

## **CHAPTER 7**

# **Futures Studies around the World**

### **7.1 Latin America 2030**

#### **Executive Summary**

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## **EXECUTIVE SUMMARY**

Between 2010 and 2030, most countries of Latin America will celebrate 200 years of independence in multiple bicentennial celebrations. As these countries look back over their first two centuries, it seemed appropriate to take this opportunity to explore future possibilities for Latin America. The Chairs of the Millennium Project Nodes in Latin America used a Real-Time Delphi to collect judgments of knowledgeable individuals about the likelihood and impact of developments that might affect Latin America over the next 20 years and the potential course of variables important to the region. This chapter shares the results of that study, which will also be used to produce several regional scenarios next year.

Some highlights from this year's research: There is about a 50% chance that within the next 20 years Latin American countries will follow the European Union model, see food prices double, have wireless broadband communications connecting all major cities, greatly increase tourism, increase GDP per capita by 50%, and become and remain the world's leading producer of biofuels. On the darker side is the possibility that organized crime becomes more powerful than some governments, a large growth in CO2 emissions, the threat of rising protectionism, and great uncertainty in the ability to reduce corruption.

The study design, participant selection process, and results are presented in detail in the accompanying CD. Since many developments that may occur outside of the region will affect Latin America, the geographic scope of the study was worldwide. The questionnaire was available in Spanish, Portuguese, and English during a 10-week period. It had three sections and a total of 92 questions: section 1 dealt with potential international developments that can affect Latin America (38 questions), section 2 was on Latin American developments (44 questions, including 14 focused on geopolitical influence), and section 3 contained scenario ideas (10 questions).

Over 550 people from about 60 countries participated. About 30% identified their gender as female. The percentage of the participants by professional affiliation was as follows: academic 36%, private sector 19%, consultant 16%, other 15%, government 7%, and non-profit, 5%. By country, the top participation was from Brazil at 19%, followed by Argentina at 15%, Peru at 13%, Mexico at 13%, and the United States at 12%.

### **Future Developments**

Considering both international and Latin American developments, nine were seen as both likely (>60%) and significant (>6.8); these are "good bet" assumptions for later scenarios (see Table 1).

**Table 1. Developments rated as likely and significant**

<b>Development</b>	<b>Likelihood</b>	<b>Significance</b>
Food prices double in real terms (for example, from production of crop-based fuels)	63.3	7.67
Regional organized crime is more powerful than some Latin American governments	60.9	7.54
Free, wireless, broadband networks connect all major Latin American cities	63.4	7.50
Latin America becomes the world leading producer of biofuels	60.3	7.40
Tourism increases five fold from 2010 levels (including eco-tourism)	64.9	7.37
90% of the world's population over 11 years of age uses Internet	74.3	7.30
Human migrations at twice today's levels occur from causes such as water shortages	64.2	7.03
Glaciers in the Andes mountains are reduced by 75% compared to 2000	61.0	7.01
Genetic manipulation (GM) is used in the production of 2/3 of the world's food	66.1	6.85

Considering the Latin American developments that were indicated as both likely and significant, several common or repetitive explanations were given by the respondents. For example:

- Assuming that food prices double in real terms, respondents tend to affirm that this will be unavoidable, but it can be solved to some degree by means of synthetic foods. Furthermore, some respondents focus on the value of education and skills in order to soften the negative effects of this assumed trend.
- Assuming that regional organized crime is going to be more powerful than some Latin American governments, respondents believe that this is now concentrated (and it is going to remain concentrated) in certain regions (mainly Colombia and Mexico). Drug trafficking and arms trading are identified as the two main components of “organized crime” in Latin America. The value of education is emphasized in order to solve such problems.
- Assuming that 90% of the world’s population over 11 years of age will use the Internet, portable devices are considered a priority. This will facilitate achieving specific social objectives, such as bringing these devices to poor communities.
- Assuming that human migration will double as a result of today’s levels will occur from causes such as water shortages, abundant natural resources in Latin America will be an important factor both to the region and to the world as a whole.

“Surprises” are developments that have low probability but high impact. A set of 10 that have impacts above 6.6 and probabilities less than 50% are listed in Table 2. These are developments that can “flavor” any scenario.

Considering the Latin American developments that were indicated as unlikely but very significant (“surprises”), there are certain commonalities among the answers. For example:

- Assuming that most Latin American countries will not unite following the European Union model, it is still highly possible that some kind of institutional integration is going to be implemented.
- Assuming that it is not probable that a single regional currency will be accepted by most countries in Latin America, most answers focus on the political nature (not economic) of the decision and the issues that new technologies pose to traditional monetary policy.
- Other “surprises” include that the Latin American brain drain will be reversed and that “Made in Latin America” will become a symbol of quality and technology. Some “reasons” for this consider that some emergent countries (such as Brazil) are not going to reverse these trends, although their economic and geopolitical significance is increasing.

**Table 2. Developments rated as highly significant but less likely**

Development	Likelihood	Significance
Most Latin American countries unite following the European Union model	47.7	7.73
"Made in Latin America" becomes symbol of quality and technology	37.5	7.54
Latin American brain drain is reversed	45.9	7.30
Latin America countries retreat from globalization and establish barriers that are designed to protect their markets	37.5	7.26
The Amazon forest recovers and deforestation is reversed	42.2	7.17
A single regional currency has been proposed and accepted by most countries in Latin America	45.0	7.11
A common tax and legal system is implemented throughout Latin America	31.3	7.10
Entrance to the USA is denied to emigrants from Latin America	41.3	6.73
Most Latin American countries eliminate armies following Costa Rican example	23.9	6.66
Global pandemic kills over one hundred million people	36.4	6.60

Fourteen questions inquired about changing international political influences on Latin America. China, Brazil, and India were all seen to be growing in influence; Colombia, Venezuela, and sub-Saharan Africa were at the bottom of the influence list. Some common elements in the answers provided by the participants follow, according to their growth of international influence in Latin America:

- Respondents expect China to gain more influence, but there are also some comments regarding its “leveling off” and not increasing its power indefinitely in the long term.

- The point about China at the global level might also be applicable to Brazil at the Latin American level. But there are less conservative or pessimistic assertions explicitly stated in the case of Brazil.
- Participants expect India's influence to grow without interruption until 2030. It is stated that India will be able to compete more effectively with the current superpowers as time goes by.
- The respondents focus on the internal problems that the European Union is facing now, which will impede its acquisition of more power in the next decades.
- The United States has fallen from its prominent role in the twentieth century; today there is a more multipolar world, where the demographic giants of China and India are re-emerging.
- Respondents believe that Japan and South Korea are going to gain influence thanks to their competitiveness in nontraditional sectors.

### **Variables**

Five questions called for respondents' estimates of the future highest plausible and lowest plausible value for five variables concerning society, technology, economics, environment, and politics. Table 3 summarizes the estimates for the five main variables. The first two columns present the data given to the respondents, and the final column shows the median estimates from the study. The penultimate column shows regional data for comparison to the regional forecasts made by the respondents.

**Table 3. Estimates on values of variables concerning society, technology, economics, environment, and politics**

Variable	Best and Worst Countries in the World (background data provided in the study)	Best and Worst Countries in LA Region (background data provided in the study)	Regional Data (recent data)	Regional Forecasts (median values from current study)
Human Development Index (High value)	.971	.9	.821 (2007, Wikipedia)	0.9
Human Development Index (Low value)	.340	.5	LA+Carib	0.6
E-Readiness Index (High value)	8.95	6.6	Brazil 5.42 Mexico 5.73	7.0
E-Readiness Index (Low value)	3.18	4.2	Venezuela 5.06 (2009, EU)	5.0
GDP/capita (High value)	110,000	11,000	7,448 (2008, WDI)	11,000
GDP/capita (low value)	100	800	LA + Carib	1,500
CO2 Emissions per Capita (Tons) (High value)	56.2	25.3	2.56 Tons/cap (2006, WDI)	25
CO2 Emissions per Capita (Tons)(Low value)	0.1	0.2	LA +Carib	7.25
Corruption Index (High value) <sup>1</sup>	9.4	6.7	Chile 6.7 Mexico 3.3	6.7
Corruption Index (Low value)	1.1	1.8	Venezuela 1.9 (2009, TI)	2.0

<sup>1</sup> Note: Higher numbers mean less corruption

## **The Scenario Questions**

Participants were asked how important it is to stress society, technology, environment, economics, and politics in both international and Latin American scenarios over the next 20 years. The average responses are shown ranked by importance to Latin American in Table 4.

The high priority given to “society” was not clearly explained among the “reasons.” However, “technology” is described as “the key of progress and will cause a new revolution that will change the world. We should invest more in here than now, and in general terms technology leads to a welfare state.”

**Table 4. Importance of society, technology, environment, economics, and politics for Latin American and international scenarios to 2030**

<b>Priority accorded to elements</b>	<b>International Importance</b>	<b>Latin America Importance</b>
Society	8.44	8.45
Technology	8.45	8.14
Environment	8.26	8.13
Economics	8.12	8.12
Politics	7.42	7.64

The importance of the “environment” is based on the assertion that “without a good relation between ecology and economy, the world could collapse.” Furthermore, “we are part of the ecology and the environment of the earth. Working with this understanding allows us to respond more effectively to create supportive systems in which humans can prosper. At present we are in the midst of a biodiversity collapse and have no way to understand how this extinction will ultimately affect us— although few climax species have ever done well during extinction events.”

“Economics” is understood as a means to facilitate communication and exchanges between people, and “politics” helps to put together the necessary resources to create democratic systems in order to address the problems of humanity.

Some examples of such combined society, technology, environment, economics, and politics considerations are the following:

*It is important, but we have good economic politics. Anyway, we have to fight to eliminate that big mark between poverty and wealth, which causes that hatred towards capitalism.*

*True economics is important. It means eliminating barriers between people. The movement of capital, persons, and goods across national borders must not be hindered nor taxed in any manner or form. Bureaucratic meddling in the economy must be drastically curtailed. Regulationism must be abolished. Justice must be expedited, and frivolous cases without real cause should bear the expenses. Congresses should not be allowed to approve any kind of expenses, except when funds are available without borrowing a red penny. People must not be forbidden the use of any substance whatsoever, which includes divesting the FDA of the power to ban any types of medicines. The bureaucracy must not attempt to protect*

*people from themselves and their own decisions about themselves and their rightful properties.*

*We need new understanding of how economic success is measured—well-being rather than weight of coins would be useful. Economics is just talking about how people interact in larger groups that we can manage based on interpersonal trust. We can't go on externalizing the costs of our work as we do in the present system. This externalization has led to many of our present problems getting very big and increasingly difficult to respond to, before we know that they are problems—better feedback loops increase the ability of everyone to respond more quickly and effectively to both negative and positive changes.*

### **Preliminary Scenario Ideas**

The ideas can be aggregated in order to create two preliminary and very general scenarios about the future of Latin America by 2030: one very positive and one very negative. Such extreme scenarios can be called the “God Is Latin American” scenario and the “Disintegration in Hell” scenario.

#### **The “God Is Latin American” Scenario**

Brazilian president Lula da Silva popularized the idea that “God is Brazilian” during the early 2000s. By 2030, such a concept will apply to the whole region. The “God is Latin American” scenario emerges from the following positive ideas:

1. Society:
  - Education and social development softens the negative impacts of accelerated growth.
  - The region as a whole experiences a remarkable improvement in its HDI ranking (see variables).
2. Technology:
  - “Made in Latin America” becomes a symbol of quality and technology.
  - The technology readiness index moves quickly ahead in the region (see variables).
3. Economics:
  - Latin America bridges the economic gap with advanced economies.
  - Gross domestic product increases substantially.
4. Environment:
  - Latin American natural resources and ecological advantages make it unique in the world.
  - CO2 emissions per capita become the lowest in the planet (see variables).
5. Politics:
  - Democratic governments create a great Latin American union with strong popular support.
  - Corruption levels decrease to the level of advanced nations.

### The “Disintegration in Hell” Scenario

This second set of ideas can be aggregated in a “Disintegration in Hell” scenario with very negative considerations. Again, these are only suggestions that will be further analyzed by The Millennium Project Nodes and the Delphi participants during the next few months (2010-2011). After the bicentennial celebrations of independence, Latin American countries become less integrated, dictators mushroom everywhere, and even some national governments collapse by 2030.

#### 1. Society:

- The gap between rich and poor continues to grow dramatically, and standard of living drops.
- The HDI of the region falls drastically (see variables).

#### 2. Technology:

- Most technology is imported and there are very few local technology companies and schools.
- The technology readiness index worsens relative to other regions (see variables).

#### 3. Economics:

- Hyperinflation returns, unemployment rises, and the economy stagnates.
- Gross domestic product drops under heavy stagflation (see variables).

#### 4. Environment:

- Forests are destroyed, glaciers melt, deserts grow, and rivers, lakes, and seas are polluted.
- CO2 emissions and most environmental indicators worsen quickly (see variables).

#### 5. Politics:

- Crime, terrorism, ethnic upheaval, and demagoguery disrupt most nation states in the region.
- Latin America reaches the worst corruption levels in the world (see variables).

These two simple scenario ideas will be further developed, expanded, changed, and substituted, as needed, during the second part of this study next year. Other less extreme scenarios may be added. The objective is to visualize multiple possibilities based on the results of the Real-Time Delphi in order to inform policy considerations. Such scenarios are not meant to describe the future, but to open people’s minds concerning potential future developments.

### Conclusions

The quantitative estimates from experts around the world about developments that could shape the future of Latin America plus their reasons behind the estimates can now be used to develop scenarios. The wide range of estimates highlight not only the uncertainties ahead but also the opportunities for informed policy to steer a course to a better future in the region.

There were original ideas about what some of these policies might be and estimates of what better and worse futures could be. The Real-Time Delphi produced information on threats and opportunities concerning the future of Latin America and beyond.

The bicentennial independence celebrations are a good time to consider the next 20 years, and even to ponder the next 200 years. This study and the scenarios it generates are contributed to help efforts across Latin America to rethink and plan for a better future.



## 1. INTRODUCTION

This Real Time Delphi study was designed to develop a cross section of opinions about the likelihood and impacts of potential future developments, the potential course of selected variables, and other factors that could be used in the construction of Latin American scenarios. The time for such a study seemed appropriate since it would coincide with the independence bicentennial celebrations in many Latin American countries from 2010 to 2030.

While the focus of the study was on Latin America, there are many developments that may occur outside of the region that will be important and have influence there. Thus the geographic scope of the study was worldwide; the time horizon was 20 years into the future. The questionnaire was available in English, Spanish, and Portuguese and narrative answers could be furnished by the respondents in any of these languages.

## 2. THE STUDY DESIGN

The study questionnaire had three major sections:

- Potential international developments that can affect Latin America
- Latin American developments
- Scenario Ideas

Within the first and second sections, potential developments were presented in the rows of a matrix. Respondents were asked to provide judgments about likelihood of occurrence of each development by 2030 and the significance of the development. In each case a seven point radio button scale was used to collect the judgments.

Thirty eight questions dealing with future international developments appeared in the first section as follows:

33	<p><i>Real-time translation technologies eliminate most language barriers</i>  <i>Las tecnologías de traducción a tiempo real eliminan la mayoría de las barreras lingüísticas</i>  <i>A tecnologia de tradução em tempo real para eliminar as barreiras lingüísticas mais</i></p>	<p>What is the likelihood of occurrence by 2030?</p> <p>&gt;95%      50%      &lt;5%</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>Average= 64.6 (240)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>	<p>If it happened, how significant would the impact be on Latin America?</p> <p>Huge      None</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>Average= 6.5 (236)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>
34	<p><i>Diseases like Alzheimer's, Parkinson's and cancer are eliminated everywhere</i>  <i>Enfermedades como el Alzheimer, el Parkinson y el Cáncer son erradicadas</i>  <i>Doenças como Alzheimer, Parkinson e câncer são erradicadas</i></p>	<p>What is the likelihood of occurrence by 2030?</p> <p>&gt;95%      50%      &lt;5%</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>Average= 43.5 (239)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>	<p>If it happened, how significant would the impact be on Latin America?</p> <p>Huge      None</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>Average= 6.3 (236)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>



<p>91</p>	<p>Variable: ENVIRONMENT: CO2 Emissions per Capita (Tons)                  Variable: ECOLOGÍA: Emisiones de CO2 per cápita (Toneladas)                  Variável: ECOLOGIA: Emissão de CO2 per capita (Toneladas)</p> <p>Latin America; Latinoamérica; América Latina                  Lowest; Mínimo; Mínimo: 0.2                  Highest; Máximo; Máximo: 25.3</p> <p>World; Mundo; Mundo                  Lowest; Mínimo; Mínimo: 0.1                  Highest; Máximo; Máximo: 56.2</p> <p>For a reference <a href="#">click here</a> (use your browser's back arrow to return here)</p>	<p>What is the lowest plausible value in Latin America by 2030?</p> <p><input type="text"/></p> <p>Average= 4.4 (125)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>	<p>What is the highest plausible value in Latin America by 2030?</p> <p><input type="text"/></p> <p>Average= 26.4 (123)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>
<p>92</p>	<p>Variable: POLITICS: Corruption Index (A higher score means less perceived corruption)                  Variable: POLÍTICA: Índice de Corrupción (A mayor puntuación, menor nivel de corrupción percibido)                  Variável: POLÍTICA: Índice de Corrupção (A pontuação maior refere-se ao menor nível de corrupção percebida)</p> <p>Latin America; Latinoamérica; América Latina                  Lowest; Mínimo; Mínimo: 1.8                  Highest; Máximo; Máximo: 6.7</p> <p>World; Mundo; Mundo                  Lowest; Mínimo; Mínimo: 1.1</p>	<p>What is the lowest plausible value in Latin America by 2030?</p> <p><input type="text"/></p> <p>Average= 3.3 (136)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>	<p>What is the highest plausible value in Latin America by 2030?</p> <p><input type="text"/></p> <p>Average= 8.1 (136)</p> <p>Submit only this cell <input type="button" value="go"/></p> <p>Reasons for your answer - <a href="#">click here</a></p>

Respondents were encouraged to supply reasons for their answers. When they pressed the “Reasons for your answer” button, they were taken to a page that had a space for each person’s reasons and presented the reasons given by others in the group; the reasons page appeared as follows:

**On this form you can provide your thoughts about the question. Please type your response in the next to last column. You may change it if you wish. The final column lists the responses of other respondents. Please press the submit button on the bottom of the form.**

En este documento podrá introducir sus opiniones sobre la pregunta. Por favor, introduzca su respuesta en la columna siguiente a la última. Puede cambiar su respuesta si lo desea. La última columna recoge las respuestas de los demás encuestados. Por favor, presione el botón de la parte inferior del documento para enviar sus respuestas.

Este documento pode apresentar as suas observações sobre a questão. Por favor, insira a sua resposta na coluna que sucede a última. Você pode alterar a sua resposta, se desejar. A última coluna contém as respostas dos outros entrevistados. Por favor, clique no link na parte inferior do documento para enviar suas respostas.

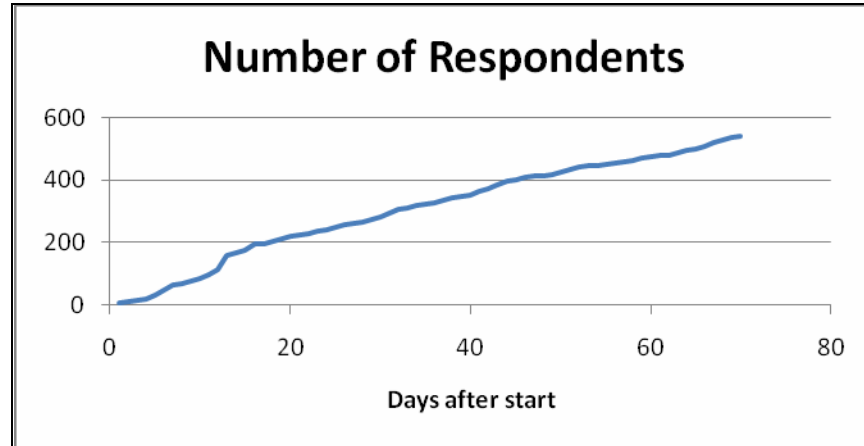
Question Pregunta Pergunta	Type of Response Tipo de respuesta Tipo de resposta	Your Answer (from prior page)	Your Response Su respuesta Sua resposta	Group Responses Respuestas del grupo Respostas do grupo
<p>(Eng) Artificial beetles and algae are used to produce 20% of fuels                      (Esp) Bacterias artificiales y algas se utilizan para producir 20% de los combustibles                      (Por) Bactérias e algas artificiais são utilizadas para produzir 20% dos combustíveis fósseis</p>	<p>Impact: on Latin America</p>			<p>Supply &amp; demand tend to equal each other.                      *** (20) debido a su alto costo los países latinoamericanos en general no tendrán acceso a ellas además debido a la generalidad de poco inversión en desarrollo y educación pocos ciudadanos sabrían como sacarle real provecho                      *** (20) Habrá una seria crisis financiera en América Latina y escasez de recursos para inversiones en este campo.                      *** (35) debido a su alto costo los países latinoamericanos en general no tendrán acceso a ellas además debido a la</p>

To submit your response  
 Respuestas del grupo  
 Respostas do grupo

A complete listing of the 92 items is presented in Appendix F1-A.

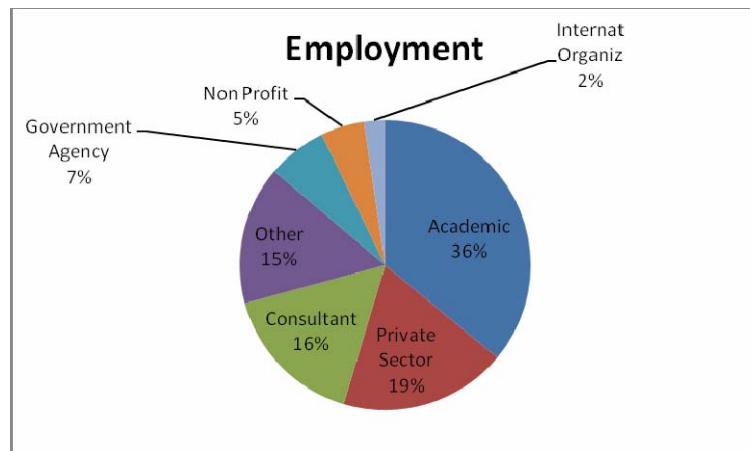
### 3. THE PARTICIPANTS

Invitations to participate were distributed through a number of different methods including, direct contact with persons known to have interest in Latin America by the Millennium Project nodes, inclusions of information about the study in public and professional lectures, daisy chains in which previously invited participants asked colleagues to provide their judgments; there is no way of knowing how many people were actually invited, but a good estimate would be 1,500. In the 70 days that the study was active, 833 people signed on and of these about 2/3 (552) provided at least one answer. The rate at which people signed on and proceeded to answer at least one question was almost linear as shown below:



In the sign on process, new respondents were asked to provide certain information about themselves, including their employment. The sign on data show:

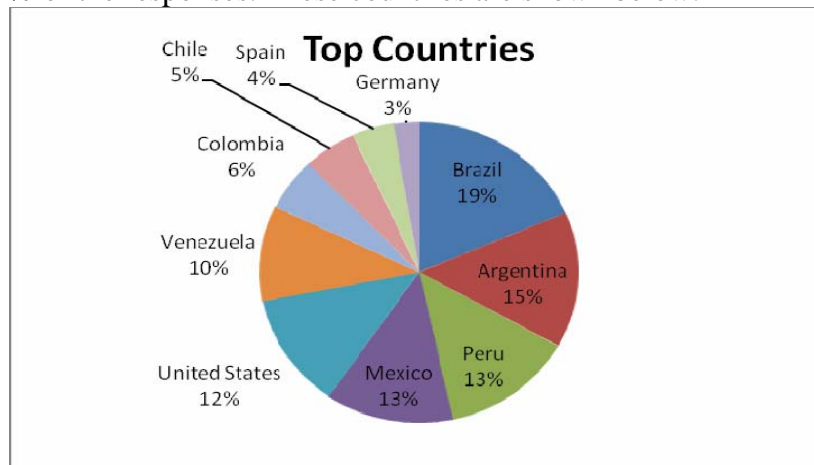
Academic= 35.39 %  
 Private Sector= 18.35 %  
 Non Profit= 4.85 %  
 Government Agency= 6.68 %  
 Internat Organiz= 2.36 %  
 Consultant= 16.64 %  
 Other=15.73 %  
 Total Employment= 100.00 %



The sign on process also asked for the respondent's country; the resulting distribution of countries is:

1	Brazil	14.32	31	Korea (South Korea)	0.37
2	Argentina	11.26	32	Netherlands	0.37
3	Peru	10.40	33	OTHER	0.37
4	Mexico	10.04	34	Belgium	0.24
5	United States	9.55	35	Czech Republic	0.24
6	Venezuela	7.83	36	Dominican Republic	0.24
7	Colombia	4.41	37	Philippines	0.24
8	Chile	4.16	38	Portugal	0.24
9	Spain	3.30	39	Puerto Rico	0.24
10	Germany	1.96	40	Turkey	0.12
11	Ecuador	1.84	41	Armenia	0.12
12	United Kingdom	1.84	42	Algeria	0.12
13	Panama	1.47	43	Austria	0.12
14	Uruguay	1.47	44	Bahamas	0.12
15	Guatemala	1.35	45	Bulgaria	0.12
16	Finland	1.22	46	China	0.12
17	Bolivia	0.98	47	Cuba	0.12
18	South Africa	0.98	48	Egypt	0.12
19	Slovakia	0.86	49	Ireland	0.12
20	Canada	0.73	50	Kuwait	0.12
21	El Salvador	0.61	51	Malaysia	0.12
22	France	0.61	52	Malta	0.12
23	Israel	0.61	53	Nicaragua	0.12
24	Azerbaijan	0.49	54	Norway	0.12
25	India	0.49	55	Switzerland	0.12
26	Italy	0.49	56	Taiwan	0.12
27	Japan	0.49	57	Thailand	0.12
28	Russian Federation	0.49	58	United Arab Emirates	0.12
29	Australia	0.37	59	Uzbekistan	0.12
30	Costa Rica	0.37			

People from over 58 countries provided answers to the questionnaire; the top 10 countries supplied over 75% of the responses. These countries are shown below:



There were 92 questions which asked for two numerical answers each (e.g. Likelihood and Impact) Thus each person had the opportunity to add 184 numerical answers to the database and 184 reasons for their answers for an heroic total of 386 answers per person. The theoretical maximum number of responses is  $386 * 544$  or about 210,000 responses. Several respondents answered around 200 questions. Actually almost 66,000 responses were recorded in all, a fair percentage of the maximum attainable.

About 30% of the respondents who identified their gender were female.

A complete listing of respondents appears in Appendix F1-D.

## 4. SUMMARY OF RESPONSES

### 4.1 International Developments

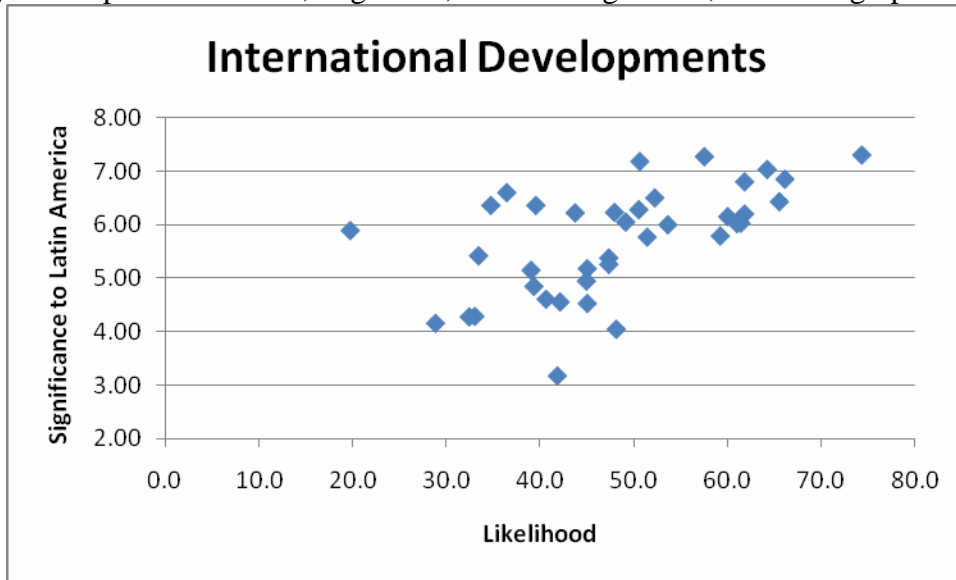
Thirty eight questions were posed about future international developments and their potential significance to Latin America. The set encompassed technological, environmental, and economic possibilities for the next decade. The group was asked to assess the likelihood of each of these developments occurring on a seven point scale ranging from >95% to <5%; the potential Latin American significance of each item was also judged on a seven point scale ranging from “Huge” to “None.” The table below summarizes the average responses, ranked by significance:

		Likelihood	Significance
28	90% of the world's population over 11 years of age uses Internet	74.3	7.30
17	Essentially all countries guarantee primary and secondary school education	57.5	7.27
2	Massive financial crisis triggers a world depression as large as in the 1930's	50.6	7.18
25	Human migrations at twice today's levels occur from causes such as water shortages	64.2	7.03
10	Genetic manipulation (GM) is used in the production of 2/3 of the world's food	66.1	6.85
3	Most glaciers melt twice as fast as in the decade 2000 – 2009	61.8	6.80
4	Global pandemic kills over one hundred million people	36.4	6.60
7	Renewable energy sources, like wind and solar, provide 50% of the world's power	52.2	6.50
33	Real-time translation technologies eliminate most language barriers	65.5	6.43
32	Humans control weather; e	39.5	6.36
35	A single global currency has been created and circulates in 90 countries	34.7	6.36
13	Long trade wars between China and the USA significantly damage world commerce	50.5	6.28

26	Water scarcity problems are essentially solved (for example, through low cost desalination)	47.9	6.23
34	Diseases like Alzheimer's, Parkinson's and cancer are eliminated everywhere	43.7	6.22
30	A post Kyoto Protocol is negotiated and enforced	61.8	6.20
36	A <i>technological singularity</i> is expected any time soon	60.0	6.15
1	(Eng) Artificial bacteria and algae are used to produce 20% of fuels	49.1	6.05
18	Cybercrime is more difficult to detect and triples in damages from 2010 levels	61.4	6.03
8	Electric, hydrogen and hybrid cars represent 50% of new vehicles sold	61.0	6.02
11	Wireless electricity transmission from point to point on Earth at gigawatt levels is proven feasible	53.6	6.00
6	An asteroid or meteorite crashes on Earth and kills millions	19.7	5.89
23	Nanotechnology accounts for 30% of all manufacturing	59.2	5.79
37	Nuclear weapons proliferate; 30 nations have the bomb	51.4	5.77
20	Over 40% of all people in the world become vegetarians	33.4	5.42
29	Carbon sequestration: 25% of all new carbon production is captured and stored	47.3	5.38
12	Extremists detonate nuclear devices, dirty bombs, or other weapons of mass destruction in Europe or the USA	47.3	5.26
22	OPEC becomes irrelevant and disappears	45.0	5.18
16	Artificial intelligence reaches the level of human intelligence	39.0	5.15
24	Middle East oil producing countries successfully diversify beyond energy production (50% of income from sources other than oil)	44.9	4.95
5	Megawatt levels of power are beamed from solar collectors in orbit to Earth	39.3	4.85
9	Human genetic manipulation (e	40.6	4.61
31	Energy companies are found responsible and sued for previous CO2 emissions	42.1	4.56
19	Computer to brain implants make brain to brain and computer communications possible	45.0	4.53
14	Some European countries fall back to undeveloped status	33.0	4.29
38	First cyborgs and post-humans live among unenhanced humans	32.4	4.28
21	Most geo scientists agree that "global warming" was a false alarm	28.8	4.16

15	China's use of coal drops to 10% of current levels	48.1	4.05
27	Saudi Arabia is balkanized after, for example, the Saudi royal family collapses or Islamist coup	41.8	3.18

It is interesting to note the relationship that exists between the likelihoods and significance: the more likely developments are also, in general, the more significant, as shown graphically below.



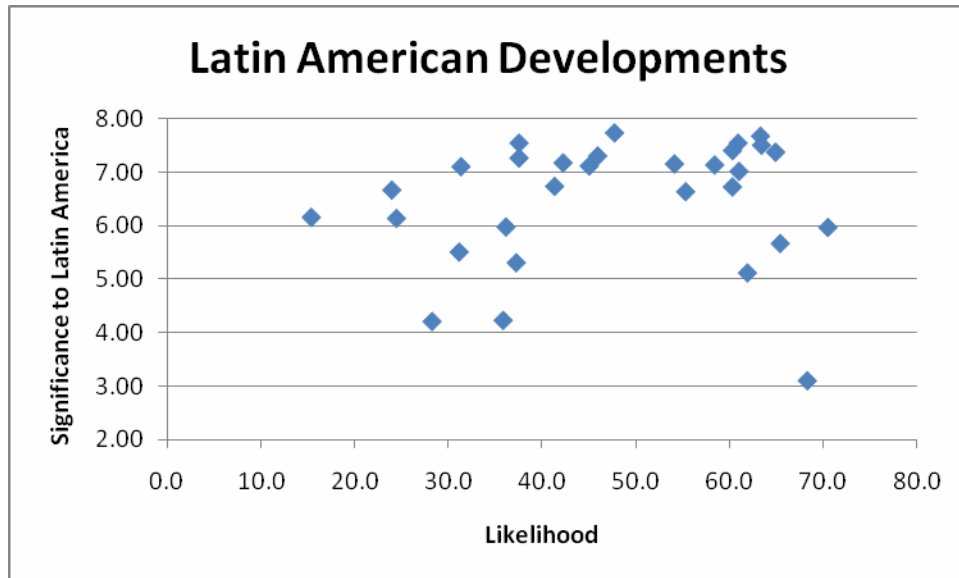
#### 4.2 Latin American Developments

Thirty developments focused on Latin America; as in the earlier section the questions about these developments focused on likelihood and significance to the region. The table below, is rank ordered by significance.

		Likelihood	Significance
58	Most Latin American countries unite following the European Union model	47.7	7.73
78	Food prices double in real terms (for example, from production of crop-based fuels)	63.3	7.67
74	"Made in Latin America" becomes symbol of quality and technology	37.5	7.54
82	Regional organized crime is more powerful than some Latin American governments	60.9	7.54
66	Free, wireless, broadband networks connect all major Latin American cities	63.4	7.50
56	Latin America becomes the world leading producer of biofuels	60.3	7.40
77	Tourism increases five fold from 2010 levels (including eco-tourism)	64.9	7.37
63	Latin American brain drain is reversed	45.9	7.30

75	Latin America countries retreat from globalization and establish barriers that are designed to protect their markets	37.5	7.26
71	The Amazon forest recovers and deforestation is reversed	42.2	7.17
64	Homicide and kidnapping rates in Latin America become the worst in the world	54.1	7.15
69	Regional electricity networks connect the whole continent	58.4	7.13
80	A single regional currency has been proposed and accepted by most countries in Latin America	45.0	7.11
65	A common tax and legal system is implemented throughout Latin America	31.3	7.10
73	Glaciers in the Andes mountains are reduced by 75% compared to 2000	61.0	7.01
54	Entrance to the USA is denied to emigrants from Latin America	41.3	6.73
76	Conflicts over water ownership have occurred (e	60.3	6.72
72	Most Latin American countries eliminate armies following Costa Rican example	23.9	6.66
70	Latin American cartels for energy and raw materials are formed	55.3	6.63
67	Brazil and Mexico subdivide into smaller nations	15.3	6.15
57	Hugo Chavez consolidates his power in other countries beyond Venezuela	24.4	6.13
60	Orinoco Heavy Oil in Venezuela becomes the world's largest new source of energy	36.1	5.97
68	At least one Latin American country permanently joins the United Nations Security Council	70.5	5.96
53	Mexico integrates more with the USA than with rest of Latin America	65.4	5.66
62	Guerrilla movements overtake at least two governments in the region (as was attempted in Colombia)	31.1	5.50
59	At least two Latin American countries are split by indigenous ethnic conflicts	37.2	5.30
79	Women become presidents of a third of Latin American countries	61.9	5.11
61	Castro's government survives him in Cuba	35.8	4.22
81	Latin American Space Agency launches two astronauts to the Moon	28.2	4.20
55	Brazil wins for seventh time the Football (Soccer) World Cup	68.3	3.09

And graphically:



Considering both sets of developments, nine developments were seen as both likely (>60%) and significant (>6.8); these are “good bet” assumptions for the later scenarios:

		Likelihood	Significance
78	Food prices double in real terms (for example, from production of crop-based fuels)	63.3	7.67
82	Regional organized crime is more powerful than some Latin American governments	60.9	7.54
66	Free, wireless, broadband networks connect all major Latin American cities	63.4	7.50
56	Latin America becomes the world leading producer of biofuels	60.3	7.40
77	Tourism increases five fold from 2010 levels (including eco-tourism)	64.9	7.37
28	90% of the world's population over 11 years of age uses Internet	74.3	7.30
25	Human migrations at twice today's levels occur from causes such as water shortages	64.2	7.03
73	Glaciers in the Andes mountains are reduced by 75% compared to 2000	61.0	7.01
10	Genetic manipulation (GM) is used in the production of 2/3 of the world's food	66.1	6.85

Similarly, surprises are the developments that have low probability but high impact. A set of ten that have impact above 6.6 and probability less than 50% are listed below. These are developments that can “flavor” any scenario.

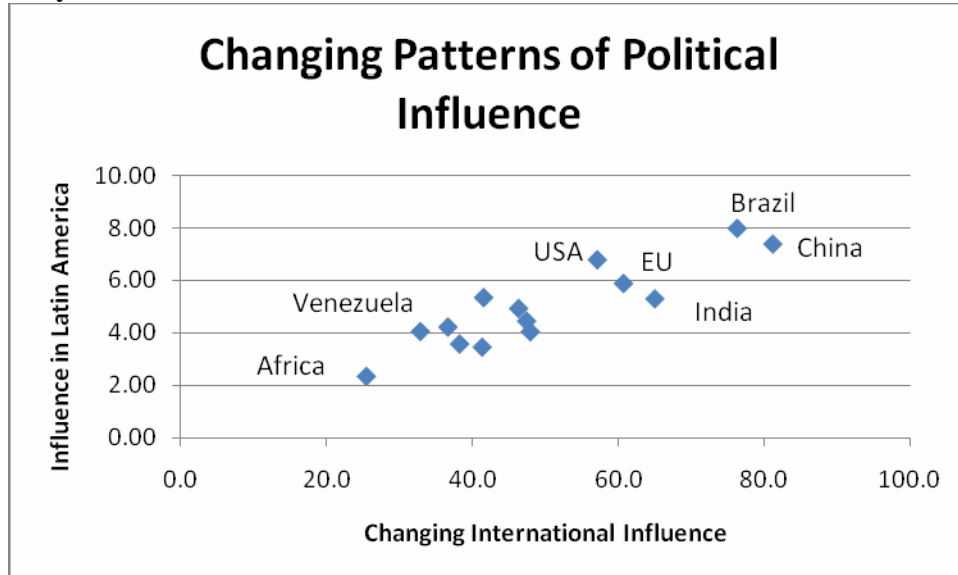
		Likelihood	Significance
58	Most Latin American countries unite following the European Union model	47.7	7.73
74	"Made in Latin America" becomes symbol of quality and technology	37.5	7.54
63	Latin American brain drain is reversed	45.9	7.30
75	Latin America countries retreat from globalization and establish barriers that are designed to protect their markets	37.5	7.26
71	The Amazon forest recovers and deforestation is reversed	42.2	7.17
80	A single regional currency has been proposed and accepted by most countries in Latin America	45.0	7.11
65	A common tax and legal system is implemented throughout Latin America	31.3	7.10
54	Entrance to the USA is denied to emigrants from Latin America	41.3	6.73
72	Most Latin American countries eliminate armies following Costa Rican example	23.9	6.66
4	Global pandemic kills over one hundred million people	36.4	6.60

### 4.3 Changing Political Influence

Fourteen questions inquired about changing international political influence and influence within Latin America of various countries and regions. The table below shows the average judgments about the changing political influence rank ordered by growth in international influence:

		Growth in Intl Influence	Influence in LA
41	Geo-Political Influence: China	81.2	7.40
40	Geo-Political Influence: Brazil	76.3	8.00
44	Geo-Political Influence: India	65.0	5.30
43	Geo-Political Influence: European Union	60.7	5.89
51	Geo-Political Influence: United States	57.1	6.80
48	Geo-Political Influence: Russia	47.9	4.04
45	Geo-Political Influence: Japan	47.4	4.45
46	Geo-Political Influence: Mexico	46.3	4.93
39	Geo-Political Influence: Argentina	41.5	5.35
49	Geo-Political Influence: South Korea	41.3	3.45
47	Geo-Political Influence: Middle East	38.2	3.57
42	Geo-Political Influence: Colombia	36.6	4.22
52	Geo-Political Influence: Venezuela	32.8	4.05
50	Geo-Political Influence: Sub-Saharan Africa	25.4	2.33

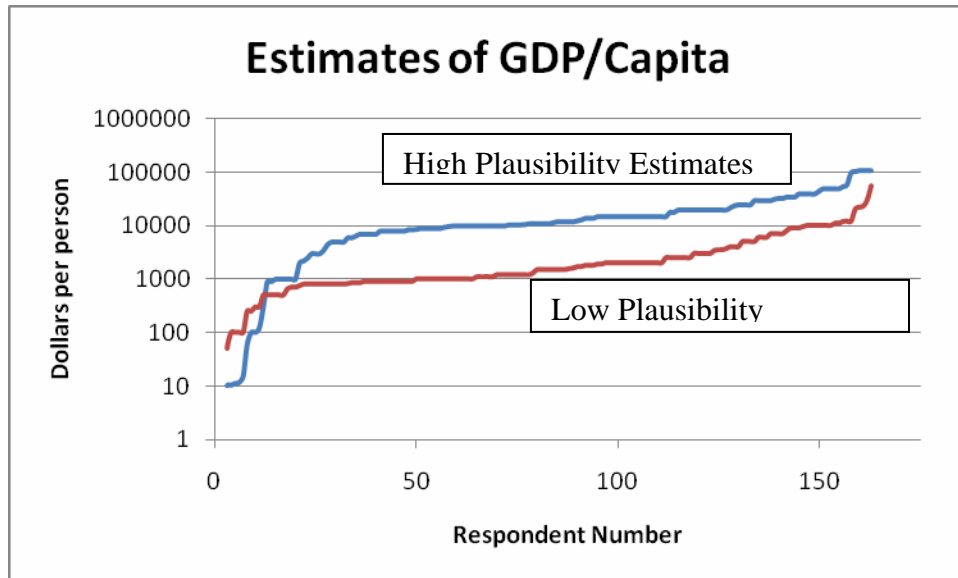
And graphically:



#### 4.4 Variables

There were five questions that called for respondents' estimates of the future highest plausible and lowest plausible value for variables relating to technology, economy, society, politics, and the environment. The responses to these questions are shown in Appendix F1-A and F1-C. Several participants responded with figures that could not easily be averaged with the group as a whole, using percentage signs, punctuation and other inputs that confounded the statistical analysis programs; these entire responses were manually corrected where possible.

The chart below is typical of responses received for all five of the variables. This graph presents a rank ordered list of all of the responses to the question about the highest and lowest plausible future values of GDP/capita for the Latin American region. The lowest value submitted is shown on the left and the highest on the right. As can be seen, several people provided very high or very low estimates compared to the group as a whole. Therefore, the median is probably a better estimator of these variables than the averages; medians are included in Appendix F1-C.



For comparison, the Latin American countries today have GDP/capita values that vary from 800 to 11,000 dollars per person; for the world, the values vary from 100 to 110,000 dollars per person per year.

The table below summarizes the estimates provided by the group for the five variables. The first two columns present the data given to the respondents and the final column, median estimates from the study. The penultimate column shows regional data for comparison to the regional forecasts made by the respondents:

<b>Variable</b>	<b>Best and Worst Countries in the World (background data provided in the study)</b>	<b>Best and Worst Countries in LA Region (background data provided in the study)</b>	<b>Regional Data (recent data)</b>	<b>Regional Forecasts (median values from current study)</b>
Human Development Index (High value)	.971	.9	.821 (2007, Wikipedia) LA+Carib	0.9
Human Development Index (Low value)	.340	.5		0.6
E-Readiness Index (High value)	8.95	6.6	Brazil 5.42 Mexico 5.73 Venezuela 5.06 (2009, EU)	7.0
E-Readiness Index (Low value)	3.18	4.2		5.0
GDP/capita (High value)	110,000	11,000	7,448 (2008, WDI) LA + Carib	11,000
GDP/capita (low value)	100	800		1,500

CO2 Emissions per Capita (Tons) (High value)	56.2	25.3	2.56 Tons/cap (2006, WDI) LA +Carib	25
CO2 Emissions per Capita (Tons)(Low vaalue)	0.1	0.2		7.25
Corruption Index (High value) <sup>1</sup>	9.4	6.7	Chile 6.7 Mexico 3.3 Venezuela 1.9 (2009, TI)	6.7
Corruption Index (Low value)	1.1	1.8		2.0

<sup>1</sup> Note: Higher numbers mean less corruption

If one were to take the estimates from this study as forecasts, then:

- Levels of corruption in the region are highly uncertain and the spread of possibilities is large. Corruption in the region could be as bad as the worst country in the region today. But, on the up-side, the region as a whole could experiece a drop in corruption to about the level of Chile today. In any event, it's safe to say that great differences between countries will exist.
- CO<sub>2</sub> emissions per capita will worsen significantly, increasing by a factors of 3 to 10. The emissions from the region could reach today's level of the the worst country in the region.
- Expectations about GDP/capita also vary widely; it could grow from today's \$7,448 dollars per capita to \$11,000 in the next ten years, or it could drop across the region to values only somewhat better than the poorest countries in the region today.
- Technology readiness is expected to move ahead in the region, rising 40% in the next decade; at worst it will remain at today's levels.
- The state of society as measured by the Human Development Index shows an expected modest increase for the region at the high estimate; the low extimate shows a 25% drop for the region.

It should be emphasized that these are not forecasts but only stage setting for the scenarios that will be produced later.

#### 4.5 The Scenario Questions

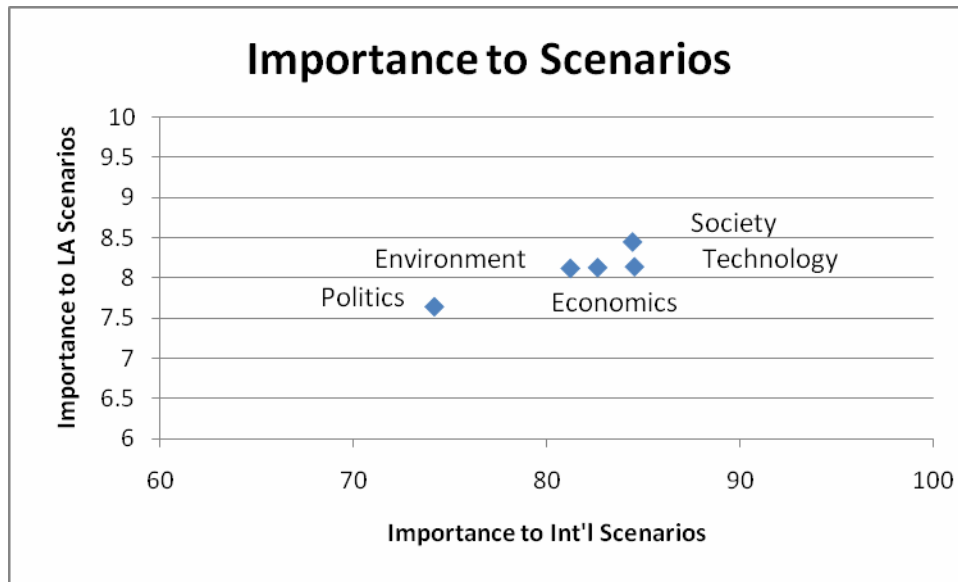
Five questions dealt directly with the scenarios. Respondnets were given this statement:

There are five domains on which scenarios are often based (STEEP: society, technology, economics, environment and politics). Considering the next 20 years please give us your judgments about the priority that should be accorded to SOCIETY in our scenarios.

Two questions were posed about each of these five domains: "How important is it to include this element in international scenarios?" and "How imprtant is it to include this element in Latin American scenarios?" The average responses are shown in the table below, ranked by importance to Latin American scenarios.

		Importance to Intl Scenarios	Importance to LA Scenarios
83	Considering the next 20 years please give us your judgments about the priority that should be accorded to SOCIETY in our scenarios	84.4	8.45
84	Considering the next 20 years please give us your judgments about the priority that should be accorded to TECHNOLOGY in our scenarios	84.5	8.14
86	Considering the next 20 years please give us your judgments about the priority that should be accorded to ENVIRONMENT in our scenarios	82.6	8.13
85	Considering the next 20 years please give us your judgments about the priority that should be accorded to ECONOMICS in our scenarios	81.2	8.12
87	Considering the next 20 years please give us your judgments about the priority that should be accorded to POLITICS in our scenarios	74.2	7.64

And graphically:



Clearly all perspectives are important.

## 5. REASONS FOR ANSWERS

There were literally hundreds of “reasons” provided by the participants in their multiple answers, in English, Spanish and Portuguese. Some of the most frequent themes for the main Latin American developments are discussed below.

### 5.1 “Good Bet” Reasons

Considering the Latin American developments that were indicated as both likely and significant (called “good bets” earlier), several common or repetitive explanations were given by the respondents, for example:

- Assuming that food prices double in real terms, respondents tend to affirm that this will be unavoidable, but can be solved to some degree by means of synthetic foods. Furthermore, some respondents focus on the value on education and skills in order to soften the negative effects of this assumed trend. Some representative “reasons” follow:

*“Subsistence farming in Latin America means that people have the skills, tools and other resources needed to meet their own needs. Supporting relocalised, ecological agriculture will ensure people every where get enough to eat. It is urbanised people and those who have lost important skills who are most at risk.”*

*“Real food costs will be a terrible problem for all of the developing world. This is unavoidable and will eventually be mitigated by synthetic foods, but the transition between now and, say 2035, will be painful in the extreme. I can easily see tens of millions die as a result of what amounts of callous disinterest, corporatism and arrogance.”*

- Assuming that regional organized crime is going to be more powerful than some Latin American governments, respondents believe that this is now concentrated (and it is going to be concentrated) in certain regions (mainly Colombia and Mexico). Drug trafficking and arms trading are identified as the two main components of “organized crime” in Latin America. The value of education in is emphasized in order to solve such problems. Some representative “reasons” are the following:

*“Mexico, Colombia, regions of Brazil this is already happening, but will decrease as economy increase and education level, corruption.”*

*“In some areas, it is already - portions of Mexico, Colombia, and the Caribbean (and more). Perhaps, the premise of the question is faulty because it fails to include government complicity in transnational crime. Drug trafficking, arms trading, and other illicit and 'grey area' trades. Collusion both explicitly or implicitly is rampant in numerous Central American and South American countries. To gauge power and influence in hopes of determining which is "more powerful" is merely an obfuscation of the underlying question - who is in control and who controls what, and to what extent?”*

- Assuming that Latin America will become the world leading producer of biofuels, respondents tend to highlight the fact that Latin American natural resources will contribute to make a major difference. A typical “reason” follows:

*“Brazil is already number one in Bioethanol, ressearch is going on in LA but strong competition all over the world. LA has huge biomass resources for use”.*

- Assuming that 90% of the world’s population over 11 years of age will use Internet, portable devices are considered a priority. This will facilitate achieving specific social objectives, such as bringing them to poor communities. Some representative “reasons” follow:

*“It is a strong affirmation but it can be done. We have to focus on far away places like remotes towns of China or rural towns in Africa.”*

*“Unavoidable. Portable devices with far superior internet will be given away with cartons of milk by 2030. You have to make an effort not to have internet accessibility all over your clothes and breakfast cereal.”*

- Assuming that human migrations at twice today’s levels will occur from causes such as water shortages, abundant natural resources in Latin American will be an important factor both to the region and to the world as a whole. Some representative “reasons” follow:

*“Is highly probably. National Geographic made a good research in this aspect. Israel is now suffering this problem, a lot of countries "are working" toward the desertification and global warming will kill mountain glaciers, nest of life of most rivers.”*

*“Guaranteed. This will get ugly. Corpses scattered in minefield. Border firewalls sprayed with neurotoxins. Illegal immigrants cut to shreds by border perimeter metalstorm guns. Police state anti-immigration measures.”*

*“Big impact. Most destinations will be in LA, because it has important water sources, a lot of resources and a nice weather. A paradise for a thirsty man.”*

- Assuming that genetic manipulation will be used in the production of 2/3 of the world’s food, there are worries about the power that could be exerted by big companies. A representative “reason” follows:

*“GM is very dependent on large scale energy intensive technologies, in a world with more expensive energy, GM is not a resilient answer. At present GM is mainly used to control markets and increase wealth for a small number of people owning companies with the sole aim of profit maximisation. It is not an answer to increasing food production, unless this ownership issue is dealt with more equibly. diversification, ecological agriculture and localisation of control of resources are far more likely to have positive outcomes for larger numbers of people”*

## 5.2 “Surprise” Reasons

Similarly, considering the Latin American developments that were indicated as unlikely but very significant (“surprises”), there are certain commonalities among the answers, for example:

- Assuming that most Latin American countries will not unite following the European Union model, it is still highly possible that some kind of institutional integration is going to be implemented. A representative “reason” follows:

*“It wont be a full integration, but at 2030, LA will have a good integration like ASEAN is doing now. They are only a free trade area, but they show more integration than other countries that claim so.”*

- Assuming that it is not probable that a single regional currency will be accepted by most countries in Latin America, most answers focus on the political nature (not economic) of the decision and the issues that new technologies pose to traditional monetary policy. Some typical “reasons” follow:

*“Not likely. It is true that economic and monetary integration is a reality, but most countries don't have a big plan to do this in the near future. Maybe there will be one, but beyond 2030.”*

*“No. Not a formal currency - internet based micro currency will be a revolution, if only to make most private transactions effectively inaccessible for taxation. States will HAVE to return to taxing per head or go defunct. People will trade in a vast organic ecology microcredits systems by 2030. Most currencies will only be theoretical constructs.”*

- Other “surprises” include that the Latin American brain drain will be reversed, and that “Made in Latin America” will become a symbol of quality and technology. Some “reasons” consider that some emergent countries (such as Brazil) are not going to reverse these trends, although their economic and geopolitical significance are increasing.

## 5.3 “Geo-Political” Reasons

Considering the increasing geopolitical influence of certain countries and their impact in Latin America, both trends seem to be related from now to 2030. Some common elements in the answers provided by the participants follow, according to their growth of international influence in Latin America:

- China. In general terms, respondents expect China to gain more influence, but there are also some comments regarding it “leveling off” and not increasing its power indefinitely in the long term. An example of this “reason” follows:

*“If anything China will prove a dud. Like Japan. Everyone was affraid in the 1980s that Japan would take over the world. Same with China it will level off, consolidate and become just as as boring. Just a lot of the very boring.”*

- Brazil. The comment above referring to China at the global level might also be applicable to Brazil at the Latin American level. But there are less conservative or pessimistic assertions explicitly stated in the case of Brazil, for example:

*“The famous phrase that Brazil is the country of the future and it will always be, might not be true in the coming two decades. Brazil is finally rising among the current world powers as one of the BRIC countries.”*

- India. Participants expect India to grow without interruptions in the period until the 2030. It is stated that this country will be able to compete more effectively with the current super-powers as the time goes by. An example of these considerations is the following:

*“Another good emergent country. If right now is highly important, I can assure that it will compete with China and US in the next years.”*

- European Union. The respondents focus on the internal problems that the EU is facing now, which will impede it to gain more power in the next decades. An example of this ideas could be the following:

*“EU is important right now, but it has a lot of problems that hardly resolves; even being integrated. If this continue to be, EU doesnt has a future in the world. Another countries/integrations will take its place.”*

- United States. The USA has fallen from its prominent role in the 20<sup>th</sup> century to a more multipolar world, where the demographic giants of China and India are finally reemerging. A typical “reason” follows:

*“The American Century has ended and the world will soon have other major powers, including the eventual rise of Latin America.”*

- Russia. It is considered a “latent” power, not fully developed due to its internal problems, such as corruption. A example of this consideration follows:

*“Russia has a potential, but is not being exploited. If they realize and use the power they have, then it will be and geopolitical influence. Anyway, nowadays Russia influences countries like Latvia, Ukraine, Kazakhstan, so on.”*

- Japan (and South Korea). Respondents consider that Japan and South Korea are going to gain influence thanks to their competitiveness in not traditional sectors. Examples of these answers are:

*“Japan is a very interesting country, special among many countries. For me, it will continue to be the capital of technology along with South Korea. Maybe it will grow as a financial market like Singapur or Hong Kong.”*

*“South Korea is an important country in Asia. It competes with countries like Taiwan and Singapore in terms of education, technology, so on. With a good future vision and plan making they can keep that position.”*

#### 5.4 “Scenario” Reasons

Finally, concerning the major scenario variables, several “reasons” are also given to the five domains on which scenarios are sometimes based (STEEP: society, technology, economics, environment and politics).

The high priority given to “society” is not clearly explained among the “reasons”. However, “technology” is described as “the key of progress and will cause a new revolution that will change the world. We should invest more in here than now, and in general terms technology leads to a welfare state.”

The importance of the “environment” is based on the assertion that “without a good relation between ecology and economy, the world could collapse.” Furthermore, “we are part of the ecology and the environment of the earth. Working with this understanding allows us to respond more effectively to create supportive systems in which humans can prosper. At present we are in the midst of a biodiversity collapse and have no way to understand how this extinction event will ultimately effect us - although few climax species have ever done well during extinction events.”

“Economics” is understood as a means to facilitate communication and exchanges between people, and “politics” helps to put together the necessary resources to create democratic systems in order to address the problems of humanity. Some examples of such combined STEEP considerations are the following:

*“It is important, but we have good economic politics. Anyway, we have to fight to eliminate that big mark between poverty and wealth, which causes that hatred towards capitalism.”*

*“True economics is important. It means eliminating barriers between people. The movement of capital, persons, and goods accross national borders must not be hindered nor taxed in any manner or form. Bureaucratic meddling in the economy must be drastically curtailed. Regulationism must be abolished. Justice must be expedited, and frivolous cases without real cause, should bear the expenses. Congresses should not be allowed to approve any kind of expenses, except when funds are available without borrowing a red penny. People must not be forbidden the use of any substance whatsoever, which includes divesting the FDA of the power to ban any types of medicines. The bureaucracy must not attempt to protect people from themselves and their own decisions about themselves and their rightful properties.”*

*“We need new understanding of how economic success is measured - well being rather than weight of coins would be useful. Economics is just talking about how people interact in larger groups that we can manage based on interpersonal trust. We can't go on externalising the costs of our work as we do in the present system. This externalisation has led to many of our present problems getting very big and increasingly difficult to respond to, before we know that they are problems - better feedback loops increase the ability of everyone to respond more quickly and effectively to both negative and positive changes.”*

## **6. PRELIMINARY SCENARIO IDEAS**

The previous ideas can be aggregated in order to create two preliminary and very general scenarios about the future of Latin America by 2030: one very positive and one very negative. Such extreme scenarios can be called the “God is Latin American” scenario and the “Desintegration in Hell” scenario. They represent just a simple way to put together some ideas that will later be developed in the second part of this study during 2010 – 2011.

### 6.1 The “God is Latin American” Scenario

Brazilian president Lula da Silva popularized the idea that “God is Brazilian” during the early 2000s. By 2030, such concept will apply to the whole region. The “God is Latin American” scenario emerges from the following positive ideas using the STEEP model discussed earlier:

#### 1.- Society:

- Education and social development softens the negative impacts of accelerated growth.
- The region as a whole experiences a remarkable improvement of its HDI (see variables).

#### 2.- Technology:

- “Made in Latin America” becomes a symbol of quality and technology.
- The technology readiness index moves quickly ahead in the region (see variables).

#### 3.- Economics:

- Latin America bridges the economic gap with advanced economies.
- Gross domestic product increases substantially (see variables).

#### 4.- Environment:

- Latin American natural resources and ecological advantages make it unique in the world.
- CO2 emissions per capita become the lowest in the planet (see variables).

#### 5.- Politics:

- Democratic governments create a great Latin American union with strong popular support.
- Corruption levels decrease to the level of advanced nations (see variables).

## 6.2 The “Desintegration in Hell” Scenario

After the bicentennial celebrations of independence, Latin American countries become less integrated, dictators mushroom everywhere and even some national governments collapse by 2030. This second set of ideas can be aggregated in a “Desintegration in Hell” scenario with very negative considerations. Again, these are only suggestions that will be further analyzed by the Millennium Project nodes and the Delphi participants during the next few months:

### 1.- Society:

- The gap between rich and poor continues to grow dramatically, and standard of living drops.
- The HDI of the region falls drastically (see variables).

### 2.- Technology:

- Most technology is imported and there are very few local technology companies and schools.
- The technology readiness index worsens relative to other regions (see variables).

### 3.- Economics:

- Hiperinflation returns, unemployment rises, and the economy stagnates.
- Gross domestic product drops under heavy stagflation (see variables).

### 4.- Environment:

- Forests are destroyed, glaciers melt, deserts grow and rivers, lakes and seas are polluted.
- CO<sub>2</sub> emissions and most environmental indicators worsen quickly (see variables).

### 5.- Politics:

- Crime, terrorism, ethnic upheaval and demagoguery disrupt most nation states in the region.
- Latin America reaches the worst corruption levels in the world (see variables).

The two previous simple scenario ideas will be further developed, expanded, changed and substituted, as needed, during the second part of this study next year. The objective is to visualize multiple possibilities based on the results of the Real Time Delphi. Such scenarios are not meant to describe the future, which is not really possible anyway, but to open people’s minds concerning probable future developments.

## 7. CONCLUSIONS

The first part of this Latin American Study corresponded to the Real Time Delphi discussed here and developed during 2009 – 2010. The Appendixes show the complete set of answers by all participants to the 92 questions and also their additional comments to the questionnaire. The second part of the study will consider different scenarios based on the Delphi, with some preliminary ideas already mentioned here, and they will be further developed during 2010 – 2011.

After finishing the Delphi survey, the respondents were asked to provide any closing comments as they signed out. Most people simply finished the study without signing out formally. Nevertheless, some comments were received and they can be summarized as follows:

- Some had praise for the system (“It was easy and user friendly”)
- A few concerns about its operation (“...technical problems, since I returned as 70 times to the top of the page”)
- Too long and time consuming (“clicking reasons was a slow load”)
- Some of the questions were junk and unimportant
- Some issues were omitted (“I seem problems arising in LA with minorities” and “China and its growing influence in economic, political and cultural development in Latin America”)

The verbatim comments by some participants:

*Good this, came up very fast, but for me, clicking reasons was a slow load.*

*SUGERENCIAS IMPORTANTES 1. Disminuir el número de preguntas jerarquizándolas de acuerdo a la importancia. Hay preguntas "chatarra" que le quitan seriedad al estudio y otras están planteadas inductivamente lo cual no aportará nada. 2. Está demasiado largo. 3. Las preguntas sobre los índices parecen irrelevantes. 4. El cuestionario presenta problemas técnicos, ya que me regresó como 70 veces al principio de la la página. Debe considerar que muchas veces la gente contesta velozmente y lo que menos tiene es interés y tiempo para estar iendo y viniendo todo el tiempo. (IMPORTANT SUGGESTIONS 1. Reduce the number of hierarchical questions according to importance. Remove the "junk" questions.... 2. It is too long. 3. Questions about rates seem irrelevant. 4. The questionnaire presented technical problems, since I returned as 70 times to the top of the page. You should consider that many times people answer quickly and that fewer have is interest and time to be back and forth all the time.*

*It was easy and user friendly*

*If the World let hunger, crime, Hugo Chavez and all malignant rulers and cartels continue doing harm to the world population, the effect will revert on countries well ruled, as migration from the bad to the good countries will continue, creating scarcity of resources, unemployment, uncontrolled conditions. These ruler and evilnesses need to be stopped*

*immediately. Cubans have suffered a lot already, and so Chinese, Russians, Iranians, North Koreans, Lybians, etc. Please God Help us!*

*I think that the method or scale is a great contribution. Lets globalize the accumulation of knowledge and segment prospects by area of interest.*

*Me parecen relevantes los problemas que puedan surgir en L.A. con las minorías y ese tema no está incluido. ( I seem problems arising in LA with minorities and that issue is not included.*

*China y su creciente influencia economica, politica y cultural en America Latina sera gravitante. Hay que visualizar este aspecto de nuestro desarrollo como region, vis a vis el resto de Asia y Oceania. (China and its growing influence in economic, political and cultural development in Latin America will be important. You have to see this aspect of our development as a region, vis a vis the rest of Asia and Oceania.)*

*The way that the questions are written is somewhat misleading. For consistency purposes, I suggest that ALL of the questions about IMPACT be rephrased so that they all speak either of positive impact or negative impact. It was hard to calibrate my responses at times as I had to reflect whether the impact would be positive ior negative, and as such, offer a response.*

*First of all, congratulations on embarking in this study. Second, I have experience in analyzing trends based on these types of questionnaires. I know of the statistical methods available to analyze responses of these type (e.g. liekelihood, impact, relevance, etc.) and offer central geometric values to represent responses (i.e. calculate weighting factors in a better way than simply using an arithmetic average). I'd be happy to help with this portion of the study if needed (contact me at aurkiza@iteso.mx). This is part of one of the classes that I teach for the ITESO University and the technique is in current use at one major transnational company. c)The way that the questions are written is somewhat misleading. For consistency purposes, I suggest that ALL of the questions about IMPACT be rephrased so that they all speak either of positive impact or negative impact. It was hard to calibrate my responses at times as I had to reflect whether the impact would be positive ior negative, and as such, offer a response. d) I was a bit lost in the last section when asked about lowest and maximum plausible values on different indices... Maybe that section ought to be sent only to a select few who are familiar with those metrics. Prof. Alejandro D'Urquiza. Tenure Professor of Environmental Modeling subjects in Engineering. ITESO University. Guadalajara, Mexico.*

*I answered in part because its too long*