Health and the Environment - Discussion Document for the World Economic Forum Annual Meeting 2008*. Cologny/Geneva, Switzerland: World Economic Forum (Page 7).

⁵³ Natural Resources Canada. (2006). *Freshwater* [online]. Available from: <http://atlas.nrcan.gc.ca/site/english/maps/freshwater/1> . [Accessed: 23 April 2008].

⁵⁴ World Economic Forum, (2008a). *Managing Our Future Water Needs for Agriculture, Industry, Human Health and the Environment - Discussion Document for the World Economic Forum Annual Meeting 2008*. Cologny/Geneva, Switzerland: World Economic Forum (Page 5). AND

Kirby, Alex. (2004) Water scarcity: A looming crisis? *BBC News Science and Nature* [online]. Available from: <http://news.bbc.co.uk/2/hi/science/nature/3747724.stm> [Accessed: 15 April 2008].

⁵⁵ UNESCO - United Nations Educational Scientific and Cultural Organization. (2003) *The world's water crisis - Part I: Setting the scene: The first UN world development report: Water for people, water for life* [online]. Available from:

Earth has an identified water crisis now. We call on our governments in México to work with our Mexican population, along with the United Nations and other international organisations like the World Economic Forum, to help identify and implement solutions to resolve this water crisis. We need to do so for the benefit of humans of today, for next generations of humans, and for other forms of life on Earth.



The Usumacinta River flowing through the Sumidero Canyon in Chiapas.

Homo economicus and other species on Earth can live without economics, but not one of us is yet known to be able to live without water.

7. Humans need reconnect as part of nature.

Homo sapiens sapiens is the name science gives to our currently evolved modern human being.⁵⁶ We are a species whose evolutionary history evidences much hubris (pride), for we seem to

<http://www.unesco.org/water/wwap/wwdr/wwdr1/pdf/chap1.pdf> (page 4). [Accessed 15 April 2008].

⁵⁶ Nature's Holism. (2008). *Homo sapiens sapiens: the true, modern man* [online]. Available from: http://www.ecotao.com/holism/hu_sap.htm . [Accessed: 03 May 2008].

AND
O'Neil, Dennis. (2007). *Early Modern Homo sapiens* [online]. Available from: http://anthro.palomar.edu/homo2/mod_homo_4.htm . [Accessed: 03 May 2008].

admire ourselves and our perceived abilities. Yet, as we briefly discussed earlier through scientific evidence, ours is the sole species on Earth that is increasingly becoming a cause of so many problems for the rest of the planet's diverse life forms. So while admired by ourselves, we are to be feared by many other species on Earth. However, we now should seriously begin fearing our collective human selves for the very threat we are posing to Earth's environmental integrity.

In our constructed cities, humans have come to believe we are safely tucked away from a "wild nature" that is seen as being "out there" and away from us. In these urban cocoons, humans have come to create an artificial environment that gives us the *appearance* of our being separate from our Earth's natural habitat.



Palenque, Chiapas: downtown.

Yet what happens when any other animal is taken out of its natural habitat and put to live in a zoo (or cities, the name we give to human zoos)? As human beings, we can see with our own eyes that animals react in different ways depending on the habitat where they live and the influences surrounding them. In many cities, dogs chase cars and cats chase geckos instead of the historical prey they would chase if they were living in the wilds of nature. City raised cockroaches are seen to eat Styrofoam cups instead of natural growth. Birds dependently peck at the seeds in bird feeders provided by humans over independently eating the berries of wild bushes.

And in what ways would humans even care to admit that we have adapted our lives to the lifestyles of our admired modern cities? We have built lives around cars and other human created ideas such as economy, money, career, suburb, consumerism, fashion, *recreational* drug use, and in very many other countless ways. This is in addition to the urban congestion, the smog and other human-caused pollutions, the piling garbage, and the crime that are uncomfortable daily aspects of urban life: all of which are clearly on display in cities such as Mexico City (D.F.).

It is not that we are seeking a return to a traditional rural lifestyle or any equally unreal sense that rural life is inherently better than city life. We only emphasise that, unlike rural living where Earth's nature is seen at your very doorstep, city life creates the illusion for humans that they are separate, distinct and even apart from nature.



A residential neighbourhood in Playa del Carmen, Quintana Roo, Mexico.

Many humans seem to have lost any real connexion with the natural environment they see as existing outside of their cities and towns. This has served to result in many humans no longer fully comprehending that *our cities and towns actually exist within and as an integral part of an area's natural environment*. And equally as important, that our cities depend on Earth's local eco-systems and even on the planet's one global environment for our very lives. For it is the nature we see as being outside of our cities that still

provides humans with our very food and water for life, and all our resources for our tortillas, coca-cola, clothing, shoes, glass, homes, cars, buses, concrete blocks, televisions, i-pods, computers, cell-phones and literally everything else we use.

Sustainable development has helped us understand the importance to humans of keeping connected with nature and Earth's own unique rhythms: a natural beat that is independent of and yet directly connected to human dynamics.

Metaphorically speaking, we think humanities' connexion with nature should be similar to that of a boat captain who, to be successful in her trade, must learn to work with natural water currents. Or like birds that must learn to manouvre nature's wind currents in order to successfully fly.

Simply stated, we think our species would collectively thrive with less environmental degradation and fewer societal challenges (including social and economic inequities), *should* we learn to live and work within nature's own rhythms and cycles.

Sustainable development is as much about how humans construct their societies as it is about the natural environment. We think that if humans constructed our societies to reconnect our species as an integral part of Earth's one environment, then an inevitable consequence of this action would be sustainably vibrant cities, towns and neighbourhoods. For through such a reconnection by human beings, our human communities would then be, by necessity, always acting in support of a cleaner and healthier natural environment.

8. From myth to science to Sustainable Development.

8.1 The human myth of unlimited growth.

Until very recently, many of Earth's humans have followed a pattern of thinking grounded in scientific-untruth. In full fairness, we acknowledge that this thinking arose from simple human ignorance. This thinking followed a line of reasoning similar to: Earth's resources are unlimited and so then too is economic growth unlimited. Similarly, humans had come to think that what we did on one part of Earth could not affect another part of our planet and so, in effect, we thought we could act on different parts of Earth without any thought being given to the planet as a whole.

Through the science we discuss below, humans now know scientifically that such early thinking was mistaken. And so humans must now begin to change our thinking ways from old thought to new. So let us be clear in what we are saying. This early thinking is similar to when people of old once thought that all planets in our heavens revolved around Earth. Such thoughts had value as an

opinion, but as rationale thinking they were shown to be misguided and not based in scientific fact.

Similarly, the opinions of those humans of today who believe that Earth's resources are unlimited and so then too can economic growth be unlimited, or those people who believe that activities on one part of Earth can have no affect another part of the planet, all have beliefs that are not-grounded in scientific reality and so they simply think in ways unreflective of rationale thought.

In observation of this dynamic, Rees interestingly notes that our modern human society is as "unconsciously myth-bound as any more 'primitive'....culture...", and refers to our current human myth of unlimited growth as the "perpetual growth myth".⁵⁷

8.2 The science of physics: Three Laws of Thermodynamics.

In the plainest of language, the science of physics and its established *Three Laws of Thermodynamics* tell us why it is wrong to think that Earth's resources are unlimited and so then too can economic growth be unlimited. These same laws also tell us why humans cannot think that activities on one part of Earth can not affect another part of the planet. Our brief and simple explanation follows, for people such as us we who are not trained in the physical sciences:

Through the *First Law of Thermodynamics* we learn that our Earth is a contained (closed) system, possessing mass and energy (which includes us humans) that is finite (limited) to what is already found on our planet.⁵⁸ Additionally, that "[t]he amount of matter on Earth has stayed the same for billions of years..." and that matter on Earth which is burned (whether in the form of plants, animals, minerals like coal, liquids like oil or petroleum, etc.) is not destroyed, but simply takes on a different form, mostly changed into waste in the form of visible or invisible gases.⁵⁹ *The Second Law of Thermodynamics*, the *Law on Entropy*, says that everything spreads (both matter and energy), and that while the *quantity* of energy and matter on Earth may remain the same, the *quality* of the energy

⁵⁷ Rees, William E.. 2008. Toward Sustainability with Justice: Are Human Nature and History on Side? In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 81 - 93). (Quote on pages 87-88).

⁵⁸ All About Science. (2008a). *Three Laws of Thermodynamics* [online]. Available from: <http://www.allaboutscience.org/three-laws-of-thermodynamics-faq.htm> . [Accessed: 21 April 2008].

AND

Farabee, M.J. (1992). *Laws of Thermodynamics* [online]. Available from: <http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookEner1.html> . [Accessed: 21 April 2008].

⁵⁹ The Natural Step. (no date). *Basic Science* [online]. Available from: <http://www.naturalstep.ca/basic-science.html> . [Accessed: 21 April 2008].

decreases over time and with each change.⁶⁰ While *Newton's Laws of Physics* are said to apply only in certain conditions, the *Laws of Thermodynamics* are said to "have no exceptions" and so "stretch across every form of science known to humankind".⁶¹

What does this mean in the simplest of terms? For science, Earth's matter and energy is finite. When matter, such as non-renewable oil resources, are used-up or burned-up they do not disappear but simply change form to usually become polluting gases. Additionally for science it understands that, through the *Law of Entropy*, what happens on one part of Earth can indeed affect life on another part of the planet.

Simpler still. To hold a belief in unlimited economic growth arising from a scientifically unsupported belief in unlimited resources on Earth is to believe in a modern myth. It is a child's dream not supported by the hard, cold, reality of the science of physics.

Simpler yet. Earth is one, shared, planet. Humans need to care about what happens anywhere on Earth, for impacts on one part of the planet can have direct effects on other, seemingly distant, parts of Earth.



One, shared, finite planet Earth as seen from space.

⁶⁰ All About Science. (2008b). *Second Law of Thermodynamics* [online]. Available from: <http://www.allaboutscience.org/second-law-of-thermodynamics.htm> . [Accessed: 02 May 2008].

⁶¹ All About Science. (2008a). *Three Laws of Thermodynamics* [online]. Available from: <http://www.allaboutscience.org/three-laws-of-thermodynamics-faq.htm> . [Accessed: 21 April 2008].

Since the 1970's, humans have become increasingly aware through science and the United Nations that Earth's resources are indeed finite and, more importantly for us, that human patterns of development can and do have impacts on Earth's natural environment. Science has also helped humans of today to understand that Earth is, in effect, an interconnected system or organism, with impacts experienced on one part of the planet having the potential to affect other parts of Earth. The United Nation's WCED - Brundtland Commission spoke to the reality of Earthly limits and interconnexions in *Our Common Future*:

"The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities."⁶²

With this new knowledge in mind, science and the United Nations have both helped introduce humans to our species' need for the practice of sustainable development.

8.3 The next step: Sustainable Development.

We see it as being increasingly important that our human species publicly recognise and acknowledge that our previously-held belief in the myth of unlimited resources and non-harm to Earth from human development patterns was built on a false foundation. We see this need for human public recognition and acknowledgement of our mistaken thinking as being a first psychological step toward our being able to change our previously learned and unhealthy patterns of behaviour.

This public recognition and acknowledgement will then open the door for humans to begin to explore and experiment with new types of thinking around finite resource availability, our species' need to care for Earth's natural environment, and that humans cannot take Earth's environmental health for granted.

What would then next follow would be collective human efforts at understanding and practicing sustainable development: our striving to balance each of its three social, environmental and economic parts.

⁶² UN Documents Cooperation Circles. (1987b). *Our Common Future: From One Earth to One World - An Overview by the World Commission on Environment and Development: Section 1.3.27 The Global Challenge - Sustainable Development* [online]. As available from: <http://www.un-documents.net/ocf-ov.htm> . [Accessed: 03 May 2008].

9. Sustainable development is for all.



Yes.... sustainable development *is* for you and all people.

Sustainable development is important to all human societies on Earth, yet now no one country can even claim to be sustainable in any sense of the concept, approach and practice.

The *Ecological Footprint* is a science-based, internationally-used, tool to measure "...how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes under prevailing technology."⁶³ Through use of the *Ecological Footprint*, it becomes clear that industrialised countries (often referred to as *Developed* or *G8 countries*) (un)sustainably use much more of Earth's resources as compared to *Developing Countries* such as México.⁶⁴

Even so it is still necessary that all countries of Earth, whether developed or developing, along with their people all do their fair share to help humanity achieve sustainable development. Yes it is true that the United States, with only 5 per cent of Earth's human population, "...consumes nearly 40 percent of the Earth's natural

⁶³ Global Footprint Network – Advancing the Science of Sustainability. (2007). *Ecological Footprint: Overview* [online]. Available from: http://www.footprintnetwork.org/gfn_sub.php?content=footprint_overview . [Accessed: 28 April 2008].

⁶⁴ *ibid.*

resources.”⁶⁵ So for sustainable development to be achieved in any degree by humans on Earth will necessarily entail a need for all human beings to collectively work together in a manner where developing countries, such as México, can raise our peoples’ standards of living while, at the same time, all peoples’ of the planet are together taking care of Earth’s natural environment.

In addition to considerations about distribution of resources, the social component of sustainability also includes considerations about the fair distribution of wealth in a country. Economic inequity does, of course, exist in every country. Yet today, “[t]he chronically impoverished 20 percent of the world’s people survive on just 1.5 percent of world income, while the richest 10 percent take home 54 percent. The richest 500 people in the world enjoy a combined income greater than that of the poorest 416 million....”⁶⁶

Even with income inequality found across Earth, México is today statistically recognised as having one of the most extreme levels of income inequality of any country on the planet. This is a “socially extreme imbalance” publicly acknowledged by past President Vicente Fox.⁶⁷ Such a situation is fully unsupportive and completely unreflective of the sustainable development of our country.

According to The World Bank Group and its *2006 World Development Indicators*, income inequality in México is extreme. While the top (wealthiest) 20% of our country’s population earns 55.1% of all of México’s income (consumption) – and of those people, the top / wealthiest 10% of our population earn an unbelievable 39.4% of all of México’s income / consumption – the lowest 60% of our population earns only 25.2% of all income (consumption) in México, with the fourth 20% earning the remaining 19.7% of all national income (consumption).⁶⁸

⁶⁵ Curry, Patrick. 2006. *Ecological Ethics: An Introduction*. Cambridge, UK: Polity Press. (page 15).

⁶⁶ Rees, William E.. 2008. Toward Sustainability with Justice: Are Human Nature and History on Side? In Soskolne, Colin L., ed. *SUSTAINING LIFE ON EARTH*. Plymouth, UK: Lexington Books (Page 81 - 93). (Quote on page 83).

⁶⁷ Presidencia de la República, Estados Unidos Mexicanos. (2001a). *Plan Nacional de Desarrollo 2001-2006: Mensaje del Presidente de la República* [online]. Available from: <http://pnd.fox.presidencia.gob.mx/index.php?idseccion=8>. [Accessed 14 April 2008].

⁶⁸ International Bank for Reconstruction and Development/The World Bank. (2006). *2006 World Development Indicators - Chapter 2: People - Table 2.8 - Distribution of income or consumption*. Available from: <http://devdata.worldbank.org/wdi2006/contents/Section2.htm>. [Accessed: 28 April 2008].



Corner store (tienda) in the forgotten Cancun.

Extreme divisions of wealth ownership simply reflect an overuse of Earth's limited natural resources by a select few, even psychologically greedy, people. The continuation of economically unhealthy divisions of wealth in any country can only serve to perpetuate an already (un)sustainable society, doing so through these very societies increasingly adding to - instead of solving - their own existing environmental, economic and social challenges.

As The Brundtland Commission observed in *Our Common Future*:

"...poverty itself pollutes the environment, creating environmental stress in a different way. Those who are poor and hungry will often destroy their immediate environment in order to survive: They will cut down forests; their livestock will overgraze grasslands; they will overuse marginal land; and in growing numbers they will crowd into congested cities. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge."⁶⁹

We do not at all suggest that Earth's poorest humans are primarily responsible for the environmental degradation of our planet. Actually, we see this matter quite to the contrary.

"As the Delhi-based environment organization, the Centre for Science and Environment, points out, if the poor world were to develop and consume in the same manner as the [rich developing countries] to achieve the same living standards, 'we would need two additional planet Earths to produce resources and absorb wastes ... and good planets are hard to find!'"⁷⁰

What we do suggest is that serious, even extreme, conditions of income inequality - such as are found in México - serve to stall the ability of any country to achieve any real degree of sustainable development and also further serve to worsen the very ability of a country to achieve this same goal.

⁶⁹ UN Documents Cooperation Circles. (1987c). *Our Common Future, Chapter 1: A Threatened Future - Section 1.8: Symptoms and Causes* [online]. Gathering a Body of Global Agreements. Available from: <http://www.un-documents.net/ocf-01.htm#I> . [Accessed: 03 May 2008].

⁷⁰ Shah, Anup. (2005). Poverty and the Environment - Introduction. *Global Issues.org*, February 12, 2005 [online]. Available at: <http://www.globalissues.org/TradeRelated/Development/PovertyEnv.asp> . [Accessed: 23 April 2008].

Of course, Earth does not see rich or poor, woman or man, young or old, skin that is coloured black or white or chocolate or yellow or red, or any other countless number of human differences. The environmental consequences of (un)sustainable human development patterns see no distinctions: they impact all humans in some manner as equals.

By with us humans living beyond Earth's means, and with wealth inequalities contributing to the environmental degradation of Earth, human beings are simply and self-evidently inflicting harm upon ourselves as one, common, species.

10. Mexico's current progress toward sustainable development.

10.1 Overview.

We are certain that México can become a fully developed country without experiencing the negative consequences of the (un)sustainable development of the mostly consumer-focussed, *over-developed*, countries of the G8 (the *Group of 8* financially richest industrialised countries on Earth). "*Overdeveloped world*" is a wonderful turn of phrase on the so-called "*developed world*"; a phrase we learnt through Patrick Curry's book on *Ecological Ethics*.⁷¹

Our sincerest belief is that Mexicans and our country's leaders have matured from years past, to have now reached a point in our national lives where we are confident enough in ourselves and our abilities to learn from the successes and failures of other countries. Through such international learnings, our country can then also learn how to resolve and/or avoid making the (un)sustainability mistakes once made by other countries.

Our country's highest political office, of our President, has included the concept of sustainable development in our Republic's last two *Planes Nacionales de Desarrollo*. It seems true to us that, based on the way the term has been used in these *Planes*, Mexican politicians are not yet deeply familiar with what sustainable development is as a complete concept, approach and practice. We say this as in these *Planes* there is evidence that our political leaders still consider sustainable development's social, environmental and economic components as separate parts instead of as three integrated elements to be carefully balanced in tandem. Nonetheless, we still congratulate México's political leaders for having made a good early start as they try to understand what sustainable development is and how it can be practiced in our country.

⁷¹ Curry, Patrick, 2006. *Ecological Ethics: An Introduction*. Cambridge, UK: Polity Press (page 10).

10.2 President Vicente Fox.

The *Plan Nacional de Desarrollo 2001 to 2006* of President Vicente Fox committed his government to help make México a better place for all our citizens:

“La comisión para el desarrollo social tiene como objetivo central coordinar las inversiones en justicia social, eliminar los desequilibrios sociales extremos y procurar una vida digna para todos, promoviendo la iniciativa individual y colectiva de los mexicanos, en especial para aquellos que, por tiempo inmemorial, aguardan la justicia y cotidianamente sufren la miseria, el abandono, la ignorancia y la violencia. [*The social development commission has the purpose to coordinate social justice investments, eliminate the socially extreme imbalance and try to achieve a better life for all people, promote the individual and collective initiative of Mexicans, especially those that live with injustice, misery, abandonment, ignorance and violence.*]

La Comisión para el Crecimiento con Calidad tiene como tarea conducir responsablemente la economía, ampliar y extender la competitividad y promover un crecimiento dinámico, incluyente y sustentable, que abra oportunidades y sea cimiento de una mejor vida para todos. [*The growth quality commission, has as its work to responsibly guide our economy, expand and increase our competitiveness, to promote dynamic, incorporate and sustainable growth, to create opportunities, and to give to Mexicans a better quality of life.*]

La Comisión de Orden y Respeto estará encargada de enfrentar con eficacia a la delincuencia, acabar con la inseguridad, terminar con la corrupción y preservar el Estado de derecho. Las tres comisiones están apoyadas por una fuerte inversión en capital humano. [*The order and respect commission will confront delinquency, insecurity, corruption and preserve the rights of the state.*]⁷²

President Fox recognized that education is an important tool to make a difference in our country, but that at the same time it is important for our government to change its structures and ways of operating for the benefit of our full population. He wanted to help make México a more competitive country through social change, environmental awareness, and opportunities for everyone.

The *Plan Nacional de Desarrollo 2001 to 2006* certainly addressed the social and economic components of sustainable development. It presented good ideas for increasing the quality of life of our people. Yet the environment as a part of sustainable development was not

⁷² Presidencia de la República, Estados Unidos Mexicanos. (2001a). *Plan Nacional de Desarrollo 2001-2006: Mensaje del Presidente de la República* [online]. Available from: <http://pnd.fox.presidencia.gob.mx/index.php?idseccion=8>. [Accessed: 14 April 2008].

integrated in to the plan: it was only considered as something in addition to it.

The section of this plan which mentioned the importance of the environment is found in the *Transición Demográfica* [*Demographic Transition*]. This section provided information about México's environmental reality at the time of President Fox:

- El país pierde 600,000 hectáreas de bosque anualmente y experimenta una tasa anual de deforestación de 1.5 por ciento. [*Our country loses 600,000 hectares of forests per year and has a 1.5% annual rate of deforestation.*]
- De las 100 cuencas hidrológicas del país, 50 están sobre explotadas, y extensas regiones del país tienen problemas de abasto de agua. [*México has 100 dams, but a half of these are over utilised, and extensive zones in our country have problems with water provisioning.*]
- Las selvas tropicales de México han disminuido 30% en los últimos 20 años. [*The jungles in our country have been reduced by 30% in the last 20 years.*]
- Se han extinguido 15 especies de plantas y 32 de vertebrados en México. En nuestro país se han dado 5.2% de las extinciones del mundo en los últimos 400 años. [*In our country, 15 plant species and 32 vertebrates have become extinct. In the last 400 years, 5.2% of global species extinction have occurred in México.*]
- La contaminación del aire y del agua en las grandes ciudades del país ha alcanzado niveles tales que tiene efectos negativos sobre la salud y el bienestar de la población. [*Water and air pollution levels in the large cities of our country are reaching serious proportions and producing negatives impacts in the health of their populations.*]
- México lanza a la atmósfera más de 460,000 GT de gases de desecho y se estima una producción anual de 3,705,000 toneladas de residuos peligrosos. [*México emits in to the atmosphere more than 460,000 tonnes of greenhouses gases and produces 3,705,000 tonnes of dangerous residues per year.*]⁷³

Importantly, President Fox's five (5) *Ejes Rectores* [main strategic points or guidelines] did include one point on the environment:

1. Mejorar los niveles de educación y bienestar de los mexicanos [*Improve the education levels and wellbeing of Mexicans.*]
2. Acrecentar la equidad y la igualdad de oportunidades. [*Increase the equity and equality of opportunities.*]

⁷³ Presidencia de la República, Estados Unidos Mexicanos. (2001b). *Plan Nacional de Desarrollo 2001-2006: La transición demográfica - Transición demográfica y uso de los recursos naturales*. [online]. Available from: <http://pnd.fox.presidencia.gob.mx/index.php?idseccion=23> [Accessed: 15 April 2008].

3. Impulsar la educación para el desarrollo de las capacidades personales y de iniciativa individual y colectiva. [*Improve education for the development of personal capacities and of individual and collective initiative.*]
4. Fortalecer la cohesión y el capital sociales. [*Strengthen cohesion and social capital.*]
5. Lograr un desarrollo social y humano en armonía con la naturaleza. [*Reach social development and human harmony with nature.*]

This fifth *Eje Rector*, created to improve the environmental health of México, included the following four additional strategies:

1. Armonizar el crecimiento y la distribución territorial de la población con las exigencias del desarrollo sustentable, para mejorar la calidad de vida de los mexicanos y fomentar el equilibrio de las regiones del país, con la participación del gobierno y de la sociedad civil. [*With the participation of government and civil society, achieve better use and distribution of México's lands through sustainable development, so as to better the quality of life of Mexicans and create equity between all the different regions of the country.*]
2. Crear una cultura ecológica que considere el cuidado del entorno y del medio ambiente en la toma de decisiones en todos los niveles y sectores. Fomentar condiciones socioculturales para contar con conocimientos ambientales y desarrollar aptitudes, habilidades y valores para propiciar nuevas formas de relación con el ambiente, la aplicación de hábitos de consumo sustentables y la participación corresponsable de la población. [*To create an ecological culture that carefully considers the environment and its surroundings at all levels of decision-making and sectors. Encourage socio-cultural conditions to create environmental knowledge and develop aptitudes, abilities and values to find new ways relate to the environment, apply sustainable consumption habits, and ensure citizen participation.*]
3. Fortalecer la investigación científica y tecnológica que nos permita comprender mejor los procesos ecológicos. Cuidar los ecosistemas requiere una comprensión profunda de sus mecanismos e interrelaciones, por lo que se deberá estimular la investigación en este campo y en los relacionados con su protección y regeneración. [*To strengthen scientific and technological research that permits us to better understand ecological processes. Because ecosystems require deep knowledge about their mechanisms and interrelations, to stimulate research in this field and in relationships on their protection and regeneration.*]

4. Propiciar condiciones socioculturales que permitan contar con conocimientos ambientales y desarrollar aptitudes, habilidades y valores para comprender los efectos de la acción transformadora del hombre en el medio natural. [*To prepare socio-cultural conditions that allow us to rely on environmental knowledge and to develop aptitudes, abilities and values to understand the effects that human actions have on transforming the natural environment.*] ⁷⁴

10.3 President Felipe Calderón.

While President Fox presented sustainable development more as an environmental concept, current President Felipe Calderón does seem to reveal a deeper understanding of the concept, approach and practice by at least covering, in some detail, all parts of the sustainable development *Triple Bottom Line*.

The current *Plan Nacional de Desarrollo 2007 to 2012* of President Calderón details how, under his leadership, México will work toward improving the social reality of the people in our country through *Desarrollo Humano*, defined as:

“...tiene el propósito de crear una atmosfera en que todos puedan aumentar su capacidad y las oportunidades puedan ampliarse para las generaciones presentes y futuras”. [*Its purpose is to make an atmosphere where all people can increase their capabilities and opportunities can increase for present and future generations.*] ⁷⁵

The five (5) *Ejes Rectores* of President Calderón’s Plan are:

1. Estado de Derecho y seguridad. [*State of Law and Security.*]
2. Economía competitiva y generadora de empleos. [*Competitive economy and generate employment.*]
3. Igualdad de oportunidades. [*Equal opportunities.*]
4. Sustentabilidad ambiental. [*Sustainable natural environment.*]
5. Democracia efectiva y política exterior responsable. [*Effective democracy and responsible foreign politics.*] ⁷⁶:

⁷⁴ Presidencia de la República, Estados Unidos Mexicanos. (2001c). *Plan Nacional de Desarrollo 2001-2006 - Objetivo rector 5: logra un desarrollo social y humano en armonía con la naturaleza: Objetivos rectores y estrategias* [online]. Available from: <http://pnd.fox.presidencia.gob.mx/index.php?idseccion=42> [Accessed: 15 April 2008].

⁷⁵ Presidencia de la República, Estados Unidos Mexicanos. (2007a). *Plan Nacional de Desarrollo 2007-2012: Desarrollo Humano Sustentable* [online]. Available from: <http://pnd.calderon.presidencia.gob.mx/index.php?page=desarrollo-humano> . [Accessed: 26 March 2008].

⁷⁶ Presidencia de la República, Estados Unidos Mexicanos. (2007b). *Plan Nacional de Desarrollo 2007-2012: Mensaje del Presidente Felipe Calderón Hinojosa* [online]. Available from: <http://pnd.presidencia.gob.mx/>. [Accessed: 26 March 2008].

The fourth *Eje Rector* of this Plan relates to México maintaining a healthy natural environment. This section is then divided in to nine (9) points, which are:

1. Agua. [*Water.*]
2. Bosques y selvas. [*Forests and jungles.*]
3. Biodiversidad. [*Biodiversity.*]
4. Gestion y justicia en material ambiental. [*Management and justice in environmental matters.*]
5. Ordenamiento ecológico. [*Ecological zoning.*]
6. Cambio climático [*Climate change.*]
7. Residuos sólidos y peligrosos. [*Solid and dangerous residues.*]
8. Investigación científica ambiental con compromiso social. [*Scientific environmental reserach with a social focus.*]
9. Educación y cultura ambiental. [*Environmental culture and education.*]⁷⁷

10.4 Comparing Planes Nacional de Desarrollo

By comparing the *Planes Nacional de Desarrollo* of both President Fox and President Calderón, we see that the plan of President Calderón makes a greater effort for México to more factually practice sustainable development. It does this by including the environment as an *essential* part of our Mexican human society and not simply as the resource for economic development that it is in the plan of President Fox. In President Calderón's plan, our government has shown it has grown in awareness and concern for Earth by not just simply looking at the environment as an "add-on" to planning.

We are impressed with the sustainable development-related words in President Calderón's *Plan Nacional de Desarrollo*. We are also hopeful that these words are not just rhetorical but, more importantly, will be equally put into action by the President.

Yet what President Calderón's plan does not do is to collectively weave together all parts of the *Triple Bottom Line* of sustainable development. Thus, the next logical step for Mexican and state governments in our country will be to integrate, combine and fully weave together each one of the environmental, economic and social parts of sustainable development throughout a *Plan Nacional de Desarrollo* and also in state plans. Then México will be in a truly enviable position: one where our country can fully say it is on the path to sustainable development and also one where our Republic can serve as an international example of sustainable development practices on Earth.

⁷⁷ Presidencia de la República, Estados Unidos Mexicanos. (2007c). *Plan Nacional de Desarrollo 2007-2012: Eje 4 - Sustentabilidad Ambiental* [online]. Available from: <http://pnd.calderon.presidencia.gob.mx/index.php?page=sustentabilidad-ambiental> [Accessed: 17 April 2008].

11. Sustainable development solutions for México.

11.1 Introduction.

While *individual* actions of both present and future generations of humans remain in individual hands, the *collective* present and future of the people of México remains entrusted to the care of our country's current leaders at the national, state and local levels of government. And learning to lead in sustainable ways, while not easy, is ever more important for today's governmental leaders around the world.

Over history, many politicians, businessmen and people who work in government have come to think that the economy is the most important element in human societies. The idea of money and its perceived value has enticed many a political leader to have this take a centre stage among governmental policies.

Today, however, many of the growing numbers of average people in countries throughout Earth have themselves come to realise that the other two parts of sustainable development– its social and environmental twins - are in crisis. Here in México, as in many other countries, our society is experiencing growing challenges like food insecurity, increasing violence, widening inequities in wealth distribution, loss of values, and the break-up of families through increased divorces. Such problems create and bring more problems to any society.

We propose the following specific, sometimes even bold, sustainable development ideas to the leaders and people of México. These ideas are to benefit our fellow Mexican citizens, the national Mexican community, and the planet Earth we all share.

While some of the ideas we present may not initially seem directly connected to sustainable development, when once woven together and put in to practice as a collective whole, all of these ideas will help México build the most sustainable of societies.

The ideas we present keep within the OECD's recent observation that, for México: "To move... onto a higher and sustainable growth path, a renewed effort at reform on a broad front is required."⁷⁸

The purpose of these ideas we offer is to plant seeds of sustainable development thinking in the minds of our politicians and fellow Mexicans. Thus, *the ideas we offer are outlined in the most general of terms*. We do, however, encourage our politicians and

⁷⁸ OECD - Organisation for Economic Development and Cooperation. (2007a). *Economic Survey of Mexico, 2007* [online]. Available from: <http://www.oecd.org/dataoecd/19/24/39425922.pdf> (Page 1). [Accessed: 04 May 2008].

compatriots to conduct their own further, in-depth, reading on the details underpinning these ideas, so that they can learn more about them and understand why their practice is essential.

**11.2 Sustainable development solutions for México:
A community is its people.**

We think it a mistake for any politician to think of a community or municipality as simply comprising a given physical location and its economic activities. We understand a community to be, first and foremost, about its people. We see a community as being the people who, collectively together, live amongst and identify with one another in any given geographical location.



A blanket artisan in Chamula, Chiapas.

Thus, for a community to be sustainable it entails concern about its physical environment, equal concern about its social health, along with the usual concern about its economic development.



A tired Jaguar dancer, post the Pre-Hispanic (ancient Mayan) *Danza el Pocho* in Tenosique, Tabasco.

For this reason we see the social element of sustainable development as being the most important for México, even though it often seems as the most forgotten of the three. This part of sustainable development refers to our society, culture, and customs: basically “us” and our families. It represents the role of human beings in the Mexican human reality.

11.3 Sustainable development solutions for México: Building a sustainably strong society - 20 essential elements.

For us, any sustainable strong society (including one still to be created in México) entails a number of essential elements. These we identify and list in near order of priority:

1. *Trust...* is the basis of all relationships and dealings in a sustainable society, whether between governments, businesses, industry and individuals (and no matter whether individuals are strangers or friends) (see “Appendix 1”, for a diagram we have developed related to a sustainable society and trust).
2. *Rule of Law...* business, industry and individuals are not able to buy their way out of the laws of the society but must follow them as agreed to by the society and its leaders. To

- contravene the society's laws will result in offenders - whether they are rich or poor or in government - facing penalties under a neutral criminal / civil court system.
3. *Transparency...* open and honest operations are normal practice in both government and business.
 4. *Democratic in some manner...* in that citizens are consulted on political decisions and sustainability concerns through public processes and meetings (such as already happens in many other countries).
 5. *Meritocracy ...* over nepotism is the societal norm. *Equality of opportunity* is a key principle in the society, meaning that people succeed based on their individual skills and abilities, not simply due to a *compadre* and other people they closely know.
 6. *Expanded sense of community ...* where a sense of community beyond blood family is encouraged throughout the society, including a fostered sense of community volunteerism and service.
 7. *Corruption is fully punished under the law...* whether it is engaged in by any leader (including politicians from the President on down, government officials or businesspersons) or by citizens.
 8. *Wide distribution of wealth...* so that a society's wealth is not generally held in the hands of a select few, but with a government finding creative ways for its society's natural wealth to be more equitably *earned* throughout its society.
 9. *Education...* right through to preparatory 3 is mandatory for all citizens and freely available at public schools.
 10. *Education in Sustainable Development....* is formally required and taught from kindergarten right through to preparatory 3, as well as being required as a series of courses of study at university levels.
 11. *Formal economies...* are standard practice and informal economies are discouraged. Related, taxes in the formal economy are willingly paid by all citizens of the society, for they know their taxes will go to societal projects not in to politicians pockets.
 12. *Environmental awareness and enforcement...* laws are developed for both protection and enhancement of the society's natural environment, and these same laws are enforced in reality not just printed on paper.
 13. *Population control...* is understood as essential to the sustainable development of the society.
 14. *Public medical care....* to some basic degree is available to all citizens in the society.
 15. *Precautionary Principle / Approach...* is fully practiced at all levels and by all sectors of the society.
 16. *Sustainability Strategies...* are required at all levels of government (national, state and local) , for every community, and by all businesses and industries in the society.

17. *Food Sustainability*.... food self-sufficiency is encouraged and practiced, whereby the society is fully able to produce enough food to feed its own population over it needing any food imports as a requirement to feed its people.
18. *Recycling*... programmes are legally mandatory and supported by all communities of the society. In such a society, home pick-up of recycled products is normal practice and companies exist to buy and use recycled goods.
19. *Alternative energy*... is fostered and developed over any continued reliance on dwindling and environmentally-destructive non-renewable resources.
20. *R&D (Research & Development) in Sustainability*... and its related technologies and thinking is both nurtured and actively supported by the society.

11.4 Sustainable development solutions for México: Social Sustainability.

11.4.1 Role of Family and Population Control.

Family is one of the most important units in any society and also of great cultural importance to Mexicans. As a practical necessity, we encourage the creation of sustainability programmes involving complete families and their members.

While families are important for individual Mexicans, as equally important for México and our country's collective sustainability (and also, as we earlier discussed, for Earth's overall sustainability), is the matter of the size of Mexican families. The human size of a country affects its national income and the overall quality of life of its people. The United Nations speaks directly to this connexion between a country's population size and its economic success:

"There is solid evidence, based on two generations of experience and research, that there is a "population effect" on economic growth. Since 1970, developing countries with lower fertility and slower population growth have seen higher productivity, more savings and more productive investment. They have registered faster economic growth."⁷⁹

Within México, the connexion between population growth and environmental degradation was discussed in the *Transición Demografica [Demographic Transition]* section of México's *Plan Nacional de Desarrollo 2001-2006*. This outlined how our country's population has tripled over the past 50 years and how our Republic's

⁷⁹ UNFPA - United Nations Population Fund. (2002). *Macroeconomics, Poverty, Population and Development* [online]. Available from: <http://www.unfpa.org/swp/2002/english/ch3/index.htm> . [Accessed: 10 May 2008].

population growth has contributed to a continued overexploitation of México's natural resources.⁸⁰



Illegal logging in the Monarch Butterfly Reserve, Michoacan.

If we want all Mexicans to have an overall good and even equitable quality of life, we think it essential that our governments continue to promote their philosophy that "small families live better lives".

Population control will help México realise a better distribution of our national wealth and resources. Fewer Mexicans results in fewer demands being placed on our country's finite resource base. We congratulate our national government for the vision it demonstrated over 25 years ago when it created its family planning programme to reduce unwanted pregnancies in our Republic.

According to Mexico's *Ley General de Población* (General Law of Population), as found in Article 3 - Section II:

"...la Secretaria de Gobernación ...Realizara programas de planeación familiar a través de los servicios educativos y de salud

⁸⁰ Presidencia de la República, Estados Unidos Mexicanos. (2001b). *Plan Nacional de Desarrollo 2001-2006: La transición demográfica - Transición demográfica y uso de los recursos naturales*. [online]. Available from: <http://pnd.fox.presidencia.gob.mx/index.php?idseccion=23> [Accessed: 15 April 2008].

pública.” [Our Government promotes family planning programs through educational and public health services.].⁸¹

Until 1970, the knowledge which Mexicans had of contraceptive methods was limited, with less than 50% of our population having any such knowledge. Today, through the work of our federal government, more than the 90% of people in Mexico are said to have information about contraceptive methods, a knowledge acquired in large measure by our government using mass communication techniques such as television and radio advertising. Today, four out five women in Mexico City who use contraceptives acquire them from public sector services.⁸² Elsewhere in Mexico, people can also call PLANIFICATEL or use PLANIFICANET to get information about family planning. The success of this federal government initiative speaks for itself:

- in 1976, Mexican *women* had an average of 4.5 children;
- in 1987, this average was reduced to 3.3 children;
- in 1994, the average was 3.2 children;
- in 2001, Mexico has an average of 2.4 children per woman.⁸³

Yet even while our national government offers programs to provide information about family planning, we still think that more need be done. Mexicans living in rural areas do not have the same access to family planning programmes as do those people living in D.F. and other major urban areas of Mexico. CANAPO statistics suggest that families in rural areas still have about 8 to 10 children, and start families as young as the age of 15.⁸⁴

Unlike in China, where the Chinese “...government promote[s] one-child families through financial incentives and bureaucratic regulations”, Mexico does not have any law to regulate the number of children which Mexican families are allowed to have. According to our country’s laws, we as Mexicans are free to choose when we

⁸¹ Camara de Diputados del H. Congreso de la Union, Estados Unidos Mexicanos. (1974). *Ley General de Población: Ultima Reforma* DOF 04-01-1999 [online]. Available from: <http://www.diputados.gob.mx/LeyesBiblio/pdf/140.pdf> . [Accessed: 22 April 2008].

⁸² CONAPO - Consejo Nacional de Población. (1997). *La situación demográfica de México, 1997. Planificación familiar: Conocimiento de métodos anticonceptivos*. [online]. Available from: <http://www.conapo.gob.mx/publicaciones/1997/pdf/09.pdf> (page 84). [Accessed: 22 April 2008].

⁸³ CONAPO - Consejo Nacional de Población. (2000). *Cuadernos de salud reproductiva: Republica Mexicana - Número ideal de hijos e hijas*. [online]. Available from: <http://www.conapo.gob.mx/publicaciones/CuaSalud/pdf/1Republica.pdf> (page 34). [Accessed: 22 April 08].

AND
CONAPO - Consejo Nacional de Población. (2001). *La población de México en el nuevo siglo: Tamaño, dinámica y estructura de la población: tendencias y desafíos* [online]. Available from: <http://www.conapo.gob.mx/publicaciones/Lapoblacion/0.pdf>. (page 13). [Accessed: 07 May 08].

⁸⁴ CONAPO - Consejo Nacional de Población. (2000). *Cuadernos de salud reproductiva: Republica Mexicana - Diferencias socioeconómicas de la fecundidad* [online]. Available from: <http://www.conapo.gob.mx/publicaciones/CuaSalud/pdf/1Republica.pdf> (page 18 & 23). [Accessed: 22 April 08].

want children and also free to determine the number of children we want to have as part of our families. This approach to family planning has been seen to respect the rights and freedoms of our people.⁸⁵

Yet we suggest that the environmental challenges and realities of Earth now require new ways for looking at the matter of *reproductive rights*. Inherent within the actual concept of *rights* is the equal and as important concept of *responsibilities*. Dr. Audrey R. Chapman of the American Association for the Advancement of Science, has written on the interrelationship between rights and responsibilities. She is one of many people in the past 20 years who have come to identify the major problem of an "imbalance between rights and responsibilities".⁸⁶

In support of reconnecting rights and responsibilities, Chapman notes:

"... the system of reciprocal rights and responsibilities places a high premium on shared commitments to work toward the evolution of a society and political system better able to guarantee the rights of all; in both private and public social, economic, and political interactions."⁸⁷

We suggest our national government need to look at the *responsibility* side of rights in our Republic, including as these responsibilities relate to the rights of us Mexicans and the number of children we can have in our families. For a family with say 5 children places a greater strain on Mexico's limited natural and financial resources, as well as on Earth's global natural environment, than does a family with only one or two children. And, of course, growing numbers of children today also means even higher and compounded numbers of people in the future who then need be supported within México and by Earth's ecosystems. We do not see this situation as being beneficial or even reflective of sustainable development for current or future generations of Mexicans.

We offer the subtle suggestion that maybe, just maybe, México should consider exploring more strict measures for population control. We see this as being fully consistent with the *Ley General de Población* of México, as a stated object of this Law, as outlined in Article 3 – Section II, is said to be:

⁸⁵ msn - encarta. (2008). *China - Encyclopedia Article* [online]. Available from: http://encarta.msn.com/encyclopedia_761573055_22/China.html#p360 . [Accessed 25 April 2008].

⁸⁶ Chapman, Audrey R. (1996). "Reintegrating Rights and Responsibilities: Toward a New Human Rights Paradigm". In *International Rights and Responsibilities for the Future* [online]. Ed. by Hunter, Kenneth W. and Mack, Timothy C. Available from: <http://books.google.ca/books?hl=en&id=YTmzZW5jtioC&dq=rights+responsibilities&printsec=frontcover&source=web&ots=AtG23O9X70&siq=yBQTjvL0jXhKvWlKZCnquAf3Myk#PPP1,M1> (Page 3). [Accessed: 03 May 2008].

⁸⁷ *ibid.* (page 15).

“... de regular racionalmente y estabilizar el crecimiento de la población, así como lograr el mejor aprovechamiento de los recursos humanos y naturales del país.”
[“...to rationally regulate and stabilize population growth to... reach a better distribution of the human and natural resources of our country.”]⁸⁸

Placing strict limits on the size of families in México would help our country prevent the over-population related problems experienced in China, India and in many other developing countries. Penalties for breaching a Mexican law restricting family-size would, by necessity, need be strict so that the law was followed. Measures such as fines for breach of such a law would not realistically work, particularly when considering that (as we outline above in CONAPO statistics) it is often rural Mexicans (generally our poorest of people) who have larger families. By virtue of these peoples’ very economic standing, they are not in any position to pay financial penalties for over-reproduction.

Our governments, along with Mexican citizens, would need to collectively join together in a national conversation to discuss and develop agreed but firm penalties for breaches of a national population control (family size restriction) law. Penalties may include that those people who knowingly breach the law be required to compensate Mexican society by their giving legally-required hours of volunteer work to their communities *during each and every week over the years of the life of their additional child(ren)*, and doing so until such time as these same additional child(ren) have reached the age of majority. However, any penalties developed and agreed to would inherently need to be reflective of México’s cultural uniqueness and national realities.

Quite possibly, the very process of México engaging in a national conversation about a population control (family size restriction) law could be enough to help educate Mexicans in the seriousness surrounding our country’s need for population control. This act of our Mexican people engaging in a national conversation about population control might itself be enough for many Mexicans to then begin to take personal responsibility in their own lives for ensuring that they have the smaller families our country requires for its sustainable development.

⁸⁸ Camara de Diputados del H. Congreso de la Union, Estados Unidos Mexicanos. (1999). *Ley General de Población: Última Reforma* DOF 04-01-1999 [online]. Available from: <http://www.diputados.gob.mx/LeyesBiblio/pdf/140.pdf> . [Accessed: 22 April 2008].
AND
CONAPO - Consejo Nacional de Población. (1999). *Veinticinco años de Planificación Familiar en México* [online]. Available from: <http://www.conapo.gob.mx/publicaciones/1999/PDF/99014.pdf> . [Accessed: 22 April 2008].

11.4.2 Quality of life includes social connectivity.

Our governments often seem to prefer to invest in activities that produce money over their making investments in our society to directly benefit México's people. Yet essential to the sustainability of México are socially-healthy communities, which we see as including the personal happiness and fulfilment of Mexicans ourselves. Much more need be done by our country's governments to achieve a more sustainable Mexico through their supporting the social connectivity of Mexicans.

Annually, Mercer Human Resource Consulting (an international human resource consultancy company that operates in 38 countries on Earth including with offices in México), develops a prominent *Quality of Living Survey*. This survey, which receives international media attention, analyses the quality of living in the top-identified cities of Earth as "...ranked against New York as the base city...."⁸⁹ "The analyses is ... conducted to help governments and major companies to place employees on international assignments."⁹⁰ Within the Survey: "A city with a high Quality of Living index is [considered] a safe and stable one."⁹¹

In the most recent *2007 Quality of Living Survey*, not one single Mexican city is listed in the top 50 cities identified in either of the *Quality of Living* ranking or *Worldwide Health and Sanitation Ranking*. The top 3 cities on Earth as listed in the Mercer *Quality of Living* survey were:

2007					
Top 50					
Base City: New York, USA (=100)					
Rank 2007	Rank 2006	City	Country	Index 2007	Index 2006
1	1	ZURICH	Switzerland	108.1	108.2
2	2	GENEVA	Switzerland	108.0	108.1
3	3	VANCOUVER	Canada	107.7	107.7
3	4	VIENNA	Austria	107.7	107.5

⁸⁹ Mercer. (2007a). *2007 World-wide quality of living survey* [online]. Available from: <http://www.mercer.com/referencecontent.jhtml?idContent=1173105> . [Accessed: 08 May 2008].

⁹⁰ *ibid.*

⁹¹ Mercer. (2007b). *Highlights from the 2007 Quality of Living Survey* [online]. Available from: <http://www.mercer.com/referencecontent.jhtml?idContent=1128060#what> . [Accessed: 08 May 2008].

⁹² *ibid.*

Interestingly, the Survey's top five cities in the Americas were all found in multi-cultural and law-abiding Canada.⁹³

Equally interesting, *The Economists' "2008 global liveability ranking"* also highly rates Vancouver, Canada, placing it as Number 1 on its international list of 140 cities ranked.⁹⁴ *The Economists' 2007 global liveability ranking* also listed Vancouver as Number 1.⁹⁵ And so the question then arises for us: What does Vancouver, Canada, located as it is in a cool and wet and cloudy coastal temperate rainforest, have which sunny Cancun and many other Mexican cities do not?⁹⁶

Well, it seems that Vancouver has intentionally striven to design a city that includes the social well-being of its people as a central focus, alongside the environmental and economic considerations of sustainable development. This includes the city "...building cultural legacies in sport and recreation [including parks and community centres], arts, literacy, and volunteerism."⁹⁷

In a clear sense what Vancouver seems to be saying is that, if its' community of people socially design a city in which local people themselves enjoy living (and for Vancouverites, this has historically included a strong concern for their natural environment), then theirs will also be a city that will realise economic success. For their liveable and sustainable city will then become one in which people from elsewhere in the world will also want to live and work.

And this is indeed what seems to be happening. One recent example is that in 2007, Microsoft global announced that it was opening a new international software development centre in the Greater Vancouver area, to add to its existing centres located in Redmond, USA, the state of North Carolina, and the countries of Ireland, Denmark and Israel.⁹⁸ This Microsoft research facility will help to noticeably increase Vancouver's "Creative Class" or "Thinkforce" (the importance of which we discuss in a later section

⁹³ *ibid.*

⁹⁴ The Economist. (2008). Liveability ranking: urban idylls. *The Economist*, April 28, 2008 [online]. Available from: http://www2.economist.com/markets/rankings/displaystory.cfm?story_id=11116839 . [Accessed: 08 May 2008].

⁹⁵ The Economist. (2007c). Liveability rankings: sweet spots. *The Economist*, November 28, 2007 [online]. Available from: http://www2.economist.com/markets/rankings/displaystory.cfm?story_id=9706431 . [Accessed: 08 May 2008].

⁹⁶ David Suzuki Foundation. (2007). *Temperate Rainforests* [online]. Available from: http://www.davidsuzuki.org/Forests/Forests_101/temperate_forests.asp . [Accessed: 09 May 2008].

⁹⁷ City of Vancouver. (2007). *Building a Better City* [online]. Available from: <http://vancouver.ca/sustainability/building.htm> . [Accessed: 08 May 2008].

⁹⁸ Microsoft. (2007). *Microsoft Expanding Canadian Operations In Greater Vancouver Area* [online]. Available from: <http://www.microsoft.com/presspass/press/2007/jul07/07-05MSEExpandVancouverPR.msp> [Accessed: 08 May 2008].

on *Stop the "Brain Drain" of Mexicans*), which will then in itself further serve to enhance that city's economic attractiveness and success.

There are some very easy yet important measures that México's governments (whether national, state or local) can take to further the quality of life of Mexicans through social connectivity. These would include community investments in: *green* city parks (such as *Parque La Ceiba* in Playa del Carmen or Cancun's *Parque Urbano Kabah*, but *not* like Cancun's newly revitalised main downtown "Parque Las Palapas" where what was built was a big concrete slab); community and recreation centres (such as exist in many Canadian and USA cities); special evening and weekend recreational programmes for children sponsored by local governments; and programmes which enable families and neighbours to share time together so as to expand their senses of both family and community.

The community ice-skating rink (ice floor) placed in the centre of the Zocalo of México City, which the local government in D.F. temporarily built there during this past December 2007, is one excellent example of Mexican government innovation at investing in the quality of life of Mexicans through social connectivity.⁹⁹ Through Mexican governments across our Republic developing more activities, programmes and initiatives for social connectivity between and amongst Mexicans - ones which bring together different and unrelated people to connect and celebrate their sense of shared community - then a greater sense of community and even societal well-being can begin to be experienced by Mexicans.

And by our governments doing so, one day very soon México will find one or more of its cities listed in the top 50 cities of Earth as ranked in a Mercer *Quality of Living* survey. This is not just wishful thinking: it is a goal that can be realistically achieved in México through political vision and will.

11.4.3 Cultural Diversity and Indigenous Cultures.

México is a country rich in culture, including possessing 62 distinct cultures and 150 separate indigenous dialects.¹⁰⁰ Our country's

⁹⁹ Mckinley, James C. Jr. (2007). Mexico City takes to the skating rink. *International Herald Tribune*, December 11, 2007 [online]. Available from: <http://www.ihf.com/articles/2007/12/11/news/journal.php> . [Accessed: 08 May 2008].

¹⁰⁰ Noguez, Alejandra. (2008). México: indígenas que emigran [online]. *BBC MUNDO.com*, 29 marzo de 2008. As available from: http://news.bbc.co.uk/hi/spanish/misc/newsid_7320000/7320099.stm . [Accessed: 23 April 2008].

AND
Brownback, Sam. (2008). *Lenguas nativas en peligro de extincion: México pierde sus dialectos indígenas* [online]. UNIVISION.com. As available from: <http://www.univision.com/content/content.ihtml?cid=606820> . [Accessed: 23 April 2008].

languages, customs and cultures can change deeply from one Mexican state to another. We think much can be done by our governments to help strengthen the social richness of our country, promote México's impressive cultural diversity and protect Mexican values. Yet we offer only one specific encouragement related to sustainable development and México's many indigenous peoples'.

In *Chapter 26* of the United Nations' *Agenda 21*, countries such as México have a responsibility to "...recognize, accommodate, promote and strengthen the role of indigenous people and their communities."¹⁰¹ In keeping within the spirit and intent of this section of *Agenda 21*, we encourage our governments to continue to protect, promote and strengthen the diversity of indigenous cultures in México.



**Bartolome de Las Casas, Defender of the Indians.
An historical example for modern Mexican politicians.
(Official portrait hanging in a church in
San Cristobal de la Casas, Chiapas.)**

¹⁰¹ UN Department of Economic and Social Affairs: Division for Sustainable Development. (1992). *Agenda 21: Chapter 26 – Recognizing and Strengthening the Role of Indigenous People and Their Communities* [online]. Available from: <http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter26.htm> [Accessed: 10 March 2008].

Specifically, we call on our governments to expand the bilingual school programme in México, which is provided for those children whose parents speak a language other than Spanish. This programme is as also identified in México`s *Ley General de Derechos Lingüísticos de los Pueblos Indígenas*.¹⁰²

The strengthening of México's indigenous languages can help our country's many indigenous peoples both retain and even increase their usage of their traditional dialects. And through these educational programmes intending to preserve local indigenous languages, we understand that Mexican indigenous groups are then better placed to both retain and even strengthen their historic senses of cultural identity while also fitting in to modern Mexican society by their additionally learning the Spanish language.



**Urbanised Mayan home in the Riviera Maya
(Playa del Carmen).**

We see in our own state how much the modern Mayan culture is being impacted by changes brought on by tourism. It seems to only take a very short period of time for tourist activities to eventually overrun once quiet, secluded, rural community enclaves (like has

¹⁰² Camara de Diputados del H. Congreso de la Union, Estados Unidos Mexicanos. (2003). *Ley General de Derechos Lingüísticos de los Pueblos Indígenas*: Nueva Ley DOF 13-03-2003 [online]. Available from: <http://www.diputados.gob.mx/LeyesBiblio/pdf/257.pdf> . [Accessed: 10 May 2008].

fully happened around Chichén Itzá and in Playa del Carmen, has started to happen in Tulum to the south of Playa, and as appears to have signs of starting in the Mayan community of Coba to the west of Tulum.)

We can see how cultural values external to those of indigenous peoples can subtly enter into indigenous communities to then change traditional cultural values. We offer a case in point. The local Mayan are generally seen as a peaceful and trusting people. In rural Mayan communities, there still are very many Mayan people who live in the traditional palapa-style wooden and thatched-roof houses that their people have lived in since times pre-dating the first arrival of Spanish Europeans.



Traditional Mayan palapa in downtown Playa del Carmen.

These Mayan homes are generally open in some manner and certainly without steel bars. Yet in Playa del Carmen or Cancun, cities where the tourism industry attracts people from other parts of México, steel bars on windows, doors and around garages are a more common sight to see. So the more traditional trusting values of the local Mayan people then come in to a direct conflict with the clearly less-trustful visual reality of some of the newcomers who have moved to our area. And with newcomers now seeming to outnumber local Maya, it doesn't take much guesswork to determine whose values will eventually become dominant.

We remind our Mexican governments about our earlier discussion on the connexion between rights and responsibilities. For along with the rights they exercise, our Mexican governments have equal responsibilities to us, their citizens. And for the achievement of sustainable development in México, we see this equal connexion as including our Mexican governments meeting their responsibilities to both local Maya and other indigenous people in México. Specifically, our Mexican governments need ensure they keep their responsibilities to respect Mexican indigenous peoples' *Agenda 21* rights to recognition, accommodation, promotion and strengthening of both themselves and their communities.

11.4.4 Fair workplaces - for both employees and employers.

11.4.4.1 Fair workplaces: In general.

Companies in México need be encouraged – and even forced under national and state laws, if necessary – to include in their corporate planning clear strategies and targets for improving the social well-being of their employees. Yet we also realise that for México to be competitive in the international marketplace, any workplace improvements which employers make for our employees must also be met with *equal* if not greater improvement in the performance and productivity of Mexican employees.

We see the essential bridge for our country in meeting the needs of both employers and employees being the fostering of mutual respect in Mexican workplaces. This mutual respect would replace the more common patriarchic and often even robotic workplace arrangements currently found in our country. It would fully necessitate our country moving toward *meritocracy* as a workplace principle over the *nepotism* that seems more common in México. *Equality of opportunity* is essential to a sustainable México. That being, societal workplaces where employees are hired and promoted based on their individual skills and abilities instead of being based on a *compadre* and other people who they closely know.

The sooner Mexican employers realise that their offering mutual respect, loyalty, a fair days` wage, health & safety benefits, education allowances, the opportunity for workplace advancement, and a decent vacation package all serve to help foster employee loyalty and responsibility (including honesty), then the sooner our country can move to greater employee productivity and success in workplace environments.

Related, we call on our government to begin enforcing all its laws and require companies in Mexico (both public and private) to register ALL their employees with IMSS. México's *Ley del Seguro*

Social requires employers to register their employees with IMSS.¹⁰³ Yet it is common knowledge in México that employers do their best to avoid putting this national law in to practice within their workplaces. This may well be a consequence of México's social security system being what the OECD identifies as "...neither equitable nor efficient".¹⁰⁴ And, if so, then our national government needs to make whatever changes are required to IMSS so that it is more efficient and equitable, to then result in employers willing participating in this national programme intended to benefit average Mexicans.

11.4.4.2 Fair workplaces: In politics.

We also encourage our national, state and local level politicians to demonstrate in action the principles of meritocracy over nepotism by changing the way politics operates in Mexico. The Mexican "political workplace" also need be fairly grounded in merit over its current nepotism based on family and business connexions.

By demonstrating meritocracy in action in politics, México's politicians would help encourage Mexican businesses, industry and Mexican society in general to follow their public example. Leadership does indeed start at the top. If only México's politicians would fully understand this.

11.4.5 México's resources should first benefit Mexicans.

Within México live people from many other countries. Foreign investors in our country receive direct financial benefits from their investments. Yet a problem we see existing in México is that foreign and even Mexican business operations do not let our country's people fairly share in the wealth they generate through the privileged access they are given to México's common resources and human capital.

In the Cancun hotel industry we see this dynamic demonstrated through the simple process of important hotel jobs often being occupied by foreigners over Mexicans. This may simply be a consequence of what we might politely refer to as the "unconscious superiority complex" that often seems to permeate the thinking of many people from overdeveloped countries (people who, while in actuality only coming from monetarily richer parts of Earth, oftentimes act as if they are intellectually superior to other peoples).

¹⁰³ Camara de Diputados del H. Congreso de la Union, Estados Unidos Mexicanos. (1995). *Ley del Seguro Social: Ultima Reforma* DOF 11-08-2006 [online]. Available from: <http://www.diputados.gob.mx/LeyesBiblio/pdf/92.pdf> . [Accessed: 07 May 2008].

¹⁰⁴ OECD - Organisation for Economic Development and Cooperation. (2007a). *Economic Survey of Mexico, 2007* [online]. OECD - Organisation for Economic Development and Cooperation. Available from: <http://www.oecd.org/dataoecd/19/24/39425922.pdf> (Page 11). [Accessed: 05 May 2008].

No matter the reason, this situation does result in many of these foreign-run hotel businesses often reflecting foreign concerns over national interests.

We see further evidence of this when large shares of the financial resources generated in México by foreign companies, including in the hotel industry, do not remain in our country but are sent away to international head offices to then benefit other countries and foreign citizens. In the tourism sector, this is a well-documented dynamic not unique to Cancun (it is a dynamic common in many tourist resorts located in the developing world and where foreign-owned hotels are dominant players).¹⁰⁵ Yet México's governments, joining with foreign governments experiencing the same reality, should be able to develop creative solutions to put an end to - or at least to diminish the consequences of - this economically unhealthy dynamic in our Republic.

It is so evident in Cancun that the many foreign-owned hotels and the few Mexican-owned hoteliers, while certainly central to the economy of our State of Quintana Roo, also help to negatively impact our natural environment through their operations. And so often these same hotels do not seem to even care that they are doing so. Making money is their clear priority, over their also helping our country with the equally important considerations of retaining each of a healthy natural environment and healthy social conditions.

Of course, many companies do operate honestly and follow laws (even when forced to do so under pressure: such as a known foreign-hotel in Cancun's Hotel Zone, one that chose to flaunt local building rules and build a higher hotel than was legally permitted, but which then willingly paid a meager fine to local government for having done so).

As both a country and people, México and Mexicans have matured significantly. Cancun and México both now need to encourage and attract more companies, investors and operators who look to the holistic health of our City and Republic. México no longer needs business enterprises that simply look at our City and tourist zones as a means to make a fast peso for their foreign owners, regardless of the societal, environmental and economic consequences to our own country.

¹⁰⁵ *You are invited to read more about this dynamic through a United Nations website:* UNEP - United Nations Economic Programme: Production and Consumption Branch - Tourism. (2001b). *Economic Impacts of Tourism* [online]. Available from: <http://www.uneptie.org/pc/tourism/sust-tourism/economic.htm> . [Accessed: 21 April 2008].

11.4.6 Community safety through creating a wider sense of community.

We call on México's governments to consider new ways for improving community safety. We suggest that this issue be approached from newer, longer-term, perspectives which will move our country beyond guns and a stronger military presence.

We think that a realistic solution through the lens of sustainable development is that our governments need help Mexicans create a sense of community beyond that of their immediate blood families.

In this 21st century, we call on our country's people to move beyond their narrow, very traditional and even conservative, view of "family above all else", and to begin to see neighbours and non-blood others as people who we can learn to appreciate and also include in our "extended family" circle.

By expanding Mexicans sense of community, our governments will also help expand the very *idea* of community that Mexicans will choose to care about and want to keep safe. Government education campaigns on expanding Mexican senses of family and community, whether taught through the formal school systems of our country or via public education activities in the mass media, will help our Republic achieve this goal over the longer term.

We see this as important, for we think the safety and security of our fellow citizens lay not just in police having shoot-outs with criminals. Our citizens themselves also need to be involved in *indirect* crime fighting, which they will participate in through their *direct* involvement in caring about their community's safety. Through the action of our caring for our broader community, Mexicans can then be encouraged to organise in our own neighborhoods, to then simply monitor our local streets and our neighbors' homes. We would then help in fighting crime simply by our caring enough to "watch and report" on the activities we see on our own streets.

As identified by the famed but now deceased urbanologist Jane Jacobs, one of the founders of the "new urbanism" which helped revive many North American cities:

"...there must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street.... to insure the safety of both residents and strangers..."¹⁰⁶

¹⁰⁶ EcoPlan. (2001). *Author's Corner: Jane Jacobs* [online]. Available from: <http://www.ecoplan.org/carfreeday/EarthCFD/partners/writer-jacobs.htm> [Accessed: 24 March 2008].

We do feel it necessary to repeat, however, that better social conditions and a fairer distribution of wealth in México would go a long way toward solving crime related problems in our country. We simply cannot believe that most reasonable persons, when faced with the choice between working in a fairly-paid job as a respected member of the community or working in a higher-paid activity but as a wanted criminal, would rationally choose the path of crime. We think those growing numbers of people in our country who seem to be choosing the path of crime do so only because our country, through its increasing social inequity enhanced by its continued practice of nepotism, are simply not provided with realistic alternatives for survival and personal success. Some of our people then unfortunately come to see survival and personal success as being associated with what should otherwise be seen as highly undesirable activities.

11.4.7 Encourage and Support Public Transportation.

For the purpose of sustainable development in México, our governments at the national, state and local levels need begin the long-term process of creating a public transit culture in our country. To encourage more Mexicans to take public transportation (buses and subways), our governments at all levels need to take yet another role in public education, this one regarding public education related to:

- reducing social stigmas that exist in Mexico around use of public transit; and
- emphasise to Mexicans the environmental benefits of bus, combi and subway usage.

If middle-class and even wealthy people in Western Europe and Canada can take public transit, including one of the wealthiest men in the world who takes both subways and buses throughout Europe, there is no reason Mexicans cannot be secure enough in ourselves to do the same thing as well.¹⁰⁷

Also, one certain way to reduce the amount of CO₂ being released in our atmosphere and to also better manage the movement of the population of our country is the use of more public transit and less use of cars. For through more use of busses instead of cars, we can reduce the amount of human-caused CO₂ contamination by transporting more people in fewer vehicles.

Our governments at all levels also need to become actively involved in assembling bus fleets in and around our major cities: fleets which

¹⁰⁷ Daniels, Cora (2004). Create IKEA, Make Billions, Take Bus [online]. *Fortune Magazine*, May 3, 2004. Available from: http://money.cnn.com/magazines/fortune/fortune_archive/2004/05/03/368549/index.htm . [Accessed: 05 May 2008].

are modernly-equipped, accessible, reliable, safe and affordable. Additionally, we encourage our local governments to be involved in planning bus route services, so that these meet the needs of local people over the current needs of private transporters and unions.



Modern colectivos (privately operated public transit) vans and buses in Playa del Carmen.

Cities like Cancun or Villahermosa, Tabasco, which most often have old, run-down, even unsafe buses or combis operating as public transit vehicles, serve to discourage people from even considering public transit as an option. Our governments can consider tiered options of services, such as where differential prices are charged for different levels of bus service. For example, air conditioned buses or more modern buses running on popular routes might charge passengers a higher fare than non-air-conditioned buses and older buses operating on the same routes.



**One of the better looking public buses in Cancun.
Hopefully the shocks work on this bus.**

Lastly, national and state governments need ensure that, for the obvious public safety reasons, all bus and public transit fleet drivers are professionally trained and certified. And also that, if a public vehicle driver breaks road safety rules, they can be guaranteed that they will be penalised including the possibility of permanently losing their license to drive. (On road safety rules: we see no safety benefit to public transit users when, such as is commonly experienced in the Riviera Maya, publicly used but privately operated vans zoom along the Cancun to Playa del Carmen highway at speeds of up to 140 kilometres per hour, even when their vehicles post signs stating that their maximum allowed vehicle speed limits are 95 kilometres per hour).

There is extensive academic literature and much proven experience available on both public transit matters and public transit benefits to sustainable communities. Our country's political leaders only need source out such expertise, including from prominent cities recognised for excellence in public transit, such as in: Europe (i.e. London, England's *Transport for London*), Canada (i.e. *Toronto Transit Commission*) and the USA (i.e. *Metropolitan Transit Authority* in New York City and throughout New York State).¹⁰⁸

11.4.8 Police and Public Security.

"We are more afraid of México's official police forces than we are of criminals who are not police."

¹⁰⁸ Transport for London. (no date). *Homepage* [online]. Available from: <http://www.tfl.gov.uk/>. [Accessed: 05 May 2008].

AND

Toronto Transit Commission. (no date). *Homepage* [online]. Available from: <http://www.toronto.ca/ttc/> [Accessed: 05 May 2008].

AND

MTA - Metropolitan Transit Authority: State of New York. (2007). *Homepage* [online]. Available from: <http://www.mta.info/>. [Accessed: 05 May 2008].

The people of México are well aware through direct experiences that corruption of all sorts is rampant throughout the police forces of our country. Mexican police officers requesting bribes or being involved in criminal activities is common practice in our Republic.

We have no illusions that this is an easy situation to solve. Nor is solving it a safe activity to be engaged in, based on the number of senior level police officers who have been assassinated across our country. (This includes the Chief of Police in Juárez who, sadly, was assassinated on the very day we finished our book and whose murder, as national media are saying, appears to have had involvement from within the police force).¹⁰⁹

While likely an uncomfortable suggestion for many Mexicans, a realistic solution may now involve our Republic's engagement of honest and respected police forces from foreign countries. This could possibly include police help from México's two NAFTA trading partners (i.e. the internationally-respected *FBI - Federal Bureau of Investigation* in the USA or the equally internationally-respected *RCMP - Royal Canadian Mounted Police* in Canada).

México's national government might be wise to publicly state we have corrupt police forces. Thus, to then begin public addressing this problem straight on. By bravely doing so, our national government will then be in a better position to begin to focus on related and strong solutions, such as actively hiring the expertise of honest police forces from foreign countries. This hired police expertise can then be purposely used to help our national government and Mexican society with the desperately-needed clean-up, reform and professional training required of all of México's police forces.

By necessity, to be sustainable México will need honest and respected police forces.

11.5 Sustainable development solutions for Mexico: Education for Sustainability.

11.5.1 Public Education for Sustainability.

The years 2005 – 2014 are the United Nations' (UN) Decade for Education for Sustainable Development¹¹⁰. We consider it essential that our governmental leaders join with the UN, us and others, who

¹⁰⁹ EL UNIVERSAL. (2008). Alerta roja en Juaréz tras ejecución de jefe policiaco. *EL UNIVERSAL.com.mx*, 10 de mayo de 2008 [online]. Available from: <http://www.eluniversal.com.mx/notas/505780.html> . [Accessed: 10 May 2008].

¹¹⁰ UNESCO - United Nations Educational, Scientific and Cultural Organization. (no date). *UNESCO - United Nations Decade of Education for Sustainable Development Homepage* [online]. Available from: http://portal.unesco.org/education/en/ev.php-URL_ID=27234&URL_DO=DO_TOPIC&URL_SECTION=201.html [Accessed 08 April 2008].

understand the urgent need to educate Earth's citizens in the concept, benefits and need for sustainable development and sustainable living.

Public education about sustainability is essential if México's citizens are to be both informed about the concept, approach and practice of sustainable development, and to also be given ideas on how to implement it in their daily lives.



Public school in Cancun.

Proof for this educational need in México is found in the recent OECD (Organization for Economic Cooperation and Development) Report on *PISA 2006: Science Competencies for Tomorrow's - World Briefing Note for Mexico*:

"...when it comes to science and the environment, Mexican 15 year olds report a below-average level of awareness of environmental issues.... At the same time, many young Mexicans reported being concerned about the environmental challenges that we face and do not believe that these will improve over the next 20 years. The less they know about science, the more optimistic they report to be that the environmental challenges will be successfully addressed."¹¹¹

What this OECD report reveals is that the less Mexican students know about the environment, the better they think the health of the environment is. Or in the reverse, the more Mexican students know about their natural environment, the more aware they are about the seriousness of the environmental challenges which humans are causing to Earth. There is a direct correlation between the education of our citizens on environmental matters, and their awareness and understanding about the environmental component of sustainable development.

¹¹¹ OECD - Organization for Economic Cooperation and Development. (2007b). *PISA 2006: Science Competencies for Tomorrow's World - Briefing Note for Mexico* [online]. Available from: <http://www.oecd.org/dataoecd/16/21/39723468.pdf> (page 4). [Accessed: 09 April 2008].



**Money buys bigger spaces at private schools in Cancun.
Equality of opportunity in México needs to begin with
schooling.**

That said, today in México we have increasingly more students who have classes in which they are taught ecological matters and where they also learn about the environment. In our own personal experiences, the goal of these classes generally seems to be to make students understand ecological systems, their elements and the environment as an entity. Basically, students are taught about Earth's natural environment in the same way they also learn about chemistry or math. The environment is seen as one of very many subjects to study in school. Yet this approach is unreal, for Earth's ecological systems are not simply a conceptual singularity but an interconnected reality in which we humans are only one part.

We see a goal of sustainability education in México to be to make our fellow Mexican citizens clearly aware that they are not separate from their natural environment, but that they are only one of many elements to make up that same environment and its ecosystems. Sustainability education in México would also teach Mexicans that sustainable development is not only about the environment, but a holistic concept, approach and practice related to the social, economic and environmental interconnexions of human societies and Earth's natural environment.

We encourage our government to have SEP (*Secretaría de Educación Pública*) redesign the national education system so that México is one of the first countries on Earth to produce a generation of people educated, trained and prepared as *sustainability thinkers*.

We see it essential that our governments create environmental education programmes related to recycling, reforestation, water conservation, concern and care for wild and domestic animals, pollution control measures for vehicles, and so much more. Yet it is equally important that our governments educate Mexicans in social sustainability, including but not limited to those matters we addressed above in what it takes for México to build a sustainably strong society, as well as in matters related to economic sustainability (some of which we suggest below).

How the people of a society come to see themselves arises from how a society educates its population. President Calderón understands this, for he has recently said:

“...el éxito o el fracaso de las naciones en este tipo de acciones, no será determinado por el volumen de las reservas petroleras que se tengan, ni por el tamaño de nuestros recursos naturales, tampoco por la superficie de nuestro territorio o la producción que tenga nuestro país.” [*“The success or failure of a nation is not based on the volume of petroleum reserves it has, nor the amount of natural resources, nor even because of how much land the country has or how much the country produces.”*]

“En esta era de la información, de la sociedad del conocimiento el éxito o el fracaso de las naciones estará determinado por la educación, el tipo de educación y la calidad de la educación que reciban los jóvenes y los niños de nuestro país.” [*“In this age of information and of knowledge based societies, success or failure of nations is determined by education, the type of education, and the quality of education that our youth and children receive in our country.”*].¹¹²

In today’s knowledge-based, information-focussed, global economy we are certain that the way to educate young Mexican minds is to lead them to critically think about and analyse information, not to merely memorize it. And this includes educating young Mexican minds in critical thinking and analysis about issues in sustainable development.

11.5.2 A people who are “sustainability thinkers”.

When talking about sustainability, we are certain that Mexicans must learn to always think about our society as a collective whole.

We encourage two basic levels where our governments can focus their attentions toward creating a country of “sustainability thinkers”:

1. ... *Sustainability Thinkers* at the level of household; and
2. ... *Sustainability Thinkers* at the level of neighbourhood.

11.5.3 Sustainability Thinkers at the level of household.

Our fellow citizens need to be actively involved in sustainability actions. Our people first need to be taught simple ways to begin practicing sustainability thinking from their homes. Afterwards, they

¹¹² EL UNIVERSAL. (2007). Necesaria reforma educativa: Calderon. *EL UNIVERSAL.com.mx*, 28 de mayo de 2007 [online]. Available from: <http://www.eluniversal.com.mx/notas/427791.html> . [Accessed: 22 April 2008].

can then be taught increasingly more complex ways for practicing sustainability in their lives.

To be *sustainability thinkers at the level of household*, Mexican families need be taught:

1. How to recycle their trash, including separating it into inorganic and organic items:
 - a) Inorganic bin are items include: paper, cardboard, glass, aluminium cans and steel. These are materials that can be transformed to similar or other uses by specialised companies that buy the used product to then recycle it.
 - b) Organic items include food scraps that can be transformed in to compost soil or as fertilizer for plants ¹¹³.



Recycling depot in Cancun.

2. To plant at least one tree in the back yard of their homes and to even grow grass in their front and backyards, and to do this instead of spreading concrete:
 - a) People need to know that all plant life creates oxygen for human life and fresher air.
 - b) People also need to be educated that while concrete yards may be easier to care for, they divert rain run-off away from seeping in to the ground and underground water systems, which are essential to supporting human and plant life.
3. To check gas installations, including pipes, and to fix any leaks.
 - a) Aside from doing this for safety reasons, this also helps keep air cleaner and fresher by closing holes in pipes that leak gas.

¹¹³ NC Noticias Cancún. (2007). Se inauguró otro punto limpio para la recolección de plástico y pilas, Rescatando Cancún [online]. *NC Noticias Cancún*, 11 de junio 2007. Available from: <http://www.noticiascancun.com/nota.asp?nota=1663>. [Accessed: 07 April 2008].

AND

El quinatanarroense. (2007). Realizan Reciclaton en Cancún. *El quinatanarroense*, March 29, 2008 [online]. Available from: <http://www.elquinatanarroense.com/secciones/municipios/benitojuarez/1659.htm>. [Accessed: 07 April 2008].

4. Paint indoor walls with a clear colour and, instead of using indoor light, open house windows to benefit from natural sunlight:
 - a) Use of natural light over indoor light saves home electricity costs and cuts down on electricity production needs in our country.
 - b) Always turn off any electric appliances not in use.
5. The importance of water conservation. Water is the essential building block and supporter of life, yet as we earlier noted, it is increasingly becoming reduced in available supply while global demand increases. Some ways people can conserve water are:
 - a) Wash family vehicles with a pail not a hose, for pail washing reduces water use by 12 litres per minute over that of hose;
 - b) Water gardens first thing in the morning or after the sun goes down at night. The outdoor temperature is lower in mornings and evenings, so there is less water waste through evaporation;
 - c) When brushing teeth, simply fill a small glass half-full with water and use that to help you with your brushing;
 - d) When taking a shower, turn off the water while soaping up;
 - e) When turning on a hot water tap, the first part of the water is wasted because it is cold before the hot water arrives. Collect the cold water in a pail and then use the water for the toilet or sprinkle it on plants.¹¹⁴
6. When families go to the supermarket, they should be encouraged to:
 - a) Buy locally-produced food, so as to encourage Food Sustainability (food self-sufficiency) in Mexico.
 - b) Not buy more fresh food items than can be realistically eaten in one week, so as to not waste food by having to throw it away due to spoiling.
 - c) Avoid buying items with lots of packaging - like Tetra Packs (which are difficult to recycle) and

¹¹⁴ Vinculando.org. (2004). Tips faciles y divertidos para cuidar y ahorrar agua, Revista electrónica latinoamericana en Desarrollo Sustentable. *Vinculando.org - Revista electronica latinoamericana en Desarrollo Sustentable*, Wednesday June 30rd 2004 [online]. México. Available from: http://vinculando.org/ecologia/ahorrar_agua.html. [Accessed: 07 April 2008].

AND

United States Environmental Protection Agency. (1997). *Water pollution, prevention and conservation*,. *Pollution Prevention, Education Toolbox* [online]. Available from: <http://www.epa.gov/reg5rcra/wptdiv/p2pages/water.pdf>. [Accessed: 07 April 2008].

bottles (as our country doesn't yet have the recycling plants necessary to reuse these) - for such packaging most often just ends up in the garbage dump.



Roadside garbage in the forgotten Cancun.

7. To be careful when using and throwing-away all substances and items that can contaminate our water supply, such as batteries, kitchen oil, car and truck oil, antifreeze, and dead animals. For:
 - a) Batteries, once used, can be taken to various local government programs for recycling.
 - b) Household oil and car oil and antifreeze must not be thrown into toilets or household pipes because it simply drains into and contaminates the water mantle or subterranean water supply. These products need be taken to recycling centres for proper disposal.
 - c) Dead animals can be disposed of at city animal disposal facilities. If sent to the garbage dump, their decomposing bodies can contaminate underground water systems.
8. The need to reduce energy use in our homes. To:
 - a) Turn off lamps and electronic devices when they are not needed or in use by any one person.
 - b) Not use too many electronic devices at once, so that our country can reduce overall electricity usage and production, and also so that our electricity supply does not have an unnecessary strain on it.

11.5.4 Sustainability Thinkers at the level of neighbourhood.

At the *level of neighbourhood*, our fellow Mexican citizens need to be taught ways they can engage in sustainability thinking, including their being taught to:

1. Organize themselves to clean the public spaces that they use, such as parks, rivers, beaches, mountains, etc.

2. Encourage and create more neighbourhood public “green spaces” for use by all people of their city, town or neighbourhood.
3. Encourage neighbourhood sustainability by advising neighbours of how they practice sustainable development in their own home and how these actions can be replicated by other people in their neighbourhood:
 - a) Invite neighbours to your home to socialise while also watching a movie with a sustainability theme (i.e. “An Inconvenient Truth”).
4. Buy and use trash cans to help dispose of garbage, so as to avoid animals (like cats and dogs) breaking into garbage bags and resulting in trash being spread across streets:
 - a) Neighbourhoods need to be taught that loose garbage can spread disease and cause illness.
5. Respect laws that forbid the improper disposal of garbage, including laws related to the illegality of burning garbage.
 - a) Whether you are a city, town or individual... DO NOT burn garbage. (In one of our Maya Riviera communities, we smell the smoke from the garbage that seems to be burnt nightly in our municipal dump.) Burning garbage pollutes the environment, contributes to global warming, and can cause asthma in humans by affecting the cleanness of your local air quality.
6. Participate in any neighbourhood councils / delegations created by local governments, such as the ones that exist in Cancun, which are offered as a means to motivate a local population to participate with the local government.
 - a) In our Cancun neighbourhoods, we elect a neighbourhood president to represent us to the Cancun government. Yet few people seem to participate in these councils, so the problem isn’t always that our government doesn’t want to engage us but that our citizens do not always want to participate in the opportunities presented to them.
 - b) Our governments need help create public education campaigns to help motivate, encourage and increase citizen participation in activities designed to inform our governments about citizens’ views and opinions.

**11.6 Sustainable development solutions for México:
Leading for Sustainability -
Behaviour change by government.**

11.6.1 Pride in Government.

We want to feel proud of our country, but our political leaders most often don't make us feel proud to be Mexican. We don't think that many Mexicans would disagree with our perception that:

"México doesn't belong to us: México belongs to its politicians."

We do congratulate President Felipe Calderon for cutting his salary and that of his cabinet by a full 10% in 2006: yet even still Mexican politicians are some of the highest paid on Earth.¹¹⁵ This while they govern a country that regularly rates with high levels of poverty¹¹⁶¹¹⁷, high levels of wealth inequality¹¹⁸, and consistently rates with high levels of corruption¹¹⁹.

Under the principles of sustainability as we understand them, we call on our politicians at all levels of government to cut their pay packages to then bring these more in line with the income levels earned by average Mexicans. Again, leading by example need start at the top with our politicians.

Instead of our country's national income continuing, in noticeable degree, to help enrich the lives of a very few politically-entrenched and business-connected families, we are certain more of our Republic's national income would be better spent on things like:

- helping the poorest of our citizens;
- expanding education services across our Republic;
- ensuring that all Mexican families are enrolled in and have access to IMSS healthcare;
- bettering our natural environment;
- genuine economic diversification;

¹¹⁵ Grillo, Joan (2006). *Mexico's New President Cuts Own Salary*. The Associated Press, as printed in *Washingtonpost.com*, December 3, 2006 [online]. Available from: <http://www.washingtonpost.com/wp-dyn/content/article/2006/12/03/AR2006120301060.html> (Accessed: 24 March 2008).

¹¹⁶ The World Bank. (2005). *Mexico: Income Generation and Social Protection for the Poor* [online]. Available from: <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/MEXICOEXTN/0,,contentMDK:20626825~menuPK:338424~pagePK:1497618~piPK:217854~theSitePK:338397,00.html> (Accessed: 24 March 2008).

¹¹⁷ The World Bank. (2004). *Poverty in Mexico: an assessment of conditions, trends, and Government strategy* [online]. Available from: http://www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187282&theSitePK=523679&entityID=000012009_20040713141715&searchMenuPK=64187282&theSitePK=523679 (Accessed: 24 March 2008).

¹¹⁸ OECD - Organisation for Economic Co-operation and Development. (2008). *SourceOECD Statistics* [online]. Available from: http://lysander.sourceoecd.org/vl=2046129/cl=14/nw=1/rpsv/statistic/s36_about.htm?jnliissn=99991004 (Accessed: 24 March 2008).

¹¹⁹ Transparency International. (2007). *Corruption Perceptions Index 2007* [online]. Available from: http://www.transparency.org/policy_research/surveys_indices/cpi/2007 (Accessed: 24 March 2008).

- helping Mexico's many different indigenous peoples' protect and expand their culture and language;
- and so very many other possibilities and national necessities.

11.6.2 Government example in Sustainability.

We think it essential that our government set *the* public example and take the public lead in sustainability approaches and styles by legislating sustainability practices at all levels of government in our Republic. Mexican federal, state and local governments can be public examples in sustainability through simple actions such as their:

- Adopting and applying the *20 essential elements* we have identified as being required for *Building a sustainably strong society*.
- Ensuring recycling by all government operations at all levels.
- Buying only low-emission cars and trucks for national, state and local government vehicle fleets.
- Using only clean energy in all government operations.

Such efforts by our governments in implementing sustainability practices can and should be extended to all government-supported departments and operations. This would include extra-government organisations like SEP-run schools, public universities, government agencies like FONATUR, and government business enterprises like PEMEX.

We also think our governments would be wise to take the lead and quickly establish regional sustainability businesses across the country (whether as *Public-Private Partnerships (P3s)* or as a government-run business operations), whose focus would be to collect and sell all recyclable materials collected from us Mexicans in our neighbourhoods.¹²⁰ It seems ridiculous to us that in so many cities and towns of México, where people separate trash in to organic and inorganic components, that these very separated elements most often end up in the same trash dump for they have no where to be redirected for recycling. Certainly more Mexicans will be inclined and encouraged to recycle if they knew the process of separating trash in to organic and inorganic parts is not simply done for show.

Extensive anecdotal evidence exists that recycling and related sustainability practices are not a true cost to government or businesses or industry, for they actually open up many unexpected income generation possibilities. (See the references below for the

¹²⁰ For more information on public-private partnerships (P3s), you can see: Partnerships British Columbia. (2003). *An Introduction to Public Private Partnerships* [online]. Available from: <http://www.partnershipsbc.ca/pdf/An%20Introduction%20to%20P3%20-June03.pdf> . [Accessed: 09 May 2008].

international, science-based, *The Natural Step* programme for examples of such evidence.)¹²¹

We encourage our governments to begin looking at sustainability and recycling programmes for the modern business opportunity that they are at their core. If Europeans and increasingly the Americans can look at sustainability with these different and expanded eyes of opportunity, so too can Mexicans. México can even strive to be a global leader in this new and growing field of sustainability business opportunity.

11.7 Sustainable development solutions for México: Economic Sustainability.

11.7.1 Refocus our economy as factor of the environment.

This point simply serves to re-iterate a common theme emphasised throughout this book. It is clear through the work of the hard sciences like physics, biology and climate scientists – but still often unclear to many economists – that humans must learn again to see themselves as part of the environment and not separate from it. This includes our governments, and through our governments the rest of our Mexican society, to *again see the economy as part of and not external to nature*. Our governments publicly speaking to this reality and again setting the public example in this direction would be a fine first place to start.

¹²¹ Natrass, Brian and Altomare, Mary, 1999. *The Natural Step for Business: Wealth, Ecology and the Evolutionary Corporation*. New Society Publishers: Gabriola Island, Canada. AND
The Natural Step. (2003). *The Natural Step International Gateway* [online]. Available from: <http://www.naturalstep.com/com/nyStart/>. [Accessed: 28 April 2008].



**One with the environment:
Exconvento in Oxolotan, Tabasco.**

11.7.2 Stop the "Brain Drain" of Mexicans.

An economically sustainable México would find ways to stop the current *brain drain* from our country: that being, the loss of so many of our talented compatriots who leave México to mostly go to the USA for better employment opportunities. This lost *human capital* is a significant loss to our country, for the contributions of these Mexicans then goes toward the success of a foreign country instead of benefiting their own home society.

One of the reasons the USA is known for business success is that it purposefully strives to attract the brightest minds on Earth to its country. These foreign minds are welcomed throughout the USA, in their universities, research organisations, businesses, and industries. These great minds from other countries then put their collective minds to work in helping the USA excel and succeed. The USA sees that more bright minds help make for a more successful economy and country.

USA-born and now Canadian-based Social Science Professor Richard Florida has become internationally-famous for his research showing a direct correlation between a community having a strong "Creative Class" (Thinkforce) and it then also experiencing stronger economic development. Simply stated, the more thinkers or creative minds who live and work in a community, the economically stronger is that

same community.¹²² And it is a short leap to then expand the notion of community to include a national community: that the more thinkers or creative minds living and working in a country, the greater is the economic potential of that same country. But we do speak to this in more detail in the next section.

This outflow of people from our country should not be seen as a positive to Mexico simply for the small benefit of the foreign remittances that later flow back to our country. This unfortunate exodus of our people should be seen as the net *outflow* - a net loss - of human potential from Mexico that it is in reality.

The Migration Policy Institute records that from 1986 to 2006, there were approximately 4,620,118 Mexicans who legally migrated to the USA alone.¹²³ In addition to these legal Mexican migrants, the United States government estimates that, in 2005, there were 6,216,000 illegal Mexican immigrants living in their country.¹²⁴ These numbers alone add up to 10,836,118 Mexicans, or approximately 10.14% of México's current population of 109,955,400 people, who are now living in the USA.¹²⁵

This is a loss of our compatriots that we think all Mexicans should be saddened by; not proud of. To us, this drain of Mexican human potential represents a lack of leadership in México. It publicly demonstrates México's inability to solve our own internal problems over this being any representation of the success of the USA societal model.

This then leads to another sustainability-related reason why México should be concerned about this outflow of such valuable human capital and potential from our Republic: *International perceptions*. México should be concerned that we can be accused by other countries of trying to solve our country's own (un)sustainability

¹²² Creative Class Group. (2008). *Homepage* [online]. Available from: <http://creativeclass.com/> . [Accessed: 29 April 2008].

AND

Wikipedia, the free encyclopedia. (2008b). Creative Class [online]. Available from: http://en.wikipedia.org/wiki/Creative_class . [Accessed: 03 May 2008].

¹²³ Migration Policy Institute. (2008). MPI Data Hub: Country and Comparative Data - United States: Top ten sending countries, by birth, 1986 to 2006 [online]. Available from: <http://www.migrationinformation.org/datahub/countrydata/data.cfm> . [Accessed: 03 May 2008].

¹²⁴ Pew Hispanic Center. (no date A). U.S. Immigration Statistics - Origin of Illegal Immigrants 1980-2005. *CNN.com* [online]. Available from: <http://edition.cnn.com/interactive/us/0603/charts.immigration/frameset.exclude.html> [Accessed: 03 May 2008].

AND

Pew Hispanic Center. (no date B). U.S. Immigration Statistics - Estimated number of illegal immigrants in the U.S 1980-2005. *CNN.com*. Available from: <http://edition.cnn.com/interactive/us/0603/charts.immigration/frameset.exclude.html> . [Accessed: 03 May 2008].

¹²⁵ Central Intelligence Agency. (2008). *The World Fact Book: Mexico* [online]. Available from: <https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html> . [Accessed: 03 May 2008].

problems by off-loading them - in the form of exporting our human capital - to another countries.

To be seen as a sustainable society, Mexico neither wants to lose its best and brightest people to other countries, nor do we want to be accused of being globally irresponsible off-loaders of our (un)sustainability problems.

By our country's leaders finding creative and positive ways to stop our *brain drain*, Mexico ensures that it positively responds to both potential concerns.

11.7.3 Economic diversification into future-oriented technologies.

11.7.3.1 México: forward thinking, not backward looking.

We do not see the economic future of successful countries in this new Millennium being in outdated, generally non-renewable technologies from an old industrial area: old technologies centred on extracting Earth's resources at (un)sustainable rates and then re-processing these same resources in to products made at pollution-spewing factories and plants.

"We are certain that economically successful countries of this new Millennium will be those that look to the future."

These modernly successful countries will be those that see Earth's human societies moving in to sustainable activities and products, and which then willingly move their own countries in those same new directions.

"We want México to be a country that is forward thinking, not backward looking."

In our modern world, successful economies are those that tie into the knowledge-based, information-focussed, global economy. We earlier noted the vision that our current President Felipe Calderon has in this same direction. Yet unfortunately, México ranks last in the OECD (Organization for Economic Cooperation and Development) in its "Thinkforce"; that is, in the number of researchers our country has per thousand of fulltime employees.¹²⁶

We think it essential that our federal and state governments actively support Mexican-based research and development in the field of

¹²⁶ OECD – Organization for Economic Cooperation and Development. (2007c). *OECD in Figures* [online]. Available from: www.oecd.org/infigures OR http://caliban.sourceoecd.org/pdf/figures_2007/en/oif.pdf (Page 85). [Accessed: 28 April 2008].

sustainability. México has the potential to leap over the stage of western-style industrialisation - a type of development which has also resulted in extensive global pollution and environmental degradation - to then move right in to the future-oriented, knowledge-based, information-focussed economy that current industrialised countries are themselves purposely striving to move in to.

Support in *Sustainability R&D* by México's national and state levels of government would help foster Mexican leadership on the global stage in this growing and increasingly important area.

11.7.3.2 México: A future leader in alternative energy.

Specifically in this regard, we call on our national and state governments to promote and support *Sustainability R&D* (research and development) in alternative energy sources. With the strong winds that our country experiences blowing off of any of the coasts of Baja California and the rest of our Pacific Ocean coast, the Gulf of Mexico or even the Caribbean, México can be a serious global leader in wind technology. In the south, Quintana Roo, Yucatan and Oaxaca States additionally seem ripe in opportunities for real Mexican leadership in solar power generation.



**Wind generation power is a real sustainable, economic, opportunity for México.
Wind blown palm trees on the Gulf of México coast, Tabasco.**

México's national government need consider investing upwards of 10% of all the national petroleum income it receives from PEMEX in to alternative energy research and development. This could be directed in to *Sustainability R&D* in any of:

- Sun: Thermal heat, solar heat.
- Water: hydro electric, wave action, thermal.
- Wind power: wind turbine.
- Geothermal energy.

By our national government actively engaging in *Sustainability R&D*, particularly in alternative energy, México will be closer to having its own alternative energy resources available and on-line by the time our non-renewable petroleum resources are gone. *Yes... gone.* For few Mexicans seem aware that our country's oil supplies, whether located in the Cantarell oilfield in the Gulf of Mexico or elsewhere in our country, are running out. Oil production in México has declined "...a total of 10% since its peak in 2004", resulting in our country actually having to now import petroleum in addition to our being a "net importer of natural gas".¹²⁷

What this means for Mexico is that, at current rates of consumption, all of our country's existing reserves of oil are set to be depleted in only 9.2 years time.¹²⁸

This situation poses a grave energy danger for Mexico, in addition to the national revenue concerns we discuss below. Our country urgently needs our governments to pursue alternative energy solutions... now.

11.7.4 Economic diversification away from (un)sustainable economic mix of activities.

A very important point for the sustainable growth of Mexico is for our country to diversify our economy away from our country's primary and (un)sustainable reliance on non-renewable petroleum resources, foreign remittances from Mexican nationals living abroad, and foreign tourism.¹²⁹ This current economic mix of Mexico's makes for a basket of (un)sustainable national economic activities.

¹²⁷ *ibid.*

¹²⁸ The Economist. (2007a). Running just to stand still. *The Economist*, December 19, 2007 [online]. Available from: http://www.economist.com/displayStory.cfm?story_id=10328190 . [Accessed: 04 May 2008]. AND Smith, Geri. (2008). Mexico's Oil Dilemma. *BusinessWeek*, April 28, 2008 [online]. Available from: http://www.businessweek.com/bwdaily/dnflash/content/apr2008/db20080427_752673.htm [Accessed: 28 April 2008].

¹²⁹ Fact Monster: The Columbia Electronic Encyclopedia 6th Edition. (2007). *Mexico: Economy* [online]. Columbia University Press. Available from: <http://www.factmonster.com/ce6/world/A0859607.html> . [Accessed: 04 May 2008].

While the maquiladoras in our country can also be argued as being (un)sustainable, for they primarily assemble products destined for the USA market and so then become dependent on the health of the USA economy, we leave that discussion to the appropriate experts in that specific subject.

11.7.4.1 (un)sustainable revenue mix: oil.

We again return to the matter of México and oil. Over this past century, México has been heavily reliant on the non-renewable and declining resource of petroleum. So much so that, today, about 40% of the entire budget of our Mexican national government comes from PEMEX and oil.¹³⁰ This (un)sustainable Mexican reliance on oil resource revenue concerns us for this primary reason: it makes for an uncertain economic future for México. As the OECD advises, México's government's "heavy reliance... on oil revenue" helps create a "volatile and uncertain" situation for the public finances of our country.¹³¹

Not only is México facing an uncertain energy future with our country's oil running out. Our Republic also faces a disconcerting financial future when we have nothing yet available to replace the large share of our national revenue which is derived from oil. A 40% drop in México's national revenue from an equivalent drop in México's oil revenue is a recipe for social chaos in any country.

This is a very serious matter. The people of our great land must be made aware of this coming financial reality and its possible consequences to our Republic. Both alternative energy *and* alternative national revenue solutions need begin to be developed today in México, so our country is not caught off guard 10-years-from tomorrow when our oil resources and its related revenue are currently set to expire.

11.7.4.2 (un)sustainable revenue mix: foreign remittances

While our receiving remittances from Mexicans living abroad in foreign countries - mostly from Mexicans living in the USA - seemingly makes for an easy income stream for our country, it does little to put México on the path of economic sustainability. Particularly when the remittance income of foreign-based Mexican nationals itself depends on the virtual strength of the foreign economy they are a part of.

¹³⁰ The Economist. (2008c). Blocked in Mexico: Proposals to reform Mexico's oil industry are stalled. *The Economist*, May 7, 2008 [online]. Available from: http://www.economist.com/daily/news/displaystory.cfm?story_id=11325013 . [Accessed: 08 May 2008].

¹³¹ OECD - Organisation for Economic Development and Cooperation. (2007a). *Economic Survey of Mexico, 2007* [online]. Available from: <http://www.oecd.org/dataoecd/19/24/39425922.pdf> (Page 3). [Accessed: 04 May 2008].

As the respected *The Economist* international business magazine has noted, when the USA is in a recession (as it is now said to be in) México can expect a drop in remittance income due to the weakness of that foreign economy.¹³² This situation then results in a related drop in México's own totals of national revenue.

Sustainability thinking would have México actively exploring alternative revenue streams to foreign remittances: alternatives which are based on México's own internal strength over that of any foreign economy.

11.7.4.3 (un)sustainable revenue mix: tourism.

Tourism itself is also an industry which depends on the economies of foreign countries being strong. It is an industry where foreigners and their foreign-domestically-earned currency can choose to redirect their income abroad through travel choices to non-domestic locations.

In México, we have historically received mostly Americans bringing their USA-earned dollars to spend in our country. Thus, a recession in the USA - or in Canada or Europe, the other two regions of Earth that are the main contributors of tourists to our country - also then means diminished tourist revenue for México. *The Economist* says fewer tourists can be expected to visit México when the USA is in recession; such as that country is now said to be in.¹³³ Thus fewer foreign, mostly fewer American, tourists to México means another negative hit to our Republic's national revenue stream.

As the United Nations notes, and which applies to both México and Cancun:

"Over-reliance on tourism, especially mass tourism, carries significant risks to tourism-dependent economies. Economic recession and the impacts of natural disasters... can have a devastating effect on the local tourism sector...."¹³⁴

Sustainability thinking would then also have México seeking alternative revenue streams to tourism, for tourism too is an economic generator (un)sustainably dependent on the strength of foreign economies.

¹³² The Economist. (2008b). A coming test of virtue. *The Economist*, April 10, 2008 [online]. Available from: http://www.economist.com/displayStory.cfm?story_id=11016383 . [Accessed: 04 May 2008].

¹³³ *ibid.*

¹³⁴ UNEP – United Nations Environmental Programme: Production and Consumption Branch-Tourism. (2001b). *Economic Impacts Of Tourism* [online]. Available from: <http://www.uneptie.org/pc/tourism/sust-tourism/economic.htm> [Accessed: 23 April 2008].

11.7.4.4 A sustainable revenue mix: generally speaking.

We see a sustainable country being one that remains an integral and dynamic part of the global economy. At the same time, a sustainable country is one that has a national economy that is *not* strongly dependent on any one particular sector of its economy for its total revenue *nor* is it a country that is strongly dependent on foreign economies for the strength of its own national economy.

What a sustainable revenue mix would include for any country is some significant degree of economic activity in the knowledge-based, information-focussed, economy in to which Earth's current dominant economies have been actively moving. This includes national and state government investments in *Sustainability R&D*, required to help a country move in to and become a leader in new sustainability technologies and processes.

To put it simply: for México to be a sustainable country, we think our Republic first needs to be strong in and of it self, so that our country can then eventually be strong - and even be a leader - in the global marketplace.

11.7.5 "Sustainability Strategies" required of governments and businesses: End "Greenwashing".

Greenwashing is a phrase to refer to companies that call themselves sustainable even when their activities are not; thereby they falsely claim to be in public what they are not in reality. This practice must be discouraged in México, particularly when *greenwashing* seems rampant. Here in the Riviera Maya, one can find so-called Eco-Real Estate, Eco-Tortillería, Eco-Laundromat and even Eco-Mechanic businesses.



Eco-everything in the Riviera Maya.



Greenwashing??? ...in Cancun.



A green wash: Laundromat in Playa del Carmen.

Sustainability Strategies are a tool used to help businesses, industry, governments and NGOs to practice sustainable development in both their private realities and public lives. They also help these same entities to avoid being accused of merely *greenwashing*.

Sustainability Strategies are the implementation of *Agenda 21* sustainable development approaches and practices at any local level. Often, they are referred to as *Local Agenda 21s* or *LA21s* when applied at the level of local community or local government. They are a very modern tool for incorporating the sustainable development *Triple Bottom Line* throughout all levels of operations. These strategies follow a structure similar to traditional business plans, with their primary difference being on *what* they focus on and in on *who* is involved in their development.

The "*what*" *Sustainability Strategies* focus on and require is for governments (national, state or local), industry and business to change their operational priority from one centred mostly on economic profit to one re-focused on planning for the *Triple-Bottom-Line* (that is, balancing each of the social, economic and environmental aspects of sustainable development). For NGO's, the difference is that they need to include a greater focus on economic

sustainability over a usual focus on social sustainability. “Who” is involved in the development of these plans are any people (stakeholders) who have an interest in the work of the government, business, industry or NGO.

LA21s and *Sustainability Strategies* are being increasingly used by businesses and governments around Earth, particularly those in Europe. The ICLEI (International Council of Local Environmental Initiatives), which has a national office in México, “...estimates that more than three thousand local communities worldwide are now implementing Local Agendas 21.”¹³⁵

England has become a recognised global leader in sustainability planning at local levels through the *LA21 / Sustainability Strategy* approach being required at every level of local government in that country.¹³⁶ The ICLEI offers a respected international programme designed to encourage local governments in the development of *LA21s* and *Sustainability Strategies* for their communities.¹³⁷ As already noted in our section on “*Refocus our economy as factor of the environment*”, there are also many international businesses that have already learned the value of the sustainable development *Triple-Bottom-Line* and which are also making money through its practice.

To ensure that Mexican governments, businesses and industries are engaged in actual sustainable development practices over *greenwashing*, we strongly recommend that our national and state governments explore laws, regulations and financial incentives designed to require the development of *Sustainability Strategies* and *LA21s* throughout our country. The focus of such laws would be to ensure that *Sustainability Strategies* and *LA21s* are implemented at all levels and in all sectors of México.

Businesses and industries that choose to remain rooted in past (un)sustainable patterns of behaviour by not implementing a *Sustainability Strategy* approach could face fines and other penalties from our governments. Reductions in federal cash transfers to municipalities could be a consequence for those communities that choose to continue with their own (un)sustainable practices and not develop an *LA21*. Monies collected from such fines or reductions in cash transfers could go to offset the societal costs which arise from

¹³⁵ UNEP - United Nations Economic Programme: Production and Consumption Branch - Tourism. (2002). *The local Agenda 21 approach* [online]. Available from: http://www.unep.fr/pc/tourism/policy/agenda_21.htm . [Accessed: 07 May 2008].

¹³⁶ United Kingdom Government. (2008). *Homepage: sustainable-development.gov.uk* [online]. Available from: <http://www.sustainable-development.gov.uk/> . [Accessed: 04 May 2008].

¹³⁷ ICLEI Global - Local Governments for Sustainability. (no date). *ICLEI Worldwide* [online]. Available from: <http://www.iclei.org/index.php?id=iclei-worldwide> . [Accessed: 04 May 2008].

these businesses', industries' and communities' (un)sustainable activities.

México's national government could consider creating an *(Un)sustainability Tax* to be placed on those enterprises and municipalities that choose to not develop and adhere to a *Sustainability Strategy / LA21*. Money collected from an *(Un)sustainability Tax* could then be directly used for environmental regeneration or clean-up purposes, as well as for social and economic programmes tied in a government's sustainable development plan.

If industry and business - and even individual humans - will not willingly shift their operations and patterns of behaviour to ones that are sustainable for Earth and the planet's humans, then governments need consider applying regulatory and tax pressure to force changes in these same operations and patterns of behaviour. This reality is increasingly becoming understood by governments around the world. A very recent case in point is the February 2008 decision of the Province of British Columbia in Canada to become the first jurisdiction in North America to introduce a carbon tax on all fossil fuels.¹³⁸

While a symbiotic and balanced relationship between government, business and industry is always desirable, such a constructive relationship is not always possible without initial and strong encouragement - even regulatory force - from government.

11.7.6 Food Sustainability.

As we have been writing this book, another serious sustainability concern has unexpectedly arisen for humans on Earth. "For the first time in recent memory, there were food riots... in a host of countries, ranging from Austria and Hungary to Mexico, Namibia, Zimbabwe, Morocco, Yemen, Mauritania, Senegal and Uzbekistan."¹³⁹

Commodity prices have been increasing in global marketplaces. This has resulted in those countries which have become reliant on imported food products acquired under international *managed-trade* agreements (products paid for at foreign exchange rates), to now be experiencing rising food costs. These countries with some level of *food-dependency* (over *food independence*) have seen some of their

¹³⁸ The Canadian Press. (2008). Budget highlights. *Globe and Mail*, Wednesday February 20, 2008 [online]. Available from: <http://www.theglobeandmail.com/servlet/story/LAC.20080220.BCBUDGETHIGH20/TPStory?query=February+20%2C+2008> (Accessed: 24 March 2008).

¹³⁹ CBC News International. (2008). Food - Rice riots and empty silos: Is the world running out of food? *CBC (Canadian Broadcasting Corporation) News International*, April 30, 2008 [online]. Available from: <http://www.cbc.ca/news/background/food/prices.html> . [Accessed: 04 May 2008].

people rise up in protest at the rising food prices.¹⁴⁰ To give an idea at how much food prices have risen in the past year, *The Economists'* "...food-price index is higher today than at any time since it was created in 1845" and this respected newspaper suggests that higher food prices are "likely to persist for years".¹⁴¹

The Secretary-General of the United Nations, Mr. Ban Ki-moon, has declared a "food crisis" on Earth and even identified "...that escalating energy prices, lack of investment in agriculture, increasing demand, trade distortion subsidies and recurrent bad weather are among the reasons for the surge in prices."¹⁴²

The matter of food sustainability (food self-sufficiency) is suddenly and unexpectedly at the forefront of Earth's humans.

México is a country with many natural privileges. We have vast resources, as well as much land on which food can be grown to support our citizens and for export purposes. Ours is a country with more sustainable options than are available to many other countries on Earth.



Watermelon truck in Cancun.

In our view, for any country to be sustainable would directly imply food-sufficiency (food independence) at the local, regional and national levels, including within the tourism markets so important to our country. We think that sustainable economic diversification for México would encourage the creation of *Greenbelts*, continue to encourage support of family and larger agricultural production at local levels, and require the development and expansion of agricultural activities around tourist resorts in our country.

¹⁴⁰ Ki-moon, Ban. (2008). The New Face of Hunger [online]. *washingtonpost.com*, March 12, 2008 [online]. Available from: <http://www.washingtonpost.com/wp-dyn/content/article/2008/03/11/AR2008031102462.html> . [Accessed: 04 May 2008].

¹⁴¹ The Economist. (2007b). Food Prices - The end of cheap food. *The Economist*, December 6, 2007 [online]. Available from: http://www.economist.com/opinion/displaystory.cfm?story_id=10252015 . [Accessed: 01 April 2008].

¹⁴² UN News Centre. (2008). *Ban Ki-moon to lead task force to tackle global food crisis* [online]. Available from: <http://www.un.org/apps/news/story.asp?NewsID=26491&Cr=food&Cr1=prices> . [Accessed: 04 May 2008].

11.7.6.1 Greenbelts.

Greenbelts is a term used to refer to any area of undeveloped or agricultural natural land that has been set aside near urban or developed land to provide open space, offer recreational opportunities, support agriculture activities, protect historic towns, or restrict urban growth.¹⁴³

London, England has had a greenbelt since 1938 and these have existed throughout England as a whole since 1955, to the point that they now cover approximately 13% of that country.¹⁴⁴ The Province of British Columbia; Canada has had greenbelts since 1973 through their creation of the Agriculture Land Reserve, which "...is a provincial zone in which agriculture is recognized as the priority use. Farming is encouraged and non-agricultural uses are controlled."¹⁴⁵

Urban greenbelts exist in many other locations throughout Earth, including a prominent one located in Portland, Oregon, USA, and other urban greenbelts found in Ottawa, Canada, and San Francisco, California, USA. Natural greenbelts are found in many locations including India, Malaysia, Canada and Sri Lanka.¹⁴⁶ A new urban greenbelt focused on strong agricultural land protection was recently created in Toronto, Canada.¹⁴⁷

We strongly encourage our federal and state governments to use the *Greenbelt* tool as a means to help our country achieve national and local food sustainability. *Greenbelts* can be established around major cities in Mexico, including Cancun, and would be identified areas in which land would be specifically and legally set aside by governments so as to help these cities develop local food production and local food sustainability. Local food production can be achieved

¹⁴³ West, Larry. (2008). *What Good are Greenbelts?* [online]. About.com – A part of the New York Times Company. Available from:

<http://environment.about.com/od/biodiversityconservation/a/greenbelts.htm> [Accessed: 28 April 2008].

¹⁴⁴ BBC News. (2007). Q&A: England's green belt. *BBC News – bbc.co.uk*, August 15, 2007 [online]. Available from: <http://news.bbc.co.uk/1/hi/uk/6947435.stm> [Accessed: 28 April 2008].

¹⁴⁵ Agricultural Land Commission - Government of British Columbia. (no date). *About the Agriculture Land Reserve* [online]. . Available from: http://www.alc.gov.bc.ca/alr/alr_main.htm [Accessed: 28 April 2008].

¹⁴⁶ Greenbelt Alliance. (2006). *Homepage* [online]. Available from: <http://www.greenbelt.org/> . [Accessed: 28 April 2008].

AND

West, Larry. (2008). *What Good are Greenbelts?* [online]. About.com – A part of the New York Times Company. Available from: <http://environment.about.com/od/biodiversityconservation/a/greenbelts.htm> [Accessed: 28 April 2008].

¹⁴⁷ Mittelstaedt, Martin. (2008b). Ontario's greenbelt a model for the world. *Globe and Mail – globeandmail.com*, April 10, 2008 [online]. . Available from: <http://www.theglobeandmail.com/servlet/story/RTGAM.20080410.wgreenbelt10/BNSStory/National/home> [Accessed: 28 April 2008].

through use of the local soil itself or (as would be required in Cancun) through establishing local greenhouse food production.

11.7.6.2 Traditional Agriculture, Regional Production, and Greenhouse Farming.

With the abundance of sunshine in Mexico's south, greenhouse production should be encouraged, including in areas such as Cancun where the local soil is not conducive to serious agricultural activities. Areas in México interested in greenhouse food production could emulate and use as a model the impressive *Hidroponica Maya* greenhouse facilities located in Felipe Carrillo Puerto, Quintana Roo.

Throughout México, whether in or outside of tourist zones, local farmers and their families can continue to be employed to help grow food stuffs and provide local, even organic, food choices for local peoples and even for hotel menus. Greenhouse food production in the Riviera Maya can provide fresh vegetables for both local peoples and the hotel industry, while our local soil can be better used to produce locally-grown fruit and produce such as radishes, mango, pitaya and chaya. Elsewhere in México, local food production can support food sustainability through the growing of local fruits and vegetables indigenous to any given area.



Banana plantation near Teapa, Tabasco.

All areas in México should be encouraged to support and encourage regional production (i.e. at the state-level or through a collection of states) in dairy, poultry, cattle and pork. National and state

marketing boards in dairy, poultry and pork production (a model that exists in Canada), can also be considered a possible model for México.¹⁴⁸

11.7.6.3 Food Sustainability: Final thoughts.

Also related to food sustainability, with México being rich in agricultural resources and human capital, we see no reason why - nor do we see any particular benefit to México's economic sustainability when - foreign-owned hotels ship in food products from overseas. Particularly considering when so many food items can be directly sourced from within the Mexican Republic. If hoteliers and our politicians were more creative with and caring about the local community's in which foreign-owned hotels are located, they would encourage food production around tourist resorts through use of proven traditional and also more modern farming methods such as the greenhouses.

Through encouraging local food production, not only is some degree of Mexican food sustainability (food-sufficiency or food independence) achieved, but more employment opportunities for local people are also created.

Food sustainability to us is a must for any country to be on the path to sustainable development. And we do seriously think foreign owned hotels must help contribute to Mexican and local food sustainability by their doing their best to source and buy food items produced in México.

11.8 Sustainable development solutions for Mexico: Environmental Sustainability.

As we keep emphasising, México needs to take better care of its resources and environment, because these are important both to current generations of Mexicans and also to the well-being of future generations of our people.

Nature offers many benefits that cannot be taken for granted by our country's people. For example, mangrove swamps offer natural coastal buffer protection against hurricanes, help clean the water around them, and also provide a natural protective habitat for fish fry where they can live in safety until they reach maturity and can head out to sea.

¹⁴⁸ The Canadian Encyclopedia. (2008). *Agricultural Marketing Board* [online]. Available from: <http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0000068> . [Accessed: 05 May 2008].

Yet in contravention of Mexico's *Ley General de Vida Silvestre* that restricts such practices, in Mexico's Riviera Maya we see with our own eyes how mangrove swamps are being uprooted at an alarming rate for tourist, housing and other developments.¹⁴⁹ Destroying mangroves poses dangers to our region's coastline during hurricanes, and threatens both water quality and local fish species. During and after a hurricane, our country and its people literally pay in pesos -and also potentially pay through lost human lives - from the consequences of these mangrove lands being destroyed.



Mangroves being bulldozed in Cancun: May 2008



Cancun housing and far distant new condo towers, all built on top of mangrove lands.



Destroyed Mangroves in Cancun: May 2008

México is one of the most biodiverse countries on Earth yet, as we outlined in our section on *Biodiversity Loss*, we Mexicans cannot

¹⁴⁹ Camara de Diputados del H. Congreso de la Union, Estados Unidos Mexicanos. (2000). *Ley General de Vida Silvestre: Ultima Reforma* DOF 01-02-2007 [online]. Available from: <http://www.diputados.gob.mx/LeyesBiblio/pdf/146.pdf> . [Accessed: 07 May 2008].

take our country's natural wealth for granted. Our country has already documented the loss of many species indigenous to México and these species losses will continue if we Mexicans do not begin to seriously care for the health of our Earthly home. Mexicans urgently need to learn to respect their natural environment, care for it, protect it, and even allow it to grow in size and scale.

México has on paper some of the finest, even strongest, environmental laws of any country on Earth. So all we really want to say in relation to the environmental aspect of sustainable development and México is:

We ask only that México's governments enforce México's environmental laws.

Laws on paper look nice, but they mean absolutely nothing if not enforced. By enforcing our country's laws, Mexican politicians will help make México a global example for environmental protection and sustainable development.

12. CONCLUSIONS

This book is simply our way of trying to start a larger and longer conversation in México on the sustainable development of our country.

Our general conclusions for México to become a sustainable country are as follows:

1. We see that Mexican leadership and the public example in México for applying the sustainable development *Triple-Bottom-Line* - that is, each of the social, environmental and economic interconnexions of sustainable development - must begin with our national, state, and local governments.
2. We know that applying sustainable development principles will not be easy, yet the benefits are well worth it. México can use sustainable development as a tool to improve our peoples' quality of life, education levels, and economic situations, as well as to improve our country's natural environment; all the while leaving a brighter future to next generations of Mexicans.
3. By our governments passing and also enforcing laws and regulations that require all aspects of Mexican society to apply the concept, approach and practice of sustainable development, México can quickly become an international example and global leader in this important area.
4. Population control in México is a necessity for the sustainable development of our Republic.
5. With urgent Mexican government investments in *Sustainability R&D* (research and development), México can become a future global leader in alternative energy *and* also help to ensure our Republic's future well-being for that fast-approaching day when our country's oil resources (and related oil revenue) run dry.
6. We understand that México may not be a perfect country, but what single country can honestly claim to be so. So acknowledging our own national imperfections, we see that our governments at all levels in México need now to begin to rectify some of our imperfections by their:
 - 6.1 seriously beginning the long-process toward ending corruption in our country;
 - 6.2 encouraging the practice of *Equality of opportunity* (meritocracy over nepotism) throughout our Republic; and

6.3 enforcing and strengthening México's impressive environmental laws.

7. We think the evidence we present speaks for itself. As we see it through the eyes of science, humans have one positive solution available to us to address the negative impacts which our (un)sustainable development patterns are having on Earth:

The solution is sustainable development.

8. No matter what humans do, Earth as a planet will carry on... with or without the human species. Humans can, of course, still choose to continue on with our currently negative development patterns. And by our species doing so, this would simply result in greater negative consequences to us humans ourselves. Such consequences would likely include growing food crises, increased fresh water shortages, continued global warming and its associated ocean level increases, and loss of biodiversity that itself also threatens the very survival of our human species.
9. The choice for change is ours alone to make. Do we as Mexicans and humans foolishly continue with our (un)sustainable lifestyles? Or do we instead wisely choose a bright future?

The darkening path that science implies is awaiting humans if we continue on with our current patterns of (un)sustainable development is becoming ever more concerning, even frightening.

We hope México's politicians and our fellow Mexican citizens will chose the bright path of sustainable development.

13. APPENDICES

*Appendix 1:
Diagram on the Spine and Foundation of a Sustainable Society.*

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