

*Environmental Change and Security Program*

e c s p





Well, I'm going to go through some of the ecosystems that relate to food security, certainly one is fisheries. And currently about 75 percent of gullible fisheries are either at their biologically sustainable limit or overfished, and some have totally collapsed. Wild fish are certainly -- access to wild fish is certainly on the decline, but fish farming has replaced a lot of fish production.

Croplands are shrinking due to soil erosion and desertification, and its estimated that 10 percent of the earth's surface has already been changed from forest or rangeland into desert. I recall once on a trip to Indo-Tunisia, I went out to the desert and saw a wonderful Roman stadium and thought, why did they build this here in the desert? And only later did it dawn on me this was Rome's greenery, but it is now a desert.

It's estimated that productive capacity of 25 percent of agricultural lands, and that is an area equal in size to India and China combined, has been degraded. And, of course, our use of products from croplands such as converting corn to Ethanol drives up the price of grain, limits amounts available for export and the amounts for human consumption, worsening food security.

Water shortage is a growing problem, and there are various ways to measure water shortages, but it's estimated that by 2025, three quarters of people will face some degree of water scarcity. One of the most serious issues is the depletion of aquifers and some 300 million people -- million people living in India and China are threatened by loss of water from aquifers. Melting glaciers in places like India, China, and South Africa threaten irrigation during growing seasons, as is the snow melt in various countries: Iran, Afghanistan, Central Asia, and western United States.

One estimate is that in my home state, California, that we're going to lose 90 percent of the snow pack in another hundred years. This is a very significant issue because half of the fruit, grain, I'm sorry -- about half of the nuts and fresh vegetables come out of California, and if there's snow run off in the summertime, the irrigation will collapse in that state. By the way, California is the top agricultural state, with about twice the agricultural productivity of number two Texas or number three Iowa. So this is very important.

Another threat to food security is climate change, and it's suggested that past record temperatures might become the norm by 2100. I've listed some changes that every degree increase in norm due to crop yield, we had a precedent of this in the 2003 heat wave that hit

e c s p







Anyway, here's some population growth figures for various regions. I think the most amazing one on here is Africa growing by 100 percent, adding a billion people, and I question whether really that's going to happen. In fact, let me just grab this one number that I wrote down for Nigeria. Okay, Nigeria is currently at 148 million people. The projection is that Nigeria would be 282 million people in 2050. So Nigeria is a country about the size of Texas. Somehow I can't imagine all 300 million Americans living in Texas, for various reasons.

But I just don't think that's going to happen. And if it does, I think the human condition is not going to be in great shape. I put the U.S. on this table because it shows that the U.S. is actually growing pretty rapidly, just about as fast as the rest of the world, now of course, once again, that isn't because of our birthrate.

Now here's another aspect of growth that I'm sure doesn't get much attention, but in Africa there has been a livestock explosion along with the population explosion of people. And we've already noted that livestock are a huge contributor to greenhouse gases, but also are not friendly to the environment in terms of other ways, especially in the Sahel.

Here's another slide that relates to food security. Certainly the area of cropland has dropped very dramatically over time. And even if we reach that U.N. median projection there will be even less crop land. Of course this varies dramatically between countries, some countries are well off, others are not.

Now I would like to turn to family planning and as Steve mentioned, certainly one place we can all agree on is working to reduce unintended

Now I would like to turn to family planning and as Steve mentioned, certainly one place we can all agree on is working to reduce unintended

e c s p



