**GAIN Index 2012 Summary of changes**

# Abstract

The Global Adaptation Institute (GAIN) launched the GAIN Index September 14, 2011. Immediately thereafter, the institute emphasized in growing a user base and gathering feedback. GAIN has presented the index to public and private sector entities, as well as NGOs, academics and other stakeholders. The GAIN Index methodology and framework has remained unmodified since late August 2011. For the 2012 release GAIN has concentrated on a complete internal audit, fixing “bugs” and also supporting users of the index and gathering user feedback. Communications and fundraising around the index were also important focuses of GAIN. Following the recommendations from last year, GAIN has drafted additions to the index (indicators that measure ecosystem services and urban resilience). GAIN is also considering improving the Readiness Axis, but not for the 2012 release.

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# Feedback from roll-out

## Index Website analytics

In the last year (from launch until Jul 24th) the GAIN Index web site has received >85,463 Page Views, with an average visit duration of 04m 41s.

Figure - Breakdown of pageviews on index.gain.org from Sep 2011 to July 2012.

Most of the views are of the front page, which is also the most common landing page. The GAIN Index Rankings page is the second most visited, which confirms its importance (i.e. users are twice as interested in viewing the Rankings compared to the Methodology).

Figure - Traffic sources for index.gain.org from Sep 2011 to July 2012.

Half of the traffic is direct, meaning visitors type the url address. Our organic sources (people searching related keywords in engines like Google) are steady around 17%. Interestingly two high-traffic websites alone have provided more inbound links as the organic search traffic.

Regarding search terms, the list includes obvious search terms such us “Global Adaptation Index”, “GAIN Index”. Other common entry keywords include terms such as “Adaptation Index” (9th most common entry keyword, which means we are well positioned in Google for that common keyword), and country specific profile pages (Chad number 10 in the top ranking of entry keywords), and Mongolia number 28, but also Denmark, Australia and the USA) all in the top 100 search terms.

Removing the month of the launch, where we peaked 12.000 pageviews a week, our baseline is roughly 1.000 pageviews/week with a steady 50% new visits.

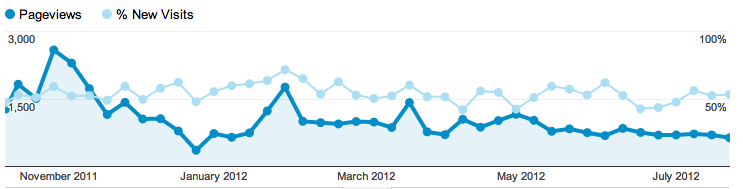


Figure - Timeline of pageviews from October 2011 to July 2012 in dark blue, and faint blue for the percentage of New visits versus returning visitor.

**Visitor flow**

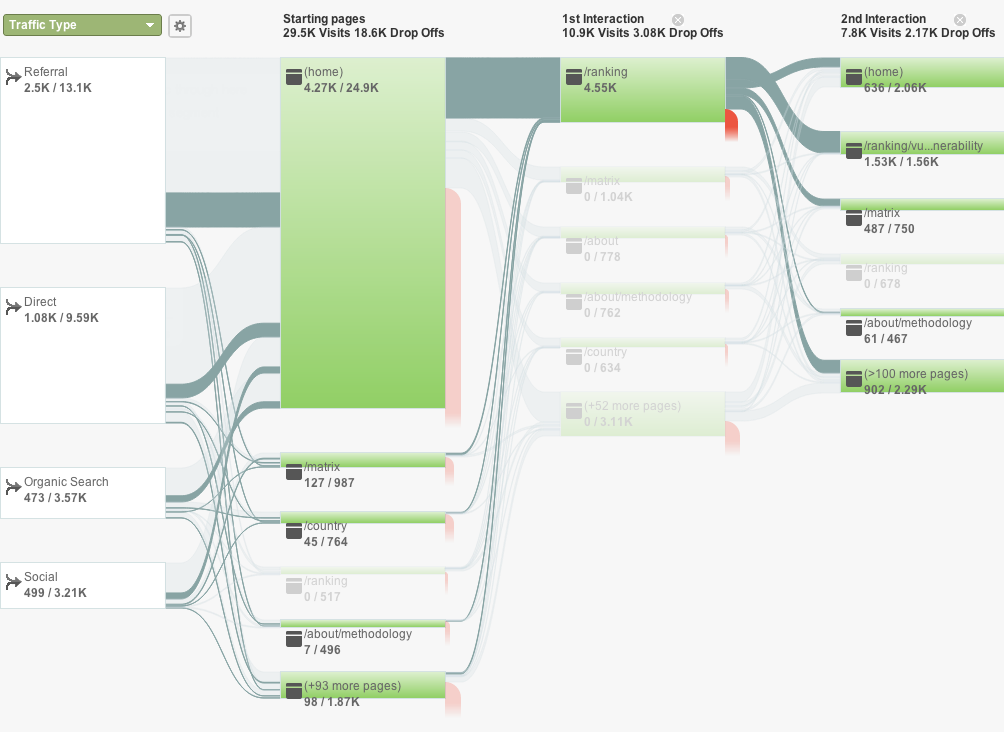


Figure - visitor flow. From left to right, the first column is the breakdown by entry type (referral, direct, organic or from social networks), the following breakdown the pages visited. Lines between columns connect visitors to create the thread of usage. Red lines represent dropouts, or the end of the visit. The highlighted connecting path corresponds to those users who visit the Ranking page on their first interaction on the site.

From the visitor flow, it is evident that the home page is the most visited page, and the most visited page is the Rankings. This means the most common pathway TO WHAT? is a referral to the front page, where the user is lead to the Rankings, and form there, the Vulnerability Ranking. The Matrix page is the second most common landing page, but with far fewer visits than the home page.

## Presentations

Summary of the presentation we have done since September 2011.

* CH2M Hill, Colorado
* Baker & McKenzie, Chicago
* Calvert.
* Climate Week.
* European Ideas Network.
* IADB Presentation.
* Tecnológico de Monterrey and 20 of their campuses via virtual connection.
* Carnegie Endowment International Peace, Moscow
* Latin American Ambassadors, OEA.
* UNFCCC, Bonn
* World Bank Asia
* PepsiCo, Mexico
* Durban
* CIA
* WAY
* Engineers Without Borders, Las Vegas.
* Rio+20, State Department tent. Rio de Janeiro.
* State Department in Washington DC, Office for Global Change
* USAID

## Email and personal Feedback

We have compiled a list of 38 common Issues (Questions from users at our presentations or via email regarding definitions, data sources, problems, data gaps, criteria and others). We are also listing how GAIN intends to address the Issue, if not already resolved. The list is available online at: <https://github.com/globalai/GaIn-Index/issues>

These issues include bug reports, clarifications to the methodology, enhancements request to the website and code requests.

## Updates on Individual Measures

Water Change in precipitation: Data from models. No change

Water Use: Copied over from 2011

Water Access: Resourced from WB data portal.

Water Change in Temperature. Data from models. No change

Water Disease Copied over from 2011

Water Sanitation Re-sourced from WB data portal.

Agric Yld Projected Change Copied over from 2011

Agric rural popn Secondary measure

Rural population Re-sourced from WB data portal.

Total Population Re-sourced from WB data portal.

Agric Capacity Secondary measure **and refined**\*

Fertilizers Re-sourced from WB data portal.

Machinery Re-sourced from WB data portal.

Irrigated Resourced from WB data portal.

Agric Yield CV Re-sourced from WB data portal.

Agric Imports Copied over from 2011

Agric Malnutrition Re-sourced from WB data portal.

Health DALYs Copied over from 2011

Health Staff Secondary

Health Physicians Re-sourced from WB data portal.

Health Nurses MW Re-sourced from WB data portal.

Health Longe Re-sourced from WB data portal.

Health Disease Copied over from 2011

Health External Re-sourced from WB data portal.

Health Maternal Re-sourced from WB data portal.

Coast Area Copied over from 2011

Coast Population Copied over from 2011

Energy Access Copied over from 2011

Energy Sensitivity Secondary. Re-sourced. Now is not static

Imports Re-Sourced from WB data portal.

Hydro Re-Sourced from WB data portal.

Road Floods Copied over from 2011

Road Paved Re-Sourced from WB data portal

R-IEF Business free Copied over from 2011 +1 column

R-IEF Finan free Copied over from 2011 +1 column

R-IEF Fiscal Free Copied over from 2011 +1 column

R-IEF Gov Spending Copied over from 2011 +1 column

R-IEF Invest Free Copied over from 2011 +1 column

R-IEF Monetary Free Copied over from 2011 +1 column

R-IEF Trade Free Copied over from 2011 +1 column

R-WGI psnv Re-Sourced from WGI data files.

R-WGI va.xls Re-Sourced from WGI data files.

R-WGI cc.xls Re-Sourced from WGI data files.

r-mobiles.xls Re-Sourced from WB data portal.

R-enrollment.xls Re-Sourced from WB data portal.

R-WGI rl.xls Re-Sourced from WGI data files.

R-IEF Labor Free.xls Copied over from 2011 +1 column

X-GDP pc.xls Re-Sourced from WB data portal.

\***Agricultural capacity:** As discussed in the tracking of issues above, we propose to refine the algorithm to calculate this measure to avoid certain limit cases with very limited data. On the current proposal, Agricultural capacity is defined as:

- 3/3 available numbers: Average of two worst, as before.  
- 2/3 available numbers: Average, as before.  
- 1/3 available number: Average of 1 (highest vulnerability) and the available score.  
- 0/3 available numbers: Insert N/A

**Re-sourced data vs Legacy data**.

We have run comparisons of the input data (“Raw0”) used for the GAIN Index 2011 and the re-sourced data for the GAIN Index 2012. In most cases we find none to few minor differences — no more than 5% of the numbers differ more than 10%. In two cases, differences were significant:

* Agricultural Malnutrition. 46% of the numbers are more than 50% different.
* World Development Indicators. There are differences scattered according to countries and year. Up to 40% of numbers differ 10% or more. Up to 10% differ more than 50%.

### Tolerance for missing numbers

Whenever a measure is not available for a particular year we use the same algorithm to interpolate or extrapolate it. If no number is available for any year, the measure is dropped.

Similarly to the 2011 index we allow for a country to have a certain amount of missing numbers for inclusion in the index. In that case with fewer measures, the average to calculate the partial scores or index scores is performed using the available numbers.

For the 2012 index we propose a tolerance of ~75%, as shown on this table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Components | Tolerance for missing | | **at least** |
| Water | 6 | 75% | 2 | 4 |
| Food | 6 | 75% | 2 | 4 |
| Health | 6 | 75% | 2 | 4 |
| Infrastructure | 6 | 75% | 2 | 4 |
| Exposure | 9 | 75% | 2 | 7 |
| Sensitivity | 9 | 75% | 2 | 7 |
| Capacity | 6 | 75% | 2 | 4 |
| Economic | 7 | 75% | 2 | 5 |
| Governance | 3 | 75% | 1 | 2 |
| Social | 4 | 75% | 1 | 3 |
| Vulnerability | 24 | 75% | 6 | 18 |
| Readiness | 14 | 75% | 4 | 10 |
| **GAIN Index** | 38 | -- | -- | -- |

# GAIN Index 2012 updates

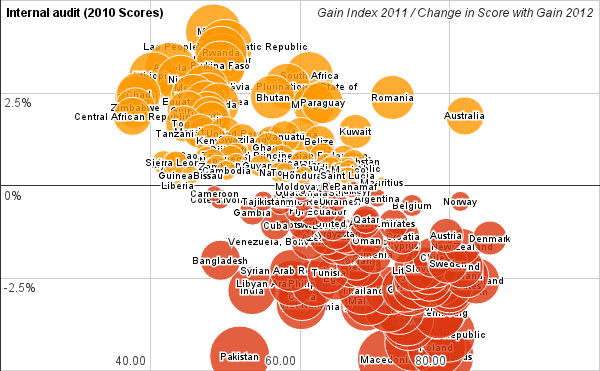
## Changes to the code

The code has been completely reworked through an internal audit and few errors have been identified and fixed in this process. The parameters remain the same, including thresholds. The only differences are specified above.

The list below is ranked according to the “GAIN Index 2011” for 2010 (The official Ranking), the new Ranking, using the **preliminary** “GAIN Index 2012 updated” for 2010 with the new code, and the “GAIN Index 2012 updated ” for 2011 (“updated” does not include the new sectors). We only show the top and bottom 20. Note we are able to include more countries.

| RANK | **OLD CODE 2010** | **NEW CODE 2010** | **NEW CODE 2011** |
| --- | --- | --- | --- |
| 1 | Denmark | Denmark | Australia |
| 2 | Switzerland | Australia | Denmark |
| 3 | Ireland | Switzerland | Switzerland |
| 4 | Australia | Norway | Norway |
| 5 | New Zealand | New Zealand | New Zealand |
| 6 | Finland | Ireland | Ireland |
| 7 | Norway | Finland | Finland |
| 8 | United States | Austria | Austria |
| 9 | Germany | Sweden | Sweden |
| 10 | United Kingdom | United States | Germany |
| 11 | Sweden | Germany | United States |
| 12 | Czech Republic | United Kingdom | United Kingdom |
| 13 | Austria | Iceland | Czech Republic |
| 14 | Netherlands | Singapore | Chile |
| 15 | Iceland | Canada | Romania |
| 16 | France | Chile | Canada |
| 17 | Luxembourg | Czech Republic | Singapore |
| 18 | Poland | France | Iceland |
| 19 | Canada | Luxembourg | Slovenia |
| 20 | Chile | Spain | France |
| --- | ----- | ----- | ------ |
| 158 | Chad | Bangladesh | Yemen |
| 159 | Burundi | Pakistan | GuineaBissau |
| 160 | Zimbabwe | Guinea | Bangladesh |
| 161 | Central African Republic | Niger | Guinea |
| 162 | #N/A | Togo | Pakistan |
| 163 | #N/A | Angola | Togo |
| 164 | #N/A | GuineaBissau | Angola |
| 165 | #N/A | Sierra Leone | Liberia |
| 166 | #N/A | Liberia | Ethiopia |
| 167 | #N/A | Myanmar | Sierra Leone |
| 168 | #N/A | Ethiopia | Eritrea |
| 169 | #N/A | Sudan | Myanmar |
| 170 | #N/A | Iraq | Congo, the Democratic Republic of the |
| 171 | #N/A | Eritrea | Sudan |
| 172 | #N/A | Congo, the Democratic Republic of the | Burundi |
| 173 | #N/A | Chad | Chad |
| 174 | #N/A | Burundi | Iraq |
| 175 | #N/A | Zimbabwe | Central African Republic |
| 176 | #N/A | Central African Republic | Zimbabwe |
| 177 | #N/A | Korea, Democratic People's Republic of | Korea, Democratic People's Republic of |

## Differences in the Score for 2010 with “GAIN Index 2011” and “GAIN Index 2012 updated”



The median change in scores is -0.34% (max 4.15%, min -4.69%). Several sources of these differences have been identified:

* Re-sourcing of some of the measures, which include updated or revised numbers.
* Fixing bugs such as one that allocated 0 vulnerability in Water Capacity to some countries.
* Slightly different, more consistent approach dealing with missing numbers.

We are still tracing the sources of the biggest differences to make sure the origin of these changes is known and understood.

# Specific Open Issues

## Website update-upgrade

There are significant improvements suggested for the website. Some are feasible as additions to the current website framework, some are more suitable for an Excel file.

In which direction should the GAIN Index go?

* Update the site with the “Upgraded Index.”
* Upgrade the website with new features.
* Drop the website in favor of an Excel only index.

Legacy Indices, updates and upgrades.

As it stands now we will have 3 sets of numbers:

* **GAIN Index 2011**, from 1995 to 2010. The current website.
* **GAIN Index 2012 update** from 1995 to 2011.
* **GAIN Index 2012 upgrade** from 1995 to 2011 (ecosystem services and urban additions).

## To Do

* Further explore differences with the Internal audit.
* Code to export to .csv for the website
* Code for the new trends.
* GDP adjusted GAIN Index, Readiness and Vulnerability.
* Correlations analysis.