

## SEA LEVEL RISE AND THE FUTURE OF THE PACIFIC ISLANDS

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Humans have successfully survived, subdued, conquered, and flourished for thousands of years without worrying much about the future. When once the world was vast and humans few, and when once nature was mighty and humans puny, there was not much need (much less possibility) to worry about the future. Whatever was to come had already happened-- "As it was in the beginning is now and ever more shall be, world without change, ah me."

Muddling through, being willing and able to adapt quickly to changing conditions, was more than enough to guarantee survival. Worrying too much about the future was probably more harmful than helpful. Knowing what had happened before--learning how we had responded to past challenges and responding the same way when these challenges happened again--was almost certainly the best policy.

Of course, that sometimes did not work. Entire civilizations were wiped out when new challenges overwhelmed them. The cultures of the ancestors of almost every person in this room (certainly including my own) were destroyed by unanticipated circumstances which they could neither prevent nor to which they could adapt.

But over the past several hundred years, the balance between humans and nature has been reversed in many ways. While nature is still mighty--as typhoons, tsunami, volcanic explosions and earthquakes constantly demonstrate with a vengeance--more and more of the challenges to humans are the unintended consequences of human actions themselves.

And the consequences of these actions are, for the most part, unprecedented. We have never experienced them before. History provides little or no direct guide to us.

Thus, for the first time in human experience, we must begin paying more attention to the future than to the past in order to understand what lies

ahead. We must become proactive, and more responsible to the ways of our descendants than to the ways of our ancestors: for the first time, being concerned about the lives our grandchildren has become more important than being true to the lives of our grandparents.

Having spent 20 years in futures studies, working with groups such as you in this room, I am not convinced that humans are able to reverse their responsibilities from the past to the future. Most of us are so wrapped up in fighting old battles and acquiring new possessions that we have little or no time, much less energy and will, to face the future honestly.

So it may be all over for human beings. Like many other civilizations before us, and like many other species that once walked this earth so confidently, it may be about time for humans to be wiped out.

Our task today is to help see that this is NOT the case. We want to discuss with you a future challenge which we believe needs your attention NOW. But it is NOT a present problem. And because it is not, your, shall I say, "natural" tendency is therefore to want to dismiss it; to say, "I have so many present problems, why should I worry about something that might happen in the future?"

I hope, by the end of today's session, you will see that if you wait until it is a "present problem" that you will have waited far, far too long; that, for many of you, if you do not act soon, you literally will not have any place to stand upon which to live your future lives; and that, moreover, if you act soon enough you might turn what would otherwise be a future catastrophe into a present economic opportunity. Yes, there will be good money to be made, and honors to be gained, by those who first turn this future event into new business ventures and public policies. Why shouldn't that person be you?

The future event I am referring to is, of course, substantial rise in the level of the ocean. Chris Jones will tell you more about why that might happen shortly, but substantial and essentially permanent sea level rise is one of the so-called "Greenhouse Effects." And the Greenhouse Effects are themselves consequences of the buildup in the atmosphere of various gasses which have been released through industrial processes over the past 100 years or so. This buildup is turning the earth into a giant greenhouse, which is causing the average temperature of the atmosphere to rise. This temperature rise will, among other things, melt the polar ice caps which in turn will increase the amount of water in the oceans and cause the average level of the oceans to begin to rise.

And what might the social and economic consequences of this sea level rise be for Hawaii and other Pacific islands? Of course, it depends on if, when, how fast, and how far the sea level rises, and Chris Jones will discuss that in a moment. It also depends on if, when, how fast, and how appropriately we respond to the sea level rise, and Wendy Schultz will discuss that later.

But if we do nothing, or wait too long, then our future is clear:

--It is certainly a good thing that this Federal Building is several stories high, and that this room is on what is now the Fifth Floor, because the surf may soon be breaking where the guards now sit in the lobby entrances.

--And since most of that Playground of the Pacific, that heart of Hawaii's Industrial District, Waikiki, was once an uninhabitable swamp, it is highly likely that Waikiki will yearn to return to its swamp-like nature, if not actually sink comfortably into the bosom of the ocean's floor, and that the first floors of all of the hotels in Waikiki will be underwater. But so will the hotels in Tumon Bay, Guam (so don't expect the water and sewer capacity enhancement projects there to be functional over their expected lifespan); or the hotels in Saipan; or in all of the other presently-sea front areas of the Pacific. But the hotels now high on the bluffs of American Samoa and Pohnpei might find themselves unexpectedly situated instead on prime beach property. Say goodbye forever to Nan Mandol which seems to have been just slightly ahead of its time!

--Much of the reef runway, and all of the new International Arrivals Area currently being built at the Honolulu International Airport will be under water. So will the runways and arrival areas recently funded in Kosrae, Palau, Pohnpei, Truk, and Yap.

--The gem in Hawaii Gov. Waihee's construction crown, Honolulu Harborfront Development, will be submerged. Charlie Dock in Saipan will be useless.

--Current sources of most or all fresh water on all Pacific islands will be damaged by salt water intrusion.

--Weather patterns will be altered so that, for example, it may be extremely hot and muggy on Oahu and dry and arid on the Big Island.

--Changing weather patterns also will disrupt tuna fishing in the FSM

and the Marshalls, and increase the frequency and intensity of typhoons.

--The Bikini Relocation project will take on an entirely different meaning. Indeed, the Marshalls Islands themselves will vanish forever under the waves. The entire nation gone. And the Marshallese? Where will you go? And when?

Mikhail Gorbachev, who has been in the headlines constantly for proposing all sorts of interesting new directions, while American national leaders unfortunately seem content, not to lead, but instead to react, defend, wait, and hope recently proposed that the United Nations be reorganized to help meet the unprecedented planetary environmental challenges, including sea level rise, which are presently unfolding.

As probably most of you know, one of his suggestions should be of considerable interest to this group. The UN Trusteeship Council has outlived its usefulness, he said. We do not need a Council to oversee the transfer of former colonies to independence any longer. What we urgently need now is a way to assume responsibility for trusteeship over our fragile, and badly damaged Mother, Earth. We need a global vehicle by which we can assume our responsibility for putting our planet in Trust, and for inventing and implementing methods which will guarantee equitable, sustainable development. In short, we need a Global Trusteeship Council that will enable us to hand over to our children and grandchildren a world fit enough for them to live free.

You were--I suppose technically you still are--subjects of the old Trusteeship Council. I challenge you now to become leaders and pioneers in creating a Trusteeship Council for the Planet's Future.

Seize the moment before the future seizes you.

But now let me turn the floor over to Chris Jones who will give you more of the details--including the many uncertainties--about the Greenhouse Effect.

This is very busy day for Chris. The Argonne National Laboratory of the US Department of Energy, and the Environmental Policy Institute of the East-West Center, yesterday opened an international conference on "Responding to the Threat of Global Warming: Options for the Pacific and Asia." Participants are there from twenty nations, many of them experts in the various technical as well as policy aspects of the threat of global warming.

One of those internationally-recognized experts is Chris Jones, who this morning gave the keynote address on sea-level rise to that distinguished audience. We are pleased indeed that he can be here to tell the scientific story to us this afternoon. Chris: