

GLOBAL INSIGHTS

Constituting Global Leadership:  
Which Countries Need to Be  
Around the Summit Table for  
Climate Change and Energy Security?



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THERE IS A GROWING CONSENSUS THAT THE G8 WILL BE REPLACED BY THE G-20 as the key informal body that meets at the leaders' level. Whether it focuses on setting agendas, breaking deadlocks, or being "friends of reform," there will continue to be controversy regarding its composition. Why? Because there is no axiomatic or correct way to choose the countries to constitute the summit table for global negotiations.<sup>1</sup>

Various criteria provide guidance, such as total population, economic weight and power, leadership in science and technology, cultural reach, the capacity to introduce new ideas, and the desire to lead. Regional weight is a possible factor. Capacity and willingness to burden share are other criteria. Internal national credibility and political will are other measures. Given that battles are first won on the domestic front, can a country arrange its own compliance?

Some might argue that agreement is easier with other like-minded countries that have the same values, but legitimacy requires the group to be representational as well as effective. For example, a recent paper<sup>2</sup> examined two variables as a guide to a representational and effective G-20<sup>3</sup>—GDP and population—listing countries that would have more than 2 percent of either global population or world GDP and arguing that those with the most economic activity and largest populations must be included (Table 1). Table 1 and subsequent tables rank countries by the magnitude of the measure being considered and highlight current membership in the G-20.

When the representational group consists of countries that are not like-minded, is there any possibility for agreement? If so, which countries need to be around the table? We first assess the potential for agreement among a representational group of countries using results from theories of coalitions, regimes, and consensus. We then review a number of variables that may provide the basis for a country's inclusion in a future G-20 or G-X. The variables selected are indicators or proxies for (1) who caused the climate change/energy security/development problem; (2) who is most affected; and (3) who can do something about it. We conclude with the Chinese concept of

**Table 1 GDP or Population Greater Than 2 Percent of Earth's Total**

2008	2020
Bangladesh	Bangladesh
<b>BRAZIL</b>	<b>BRAZIL</b>
<b>CANADA</b>	<b>CHINA</b>
<b>CHINA</b>	<b>FRANCE</b>
<b>FRANCE</b>	<b>GERMANY</b>
<b>GERMANY</b>	<b>INDIA</b>
<b>INDIA</b>	<b>INDONESIA</b>
<b>INDONESIA</b>	<b>ITALY</b>
<b>ITALY</b>	<b>JAPAN</b>
<b>JAPAN</b>	Nigeria
Nigeria	Pakistan
Pakistan	Russia
Russia	Spain
Spain	<b>UNITED KINGDOM</b>
<b>UNITED KINGDOM</b>	<b>UNITED STATES</b>
<b>UNITED STATES</b>	
Total: 16	Total: 15
GDP: 72%	GDP: 66%
Population: 65%	Population: 63%

*Source:* "A Fresh Look at Global Governance: Exploring Objective Criteria for Representation," Working Paper, no. 160, 6 February 2009, available at [www.cgdev.org/content/publications/detail/1421065/](http://www.cgdev.org/content/publications/detail/1421065/).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

"comprehensive national power" to illustrate one attempt to weight several factors and compute an overall index.

### **Is Meaningful Agreement Possible in a Group of 20?**

In recent G8 meetings, commitments have been made on issues such as the economic crisis, poverty, climate change, development, Africa, global growth and stability, financial markets, investment, innovation, energy efficiency, energy security, clean energy, corruption, modern education systems, infectious diseases, globalization, and international trade. For a variety of reasons, many of the commitments have not been fulfilled,<sup>4</sup> but it is anticipated that a Leadership of Twenty (L-20) council will be able to break deadlocks on several of these important issues.<sup>5</sup> However, because the challenges of reaching a consensus coalition of agreement will be greater with twenty leaders than with eight, we will consider whether or not a meaningful coalition is possible for the former number.

Theories relating coalition size to effectiveness include those of William Riker and Robert Axelrod.<sup>6</sup> Riker reasoned that there is a tradeoff between large and small coalitions because, in the context of global agreements, the

side payments required to sustain the agreement might outweigh the benefits. Axelrod pointed out that the less conflict of interest there is in a coalition, the more likely the coalition will form and the longer its duration. The implication for L-20 membership is that we need a group that is just large enough for effectiveness and no larger.

Barrett, Carraro, Finus, and other researchers have considerably extended the theory of coalitions in international agreements. Early results showed that a coalition size of three was the most that we could expect for a nontrivial agreement, and that more countries would reach agreement only if they did not stretch beyond what they would do bilaterally without the agreement.<sup>7</sup> These discouraging results were subsequently improved by introducing into the analysis transfer schemes (“side payments”), farsighted negotiators, and issue linkage.

### *Transfer Schemes*

Although side payments or transfers may increase the number of signatories,<sup>8</sup> they are uncommon in practice because they are politically unpopular and may provide little incentive for change. Transfer schemes for climate change, such as the Global Environment Facility (GEF) and the Clean Development Mechanism (CDM), have generally not been effective.<sup>9</sup>

### *Farsighted Thinking*

Negotiators are farsighted when they anticipate the ultimate impact of their decisions on the coalition.<sup>10</sup> For example, a country may consider opting out of the coalition because it can free-ride on the benefits but can foresee that other countries will also opt out, thereby reducing its free-riding benefits to less than they would be within the coalition. Farsightedness in this sense is likely to be characteristic of most L-20 leaders and can be facilitated by pre-meeting analysis of possible outcomes.

Of course, there is another sense in which the leaders will need to be farsighted. The nature of their political situations encourages them to have short-term sight that extends only to the next election, but dealing with the climate change issue requires farsighted consideration of future generations. This is an interesting challenge for the L-20, and farsightedness in both senses will be required for meaningful agreement to take place.

### *Issue Linkage*

Issue linkage is a well-known approach for theoretically improving the possibilities for agreement in international negotiations,<sup>11</sup> but it is not easy to achieve or common in practice. Even the theoretical results place limitations on the potential of issue linkage. Although it is generally accepted that issue linkage expands the opportunity for tradeoffs and fosters agreements that are acceptable to asymmetric countries (such as developed and developing countries), there are limitations.

One issue-linkage strategy links a public good (such as climate policy) with a club good (such as collaborative R&D). For issue linkage to be successful, the net benefit from the public good must be sufficiently large so that payoff is higher with linkage than without. However, while issue linkage may increase the size of the environmental coalition, it will likely decrease the number of participants in the R&D agreement, offsetting environmental benefits with technology losses.<sup>12</sup> In fact, simulations have demonstrated that linking R&D and climate change may not enhance agreement.<sup>13</sup>

Now consider the environment issue with trade by making trade cooperation conditional on environmental cooperation. This type of linkage can play a facilitating role in an agreement, but only in the case in which costs and benefits of the environmental issue are small in comparison with the costs and benefits of the trade policies, which is not the case for the climate change issue.<sup>14</sup> Linking trade to the climate change issues that have huge costs and benefits is not likely to facilitate agreement.

Generally, issue linkage is more likely to foster agreement on two issues if countries value the payoffs of each issue independently.<sup>15</sup> For example, consider again a linkage of trade and environmental issues. Because emissions abatement may reduce exports, values of an emission tax policy are interdependent with values of an export tax or import tariff policy. The fact that the trade policy and environmental policy incentives cannot be separated in a clear-cut manner diminishes the effectiveness of linking the policies.

Because of theoretical limitations to the effectiveness of issue linkage, and the analysis and time required to determine linkages, it is not surprising that actual examples of issue linkage are few. In the G7/G8 setting, issue linkage has been used only twice. The 1978 G7 meeting in Bonn produced a deal that linked macroeconomic stimulus, energy policy, and trade liberalization. The 2002 G8 meeting in Kananaskis resulted in a deal that linked nuclear and chemical weapons cleanup with funding for the HIPC (heavily indebted poor countries) initiative. In the environmental regime, increased effectiveness of three separate regimes in the UN Environment Programme, Food and Agriculture Organization, and World Trade Organization was achieved with linkages among biological diversity, plant genetic resources, and trade-related intellectual property rights.<sup>16</sup> In the refugee regime, the success of the International Conference on Central American Refugees was enhanced by linkages among development aid, trade links, and human rights, while the Indo-Chinese Comprehensive Plan of Action was similarly enhanced by linkages among issues of development assistance, peace, and security.<sup>17</sup>

A preliminary proposal for the initial L-20 meeting on climate change recommends commitments on issues related to emission targets and fiscal measures, markets and institutions, energy policy, research, technology transfer, adaptation, and monitoring and evaluation.<sup>18</sup> These issues can be considered separately, but it may be possible to foster agreement among the twenty lead-

ers by developing strategies for issue linkage.<sup>19</sup> It may be beneficial to consider in advance the types, magnitudes, and dependencies among the costs and benefits of the countries so that opportunities for linkage can be anticipated.<sup>20</sup> However, while these possibilities might be prepared for the leaders in advance, the meeting's informality may bring linkages to light as they become evident and necessary for consensus.

### *Meaningful Consensus*

Can meaningful consensus be achieved? The L-20 participants have considerable expertise building coalitions within their political parties and national assemblies that are large enough to win. This experience should facilitate their joint efforts in achieving full consensus coalitions in the L-20. Although the most critical factor for consensus is that each leader has a strong desire to reach agreement and a willingness to look for solutions that resolve differences,<sup>21</sup> the L-20 format itself will foster consensus by facilitating relationships among the leaders. We know that repeated interactions foster trust and cooperation, and Paul Martin has emphasized that the regularity of the meetings among the same leaders (i.e., without variable geometry) has fostered agreement in the G8 and the G-20 and thus should also foster consensus in the L-20 forum.<sup>22</sup> Leaders represent countries that have differences in resources, relative valuations, forecasts, risk preferences, and time preferences, and these differences provide opportunities to compromise by trading on differences across the issues being considered. However, in order to avoid deadlocks, all leaders must be willing to provide full information on these differences.<sup>23</sup> International agreements have sometimes used a prearranged sufficient consensus rule<sup>24</sup> if full consensus cannot be reached. However, the challenges of implementing agreements are made worse by this rule, and sufficient consensus would be a disappointing outcome. For climate change and energy security, there are many possible strategies,<sup>25</sup> and the leaders must strive to reach consensus that breaks the climate and energy deadlocks.

Now that we have established that it is theoretically possible for a group of twenty world leaders to achieve meaningful consensus by the diligent application of farsightedness and issue linkage, we determine who should be at the table by considering who caused the problem, who is most affected, and who can do something about it.

### **Who Caused the Problem?**

The measure of cumulative historical emissions is the best proxy measure for responsibility for the current atmospheric concentration (Table 2). The amount of cumulative emissions is a relatively uncontroversial criterion in that it fairly reflects the degree to which different countries contributed to the current problem. If there are to be decisions on burden sharing, those who created the bur-

**Table 2 Cumulative Emissions, 2008**


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**UNITED STATES**  
**CHINA**  
**RUSSIA**  
**INDIA**  
**JAPAN**  
**GERMANY**  
**BRAZIL**  
**CANADA**  
**UNITED KINGDOM**  
**ITALY**  
**MEXICO**  
**SOUTH KOREA**  
**FRANCE**  
**INDONESIA**  
**AUSTRALIA**  
 Ukraine  
 Iran  
**SOUTH AFRICA**  
 Spain  
 Poland

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*Source:* “Greenhouse Gas Emissions—Perspectives on the Top 20 Emitters and Developed Versus Developing Nations,” October 2009, available at [www.eoearth.org/article/Greenhouse\\_gas\\_emissions:\\_perspectives\\_on\\_the\\_top\\_20\\_emitters\\_and\\_developed\\_versus\\_developing\\_nations](http://www.eoearth.org/article/Greenhouse_gas_emissions:_perspectives_on_the_top_20_emitters_and_developed_versus_developing_nations).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

**Table 3 Population, 2007**


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**CHINA**  
**INDIA**  
**UNITED STATES**  
**INDONESIA**  
**BRAZIL**  
 Pakistan  
 Bangladesh  
 Nigeria  
**RUSSIA**  
**JAPAN**  
**MEXICO**  
 Philippines  
 Vietnam  
**GERMANY**  
 Ethiopia  
 Egypt  
**TURKEY**  
 Iran  
 Thailand  
 Democratic Republic of Congo

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*Source:* World Bank, World Development Indicators database, 15 September 2009, available at [siteresources.worldbank.org/datastatistics/Resources/POP.pdf](http://siteresources.worldbank.org/datastatistics/Resources/POP.pdf).

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den will have to be at the table. Note that China, India, and Brazil have each produced more cumulative emissions than many of the developed countries.

### Who Is Most Affected?

It is generally agreed that climate change will impact most those who had no part in creating the problem. Their voices should be included. Several rationales have been considered, each with a different proxy variable. Possible criteria are total population, countries most affected by extreme weather events, countries with the largest land mass, or countries with the largest population in low-elevation coastal zones. What about overall vulnerability? Because every person is affected, one could argue that total population is the appropriate criterion (Table 3). Eleven of the countries in this list are also on the list of top cumulative emitters in Table 2.

But everybody is not impacted in the same way. Should we include countries most exposed to the increasing frequency of extreme weather events? Countries most vulnerable to sea-level rise would want to be at the decision-making table, and a similar claim could be made by countries whose coastal regions are most at risk from climate change (Table 4).

One serious attempt to compute an overall index of vulnerability was led by UNEP with various partners (Table 5). This index is a combination of fifty indicators related to climate change, biodiversity, water, agriculture and fisheries, human health, desertification, and exposure to natural disasters.

**Table 4 Susceptibility to Harm from Climate Change**

Most Affected by Extreme Weather Events, 2007	Largest Population in Low Elevation Coastal Zones	Most Land in Low Elevation Coastal Zones
Bangladesh	<b>CHINA</b>	<b>RUSSIA</b>
<b>SOUTH KOREA</b>	<b>INDIA</b>	<b>CANADA</b>
Nicaragua	Bangladesh	<b>UNITED STATES</b>
Oman	Vietnam	<b>CHINA</b>
Pakistan	<b>INDONESIA</b>	<b>INDONESIA</b>
Bolivia	<b>JAPAN</b>	<b>AUSTRALIA</b>
Papua New Guinea	Egypt	<b>BRAZIL</b>
Vietnam	<b>UNITED STATES</b>	<b>MEXICO</b>
Greece	Thailand	<b>INDIA</b>
Tajikistan	Philippines	Vietnam

*Sources:* [www.germanwatch.org/crri](http://www.germanwatch.org/crri); Global Climate Risk Index 2009, December 2008; "Hundreds of Millions at Risk from Rising Sea Levels," March 2007, available at [news.mongabay.com/2007/0327-sea\\_levels.html](http://news.mongabay.com/2007/0327-sea_levels.html); "The Rising Tide: Assessing the Risks of Climate Change and Human Settlements in Low Elevation Coastal Zones," 2007, available at [eau.sagepub.com/cgi/reprint/19/1/17](http://eau.sagepub.com/cgi/reprint/19/1/17).

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**Table 5 Environmental Vulnerability Index**


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American Samoa
Singapore
Nauru
Guadeloupe
Macau
Barbados
Philippines
US Virgin Islands
Kiribati
Saint Lucia
Federated States of Micronesia
Tonga
Guam
<b>JAPAN</b>
Netherlands
Belgium
Lebanon
<b>ITALY</b>
<b>INDIA</b>
Cook Islands

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*Source:* Environmental Vulnerability Index, 2009, available at [www.vulnerabilityindex.net/index.htm](http://www.vulnerabilityindex.net/index.htm).

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### **Who Can Do Something About It?**

Here, too, there are several rationales—each with a different proxy variable. Criteria include forecasted emissions, financial resources to fund mitigation and adaptation, control over the rate of extraction of hydrocarbon resources, possession of large carbon sinks, intellectual resources or venture capital to pursue innovation, trade flows to potentially impose border tax adjustments, national ability to implement decisions, military power to force compliance, or willingness to pay for global public goods. Following is an explanation of each of these rationales:

1. To be held accountable, the countries that will be responsible for future increases in concentration in a business-as-usual world should be at the table (Table 6).

2. The countries with the financial resources to invest in mitigation and adaptation should be at the table. The measures could be GDP (measured as purchasing power parity) today, or estimated future GDP in say, 2020. Alternatively, it could be current foreign exchange reserves (Table 7).

3. Countries with control of energy resources have the ability to limit emissions by reducing production, or requiring scrubbing or carbon capture and sequestration as a condition of sale (Table 8).

4. Countries with the largest forests and the ability to act as carbon sinks should be in the room. Alternatively, given that sovereign countries are responsible for stewardship of the land within their borders, land mass

**Table 6 Responsibility for Future Emissions**

Largest Oil Consumers, 2007	Total CO <sub>2</sub> Emissions from Energy Consumption, 2006
<b>UNITED STATES</b>	<b>CHINA</b>
<b>CHINA</b>	<b>UNITED STATES</b>
<b>JAPAN</b>	<b>RUSSIA</b>
<b>RUSSIA</b>	<b>INDIA</b>
<b>INDIA</b>	<b>JAPAN</b>
<b>GERMANY</b>	<b>GERMANY</b>
<b>BRAZIL</b>	<b>CANADA</b>
<b>CANADA</b>	<b>UNITED KINGDOM</b>
<b>SOUTH KOREA</b>	<b>SOUTH KOREA</b>
<b>SAUDI ARABIA</b>	Iran
<b>MEXICO</b>	<b>ITALY</b>
<b>FRANCE</b>	<b>SOUTH AFRICA</b>
<b>UNITED KINGDOM</b>	<b>MEXICO</b>
Iran	<b>SAUDI ARABIA</b>
<b>ITALY</b>	<b>FRANCE</b>
Spain	<b>AUSTRALIA</b>
<b>INDONESIA</b>	<b>BRAZIL</b>
Netherlands	Spain
Taiwan	Ukraine
<b>AUSTRALIA</b>	Poland

Sources: "H.1co, World Carbon Dioxide Emissions from the Consumption and Flaring of Fossil Fuels," 1980–2006, 2006, available at [tonto.eia.doe.gov/country/index.cfm](http://tonto.eia.doe.gov/country/index.cfm); Country Energy Profiles, 2009, available at [www.eia.doe.gov/environment.html](http://www.eia.doe.gov/environment.html).

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**Table 7 Financial Resources for Mitigation and Adaptation**

GDP PPP, 2008	Foreign Currency Reserves for Gold
<b>UNITED STATES</b>	<b>CHINA</b>
<b>CHINA</b>	<b>JAPAN</b>
<b>JAPAN</b>	<b>RUSSIA</b>
<b>INDIA</b>	Taiwan
<b>GERMANY</b>	<b>INDIA</b>
<b>UNITED KINGDOM</b>	<b>FRANCE</b>
<b>RUSSIA</b>	<b>SOUTH KOREA</b>
<b>FRANCE</b>	<b>BRAZIL</b>
<b>BRAZIL</b>	Singapore
<b>ITALY</b>	Hong Kong
<b>MEXICO</b>	Algeria
Spain	<b>GERMANY</b>
<b>CANADA</b>	Thailand
<b>SOUTH KOREA</b>	Malaysia
<b>INDONESIA</b>	<b>ITALY</b>
<b>TURKEY</b>	Libya
Iran	Iran
<b>AUSTRALIA</b>	<b>MEXICO</b>
Taiwan	Poland
Netherlands	<b>TURKEY</b>

Source: *World Factbook 2009*, available at [www.cia.gov/library/publications/the-world-factbook/rankorder/2001rank.html](http://www.cia.gov/library/publications/the-world-factbook/rankorder/2001rank.html).

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(square miles of territory) should be the proxy measure for accountability (Table 9).

5. Which countries have the intellectual resources to find solutions, or the venture capital system to promote innovation (Table 10)?

6. Which countries can influence carbon content by trade (border tax adjustments) or investment policy (Table 11)?

7. From the perspective of ability to arrange compliance, countries can be ranked by the quality of their government structure, increasing the likelihood that internal policy will be implemented or by military expenditure, which will support foreign policy (Table 12).

8. What about the intangibles of prosperity and economic freedom? Some argue that innovative solutions will be found only in an environment of prosperity or a country unfettered by excessive government control (Table 13).

9. Which countries have been willing to pay for global public goods? The top contributors have not only indicated a willingness to pay for public goods; their contributions can lend weight to their efforts to influence implementation of policies adopted by the G-20 leaders (Table 14).

**Table 8 Control of Energy Resources, 2008**

Largest Oil Supply	Proved Reserves
<b>SAUDI ARABIA</b>	<b>SAUDI ARABIA</b>
<b>RUSSIA</b>	<b>CANADA</b>
<b>UNITED STATES</b>	Iran
Iran	Iraq
<b>CHINA</b>	Kuwait
<b>CANADA</b>	<b>UNITED ARAB EMIRATES</b>
<b>MEXICO</b>	Venezuela
United Arab Emirates	<b>RUSSIA</b>
Kuwait	Libya
Venezuela	Nigeria
Norway	Kazakhstan
<b>BRAZIL</b>	<b>UNITED STATES</b>
Iraq	<b>CHINA</b>
Algeria	Qatar
Nigeria	Algeria
Angola	<b>BRAZIL</b>
Libya	<b>MEXICO</b>
<b>UNITED KINGDOM</b>	Angola
Kazakhstan	Azerbaijan
Qatar	Norway

*Source:* US Energy Information Administration, "Country Energy Profiles," 2009, available at [tonto.eia.doe.gov/country/index.cfm](http://tonto.eia.doe.gov/country/index.cfm).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

Table 9 Carbon Sinks

Largest Total Forest Cover, 2005	Landmass
<b>RUSSIA</b>	<b>RUSSIA</b>
<b>BRAZIL</b>	<b>CANADA</b>
<b>CANADA</b>	<b>UNITED STATES</b>
<b>UNITED STATES</b>	<b>CHINA</b>
<b>CHINA</b>	<b>BRAZIL</b>
<b>AUSTRALIA</b>	<b>AUSTRALIA</b>
Democratic Republic of Congo	<b>INDIA</b>
<b>INDONESIA</b>	<b>ARGENTINA</b>
Peru	Kazakhstan
<b>INDIA</b>	Sudan
Sudan	Algeria
<b>MEXICO</b>	Democratic Republic of Congo
Columbia	Greenland
Angola	<b>MEXICO</b>
Bolivia	<b>SAUDI ARABIA</b>
Venezuela	<b>INDONESIA</b>
Zambia	Libya
United Republic of Tanzania	Iran
<b>ARGENTINA</b>	Mongolia
Myanmar	Peru

Sources: "World Deforestation Rates and Forest Cover Statistics," 2000–2005, 2008, available at [news.mongabay.com/2005/1115-forests.html](http://news.mongabay.com/2005/1115-forests.html); World Statistics (sorted by area), December 2008, available at [www.mongabay.com/igapo/world\\_statistics\\_by\\_area.htm](http://www.mongabay.com/igapo/world_statistics_by_area.htm).

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## An Index Approach

The Chinese have a concept of "comprehensive national power" that attempts to account for eight factors: natural resources, economic activities capability, foreign economic activities capability, scientific and technological capability, social development level, military capability, government regulation and control capability, and foreign affairs capability. Each factor is itself an index of many component measures. Each is given a weight, and a final numerical index is computed (Table 15). The complete congruence of this list with the seventeen countries of the Major Economies Forum, first convened by the United States in 2007, is remarkable. Adding Turkey, Saudi Arabia, and Argentina would mirror the composition of the G-20.

## Conclusion

What does this all mean? We have established that it is theoretically possible for a group of twenty leaders to reach a consensus agreement, provided that they are farsighted about the effects of their decisions, seek opportunities for issue linkage, and provide full disclosure about their values and interests. For

**Table 10 Innovation Potential**

Quality of Education System	Patent Grants, 2006	Venture Capital Capability
Finland	<b>JAPAN</b>	<b>UNITED STATES</b>
Singapore	<b>UNITED STATES</b>	Norway
Switzerland	<b>SOUTH KOREA</b>	Netherlands
Belgium	<b>GERMANY</b>	Finland
Iceland	<b>CHINA</b>	Sweden
Denmark	<b>FRANCE</b>	Hong Kong
Ireland	<b>RUSSIA</b>	<b>UNITED KINGDOM</b>
<b>CANADA</b>	<b>UNITED KINGDOM</b>	Israel
<b>AUSTRALIA</b>	Netherlands	Denmark
Cyprus	Switzerland	Luxembourg
Norway	<b>CANADA</b>	Ireland
Sweden	Sweden	Singapore
Netherlands	Finland	<b>AUSTRALIA</b>
Austria	<b>AUSTRALIA</b>	Taiwan
Barbados	Austria	Estonia
Qatar	Spain	<b>SOUTH KOREA</b>
Tunisia	Ukraine	United Arab Emirates
Malaysia	Belgium	Malaysia
<b>UNITED STATES</b>	Israel	<b>CANADA</b>
<b>FRANCE</b>	Denmark	New Zealand

*Sources:* “The Global Competitiveness Report,” 2008–2009, 2009, available at [www.weforum.org/documents/GCR0809/index.html](http://www.weforum.org/documents/GCR0809/index.html); “World Patent Report: A Statistical Review” (2008), 17 November 2009, available at [www.wipo.int/ipstats/en/statistics/patents/wipo\\_pub\\_931.html#a13](http://www.wipo.int/ipstats/en/statistics/patents/wipo_pub_931.html#a13).

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membership, the Finance Ministers’ G-20 is, on balance, a pretty fair grouping, although any nation not included may be unhappy and challenge the criteria that excludes it.

The anomalies are the exclusion of Nigeria, Pakistan, and Spain if population or GDP are the appropriate criteria. Similarly, Ukraine, Iran, Poland, and Spain would not be excluded if cumulative emissions were the key variable. However, Spain and Poland are represented in the G-20 by the president of the European Commission, and Pakistan, Nigeria, and Iran are not appropriate members because they rank tenth, fifteenth, and thirty-eighth (we disagree and prefer rankings remain in numerical form) in the 2009 Failed States Index.<sup>26</sup> The highest failed state ranking of the G-20 countries is Indonesia, at position sixty-two, followed by Turkey at eighty-five and Saudi Arabia at eighty-nine. The Finance Ministers’ G-20 is weakest in terms of indicators of those most affected by climate change, but fourteen of the countries do appear in Tables 3 to 5. The G-20 is relatively strong in terms of indicators of which countries have caused climate change (with sixteen of the countries included in Table 2) and most strong in terms of being

**Table 11 International Trade and Investment, 2008**

Total Trade	Direct Foreign Investment Abroad
<b>UNITED STATES</b>	<b>UNITED STATES</b>
<b>GERMANY</b>	<b>FRANCE</b>
<b>CHINA</b>	<b>UNITED KINGDOM</b>
<b>FRANCE</b>	<b>GERMANY</b>
<b>JAPAN</b>	Hong Kong
<b>ITALY</b>	Netherlands
<b>UNITED KINGDOM</b>	Spain
Netherlands	Switzerland
<b>CANADA</b>	<b>JAPAN</b>
<b>SOUTH KOREA</b>	Belgium
<b>RUSSIA</b>	<b>ITALY</b>
Hong Kong	<b>CANADA</b>
Belgium	<b>RUSSIA</b>
Spain	<b>AUSTRALIA</b>
<b>MEXICO</b>	Sweden
Taiwan	Austria
<b>INDIA</b>	Denmark
Singapore	Ireland
Poland	Singapore
<b>AUSTRALIA</b>	Norway
	<b>CHINA</b>

Source: *World Factbook 2009*, [www.cia.gov/library/publications/the-world-factbook/rankorder/2199rank.html](http://www.cia.gov/library/publications/the-world-factbook/rankorder/2199rank.html).

Notes: **CAPPED** country names represent countries in the Group of 20 industrialized countries. We display 21 countries here because some countries are more equal than others.

able to take effective action (with all the G-20 countries appearing in Tables 6 to 14).

Constructing indices is a perilous process—to a large extent the rule of “garbage in, garbage out” applies. Adjusting the weights of the various components can skew the outcomes. But it is interesting that the “comprehensive national power” rankings of seventeen countries in Table 15, computed in 1996 before the formation of the G-20, included sixteen of the G-20. Moreover, in a consolidation of the rankings in our Tables 2 to 14, the same G-20 countries fill the top sixteen positions.

To provide legitimacy, an approach must be developed to deal with the underrepresentation of African countries. These and the other excluded countries will require intensive consultation and substantive outreach efforts. The structure of the L-20 implicitly assumes that a sufficient consensus rule<sup>27</sup> will be accepted by all countries. In any case, binding decisions will be taken in the United Nations, where countries not in the L-20 will have a voice.

The conclusion is that the G-20 is as good as it gets—accepting the proposition that if the group is to have no second-class members, it can be no larger.

**Table 12 Ability to Arrange Compliance**

Government and Economic Efficiency	Countries Ranked by Military Expenditure
Norway	<b>UNITED STATES</b>
Denmark	<b>CHINA</b>
<b>CHINA</b>	<b>FRANCE</b>
Sweden	<b>UNITED KINGDOM</b>
New Zealand	<b>RUSSIA</b>
Singapore	<b>JAPAN</b>
<b>CANADA</b>	<b>GERMANY</b>
<b>UNITED STATES</b>	<b>ITALY</b>
Ireland	<b>INDIA</b>
Finland	<b>SAUDI ARABIA</b>
<b>UNITED KINGDOM</b>	<b>TURKEY</b>
<b>AUSTRALIA</b>	<b>SOUTH KOREA</b>
Hong Kong	<b>AUSTRALIA</b>
<b>JAPAN</b>	<b>BRAZIL</b>
Switzerland	<b>SPAIN</b>
Iceland	<b>IRAQ</b>
Liechtenstein	<b>CANADA</b>
Netherlands	Israel
<b>GERMANY</b>	Netherlands
Luxembourg	Poland

*Sources:* “Country Indicators for Foreign Policy,” Country Ranking Table 2007, available at [www.carleton.ca/cifp/app/gdp\\_ranking.php?order=Government%20and%20Economic%20Efficiency](http://www.carleton.ca/cifp/app/gdp_ranking.php?order=Government%20and%20Economic%20Efficiency); Stockholm International Peace Research Institute, figures, 2009, available at [en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_military\\_expenditures](http://en.wikipedia.org/wiki/List_of_countries_by_military_expenditures).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

**Table 13 Prosperity and Economic Freedom, 2008**

Legatum Prosperity Index	Economic Freedom Index
<b>AUSTRALIA</b>	Hong Kong
Austria	Singapore
Finland	<b>AUSTRALIA</b>
<b>GERMANY</b>	Ireland
Slovenia	New Zealand
<b>UNITED STATES</b>	<b>UNITED STATES</b>
Switzerland	<b>CANADA</b>
Hong Kong	Denmark
Denmark	Switzerland
New Zealand	<b>UNITED KINGDOM</b>
Netherlands	Chile
Sweden	Netherlands
<b>JAPAN</b>	Estonia
Norway	Iceland
<b>FRANCE</b>	Luxembourg
Belgium	Bahrain
<b>CANADA</b>	Finland
<b>UNITED KINGDOM</b>	Mauritius
Spain	<b>JAPAN</b>
Ireland	Belgium

*Sources:* “The 2009 Legatum Prosperity Index,” 2009, available at [www.prosperity.com/rankings.aspx](http://www.prosperity.com/rankings.aspx); “The 2009 Index of Economic Freedom Ranking the Countries,” 2009, available at [www.heritage.org/index/Ranking.aspx](http://www.heritage.org/index/Ranking.aspx) (this was clearly written before Iceland’s implosion).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

**Table 14 Willingness to Pay, 2008**


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Contributions to UN Peacekeeping Budget

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**UNITED STATES**  
**JAPAN**  
**GERMANY**  
**UNITED KINGDOM**  
**FRANCE**  
**ITALY**  
**CHINA**  
**CANADA**  
 Spain  
**SOUTH KOREA**  
 Netherlands  
**AUSTRALIA**  
**RUSSIA**  
 Switzerland  
 Belgium  
 Sweden  
 Austria  
 Norway  
 Denmark  
 Greece

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*Source:* UN Department of Peacekeeping Operations, *Factsheet 2009*, available at [www.un.org/Depts/dpko/factsheet.pdf](http://www.un.org/Depts/dpko/factsheet.pdf).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

**Table 15 Predicted Comprehensive National Power**


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2010	2020
<b>UNITED STATES</b> <b>JAPAN</b> <b>GERMANY</b> <b>FRANCE</b> <b>ITALY</b> <b>RUSSIA</b> <b>UNITED KINGDOM</b> <b>CHINA</b> <b>SOUTH KOREA</b> <b>CANADA</b> <b>BRAZIL</b> <b>AUSTRALIA</b> <b>INDIA</b> <b>MEXICO</b> <b>INDONESIA</b> <b>SOUTH AFRICA</b> Egypt	<b>JAPAN</b> <b>UNITED STATES</b> <b>GERMANY</b> <b>FRANCE</b> <b>ITALY</b> <b>SOUTH KOREA</b> <b>CHINA</b> <b>UNITED KINGDOM</b> <b>RUSSIA</b> <b>CANADA</b> <b>BRAZIL</b> <b>AUSTRALIA</b> <b>INDIA</b> <b>MEXICO</b> <b>INDONESIA</b> <b>SOUTH AFRICA</b> Egypt

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*Source:* Michael Pillsbury, *China Debates the Future Security Environment* (Washington, DC: National Defense University Press, January 2000), chapter 5, available at [www.fas.org/nuke/guide/china/doctrine/pills2/part08.htm](http://www.fas.org/nuke/guide/china/doctrine/pills2/part08.htm).

*Note:* **CAPPED** country names represent countries in the Group of 20 industrialized countries.

## Notes

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1. It is taken as read that final authoritative decisions would be taken by the only legitimate forums—the UN Framework Convention on Climate Change (UNFCCC) and the United Nations.

2. Enrique Rueda-Sabater, Vijaya Ramachandran, and Robin Kraft, "A Fresh Look at Global Governance: Exploring Objective Criteria for Representation," Center for Global Development Working Paper No. 160, February 2009.

3. The G-20 includes the G8 plus Argentina, Australia, Brazil, China, India, Indonesia, Mexico, Saudi Arabia, South Africa, South Korea, and Turkey (the European Union in a member of both the G-20 and the G8).

4. Nicholas Bayne, "G8 Process and Performance: Past, Present, and Future," in Michele Fratianni, Paolo Savona, and John Kirton, eds., *Corporate, Public, and Global Governance: The G8 Contribution* (United Kingdom: Ashgate, 2007).

5. Barry Carin and Gordon Smith, *Making Change Happen at the Global Level* (Ottawa: IDRC, 2004); Paul Martin, "A Global Answer to Global Problems," *Foreign Affairs*, May/June 2005.

6. William Riker, *The Theory of Political Coalitions* (New Haven: Yale University Press, 1962); Robert Axelrod, *Conflict of Interest: A Theory of Divergent Goals with Application to Politics* (Chicago: Markham, 1970).

7. Two examples are Scott Barrett, "Self-Enforcing International Environmental Agreements," *Oxford Economic Papers* 46 (1994): 878–894; Carlo Carraro and Domenico Siniscalco, "Strategies for the International Protection of the Environment," *Journal of Public Economics* 52 (1993): 309–328.

8. Carlo Carraro, Johan Eyckmans, and Michael Finus, "Optimal Transfers and Participation Decisions in International Environmental Agreements," *Review of International Organizations* 1 (2006): 379–396.

9. One of many critiques is contained in David Victor, "Fragmented Carbon Markets and Reluctant Nations: Implications for the Design of Effective Architectures," in Joseph Aldy and Robert Stavins, eds., *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World* (New York: Cambridge, 2007), pp. 133–160.

10. Farsighted studies include Marco Mariotti and Licun Xue, "Farsightedness in Coalition Formation," in Carlo Carraro, ed., *The Endogenous Formation of Economic Coalitions* (United Kingdom: Edward Elgar, 2003), pp. 128–155; Giulio Ecchia and Marco Mariotti, "The Stability of International Environmental Coalitions with Farsighted Countries: Some Theoretical Observations," in Carlo Carraro, ed., *International Environmental Agreements: Strategic Policy Issues* (1998), pp. 172–192.

11. Issue linkages were called tie-ins by Fred Iklé in *How Nations Negotiate* (New York: Harper, 1964); a good summary is contained in Eric Neumayer, "How Regime Theory and the Economic Theory of International Environmental Cooperation Can Learn from Each Other," *Global Environmental Politics* 1, no. 1 (2001): 122–147. Using linkages to overcome barriers to agreement is recommended by James Sebenius, "Dealing with Blocking Coalitions and Related Barriers to Agreement: Lessons from

Negotiations on the Oceans, the Ozone, and the Climate,” in Kenneth Arrow, Robert Mnookin, Lee Ross, Amos Tversky, and Robert Wilson, eds., *Barriers to Conflict Resolution* (New York: Norton, 1995), pp. 150–182.

12. Carlo Carraro and Carmen Marchiori, “Endogenous Strategic Issue Linkage in International Negotiations,” in Carlo Carraro and Vito Fragnelli, eds., *Game Practice and the Environment* (United Kingdom: Edward Elgar, 2004), pp. 65–86.

13. Barbara Buchner, Carlo Carraro, Igor Cersosimo, and Carmen Marchiori, “Back to Kyoto? United States Participation and the Linkage between R&D and Climate Cooperation,” in Alain Haurie and Laurent Viguier, eds., *The Coupling of Climate and Economic Dynamics* (Netherlands: Springer, 2005), pp. 173–204, show that countries will cooperate with the United States on R&D even though the United States free-rides on climate cooperation.

14. Paola Conconi and Carlo Perroni, “Issue Linkage and Issue Tie-in in Multilateral Negotiations,” *Journal of International Economics* 57 (2002): 423–447.

15. Giancarlo Spagnolo, “Issue Linkage, Credible Delegation, and Policy Cooperation,” *Discussion Paper No. 2778* (United Kingdom: Centre for Economic Policy Research, 2001); Michael Finus, *Game Theory and International Environmental Cooperation* (United Kingdom: Elgar, 2001), pp. 113–117.

16. Bradnee Chambers, *Interlinkages and the Effectiveness of Multilateral Environmental Agreements* (New York: United Nations University Press, 2008).

17. Alexander Betts, “North-South Cooperation in the Refugee Regime: The Role of Linkages,” *Global Governance* 14 (2008): 157–178.

18. L-20 Leaders Forum, “The Deal” (2008), available at [www.l20.org/publications/The\\_Deal.pdf](http://www.l20.org/publications/The_Deal.pdf). Of course, it is important to note that once the L-20 leaders are in the meeting, they may bring forward new issues that are not on the agenda. Paul Martin has stressed that the L-20 meetings should be informal, for example in “A Global Answer to Global Problems,” *Foreign Affairs*, May/June 2005. James Sebenius discusses shifting agendas in a chapter titled “Negotiation Analysis” in Victor Kremenjuk, ed., *International Negotiation* (San Francisco: Jossey-Bass, 1991), pp. 203–215.

19. This approach is described in detail in Victor, “Fragmented Carbon Markets and Reluctant Nations.”

20. An example of this type of effort for issue linkage is in Buchner et al., “Back to Kyoto?”

21. Roger Fisher and William Ury, *Getting to Yes* (Boston: Houghton Mifflin, 1981); Sebenius, “Negotiation Analysis.”

22. Paul Martin, “Globalization and Summit Reform: A Leader’s View,” afterword in Peter Heap, *Globalization and Summit Reform* (New York: Springer, 2008), pp. 71–74.

23. Robert Mnookin, “Strategic Barriers to Dispute Resolution: A Comparison of Bilateral and Multilateral Negotiations,” *Journal of Institutional and Theoretical Economics* 159 (2003): 199–220.

24. *Ibid.*

25. A concise presentation is in [www.l20.org/publications/The\\_Deal.pdf](http://www.l20.org/publications/The_Deal.pdf). A comprehensive selection is in Joseph Aldy and Robert Stavins, *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World* (New York: Cambridge, 2007). A goal-oriented approach by the Carbon Mitigation Initiative is at [www.princeton.edu/~cmi/](http://www.princeton.edu/~cmi/) and summarized in Robert Sokolow and Stephen Pacala, “A Plan to Keep Carbon in Check,” *Scientific American*, September 2006: 50–57.

26. “Failed States Index,” *Foreign Policy* (2009), available at [www.foreignpolicy.com/images/090624\\_2009\\_final\\_data.pdf](http://www.foreignpolicy.com/images/090624_2009_final_data.pdf).

27. Mnookin, “Strategic Barriers to Dispute Resolution.”

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