

FOUNDATION EARTH

Rethinking society from the ground up!

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March 9, 2015

Regarding: G20 Plans for Infrastructure Finance

Dear President Recep Tayyip Erdoğan:

Overview

The undersigned individuals are concerned citizens, farmers, scientists, authors, philanthropists, Indigenous leaders, and opinion setters. Many are knowledgeable leaders who have experience with ecological and economic issues including large infrastructure projects, especially in such critical areas as transportation, energy, agriculture, forests, and water. We are deeply concerned about the G20's focus on mobilizing as much as \$60-70 trillion dollars of investments in large infrastructure projects over the next 15 years. *The Economist* magazine has called this "the biggest investment boom in history." Hence we are writing to you and the other leaders of G20.

We understand that the G20 nations are pursuing mega-infrastructure as a coordinated strategy to stimulate a sluggish global economy. We recognize and appreciate the need to promote global economic and political stability and to broaden access to the fruits of modern society, particularly to the neediest populations and communities. While there are several noble statements in the written goals of the G20 Presidency,¹ there is much that we find deeply alarming. This letter lays out our concerns with the current approach, offering suggestions on changing the economic model, and pointing to new scientific findings on the kind of infrastructure that would support a new ecologically minded economic model. This unprecedented level of investment in a 21st century economy must be approached with the highest sense of scrutiny and analysis. Our survival, or our quality of life, may directly depend on the decisions these investments will set in motion.

A Problematic Economic Model, Planetary Life-Support, & Model Changes

Corporate-led economic globalization hasn't delivered nearly enough for at least two of the more than seven billion people on Earth. It has transferred and consolidated power, effectively crippling the people's governing rights. It has concentrated wealth within the top 1 percent and caused record-setting gaps between rich and poor. While many accomplishments have been made in raising living standards and advancing technologies, they have also come at a great price to the health of the planet. Many such accomplishments are not sustainable for another century; let alone for the next few thousand years. The latest projections from the United Nations Population Division are positively frightening—up to 12 billion people by 2100. This must be addressed. If in the next two to five decades the Earth's temperature rises from two to four degrees centigrade, industrial agriculture will largely fail as will much of our current global food delivery systems. This will be an incalculable tragedy for millions if not billions and much of the web of life. Developing more infrastructure in support of this failed economic model is doubling down on a dangerous vision. We must not lock-in problematic technologies for generations to come.

The G20 infrastructure framework and action plans could hasten global warming beyond the two degree centigrade average rise that sovereign nations will seek to stay below at the climate meetings this December in Paris. Should the G20 facilitate the wrong path at its November meetings in Turkey this could nullify any gains made in Paris as well as the upcoming UN Sustainable Development Goals.

The G20 must ask the most important questions as to whether these new mega-infrastructure projects will help to heal the Earth or seriously damage life-support systems causing modern civilization to further transgress the carrying capacity of what makes life possible. There is no vibrant economy or coveted economic growth on a nearly exhausted planet. As the head of a sovereign state it is your duty to support all life for the long-term. We recommend that you seek top advisors

¹ The current G20 Presidency is with Turkey, but switches to China December 1st, 2015. The goals.

with commensurate political power who understand earth systems. If corporate executives and finance ministers drive this agenda with a flawed ideology, our future may be doomed to rapid ecological deterioration with limited chance for recovery.

PPP & Financing Concerns

The G20 infrastructure framework relies heavily on public-private partnerships (PPPs) to build these mega projects. PPPs are not a responsible way to finance or operate infrastructure assets vital to public services when they aggressively downsize the workforce, defer necessary maintenance, and transfer high level risk to local or national governments.

What is particularly problematic is that the G20 is promoting a financing model that will use alternative investment to offset the risks to partnering private firms. Allowing both public money and outside groups to invest in large-scale infrastructure partnerships will enable financial institutions to sell investors new “financial instruments or financial products” consisting of a portfolio of PPPs. Such packages of big projects bear a scary resemblance to financial schemes involved in the sub-prime mortgage bundles that caused the global economic meltdown of 2008.

This financialization of infrastructure will enable risky assets to be packaged with safe ones so that investors do not know the real value of the product they are investing in. Of special concern is the plan for expanded use of public money (taxes, pension funds, and aid) to offset the risks involved in huge projects. Reliance on PPPs neglects the poor track record of accountability and failure of PPP mega infrastructure projects.

Much of the corporate profit is falsely realized because they externalize the ecological and social costs onto the backs of other people and ecological systems. Examples include air pollution, intensified disturbance of weather patterns emissions of Greenhouse Gases (GHGs), and runoff of chemicals into freshwater systems and oceans. The current economic model privatizes the profit while socializing the risk (i.e. financial cost and damage to the planet).

Furthermore, studies show that for the past 70 years, nine out of ten infrastructure projects have experienced cost overruns, delays, and benefit shortfalls. This dismal track record is not improving. Oxford University Professor Bent Flyvbjerg has prepared scholarly papers providing more in depth information on these issues, including “Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it.”²

Trillions of dollars spent in pursuit of typical mega-projects in the energy, transportation, agriculture, and water sectors could put in place infrastructure that eliminates wildlife habitat, destroys fisheries, undermines vital ecosystems, and further destabilizes the Earth’s climate. This process is beset with other problems like corruption, cost overruns, fiscal accountability, and human rights abuses. The highest environmental and social safeguards should apply to any and all finance arrangements. Privatization of infrastructure is the wrong direction.

Infrastructure: Old or New?

New general principles must be taken into account on every large infrastructure project. For example, every publicly funded investment should help to expand the highest environmental performance standards, assist in reducing GHG emissions (including the 15% annually that come from deforestation) and render runaway climate destabilization less likely. This would mean no industrial agriculture (or related infrastructure) projects should be funded that erode existing farm and forest land or contribute to additional nitrogen or phosphorus runoff or increasing atmospheric temperature levels.

Listed below are criteria for evaluating large infrastructure projects—criteria that if followed, could lead to a shift away from the business-as-usual approach to infrastructure in energy, transportation, water, and agriculture towards ecologically sustainable methods.

Transportation: Dramatically divergent choices confront global transportation policy: whether to put more money into cars, trucks, and highways or to emphasize mass-transportation and improved passenger and freight railroads. The lowest impact choices such as walkability, bikeability, and public transit in our urban areas do not typically fit into a mega-

² Bent Flyvbjerg, “Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it,” *Oxford Review of Economic Policy*, Volume 25, Number 3, 2009, pp.344-367. Note: The title is a play on Darwin’s “Survival of the Fittest”.

project framework. Highway spending primarily to service the automobile has taken the vast majority (80 percent) of the U.S. transportation budget.

Energy: As with transportation, the most beneficial choices in energy from a planetary survival standpoint do not fit into a mega-project framework. Wind and rooftop solar are fundamentally decentralized technologies, less vulnerable to weather disasters and sabotage, not dependent on water, and avoid conflicts from a shortage of fuel.

Water: As climate destabilization intensifies, hydrological cycles of the past are disrupted with increasing flood/drought episodes. Relying on infrastructure such as large dams whose economic justifications depend on water flow records of the past is economic folly. Dams are a major source of greenhouse gas emissions, and are responsible for one-fourth of human-caused methane releases³. Furthermore, dams can destroy vital carbon sinks such as rainforests, which exacerbates the GHG buildup, reduce vital habitat, and lead species extinction. Tropical rainforests are the heart of the planet, pumping life force into the metabolism of the biosphere.

The large GIBE III dam presently being built in Ethiopia illustrates the wrong kind of infrastructure project. It will displace several hundred thousand farmers in Ethiopia, send water for irrigation out of the Omo River Basin, and will destroy Lake Turkana, the world's largest desert lake, which provides fisheries and livelihood for several hundred thousand Kenyans.

Agriculture: The nitrogen/phosphorus cycle is one of the nine planetary boundaries (life-support systems)⁴ already in a condition outside of the safe operating zone. Such chemical and waste runoff is also responsible for significantly contributing to over 400 dead zones in the already acidifying oceans, which are the base of the food chain. Large agricultural projects could come in the form of mega-dams that would supply irrigation. Project investment packages could include massive fertilizer plants to service giant monocultures such as oil palm, sugar cane, corn and soybean plantations and animal feeding operations along with large harbor projects to serve as global export points for this industrial agriculture. It is vital that all new agricultural infrastructure deal with the serious global situations associated with excessive and unsustainable nitrogen and phosphorus fertilizer impacts.

Conclusion

We are at a critical moment where two strategies to steer future infrastructure are diverging. One path could lead to smaller-scale, ecologically smarter and more flexible systems that could be maintained and without damaging life-support ecosystems on the Earth. By contrast, the proposed path of the G20 appears headed toward the replication and intensification of numerous unsustainable projects that will cause human civilization to further exceed the Earth's carrying capacity. Each year we are already consuming about one-and-a-half planets' worth of resources. Infrastructure choices need to be made to alleviate rather than exacerbate this situation. That requires changes in our overall economic model. We summarize with these main points:

- The most serious threat of our day is the demise of the biosphere's life-support systems, including climate change, biodiversity loss, ocean acidification, and an overloaded nitrogen/phosphorous cycle.
- Catastrophic damage to Earth systems (planetary boundaries) would destroy the economy, social stability, and much of the web of life.
- Current governance decision patterns (nationally and globally) fall far short of the steps needed to restore ecological sanity and planetary health. Short-term political expediency and a business-as-usual attitude (from most business leaders including the B20⁵) will not help us shift toward ecologically resilient economies.

³ Lima, Ivan B. T., Fernando M. Ramos, Luis A. W. Bambace, and Reinaldo R. Rosa. "Methane Emissions from Large Dams as Renewable Energy Resources: A Developing Nation Perspective." *Mitigation and Adaptation Strategies for Global Change* 13.2 (2007): 193-206. Web.

⁴ This brief [overview](#) of Planetary Boundaries gives a short description of this scientific approach to the planet's life support systems and carrying capacity. While not a perfect tool, it is a helpful framework.

⁵ The B20 are leading independent big business leaders and associations that advise the G20 in a formal relationship.

- The precautionary approach and bold action is called for now, not in two or four decades. The accelerating transgression of planetary boundaries must be reversed.
- The current G20 plans will advance old-school global infrastructure that would lock us into two to four decades of ecologically destructive projects with massive GHG emissions.
- In contrast, bold new infrastructure directions could spur job creation, and provide for an important shift in the economic model, away from industrial agriculture and towards productive and sustainable agroecological farming worldwide.
- The infrastructure and institutions of continental and sub-regional markets are key as regional food self-reliance is a fundamental component of adaptation to climate change.
- The new economic model will employ meaningful full-cost accounting, factoring pollution impacts (externalities) into reviews of alternatives and into final decisions. The point is not to internalize pollution externalities, but to eliminate most of those impacts in the first place.
- If we act now in these already proven ways, we may avoid the worst outcomes and be able to work to adapt to the already damaged global weather systems and diminished web of life.
- The G20 can help make the economic model shift that includes at the outset an infrastructure that supports the new model from the outset. Ecologically informed public governance is essential in order to help solve these problems.

To be clear about the need for fundamental changes in the economic model we note these main points:

- Carrying Capacity Analysis & Protection: The economy needs institutions with the power to ratchet down or shift economic activity when carrying capacity limits are being approached. We cannot continue to overshoot the planetary boundaries by over drafting aquifers, polluting air and water, and destroying habitat. Mandatory disclosure of ecological impacts that are third party certified and show how they affect the nine planetary boundaries would advance this goal.
- A True Cost Economy: Use techniques, not limited to full cost accounting, to expose ecological impacts (externalities). Show us what is under the rug! Implementing the existing IMF and G20 commitments to eliminate ecologically perverse subsidies to oil and gas is further enabled when there is a big drop in energy prices. If adopted, renewable energy would already be cheaper than fossil fuels or nuclear energy. Subsidies distort markets by hiding risk. Four of the nine Planetary Boundaries are already surpassed. Projects that further exceed the already overstressed Planetary Boundary system should not be funded with public or private money.
- Continental/Regional Self-Reliance: Self-reliance in basic needs (food/clothing/shelter) and comfort items should be maximized at the continental and sub-region level. A model of continental networks of regional economies that produce most of what people need. This model fosters resilience and local jobs for local markets. While global trade will always be necessary, the infrastructure investment for increased self-reliance is a higher order priority. This would be even more critical if we a two or three degree average temperature rise occurs. As a start, much of the external aid should be used to increase regional self-reliance and promote compassion for others in need.

The undersigned individuals and organizations urge the G20 nations to:

1. Rethink the proposed 80 trillion dollars of industrial infrastructure spending in light of the last seven decades and a 90 percent failure rate of such projects to provide accurate cost estimates, completion dates, and benefit projections.
2. Adopt the Flyvbjerg proposal to correct this failure⁶: appoint an independent body to compare any proposed infrastructure project to the historical record of project types of this size on cost estimates, completion dates, and benefit projections. Do not support projects that are way outside of the historic range.

⁶ Bent Flyvbjerg, "Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it," *Oxford Review of Economic Policy*, Volume 25, Number 3, 2009, pp.344-367. Note: The title is a play on Darwin's "Survival of the Fittest".

3. Schedule time at the November 15th – 16th annual meeting in Turkey to discuss significant changes to the economic model in the directions we have highlighted.
4. Educate each other in the Planetary Boundaries scientific framework and consider creating and supporting institutions with tools and approaches to assess ecological carrying capacity on each continent, sub-region and country and provide policy guidance for the shift to sufficiency. It could be called: “Continental - Local Carrying Capacity Analysis & Protection Institutes”.
5. Formally adopt as design principles that projects must be:
 - a. **Comprehensive** — Applies a whole systems approach to all facets of the design and development process; aims to simultaneously address multiple goals, requirements, conditions and issues;
 - b. **Anticipatory** — Factoring in critical future trends and needs as well as projected impacts of implementation in the short and long term;
 - c. **Ecologically responsible** — Reflecting nature's underlying principles while enhancing the Earth’s life-support systems;
 - d. **Feasible** — Relying on current know-how, tested/acceptable technology and existing resources;
 - e. **Verifiable** — Able to withstand rigorous empirical testing;
 - f. **Replicable** — Able to scale and adapt to a broad range of conditions.
6. Clarify the types of infrastructure that would support the new approach and fund those projects. For example: No further coal power plants should be built and all existing ones should be phased out as soon as renewables (including geothermal) can replace them, followed by oil and gas infrastructure.
7. Review possible ways to foster mandatory corporate disclosure of ecological impacts.
8. Require ecologically perverse subsidies⁷ to be “shadow priced” when comparing alternative investments.
9. Incorporate The Nine Important Issues For "Reducing the global environmental impacts of rapid infrastructure expansion" Details of these nine points are in this important report.⁸ that the scientists from around the world have put forth. The maps & criteria are important worldwide planning tools showing where roads can be built to expand commerce and not undercut ecological values.
 1. In intact habitats, avoid the first cut
 2. Upgrading existing roads can have serious induced impacts
 3. Secondary effects of projects can be severe
 4. Greater emphasis on ‘offshore’ projects is vital (meaning no road linkages)
 5. Rigorous early screening is vital
 6. Better decision-making tools are needed
 7. Financial institutions need more environmental and social expertise
 8. Avoid the “devil you know” dilemma

⁷ The G20, as has the IMF, has formally committed to phasing out fossil-fuel and other perverse subsidies. Such subsidies include tax exemptions, government loans, price guarantees, and special contract terms. More implementation action is needed.

⁸ This report shows, for example, where roads could have the greatest benefits for humankind, especially for increasing food production. "Reducing the global environmental impacts of rapid infrastructure expansion", William F. Laurance, Anna Peletier-Jellema, Bart Geenen, Harko Koster, Pita Verweij, Pitou Van Dijck, Thomas E. Lovejoy, Judith Schleicher, and Marijke Van Kuijk. [Current Biology](#), 5 March 2015. *The Guardian's* March 5th [article](#) provides an overview of the report.

9. Greater NGO and public engagement is vital

10. Follow the UN FAO's lead and hold a series of high level discussions on how to shift from industrial agriculture for global markets to agroecological models primarily for regional/continental markets. Work with the Millennium Institute⁹ to explore implementation options for ecologically sustainable ways to nourish people with healthy, affordable and sufficient food.
11. Take special note of the many suggestions and petitions previously submitted by civil society¹⁰, including phasing out fossil-fuel subsidies, transparency, community/gender participation, and 'bottom up' project identification.
12. Work to harmonize ecological safeguard policies and national environmental laws UPWARD, incorporating the Planetary Boundaries framework. Work to get all public and private finance institutions to do the same, especially new multi-lateral financial institutions such as those initiated by China and Brazil.

We are in the midst of a deep planetary emergency. We are in general agreement with this letter. A holistic approach starts with an active respect for the earth systems science. Ecological wisdom and support for the entire web of life is what shows both short-term and long-term compassion for all people, as nature ultimately nourishes all things.

Attachments: [Planetary Boundaries Overview](#)
[Mandatory Corporate Ecological Impact Disclosure: A Working Paper](#)

Respectfully,

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⁹ McIntyre, Beverly D., Hans R. Herren, Judi Wakhungu, and Robert T. Watson, eds. "Agriculture at a Crossroads: Global Report", International Assessment of Agriculture Knowledge, Science and Technology for Development, Washington DC, 2009.

¹⁰ "C20 Position Paper Background: Infrastructure" in 2014 is an excellent start. C20 has a civil society advisory function to the G20.

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