



How much could refuges help us recover from a global catastrophe?



Nick Beckstead*

Oxford University, Future of Humanity Institute, United Kingdom

ARTICLE INFO

Article history:

Available online 18 November 2014

Keywords:

Global catastrophic risk
Existential risk
Refuges
Disaster shelters
Bunkers
Social collapse

ABSTRACT

Some global catastrophes (such as nuclear wars, pandemics, or an asteroid collision) might destroy civilization. Some propose building well-stocked shelters constantly staffed with people trained to rebuild civilization in such cases. These “refuges” would have an unimpressive expected cost per life saved, but could conceivably have an impressive expected cost per future generation allowed to exist. From some ethical perspectives that highly value future generations, building refuges may therefore seem like a promising idea. However, several factors significantly dilute the potential impact of refuges, even if the proposed catastrophes occur. Government/private disaster shelters, people working on submarines, and isolated peoples who prefer to be left alone serve these purposes to some extent already. Many proposed catastrophes do too much/too little damage for refuges to help, affect the environment in ways that make refuges largely irrelevant, or otherwise give relatively limited advantages to the people in refuges. In global food crises or social collapse scenarios, refuges would add little to aggregate stocks of population, resources, food, and relevant skills; but they may add something unique in terms of isolation and coordination. These potential benefits of refuges seem the most promising, and may be worthy of further analysis.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

As discussed elsewhere in this issue, a number of different global catastrophes could conceivably result in the collapse of civilization and/or the extinction of humanity in the coming century. Several authors (e.g. [Hanson, 2008](#); [Jebari, 2014](#); [Matheny, 2007](#)) have recommended investing in well-equipped bunkers, disaster shelters, or “refuges” specifically designed to withstand a would-be extinction event would increase the chances that humanity would recover from a global catastrophe. Refuge construction can be seen as an example of increasing civilization’s overall resilience to global catastrophes, as advocated by [Maher and Baum \(2013\)](#).

Even though projects of this kind would probably have a high cost per life saved, they may have an exceptionally low expected “cost per future generation allowed to exist.” From some philosophical perspectives that highly value future generations (such as [Beckstead, 2013](#); [Parfit, 1984](#); [Bostrom, 2003, 2013](#)), this makes the construction of such refuges a potentially promising idea.

Section 2 offers a brief review of three papers proposing to build/improve refuges in order to increase the probability of recovery from a catastrophe. Section 3 reviews existing networks of government/private disaster shelters, people working on

* Tel.: +44 7472951617.

E-mail address: nbeckstead@gmail.com

submarines, and isolated peoples who prefer to be left alone. These groups and infrastructure already serve the intended function of refuges to some extent. Section 4 reviews proposed global catastrophes, considering for which of them refuges could or could not be useful. Many proposed catastrophes do too much/too little damage for refuges to help, affect the environment in ways that make refuges largely irrelevant, or otherwise give relatively limited advantages to the people in refuges. In global food crises or social collapse scenarios, refuges would add little to aggregate stocks of population, resources, food, and relevant skills. However, they may add something unique in terms of isolation and coordination. These potential benefits of refuges seems the most likely, and may be worthy of further analysis.

2. Literature advocating for the creation of refuges

In “Catastrophe, Social Collapse, and Human Extinction,” Hanson (2008, p. 373) writes:

“...there may be types of disasters where variations in resistance abilities can be important. If so, there might be a substantial chance of finding a post-disaster population that is just above, or just below, a threshold for preserving humanity. In this case it is reasonable to wonder what we might do now to change the odds. The most obvious possibility would be to create refuges with sufficient resources to help preserve a small group of people through a very large disruption, the resulting social collapse, and a transition period to a post-disaster society.”

In “Reducing the Risk of Human Extinction,” Matheny (2007, p. 1337) writes:

“Perhaps more cost effective than building refuges in space would be building them on Earth. Elaborate bunkers exist for government leaders to occupy during a nuclear war (McCamley, 2007). And remote facilities are planned to protect crop seeds from “nuclear war, asteroid strikes, and climate change” (Hopkin, 2007). But I know of no self-sufficient, remote, permanently occupied refuge meant to protect humanity from a range of possible extinction events. Hanson (2007) argues that a refuge permanently housing as few as 100 people would significantly improve the chances of human survival during a range of global catastrophes. The Americas and Polynesia were originally populated by fewer than 100 founders (Hey, 2005; Murray-McIntosh et al., 1998). Although it would take thousands of years for 100 people to repopulate Earth, this would be a small setback compared to extinction.”

And in “Existential Risks: Exploring a Robust Risk Reduction Strategy,” Jebari (2014, p. 12) writes:

“In engineering safety, a number of heuristics and strategies are device[s] to prevent a catastrophic failure in a large number of possible scenarios. These strategies could be employed in thinking about how to reduce the risk of a black swan extinction event. Safety barriers are an instance of such a strategy. These could be actual physical barriers in some systems, or subsystems that prevent catastrophic failure by compartmentalization and physical separation. This article has discussed an example implementation of this strategy: isolated, continuously manned and self-sufficient underground refuges that could protect a large enough number of people to ensure the continued existence of mankind.”

We will use these three papers as representative of the sort of proposal discussed in this paper.

3. Where would people be especially likely to survive a global catastrophe?

Government bunkers for private citizens, government bunkers for continuity of government, shelters purchased by private citizens, people working on submarines, and people living in remote locations would be especially likely to survive a global catastrophe. Examining these unintentional refuges will help us assess to what extent creating refuges of the type proposed above—or other types of refuges—would increase the chances of recovery from a global catastrophe.

A brief note on terminology: “Bunker” and “shelter” seem to be used largely interchangeably, but “bunker” is more often used to describe large shelters built by the government. Government buildings, including bunkers, designed to withstand severe stress are sometimes called “hardened facilities.” Private shelter providers tend to use “shelter” to describe their products, and this document follows that usage when describing their products. In this paper, “refuge” is used roughly to mean “place specifically designed to be especially likely to survive a global catastrophe and aid in the subsequent recovery.”

3.1. Government bunkers for private citizens

As of 1986, the reference Nuclear War Survival Skills (Kearny, 1986) judged that, “Switzerland has the best civil defense system, one that already includes blast shelters for over 85 percent of all its citizens.” They have 300,000 communal bunkers, which another source claims is enough for the entire Swiss population of 7.6 million, with a million spaces to spare. These bunkers are stocked with 4.5 months of food and basic fuel. In addition, a 1978 law requires all residential buildings to have a fallout shelter capable of withstanding a 12-megaton explosion at a distance of 700 m or pay a fee. However, people building single-family homes typically pay the fee instead of building the shelters (Ball, 2011).

3.2. Continuity of government bunkers

“Continuity of government” bunkers exist in at least Canada, Denmark, France, Germany, Norway, Russia, Sweden, the United Kingdom, the United States. This section will briefly discuss what kind of bunkers exist in the United States.

Download English Version:

<https://daneshyari.com/en/article/1015446>

Download Persian Version:

<https://daneshyari.com/article/1015446>

[Daneshyari.com](https://daneshyari.com)