

# Insurance-based Global Governance

## Author

Len Fisher

The submission proposes a global insurance and reinsurance model. A new institution receives premiums paid by member countries, in order to insure the against the effects of global catastrophic risks. The institution provides expert advice to the member countries, and financial backing for investments in cooperative projects to achieve risk reduction. Concentrating on a financial task would keep the institution flexible and independent. Decisions would be based on the principles of “effective altruism”, with decision constantly monitored by AI, Big Data and statistical analysis to improve the institution’s priorities and performance. The submission suggests a pilot project being instituted by a smaller number of countries, in order for a first evaluation and improvement round.





# 1. Abstract

The governance model proposed is based on an insurance/reinsurance model (ref 1), where countries retain their independence, but where they are encouraged by economic rationale and mutual self-interest to cooperate and collaborate to resolve global problems (ref 2).

It is proposed that a new institution be set up to “insure” the member countries against the effects of global problems.

The “premiums” paid by each country would be agreed initially by mutual consent, but would be modified over time to reflect the degree to which they cooperated with other countries and the speed with which they accepted and implemented decisions. The institution would use its funds to invest in and promote cooperative projects for risk reduction and the solution of global problems. The difference from organizations such as the World Bank would be that this institution would not be concerned with economic prosperity *per se*, but with providing financial backing and independent, expert advice to make long-term cooperation possible and worthwhile for the participating countries. The difference from organizations such as the EU or the UN would be that the governance structure of the new institution would be small, flexible and independent. Rapid decision protocols and substantive criteria for the provision of evidence-based support and investment would be put in place at the start.

The model used for the design of these criteria would be along the lines of that used for “effective altruism” (ref 3). Decision protocols would initially be based on a rapid heuristic model (ref 4). The effectiveness of these protocols would be constantly monitored, using artificial intelligence approaches, big data, and statistical analysis to help improve their performance.

The concept for this institution could be trialed with a small number of countries or several groups of countries. A major control mechanism to promote trust in the institution and its procedures would be open publication of the protocols and decision-making processes. To ensure balance in the governance structure, the number of appointments from different countries would initially be in proportion to the premiums paid, but the number/level/proportion of appointments from a particular country may actually rise as premiums fall (since falling premiums equate to greater cooperation) or *vice versa*.

# 2. Description of the model

## THE PROBLEM

Mankind is flying blind into the future, partly because of the reasons set out in the Global Challenges Prize Foundation criteria – in particular, that we face “a number of major global challenges which have to be jointly managed by all countries through increased co-operation and an increased understanding of our interconnectedness,” while “the system[s] currently in place to manage these issues ... are, in their present form, not up to the task.”



The challenges include known issues such as climate change, environmental damage, extreme poverty and rapid population growth. But, to be effective, a new governance system must also be able to deal with unknown, unforeseen, and often unforeseeable issues.

One reason for unforeseeability lies in the nature and properties of interconnected networks, which have been extensively studied over the last two decades (ref 5). Our social, economic and environmental networks are prime examples of what are now called *complex adaptive networks* (ref 6). These have three significant features that are particularly relevant to the design of effective governance:

- The network is more than the sum of its parts, and can show emergent properties and behaviours that cannot be predicted from those of its individual components.
- These properties and behaviours can and do evolve and change over time.
- Complex adaptive networks may show periods of deceptively reassuring stability, where the future may successfully be predicted from a knowledge of the past. Sooner or later, however, slow (and often imperceptible) changes will bring almost all networks to a tipping point where *the system as a whole undergoes sudden, dramatic change* (technically known as a *critical transition* (ref 7)).

There are plenty of real-life cases of such critical transitions. Social examples include the collapse of the Roman Empire (ref 8) and the rather more recent “Arab spring” (ref 9). An obvious economic example (among many) is the 2007 financial crisis (ref 10), while there are many ecological examples, including the collapse of the Newfoundland cod fisheries (ref 11).

Sometimes we can see the train coming, as is the case with global warming. Even then, we cannot predict with any certainty where the bits will end up when the train hits the buffers at high speed. One consequence of global warming, for example, may be that the whole Middle East becomes uninhabitable (ref 12), with knock-on consequences that are terrible to contemplate.

In cases such as global warming, where there is an obvious threat, a cooperative global governance structure is needed to deal with the threat before the risk becomes a reality. In other circumstances, however, there may little or no obvious driver for change. Interconnected risks may accumulate, and eventually cascade through the system, with no obvious single driver. These cases are known under the generic name of systemic risks (ref 13), with a particularly virulent form being the slowly developing catastrophic risk (ref 14). There may be warning signs, including an increasing occurrence of extreme states and increasingly rapid fluctuations between extreme states (ref 15), but by the time that their presence becomes sufficiently obvious it is usually too late for current human institutions to respond effectively.

## **METHODS OF GOVERNANCE**

There are three ways to deal with such networked risks, and a new governance structure must be able to select the most appropriate approach and use it in an effective time scale:

- 1) If there is an obvious driver for risk, the governance structure must be such as to produce cooperative and effective action to negate the driver (for example, by



reducing greenhouse gas emissions to help control global warming, or designing effective population control measures that will be agreed to and implemented by most or all countries).

2) If the driver for risk lies in the structure of the network itself, it may be possible to introduce regulations to control the network structure and make it less vulnerable to exogenous or endogenous shocks (ref 16). Such an approach, in the form of modularization, was suggested for restructuring the banking network (ref 17) in the wake of the 2007 crash.

3) The third, and most general, approach is to use governance to build resilience into the system *in advance* – to expect the unexpected, and to be prepared to respond. Care is needed, however, in using the concept of resilience, which may mean the ability to “bounce back”, or the ability to adapt and change rapidly according to circumstances, or something in between (ref 18). An effective governance system must decide just what definition is most appropriate (there are more than 70 definitions in the literature (ref 19)) and make decisions accordingly.

### A NEW MODEL FOR GOVERNANCE

The clear conclusion is that a new governance system for our increasingly interconnected world must have rapid, decisive, and adaptable response mechanisms to both known and unknown risks at its heart. The insurance and reinsurance industries provide a template for dealing with risk, although this model must obviously be built on, especially when it comes to dealing with systemic risk and with the thorny problem of international cooperation.

A particular problem with international cooperation is the *Tragedy of the Commons* (ref 20), to which many solutions have been proposed (ref 21). This is not the place to go into detail, apart from to say that most of the suggested solutions involve making a commitment in such a form that the committed parties cannot then back out of the commitment without loss. The insurance/reinsurance model provides this in the form both of penalties (failure to cooperate and act decisively after having paid a premium means an increase in future premiums) and rewards (cooperation from other parties that have made a similar commitment).

### COMPONENTS OF THE INSURANCE/REINSURANCE MODEL FOR GOVERNANCE

This submission is concerned primarily with a new principle for international governance of global challenges, which could be implemented in a variety of ways. What follows is an outline of one possible way for areas of responsibility and decision-making mandates to be handled by the various components of the model:

The primary components are:

- *Member countries*
- *An executive*
- *An investment board*
- *Technical advisory boards*
- *A futures group*
- *A logistics group*
- *A legal group*
- *A financial group*



**Member countries** would be responsible for:

- Providing funds (in the form of negotiated “premiums”)
- Nominating senior executive members of the new institution
- Nominating political representatives to act, not as decision-makers in their own right, but as conduits to help maintain an open flow of information and opinion in both directions
- Seeking and using “investments” from the institution to pursue cooperative programmes to respond to and deal with global risks in a rapid and effective manner
- Maintaining a watching brief to ensure “fair play.” A part of this brief may be a constitutional power to remove executive members with (say) a 2/3 majority vote.

Members of the small **executive** would be appointed for (renewable) fixed terms.

The executive itself would be responsible for:

- Directing the activities of the investment and advisory boards
- Making evidence-based investment decisions
- Making decisions about premium rates
- Communicating with political leaders, their representatives, and the public about current and potential issues
- Maintaining fairness, openness and transparency in all of the activities of the institution. In particular, it will be built into the constitution of the institution that due account shall be taken of the rights on individuals when making investment decisions, and that all individuals shall be treated equally and with respect at all stages in the process.

The **investment board** would be responsible for:

- Offering evidence-based advice on investment decisions to the executive, based on advice from the appropriate advisory board(s) and opinions and information provided by political representatives of the member countries

The **technical advisory boards** would be responsible for:

- Providing technical advice about present and future risks that require cooperative solutions
- Providing advice to the executive and to member countries about optimum ways to facilitate solution strategies
- Using big data, statistical records, artificial intelligence, and other strategies as necessary to monitor the effectiveness of solution strategies and to advise on the best ways to update and develop these over time
- Maintaining a constant, two-way flow of information and expertise with academic groups, concerned external institutions, and member countries

The **futures group** will have a special role to play in maintaining speed and flexibility of decision-making. Its dual roles will be:

- To maintain a watching brief over emerging risks and to bring these to the immediate attention of the executive
- To maintain a watching brief over the activities of the institution itself, to ensure that decisions are made in the speediest and most effective manner, and that blocks to information flow or decision-making are dealt with

The **logistics group** will be responsible for ensuring the smooth progression from decision to investment to action. Its primary responsibilities will be to provide



direct, “on the ground” contacts for those who are using investment funds to resolve issues.

The **legal group** would be responsible for maintaining a watching brief with regard to national and international law, providing advice to the executive on the most effective way to resolve disputes should any arise.

The **financial group** (separate from the investment board) would be responsible to the executive for the day-to-day running of the institute’s financial affairs.

### SUMMARY

The administrative structure as suggested is designed to facilitate quick, accurate, fair and transparent decision-making. It will be appreciated that these are outline proposals at this stage. If this submission goes forward the proposals will be developed in detail in consultation with experienced experts in the various arenas.

## 3. Motivation

### 1. CORE VALUES

The model is designed to maximize the possibility of fair and just treatment for all concerned. It will be built into the constitution that due account shall be taken of the rights on individuals when making investment decisions, and that all individuals shall be treated equally and with respect at all stages in the process.

### 2. DECISION-MAKING CAPACITY

The primary goal of the institution will be to make decisions quickly and effectively. To this end, decisions on investment strategies will be informed by flexible, proactive technical advisory boards, but will be taken by a small executive.

As discussed in the description of the model, speed is usually of the essence in tackling critical transitions in nature and society. Speed and accuracy can be at odds, however, and a safety feature is built in to the model in the form of a technical advisory board that will use big data, statistical records, artificial intelligence, and other strategies as necessary to monitor the effectiveness of solution strategies and to advise on the best ways to update and develop these over time. A further safety feature is provided by a futures group, which will maintain a watching brief over the activities of the institution to ensure that decisions are made in the speediest and most effective manner, and that blocks to information flow or decision-making are dealt with.

### 3. EFFECTIVENESS

The governance model is designed to:

- Identify present and upcoming risks
- Continuously generate information about new risks and about progress in dealing with present risks
- Respond quickly and effectively to unexpected events
- Provide financial resources to facilitate cooperation, with financial incentives and disincentives to ensure as best as possible that those resources are well used, and not misused
- Maintain a constant, two-way flow of information and expertise before and during the process of dealing with risk



#### **4. RESOURCES AND FINANCING**

Human and material resources will be provided by member countries on an equitable basis in the form of “premiums” for “insurance” to provide support as necessary for the generation and maintenance of cooperation in the face of problems that require a cooperative solution.

#### **5. TRUST AND INSIGHT**

The governance structure of the institution is designed to develop and reinforce trust by ensuring that all of the power structures, information collection, and decision-making processes are transparent. Trust between member countries is also important, especially when it comes to resolving the blocks to cooperation exposed by game theory (in particular, the Prisoner’s Dilemma and the related Tragedy of the Commons). The institution will act to promote and reinforce such trust through a system of rewards for the maintenance of trust (e.g. in the form of reduced premiums) and penalties for breaking it (e.g. in the form of higher premiums).

#### **6. FLEXIBILITY**

Flexibility of decision-making will be promoted by the small size of the decision-making body, and also by the use of big data, statistical records, artificial intelligence, and other approaches to monitor the effectiveness of solution strategies and to advise on the best ways to update and develop these over time.

Flexibility of the institution itself will be promoted by a futures group, which will maintain a watching brief over the activities of the institution to ensure that decisions are made in the speediest and most effective manner, and that blocks to information flow or decision-making are dealt with.

#### **7. PROTECTION AGAINST THE ABUSE OF POWER**

Protection against the abuse of power is probably the most difficult problem to deal with when it comes to international bodies such as the United Nations, the former League of Nations, the European Union, etc.

One level of protection for the proposed institution will be that, unlike the above bodies, the political representatives of member countries will not have a direct role in the decision-making process. A second is that the members of the decision-making executive shall be appointed for (renewable) fixed terms, and may be removed by (say) a 2/3 majority vote of the member countries.

#### **8. ACCOUNTABILITY**

“Protection against the abuse of power” and “accountability” go hand-in-hand. In addition to the measures listed under “protection against the abuse of power,” accountability will be further promoted by the transparent nature of the institution’s process.



## References

- Ericson, Richard V., Doyle, Aaron & Barry, Dean (2003) Insurance as Governance (Toronto: University of Toronto Press).
- Reinecke, Wolfgang H. & Deng, Francis (2000) Critical choices: the United Nations, networks, and the future of global governance (International Development Research Centre, Ottawa, Canada) 35, 75.
- Ord, Toby (2013) The Moral Imperative toward Cost-Effectiveness in Global Health. Center for Global Development Essay  
[https://www.cgdev.org/files/1427016\\_file\\_moral\\_imperative\\_cost\\_effectiveness.pdf](https://www.cgdev.org/files/1427016_file_moral_imperative_cost_effectiveness.pdf)
- Gigerenzer, Gerd & Gaissmaier, Wolfgang (2011) Heuristic Decision Making. Annual reviews of Psychology 62, 451-482.
- Sayama, H (2015) Introduction to the Modeling and Analysis of Complex Systems Open SUNY textbooks, Milne Library, State University of New York at Geneseo 485 pages, Print ISBN: 1942341083.
- Sayama, H. et al (2013) Modeling complex systems with adaptive networks. Computers and mathematics with Applications 65, 1645-1664.
- Scheffer, Marten (2009) Critical transitions in nature and society (Princeton: Princeton University Press).
- Stine, Andrew (2016) Civilizations are complex systems.  
<http://theatticlight.net/posts/Civilizations-are-complex-systems/>
- Parens, Raphael & Bar-Yam, Yaneer (2017) Six-year report on the Arab Spring, New England Complex Systems Institute Report  
<http://www.necsi.edu/research/social/arabspring.html>
- Haldane, Andrew G. & May, Robert M. (2011) Systemic risk in banking ecosystems. Nature 469, 351-355.
- Roughgarden, Jonathon & Smith, Fraser (1996) Why fisheries collapse and what to do about it. Proceedings of the National Academies of Science of the USA 93, 5078-5083.
- Lelieveld, J. et al (2016) Strongly increasing heat extremes in the Middle East and North Africa (MENA) in the 21st century. Climatic Change 137, 245-260. cf  
<https://www.mpg.de/10481936/climate-change-middle-east-north-africa>
- Sandberg, Anders, Beckstead, Nick & Armstrong, Stuart (2016) Defining systemic risk. In Systemic Risk of Modelling (FHI-Amlin Collaboration on Systemic Risk) 14-35.  
<http://aleph.se/papers/AMLIN%20-%20FHI%20Systemic%20Risk%20Brochure.pdf>
- International Risk Governance Council (2015) Slowly Developing Catastrophic Risks <https://www.irgc.org/risk-governance/preparing-for-future-catastrophes/>
- Scheffer, Marten et al (2009) Early-warning signs for critical transitions. Nature 461, 53-59.
- Sornette, D. (2005) Endogenous versus Exogenous Origins of Crises. In Extreme Events in Nature and Society (eds. S. Albeverio, V. Jentsch and H. Kantz) (Springer, Heidelberg)
- May, Robert M., Levin, Simon a. & Sugihara, George (2008) Ecology for bankers. Nature 451 (2008) 893 – 895.



- Folke, C. et al (2010) Resilience thinking: integrating resilience, adaptability and transformability. *Ecology and Society* 15(4): 20. [online] URL: <http://www.ecologyandsociety.org/vol15/iss4/art20/>
- Fisher, Len (2015) More than 70 ways to show resilience. *Nature* 518, 35.
- Hardin, G. (2009) The Tragedy of the Commons. *Science* 162, 1243-1248; (2009) *Journal of Natural Resources Policy* 1, 243-253.
- Ostrom, E. et al (2009) Revisiting the Commons: Local Lessons, Global Challenges. *Science* 284, 278 – 282.