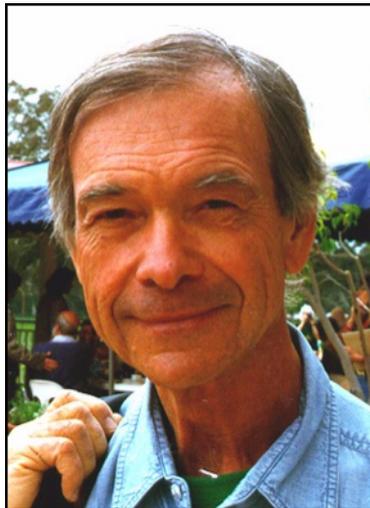




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Permaculture's Role in Sustaining Civilization



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[Submitted Paper]

Civilization is, by definition, city-based, and also unfortunately in people's minds. The fact is, however, that civilization is impossible without agriculture. Without agriculture you cannot have a government, an army, a university, a civil service or any of the trappings of civilization, for the simple reason that everyone would be out hunting and gathering food.

Agriculture is what I call a key business. I make that distinction not only because it sustains civilization, but because in most countries it is the largest business, and when it fails all businesses do.

While agriculture made civilization possible, it has also, through environmental damage, destroyed some twenty-odd civilizations to date. The mainstream or petrochemical agriculture of today is damaging soil, air and water at a faster rate than any other factor has in human history. America, held up as the leading example of modern production agriculture, "exports" a greater tonnage of eroding soil annually than the combined tonnage of all grain, beef, timber, commercial and military exports as far as we can determine. And this is occurring despite that country's having

a greater concentration of scientists and agri-business schools than any nation on earth.

As a consequence of this rapid deterioration in our environment, many people, led by farmers, are attempting to recreate the agriculture of the past where no petrochemicals were used – organic, Biodynamic, Low Input Sustainable Agriculture (LISA) and so on. Of all the efforts to find a permanent form of agriculture that can sustain civilization, Permaculture is one of the best and most innovative in my opinion. A major feature in its favour is that it looks to more than just the growing of crops, recognizing the importance of the culture in which those crops are grown.

However, there remains a major hurdle that most of these efforts, including Permaculture, need to address. All those attempting to move to sustainable practices are agreed on the basics of what is needed: a move away from large monoculture cropping practices, and away from a reliance on petrochemical inputs; a move toward complex cropping mixes and rotations and eventually polycultures; a move toward natural nitrogen agents, composts, legumes, manures, etc., and the removal of livestock off arid and semi-arid rangelands and onto intensively managed pastures. None, that I am aware of, including permaculturists, disagree with these basics.

I ask you, how does this in any way differ from the agriculture that destroyed those civilizations of old which had not yet discovered uses for coal, gas or oil, nor the ability to cultivate vast monocultures? It differs very little. What's more, those people of old had an immense amount of knowledge that we have lost. This is the hurdle that must be overcome.

Thus we know that Permaculture cannot lead to sustainable agriculture or a sustainable civilization, despite the good intentions and innovation of its practitioners. Since we all, I am sure, want to be able to sustain our civilization, we need to find out what is missing so that Permaculture practitioners and others can play the vital role they should be playing.

What is causing agriculture to fail, and with it civilizations?

The only wealth that truly sustains nations comes from biological communities through the photosynthetic process. Agriculture begins to fail as these biological communities deteriorate. When soil cover, organic matter and structure are damaged, there is a corresponding increase in the frequency and severity of droughts, floods, insect and animal pests, weed outbreaks, and disease outbreaks. Costs of production also rise or yields fall and product quality drops. The agriculture of Australia, America and other developed nations is now exploiting biological communities formed over past millennia, in the form of coal and oil, in order to maintain agricultural productivity on damaged soils, but this has only escalated their costs of production.

So what is causing this damage to biological communities and the loss of biodiversity, soil cover, organic matter and structure? Most scientists agree on the answers. If we look at countries in Africa where the damage is extreme, numerous papers, reports and articles by consultants, academic researchers and international aid agencies list one or more of the following causes:

- Overpopulation.
- Overstocking with livestock.
- Communal land tenure (where people do not individually own their own land and therefore do not care for it).
- Poverty.
- Over-harvesting of trees.
- Slash and burn cropping.
- Low education and ignorance.
- Poor and corrupt administration.
- Lack of capital and credit.
- Lack of adequate technology.
- Cultivation of steep slopes and unsuitable soils.
- Lack of adequate extension services.

Some scientists argue the importance of one cause over another and would re-arrange the list; otherwise there is little disagreement among the experts on these being the causes of Africa's decline. It is a formidable list of causes. No government has been able to realistically tackle such enormous political, social and economic problems, let alone succeed in resolving them. If these are indeed the causes and we've been unable to rectify them over several thousand years, it would appear we are doomed. Yet, what if we are wrong? What if there is a deeper underlying cause we have not detected? One that, if rectified, would begin to restore the biological communities we have so damaged?

It would be difficult to fund the research needed to find out, given the widespread agreement on the causes. So we have done the best we can and gone to a part of the world where there is a similar climate with low and erratic rainfall but none of the causes listed prevail – West Texas. When you look at this area within the United States, you'll find a low and declining rural population that would be considered relatively wealthy and highly educated, no communally-held lands, relatively few animals on the land, too many trees on the land (in the opinion of many residents), no slash and burn cropping or cropping on steep slopes (the land is flat), generally good administration, plenty of capital, credit and technology available, and a larger agricultural extension service than any other country provides.

If the scientists are right in their opinions on the causes producing Africa's problems, then in West Texas we should find Utopia. A place where rivers run clear, underground water is rising, soil is covered and not eroding, and communities are thriving and prosperous. In fact we find the opposite. Sand dunes are forming in places just as they did in the Roman Empire's granaries in North Africa. Rivers are so filled with silt in places there is nowhere for the water to go but to flood. Millions of dollars are spent annually on problem plant outbreaks, increasing droughts, floods, and so on. Crime is increasing, gaols are overflowing, and many small towns and villages are being abandoned. All that is occurring in Africa is occurring in West Texas.

What does this tell us? It tells us that we have no idea what is causing the massive loss of bio-diversity, soil cover, organic matter and so on, and that unless we find out, we will do no better than ancient peoples who watched their civilizations collapse and could do nothing about it.

Is there an underlying cause?

Of course there has to be an underlying cause that hasn't been considered. And I believe the answer has been staring us in the face all along. It is something common to every culture, past or present, to developing and developed nations alike. It clearly is not our increasingly sophisticated technology, because these problems existed before we had it. Nor is it related to our political or economic systems of which we have had many. There is only one common denominator. That is that in all cases the decisions which led to environmental deterioration were made by humans and something in the way humans make decisions is the cause that has to be addressed.

Universal Decision-Making

What we have discovered is that all humans only make decisions in one way – what I term universal decision-making – and have done so from time immemorial. Although I do not know most of you in this audience, there is one thing I know about every one of you with certainty: how you make all the decisions in your life. I know this because it is the same way I make decisions and the same way humans have always made decisions.

We start with a goal or objective, or simply a desire for something: to go hunt, to go shopping, make a spear, build a bomb, buy a car, educate the children, grow corn, design a spaceship, and so on.

Then we consider how we might achieve it. All humans only accept and use certain “tools” to manipulate our environment to sustain our agriculture. Narrowed down to three broad categories, these are: rest the land, build a fire, or utilise some technology. Past agriculturalists and people turning to sustainable agriculture and Permaculture also accept and utilise living organisms (small animals, insects and plants) as tools to manipulate an environment.

All humans then base their decisions on whether not to use a certain tool on one or more of the following criteria: Who has expert knowledge and what do they advise? What do our friends advise? What does research tell us about it? What does our intuition tell us about it? What past experience do we have to go on? Will it do the job? How quickly? Is it allowable under prevailing laws and regulations? Is it cost-effective? Will it produce a positive cash flow? Is it profitable? What will our peers say? What will the neighbours say? Is it politically expedient? Often, due to conflicting goals, the final decision on which tool(s) to use is based on political compromise, or forced by the strongest view. At times it is based solely on fear of ridicule or condemnation. All that has changed over the ages is that our technology has advanced from spear to atomic weaponry, computerised lives and genetic engineering, and the questions we ask ourselves before making our decisions have increased.

Once a decision is made we assume it is correct. Inevitably, either intentionally or unintentionally, we monitor our decisions in various ways and often later find that their effects were more far reaching and complex than we realised.

I have yet to meet a person who does not make decisions in this manner. I know I do, and have done so in my home, in many a business venture, and in leading a political

party in Parliament. The idea that the head of General Motors, the President of the United States, a hunter-gatherer bushman in Africa, and a European housewife all make decisions in the same way comes as a shock to most people. It did to me. There is a natural inclination to rush to defend this way of making decisions, pointing out that our experts have become even more expert, that our experience over the millennia has sharpened our abilities, and that laws and regulations are more enlightened, and so on. And I would agree. We have achieved and continue to achieve incredible feats based on what we have learned. But there are also some notable failures.

Our most notable successes lie in the linear world of technology – from our first spear points to putting a man on the moon. But these can only be considered successful as long as we ignore their effects upon our environment. In the non-linear world of reality – the natural world and the world of human relationships – we have had our most notable failures: the spread of deserts despite enormous effort to stop them, faltering economies (despite the masking effects of stock market highs, creative accounting and corporate takeovers) and ever-increasing human conflict.

Many also rush to defend the many collaborative management systems and strategies developing in a number of developed nations. They say these strategies employ a different decision making process. But I am afraid this is simply not true. While I was running a workshop for government agencies in Sweden a few years ago we spent the better part of a day analysing a number of management systems – Total Quality Management, Ecosystem Management, Integrated Resource Management, Logical Framework Analysis, and Results-Based Management, to name a few. Many of them have been successful in helping to create a more collaborative work environment, in releasing the creativity and increasing the productivity of people in management teams, and also in increasing awareness of the complexity of our ecosystem and economies. But we found all were in essence re-arranging the deck chairs on the Titanic because they all used universal decision-making. People using these management approaches still had goals, utilised the same tools, and based their final decisions on expert opinion, intuition, research results, laws, regulations, and so on.

Where does Universal Decision-Making go wrong?

There is an immense amount of good in universal decision-making and we want to keep that. But there is also something lacking that has led us to damage our environment, stemming from the time when humans learned to light fires and make spears. Because my time is limited, I can't go into great detail here but will merely summarise what we've learned. (We have a video available that does cover much of what I am summarising).

First, humans never made decisions in whole situations but only in a fragmented manner. People are so tied to land, plants and billions of other creatures that it is illogical to believe we can make decisions independent of natural functioning wholes. The real world only functions in wholes – whole atoms, whole molecules, whole cells, whole organisms, whole people, whole families, whole communities. And in your communities you cannot even breathe or sit and listen to these words without your

connection right this moment to whole green plants in whole communities of billions of organisms.

No management can be successful until it focuses on wholes.

Second, humans had goals that were inadequate for the task; most in reality were mere objectives. A goal, in the truest sense, must embrace people and land, and the moment and the future at the same time.

Third, when we look at the tools acceptable to humans to manipulate and manage our environment to sustain us and our civilizations, there is a notable gap. Fire, small organisms, rest, and technology. There is no tool in this toolbox that can keep carbon cycling between plants, atmosphere and soil organic matter over about two thirds of the world's land surface where atmospheric and soil humidity are seasonal. No wonder deserts are advancing relentlessly. No wonder carbon is building up in our atmosphere. It would have built up even if we had not discovered coal and oil, only more slowly.

There is a tool that can help keep the carbon cycling and sustain biological communities in the other third of the world where atmospheric and soil humidity are perennial – resting land. It does so here because in these environments most of the mass of vegetation is also perennial. Only a small proportion dies during a year and deaths are spread throughout the year. Insects and micro-organisms can complete the cycle of birth, growth, death and *decay* biologically.

Most of the world's land is in environments where rainfall and humidity are erratic and seasonal, whether high or low. In these environments, over billions of years most of the mass of vegetation above ground has died every single year and in a few compressed months. At the time that these billions of tons of vegetation died every year the insect and micro-organism populations also died down to remnant or dormant populations. The carbon cycling in these environments was maintained by vast herds of grazing and browsing animals and the micro-organisms in their digestive tracts. It was even more complex than that. These vast millions of herbivores were prevented from overgrazing, despite their numbers, by their attendant pack-hunting predators. As protection for females and young, the herbivores had little but bunching behaviour. Bunched herbivores have to move continually to avoid feeding on their own dung- and urine-fouled ground. This bunching behaviour we now know was the vital key to carbon cycling and maintenance of the whole biological community. Herbivores, wild or domestic, without their pack-hunting predators change behaviour and rest the land. I call this rest in the presence of large numbers of livestock and big game “partial rest”. This form of rest has almost the same effect as totally resting the land, as we see from many research plots established in the United States in the 1930's.

Unfortunately, not only was there no tool in the toolbox that could sustain the carbon cycle, but the tools used to try to do so – rest and fire – have enormously damaging effects. Rest, partial or total, we now know to be the most damaging tool known to science in the world's seasonal rainfall, or “brittle” environments. Fire and rest in combination become even more damaging and, tragically, these have been the two tools used here in Australia since humans arrived. The Aborigines, as we now know,

killed off most of the large animals on this continent and attempted to replace their role in maintaining biological communities with fire. This simply does not work, as the continuing desertification of Australia and all seasonal rainfall areas of the world testify.

Fourth, when we look at the criteria we finally base our decisions on, we find a major flaw. It is simply not possible to make an economically sound decision unless it is also socially sound, other than in the very short term. And we cannot make a socially sound decision unless it is simultaneously environmentally sound, other than in the short term. Thus it follows that we cannot make economically sound decisions unless they are simultaneously socially, environmentally and economically sound.

In studying this dilemma for some years, I find there are situations where, by accident rather than design, some decisions are simultaneously socially, environmentally and economically sound. But as a routine matter, never. Thus, as everything in modern society and civilization runs on the basis of economies, it should be of little surprise that our economic models just do not work, as most economists of substance now admit. I know the Society for Ecological Economists is desperately searching for economic models that might be even “approximately right.”

Finally we note that with universal decision-making our action of assuming decisions were correct was indeed arrogant and unwise in a world of such complexity that we will never understand it fully.

Holistic Decision-Making

For close to 40 years I have laboured to find a way to make a living from the land without destroying it. I have done so from many angles – as biologist, civil servant, Member of Parliament, international consultant, researcher, farmer, rancher, game rancher and soldier. Poor land means poor people, social breakdown, upheaval and war, and I have witnessed them all. Through no wisdom, but rather unending trial, error and study, I developed a new way of making decisions that has subsequently been vastly improved by the efforts of those who have adopted it. This I named Holistic Decision Making, described in detail in *Holistic Resource Management* (Island Press, 1988), which is currently under revision.

Holistic decision making is simple and straight forward. A number of villages in Zimbabwe and West Africa are using it, even though many of their people are illiterate. Everywhere that people are using holistic decision making we are seeing the same results: improved harmony and teamworking among the people, resolution of long-standing conflicts over resources, increased financial returns, and land improvement. Some have been going now for over quarter of a century and have shown consistently improving land even through the driest years on record in Africa. We have been able to start reversing the progress of desertification and at almost no cost, other than a little training, usually in fact while earning money.

It is perhaps easiest, in this short amount of time, to explain the new decision making by contrasting it with the old, as shown in Table 1.

CONVENTIONAL	HOLISTIC
World View	
Complex world of interconnecting parts	Complex world that functions in wholes
Goals	
Better life implied through many goals Problems treated as goals	Problems treated as one HOLISTIC goal with three aspects: Quality of Life (values), Forms of Production, Future Resource Base Description Problem-solving never a goal
Ecosystem	
Viewed mainly as a source of raw materials to sustain humans	Viewed as the foundation on which all human endeavour, all economies, and all life, are built.
Tools	
Human creativity Money and Labor Technology Fire Rest Living organisms (in sustainable agriculture) No tools that can cycle carbon in brittle environments	Human creativity Money and Labor Technology Fire Rest Living Organisms Animal Impact Grazing
Decisions Based On	
Expert opinion, friend's advice, past experience, research results, peer pressure, intuition, common sense, cost-effectiveness, profitability, laws & regulations, fear, compromise, sustainability, etc.	Factors on the left, plus seven questions that ensure decisions are ecologically, economically and socially sound, relative to the holistic goal
Monitoring	
Assume all decisions are correct, and monitor to record results Management is reactionary	Assume decisions affecting the environment are wrong, and monitor to produce results Management is proactive

Table 1: Decision Making

Holistic Management with its decision-making empowers people in all walks of life to start making decisions that are simultaneously socially, environmentally and economically sound. It enables people to use all of the knowledge and expertise they have – and this is a great deal in most cases. And it will enable you to use all that is good in Permaculture – and that is most of it. But it will enable you to do what I have not seen happen with Permaculture projects to date.

We can analyse Permaculture practices with the Holistic Management Model, which we have done quite often on joint projects. The main areas of weakness in Permaculture are in dealing with arid and drylands on an extensive scale, and in not

making decisions that are simultaneously socially, environmentally and economically sound. Other than in these areas, Permaculture is very sound indeed. As a consequence we are encouraging people wherever we can and where it is appropriate to get Permaculture training. The villages we are working with in Zimbabwe will, before long, have Permaculture trainers in their midst.

The downside of Holistic Decision-Making

There is a downside to holistic decision making and that is that it requires major paradigm shifts in several areas, and it requires learning through practice. It's no different from the pilot learning to fly. He doesn't really learn, no matter how many books he reads, until he gets into the plane and does it. To learn the new decision making you have to practice using it in your daily lives – in your home, your business, your community, in learning groups that help support your efforts and, whenever possible, with a trained member of your community to assist you.

I like to think that each of you will want to be involved in strengthening your already good efforts, and tackling the cause of so much of the environmental deterioration occurring throughout the world, by changing the way you make decisions. We will give you all the support and help we can from our international Center in Albuquerque and through our developing cadre of trainers in Australia, Canada, Mexico, South Africa, Namibia, Zimbabwe, Zambia, Kenya, and elsewhere.