

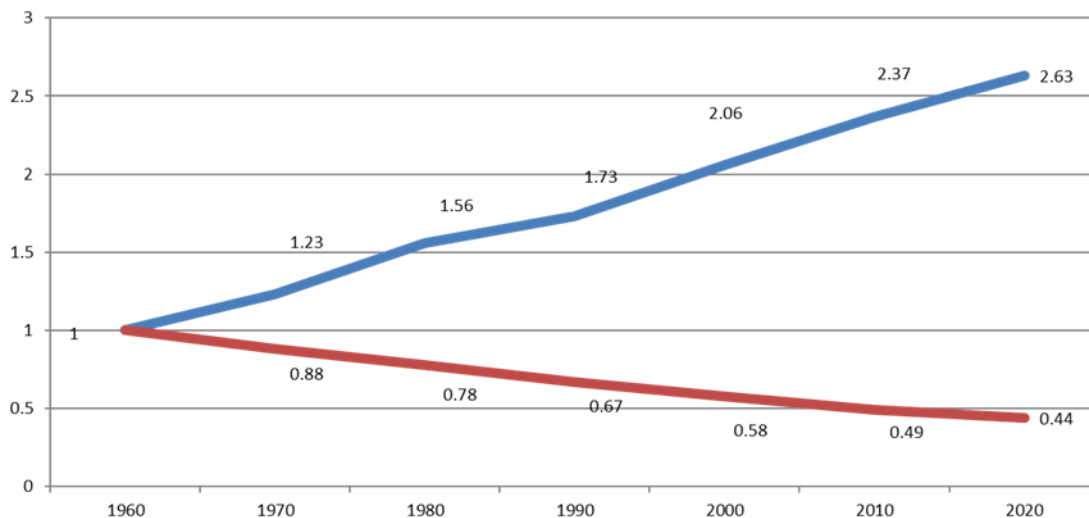
# Frequently Asked Questions

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## World Food Security

**Q.** Why does the world need more arable land?

**A.** World arable land in 2020 is down to 44% of world arable land in 1960 due to desertification, soil contamination and erosion. During this time, the world's population has increased by a factor of 2.63. In addition, the middle class in developing countries is expanding: people want more protein in their diet. Producing 1 kg of beef steak takes 10-20 kg of animal feed. Cultivation for this feed will require a tremendous expansion of arable land.



World population and arable land, 1960-2020. World population has increased by a factor of 2.63 while arable land has reduced to 44% of the arable land available in 1960. This means that now each unit of arable land must feed on average  $2.63/0.44 = 5.9$  times more than a unit arable land did in 1969.

Source: FAO

## Proof of Concept

**Q.** Is there any proof for the efficacy of the north-south slopes to provide more arable land?

**A.** The north-south slopes concept imitates vegetation patterns on natural hills in semiarid regions, where the land is dry due to an intense solar radiation.

When you travel in the U.S. Southwest, Southern Europe, North Africa or the Middle East, you see different patterns of vegetation on a hill with a slope to the north and a slope to the south. The northern slope is usually green and lush since it is partially shaded and therefore evaporation from the soil and transpiration from plants (the combined term is “evapotranspiration”) are reduced. Thus, rainfall is retained, allowing the growth of vegetation.

A telling example is the following: the annual precipitation in London is 24 inches, while the annual precipitation in Dallas is 35 inches. Yet London (51 deg. latitude) is green and lush while Dallas, at latitude 31.5 deg., is semiarid. A small difference in latitude and solar irradiation flux can cause a dramatic difference in vegetation and biomass productivity.

→ North



Typical natural north-south slopes in semiarid areas. The northern slope is lush, moist and green; the southern slope is dry and unusable. Only the northern slope is potentially cultivable.

ReSlope Global's agenda is to change the terrain of semiarid unutilized dryland areas by earthmoving. Creating north-south slopes will enable cultivation on the northern slope, imitating vegetation patterns on natural hills.

Q. Has anyone ever attempted to create man-made terrain in such a manner?

A. The concept was invented in The Volcani Agricultural Center in Israel, where a small pilot for north-south slopes was developed and tested in 1997, showing

North →



A trench dug in San Angelo, Texas. Only 2 weeks after digging, grass appeared spontaneously on the

promising results. Evapotranspiration, however, was neither calculated nor designed. The Israeli pilot was abandoned in 1998 since its project manager had retired.

Reslope Global introduces further modifications to the original concept and intends to apply it for extensive agriculture to produce commodities such as

grains (barely, wheat, sorghum, etc.). Most of the world's food for humans and feed for animals is produced by extensive agriculture.

## **Economics**

**Q.** Would farmers agree to sacrifice a portion of their land for an uncultivated southern slope?

**A.** Farmers in semiarid regions such as in the U.S. Southwest have access to surface water from rainfall and snowmelt from the Rocky and Sierra Mountains. Such farmers do not need to use north-south slopes for rainfall retention.

However, many semiarid regions around the world have soil and climate conditions comparable to those of Arizona and California but lack available surface and underground water. These regions are not cultivated at all, and the land is practically useless. On such land, the north-south slopes are effective to provide retention of rainfall and arable land formation.

So, since farming is not done there now, farmers have nothing to lose. Common sense dictates that forfeiting a portion of land for the southern slopes is better than doing nothing.

**Q.** Who will finance the projects?

**A.** There are two layers of funding. The first is for research and development (R&D) and engineering. This crowdfunding campaign is geared to provide seed funding for our international collaborators to start R&D. Once a successful pilot is demonstrated, project finance will be required for large-scale construction and implementation. These projects are expected to be funded by organizations such

as the United Nations, U.S. Agency for International Development, World Bank, etc.

**Q.** What might the construction cost?

**A.** Construction and maintenance of 100 km<sup>2</sup> for 20 years of slopes are estimated to cost \$3.0 million. Since 1/3 of the area on the southern slopes is unutilized, such a project will provide 66 km<sup>2</sup> of arable land at a cost of \$193 per acre, or \$476 per hectare.

### **Environmental and ecological impacts**

**Q.** What are the environmental and ecological challenges?

**A.** All agricultural activities cause environmental disruption; altering the terrain for the north-south slopes is no different. Environmental and carbon footprint assessments will be performed. As an example, cultivation of 1 ton of wheat on new semiarid arable land created by the concept in Morocco will create a carbon footprint but substitute for 1 ton of wheat cultivated and imported from Nebraska. In other words, the carbon footprint in the new arable land will substitute for a carbon footprint somewhere else.

Danger to wildlife will be assessed, and crossings for desert animals will be created every few slopes to allow easy passage. Agronomists and soil scientists in our program will also assess the impacts on biotics.

**Q.** What are public perceptions and economic impacts?

**A.** Western environmental groups may object to implementation of the north-south slopes and produce negative publicity. However, environmental policy

decisions should be left for policy makers in the specific countries where implementation will take place.

The north-south slopes have the potential to produce jobs, to promote economic development and to provide food security for developing countries. In some cases, agribusiness corporations are likely to invest, buy land, upgrade and cultivate for export.

Although the RSG concept addresses land that is not cultivated now, it does not mean that these areas are unpopulated. In such areas, Indigenous people live a subsistence life by herding and grazing. We will ask those who provide large-scale funding for implementation to ensure that the local population will not be displaced by the north-south slope and will benefit by receiving new land for cultivation, new jobs and economic development.

### **International Collaboration**

**Q.** Who is participating in the international collaboration?

**A.** See the international collaborators who are also on the advisory board ([link](#)).

**Q.** How will the international collaboration work?

**A.** The crowdfunding proceeds will be provided as seed funding for the international collaborators, some of whom have already started research. Once initial funding is committed, it is expected that the governments interested in implementation will follow up with matching funding.

The program will develop a division of labor to avoid duplication of efforts. Workshops will be conducted regularly and information will flow freely in an open-source mode.

**Q.** Are there any patents?

**A.** The basic concept is not patentable, but we expect to develop IPs for a variety of related technologies.

**Q.** Are you concerned that other parties and companies will adopt the concept without your participation?

**A.** The goal of this program is to foster such development with or without ReSlope Global. Anybody anywhere is welcome to develop and implement this concept. ReSlope Global will provide assistance, management and coordination for development by any party.