Global Adaptation Index™
GaIn™ V. 1.0

Measuring What Matters

Global Adaptation Institute, Washington, DC

White Paper

Created for GaIn™ Consultation process
Results shown only for Western Europe and Latin America

GLOBAL ADAPTATION INSTITUTE™

DRAFT 8/10/11

The Global Adaptation Index™ Rankings

(Results Shown Only for Western Europe and Latin America)

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
1	Denmark	83.8	41	-Coming this fall-		81	-Coming this fall-	
2	-Coming this fall-		42	-Coming this fall-		82	-Coming this fall-	
3	Switzerland	81.4	43	-Coming this fall-		83	-Coming this fall-	
4	Ireland	81.4	44	-Coming this fall-		84	-Coming this fall-	
5	-Coming this fall-		45	Argentina	69.0	85	-Coming this fall-	
6	Finland	79.9	46	-Coming this fall-		86	-Coming this fall-	
7	Norway	79.6	47	-Coming this fall-		87	-Coming this fall-	
8	United Kingdom	79.3	48	-Coming this fall-		88	-Coming this fall-	
9	-Coming this fall-		49	-Coming this fall-		89	-Coming this fall-	
10	Sweden	77.9	50	-Coming this fall-		90	Paraguay	61.4
11	Austria	77.5	51	-Coming this fall-		91	-Coming this fall-	
12	-Coming this fall-		52	-Coming this fall-		92	-Coming this fall-	
13	Netherlands	77.4	53	-Coming this fall-		93	-Coming this fall-	
14	-Coming this fall-		54	-Coming this fall-		94	-Coming this fall-	
15	Germany	76.9	55	-Coming this fall-		95	-Coming this fall-	
16	-Coming this fall-		56	-Coming this fall-		96	Venezuela	60.3
17	France	76.8	57	-Coming this fall-		97	-Coming this fall-	
18	Luxembourg	76.4	58	-Coming this fall-		98	-Coming this fall-	
19	-Coming this fall-		59	Panama	65.8	99	Nicaragua	59.6
20	-Coming this fall-		60	Costa Rica	65.6	100	Honduras	59.6
21	Chile	76.1	61	Mexico	65.6	101	-Coming this fall-	
22	-Coming this fall-	75.7	62	-Coming this fall-		102	Guatemala	59.3
23	Uruguay	75.5	63	-Coming this fall-		103	-Coming this fall-	
24	Spain	75.2	64	-Coming this fall-		104	-Coming this fall-	
25	-Coming this fall-		65	-Coming this fall-		105	-Coming this fall-	
26	-Coming this fall-		66	-Coming this fall-		106	-Coming this fall-	
27	-Coming this fall-		67	El Salvador	64.9	107	-Coming this fall-	
28	-Coming this fall-		68	-Coming this fall-		108	Bolivia	57.5
29	-Coming this fall-		69	-Coming this fall-		109	-Coming this fall-	
30	Italy	73.2	70	Brazil	64.4	110	-Coming this fall-	
31	Belgium	73.2	71	-Coming this fall-		111	-Coming this fall-	
32	Portugal	72.9	72	-Coming this fall-		112	-Coming this fall-	
33	Greece	72.6	73	Colombia	63.8	113	-Coming this fall-	
34	-Coming this fall-		74	Dominican Rep.	63.3	114	-Coming this fall-	
35	-Coming this fall-		75	-Coming this fall-		115	-Coming this fall-	
36	-Coming this fall-		76	-Coming this fall-		116	-Coming this fall-	
37	-Coming this fall-		77	Peru	63.2	117	-Coming this fall-	
38	-Coming this fall-		78	Ecuador	63.0	118	-Coming this fall-	
39	-Coming this fall-		79	-Coming this fall-		119	-Coming this fall-	
40	-Coming this fall-		80	-Coming this fall-		120	-Coming this fall-	

The Global Adaptation Index™ Rankings

(Results Shown Only for Western Europe and Latin America)

Rank	Country	Score	Rank	Country	Score
121	Cuba	54.8	161	-Coming this fall-	
122	-Coming this fall-		162	-Coming this fall-	
123	-Coming this fall-		163	-Coming this fall-	
124	-Coming this fall-		164	-Coming this fall-	
125	-Coming this fall-		165	-Coming this fall-	
126	-Coming this fall-		166	-Coming this fall-	
127	-Coming this fall-		167	-Coming this fall-	
128	-Coming this fall-		168	-Coming this fall-	
129	-Coming this fall-		169	-Coming this fall-	
130	-Coming this fall-		170	-Coming this fall-	
131	-Coming this fall-		171	-Coming this fall-	
132	-Coming this fall-		172	-Coming this fall-	
133	-Coming this fall-		173	-Coming this fall-	
134	-Coming this fall-		174	-Coming this fall-	
135	-Coming this fall-		175	-Coming this fall-	
136	-Coming this fall-				
137	-Coming this fall-				
138	-Coming this fall-				
139	-Coming this fall-				
140	-Coming this fall-				
141	-Coming this fall-				
142	-Coming this fall-				
143	-Coming this fall-				
144	-Coming this fall-				
145	-Coming this fall-				
146	-Coming this fall-				
147	-Coming this fall-				
148	-Coming this fall-				
149	-Coming this fall-				
150	-Coming this fall-				
151	-Coming this fall-				
152	-Coming this fall-				
153	-Coming this fall-				
154	-Coming this fall-				
155	-Coming this fall-				
156	-Coming this fall-				
157	-Coming this fall-				
158	-Coming this fall-				
159	-Coming this fall-				
160	-Coming this fall-				

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Foreword/Acknowledgments

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Message from the Chief Scientist

Dr. Ian Noble
Former Lead Climate Change Specialist,
World Bank

The Institute is producing an Index that will promote action in the world. We want more than to describe a country's vulnerability – we want to guide the way to resiliency. Thus, we seek and utilize "metrics that matter."

GaIn™ must be understandable and viewed as relevant to business executives and government leaders, not just scientists with specialization in the field. Through our many stages of consultation, the feedback from business, government and non-profit leaders has increased both the rigor and ultimate utility of GaIn™.

There has been much talk about how to get the private sector engaged in adaptation and other development priorities, but it has been a struggle determining how to do this. GaIn™ will take us a step forward in mobilizing private sector resources toward investing in resilience and prosperity in the world's most vulnerable regions.

Dr. Ian Noble
Chief Scientist
Global Adaptation Institute

Council of Advisers

The Honorable José María Aznar
Chairman of the Advisory Council,
Global Adaptation Institute
Mr. Aznar is the former President of Spain (1996 -2004)

Anthony Morris
Founder, The Morris Company

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Members of the Council were not asked to endorse the conclusions or recommendations of GaIn™.

Executive Summary

The world is changing fast. Countries are being challenged to prepare for and, if possible, minimize the effects of climate change. The challenge will only be greater as populations and economies grow.

The Institute recognizes that mitigation continues to remain an essential global policy goal. However, the climate will continue changing throughout this century whether or not a binding international climate mitigation policy develops. As history has shown, increases in climate-related disasters and climate change will lead to increased risks and costs for businesses, complicate political decisions, and of most concern, threaten the quality of life for vulnerable populations around the world. Therefore, it is incumbent upon leaders in government, industry, and all forms of civil society to prepare for both anticipated and unforeseen risks to human life and livelihood.

In other words, we must adapt, and adapt in a way that is pragmatic, realistic and based on the principle that individuals should be able to take destiny into their own hands.

Despite expanding resource commitments from international institutions, public funding alone cannot be the only solution. The private sector must play a key role in providing the necessary additional resources and innovation. With appropriate information all can contribute to increasing the resilience of local communities. The Global Adaptation Index™ (GaIn™) was developed as a navigation tool to guide opportunities for private sector investment in adaptation. Concurrently, GaIn™ can assist governments, NGOs and international institutions in determining what actions and policies will promote and facilitate these investments.

The Global Adaptation Institute is a non-profit organization guided by a vision of building resilience to climate change and other global forces as a key component of sustainable development. The Institute is developing GaIn™, creating strategic awareness on the importance of adaptation and will provide financing to adaptation projects in the near future.

What makes the Institute unique?

We are not just a “think” tank, but also a “do” tank. Our goal is to accomplish more than describing the problems resulting from vulnerability to climate change and other global forces -- we want to help fix them. We do this by providing a new tool (GaIn™) that reveals where invested resources will have the greatest impact.

There is a multi-billion dollar gap between current government and NGO investment in adaptation and what is ultimately needed. Resources from the private sector are needed to fill that gap. Thus, we focus on the private sector's role in adaptation, while recognizing the work of governments and NGOs in this area.

Scientific, Business and Government Input

We are bringing together science, business and government leaders to create accurate metrics on adaptation. The metrics must be pragmatic and useful to users. These metrics have been carefully selected to create GaIn™. In addition, we are researching complimentary demonstration projects and organizing outreach activities designed to move beyond a description of climate vulnerability. GaIn™ shows how concrete actions can attract private investment in adaptation.

What makes GaIn™ unique?

GaIn™ is certainly not the first attempt at measuring the vulnerabilities of countries to climate change and other global forces. Scientists and institutions around the world have conducted significant work throughout the last decade, many listed in the Reference section of this report. GaIn™ seeks to build upon this previous work by creating an index that promotes pragmatic action among governments, the private sector and NGOs and uniquely combines the concepts of vulnerability with readiness to drive action. Further, the index:

- Is open and transparent – All indicators and sources are readily available and easily accessible to the public.
- Brings the private sector to the table - Most indices focus solely on the vulnerabilities of countries; GaIn™ includes indicators that guide governments and communities in how to harness the power of the private sector.
- Focuses on sectors crucial to human wellbeing – GaIn™ does not cover all aspects of vulnerability, but targets those sectors most important to human health and prosperity that also can be greatly improved by innovation.

Full Report

Introduction: A Call for Adaptation

The world is changing fast. Countries are being challenged to prepare for and, if possible, minimize the effects of climate change. The challenge is only greater as populations and economies grow. Despite expanding resource commitments from international institutions, public funding alone cannot be the only solution. The private sector must play a key role in providing the necessary additional resources and innovation. With appropriate information all can contribute to increasing the resilience of local communities. The Global Adaptation Index™ (GaIn™) was developed as a navigation tool to guide opportunities for private sector investment in adaptation. Concurrently, GaIn™ can assist governments, NGOs and international institutions in determining what actions and policies will promote and facilitate these investments.

Adaptation Opportunities

Role of the Private Sector

Many governments have already created benchmarks or national plans to increase their resilience to climate change. Many NGOs and local organizations have raised awareness of specific vulnerabilities in their respective communities. The private sector also plays a key role in implementing projects and offering services and products that can increase a nation's resilience.

New products & services – Some companies are finding opportunities to offer new products or services that will assess how communities and individuals cope with a changing climate.

Corporate Social Responsibility (CSR) – CSR is a leading driver of private sector involvement in climate adaptation. Companies that previously had a strong commitment to sustainability and humanitarian pursuits are now also supporting adaptation activities.

Risk mitigation – Insurance companies have been at the forefront of recognizing and quantifying climate change risks. Their analysis of these risks may cause them to raise insurance rates or refuse coverage for certain companies and/or projects with substantial exposure to anticipated climate change impacts.

Companies exposed to climate change risks have taken unilateral steps to protect themselves, particularly those dependent on natural resources. As a result, some of

these companies are working to improve the long-term quantity and quality of these resources.

Markets for ecosystem/adaptation services – companies with operations and assets that impact ecosystems can manage their business and properties to enhance or preserve these ecosystems and improve resilience to climate change and other forces. For instance, timber and agricultural lands can be managed to preserve water flows and quality. These "ecosystem services" are increasingly being recognized as being valuable to preserve resources that in the past have typically been considered free.

Role of Government and NGOs

Both governments and NGOs can help people adapt. The coordination of multi-state or regional adaptation projects will likely require government support. Likewise, many small-scale, local projects may need NGO and civil society buy-in. Further, environmental data, population and economic statistics, and other information relevant to the success of private-led adaptation solutions are often gathered and maintained by government institutions.

Some urgently needed adaptation projects may not provide immediate profits or incentives for private sector involvement. However, they may still provide substantial benefits to the community as a whole. Such situations may require government and community-based leadership as well as private-public partnerships.

Governments, NGOs and other non-private sector institutions will find GaIn™ useful; it can point to where gaps in adaptation funding can be filled by the private sector and how governments and non-private sector actors can improve private sector participation in adaptation.

Filling the Finance Gap

Estimates of the costs of achieving a more climate resilient society vary widely and have not received as much attention as the associated costs for mitigation. However, they are of the same order of magnitude, i.e. rising to some tens or even hundreds of billions of dollars per year over the next decade or so. Current expenditures are only a few hundreds of millions of dollars. But these expenditures are not optional. While we remain vulnerable and ill-prepared for the risks associated with climate change we will pay the costs through disaster losses and recovery efforts. Not just major floods, storms and droughts, but also the slow, chronic losses resulting from failing farming systems, inadequate water supplies and deteriorating infrastructure that sap economic development. The majority of these costs cannot be borne by governments. Most of the investments in achieving a more climate resilient future will come from the private

sector, small and large, as they work to protect their assets and pursue commercial opportunities.

Audience & Use

While there exist tools that can assist decision makers in determining risks from climate change and other global forces, we want GaIn™ to encourage users to move beyond descriptions and act. Our tool is intended to be pragmatic, actionable and oriented toward delivering improvements in climate resilience by showing on which vulnerability and readiness indicators (measures) countries can make improvements to increase their resiliency.

We believe that government institutions, international non-profits and major donor agencies have made progress in developing metrics that represent their priorities for adaptation; but guidance that will mobilize action from the private sector has been scarce. Thus, the metrics described in this document have been selected to encourage private sector participation. Specifically, indicators selected to measure a country's readiness represent variables that the private sector will assess when making business and investment decisions.

Investments will be made where economic rules are clear and fair, governments are not corrupt and the population is educated. In such countries where vulnerabilities are high, adaptation investments will occur much more readily than in countries with high corruption, low human development and unresponsive governments.

For many in the private sector, GaIn™ will be the tool to help decide where to invest both to obtain an attractive rate of return and help people in need.

As previously stated, non-private sector actors interested in promoting private investments in adaptation can use the Index to support policies and other actions to promote this investment.

The Global Adaptation Index™ - GaIn™

All countries are struggling with the challenges of adaptation but some, due to geographical location or socio-economic conditions, are more vulnerable to the impacts of climate change than others. Further, some nations are more ready to deal with these challenges through government action, community awareness and the ability to facilitate private sector responses. GaIn™ seeks to measure the major aspects of a country's vulnerability and its readiness to undertake adaptive actions to increase their resilience to climate change.

Vulnerability and Readiness: The Readiness Matrix™

At its launch, the Global Adaptation Institute introduced the "Readiness Matrix™" as a simple visual summary of the comparative vulnerability and readiness of countries. Here we present the first sketch upon that canvas where we outline quantitative measures[1] that might contribute to the axes. Figure 1 presents the first version of the Readiness Matrix™ that has been extensively vetted by our technical advisors.

[1] In this document we use the word 'indicator' to describe the general concept of quantitative metrics used in building indices etc. and the term 'measure' to describe the specific metrics used in building GaIn™ and the Readiness matrix.

Figure 1. The Readiness Matrix™

Vulnerability Axis:

The Vulnerability Axis seeks to capture exposure to climate related hazards, sensitivity to their impacts and the ability to cope with those impacts. The vulnerability analysis uses twenty-four indicators (Table 1) to measure three sectors that underlie human well-being (water, food and health). These sectors are enhanced by measuring infrastructure indicators (coastal, energy and transport).

Readiness Axis:

The Readiness Axis seeks to measure the ability of a country to absorb additional private sector investment resources and apply them effectively towards increasing resiliency to climate change and other global forces. Fourteen indicators are used to measure three categories (Table 2) of readiness: economic, social and governance.

1. **Red or Upper Left Quadrant** – A country with a high exposure to climatic change, but a low level of readiness, has both a great need for investment and innovations to improve readiness and a great urgency for action. Unless the government, international organizations and the private sector move quickly to improve the ability to adapt, significant human suffering will result. Initially this country is more likely to receive investment from the government or NGOs than from the private sector looking for financial returns.
2. **Yellow or Lower Left Quadrant** – Countries that are not highly vulnerable, even if not ready for investment. These countries will have few challenges and will have time to prepare. While private investment towards adaptation will be low, few people should be at risk.
3. **Blue or Upper Right Quadrant** – Countries in this quadrant are highly vulnerable but are ready to accept adaptation investment. There is strong urgency to act and the private sector is more likely to invest in adaptation relative to the red or yellow quadrants.
4. **Green or Lower Right Quadrant** – These countries have both low vulnerability and are ready and open for investments. They require little help and have few adaptation challenges.

Construction of the GaIn™ Axes:

Based on consultations and feedback, it was agreed that the measures included in GaIn™ should not only fit within the above Readiness Matrix™ but also be:

1. Consistent with current knowledge and best practice;
2. Transparent and conceptually clear;
3. Based on data that is accessible, quality checked, and comprehensive in national coverage;
4. Potentially scalable from national to regional and local;
5. Focused on variables that are directly representative of the sector and the components of vulnerability; they should avoid directly incorporating broad socio-economic measures, such as GDP/capita;
6. Inclusive of as many (UN) countries as possible given the availability of data.

In addition, two further goals were agreed that we expect will become the defining feature of GaIn™ compared with existing indices. The measures selected for both axes

should point to actionable and measurable improvements in adapting to climate risks. Also, wherever possible the measures selected should have time series of data available, so that national progress over the past decade can be tracked and future changes compared.

Table 1. Vulnerability Indicators

		Exposure	Sensitivity	Capacity
Water	**Quantitative**	Projected change in precipitation	% internal and external freshwater water extracted for all uses	% Population with access to improved water supply
	Qualitative	Projected change in temperature	Mortality among under 5 yr.-olds due to water-borne diseases	% Population with access to improved sanitation
Food	**Quantitative**	Projected change in agricultural (cereal) yield	% of population living in rural areas	Agricultural capacity
	Qualitative	Coefficient of variation in cereal crop yields	Food import dependency	Children under 5 suffering from malnutrition(%)
Health	**Quantitative**	Estimated impact of future climate change on deaths from disease	Health workers per capita	Longevity
	Qualitative	Mortality due to communicable (infectious) diseases (%)	Health expenditure derived from external resources (%)	Maternal mortality
Infra-structure	**Coast**	Land less than 5 m above sea-level (%)	Population living less than 5 m above sea-level (%)	Measured on the Readiness Axis
	Energy	Population with access to reliable electricity (%)	Energy at risk	
	Transport	Frequency of floods per unit area	% of roads paved	

Table 2. Readiness Indicators

Economic	40 %	5.71 %	IEF Business freedom
		5.71 %	IEF Trade freedom
		5.71 %	IEF Fiscal Freedom
		5.71 %	IEF Government Spending
		5.71 %	IEF Monetary Freedom
		5.71 %	IEF Investment Freedom
		5.71 %	IEF Financial Freedom
Governance	30 %	10.00 %	WGI Voice & Accountability
		10.00 %	WGI Political Stability & Non-Violence
		10.00 %	WGI Control of Corruption
Social	30 %	5.00 %	Mobiles per 100 persons (ITU)
		5.00 %	IEF Labor Freedom
		10.00 %	Tertiary Education (World Bank)
		10.00 %	WGI Rule of Law

We sought to include all 192 UN member[2] countries in the Index and have adequate data for at least 180 countries for the Vulnerability Axis and at least 170 for the Readiness Axis. As data become available or more comprehensive, additional countries may be included in subsequent versions of GaIn™. Several useful and commonly used measures have been omitted because reporting is patchy or clearly inconsistent among countries. The Institute will encourage a continuing debate on suggestions for improved and additional indicators.

Determining Rankings

User feedback made it clear that a single numerical score of adaptation readiness would be useful as an iconic indicator of progress and comparative readiness among countries. There are many ways such an index can be derived, each with advantages and disadvantages. However, the primary purpose of the Index is to encourage actions to both enhance readiness and reduce vulnerability so the Index should increase as both these goals are achieved. Thus, the Index is simply the score on the Readiness Axis minus the score on the Vulnerability Axis and rescaled to give values in the range of approximately 0 to 100 for ease of communication.

[2] As of 20 June 2011

GaIn™ V. 1.0 is made up of 14 readiness measures grouped under the components of Economic, Governance and Social Readiness and 24 vulnerability measures grouped under the sectors Water, Food, Health and Infrastructure.

The most ready countries on the Index are the set of high-income countries with high readiness scores and usually low vulnerability (Table 3). The first middle-income countries (Chile – see Box 1 – and Uruguay) appear at about position 20 and only one low-income country before position 100.

Box 1

Country Case Study
Chile - Ready for Investment
Rank: 21

Chile has increased its score on the readiness axis of the GaIn™ Index 15 percent throughout the last 15 years. However, its score on the vulnerability axis has increased slightly during this period largely due to an increase in food imports.

Chile faces specific infrastructure challenges, notably flooding on its roads. Chile is also highly dependent on agricultural imports, increasing its vulnerability.

For GDP per capita, Chile significantly outperforms its peers for readiness indicators.

Moving the Index Needle
Since Chile ranks high on readiness, with no one indicator dominating its score of .76, Chile should continue steady improvements on economic, social and governance issues.

Bolstering its transport infrastructure along with promoting more food self-sufficiency are two key areas in which improvement could significantly lower Chile's vulnerability score, currently at .24.

Results from GaIn™ Version 1.0

Table 3. GaIn™ 1.0 scores for 2010

Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
1	Denmark	83.8				116		
2						117		
3	Switzerland	81.4	61	Mexico	65.6	118		
4	Ireland	81.4	62			119		
5			63			120		
6	Finland	79.9	64			121	Cuba	54.8
7	Norway	79.6	65			122		
8	United Kingdom	79.3	66			123		
9			67	El Salvador	64.9	124		
10	Sweden	77.9	68			125		
11	Austria	77.5	69			126		
12			70	Brazil	64.4	127		
13	Netherlands	77.4	71			128		
14			72			129		
15	Germany	76.9	73	Colombia	63.8	130		
16			74	Dominican Rep	63.3	131		
17	France	76.8	75			132		
18	Luxembourg	76.4	76			133		
19			77	Peru	63.2	134		
20			78	Ecuador	63.0	135		
21	Chile	76.1	79			136		
22			80			137		
23	Uruguay	75.5	81			138		
24	Spain	75.2	82			139		
25			83			140		
26			84			141		
27			85			142		
28			86			143		
29			87			144		
30	Italy	73.2	88			145		
31	Belgium	73.2	89			146		
32	Portugal	72.9	90	Paraguay	61.4	147		
33	Greece	72.6	91			148		
34			92			149		
35			93			150		
36			94			151		
37			95			152		
38			96	Venezuela	60.3	153		
39			97			154		
40			98			155		
41			99	Nicaragua	59.6	156		
42			100	Honduras	59.6	157		
43			101			158		
44			102	Guatemala	59.3	159		
45	Argentina	69.0	103			160		
46			104			161		
47			105			162		
48			106			163		
49			107			164		
50			108	Bolivia	57.5	165		
51			109			166		
52			110			167		
53			111			168		
54			112			169		
55			113			170		
56			114			171		
57			115			172		
58						173		
59	Panama	65.8				174		
60	Costa Rica	65.6				175		

OECD	High Income (Non-OECD)	Upper Middle Income	Lower Middle Income	Least Developed

There is a negative (opposite) relationship between the readiness and vulnerability scores (Fig. 2); i.e. countries with high readiness tend to have low vulnerability and *vice versa*. This is an outcome that has emerged from GaIn™ and is not a built-in result. It reflects a well-known situation in development studies.

In developing the indicators for the Index we were careful to seek measures with time series data from 1995 to present wherever possible. The global average of the GaIn™ Index has increased by 4 points from 1995 to 2010 with some countries increasing by more than 10 points, driven by large increases in readiness, and some falling by as much as 10 points. The richness of the time series information is illustrated in Fig. 3, which shows how four Latin American countries have changed in both readiness and vulnerability over 15 years. Chile, Uruguay and Mexico have steadily increased their readiness scores since 1995 while Nicaragua's readiness score has declined in recent years.

Figure 2. The GaIn™ 1.0 Readiness Matrix for 2010

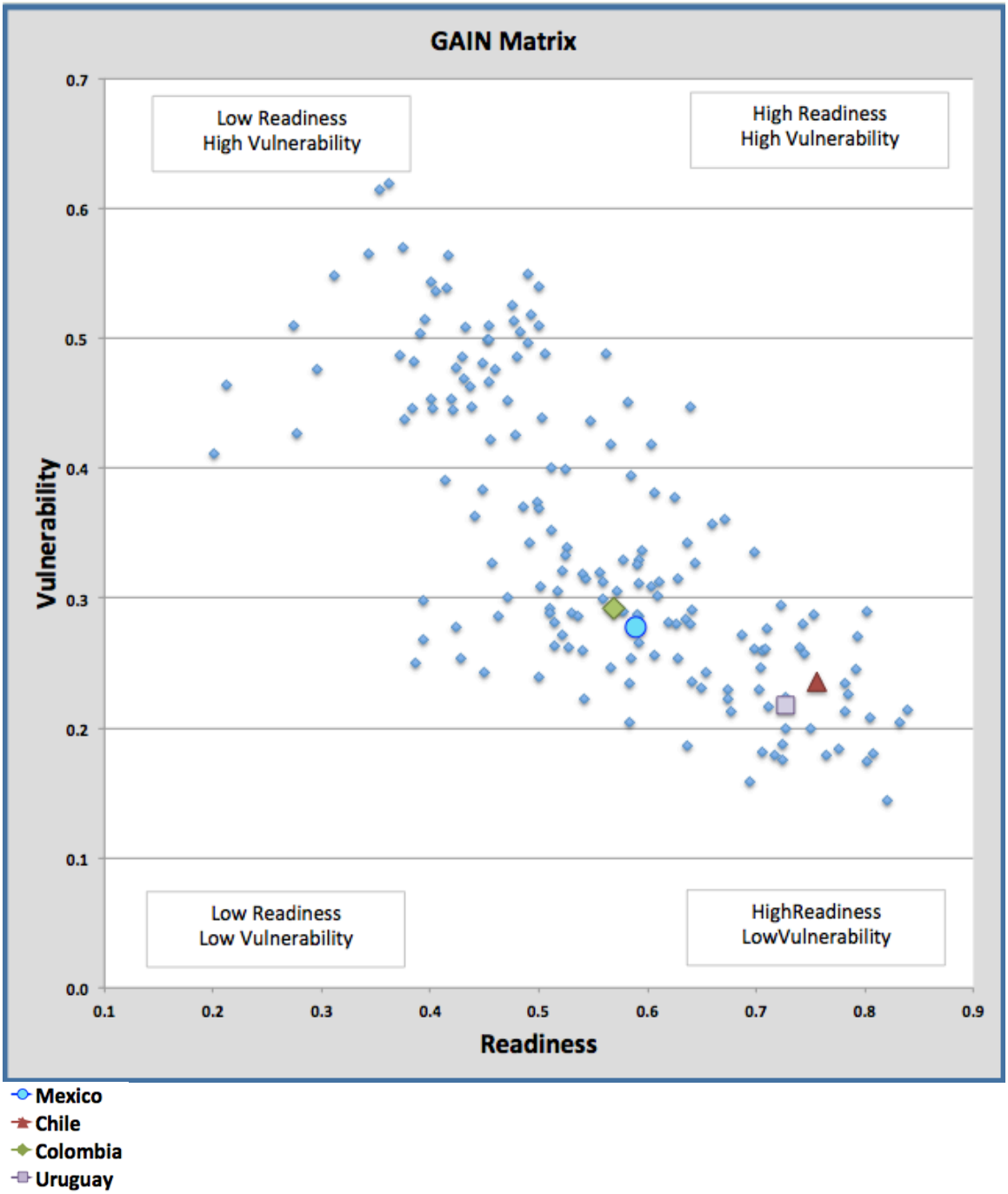
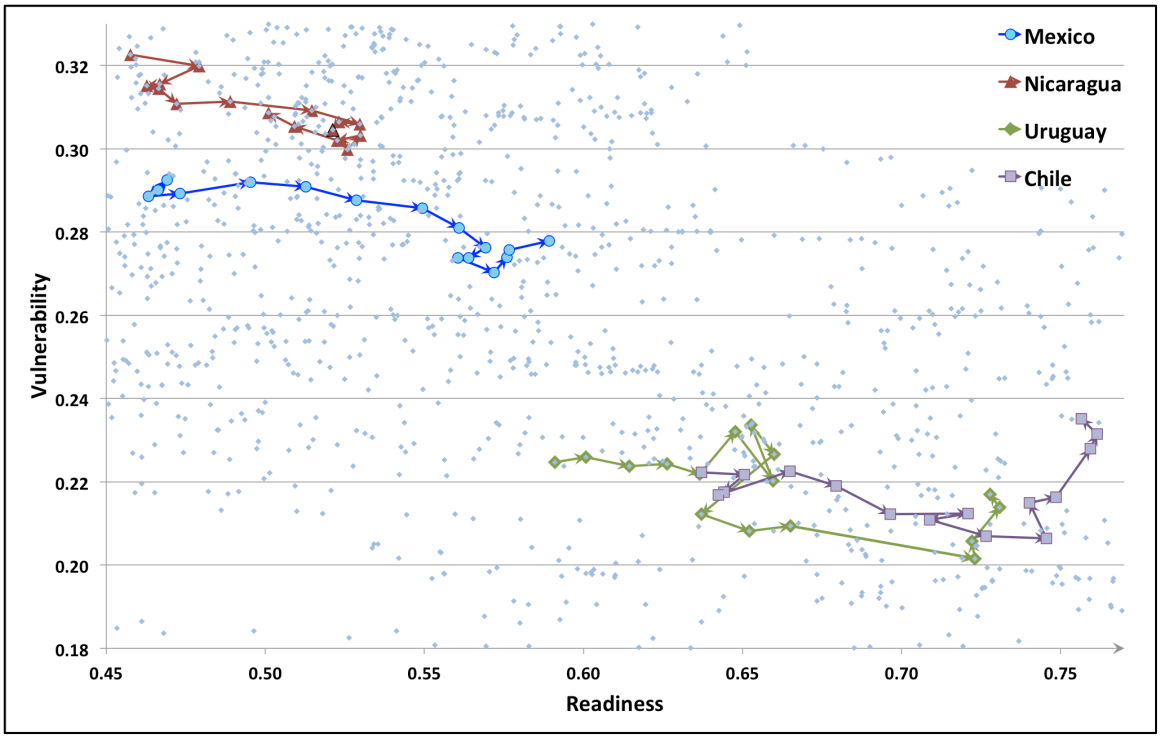


Figure 3. Changes in relative positions for South American countries on the GaIn™ 1.0 Readiness Matrix from 1995 to 2010



GaIn™ is also strongly correlated with national income measured as GDP per capita[3] even though direct and indirect measures of national wealth/income were avoided in the selection of the measures. However, this correlation points to another conclusion that may be inferred from information about the relative performance of countries in GaIn™; those with readiness or vulnerability scores better than the global best-fit trend line may provide a better investment environment than those that fall below it.

Table 4 shows the GaIn™ rankings but based on income adjusted scores. It is immediately obvious that there is a greater scatter of country incomes among the highest and lowest scores and that it also introduces some ratings that may not be immediately obvious. For example, Kyrgyzstan, a Least Developed Country on the GaIn™ Index, may be a surprising "most ready" candidate, since it is doing better than expected on both readiness and vulnerability. Uruguay and Chile are middle-income countries also performing above their income level.

[3] Expressed in Purchasing Power Parity (PPP) in constant USD2005 and usual log transformed.

Table 4. GaIn™ 1.0 rankings and scores adjusted for GDP per capita, 2010

Top Ranked (Income Adjusted)			Lowest Ranked (Income Adjusted)		
1	Kyrgyzstan	61.0	161	Saudi Arabia	42.0
2	Denmark	60.1	162	Trinidad & Tobago	41.7
3	Uruguay	59.7	163	Chad	41.3
4	New Zealand	59.6	164	Cuba	40.5
5	Chile	59.4	165	Bahrain	40.5
6	Cape Verde	58.9	166	Congo	40.1
7	Armenia	58.8	167	Kuwait	40.1
8	Moldova, Rep	58.6	168	UAE	39.9
9	Poland	57.5	169	Gabon	39.4
10	Georgia	57.1	170	Libya	38.8
11	Australia	57.1	171	Sudan	36.4
12	Timor-Leste	57.0	172	Qatar	36.2
13	Ghana	56.7	173	Iraq	34.3
14	Mauritius	56.6	174	Angola	33.1
15	Switzerland	56.6	175	Equatorial Guinea	23.6

OECD	High Income (Non-OECD)	Upper Middle Income	Lower Middle Income	Least Developed

An outcome of building the Index has been the gathering of a huge amount of information. This includes sectoral components with time-series information and ultimately allows both current assessment as well as evaluation of trends over time (see Box 2).

Box 2

Country Case Study
Mexico - Agricultural Production at Risk
Rank: 61

Since 1995, Mexico's score on the vulnerability axis of GaIn™ in the agriculture sector has increased 9 percent, even though its overall vulnerability has slightly declined. Contributing to almost half of Mexico's vulnerability score, agricultural production in the country faces challenges from shifting weather and rainfall patterns and a lack of modernization, including fertilizer use and irrigation, to meet demand from a growing population. For many in Mexico, rising food prices and shortages may get worse if predicted changes in agricultural yields occur.

Mexico's score on the readiness axis of GaIn™ has steadily improved throughout the last 15 years, however, it could improve this further by taking actions that positively impact several economic indicators, particularly those that measure factors affecting ease of doing business, such as reducing costs and time involved in starting a business.

Moving the Index Needle
Implementing policies that facilitate further investment in Mexico's agricultural modernization would be the most efficient way for Mexico to decrease its vulnerability, which will improve its overall GaIn™ score. In addition, Mexico can increase its GaIn™ score by strengthening the provision of health services as well as implementing policies to authorize and incentivize the private sector to increase energy access.

The web site supporting GaIn™ will allow users to explore the richness of the data and provide tools to assist them in their assessment. An example currently under development is a 'sweet spot analysis' that will allow a user to specify his/her preferred range of operations (e.g. mid-range vulnerability of 0.2 to 0.5, better than expected income adjusted readiness, middle income country, etc.). A sweet spot analysis like this, for example, returns a list of 15 possible countries ranging from Uruguay (23rd on GaIn™ Index), through Mauritius, Romania, to Jordan, El Salvador and South Africa. The analysis could be further refined by regional preference and performance in particular sectors such as water, transport etc.

Future Work

Adaptometer™

Recognizing that many of the impacts of climate change and solutions to building resilience exist at the local level, The Global Adaptation Institute™ intends to develop an additional input, the "Adaptometer™", to complement the measures used in GaIn™ V. 1.0. This component would be subjective. The goal is to provide information on the awareness of national and local governments and the private sector to the sensitivity to climate change of their jurisdictions and operations. If they are aware, how do they plan to adapt? Questions addressed could include:

1) Does the society of the country understand its climate risks?
2) How strong is the political will to address adaptation needs?
3) Are the decision makers and communities prepared to increase adaptive capacity?
4) Is there an open, inclusive, results oriented national and sub-national dialogue on Adaptation?
5) Do budgets reflect a commitment to adaptation?

Other questions will be developed dependent on the reality, level of progress and capacity of institutions on the ground to conduct such polls.

The Adaptometer™ would use information from the field that describes the level of knowledge, the policies in place, the allocation of budgets, and the overall commitment of society to adapt to climate change and other global trends. Concretely, polling/questionnaires would be conducted on public officials at national and local levels, plus representatives of the private sector, civil society, unions, universities, and think tanks.

This additional component could provide valuable information consistent with the framework and purpose of our model. The component could be included as an additional category in Readiness, or as an independent axis (possibly combined with Adaptive Capacity from the current Vulnerability Axis).

This concept can strengthen current metrics as well as contribute to the advocacy part of the Institute's goals. Hopefully it would encourage and facilitate implementation of public policies that produce long term, fiscally sound solutions for vulnerable groups in society.

Scaling to the local

GaIn™ V. 1.0 is based on national measures, but one part of a country may be highly vulnerable while the remaining portion experiences few impacts from climate change and other global trends. More likely, a country will face several discreet challenges in different regions (e.g. flooding along the coast and agricultural losses in the interior).

Considering a country's readiness, there may be significant disparities between regional governments in their ability to channel resources effectively and utilize private investment.

Gathering existing or developing new indicators at a sub national level is both very challenging and very important. The time and costs of dividing indicators into three, ten or even twenty regions within a nation clearly requires significant commitment from national and regional governments as well as any international institutions that may carry out such surveys.

After receiving initial responses to the release of GaIn™ V. 1.0, the Institute will work with partners to determine the feasibility of gathering more detailed and sub-national indicators. Such a project may initially begin with a distinct geographic region or continent.

Additional Indicators

GaIn™ V. 1.0 has been designed with a strongly modular approach. The measures for both axes fit within a structured conceptual approach based on current best practice. This modular structure is expandable and substitutable. For example, future versions of GaIn™ may add additional sectors such as ecosystem services to the Vulnerability Axis or, again for example, the measures of human capital in the Readiness Axis might be revised and a new set substituted. If such changes are made we will provide analyses to maintain cross comparability with earlier versions of GaIn™.

Conclusion

This first version of GaIn™ provides an organized framework in which countries, businesses and other actors can make informed decisions based on the most relevant and transparent indicators related to vulnerability and a country's readiness to act. We acknowledge, that there will always be room to improve the Index and that there will always be differences in view as to what information should and should not be included in it. However, this first version of GaIn™ demonstrates the value of some of the decisions made in its initial design. The creation of a consistent structure for bringing measures together and simple approaches to calculating the indices and weighting of components has facilitated discussion and debate on GaIn™ amongst both technical advisers and potential users. GaIn™ and its axes of Readiness and Vulnerability are strongly correlated with income, but we have found useful insights from exploring departures from that relationship. Most importantly, we have only begun to explore the benefits of having time series data for most of the measures included in the Index and being able to track performance of countries against the Index over the past 15 years.

The Institute welcomes recommendations for additional indicators, data sources and methods that can improve both the accuracy and usefulness of the Index according to the criteria stated previously. GaIn™ will evolve over the next few years, but we will seek to stabilize its structure and measures so that it can become a reference point to assessing progress and priorities. Although never perfect, its imperfections might be better understood.

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Appendix 1: Glossary of Terms

Adaptometer™	An indicator that captures information from the field in terms of the level of awareness, the policies in place, the allocation of budgets, and the overall commitment of society to adapting to climate change and other global trends. The Adaptometer™ will not only capture the "awareness" of the public and government about adaptation but what actions are being formulated and implemented.
Awareness	The reality at the local level. The population's understanding of climate risks and belief that changes will increase adaptation capacity.
Biophysical exposure	The level of adverse biophysical impacts due to climate change and other global forces.
GaIn™	The Global Adaptation Index™ is produced by the Global Adaptation Institute. The Institute is a non-profit environmental organization guided by a vision that building resilience against climate change and other global forces is a key component to sustainable development.
Readiness	Ability of a country's private and public sectors to absorb additional investment resources and apply them effectively to increasing the resilience of communities to the effects of climate change.
Readiness Matrix	A measurement of the comparative resilience of countries, plotting a country's vulnerability to climate change versus its readiness to confront climate challenges.
Socioeconomic sensitivity	The importance of a climate-sensitive sector of a country. In other words, how exposed or sensitive a country is to impacts on water, food, coastal zones and human health.
Socioeconomic adaptive capacity	The availability of economic, social, and institutional resources to cope with and adapt to the impacts of climate change in specific sectors. Though related, this differs from readiness indicators in that it measures specific actions taken to increase resilience in specific sectors, whereas Readiness measures a country's ability to easily facilitate these increases in resilience.

Vulnerability	A country's socioeconomic exposure to biophysical impacts minus adaptive capacity.
Weight	The relative value or importance an indicator is assigned in determining a country's overall readiness and vulnerability score.