Why Societies Collapse: Jared Diamond at Princeton University

Sunday 12 January 2003

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Program Transcript

This program was originally broadcast on 27 October 2002

Kirsten Garrett: Throughout human history, societies, civilisations have prospered and collapsed over time. The reasons, obviously, have lessons for the whole of our intricately interlinked planet today.

At Princeton University in America, earlier this month, eminent professor Jared Diamond gave a speech about the collapse of ancient societies. And today, Background Briefing will broadcast that talk, edited and including some questions and answers at the end.

Hallo, I'm Kirsten Garrett.

Introducing Jared Diamond was Michael Cook. He's Professor of Islamic Studies at Princeton.

Michael Cook: There's something that you need to remember about biologists. In one respect they're rather like the germs that they study, that's to say they can jump species. And more than that, they can jump whole orders. And that's exactly what Professor Diamond has done. From birds, he went on to develop a lively interest in primates, including the primate species which is so abundantly present in this room tonight. In this field too, he's published a couple of books, but this time they're books that you and I will find fully accessible. The first one which he published back in 1992 is called, it has a rather teasing title, 'The Third Chimpanzee', and what he's telling us is that we humans could perfectly well be classified as just another species of chimp. The second book has an even more inflammatory title. It's called 'Why is Sex Fun?' and it's such a hot item that if you go to the library they won't let you have it for more than three hours at a stretch.

But it is nevertheless, like everything else that Professor Diamond writes, it's a serious answer to a serious question.

Kirsten Garrett: In his introduction, Professor Michael Cook went on to talk about the book 'Guns, Germs and Steel' for which Jared Diamond won the Pulitzer Prize.

Michael Cook: At the heart of 'Guns, Germs and Steel', is the most illuminating account that I've ever read of the single most important event that ever took

place in the history or pre-history of the Near East, namely the emergence, the earliest emergence of farming on this planet some 10,000 years ago. But having said that, having made the connection, I suppose that I really do have to admit that the book isn't just a contribution to Near Eastern studies. It also deals with the emergence of farming elsewhere on the planet, and it analyses the long-term consequences of that momentous development. In other words, you could pretty much say that the book poses and answers the question, How did we get to where we are now?

Kirsten Garrett: And so to Professor Jared Diamond himself.

Applause

Kirsten Garrett: He's a tall, slender man with a small beard, and as he speaks Jared Diamond strides up and down the stage, almost chatting to the large audience. He spoke of once-vibrant societies such as the one that built Angkor Wat, the Mayan civilisation, the Easter Islands, Greater Zimbabwe, and the Indus Valley.

Jared Diamond: Why did these ancient civilisations abandon their cities after building them with such great effort? Why these ancient collapses? This question isn't just a romantic mystery. It's also a challenging intellectual problem. Why is it that some societies collapsed while others did not collapse?

But even more, this question is relevant to the environmental problems that we face today; problems such as deforestation, the impending end of the tropical rainforests, over-fishing, soil erosion, soil salinisation, global climate change, full utilisation of the world's fresh water supplies, bumping up against the photosynthetic ceiling, exhaustion of energy reserves, accumulation of toxics in water, food and soil, increase of the world's population, and increase of our per capita input. The main problems that threaten our existence over the coming decades. What if anything, can the past teach us about why some societies are more unstable than others, and about how some societies have managed to overcome their environmental problems. Can we extract from the past any useful guidance that will help us in the coming
decades?

There's overwhelming recent evidence from archaeology and other disciplines that some of these romantic mystery collapses have been self-inflicted ecological suicides, resulting from inadvertent human impacts on the environment, impacts similar to the impacts causing the

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problems that we face today. Even though these past societies like the Easter Islanders and Anasazi had far fewer people, and were packing far less potent destructive practices than we do today.

It turns out that these ancient collapses pose a very complicated problem. It's not just that all these societies collapsed, but one can also think of places in the world where societies have gone on for thousands of years without any signs of collapse, such as Japan, Java, Tonga and Tikopea. What is it then that made some societies weaken and other societies robust? It's also a complicated problem because the collapses usually prove to be multi-factorial. This is not an area where we can expect simple answers.

What I'm talking about is the collapses of societies and their applications to the risks we face today. This may sound initially depressing, but you'll see that my main conclusions are going to be upbeat.

Kirsten Garrett: You're listening to an edited version of a talk given by Jared Diamond who's Professor of Physiology at UCLA, but who gave this talk at Princeton University a few weeks ago.

The first example he gave to illustrate the sorts of problems communities accumulate was the American State of Montana. Not many years ago, it was one of the wealthiest in America, wealth based on copper mining, forestry and agriculture. Now it's very poor. Mining has gone, leaving terrible environmental damage, 70% of the children in Montana are on Food Aid, logging and farming are in decline. What happened was that the mining, forestry and agriculture which earned so much wealth, became destructive. Montana now has terrible forest fires, salinisation, erosion, weeds and animal diseases, and population decline. Professor Jared Diamond.

Jared Diamond: If Montana were an isolated country, Montana would be in a state of collapse. Montana is not going to collapse, because it's supported by the rest of the United States, and yet other societies have collapsed in the past, and are collapsing now or will collapse in the future, from problems similar to those facing Montana. The same problems that we've seen throughout human history, problems of water, forests, topsoil, irrigation, salinisation, climate change, erosion, introduced pests and disease and population; problems similar to those faced by Montanans today are the ones posing problems in Afghanistan, Pakistan, China, Australia, Nepal, Ethiopia and so on. But those countries, Afghanistan, Pakistan etcetera have the misfortune not to be embedded within a rich country that supports them, like the United States.

Visiting Montana again just brought home to me that these problems of ancient civilisations are not remote problems of romantic mysterious people, they're problems of the modern world including of the United States. I mentioned then that there's a long list of past societies that did collapse, but there were also past

societies that did not collapse. What is it then that makes some societies more vulnerable than others? Environmental factors clearly play a role, archaeological evidence accumulated over the last several decades has revealed environmental factors behind many of these ancient collapses. Again, to appreciate the modern relevance of all this, if one asked an academic ecologist to name the countries in the modern world that suffer from most severe problems of environmental damage and of over-population, and if this ecologist never read the newspapers and didn't know anything about modern political problems, the ecologist would say "Well that's a no-brainer, the countries today that have ecological and populations, there are Haiti, Somalia, Rwanda, Burundi, Iraq, Afghanistan, Pakistan, Nepal, the Philippines, Indonesia, Solomon Islands." Then you ask a politician who doesn't know, or a strategic planner who knows or cares nothing about ecological problems, what you see is the political tinderboxes of the modern world, the danger spots, and the politician or strategic planner would say "It's a no-brainer; Haiti, Somalia, Rwanda, Burundi, Iraq, Afghanistan, Pakistan, Nepal, the Philippines, Indonesia, Solomon Islands", the same list. And that simply makes the point that countries that get into environmental trouble are likely to get into political trouble both for themselves and to cause political troubles around the world.

In trying to understand the collapses of ancient societies, I quickly realised that it's not enough to look at the inadvertent impact of humans on their environment. It's usually more complicated. Instead I've arrived at a checklist of five things that I look at to understand the collapses of societies, and in some cases all five of these things are operating. Usually several of them are.

The first of these factors is environmental damage, inadvertent damage to the environment through means such as deforestation, soil erosion, salinisation, over-hunting etc.

The second item on the checklist is climate change, such as cooling or increased aridity. People can hammer away at their environment and get away with it as long as the climate is benign, warm, wet, and the people are likely to get in trouble when the climate turns against them, getting colder or drier. So climate change and human environmental impact interact, not surprisingly.

Still a third consideration is that one has to look at a society's relations with hostile neighbours. Most societies have chronic hostile relations with some of their neighbours and societies may succeed in fending off those hostile neighbours for a long time. They're most likely to fail to hold off the hostile neighbours when the society itself gets weakened for environmental or any other reasons, and that's given rise for example, to the long-standing debate about the fall of the Western Roman Empire. Was the conquest by Barbarians really a fundamental cause, or was it just that Barbarians were at the frontiers of the Roman Empire for many centuries? Rome succeeded in holding them off as long as Rome was strong, and then when Rome got weakened by other things, Rome

failed, and fell to the Barbarians. And similarly, we know that there were military factors in the fall of Angkor Wat in Cambodia. So relations with hostiles interacts with environmental damage and climate change.

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Similarly, relations with friendlies interacts. Almost all societies depend in part upon trade with neighbouring friendly societies, and if one of those friendly societies itself runs into environmental problems and collapses for environmental reasons, that collapse may then drag down their trade partners. It's something that interests us today, given that we are dependent for oil upon imports from countries that have some political stability in a fragile environment.

And finally in addition to those four factors on the checklist, one always has to ask about people's cultural response. Why is it that people failed to perceive the problems developing around them, or if they perceived them, why did they fail to solve the problems that would eventually do them in? Why did some peoples perceive and recognise their problems and others not?

I'll give you four examples of these past societies that collapsed. One is Easter Island, I'll discuss it first because Easter is the simplest case we've got, the closest approximation to a collapse resulting purely from human environmental damage.

The second case are the collapses of Henderson and Pitcairn Island in the Pacific, which were due to the combination of self-inflicted environmental damage, plus the loss of external trade due to the collapse of a friendly trade partner.

Third I'll discuss, closer to home the Anasazi in the US south-west whose collapse was a combination of environmental damage and climate change.

And then finally I'll mention the Greenland Norse who ended up all dead because of a combination of all five of these factors.

So let's take then the first of these examples, the collapse of Easter Island society. Any of you here in this room, have any of you had the good fortune to have visited Easter Island? Good for you, you lucky person, I'm going there next month, I've wanted for decades to go there. And Easter is the most remote habitable scrap of land in the world; it's an island in the Pacific, 2,000 miles west of the coast of Chile, and something 1300 miles from the nearest Polynesian island. It was settled by other Polynesians coming from the west, sometime around AD800 and it was so remote that after Polynesians arrived at Easter

Island, nobody else arrived there. Nobody left Easter as far as we know, and so the Easter story is uncomplicated by relations with external hostiles or friendlies. There weren't any. Easter Islanders rose and fell by themselves.

Easter is a relatively fragile environment, dry with 40 inches of rain per year. It's most famous because of the giant stone statutes - those big statues weighing up to 80 tons - stone statues that were carved in a volcanic quarry and then dragged up over the lift of the quarry and then 13 miles down to the coast and then raised up vertically onto platforms, all this accomplished by people without any draught animals, without pulleys, without machines. These 80 ton statues were dragged and erected under human muscle power alone. And yet when Europeans arrived at Easter in 1722, the statues that the islanders themselves had erected at such great personal effort, the islanders were in the process of throwing down their own statues, Easter Island society was in a state of collapse. How, why and who erected the statues, and why were they thrown down?

Well the how, why and who has been settled in the last several decades by archaeological discoveries. Easter Islanders were typical Polynesians, and the cause of the collapse became clear from archaeological work in the last 15 years, particularly from paeleo-botannical work and identification of animal bones in archaeological sites. Today Easter Island is barren. It's a grassland, there are no native trees whatsoever on Easter Island, not a likely setting for the development of a great civilisation, and yet these paeleo-botannical studies, identifying pollen grains and lake cores show that when the Polynesians arrived at Easter Island, it was covered by a tropical forest that included the world's largest palm tree and dandelions of tree height. And there were land birds, at least six species of land birds, 37 species of breeding sea-birds - the largest collection of breeding sea-birds anywhere in the Pacific.

Polynesians settled Easter, they began to clear the forest for their gardens, for firewood, for using as rollers and levers to raise the giant statues, and then to build canoes with which to go out into the ocean and catch porpoises and tuna. In the oldest archaeological one sees the bones of porpoises and tuna that the people were eating. They ate the land birds, they ate the sea-birds, they ate the fruits of the palm trees. The population of Easter grew to an estimated about 10,000 people, until by the year 1600 all of the trees and all of the land birds and all but one of the sea-birds on Easter Island itself were extinct. Some of the sea-birds were confined to breeding on offshore stacks.

The deforestation and the elimination of the birds had consequences for people. First without trees, they could no longer transport and erect the statues, so they stopped carving statues. Secondly, without trees they had no firewood except of their own agricultural wastes. Thirdly, without trees to cover the ground,

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they suffered from soil erosion and hence agricultural yields decreased, and then without trees they couldn't build canoes, so they couldn't go out to the ocean to catch porpoises, there were only a few sea-birds left because they didn't have pigs the largest animal left to eat with the disappearance of porpoises and tuna were humans. And Polynesian society then collapsed in an epidemic of cannibalism. The spear points from that final phase still litter the ground of Easter Island today. The population crashed from about 10,000 to an estimated 2,000 with no possibility of rebuilding the original society because the trees, most of the birds and some of the soil were gone.

I think one of the reasons that the collapse of Easter Island so grabs people is that it looks like a metaphor for us today. Easter Island, isolated in the middle of the Pacific Island, nobody to turn to to get help, nowhere to flee once Easter Island itself collapsed. In the same way today, one can look at Planet Earth in the middle of the galaxy and if we too get into trouble, there's no way that we can flee, and no people to whom we can turn for help out there in the galaxy.

I can't help wondering what the Islander who chopped down the last palm tree said as he or she did it. Was he saying, 'What about our jobs? Do we care more for trees than for our jobs, of us loggers?' Or maybe he was saying, 'What about my private property rights? Get the big government of the chiefs off my back.' Or maybe he was saying, 'You're predicting environmental disaster, but your environmental models are untested, we need more research before we can take action.' Or perhaps he was saying, 'Don't worry, technology will solve all our problems.'

Laughter

Kirsten Garrett: After speaking about several other Pacific Island nations and what happened to them, Professor Jared Diamond went on to talk of the Anasazi, an Indian nation later called the Pueblo, in what is now the United States.

Jared Diamond: My next example involves the Anasazi in our south west, in the four corners area of Arizona, New Mexico, Colorado, Utah. How many of you here have been to either Mesa Verde or Chaco Canyon? OK, looks like nearly half of you. It's very striking to visit say Chaco Canyon where there are still the ruins of the biggest skyscrapers erected in the United States until the Chicago skyscrapers erected in Chicago's loop in the 1870s and 1880s. But the skyscrapers of Chaco Canyon were erected by native Americans, the Anasazi. Up to 6-storey buildings, with up to 600 rooms. The Anasazi build-up began around AD600 with the arrival of the Mexican crops of corn, squash and beans, and in that relatively dry area. Again it's very striking today to drive through an area where today either nobody is living at all, or nobody's living by agriculture. At Chaco Canyon itself there are a couple of houses of National Park Rangers importing their food, and then nobody else living within 20 or 30 miles. And yet to

realise, and to see the remains on the ground, this used to be a densely populated agricultural environment.

The Anasazi were ingenious at managing to survive in that environment, with low fluctuating, unpredictable rainfall, and with nutrient-poor soils. The population built up. They fed themselves with agriculture, in some cases irrigation agriculture, channelled very carefully to flood out over the fields. They cut down trees for construction and firewood. In each area they would develop environmental problems by cutting down trees and exhausting soil nutrients, but they dealt with those problems by abandoning their sites after a few decades and moving on to a new site. It's possible to reconstruct Anasazi history in great detail for two reasons: tree rings, because this is a dry climate, the south-west. From tree-rings you can identify from the rings on the roof beams, what year - 1116, not 1115 AD - what year the tree in that roof was cut down, and also those cute little rodents in the south-west, pack rats, that run around gathering bits of vegetation in their nests and then abandoning their nests after 50 years, a pack rat midden is basically a time capsule of the vegetation growing within 50 yards of a pack rat midden over a period of 50 years. And my friend Julio Betancourt who was near an Anasazi ruin and happened to see a pack rat midden whose dating he knew nothing about. He was astonished to see in what's now a treeless environment, in this pack rat midden were the needles of pinion pine and juniper. So Julio wondered whether that was an old midden. He took it back, radio carbon-dated it, and lo and behold it was something like AD 800. So the pack-rat middens are time capsules of local vegetation allowing us to reconstruct what happened.

What happened is that the Anasazi deforested the area around their settlements until they were having to go further and further away for their fuel and their construction timber. At the end they were getting their logs, neatly cut logs, uniform weighing on the average 600 pounds, 16 feet logs, were cut at the end on tops of mountains up to 75 miles away and about 4,000 feet above the Anasazi settlements, and then dragged back by people with no transport or pack animals, to the Anasazi settlements themselves. So deforestation spread. That was the one environmental problem.

The other environmental problem was the cutting of arroyos. In the south-west when water flow gets channelled for example in irrigation ditches, then vast water flow is run off in desert rains. It digs a trench in the channel, and digs a trench deeper and deeper so those of you who've been to Chaco Canyon will have seen those arroyos up to 30 feet deep. And today, if the water level drops down in the arroyos, that's not a problem for farmers, because we've got pumps, but the Anasazi did not have pumps, and so when the irrigation ditches became incised by arroyo cutting and when the water level in the ditches dropped down below the field levels, they could no longer do irrigation agriculture. For a while they got away with these inadvertent environmental impacts. There were droughts around 1040 and droughts around 1090, but at both times the Anasazi hadn't yet filled

up the landscape, so they could move to other parts of the landscape not yet exploited. And the population continued to grow.

And then in Chaco Canyon when a drought arrived in 1117, at that point there was no more unexploited landscape, no more empty land to which to shift. In addition at that point, Chaco Canyon was a complex society. Lots of stuff was getting imported into Chaco - stone tools, pottery, turquoise, probably food was being imported into Chaco. Archaeologists can't detect any material that went out of the Chaco Valley, and whenever you see a city into which material stuff is moving and no material stuff is leaving, you think that the modern world - the model could be of New York City or Rome, or Washington and Rome - that is to say you suspect that out of that city is having political control or religious control in return for which the peasants in the periphery are supplying their imported goods.

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When the drought came in 1117 it was a couple of decades before the end. Again any of you who have been to Pueblo Benito, will have seen that Pueblo Benito was the six storey skyscraper. Pueblo Benito was a big, unwalled plaza, until about 20 years before the end, when a high wall went up around the plaza. And when you see a rich place without a wall, you can safely infer that the rich place was on good terms with its poor neighbours, and when you see a wall going up around the rich place, you can infer that there was now trouble with the neighbours. So probably what was happening was that towards the end, in the drought, as the landscape is filled up, the people out on the periphery were no longer satisfied because the people in the religious and political centre, were no longer delivering the goods. The prayers to the gods were not bringing rain, there was not all the stuff to redistribute and they began making trouble. And then at the drought of 1117, with no empty land to shift to, construction of Chaco Canyon ceased, Chaco was eventually abandoned. Long House Valley was abandoned later. The Anasazi had committed themselves irreversibly to a complex society, and once that society collapsed, they couldn't rebuild it because again they deforested their environment.

In this case then, the Anasazi case, we have the interaction of well understood environmental impact and very well understood climate change from the tree rings, from the width of the tree rings, we know how much rainfall was falling in each year and hence we know the severity of the drought.

My next to last example involves Norse Greenland. As the Vikings began to expand over and terrorise Europe in their raids. The Vikings also settled six islands in the North Atlantic. So we have to compare not 80 islands as in the

Pacific, but 6 islands. Viking settlements survived on Orkney, Shetland, Faeroe and Iceland, albeit it with severe problems due to environmental damage on Iceland. The Vikings arrived in Greenland, settled Greenland AD 984, where they established a Norwegian pastoral economy, based particularly on sheep, goats and cattle for producing dairy products, and then they also hunted caribou and seal. Trade was important. The Vikings in Greenland hunted walruses to trade walrus ivory to Norway because walrus ivory was in demand in Europe for carving, since at that time with the Arab conquest, elephant ivory was no longer available in Europe. Vikings vanished in the 1400s. There were two settlements; one of them disappeared around 1360 and the other sometime probably a little after 1440. Everybody ended up dead.

The vanishing of Viking Greenland is instructive because it involves all five of the factors that I mentioned, and also because there's a detailed, written record from Norway, a bit from Iceland and just a few fragments from Greenland: a written record describing what people were doing and describing what they were thinking. So we know something about their motivation, which we don't know for the Anasazi and the Easter Islanders.

Of the five factors, first of all there was ecological damage due to deforestation in this cold climate with a short growing season, cutting turf, soil erosion. The deforestation was especially expensive to the Norse Greenlanders because they required charcoal in order to smelt iron to extract iron from bogs. Without iron, except for what they could import in small quantities from Norway, there were problems in getting iron tools like sickles. It got to be a big problem when the Inuit, who had initially been absent in Greenland, colonised Greenland and came into conflict with the Norse. The Norse then had no military advantage over the Inuit. It was not guns, germs and steel. The Norse of Greenland had no guns, very little steel, and they didn't have the nasty germs. They were fighting with the Inuit on terms of equality, one people with stone and wooden weapons against another.

So problem No.1, ecological damage, problem No.2, climate change. The climate in Greenland got colder in the late 1300s and early 1400s as part of what's called the Little Ice Age, cooling of the North Atlantic. Hay production was a problem. Greenland was already marginal because it's high latitude short growing season, and as it got colder, the growing season got even shorter, hay production got less, and hay was the basis of Norse sustenance. Thirdly, the Norse had military problems with their neighbours the Inuit. For example, the only detailed example we have of an Inuit attack on the Norse is that the Icelandic annals of the years 1379 say 'In this year the scralings (which is an old Norse word meaning wretches, the Norse did not have a good attitude towards the Inuit), the wretches attacked the Greenlanders and killed 18 men and captured a couple of young men and women as slaves.' Eighteen men doesn't seem like a big deal in this century of body counts of tens of millions of people, but when you consider the population of Norse Greenland at the time, probably about 4,000 people, 18 adult

men stands in the same proportion to the Norse population then as if some outsiders were to come into the United States today and in one raid kill 1,700,000 adult male Americans. So that single raid by the Inuit did make a big deal to the Norse, and that's just the only raid that we know about.

Fourthly, there was the cut-off of trade with Europe because of increasing sea-ice, with a cold climate in the North Atlantic. The ships from Norway gradually stopped coming. Also as the Mediterranean reopened Europeans got access again to elephant ivory, and they became less interested in the walrus ivory, so fewer ships came to Greenland. And then finally cultural factors, the Norse were derived from a Norwegian society that was identified with pastoralism, and particularly valued calves. In Greenland it's easier to feed and take care of sheep and goats than calves, but calves were prized in Greenland, so the Norse chiefs and bishops were heavily invested in the status symbol of calves. The Norse, because of their bad attitude towards the Inuit did not adopt useful Inuit technology, so the Norse never adopted harpoons, hence they couldn't eat whales like the Inuit. They didn't fish, incredibly, while the Inuit were fishing. They didn't have dog sleighs, they didn't have skin boats, they didn't learn from the Inuit how to kill seals at breeding holes in the winter. So the Norse were conservative, had a bad attitude towards the Inuit, they built churches and cathedrals, the remains of the Greenland cathedral is still standing today at Gardar. It's as big as the cathedral of Iceland, and the stone churches, some of the three-stone churches in Greenland are still standing. So this was a society that invested heavily in their churches, in importing stained-glass windows and bronze bells for the churches, when they could have been importing more iron to trade to the Inuit, to get seals and whale meat in exchange for the iron.

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So there were cultural factors also while the Norse refused to learn from the Inuit and refused to modify their own economy in a way that would have permitted them to survive. And the result then was that after 1440 the Norse were all dead, and the Inuit survived. Greenland then is particularly instructive in showing us that collapse due to environmental reasons isn't inevitable. It depends upon what you do. Here are two peoples and one did things that let them survive, and the other things did not permit them to survive.

There are a series of factors that make people more or less likely to perceive environmental problems growing up around them. One is misreading previous experience. The Greenlanders came from Norway where there's a relatively long growing season, so the Greenlanders didn't realise, based on their previous experience, how fragile Greenland woodlands were going to be. The Greenlanders had the difficulty of extracting a trend from noisy fluctuations; yes

we now know that there was a long-term cooling trend, but climate fluctuates wildly up and down n Greenland from year to year; cold, cold, warm, cold. So it was difficult for a long time perceive that there was any long-term trend. That's similar to the problems we have today with recognising global warming. It's only within the last few years that even scientists have been able to convince themselves that there is a global long-term warming trend. And while scientists are convinced, the evidence is not yet enough to convince many of our politicians.

Problem No. 3, short time scale of experience. In the Anasazi area, droughts come back every 50 years, in Greenland it gets cold every 500 years or so; those rare events are impossible to perceive for humans with a life span of 40, 50, 70 years. They're perceptible today but we may not internalise them. For example, my friends in the Tucson area. There was a big drought in Tucson about 40 years ago. The city of Tucson almost over-draughted its water aquifers and Tucson went briefly into a period of water conservation, but now Tucson is back to building big developments and golf courses and so Tucson will have trouble with the next drought.

Fourthly the Norse were disadvantaged by inappropriate cultural values. They valued cows too highly just as modern Australians value cows and sheep to a degree appropriate to Scotland but inappropriate to modern Australia. And Australians now are seriously considering whether to abandon sheep farming completely as inappropriate to the Australian environment.

Finally, why would people perceive problems but still not solve their own problems?
A theme that emerges from Norse Greenland as well as from other places, is insulation of the decision making elite from the consequences of their actions. That is to say, in societies where the elites do not suffer from the consequences of their decisions, but can insulate themselves, the elite are more likely to pursue their short-term interests, even though that may be bad for the long-term interests of the society, including the children of the elite themselves.

In the case of Norse Greenland, the chiefs and bishops were eating beef from cows and venison and the lower classes were left to eating seals and the elite were heavily invested in the walrus ivory trade because of let them get their communion gear and their Rhineland pottery and the other stuff that they wanted. Even though in the long run, what was good for the chiefs in the short run was bad for society. We can see those differing insulations of the elite in the modern world today. Of all modern countries the one with by far the highest level of environmental awareness is Holland. In Holland, a higher percentage of people belong to environmental organisations than anywhere else in the world. And the Dutch are also a very democratic people. There are something like 42 political parties but none of them ever comes remotely close to a majority, but this which would be a recipe for chaos elsewhere, modern Holland, the Dutch are very good

for reaching decisions. And on my last visit to Holland I asked my Dutch friends Why is it this high level of environmental awareness in Holland? And they said, ‘Look around. Most of us are living in Polders, in these lands that have been drained, reclaimed from the sea, they’re below sea level and they’re guided by the dykes’. In Holland everybody lives in the Polders, whether you’re rich or poor. It’s not the case that the rich people are living high up on the dykes and the poor people are living down in the Polders. So when the dyke is breached or there’s a flood, rich and poor people die alike. In particular in the North Sea floods in Holland in the late ‘40s and ‘50s, when the North Sea was swept by winds and tides 50 to 100 miles inland, all Dutch in the path of the floods died whether they were rich or poor. So my Dutch friends explained it to me that in Holland, rich people cannot insulate themselves from consequences of their actions. They’re living in the Polders and therefore there is not the clash between their short-term interests and the long-term interests of everybody else. The Dutch have had to learn to reach communal decisions.

Whereas in much of the rest of the world, rich people live in gated communities and drink bottled water. That’s increasingly the case in Los Angeles where I come from. So that wealthy people in much of the world are insulated from the consequences of their actions.

Well, finally then. I’ve talked mostly about the past. What about the situation today? There are obvious differences between the environmental problems that we face today and the environmental problems in the past. Some of those differences are things that make the situation for us today scarier than it was in the past. Today there are far more people alive, packing far more potent per capita destructive technology. Today there are 6-billion people chopping down the forests with chains and bulldozers, whereas on Easter Island there were 10,000 people with stone axes. Today, countries like the Solomon Islands - wet, relatively robust environments, where people lived without being able to deforest the islands for 32,000 years, within the past 15 years the Solomon Islands have been almost totally deforested, leading to a civil war and collapse of government within the last year or two.

Another big difference between today and the past is globalisation. In the past, you could get solitary collapses. When Easter Island society collapsed, nobody anywhere else in the world knew about it, nobody was affected by it. The Easter Islanders themselves, as they were collapsing, had no way of knowing that the Anasazi had collapsed for similar reasons a few centuries before, and that the Mycenaean Greeks had collapsed a couple of thousand years before and that the dry areas of Hawaii were going downhill at the same time. But today we turn on the television set and we see the ecological damage in Somalia and Afghanistan, or Haiti, and we pick up a book and we read about the ecological damage caused in the past. So we have knowledge both in space and time, that ancient peoples did not. Today we are not immune from anybody’s problems. Again, if 20 years ago you would ask someone in strategic assessments to

mention a couple of countries in the world (in fact I was in on such a conversation) completely irrelevant to American interests. The two countries mentioned as most irrelevant to American interests were two countries that are remote, poor, landlocked, with no potential for causing the United States trouble: Somalia and Afghanistan. Which illustrates that today anybody can cause trouble for anybody else in the world. A collapse of a society anywhere is a global issue, and conversely, anybody anywhere in the world now has ways of reaching us. We used to think of globalisation as a way that we send to them out there our good things, like the Internet and Coca Cola, but particularly in the time since September 11th we've realised that globalisation also means that they can send us their bad things like terrorists, cholera and uncontrollable immigration. So those are things that are against us, but things that are for us is that globalisation also means that exchange of information and that information about the past, so we are the only society in world history that has the ability to learn from all the experiments being carried out elsewhere in the world today, and all the experiments that have succeeded and failed in the past. And so at least we have the choice of what we want to do about it. Thank you.

Applause

Kirsten Garrett: That was Professor Jared Diamond from UCLA, speaking at Princeton University earlier this month. Then there were some questions from members of the audience.

Man: The impression I get is that you are talking about them primarily in relation to environmental factors, you're talking about an elite that becomes isolated, insular and operates without being affected by the consequences of environmental degradation. What about other cultural forces, such as the development of political instability, civil wars, people who are low down in the hierarchy that are challenging the order. And could it be the societies simply over time devolve towards political instability. What about other factors such as disease for example, could they play a role as well?

"The single factor that is the best predictor of the collapse of societies in the last couple of decades is infant and child mortality."

Jared Diamond: Absolutely. In two minutes I did not do justice to cultural factors. There's a large literature on causes of instability and civil wars and collapse of States and civil unrest, and it turns out that you will go home and say Jared Diamond has a list of eight explanations for everything. There are eight variables that people have been able to identify: With risk of civil war, for example there's a data base of all cases of State failures and civil wars and violent government transitions in the last 30 years. People have mined this data base. Would anybody like to guess what is the single factor that is the best predictor of the collapse of societies in the last couple of decades? This is an unfair question because it's so surprising. The

strongest predictor is infant and child mortality. Countries that have had high infant or child mortality are more likely to undergo State collapse, and there are many links, including difficulties in the workforce, high ratio of children to adults. But in brief, yes, there is a large literature of other cultural factors that contribute to the collapse of societies.

Woman: Talking about culture problems, is there any correlation between the level of conservatism in a society and the likelihood of it collapsing?

Jared Diamond: I don't know. This is something that we haven't measured, we haven't tried to measure. Interesting, but I don't know.

Kirsten Garrett: The next question was not miced, so Professor Jared Diamond responded and restated it.

Jared Diamond: Interesting question. For those of you who didn't hear it: Do I think that today there's more reliance that technology will come and somehow save us, even though we can't specify how? Yes there certainly is, and many of my friends, particularly in the technology sector don't take environmental problems so seriously. I'll give you a specific example. After 'Guns, Germs and Steel' was published, it was reviewed by Bill Gates who liked it and gave it a favourable review, and the result was that I had a two-hour discussion with Bill Gates, who is a very thoughtful person, and he's interested in lots of things. He probes deeply and he has seriously considered positions of his own. The subject turned to environmental issues and I mentioned that that's the thing that most concerned me for the future of my children, Bill Gates has young children. He paused in his thoughtful way and he said, not in a dismissing way, 'I have the feeling that technology will solve our environmental problems, but what really concerns me is biological terrorism.' Look that's a thoughtful response, but many people in the technology sector assume that technology will solve our problems. I disagree with that for two reasons.

One is that technology has created the explosion of modern problems while also providing the potential for solving them. But the first thing that happens is technology creates the problem and then maybe later it solves it, so at best there's a lag.

The second thing is that the lesson we've learned again and again in the environmental area is it's cheaper, much cheaper and more efficacious to prevent a problem at the beginning than to solve it by high technology later on. So it's costing billions of dollars to clean up the Hudson River, and it costs billions of dollars to clean up Montana, it would cost a trivial amount to do it right in the beginning. Therefore, I do not look to technology as our saviour.

Michael Cook: Let us thank Professor Diamond again.

Applause

Kirsten Garrett: Professor Jared Diamond of UCLA, speaking at Princeton University earlier this month about what we can learn from the collapse of ancient societies. Professor Diamond won the Pulitzer Prize for his book, ‘Guns, Germs and Steel’ in 1997. His talk was edited for this broadcast, but the complete speech is audio streamed on the Background Briefing website.

Co-ordinating Producer is Linda McGinness. I’m Kirsten Garrett and you’re with ABC Radio National.