

ADAPTIVE POWER

Building a new kind of power in which stability emerges from variability

At the intersection of forces breaking down traditional institutions of international power and enabling the development of tools of influence, we ponder questions of power: *How will institutions of power evolve in a world of creative destruction? How will nations redefine legitimacy in a cultural mix of subterfuge and transparency? How will the nature of power shift as the species attempts to adapt to an environment in crisis?*

Chief among the forces of destruction is global climate change. Anthropogenic global warming is a complex challenge: no one country can act in response without affecting the rest of the world, whether by setting quotas, moderating temperatures, or ignoring the problem. The

continuing forces of decentralization will further weaken existing economic, political, and military structures.

The challenge of 2020, then, is the creation of *adaptive* power as a capacity to shape global outcomes by the effective management of complexity. Today's destabilizing forces directly undermine the conventional political duality of coercive "hard power," (typically military might) and co-optive "soft power," (usually cultural influence). Global actors who are able to respond to the multiple crises of the 2010s in parallel, relying on flexibility and experimentation, taking advantage of economies of scope and employing the power of massively-multi-participant systems to superstruct new institutions, will become the leaders of the following decade.

CLIMATE CHAOS: A COLD WAR OVER WARMING?

Anthropogenic global warming is set to become a top driver of international political tension over the next decade. Although all nations contribute to the problem, no one nation can do enough, alone, to stop it. However, suspended or delayed efforts to limit carbon output by a single major emitter can undermine global efforts to do so. In addition, an ingredient in the crisis is the varying capacity of nations to adapt to or moderate the local impacts of rising temperatures. This disempowerment sets the stage for conflict.

For example, a perceived inability to stop dangerous levels of climate disruption will put pressure on world leaders to try temperature-management geoengineering. This will likely spark arguments as to what the "correct" temperature should be. At the same time, proposals or incipient projects will, at a minimum, spark disagreements over control, management, and liability for "damage." Geoengineering will be blamed for any subsequent environmental problems, and temperature management programs that continue even after apparently harming a country or region could be interpreted as acts of aggression.

The varying ability of nations to adapt to global warming's impacts offers an even more

troubling possibility. One fundamental driver of international politics is how strong or how vulnerable a country is relative to its competitors. If a nation sees itself as better able than its rivals to mitigate global warming's impacts, it may also see itself in a position to weaken those rivals by slowing efforts to reduce carbon emissions. This jockeying for power is not likely in a world of successful efforts to respond to global warming, but it becomes more plausible when responses are seen as failing.

DECENTRALIZATION: MASSIVELY MULTIPLAYER WORLD POLITICS

Bottom-up forces shape the world of global politics as much as they do economics and technology, and by 2020, they will play a major role in determining the success or failure of many national and transnational institutions. The political impact of decentralization can already be seen in "open-source warfare" insurgencies and civil unrest mediated by social networks. These manifestations will be strengthened by lightweight manufacturing technologies, including rapid prototyping of cheap drones; powerful mobile technologies, with much of the population carrying smart phones; and a panoply of experiments in commons-based society, from alternative financial systems to community defense. Some

of these experiments will be seen as hostile to the traditional nation-state system, and a number will be called piracy or even terrorism—sometimes with real justification.

STATES AND INSTITUTIONS: CRUMBLING LEGITIMACY

Legitimacy is at the core of the existence of the nation-state and its institutions. It goes by many names: the *Consent of the Governed*; the *Will of the People*; even the *Mandate of Heaven*. As legitimacy weakens, unrest grows, as does the need to use force against the state's own citizens. The existence of alternative sources of legitimacy and support can hasten the collapse of traditional institutions of state power.

By 2020, ongoing economic fragility, consolidation of corporate power in political leadership, and the inability of global leaders to respond to environmental crises will likely weaken the conventional institutions of global power. Nation states may not collapse, but their citizens will look to non-traditional sources of legitimacy for effective outcomes. Not all of these new sources will be forward-looking and adaptive; some will be pathological, offering a kind of perverse resilience.

SUPERSTRUCTING ADAPTIVE POWER:

How will you live this forecast?



The **Superstruct Strategies** emerged from IFTF's 2008 massively multiplayer forecasting game, Superstruct. They suggest innovative ways to respond to this forecast.

EVOLVABILITY:

Nurture genomic diversity and generational differences

EXTREME SCALE:

Layer micro and massive scales for rapid adaptation

AMBIENT COLLABORATION:

Leverage stigmergy with environmental feedback

REVERSE SCARCITY:

Use renewable and diverse resources as rewards

AMPLIFIED OPTIMISM:

Link amplified individuals at massive scales

ADAPTIVE EMOTIONS:

Confer evolutionary advantage with awe, appreciation, and wonder

PLAYTESTS:

Challenge everything and everyone in fun, fierce bursts

EXTREME SCALE + AMBIENT COLLABORATION + ADAPTIVE EMOTIONS

Use adaptive emotions to build adaptive capacity. One of the biggest challenges for governments, corporations, and NGOs alike is to build the kind of adaptive capacity that will forestall major disruptions or even global instability in the coming decade. Adaptive emotions—such as awe, appreciation, and wonder—have been shown to confer evolutionary advantage. Even in the face of major disasters, such as the recent earthquakes in Haiti and Chile, the extreme-scale response of individuals worldwide creates a viral mood of cooperation. For all kinds of institutions, there are opportunities to tap this capacity for collective positive emotion to address all the day-to-day issues that will strain our governments, corporations, and NGOs over the next decade.

EXTREME SCALE + PLAYTESTS

Playtest new participatory processes for building cross-jurisdictional resilience. In a world where our instincts are perhaps to scale back and focus on our local needs a bolder experiment is to use new tools and worldwide gaming communities to try out alternative strategies for governance that are more global and more local at the same time. How would a community in Australia that's trying to develop a local water plan make a pitch for support to a global network of voters made up of other water-stressed countries, for example? What kind of currencies could be budgeted and allocated using participatory budgeting processes that involved both water-rich and water-poor nations? What might we learn from a game that engages the world in a mock constitutional convention to create new forms of governance that are resilient in a highly interconnected world where local issues demand local solutions? Gaming platforms give us extraordinary opportunities to experiment with governance, citizenship, new political structures.

EXTREME SCALE + AMBIENT COLLABORATION

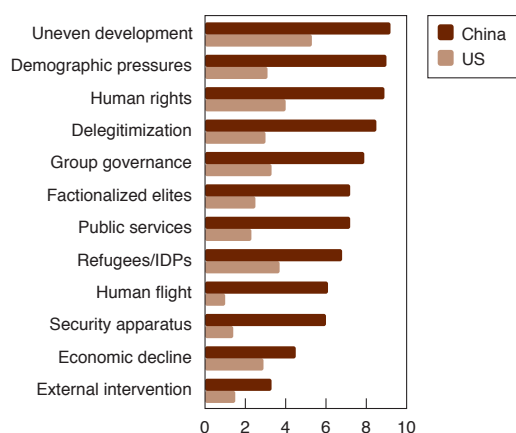
Experiment with new global interfaces made up of networked micro-agencies. We've already seen the way that extremely large ad hoc disaster response networks can sometimes outpace traditional aid organizations in both the amount of money they raise and the speed with which they respond. At the other end of the spectrum, we're about to see breakthroughs in how extremely small ad hoc agencies can be on-the-spot for addressing complex needs quickly and with the best possible resources. There's tremendous opportunity to try out the processes enabled by platforms like Groundcrew (which assembles ad hoc teams quickly from ambient networks of willing and skilled participants) and Kickstarter (which raises ad hoc funding from the same kind of ambient networks).

COLLAPSE OF STATES

POTENTIAL FOR FAILURE

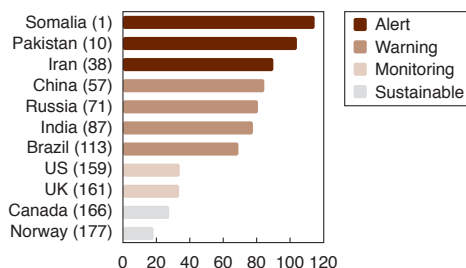
The nations of the world are shifting along a spectrum of stability, and a range of indicators can be used to forecast potential failure. The Fund for Peace has conducted an annual analysis, called the Failed State Index (FSI), since 2006. The analysis considers 10 key indicators (Figure 1), using qualitative data culled from thousands of text sources worldwide. These qualitative data are assigned quantitative values, producing an index that ranks countries from those with the greatest risk of failure to those with the least. FSI then organizes countries into four categories (Figure 2): Alert (the highest threat), Warning (at risk), Monitoring (a few shifts worth watching), and Sustainable (stable). In the 2009 index, 38 out of 177 countries were in the Alert category, while another 92 were under Warning. Only 13 were considered Sustainable. Global climate disruptions—both immediate meteorological impacts and demands for mitigation—are likely to exacerbate many of the basic indicators of failure over the next ten years, driving countries with already high FSI ratings into great risk.

FIGURE 1 China has a high potential for failure across all ten key indicators.



Source: IFTF from data presented by Fund for Peace in Foreign Policy. http://www.foreignpolicy.com/articles/2009/06/22/2009_failed_states_index_interactive_map_and_rankings

FIGURE 2 The Failed State Index shows a wide range of vulnerability to failure.



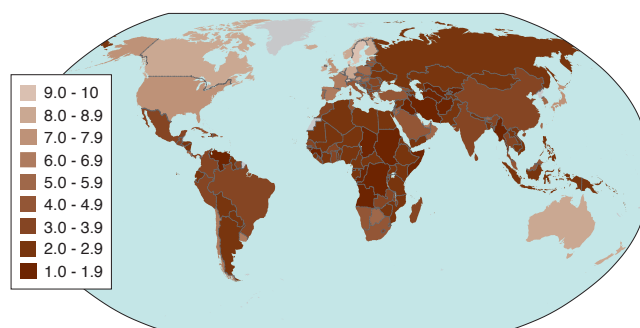
Source: IFTF from data presented by Fund for Peace in Foreign Policy. http://www.foreignpolicy.com/articles/2009/06/22/2009_failed_states_index_interactive_map_and_rankings

THE IMPACT OF CORRUPTION

The legitimacy of any government becomes compromised by perceived corruption among its officials and institutions. Transparency International (TI) conducts an annual assessment of global corruption by interviewing citizens, officials, and experts in nations around the world to establish a Corruption Perception Index. For the 2009 index, the organization interviewed 73,132 people in 69 countries. The results not only point to countries whose citizens perceive the greatest levels of corruption (Figure 3), but also the change in perceived level of corruption over the past five years (Figure 4). TI also tracks the private sector, where half of respondents said they would be willing to pay more for products from a company that is “corruption-free,” while half of respondents also perceived the private sector to be corrupt (an increase of 18% in 5 years).

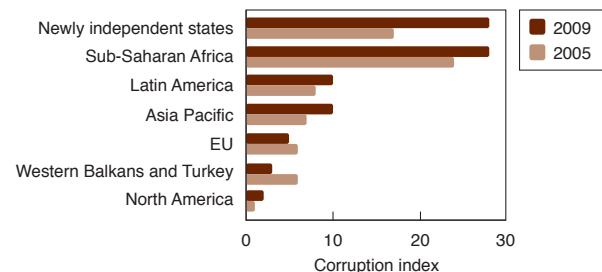
The results produced by the TI survey align well with expert reports of corruption in individual countries, validating the perceptions of citizens. They also parallel the results of Failed State Index.

FIGURE 3 The least corrupt states are in North America, Northern Europe, and Australia. The most corrupt include many of the states that are in the news headlines as troubled states, including Somalia, Myanmar, Iraq, Haiti, Afghanistan, and the Sudan.



Source: Juanita Riaño et al, 2009 Global Corruption Barometer, Transparency International, http://www.transparency.org/policy_research/surveys_indices/cpi/2009

FIGURE 4 Perceived corruption has grown in nearly all regions of the world except the EU, the Western Balkans and Turkey between 2005 and 2009.



Source: Juanita Riaño et al, 2009 Global Corruption Barometer, Transparency International, http://www.transparency.org/policy_research/surveys_indices/cpi/2009

NGOS AS INSTITUTIONS OF GLOBAL GOVERNANCE

Over the past three decades, the role of nongovernmental organizations (NGOs) in governance has grown exponentially. They have become a critical—and increasingly coordinated—third sector that fills the gap between governments and markets, providing some of the services traditionally met by each of those. Their role in development, in particular, has swelled: NGOs now provide direct development aid to poorer nations equivalent to that provided by the World Bank, for example (Table 1).

While many NGOs are local or national in scope, a growing number function internationally or participate in international networks that bring enhanced coordination to their activities (Figure 5). Most notably, some 13,300 currently participate in the UN’s Department of Economic and Social Affairs (ECOSOC), and of those, more than 3000 have consultative status—which means they participate in shaping and implementing UN policy. The steepest growth of these so-called ECOSOC NGOs was in the 1990s, when the number more than doubled. In the past decade, this growth has slowed considerably (Figure 6).

THE S-CURVES OF CIVIL SOCIETY

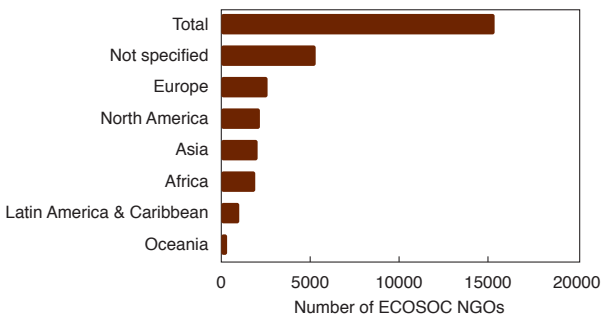
There are a number of possible explanations for this slowdown in the growth of ECOSOC NGOs. Perhaps most important is a growing sense across much of the Global South that the institutions of global governance are not necessarily acting in their best interest—that is to say, there is a de-legitimization of these institutions as well as state governments. NGOs in this group are more likely to seek collaboration and coordination within networks of the so-called alter-globalization movement. This movement is not anti-globalization. Rather it supports global cooperation and interaction in support of issues such as climate protection, economic justice, labor protection, indigenous cultures, and human rights. The World Social Forum and IndyMedia are global superstructures that help coordinate the efforts of these organizations outside official international institutions of governance.

Equally important in explaining the slowdown of growth in ECOSOC NGOs is a change in the nature of NGOs themselves. Where many NGOs used to be member-supported organizations focused on a primary issue, the last decade has seen the growth of network-based NGOs that are increasingly transnational in scope and more engaged in advocacy around often ad hoc issues. Furthermore, it appears that NGOs have outpaced both the public and private resources available to them, so there is now more competition among NGOs for the same funding support.

If we look at the growth curve for ECOSOCs (and take this as a proxy for overall growth of civil governance), we see what looks like a classic S-curve: a slow growth trend, followed by an inflection point toward steep growth, and then a flattening of the growth rate. Knowing that S-curves often cascade—that is, that a new S-curve often takes off where an old one starts to flatten—we need to ask: What’s the next growth curve for civil society? What’s beyond large, institutional NGOs?

The answer may be networked micro-agencies, a concept proposed by Raimo van der Klein. These agencies are formed purely on a “for-purpose” basis, leveraging a pool of people, a brand, and social media tools to achieve goals. Beyond the familiar platforms like Facebook and Twitter, several new platforms promise to support this kind of ad hoc organization, including All for Good, Groundcrew, and Kickstarter.

FIGURE 5 International NGOs have multiplied in the past few decades, especially those without a specific regional identity.



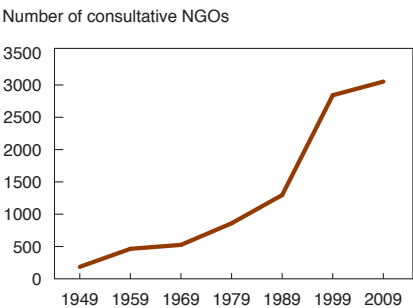
Source: Derk Segaar, New Dimensions of Multilateralism, The Evolving Role of NGOs in Global Governance, Center on International Cooperation, 2004.

TABLE 1 NGOs are agencies of governance and development, competing with and complementing both public and private sectors.

Number of international NGOs in 1981: 13,000	Number of international NGOs in 2001: 47,000
NGO sector economic ranking: 8th largest economy worldwide	Value of NGO sector worldwide: US \$1 trillion per year
Amount NGOs spend on development per year: about US \$15 billion	Amount the World Bank’s International Development Agency spent on developing nations in 2009: \$14 billion

Source: Public Services International, <http://www.world-psi.org/Template.cfm?Section=Home&CONTENTID=11738&TEMPLATE=/ContentManagement/ContentDisplay.cfm>; World Bank Annual Report, 2009; Derk Segaar, New Dimensions of Multilateralism, Center on International Cooperation, 2004.

FIGURE 6 More NGOs are serving as consultative organizations with the UN Department of Economic and Social Affairs.



Source: Derk Segaar, New Dimensions of Multilateralism, The Evolving Role of NGOs in Global Governance, Center on International Cooperation, 2004.

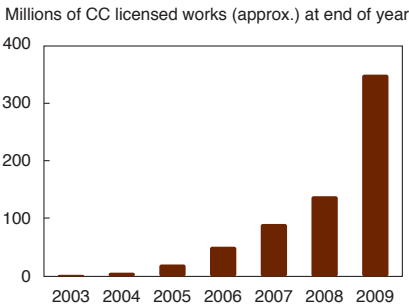
AN ALTERNATIVE PATH

For the past decade, many countries in the Global South—from Brazil to India, Malaysia, Indonesia, Egypt, and South Africa—have begun to champion open-source solutions as an alternate strategy for development. The argument is that licensing agreements with largely Northern companies commit the countries of the South to ongoing dependence and financial obligation with the North and also undermine their ability to develop their own technological know-how. While early implementations of open source have focused on software, pharmaceuticals, and agricultural seeds, the impending shift in manufacturing to small-scale, design-driven processes could extend open-source platforms and products much more broadly through the economy. For the Global South, many argue that they could lead to early wins in adaptation to a shifting economic paradigm.

MEASURES OF ADOPTION

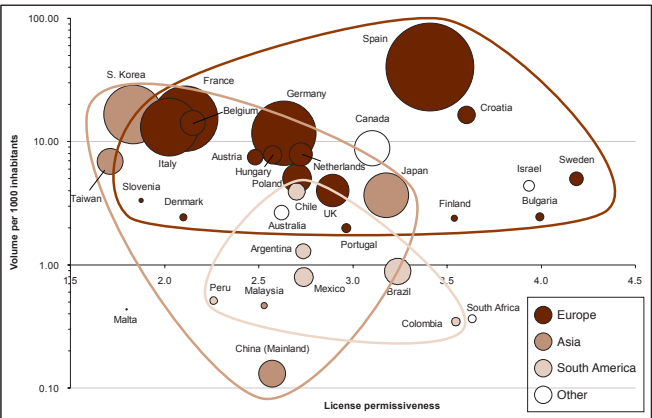
With this shift will come a series of legal frameworks for managing open-source products and services. Creative Commons (CC) licenses, which recognize the need for new kinds of rights in an open world, can perhaps serve as a proxy for this new economy. We can track the patterns of CC licenses as an indicator of how rapidly open economic practices are growing (Figure 7) and also as a way to compare national trends in adoption. When we evaluate these patterns, we see that the Global North still dominates the world in terms of volume of CC licenses (Figure 8). This is, in part, the result of earlier launches of the CC licenses in the northern countries. We can also see that neither piracy rates nor GDP appears to have an impact on adoption (Figure 9): a possible hypothesis, then, is that rather than signaling correlation with either poverty or lax piracy policies, CC adoption represents a novel social (and even institutional) opportunity for countries across the spectrum of poor to rich.

FIGURE 7 Use of Creative Commons licenses has grown exponentially since their inception.



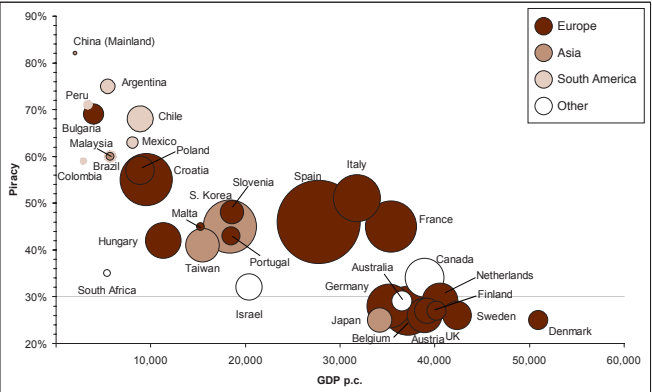
Source: Creative Commons, 2010, <http://wiki.creativecommons.org/Metrics>

FIGURE 8 In both volume of licenses (y-axis) and in total number of licenses (size of bubbles), the countries of the Global North have adopted CC licenses faster, regardless of their stance toward piracy.



Source: Giorgos Cheliotis et al., Taking Stock of the Creative Commons Experiment: Monitoring the Use of Creative Commons Licenses and Evaluating Its Implications for the Future of Creative Commons and for Copyright Law, <http://web.si.umich.edu/tprc/papers/2007/805/CreateCommExp.pdf>

FIGURE 9 Neither piracy policy nor GDP predict adoption of creative commons licensing: other forces are at work.



Source: Giorgos Cheliotis et al., Taking Stock of the Creative Commons Experiment: Monitoring the Use of Creative Commons Licenses and Evaluating Its Implications for the Future of Creative Commons and for Copyright Law, <http://web.si.umich.edu/tprc/papers/2007/805/CreateCommExp.pdf>

MAKING THE CONNECTIONS

In a complex world, forecasts intersect. These are key intersections between Adaptive Power and other 2010 forecasts.



ADAPTIVE POWER + CARBON: Climate Risk Differentials



Different nations will have different capacities to adapt to global climate change, and these differences are likely to prompt different policy responses, differing levels of urgency, and different climate management interests. Even within countries, different regions will be more vulnerable, setting up the conditions for internal conflicts. A Maplecroft analysis of present-day vulnerability to anticipated climate impacts has led to a vulnerability index based on such factors as population density, health care and communication systems, good governance, human rights, and water, food, and energy security (Figure 10). African and South Asian countries are among the most vulnerable. Canada, Scandinavia, and parts of Australia are the least vulnerable.

The flip side of vulnerability is that some regions will become safe havens, attracting waves of migrants who are fleeing actual disasters, worsening conditions, or just anticipated future difficulties. These migrations will, in turn, increase risks to the safe haven regions: North America and parts of Australia, Scandinavia, the Middle East, and Latin America. Managing this risk differential will likely become a more open and explicit issue in the global climate change debate.



ADAPTIVE POWER + WATER: Dissent Among Global Ministers



In March 2009, more than 20 countries took exception with the ministerial declaration of the World Water Forum (Figure 11). At issue was the declaration that water is a human need rather than a right. The dissenting countries issued a counter-declaration recognizing water and sanitation as a human right. In addition, nine countries signed a statement that calls on nations to develop “a global water forum within the framework of the United Nations based on the principles of democracy, full participation, equity, transparency, and social inclusion” (Figure 12). These declarations signal the political debate that’s likely to emerge as water stress increases worldwide.

FOR FURTHER READING

Larry Freed, *The Inaugural ForeSee Result's E-Government Transparency Index: Quantifying the Relationship Between Online Transparency and Trust in Government*, ForeSee Results, 2010.

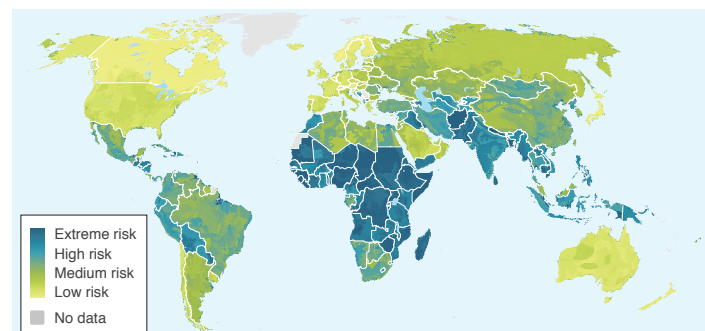
Fund for Peace, “Life in a Failed State: The Failed States Index 2009,” *Foreign Policy*, 2009.

Juanita Riaño et al., *2009 Global Corruption Barometer*, Transparency International, 2009.

Derk Segaar, *New Dimensions of Multilateralism, The Evolving Role of NGOs in Global Governance*, Center on International Cooperation, 2004.

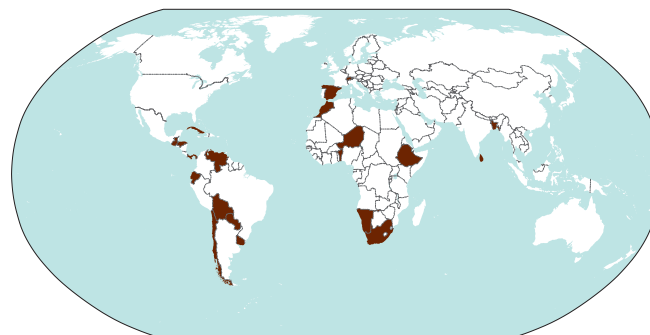
P. Willetts (editor), *The Conscience of the World, The Influence of Non-Governmental Organisations in the UN System*, Brookings Institution, revised 2002.

FIGURE 10 Unlike most vulnerability forecasts based on future scenarios for climate and socio-economic factors, the Maplecroft Climate Change Vulnerability Index evaluates present-day adaptive capacity.



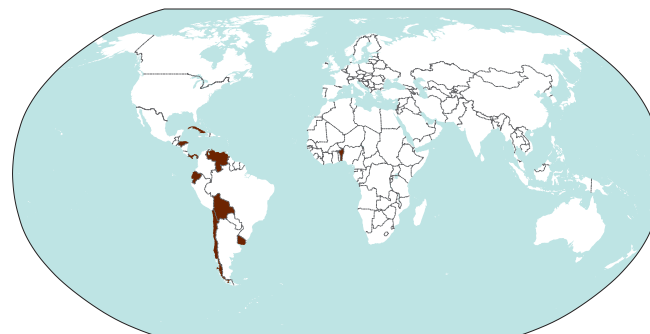
Source: *Climate Change Risk Atlas 2010*, Maplecroft, 2010, http://www.maplecroft.com/about/news/climate_change_risk_list_highlights_vulnerable_nations_and_safe_havens_05.html

FIGURE 11 These countries assert that water is a human right, not a need.



Source: IFTF from a PSI report, <http://waterblog.world-psi.org/2009/03/over-twenty-countries-challenge-ministerial-declaration-of-world-water-forum.html>

FIGURE 12 Some Latin American countries have called for an alternative global water forum in the UN.



Source: <http://waterblog.world-psi.org/2009/03/over-twenty-countries-challenge-ministerial-declaration-of-world-water-forum.html>



GROWTH

The New Exceptionalism



In the midst of a gradual economic recovery, both popular and state-level responses to complex global problems have the unexpected consequence of sidelining key global institutions. As the United States and European Union pursue a carbon market strategy outside any global agreements, unprecedented weather events and faster-than-expected increases in temperatures lead to unilateral experiments with geoengineering. Public outcries and a weak United Nations response leave the world focused not on institutional intervention but rather on ad hoc mitigation strategies—and markets. China, unburdened

by the need to build a national consensus, uses its growing economic might to build an increasingly resilient infrastructure while the United States is unable to rally support for a strong internal policy. Both China and the United States make claims to exceptionalism, asserting that they are occasionally above the Law of Nations because they occupy special positions as guardians of the global welfare. Meanwhile nationalistic movements proliferate around the world, and even in a global economy that continues to leverage liberal trade agreements, the seeds are sown for growing isolationism.

- The mitigation vs. adaptation debate becomes increasingly shrill. Although official policy in most nations remains a commitment to rapid reductions in carbon emissions, on-the-ground efforts focus on successful adaptation to the worst effects of warming. The United States and China both spend more money on adaptation than reduction, gaining popular support within their countries but attracting frustration and sometimes fury from more committed nations with fewer resources.
- Geoengineering looms large as a political issue, even though it is limited to small experiments. Most states offer hesitant support, but the United States ends up on both sides of the debate: government policy is generally opposed to geoengineering, but many of the corporations and NGOs working on the science and technology of geoengineering are Americans.
- With the benefits of even a weakly growing economy, the up-and-coming economic powers consolidate their gains by turning to trade and political alliances within the Global South, seeking to insulate themselves from what they perceive as a “reckless domination” by the North.
- As China’s expanding consumer market gives it increasing economic leverage, it seeks a more commanding role in global policy-making and concessions on issues ranging from African resources to intellectual property to water piracy.
- Despite secret global negotiations and heavy-handed rules against violation of intellectual property rights, the tools for IP piracy become more powerful, more widely distributed, and harder to detect. Government campaigns against piracy boost IP crime syndicates that go the route of drug cartels and Prohibition-era organized crime.
- Even as more nations work together to strengthen Internet protocols and management, there is growing tension over who exactly “controls” the Internet. The United States is reluctant to give up its dominance over Internet Assigned Numbers Authority (IANA); other powers—notably China and India—strike out on their own. Incompatible standards make the fully global Internet a thing of the past, but they also make it easier to slip through controls.
- Mobile technologies remain a significant economic driver worldwide. In both the developing and developed worlds, mobile banking and currencies are commonplace, with tentative efforts to create cross-border financial networks that sometimes fly in the face of established financial institutions and the laws that govern them.
- In the United States, Europe, and Japan, augmented reality technologies are wildly popular, but with unexpected political impacts: augmented reality tools make it easy to identify political opponents and to build bottom-up political profiling networks. These wreak havoc on political campaigns, insert a new level of distrust into everyday society, and occasionally lead to hate crimes and violence.
- Nations around the world confront the social network dilemma: these technologies empower loosely organized non-state actors, enabling them to threaten economic and political agendas of governments and corporations alike. However, clamping down on the technologies weakens a nation’s economic power even as it weakens the crowd.

SIGNALS OF GROWTH IN ADAPTIVE POWER

ACTA NEGOTIATIONS

The Anti-Counterfeiting Trade Agreement (ACTA), currently in negotiation, represents a snapshot of the ongoing struggle between those who wish to protect the rights of intellectual property holders and those who wish to protect the open Internet. ACTA attempts to standardize IP protection laws across signatory countries, but opponents call the process unacceptable. They cite opaque proceedings (with leaks generating outrage), a perceived bias toward copyright conglomerates, and poorly worded drafts suggesting real reductions in civil liberties. While the various trade departments and ministries have begun to open up about the process, both sides see ACTA as a test case: can international trade negotiations be made more transparent?

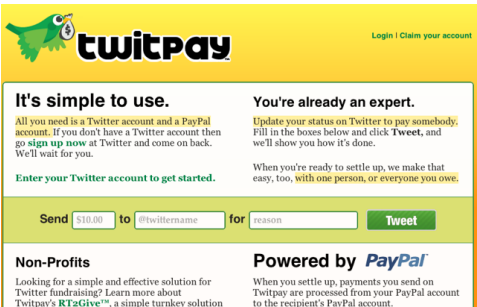


Source: Jamais Cascio (Creative Commons Licensed)

Among the most explosive of the claims made by ACTA opponents based on early drafts of the treaty is that border security agents will have unlimited rights to search computers, digital music players, and mobile phones for “pirated” music and movies. EU trade representatives respond that border agents have bigger issues to worry about than iPods but don’t dispute the claim.

MOBILE CURRENCIES AND BANKING

The use of mobile phones as financial tools is spreading rapidly in the developing world and is starting to show up in the West, as well. M-Pesa (M for mobile, *pesa* meaning money in Swahili) was developed by Vodafone and deployed in Kenya by Safaricom. It is described as a “branchless banking service,” allowing for secure financial transactions by SMS, using airtime as a complementary currency. Systems based on M-Pesa are being built in other African nations, as well as in India and Afghanistan. As of now, these mobile currency and banking services remain isolated within their home countries. M-Pesa, however, is looking at implementing an international funds transfer service in the next year.



Source: www.twitterpay.me

In the United States, Venmo (now in private beta) is seeking to offer payment services via SMS, tied not to airtime but credit cards. This will compete with Twitterpay, already in operation, which links Twitter accounts and Paypal accounts.

PROP 8 MAPS

The 2008 election in California included the controversial Proposition 8, which outlawed same-sex marriages in the state. After it passed, opponents combined federally mandated public records of donors in support of the proposition with Google Maps to create an easily used visualization of donor locations. Although campaign donation data had been available for years, the now commonplace “map mashup” technique vastly increased transparency. As political activist groups grow more technologically savvy, it’s clear that they will take advantage of emerging digital tools—including augmented reality—both to further their causes and to undermine their opponents.



Source: www.eightmaps.com

Supporters of Prop 8 Maps claim that it allows opponents of Prop 8 to make informed decisions about whether to continue patronage of businesses that donated to the campaign; opponents claim that it is a tool for intimidation.



CONSTRAINT

Global Eco-Management

In a world where a series of near disasters have galvanized the public will to confront the climate challenge, science-based management becomes the primary tool of governance—and the primary ground for political debates. A broadly accepted global environmental management regime encompasses both major incumbent powers and up-and-coming “leapfrog” nations. Carbon targets and valuations of environmental goods and services come to rely on multi-scale simulations of the environment as the foundation for

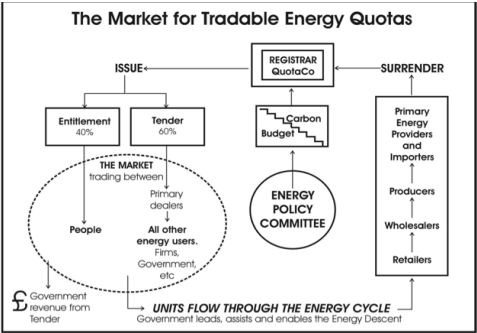
global, national, and regional policy. Disputes over tactics occasionally threaten to spill over into other issues, including key resources such as water access and energy. While many policy leaders see overall signs of success in this approach, even more complex issues loom. Perhaps the thorniest is the rapid expansion of monitoring and surveillance technologies as a way of both watching the environment and stopping illicit trade—but with significant impacts on privacy.

- Although the global eco-management regime focuses on inter-state concerns, it explicitly sets aside a number of issues as needing a community, rather than world, focus. Top-down approaches deal with large-scale management of issues such as energy, food, water, and geoengineering. Bottom-up, citizen-driven actions, in turn, rally resources to rebuild after disasters, to mitigate local problems, and to retrofit communities for greater resilience.
- The depth of the eco-crisis, coupled with the speed of response, leads critics from the Global South to talk about “environmental shock therapy,” a critique that resonates for many developing nations. Targeted funding and loan forgiveness mitigate some of this resistance in the less-developed nations, but debate flourishes in the more powerful countries of the Global South as to just how much the management regime benefits them.
- Some states, such as Russia, find themselves unable to reach even modest targets. By 2020, they are looking at ways to leave the system, setting up the potential for a new configuration of global political friction.
- As nations look for ways to reduce overall carbon footprints, transportation of goods is a major point of contention. Opponents of efforts to tax (or even label) transportation costs of goods use WTO rules to delay implementation, claiming that such plans violate free-trade rules. Public pressure manages to push through these carbon measures nonetheless, leaving the WTO critically weakened as a result.
- The shift away from petroleum undermines oil-rich states, leading to greater political unrest (some of it state-sponsored). Tools for environmental monitoring and personal accountability are enlisted to fight against the resulting terrorism. Critics argue that eco-management is a gloss over the massive expansion of the surveillance state. This concern is exacerbated by a growing reliance on individual mobile devices as monitoring tools.
- The various efforts to control intellectual piracy online get a boost from improved monitoring technologies, and long-standing resentments about control over the Internet fade while nations deal with more pressing problems. Worries about unwanted content remain, however, and a growing number of countries and regions use “great wall”-style Internet filtering and censorship systems to block out undesirable content.
- Tools for citizen-based “anticipatory governance,” supported by a few key NGOs and corporations, are designed to “route around” national governments, particularly in states where officials have been slow to respond to complex crises. However, transparency indexes that reveal corruption and previously hidden corporate interests in these governments undermine the credibility of these experiments.
- In a world of global cooperation around metrics of wellbeing, the movement for an international treaty for food security gains support across the public and NGO-sectors, establishing a minimum standard of nutrition, creating a world food reserve, and establishing the legal mechanisms to enforce these provisions. It spawns a parallel movement in support of a water security treaty.
- With the growing power of environmental movements, some issues once thought marginal take center stage. An example is the legal rights of nature—including animals, forests, and perhaps even bacteria. Initially intended as a way to give nature “standing” in court, the idea becomes a point of conflict between groups vying to be declared “legal guardians” of regions or species.

SIGNALS OF CONSTRAINT IN ADAPTIVE POWER

TRADABLE EMISSIONS QUOTAS

Tradable Emissions Quotas, (TEQs) is a system in development in the United Kingdom for end-user rationing of energy, as a proxy for greenhouse gases. Although similar in many ways to business-to-business carbon-trading mechanisms, TEQs operate at the individual level, giving each adult a personal stake in energy efficiency and emissions reduction. Initially dismissed as unworkable, the United Kingdom is now taking another look at the proposal, as the technology for precise monitoring of energy use and for mass trading is now readily available.



Source: David Flemming, *Energy and the Common Purpose, The Lean Economy Connection*, 2007. <http://www.theleanconomy-connection.net/index.html>

The primary argument for TEQs is that of individual empowerment, rather than a tax or restrictions at the production side. By giving end-users a financial stake in improving their energy efficiency, the TEQs approach hopes to increase both energy/carbon transparency and enthusiasm for taking action.

NEW RULES FOR SHIPPING CARBON

Under the 1944 Convention on International Civil Aviation, which still sets the rules for international shipping, fuel for international shipments of goods (whether by air or sea) is exempt from taxes. However, the European Union is set to include air freight in its 2012 emissions-trading regime, setting up a potential conflict between the so-called Chicago Convention and the European Commission. Shipping by sea, however, may prove a bigger problem. A 2008 report from the UN International Maritime Organization claimed that shipping produced 1.12 billion tons of CO₂ a year, or 3.5% of the world's total output, and was set to rise to 1.48 billion tons by 2020 (air transport, by comparison, is reported to produce just under 500 million tons of CO₂).



Source: Beluga Skysails, <http://www.skysails.info/>

The Beluga Skysail system, now in final testing, uses a kite to add propulsion to cargo ships. Under normal wind conditions, the use of a Skysail reduces fuel consumption by 10-35%, but under optimal conditions, it can cut fuel use by 50%. Several large shipping services, including GE Logistics, have begun testing the sails.

RIGHTS OF NATURE

In 2008, two-thirds of Ecuador's citizens voted to change the nation's Constitution, making the country the first to give the natural world explicit rights, including the right to "exist, persist, maintain, and regenerate its vital cycles, structures, functions and its processes in evolution." The section on nature also requires that the Ecuadorian government apply "precaution," and prohibits the introduction of organic or inorganic material that would change the "national genetic patrimony." The Ecuadorian government continues to provide extensive mining and oil production contracts, which its critics claim violates the Constitution it helped write.





Source: Anti-Petroleum Assembly in Tena, Ecuador, in March 2004. From IndyMedia NL.

"RICANCIE: We are nine indigenous Kichwa communities protecting nature." The ongoing arguments over mining and oil production underline the challenges of rights-of-nature laws, particularly concerning how a country decides whether an economic activity harms the ability of nature to "maintain and regenerate."



COLLAPSE

De-Legitimization



Cascading economic, environmental, and political crises around the world leave no state or institution able to provide effective global leadership. A “false dawn” economic recovery succumbs to unresolved weakness in trade and financial structures, and the rising economic tension triggers trade wars, signaling the apparent end of the “globalization” era. Even weak responses to global warming fall by the wayside as states seek to avoid apparent short-term costs. Increasingly, climate disruption is viewed not as an environmental crisis to be solved, but a military-political condition to be managed. Institutional failures are felt most acutely in the countries of

the Global South: they lose economic and political ground, with increasing amounts of political violence both within and between nations. Up-and-coming powers like China and India see their growth falter as the global economy staggers. Even though they initially manage to maintain stability, dwindling resources signal increased internal conflict and terrorism. In the developed world, environmental strategies no longer seek to stop global warming, instead looking for ways to adapt quickly and blunt its impact. Ironically, the overall economic decline slows the growth of emissions.

- Bretton Woods institutions lose legitimacy and political support, as the apparent collapse of globalization undermines most organizations linked to international management of the economy.
- The United States begins an aggressive dollar devaluation policy in order to get out from under its international loan burden. China blasts this as “default by another name,” but without strong international institutions, it is unable to muster support for an effective response.
- Smaller nations in the developing world default on their loans in more traditional ways, as both global trade and remittances to home nations by immigrants living in the Global North dry up. Mexico and the Philippines are hit especially hard, and both nations see increases in violent unrest, with strongly authoritarian responses. Across the Global South, optimism fades rapidly.
- A search for alternative institutions of legitimacy empowers separatist and isolationist movements, in both traditionally troubled regions such as the Middle East and seemingly stable developed nations such as the United States. Insurgencies around the world adopt techniques perfected in Iraq and Afghanistan, while disaffected, unemployed veterans of those conflicts swell the ranks of corporate armies and militias alike.
- China accuses the United States of intentionally slowing its response to global warming, in an attempt to weaken the Chinese economy. The United States denies the charge, but claims that Russia is doing so. Russian leaders call this “rubbish.” The European Union blames China for restoring coal-fired power plants as the country responds to local energy crises. In the face of a steadily worsening drought and with famine, Indian leaders claim that any intentional slowing of carbon emissions reductions should be treated as an act of war.
- The problem of piracy that grew rapidly in the 2000s emerges as a global issue. “Water piracy” is a top headline, but piracy of goods is at an all-time high, with a particular focus on food and biofuels. Pro-poor organizations point out that foreign land acquisitions and resource wars in Africa are at the root of piracy and continue to argue for land and other socio-economic reforms. But without an effective global forum, they have little power to sway foreign nations that see both their land interests and their access to basic food and fuel threatened.
- The various efforts to control IP piracy and the overall structure of the Internet that emerged in the early 2010s suffer from weakened monitoring and justice systems both locally and globally. Hackers rush to take advantage of the situation, and all sorts of open-source platforms get a second wind—one of the few bright lights for southern nations who had adopted open-source as a development strategy.
- Internet “brown-outs” are more frequent due to deferred maintenance of network infrastructure, rolling power blackouts, and in particular, widespread hacking and denial of service campaigns. Many believe these attacks are coordinated by intelligence and security ministries.
- Virtual worlds boom as people take refuge in the safety of simulated environments and the satisfaction of creative experiences that they offer. Functioning on extreme scales—with multiple millions of players worldwide—these worlds may be the seeds of a new global hegemony. It is here that a common global culture survives and even thrives.

SIGNALS OF COLLAPSE IN ADAPTIVE POWER

QUADRENNIAL DEFENSE REVIEW

One early signal of the growing military-political aspect of global warming is its rising visibility in official military documents. The Pentagon's Quadrennial Defense Review (QDR) outlines the major strategic risks and challenges the Department of Defense believes the United States will face in coming years. In the 2010 QDR, climate change is positioned alongside energy as a significant possible driver of conflict, noting both the potential for disputes over dwindling resources and the race to take advantage of territories altered by a shifting environment, such as the Arctic region. Calling the changing climate an "accelerant of instability," the QDR notes that the American military will be increasingly called upon to serve as first responders in climate-related emergencies and disasters.



Source: US Army, from Quadrennial Defense Review Report, 2010, www.defense.gov/QDR/QDR%20as%20of%2029JAN10%201600.pdf

One benefit of the increased focus on climate is the growing recognition of the need to reduce the military's environmental footprint. In past years, this has meant making explosive materials less toxic, but the real emphasis now is on energy. The Pentagon has begun partnering with local green energy suppliers; this photovoltaic array, in Colorado, was built on a closed landfill, and generates power for 540 homes on the nearby base.

COMPLEXITIES OF PIRACY

Piracy against shipping has been a problem for much of the modern era, but the latest wave appears to be driven by forces that are likely to increase over the next decade. Although most reports about modern ocean piracy focus on theft and hostage-taking, there's a more complex problem to be faced. In Somalia, coastal piracy has been driven in part by European ships' dumping hospital waste offshore, as well as by rapid increase in illegal fishing by foreign countries, according to the Centre for Globalization Research in Canada.



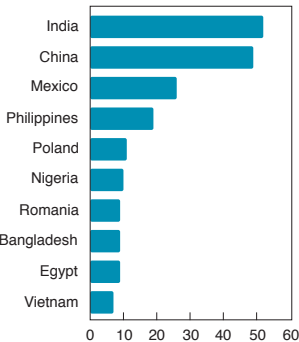
Source: US Navy, in Wikimedia Commons, <http://commons.wikimedia.org/wiki/File:Tianyu-8.jpg>

Although the media image of pirates focuses on the criminality, it's useful to think of them in terms of asymmetric warfare as well. Many Somali pirates refer to themselves as the "Volunteer Coast Guard of Somalia." The targets of Somali pirates are often European vessels, but as China becomes more involved in Africa, it's likely to see more attention, as well. Here, pirates hold the crew of the Chinese fishing vessel Tian Yu 8 in November, 2008.

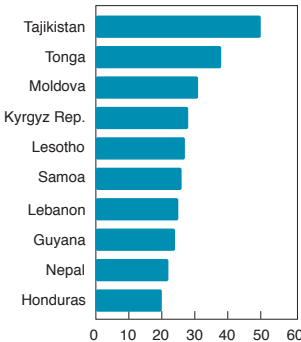
DEPENDENCE ON REMITTANCES

Remittances make up a surprisingly large percentage of the GDP of many developing nations. But remittances are very sensitive to changes in the global economy, much to the detriment of the states dependent on them for continued growth. Mexico, which receives more income from remittances than from tourism, saw a 20% drop from 2008 to 2009 (nearly \$2 billion), devastating the rural communities that rely most on remittances. Any prolonged decline in the world economy is likely to have a profoundly negative impact on the Global South; in some cases, it could mean the total collapse of local economies.

Remittances in billions of dollars (2008).



Remittances as a percentage of GDP (2008).



In 2008, India and China together received as much in remittances as the next eight recipients combined, but far more vulnerable are places like Tajikistan and Lebanon, which receive a significant proportion of their GDP from their citizens working abroad.

Source: World Bank, Migration and Development Brief 11, November 2009.



TRANSFORMATION

Globally Local Governance

In a world where dense networks and smart materials give every decision a digital information shadow—and where long-standing institutions of governance remain mired in short-term thinking and self-interest—a wave of citizen-driven programs emerge that offer both greater responsiveness to the local imperatives, and greater transparency into the workings of global governance. By 2020, most countries with widespread information and communication networks have some form of “participatory governance” experiment underway, with widely

varying degrees of success. Beyond these direct efforts to re-think government, a host of new “persuasive technologies” are emerging to help various populations self-organize and self-manage according to a combination of values and metrics. Operating at diverse scales—from large-scale context-aware systems to molecular-scale neuro-targeted devices—these persuasive tools drive waves of response and adaptation that outpace and outperform traditional bureaucratic structures.

- Participatory governance groups start in ways that reflect diverse trends. In the United States, they initially focus on the allocation of crisis relief. In China, conversely, they evolve out of collective-buying circles. From the outset, their ad-hoc nature and limited scope make it easy for established leaders to ignore them. As they grow, they expand their purview, however, and their distributed nature makes them harder (but not impossible) to rein in.
- In the Global North, the participatory governance movement overlaps with a growing debate about the nature of representative democracy in a world of complex problems. Representatives of diverse interests are often driven to superficial, near-term solutions in order to avoid being voted out of office. In this context, some call geographic representation in a post-geographic era anachronistic, and turn to “principles-based alliances” as an alternative model.
- Where successful, experiments in participatory governments prompt big changes in policy-making methods, which in turn lead to substantial efforts to confront large-scale, longer-term issues. Participatory processes underlie “evidence-based governance,” where programs are enacted and evaluated strictly on the basis of well-vetted data, often from outside a country’s borders.
- In more autocratic states, the participatory governance groups are strictly limited in terms of what issues they tackle, and how much control they have over resources. As a result, this movement is both less disruptive and less able to provoke significant changes to policy. Within these strictures, however, they do see some successes, particularly around urban planning and community design.
- The various top-down mechanisms trying to place controls on the Internet run headlong into extremely active—and technologically savvy—principles-based alliances. By 2020, most of the heavy-handed mechanisms in the democratic countries have been relaxed. The systematic expansion of all kinds of open-source offerings establishes parallel markets across many sectors, with multiple, complementary systems for licensing and recognizing value.
- The advent of augmented reality systems, combined with rapidly advancing neuroscience research, leads to abundant experimentation with so-called neuro-social systems. Leveraging a combination of context-awareness, social media, and neuro-targeted messages and experiences, these systems are designed to influence human behavior toward some end. Not unexpectedly, these persuasive projects trigger hot debates about who sets them up, who controls them, and how people can opt in or out of them.
- All of these various models are subject to “griefing”—intentional attacks on the ability of participants to achieve their goals. Although supporters of incumbent institutions and political groups are often blamed for these incidents, griefing is increasingly a tactic of principles-based alliances that don’t get their way.

SIGNALS OF TRANSFORMATION IN ADAPTIVE POWER

PARTICIPATORY BUDGETING

In 2009, the Australian legislative district of Heathcote experimented with allowing district citizens to decide, via the Internet, how to allocate government funding. Participatory budgeting, first used in Porto Alegre, Brazil, in 1988, has spread to well over 1200 municipalities globally, enhanced by Internet-based tools. Such a process isn't limited to small communities; the Brazilian city of Belo Horizonte, with 1.7 million voting citizens, has used participatory budgeting since 1993, and more recently switched to an Internet-based method.



Source: Prensa Municipi Caroni (Caroni, Venezuela)

Participatory budgeting emerged as a way of giving the poor and other disenfranchised communities greater say in how government funds were allocated. It's unclear how well this particular goal has been met; continued lack of involvement of the poor and the young remains a frequent criticism.

NON-GEOGRAPHIC REPRESENTATION

Traditional mechanisms of representative democracy tie representatives to geographic districts. As the voting citizenry has become more diverse, and as district populations have grown, the ability of a given representative to accurately reflect more than a fraction of constituents has greatly diminished. One proposal gaining increased attention is the notion of non-geographic representation, sometimes called "Personally Accountable Representation" (PAR). Voters across a greatly enlarged district would select representatives from a range of alternatives, seeking the leaders most similar to their personal views. Representatives would then be able to act in ways that more closely reflect the views of their constituents.

BALLOT FOR CITY COUNCIL		
<i>e choose which candidate is your first choice, and put a "1" in the box next to their name. To choose which candidate is your second choice, and put a "2" in the box next to their name. To choose our third choice, put the number "3". And so on. You may rank as many candidates as you like.</i>		
Robert Adams	[]
Shana Pierce	[3
Robert Green	[1
Lois Kaplan	[]
Thomas Washington	[]
Sylvia Hernandez	[2
Steven Gross	[]
Arthur Houseman	[4
Cynthia Gray	[]

Source: *The Case for PAR*, Center for Collaborative Democracy, 2010.

Instant-Runoff Voting, used to elect parliaments in Australia and Papua New Guinea, as well as the President of Ireland and the city council in San Francisco, allows voters to rank their preferences among a set of candidates. If a given #1 choice receives the least number of votes, that candidate is dropped and the #2 choice becomes active; this continues until one candidate receives 50%+1 of the vote. Supporters of this method claim it allows people to vote for whom they like most, as opposed to voting for whom they dislike least.

NEUROPOLITICS

One of the results of the decreased costs and increased speed of both brain imaging and genetic analysis has been the correlation of numerous behavioral and social traits to particular physiological phenomena. In particular, the brain's dopamine reward system and the level of activation of the right prefrontal cortex both offer intriguing links to particular political biases. Although the science at this point is more suggestive than certain, there are strong indications that the connection between differing neurological structures and political preferences is very real. It's very likely that over the next decade, the increased understanding of how the brain functions will allow neuro-targeted political advertising.



Source: Kenneth Lu, *Secure Beneath the Watchful Eyes*, <http://www.flickr.com/photos/toasty/2171185463/>

Fear is a strong driver of political choices; here is a poster from the United Kingdom highlighting the presence of security on public transit. A 2008 study, published in *Science*, found that a strong "startle" response correlated with political views favoring strong social protection and obedience beliefs; some took this analysis to mean that conservatives are more driven by fear, but the authors of the study carefully avoid making that claim.