

# THE PERMACULTURE ACTIVIST

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*A Quarterly Voice for the Permaculture Movement in North America*

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## The Politics of Diversity

Vandana Shiva

The Fourth International Permaculture Conference,  
Kathmandu, Nepal

I think, because so much of sustainability has been like a blown-up balloon, a lot of hot gas, there is a vacuum at the level of practice, that is simultaneously created and existing. And, since I've spent a lot of my time looking at how global systems destroy local self-reliance, it's wonderful to see a global community that's actually enhancing it.

What I'd like to do today is my little attempt to answer Lea's (Harrison) question to Max (Lindegger). When Max was talking about permaculture villages, Lea asked, "Here's this diversity principle, (which) you are trying to create (in PC

villages), and meanwhile, Nepal has all this, and is giving it up." And right through the discussions I've heard, there was a tone of "The people choose to give up...the people don't want to maintain...the people--unsaid--are stupid, and in terms of free choice, are choosing the wrong thing."

I'd really like to talk about the lack of freedom that's being created, increasingly, around how diversity is used, maintained, exploited, destroyed—and that's why I call my talk "The Politics of Diversity"—how power is coming in centrally around the biological wealth of this planet, and how we are at the threshold of the third Industrial Revolution in which it's not minerals, it's not fossil fuel, but the biological life of this planet that's the engine of capital accumulation.

Very quickly, I'd like to talk about earlier situations in which unfreedom was created for communities, for permaculture communities before you and Bill Mollison. *continued, pg. 4*



Drying grain, Kaski District, photo by Peter Bane

*Volume VII, No. 1, Spring, 1991*

## FROM THE EDITOR

Diversity is a difficult subject to contain within the limited pages of a small magazine, let alone an editorial column. We take it to be one of our continuing challenges. We have broadened in this issue the range of our coverage to include the Permaculture movement in its global setting. Why should North Americans care? Simply put, because we are all struggling against the scourge of colonialism; the issues are just much clearer when you look across national boundaries. Also, the biological resources and traditional models which may sustain us in ways of permanent culture are concentrated in Third World nations. It is from their living examples, our own common history, and the empirical knowledge of ecosystems that we can design energy-producing landscapes and self-reliant communities in the years ahead.

We are in transition to a steady-state, solar-driven economy in which biodiversity and appropriate cultural forms are the basis of wealth. Our political choices are devolving to new bioregional forums which address the fundamental issues of scale. This process is not inevitable, but if it fails, there will be no other opportunities for renewal of the human lease on planet Earth. As our thinking shifts to accommodate ecological reality, we will replace outmoded political paradigms of left and right, East and West with more accurate models of our life place and all our relations.

North/South is the axis of economic power today; large/small is the frontier of political integrity; ecological balance the bell-weather of health, wealth, and human happiness. The choice of social versus capital distribution of the burdens and benefits of industrialism matters far less than our choice of tools. As Paul Goodman reminded us from a close study of classical civilization, "Technology is a branch of moral philosophy."

The nexus of credit, chemical subsidies, toxic dependence, and genetic devastation which Vandana Shiva so brilliantly illumines will be familiar to American farmers as they attempt the healing transition to organic methods. That it has been so callously wielded against the livelihood of poor farmers and forest dwellers in Asia, Africa, and Latin America under the aegis of the Green Revolution should remind us that we in the industrial countries were the first victims of a colossus which promises to engulf us in its collapse if we do not reassert the vitality of our own regional cultures.

The recovery of culture will involve a range of elements beyond knowledge of the land itself, though that is essential. Penny Hoover points out that subsistence Africans, not just colonizing Europeans and Americans, have been eating their way across a lush continent, and, reaching the western ocean, are now meeting economic constraints. Thus, even traditional peoples, absent bioregional limits, may fail to achieve sustainable patterns of culture. That key elements of sustainability may be introduced through cultural exchange is a hopeful message.

At the recent Turtle Island Earth Stewards' Conference on Land Trusts in Vancouver, B.C., Woody Morrison offered the Native American people's vision that the coming era will involve again great Migrations. These, he implied, would be conscious movements for purposes of resacralizing and re-inhabiting the earth. The growing importance of access to sun, water, and biodiversity suggests that interregional linkages will become a key strategy for empowerment. We look to eco-

tourism, electronic networks, celebration, pilgrimage, and other small-scale forms of voluntary service to enhance "the free flow of people, knowledge, and cultural offerings."

The other story inextricably interwoven with the tableaux of global politics is the growth of professionalism and successful economic strategies in Permaculture. By designing a system suited to the needs and yields of central Colorado, Jerome Osentowski has built a platform for a larger integration of essential elements: the training of intern gardeners from across the nation, international professional cooperation, and North-South cultural exchanges. If we are to address the seriousness of genetic and cultural erosion and global climate change, more of us must be prepared to work with our counterparts from many regions in ways which are at once professional, immediate, and personal. To do that we must wield appropriate economic power.

Good design should translate into abundance as well as stability.

## Production Notes

Time which I spent in Nepal, travelling to and from, and recovering and catching up afterward have delayed the release of this issue nearly three months, which I regret, but could not avoid. One purposeful consequence of delay has been the inclusion of valuable material from IPC4; an unintended benefit is the accumulation of a great deal of other interesting material which will appear in the coming months.

We will look at Design in the next two issues beginning with an exploration of the design process itself by Pennsylvania architect Patty Ceglia. We invite all our readers to submit design reports or synopses which may be of particular interest. We will try to publish a representative sample of material from all North American regions.

Other themes we will explore in coming issues are Native American traditions, Methods of Learning Permaculture, Nitrogen-fixing Trees, What is Culture?, Restoration Forestry, and Design for Zone 0. Issue No. 24 will contain an index of all preceding issues. Look for it in July and August.

This is the Spring issue for 1991, posted in May. There will be three others this year, approximately July, September, and November. This is also the twenty-third issue of *The Permaculture Activist*, and with it we begin numbering issues consecutively. We will continue our volume and number series as well. Despite the delay, all subscribed issues will be sent; expiration dates will be adjusted appropriately. As my familiarity with magazine production increases and our network of correspondents becomes established, the paper's frequency will become once again steady. Please bear with us.

The February increase in postal rates has occasioned an increase in our subscription rate from \$13/yr to \$16/yr. We are also introducing a gift rate subscription of \$12 per year available to new or current subscribers with their own entry or renewals. Please help *The Activist* grow—share it with your friends, family, or local library. Details appear on page 39.

Lastly, we are undertaking a revision of the Permaculture Designers Directory, last published in 1987 by Permaculture Communications. A questionnaire appears on page 33. We ask for your cooperation and assistance in compiling this valuable community resource.

## ***The Permaculture Activist***

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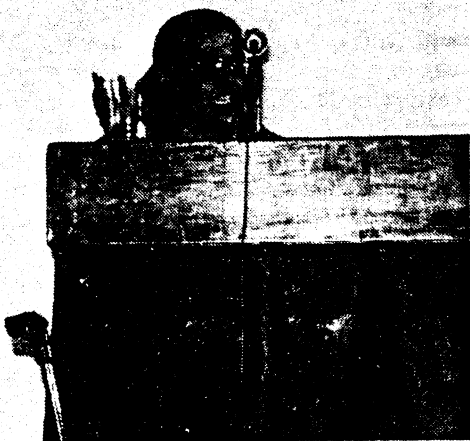
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# The Politics of Diversity

Vandana Shiva, continued from Page 1

If you remember the 60's, it was the big push of this "miracle" called the Green Revolution. Through the 50's, work had been done in international agencies on how to use up the fertilizer surplus left after the war: which was not fertilizer surplus. It was explosive surplus, war-economy surplus. The conversion had already taken place in the North to use this stuff for fertilizer, since it was built on the over-developed war economy—just as if today we had to convert the kinds of machinery that are being used in the Gulf—to turn it to peaceful use. All kinds of things are surplus to the industrialized system, and now as then, they have to find markets for them.



Vandana Shiva addressing the 4th Intl. Permaculture Conference

Through the 60's some of the biggest arm-twisting around aid was the push to sell fertilizer in the Third World. Last summer, I remember reading that ICI (Imperial Chemical Industries) was closing down its fertilizer operations in England. The last line in that newspaper item read, "...and it was going to open three new plants in Zimbabwe, India, and Malaysia." We need to avoid thinking of Third World communities—producing communities; who are being forced out of that role of production—as free-floating consumers, but rather to see them as involved in a competing production system that must be destroyed if the globally-controlled centralized system is to have a) its raw materials, and b) its markets. They come in the way. Diver-

sity comes in the way of profits and control. And that's what I'd really like to share with you, how the will to dominate, control, and make for-profit sees diversity as a disease and a deficiency, and generates its own path through centralized generation of uniformity.

I don't know how many of you remember, a few years ago, this massive movement in Argentina. I know of it because there was a very strong women's component to it called Mothers of the Disappeared. And who were the disappeared? The disappeared were the political dissidents. We somehow have this idea that if western systems of production, of thought, of knowledge have spread worldwide, it's because, in a free play of competition, they were able to assert superiority, and it's that superior status that allows their global existence, their uniform universalization. I'm starting to feel that something very different was happening. It wasn't a free play of competition with everyone on the same field. It was really a game of disappearances. In a way, local systems based on diversity have faced the same kind of fates that the dissidents of Argentina did. They have been conquered by the politics of disappearance, not the politics of debate, dialogue, test.

The disappearance of indigenous knowledge, through its interaction with the dominant western knowledge takes place at many levels, through many steps. First, local knowledge is made to disappear by simply not seeing it, by negating its very existence. This is very easy in the distant gaze of the globalizing dominant system. Just the last talk we had, there was this beautiful map, and Tony (Andersen) pointed to the two centers from where all the visions of the earth come out, Europe and European-settled America. Western systems of knowledge have generally been viewed as universal. However, the dominant system is also a local system, with its social basis in a particular culture, class, and gender. It is not universal in any epistemological sense. It is merely the globalized version of a very local and parochial tradition.

The knowledge and power nexus that is inherent to the dominant system comes from it being associated with a set of values based on power which were linked to the rise of early commercial capital-

ism. It generates inequalities and domination by the way such knowledge is generated and structured, the way it is legitimized and alternatives are delegitimized, and by the way such knowledge transforms both nature and society.

Power is also built into a perspective which views the dominant system, not as a globalized local tradition, very often supported by force and violence, but as a universal tradition inherently superior to local systems. However, the dominant system is also the product of a very particular culture. And we are getting started to learn how to name this culture. It is largely a culture of the elite of the West, which is largely...very masculine.

*"Diversity comes in the way of profits and control."*

As Harding, fellow philosopher of science, once asserted, "We can now discern the effects of these cultural markings, in the discrepancies between the methods of knowing and the interpretations of the word provided by the creators of most modern western culture, and those characteristics of the rest of us. Western culture's favorite beliefs mirror in sometimes clear, and sometimes distorting ways, not the world as it is, or as we might want it to be, but the social projects of their historically identifiable creators." And the social project that is most dominant is the social project of destroying diversity in the name of development. And that is essential, because once you've defined one measure, largely the measure that comes out of industrialized systems, controlled by the West, the masculinized West, it's very easy to render everything else as deficient, as diseased, as inadequate.

Just take land use and biological richness. All the diversity at play within systems just disappears. The first step that happens is the spaces between livestock, forest and trees, and crops, those in-between spaces, just disappear. They're not there. Sectors, just look at forestry, at agriculture, at animal husbandry—each of those sectors is then reduced to what the external link to the factory demands of it. So that the forest is further reduced to industrial raw material—pulpwood, or other wood products. Crop husbandry is reduced to just globally-traded grain. Livestock is reduced to just the milk-machine or the meat-machine. And then each of these is managed, is molded, according to that mania, development.

Just as knowledge and ecological



linkages that sustain systems fall through these cracks and fragmentation, a lot of the work, the knowledge, the skills of the Third World, particularly of Third World women—Nepal is such a good example of this—also fall through that crack of fragmentation. Because if you see the kind of data used to collect statistics of who's a primary producer, who's a productive person, what's always left out are two things: those in-between spaces, largely occupied by women, transferring fertility from forest to fields, managing livestock—always those in-between spaces, firstly; and secondly, the multiple spaces, the systems and identities and elements that are never just one thing at a time, but are many things at one time.

I don't know how many of you have noticed this very beautiful goddess sculpture as we enter the (hotel) reception. That goddess has forty arms. I've always felt that the reason in our part of the world they gave goddesses forty arms was to keep telling us that diversity is at the basis of existence. We're never just one thing; we're many things at one time. And if women have disappeared from agriculture—so that if you talk of a farmer, you only imagine a man—it's because those twenty arms weren't seen. And the one arm that was seen was always treated as deficient because it was not doing that one thing adequately on the measure of the assembly line. Twenty arms, forty arms doing forty things, will never do one thing as well as two arms doing just one thing.

**"...local knowledge is made to disappear by simply not seeing it, by negating its very existence."**

There's a lovely anecdote I'd like to share with you. In India, and in Nepal, the livestock sector is fully taken care of by women traditionally. But when the White Revolution—there was a green revolution for crops and there was a white revolution for milk and there was a blue revolution for fisheries, and then they ran out of colors so there was a second green revolution for forests, and each of these was meant to squash the red one—but when the early milk cooperatives were formed for the White Revolution, they were all-male cooperatives, and the women were doing all the work with the livestock. So they could never understand why all these fancy technologies, which they had taught to the men in extension work, never delivered, why

Indian farmers, "stupid as they were," never became like Danish farmers.

And then there was this push in the women's movement for recognition that most livestock care was in the hands of women, and a demand that some of these cooperatives should be in the hands of women. As part of this movement link, when the early women's cooperatives in milk were starting to be formed, a person who took care of some of these cooperative activities, reported this interaction in one of the villages, where some women have got involved in the cooperative.



Man plowing terraces with oxen; women breaking clods with hoes near Lumle, Nepal.

Photos by Peter Bane

"It's a (women's) cooperative in Tamil Nadu. It's just been registered, there is a heady atmosphere of general excitement. Over breakfast, I talk to the men," it is reported, "the dairy development staff and the husbands of the board of directors. The board of directors are women. 'What work do women do in these parts of Tamil Nadu?' I ask them. 'Oh, nothing. They only do a little light housework and look after the children a bit.' I hesitate and then ask, 'What do poor women do?' Once more the men say, even more emphatically, 'Nothing. They don't even take care of the children. The poor women's children run around with snotty noses, unkempt hair, caked dust all over their bodies.'

"Now the women, the board of directors, protest, 'That is not quite fair. It is the scheduled caste, the lower caste women, and other very poor women who transplant the rice. For this they stand day after day in the rain, in water-logged paddy fields, bent double. It is they who clean out cattle sheds, either their own or as laborers in other peoples' homes. They collect the dung, make dung cakes. They grind oilcakes for cattle feed. They

bring water for the cattle and for their families. From long distances they collect firewood, piece by piece, for cooking their meal. They collect grass, sometimes steal grass from our fields. They milk their own buffalo. They care for their own children even if they cannot afford to keep them clean. They do look after them. They grind masala, they cook, they clean their vessels. They collect green leaves to cook the tamarind. They grind *ragi* to make *ragi* flour and cook it to make huge big bowls for *ragi kali*. And in the middle of all this, they

cook in our homes in the hopes of getting a little leftover food. In addition they're called for polluting chores by the upper class and landowners, to take away dead animals, to take away the garbage, to clean the toilets. Very often they don't have the money to cook two meals, they only cook the night meal, and for that they have to go house to house, trying to borrow the rupees ten. Then they go to the ration shops, sometimes miles away.' At that point the men remain silent."

And of course, each of those poor women, when measured in any of those aspects of work, is "doing nothing." The problem really then is that women are doing too much of the work, and too many kinds of work. There's an interesting exercise going on right now in India, where for the first time, the census is being forced to report, not primary activity, "Are you the breadwinner?"—because every woman is a breadwinner. Thirty-five percent of women in households below the poverty line right now are primary breadwinners in families, and it's not just in poor families. Plenty of women across all classes, are the primary breadwinners of their households. But

the older census, as it was written, would make sure that women who were supporting entire families ended up looking like dependents.

Women who are doing too much work, all the time, end up looking like they do nothing. And it has something to do with the way, in the first place, the census was created.

I remember a few years ago, I was trying to see how social categories had created new dichotomies in cultures of diversity like ours. It turns out that over time, each census has removed diversity from its gaze. So, for instance, in the early part of this century, it was possible in India to be a Hindu-Muslim—that in-between category, just as any normal situation recognizes that women are not just housewives, they are also farmers. But the refined census of later times forced you to be either a Hindu or a Muslim; and so also they broke these in-between categories of farming housewives. You could only be one thing at a time. The domestic front was out of the production boundary—the social categories of the census broke that link. The inside was in no way connected with the outside. And so these mutually exclusive categories have increasingly forced more and more disappearances to happen.

I believe that all creativity, whether it's creativity in nature where diversity is formed, or creativity of cultures where new cultures take shape, happens in these in-between spaces of ambiguity, never in the clear-cut boundaries. That's where decay takes place, where truncation doesn't allow growth to happen. These monocultures of the mind which force diversity to die, don't just force monocultures in our minds, they force monocultures on the land, and they force, in turn monocultures on society. And just as plant monocultures are vulnerable to pests and disease and ecological breakdown, monocultures in society are vulnerable to social and political breakdown.

From mid-70's onward the crisis of diversity, the erosion of diversity in crops particularly, started becoming clear; if you remember after the total collapse of the corn crop, with the corn blight in the U.S. Every time something happens in the U.S. it becomes a serious problem, I noticed. So, diversity became serious after the corn blight. Climate change became serious after the Midwest drought. Before that, drought was not a serious problem. We had to wait, to have more scientific studies; there was no link between deforestation and climate change.

And I remember dozens of debates, pushing these things to futility, until suddenly ... it touches the heartland of America.

Now, that aspect of ecological breakdown in systems that are based on monocultures is something that all of you know much more than me. But I would like to run through a little bit of how that transforms into societal breakdown. If it is true that decentralized communities involved in decentralized systems of pro-

***"...the dominant system is also a local system, with its social basis in a particular culture, class, and gender. It is not universal in any epistemological sense. It is merely the globalized version of a very local and parochial tradition."***

duction, which are in turn based on diversity, are really engaging in a free play of renewal of life, then that play of renewal cannot be owned, and cannot be privatized. You can at best participate in it. It is the only relationship you can have with systems of renewal and systems of diversity. But quite clearly that's a block.

Biologically, the big block, for agribusiness to make enough money out of seeds, was the fact that seed by its nature reproduces itself. So you had to do something to that. You had to somehow break that system of renewal. And that's where the whole system of hybrids, the high-yielding variety "miracle" seeds, improved seeds, an entire set of breeding programs were created. They were created for control, and to create a market where there wasn't one. They were created to colonize a space that had not been colonized and would not be. But to do that you already had to destroy the

diversity, and the free play of diversity, to create uniformity that was controlled.

But going one step further, all the free play in communities made amazing shifts. The first shift was that from the focus of Nature as the primary source of renewal and inputs to farming, internally generated on each farm or on neighboring farms, the focus of production shifted to the seed corporation and agribusiness. And the original producer was left being merely a consumer and a buyer of every year's seeds from that same company. And that engineering was simultaneously an engineering of biological life and an engineering of societal life.

Punjab in 1965 was treated as the success, the display, as literally the perfect lab for the Green Revolution experiment. That planned experiment of removing decentralization and diversity into centralized uniformity, was efficiently done. So efficiently that today out of this brilliant agriculture with hundreds of crops, you have all of the land of Punjab, 90% of it, under rotation of high-yielding wheat and high-yielding rice. That's got its ecological problems and we're aware of it—the whole outbreak of disease, something like 40 new pests that were never found there, 12 major epidemic diseases that have never been experienced in Punjab, a total crisis of production.<sup>1</sup> But far more serious are the subtle things that happened.

You cannot turn into credit addicts and chemical addicts, self-reliant farmers. They're not that stupid. They won't just do it. You've got to do something to hook them into it. And the two things that allowed that hooking were credits and subsidies. You made it, through the system of credits and subsidies, impossible for the farmer to engage in eco-



Women and men carrying fodder gathered in Chitwan Nat'l Park. The bundles, some concealing fuelwood, may weigh over 100 lbs.



Washing clothes, Rapti River, Chitwan, Nepal  
nominally viable production in his or her own logic of decentered diversity. The way you propped up this artificial system was through broad planning at the international level, which trickled to the national level, which then trickled back to

***"...the social project that is most dominant is the social project of destroying diversity in the name of development."***

every farmer. Its purpose was not merely to give incentive to that direction, not just to create disincentives, but to create total unfreedom to do farming as it was done. It became economically impossible.

Very often it became politically impossible. I know the case of Indonesia, where it became illegal, after the Green Revolution, for farmers to cultivate their own seed. You could be shot dead for it. So they have their little plots of rices, for medicinal purposes, for religious worship, hidden away, tucked away where the official machinery cannot see it.

Now, how did this prop of artificial support systems come up? It started all the way from Washington. The World Bank had to give extremely cheap credit to make the purchase of fertilizer even possible for countries on the one hand

and farmers on the other. Credit was constantly linked to other social measures, so that communities which used to have all kinds of social support systems were unhinged. Those support systems were unhinged and linked to the centralized credit system of the state, so that if you needed to borrow money to perform the funeral rites of your father, you had to do it by becoming hooked to the chemical subsidies and credit for the Green Revolution agriculture. And because Third World farmers are too poor to take credit and pay back interest, and Third World countries are too poor to do it, you have to grab hold of the centralized state, and convert every decision that was first taken on the farm or on the local level or on the regional level into a decision taken either in Delhi or in Kathmandu.

You cannot manage that international aid system unless that centralization first takes place. Centralization is in the logic of that support system, but uniformity is also in its logic. Centralizing is happening so that the ground and space in which people did their own thing becomes the market for global commodities to be sold. And global commodities cannot afford to be different. The assembly line can only produce uniformity, so you are making sure that credits and subsidies are hooked to creating the markets for the five merchants of grain or the six agribusiness companies or the five agrichemical companies. Their products have to be sold across thousands of kinds of farms and ecosystems and cultures on this planet. The same plant that derived from one grain of a Japanese wheat, the Nori-10, with the dwarfing mechanism for the wheat varieties, has spread uniformity across the globe. And one plant from

Indonesia was used to create the dwarfing mechanism for rice across the globe.

Just a little aside about the dwarfing mechanism, I remember someone saying the other day, "Why are they wasting..." I was really struck by this because the whole slide show had been about the diversity of biomass use, and the requirement of mulch in the regenerative farm. And the mulch was always rice straw, but when there was this amazing variety six

***"...once you've defined one measure, largely the measure that comes out of industrialized systems, controlled by the masculinized West, it's very easy to render everything else as deficient, as diseased, as inadequate."***

feet tall, he said, "Why are they wasting this biomass? I'd like to see rice as rice, not rice as fertilizer or rice as fodder." That's a bit like saying, "I'd like to see that woman not as doing forty tasks..." It's in a way denying the diversity that is at play and is essential to maintain the stability of systems.

The dwarfing mechanism was in fact the mechanism to deny that diversity to crops in Third World situations, which were never just food for man. They were always food simultaneously for animals and also for the soil. To do that in a very optimal way, they had to produce not just grain, but straw. And the indigenous varieties have always produced an abundance of straw, with adequate grain. The dwarfing mechanism was introduced to make edible straw just disappear. And grain sold on commodity markets became the only output. That in the proc-



Woman weaving mat of rice straw, Kaski District, Nepal

ess you made even grain inedible and third-rate food for man, was a different question.

Now to come back to the issue of centralization. Right now, there are two major processes at work on the destruction of diversity: one, around the forestry sector, the other in agriculture. The plan to destroy diversity in forests is originally an \$8

***"I believe that all creativity, whether in nature where diversity is formed, or where new cultures take shape, happens in these in-between spaces of ambiguity, never in the clear-cut boundaries."***

billion plan, the Tropical Forest Action Plan. As always, when you want to rip somebody off, you say you are helping the victim. The Tropical Forest Action Plan is meant to save the tropical forests. That's the first paragraph of the plan. But the rest of it is really, "How do you create more supplies of industrial raw material out of the Third World?"

Once you make a plan out of Washington with that kind of money and the four people who think they have all the solutions for all the communities of the world, it cannot but be uniform. So they have the same package of things and the same set of species, and the same techniques of planting, no matter what the job. So it's no surprise whether you're in Thailand or Portugal, in Africa, Brazil or in India, you get people resisting the large-scale planting of eucalyptus, which plans like that are subsidizing. And they are subsidizing it in the name of the people, but actually for forest-based industry.

In this region something even more interesting happened. Some time ago, in Thailand, the crooks there said, "This is a strange grant we've got from FINNIDA (Finnish Intl. Devl. Agcy.) which is hiring a firm called Jakopoiri (sic) to develop our master plan." When something like that happens, my antennae really vibrate. Very quickly we found out that for this Tropical Forest Action Plan--it's a global plan--all sorts of bilateral agencies are hiding behind the multilateral system basically to do two things. One is to generate more raw material for industry. To do that they must have uniformity. But another thing, that has constantly happened with aid, since development suddenly came into our lives after Bretton Woods in 1948, and that is "How do you make money out of the poor?"

The Finnish grants are going to a Finnish company, but superficially they are to help the Third World protect its tropical forests. So when the Jakopoiri consultants are asked by local movements and local activists and local officers, "What do you know about our systems, they are so diverse? The Himalayas are so different from the rainforests of Malaysia or Thailand. You have spent two months here and a month there. How can you know more? And the lovely man from Jakopoiri said, "Well, I'm basically here to learn." And I thought, "What an expensive way to teach a few experts from the North."

The other instrument of destruction of diversity, that is, the first round of destruction, was again a global plan, across the world...and you'd love this name: the seeds were called "miracle" varieties, and the experts who went around the world were called "Apostles of Wheat". These are terms in technical language and of course it was "The Green Revolution".

But that massive experiment probably caused the most widespread destruction of diversity that we've ever known on this planet. It was done at one shot by destroying institutions at the local level, at the national level, at regional levels. In India, entire state machinery was bypassed, entire community decisions were bypassed, the Planning Commission was bypassed,

because "We cannot afford to let people die of famine. It's such an important task. This must go through."

I haven't gone too much into it, but I read the Green Revolution results as basically the problem of what's happening in Punjab today. It is all protests against control by the center, against the loss of autonomy of the region to make its own decisions about how they'll use land, how they'll fix prices, how they'll do farming, how they'll use water.

The second round of destruction of diversity in agriculture is coming in an extremely insidious way, and through a multi-pronged attack. One, is through the half-institution of Bretton Woods, the neglected one that suddenly rose its head during the '80's, the General Agreement on Trade and Tariffs, that was born at the same time (as the International Monetary Fund and the World Bank), to regulate international trade. Those of you in Europe have a very good feel of what it's meaning. The Third World is not really alert to what it means. But basically we have found out. It means it is going to be illegal to do self-reliant agriculture, because it's a non-tariff barrier to trade, to the free market of multi-national corporations: "If you do not give way to me, to force my products on you, then you are interfering in free trade." If you insist on a right to self-sufficiency, if you insist on a right to diversity, it's illegal to the global policemen at G.A.T.T.

These are not exaggerations. I don't know how many of you know that last year, India was put on the hit list of Super 301. Super 301 is a clause in the U.S. Trade Act, which basically says, "If a country is not behaving itself, it has to be punished." And what is it that India is not behaving itself on? It is refusing to agree to the U.S. system of intellectual property rights.

***"These monocultures of the mind which force diversity to die, don't just force monocultures in our minds, they force monocultures on the land, and they force, in turn monocultures on society. Just as plant monocultures are vulnerable to pests, disease and ecological breakdown, monocultures in society are vulnerable to social and political breakdown."***

What is the U.S. system of intellectual property rights? It's crazy, one doesn't even know where to begin in this business. Because if you remember, when the white man discovered America, and modernized it, the legitimacy of takeovers of indigenous lands was, "They're not being put to productive use." And wherever the white man can use it better, and the better use was always for the market back in Europe, then he, through that use, stakes claim to the ownership of that land. And that's how the first set of alienations around land took place across the world. Something very similar is happening through intellectual property rights to biological wealth and biological diversity.

We've been handling our biological diversity for centuries. Luckily the poor South is the rich South as far as biological wealth is concerned. All kinds of richness of diversity have emerged from here. This is where all the centers of diversity lie for croplands. Yet there's a very neat way in which people's diversity is being declared as mere raw material. It has to be available for free, with no controls, and that raw material then has to get processed by the few people who have minds, and that's why intellectual property.

It's the product of those minds, which are only male and only white, it's only those products that can then lay claim to the control or the use of those resources. So you're getting royal-

ties, patents, around living matter. That's where the new technologies come. The new technologies are hopeless without this regime of rights. Because, again, if I can plant my own food, and grow my own food with my own seed, I'd rather do that. But to make it illegal, I have to set up a regime of rights that makes something else legal, and the only way to do things.

What's happening here with biological diversity is absolutely the same as what happened with land. If you remember Locke's *Second Treatise on Government*, and I find this wonderful, I love to go back to the classic texts of politics, of economics, of philosophy written when the new industrial system was emerging. Because they're such clear statements of what has to be created, of what is the world order, what is the world vision around which things must get organized, and Locke's *Second Treatise on Government* stated, "That whatsoever he (and it's always a he) removes out of the state that Nature hath provided and left it in, he had mixed his labor with and thereby made it his property."

If you take the permaculture principles, you realize that they're getting in the way of turning things into property. If you work with nature, you can't claim property rights. If you take something away from nature, you state property rights. The act of removal thus becomes the act of owning, and it is for the ability to remove, separate, and fragment that capital depends on science-based technologies. However, ownership through removal and mixing with labor denies that in *in situ* existence there has been prior labor. There is no clear divide between nature and human labor in the cultivated seed. What the industrializing vision sees as nature is other people's social labor, and that it wants to denigrate. It defines that labor into non-labor, into biology, into nature. And defines both nature and women's labor and Third World labor into passivity.

Claudia von Frauloff, friend from Germany—wonderful group of women working on subsistence as a paradigm, as a way of living—has pointed out that from the dominant standpoint, Nature is everything that is available for free. It should be available as cheaply as possible. This includes the product of social labor. The labor of these people is therefore pronounced to be non-labor, to be mere biology. And that product is mere raw material to be used; value gets added somewhere else. Before that point there is no value, there is no production. It's merely provisioning of raw material.

It's wonderful in these global debates on private property over biological wealth, it's lovely that the Ciba-Geigy person at one of these debates we were having said, "People are saying the world at large should have access, that genetic diversity should be a common heritage. It should be treated as a public good, not as a privatized commodity. But I want to make clear that raw germplasm is very different from the germplasm that we create through value-addedness." And at that point Pat Mooney, who is one of the major activists in the seeds politics, turned around and said, "But isn't that a very racist way of looking at it, that when you add labor, it's value-added, but when other people add labor, it's still raw material?"

A number of artificial shifts are thus achieved through fragmenting knowledge. The sources of renewal and regeneration of life are transformed into dead, inert, and fragmented matter, into mere raw material waiting to be processed and manipulated into a finished product. The transformation of creativity into passivity relocates productivity in the disruptive, coercive, and exploitative acts, and defines it as a source of value. It simultaneously defines all other values as non-values. Through this relocation of production and value, external control over sites of



A "Living Fence" at Chitwan, Nepal

regeneration becomes not just desirable, but necessary for human survival and well-being. The destructive, ironically, emerges as the saviour.

To end with, I'd like to share a lovely, lovely poem that says something to that vision. It's a poem written by a Peruvian woman. Its title is "A Call to Certain Academics". I know that's not for you, but that's for the people that you talk to.

"They say that we do not know anything,  
That we are backwardness,  
That our heads need changing for a better one  
They say that some learned men are saying this about us.  
These academics who reproduce themselves in our own lives.

What is there on the banks of these rivers, doctor?  
Take out your binoculars and your spectacles.  
Look if you can.  
Five hundred flowers,  
From five hundred different types of potato  
Grow on the terraces above the abysses  
That your eyes don't reach.  
Those five hundred flowers are my brain, my flesh."

1. Vandana Shiva, *Violence of the Green Revolution*. Third World Network, Penang.

Dr. Vandana Shiva, an Indian physicist, directs the Research Foundation for Science, Technology, and Natural Resource Policy, 105 Rajpur Road, Dehra Dun, 248001, India. She is an associate editor of *The Ecologist*, a bi-monthly published in Great Britain. The foregoing is the text of her speech on 14 February 1991 to the delegates of the Fourth International Permaculture Conference at Kathmandu, Nepal.



# Bioregionalism is the Only & Practical Way

To Organize Your Housing, Energy, & Food Situation as a Sustainable & Controllable System.

## Tony Anderson

Bioregionalism, as a movement and a local consciousness of our relationship to nature and to our fellow men and women, is very well described in Kirkpatrick Sale's book, *Dwellers in the Land—The Bioregional Vision*, Sierra Club, 1985.

The categories involved and the size and definition of the regions as biospheres and practical working communities are likewise well described and further detailed in Bill Mollison's *Permaculture: A Designers Manual*, 1988.

My intention with this paper is therefore not to discuss the relevance or the possible categories implemented in the Bioregional concept, but to set up some themes for discussion—how we may act, concretely in our neighborhood, to get our situation in control and create a more sensible and coherent world.

For such a discussion we should recognize several criteria. Besides the more basic and archetypical ones discussed by Sale and others, there are global political, social, and economic developments and the possibilities they bring to mind.

### Present Tendencies:

#### Centralization—Decentralization

Our understanding of how the world functions is changing. Natural resources are being destroyed, social deprivation is spreading, economic institutions are cracking, political systems are mistrusted and dissolving. In such a situation, the only sensible course is to search for the fundamental basis of life, formulate new attitudes about social relations, and establish new systems for regulation of our surroundings. In such periods of historic transformation there is also struggle among different attitudes, groupings in society, and strategies for change. The present crisis is unlike any previous crisis in at least two ways:

One, it is global. For the first time, the essential crises are occurring in all regions simultaneously. For the first time there is no way to export it. Wherever we turn, we meet the same kinds of problems, and the same reactions against the same shortsighted kinds of solutions. And for the first time, local people in all parts of the world, at the same time, and maybe in a coordinated way, are willing to fight for their integrity and their rights.

Two, the environmental crisis stresses to the limit our relation to nature. Now,

for the first time since we became conscious of ourselves as "humans," we have had to view ourselves as an integrated and crucial part of the world's natural, circulatory, and interdependent systems. In this situation, the problem comes into focus: once more, the fight between centralization and decentralization.

The groups in control of national and multi-national production, exploitation, and financial systems think that centralization is the answer to ongoing problems—more power to the big regional and national control-and-decision system. The buildup of enormous bureaucracies, closely related to multinational companies (like Brussels, Washington, Tokyo, Peking, and Moscow), is still going on.

In contrast to centralization, regional and local interests begin to define not only the framework for a more independent, decentralized social and political organization, but the only sensible basis for regulating our relation to nature and ecological systems. These movements are everywhere and are gaining in strength. You will recognize them in your own part of the world.

In the fight between centralization and decentralization, the national states are losing influence and power. And that's the crucial point in the current conflict: who is going to gain influence, this influence that has been bound to the system of national states?

The centralizing forces, ruling powers since they won their battles in pre-Renaissance days, have all the strategies developed—the open trading market, free exchange of goods and money, trading and renting with money. All these have been guaranteed by ruling states in power. But now, these states are being taken over by super-national organizations, both corporate and governmental.

On the other hand, the decentralized strategies are not well developed. That's not strange. As a general ruling system, it's a new development. And it represents the most marginalized groups in our present system of "national states"—socially, physically, psychologically, and racially deprived groups, together with groups from isolated and exploited geographical areas.

But if we are not able to formulate strategies and establish structures based on more decentralized and regionally-defined societies, we are probably mov-

ing into an era with growing environmental problems and manifestly fascist characteristics.

If we look at the potential for decentralized development, the main point is not to be dogmatic, but rather, to state the social, organizational, and processional aspects of the local situation, and from there define a practical and coherent solution that you and your neighbors can use to change the situation and legitimate the authority of your local community.

### Bioregional Development: The Process

Size is not the important factor for a bio-regional community. Considering your local tradition and the possibilities the area provides, it is much more important to articulate the community organization in precise geographic areas, and to define social activities and services into these different levels of society. Bio-regional areas could range from a few square kilometers up to several hundred, the main criteria being the social and administrative definition and the geographic and bio-structural clarity.

The social definition is mainly based on cultural and ethnic criteria. The number of people it includes may differ from a few hundred up to a couple of millions, and they can be spread out over whatever area they define as theirs—from a small tribe on thousands of square kilometers in the Amazon Rainforest or the Kalahari Desert, to 1.5 million in Copenhagen, or the 7,000 square kms. on the island of Zealand. Whatever or wherever the situation, it is your definition of the social organization that is important.

Within that defined society you have to identify at least two different organizational levels, which should be the ones with ultimate autonomy in matters of resources and distribution: your dwelling group and your bioregion. In between those two, it might be convenient to establish other levels of administration, but only for executive functions. These may be needed especially in dense areas where natural boundaries have been destroyed long hence. According to local traditions, it might be necessary to establish one or two other levels: community and municipality.

We ought not establish more bureaucracy than we need, yet we have to create the social forums for necessary discussions and decisions about resources and productive development. We must be



very conscious about the rules established for these social processes. Following the break-down of the communist/state-capitalistic system, the so-called "representative democracy" of the northern countries remains the only legalized and formally accepted system of government. That's the system where you vote, take majority decisions, and have permanent representatives for specific periods. Such a system may work on certain levels and in relation to some decisions, but it doesn't work in such vital matters as the organization of natural resources and the distribution of surplus.

Here we have to regenerate the decision-making system of delegates, which has been working in grassroots organizations and in lieu of tribal systems. This system is based on wide consensus attitudes and minority protection, and should therefore be the ruling system in at least the two vital levels, dwelling-group and bioregion. Such a system of delegation (instead of representation), gives a group or a society steady and continuous control, decision-making being made a more formal relation, combined with the advantage that you naturally delegate the person in whom you have the most confidence, and who has the best insight into the matter that must be discussed.

The geographical analysis is influenced most by practical local realities: What natural obstacles—water, mountains, forests, wilderness, deserts, etc.—are in the area? What means of transportation have been and are available? To that comes the tradition for getting resources: Which kind do we get where? What kind of social wishes have led to what trends and paths in the area?

These social and traditional habits are naturally related to the fauna and flora, the watershed structure, the actual soil condition, the biological resources, buildup of biomass, and the patterns in human consumption.

Thus we can describe the different organizational systems:

#### **The Dwelling Group**

This is the group wherein you share your daily needs: food, shelter, and the ultimate protection against foreigners. It could be a family group, but it may be simply a group of people who share the neighborhood of these basic functions. It might differ from a small tribe, a group of houses along a street, to apartments around a staircase, or a whole city block. In size it may vary from a couple up to a 1,000, but would rarely be more than 200

to 300, which seems to be the maximum you can handle as a steady, known, and recognizable number in a society.

Limited size means that decision-making in the group can be informal—a system where on certain dates you make assemblies which are open to anyone interested, and where anybody can argue until the rest of the group find you too boring or annoying.

The dwelling group is traditionally based on an area where it is possible to walk out, have a day's work, and return for the night. In our present situation, the distance might be greater, but the criteria are the same: the general view of the situation and the understanding of the resources and energy streams, combined with social, ethnic, and cultural identity.

#### **The Community**

The next level for social organization could be the level for administration of public services. Historically this was connected to the dwelling group, but today it has, along with the demand for more sophisticated and diverse services, shown a tendency to grow bigger and bigger in scale, until the present situation, where we are losing influence as well as our general view of the connections and intentions within the entire system.

Therefore, it is important that we are able to establish a level for this kind of services, and that those different services be defined within the same geographic and social boundaries. This goes for education, teaching at the basic level, cultural and spiritual services, health service, security systems, and local transport.

You might define those functions within your dwelling group—and that would be fine. But in most cases the dwelling group is too small (as the systems are developed now). The important point is that you and your group are in control of what is happening and that you have delegates who are in control of the systems in question.

#### **The Municipality Or Commune**

This has developed from its origin as the administrative and economic framework of sovereign communities in the greater society—to become the executive organ of the national states and the means of controlling community services and the economic life of the citizens. The municipality level has therefore to be eliminated in the structure of an organization based on natural resources and humane needs. Of course, analysis will show that some municipalities do retain some of their original and natural potential. For the rest, however, functions and

services usually associated with the municipality system should probably be handled at community or regional level.

In a bigger metropolitan structure, it might be suitable to have an administrative level between the community and the region, but not defined in the same demarcative way. The criteria for such a definition would probably be more functional and service-oriented. For instance, it might consist of an area in the city (a community) which has a "food relation" to a certain group of farms and energy sources, or a "building material relation" to a forest and a clay pit. Such closely structured administrative relationships should naturally be defined in the regional concept covering the whole area.

#### **The Region**

The region will therefore be that area within which you can define and fulfill your fundamental needs in all services and levels, and for which natural barriers can be described for all inhabitants as part of their cultural and social reality. It should be of a size that enables inhabitants to control their total circulation of matter, water, food, and energy. In this respect, the region is defined as any population in an area that can delimit its needs according to the local natural potential. This means a major and definitive rupture with the present international-regional exploitation of our environment and the system of global trade.

#### **Proposals for Permaculture Strategy**

When we, as designers, go into a project, whatever the size, we should relate the functions and the services relevant to the project to those regional criteria mentioned above. We have to oppose and remain independent of the world's authoritarian, centralized, and exploitative powers. We must contribute to the fight for a decentralized, truly democratic, and sustainable world—the world that in the ongoing struggle has to be regenerated through autonomous regions in interdependent relations—regions that can provide for the needs and services of their specific populations, including bufferstocks for emergency and catastrophe situations. Δ

*Tony Andersen, a Danish architect, is engaged in planning and rehabilitating an industrial tenement in Copenhagen's Vesterbro district as a permaculture community. This paper was originally presented in a workshop at the 4th Intl. Permaculture Conference.*

*Dwellers in the Land—A Bioregional Vision is available from The Permaculture Activist, see p. 37.*

# Rainforest Relations

## An Experience in Community Agroforestry

Penny Hoover

With itchy feet and weary of the desktop approach to environmental activism, my husband and I decided to try a stint of direct-action field work. We wanted to travel, to learn another language and culture...and we wanted to see what could happen if we gave ourselves fully to environmental work for an extended period. With the Peace Corps supporting us to live in a village in Equatorial Guinea in the Zaire rainforest (see sidebar) for two years and a \$5,000 grant from the Canadian government, we had a chance to pursue our goal.

In considering our direction, some of our first questions were: What are the people's land-related traditions? What, within the traditions is harmful, what beneficial? How do we judge that in our short stay? Is there local interest in learning sustainable alternatives to the slash-and-burn tradition? What methodologies and extent of outreach would be appropriate for our two-year stay. How should we operate, knowing we had no guarantees that our work would continue? And the eternal question in these pressing times: how could we best use our time, given the needs, and our resources?

The first question, "what are the traditions?" is, of course, immense. It didn't take long to see that virtually all the Fang (pronounced like "long") people's traditions are land-related. Food, housing, much of the medicine comes directly from the still-abundant rainforest. But after several months, this much became clear: Fang agriculture had no concept of actively regenerating fertility. They find the most mature forest available, cut it, burn it, farm it, and leave it. This pattern served the Fang for centuries, absent any particular pressure to change.

Their traditional crop rotations yield food and medicines for about 1-1/2 years after cutting and burning a plot, then heavy rains on these fragile rainforest soils bankrupt the soil fertility, forcing them to move on. In this way, the Fang have migrated across the Zaire basin from what is now southern Sudan over the last 400 years.

This linear migratory pattern (westward from point A to point B) does not provide incentive to develop conservation practices or genetic diversity of

crops. By contrast, where shifting agriculturalists have recirculated over the same territory for many, many generations, they have tended to develop very complex cropping variation and long-term multistory successions in which the people more or less guide the freshly cut land from low-growing annuals to food-bearing perennial bushes and trees. In these cultures, harvesting of one slash-and-burn plot can extend over two decades. At that point the plot is well on its return to the full canopy.<sup>1</sup>

Researchers are just beginning to gauge the sustainability of indigenous practices, and to catalogue the vast biodiversity of the rainforests. Specialists have also not agreed upon what is "indigenous", with criteria ranging from "clothing comes from natural sources" to "hunter/gatherers". Knowledge or ignorance notwithstanding, whether a people fit the definition of "indigenous" should not determine whether their traditions are respected or preserved. Clearly, our survival on this now very fragile planet calls for tender sensitivity toward all life forms, in their entirety. This includes the careful review of traditional forms (agricultural or otherwise), whether the people fit our silver-screen image of the "sacred primitive" or not. The balance between honoring tradition and choosing "appropriate technology" (here meaning appropriate in light of current ecological imperatives), is a tricky business. Too

often, that delicate balance pops out of existence like a bubble, not even noticed by project planners and directors.

Some of the parameters guiding us in finding and holding that balance:

In Africa, three-quarters of all rainforest destruction is due to slash-and-burn cultivation.<sup>2</sup> The current population growth rate of Equatorial Guinea is 3% annually, a radical increase over the last ten years. Under the pressure of logging and slash-and-burn agriculture, the entire forest resource of EG will be destroyed in 20-30 years at current rates of cutting.<sup>3</sup> (Probably a very conservative estimate.)

In Equatorial Guinea, where the cash economy is in a deep-freeze, upwards of 85% of the population relies on subsistence farming in the forest for their existence. Introduction of sustainable agroforestry information provides a glimmer of hope for the forest, and for the Fang people who depend upon it.

Among the alternatives to slash-and-burn agriculture, we chose alleycropping as our central method because it has yielded the best results under research, and because the Fang villages have a considerable amount of degraded land in and around their villages. Alleycropping provides the potential for regeneration of that land for a more intensive cultivation, thereby relieving pressure on the forest. Our starting point strategy for inclusion of indigenous knowledge in this system was for the Fang participants to use their traditional agriculture methods in a project demonstration plot, blending them with the sustainable methods.

"Finca permanente" (literally, permanent farm) was the catch-phrase to iden-



The Nvige village women's group

Photos by Penny Hoover



A-Frame level for measuring contours of the land  
 tify the sustainable concepts we were teaching. We tried not to suggest that these would automatically produce a permanent farm, but that they were tools... pieces of a puzzle...that together with indigenous knowledge of the land could provide a pathway to discover the sustainable agriculture of this place. We challenged them to search for this "third way"...that is, 1) not their traditional pattern of slash-and-burn and 2) not the imported sustainable methods, but an integration of these two.

Although we focused on legume-based intensive farming to reclaim exhausted land in and around the villages, we hope to see future application of improved fallow systems (use of legumes to help a slash-and-burn plot recover.)

Sustainability is site-specific. Therefore, education for sustainability should rest more on principles than methods, and needs to remain adaptable.

We chose three simple principles as the foundation of our teaching: Protect the fertility of the soil. Prevent erosion. Conserve the forest. To translate these principles into practice, we settled on four simple, integrated methods to try to convey to our neighbors:

**Alleycropping** • Nitrogen-fixing trees planted in rows, usually 4-6 m. apart, with crops planted between. The trees are pruned to provide regular nutrients to the crops.

**Contour planting** • We used "World Neighbors" design for a simple A-frame to measure the land's contour. This simple pendulum device can be made in five minutes from three light poles, a string (or forest vine) and a rock.

**Mulch** • There was no lack of organic waste for mulching.

**Compost** • The acidic, red soil of the region is so texture-poor that we used a "windrow compost" technique (i.e. layered organic materials in long mounds, also built on the contour) to supply a plentiful quantity of compost. This thinking, and the choice of principles and methods, all fell into place gradually...organically.

The project actually grew out of my digging a garden when we first arrived in "our" village--my response to culture shock. As every year for the last 20, I used organic, bio-intensive techniques, but this time, I incorporated the tropical technique "alleycropping". By the time the peanuts in my garden were in bloom, heads were turning at the robust results.

At that point, formation of women's groups to start experimental plots with the "finca permanente" techniques happened naturally. The involvement of J. Obama Engong, a young farmer who had received a post-high school agriculture training and understood some of the pros and cons of modern agriculture, was essential to the group formation. He had an inkling of the global deforestation scene. We worked together as a team, responding to calls of interest from surrounding villages to start Finca Permanente group experimental farms, and providing ongoing extension support. His work, as a cultural bridge and translator to the local dialect (very few women spoke the official language, Spanish), was a blessing, and directly responsible for the success of the project.

The garden I had started for our kitchen was a good demonstration of the sustainable methods, except that I had mostly grown vegetables that we loved

and couldn't get, rather than the Fang foods that were so abundant there. When we saw that the groups were tending to grow European vegetables in their fincas, as we had, we started the "Demonstration Finca Tradicional". In this demonstration the women planted traditional seed in the traditional way, according to traditional schedules, with the four sustainable methods added like a template.

Seeing the lush, hearty growth these methods produced with local crops created lots of excitement.

When the money from the Canadian grant arrived, we were ready to present a series of Finca Permanente seminars with the purpose of deepening the conceptual understanding behind the groups' experience, and to increase our outreach. Husbands now joined in, and mixed-gender groups began to crop up. Obama, another volunteer extensionist, and I worked together on the presentation so the seminars could be given in the Fang language. On the third day, the most active women, who were now supervisors in the demo-garden, taught the methods in field-practicals in the fincas.

Finally, at these seminars, the time seemed to be right to talk about the global perspective of deforestation. With paper wedges stuck to our plastic beach-ball globe, I explained how fast the rainforest is disappearing. I showed pictures of the devastating desertification of the nearby Sahel, and indigenous Brazilians wandering through a crisped, clear-cut previously forested moonscape.

Out came stories of their perception of deforestation. Streams had dried up. Poor hunting. The long distance, now a full day's walk, to the virgin forest, the



J. Obama Engong standing in the Demonstración Tradicional. Shading is a concern in alleycropping. Here the local squash took over and did some damage to the leucaena row.



Our primary nitrogen-fixers: pigeon pea (broadleaf) & leucaena (tiny leaves) difficulty of finding forest that had been left fallow long enough to assure a good harvest, the closing gaps between cultivated fields of neighboring villages.

Only now, did people really start to link the Finca Permanente idea with forest conservation. We boosted the motivation for applying the methods to forest-grown foods by adding a tools-incentive program: a farmer could receive a set of agricultural hand-tools by complying with clear-cut criteria for creating a small "Finca Permanente".

Seminar-goers were doing simple calculations...if every family cuts two-hectare plots per year for farming, and there are so many families in Rio Muni...how can the forest last for our grandchildren? Then the village leaders started saying: the reason to try this way of farming is because it will help conserve the forest...and our lives are vitally linked to the forest.

This message, simply stated in a letter that was signed by six village headmen made all the difference in our efforts at lobbying for continuation of the project. Several aid agencies collaborated to maintain the programs we had started, and the European Community wants to use our project as a model for a \$2.6 million project.

The most hopeful outcome we witnessed, however, was that a handful of families had earnestly embraced these regenerative principles and were actively experimenting in search of a "third way", a code of sustainability for their place on the planet.  $\Delta$

#### Notes

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2. *Rainforest World Report*. Rainforest Action Network. S.F., CA. Fall, 1988.
3. *Seguimiento a la 2a Mesa Redonda de Países Donantes*. Guinea Eq. 11/89

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Balasubramian, V. *Some experimental designs and tree arrangements for on-farm agroforestry trials*. ICRAF. Nairobi. 2/90.

## Profile on Equatorial Guinea

Equatorial Guinea, consisting of 5 small islands and a chunk of land on the W. African coast between Cameroon and Gabon, is about the size of Connecticut and is entirely covered by the vast Zaire rainforest. EG was a colony of Spain, and Spanish remains the official language. Among the world's five poorest countries by per capita income (\$270/yr), it is one of the top five per capita in receipt of foreign aid.

After EG gained independence from Spain in 1968, its first head-of-state, a power-crazed dictator, led a reign of terror which rivalled that of Idi Amin. Over a decade, all evidence of technological advances (eg. streetlights, internal combustion engines) were destroyed in an attempt to halt modernization. An estimated 30-50% of the population were murdered or exiled. Twelve years after the termination of the Macias dictatorship, there is no press of any kind. For the average citizen, there is very little contact outside of the village region.

Low world market prices for coffee and cocoa have limited exports to hardwood timber. With the national economy at a standstill, the people are very dependent on the rapidly diminishing forest for their subsistence farming livelihood.

*ILEIA Newsletter for Low External Input and Sustainable Agriculture*. Leusden, The Netherlands 11/90.

Meyers, Norman. *The Primary Source: Tropical Forests and Our Future*. W.W. Norton. 1984.

*Penny Hoover and her husband, Doug Parker, have returned to their "off-grid" home near Boulder, Colorado. At 8,500 ft, this bioregion calls for an entirely different set of adaptations. They are searching for funding to write agroforestry educational materials for African rainforest dwellers. Any comments or suggestions can be sent to Box 1077, Boulder, CO 80306.*

## Technicalities

Leucaena (*L. leucocephala*), a fast-growing tree legume, may be the most widely planted green manure in the tropics. For alleycropping we used variety K-8. Providing a good balance of nitrogen, phosphorus, and potash, leucaena also pulls up trace minerals with its long tap root. It withstands both drought and pruning well, and appeared so ideal that it was overused in some regions, notably the Philippines, creating susceptibility to disease.

Looking to diversify, I found the Fang have pigeon pea (*Cajanus cajan*). another multi-purpose tropical legume, valued for soil nutrients, food, and fodder. Locally called congo-lif, it is appreciated only as a cure for measles. So, I spread the word that pigeon peas are also delicious, protein-rich food.

Pigeon pea establishes quickly, produces abundant foliage and peas in about six months, and has a duration of 2-3 years. Leucaena can be difficult to establish in poor soil, but once started, it grows very quickly, and has a longer duration. In the first demo-garden, I planted double mixed rows of leucaena and pigeon pea between every two beds, and around the perimeter for a live fence. Pigeon pea produces during the leucaena's slow early years, but is supplanted as the latter takes over, bearing for another 15-25 years.

Several of the village groups had trouble starting the leucaena, likely due to poor soil fertility, and acidity. We had replanted several times, but the trees wouldn't establish. Then, Dr. Bala, from IITA (Intl. Inst. for Trop. Agriculture) in Yaounde, Cameroon gave me seeds of an alfalfa-like annual, crotolaria. It grew 3 m. in three months, even in poor soil. After turning crotolaria under, leucaena, in most cases, took hold.

In the traditional demonstration, there were small areas we couldn't cultivate because of tree stumps or topography. Here, we planted tephrosia, sesbania, and desmodium, small plots of trees that could be pruned when extra foliage was needed for nutrients or mulch.

Our sheet mulch method comes from Bill Mollison: to reclaim part of the demo-plot that was hard-packed red clay and grew nothing, we began with 18 inches of green mulch, layered soil and manure, more foliage, and so on. When the mulch settled, we planted crotolaria through the mulch, top-dressing with compost. Four months later, after turning in the crotolaria, the ground was ready to plant.

# Permaculture and the Greenhouse Effect

## An Interview with Jerome Osentowski

*Jerome Osentowski, a permaculture designer and teacher, operates Jerome's Organics and Central Rocky Mountain Permaculture in Basalt, Colorado. One of ten Americans present at the 4th Intl. Permaculture Designers Convergence at Biratnagar, Nepal, he was one of three Americans among thirteen persons initially nominated to the Intl. Guild of Permaculture Practitioners. I interviewed him in Kathmandu during the week of the IPC4 Conference, at a time when bombs falling on Kuwaiti oil fields to the west raised fears that the Indian monsoon might fail.—Peter Bane*

**PB:** Jerome, your presentations to the Convergence and Conference show a well-articulated greenhouse and market garden operation succeeding in a cold mountain climate. What were your aims when you began and have you met them?

**JO:** My aims were to take a very small and unproductive market garden, revamp it, make it larger and more productive, make it yield a paying livelihood, and to do all those things with an integrated permaculture approach. I think I've accomplished that. In four years, the market operation has paid for all the facilities constructed on the site including two greenhouses. The soil fertility has increased tremendously. It's been successful in that respect. But as in any good design, it's continuing to evolve.

**PB:** How has location supported your design and how'd you come to be there?

**JO:** I came to be there totally by accident. When I was looking for land, it seemed to be the cheapest available in the area. I wasn't interested in doing much agriculture at the time I bought the land, only raising a few goats and such, but the site is a natural sun trap with a large mountain to the north and protective ridges to the east and west. I came to Colorado as a ski instructor and taught for about twelve years. I gradually found that wasn't something I wanted to do for

a lifelong occupation. I gravitated from that into carpentry, then eventually into market gardening.

**PB:** How did you get started?

**JO:** Each year I would seed mulch another terrace. The following year I would plant it, start another terrace with rock work. I could only backhaul a certain amount each year. I only had a certain amount of money to put into it. The first greenhouse was built for between six and seven thousand dollars. It paid for itself within a year. It took me four years to build the second greenhouse. Each year I would add something else. In terms of not making mistakes, a gradual development like that is the best because you have time to look at the system and look at the design and see where you want to be and what's working.

**PB:** Did you begin getting income from your system immediately?

**JO:** I had been developing it while working as land manager on the Verena

project. Since mine was already a small market garden, I was getting six, seven thousand a year at the time I shifted out of my other work. I think the key is to get some annuals in, start to bring the cash in, and get the soil fertility built up gradually. During the transition, it was definitely rolling permaculture.

**PB:** Have you incorporated features of the native ecosystem or emulated traditional cultural systems in your design?

**JO:** The idea of the salad green which I market came from several years of foraging wild plants. I took the idea and commercialized it by using cousins of these wild plants, and developed a scheme of marketing a very healthy salad mix. I also use perennials and continue to use some of the wild plants in the mix. I have about a mile of watercress growing in a pristine spring which I harvest for the salad mix, plus other local annuals and perennials that occur on the farm. The site is possibly an old Ute Indian summer camp or hunting camp. You get the feel of it when you walk down from my garden towards the spring to a waterfall a few minutes away. Near the river there are quite a few natural tipi sites. It has a very good feeling.

**PB:** What elements are you integrating for your income strategy?

**JO:** The salad green as a marketing strategy is both diverse and simple. By growing up to 25 different herbs and vegetables, I disperse the risk of any one crop failing. It's simple in that it's a single market product, with one basic package. All the different crops can be picked, mixed together, and marketed as one product. At any given time of year, it's not difficult to come up with an attractive mix of greens. It varies with the season, but customers come to expect that, even value it. And it commands a high price, because it's unique in the local market.

I've turned what would normally be a disadvantage, a high dry mountain climate, into an advantage because I can grow vegetables of great vitality and purity. I occupy the high ground of health food: raw, local, organic, free of pollution, colorful, clean, diverse. Because of the changing diversity of elements in the salad, it's seen to be especially fresh. The wild plants and unusual cultivars which I've collected have exotic



Jerome harvests the clean green on Basalt Mountain



appeal, too. I don't have to sell carrots or any other things. I can sell the salad mix. It works very well for me.

I choose the best crops for the best condition within the system. Among the two dozen cultivated crops, there's a wide range of needs and tolerances for climate. For instance, in my greenhouses, I grow basil in the summertime. It likes that environment, which can be as hot as 90°F (32° C). I don't have to put effort into cooling them because the basil thrives in the hot dry microclimate, where it wouldn't like the cooler outdoor temperatures. In the spring, I use the greenhouse for bedding plants, which gives the garden plantings a headstart, and provides another market niche for that season. In the winter I grow salad greens indoors.

Being flexible and diverse in my cropping, I get maximum use of the structures with a minimum input of energy.

The gardens work the same way. The summer gardens and spring gardens are planted in hardy salad greens. Most of the produce is hardy to 20°F (-7° C)—there's a lot of resilience. You have to have resilience in an environment at 7,000 ft., to build in resilience through soil fertility and genetic hardiness in the plants themselves. Four out of the last four years, we've had summer frost, a late June frost. One night it reached 18° (-6° C), but I lost nothing.

I market to individuals, restaurants, supermarkets, and farmers markets. So I cut across the broad spectrum. When the restaurants are slow, I have individual customers and supermarkets to take up the slack. In the busy season, all four or five types of outlets are active.

**PB:** Would you describe a little the methods that you use?

**JO:** Generally, the day before marketing, a few calls are made to the people who don't have a standing order. I get the amounts they need for that week—they change slightly during the season depending on business. The following morning we pick the salad mix in maybe 20 different boxes and we mix it in a large bin. It gets packed and sent off that morning. It's about a four-hour run out and back. We drive a maximum of about 20 miles. We do that twice a week. The rest of the week is available for propagation, fertilization, and relaxation. It's not a very strenuous operation when all's said and done.

**PB:** Do you have other products in the mix or have you other elements that generate income in your system--what are

the dimensions of your economy now?

**JO:** The overall income for CRMPC is diverse. Produce accounts for about 65%, the nursery for 15%, education 15%, and consulting 5%. A wider base makes for a more stable economy.

**PB:** You make the sale of nursery and bedding plants part of your operation?

**JO:** Yes, that's a growing part. It's relatively lucrative for the amount of effort that you put into it. I'm going to expand the bedding plant operation and will be adding a tree nursery as well. It's a logical thing to incorporate in the economy of my site, because I have the greenhouses and can maximize their use at that time, which is the off season for the restaurant salad business. The main part of the produce is divided between salad greens, some cut herbs, and major basil production during the summer. We harvest and sell about forty pounds of basil a week to restaurants, individuals, and delis for pesto sauce.

Next year we'll be marketing pesto or at least a basil sauce with garlic as a value-added product. Also, we're expanding into medicinal herbs.

**PB:** What distinguishes Jerome's Organics from the competition?

but those haven't served them too well.

I've developed a system using the most appropriate ideas from permaculture, biodynamics, and agribusiness and have made them climate- and site-specific. Sometimes a simple thing like growing the salads and herbs clean will determine whether you stay in the market or not. I developed cultural practices that allow me to grow and sell my product clean without washing it. It saves time and the product quality is enhanced.

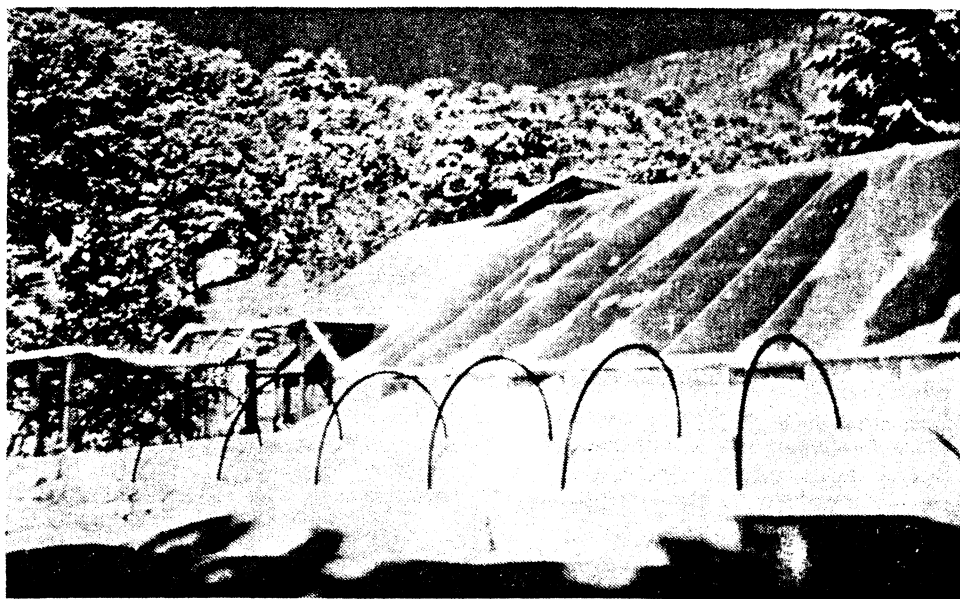
**PB:** Primarily from the use of mulch?

**JO:** Mulching, row covers, special watering strategies, closed canopy, it's a variety of things used in combination.

I've found that is one of the single most important things which allows me to keep a market edge, that I do not have to wash my produce. If I had to wash my produce, it would involve perhaps a third more work in the whole operation.

**PB:** Climate has forced you to invent a variety of year-round growing strategies. Would you describe some of them?

**JO:** What I demonstrate and promote at my site and teach in my workshops is the concept of a twelve-month growing season. That includes 7-1/2 months outside using perennials and annuals that are



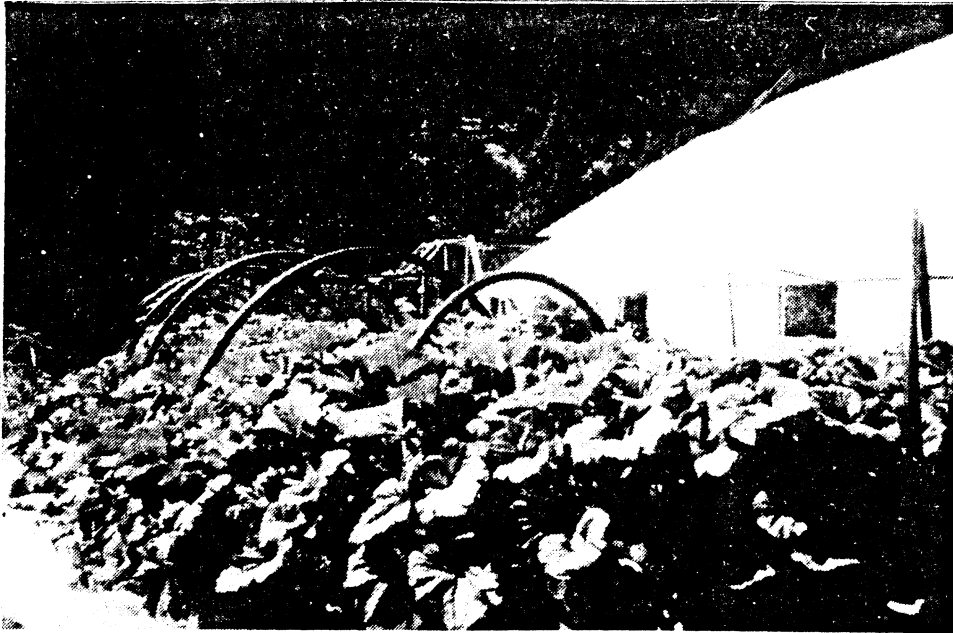
Heated by sunshine and chickens, this double-insulated greenhouse paid for itself in one year by providing fresh salad for a year-round market.

**JO:** Locally, I have some competition, but there is room for more product on the market. Given all the variables of growing at 7,000 feet and given the 90-day frost-free period, others haven't been too successful because they lacked imagination, I think. A lot of people have come from California and have tried to use some of the same cultural practices in Colorado which they used in California,

hardy to 20° F. I simply don't grow anything that is frost-sensitive outside. I find I sleep better at night that way. Simple cloches, stone terraces, good frost drainage, all these in the setting of an overall protected site, give me an edge on all the variables that we find in Colorado.

This is where permaculture comes in, in the integrated way that the garden systems are linked with the greenhouses and





Frost-hardy plants, cloches, mulch, solar gain, & permaculture strategies provide 7 1/2 months outdoor growing 7200' high in the Rocky Mts.

Photo by Jerome Osentowski

the animals. The greenhouse heating system that I've developed is unique in that it heats the soil in the growing beds with forced air down to three and a half feet, taking the warm ambient air from the greenhouse and piping it into the ground. The plants are grown in 65° F soil.

I use compost on the north wall of one greenhouse and on the west wall of another greenhouse, which heats directly through the wall and provides extra insulation. The chicken coop backs the west wall of one greenhouse adding extra heat and CO<sub>2</sub>. Off of that chicken yard, I have a very effective composting operation which uses the straw yard on a sloping hill. Large amounts of organic matter are placed at the top end of the straw yard. The chickens work the straw, rotten hay, or leaves, eat some of the weed seeds, shred it, manure it, and deposit it down at the bottom of the slope where it turns into high quality compost. It can then be cycled back into the orchard or the greenhouses. I get two harvests of compost a year worth about \$700 from 40 chickens.

That's also the way we recycle a lot of the garden and greenhouse residues. Sprout trays, wheatgrass trays, damaged vegetables go directly into the straw yards. The chickens get a lot of the insects which we collect and feed. It all forms a very tight loop of fertility.

Other cultural practices include foliar feeding with seaweed fertilizers, biodynamic teas using nettles, comfrey, watercress, and sometimes seaweed. We make our own fish emulsion using waste fish from a local retailer.

Sheet mulching and good water man-

agement have increased soil fertility resulting in extra hardy plants. We also extend the season by growing root vegetables which winter over or which we pull and store. In the fall, much of the garden is planted in spinach which also winters over and becomes the first green in the salad mix along with watercress from the stream. We are cutting outdoor greens late into November.

**PB:** Tell me how you use animals in your system.

**JO:** The chickens are used in a number of ways. We have the chicken house on the west end of the greenhouse. They produce heat. We change out their straw bedding about every three weeks and compost it. We use the straw yard system which I described earlier, and we use a chicken tractor directly on garden beds to recycle residues and insects and to manure the beds. That's been very effective, especially in the early phases of establishing the beds. One winter I had seven chickens circulating on the entire terrace. We increased the soil depth by 4-7 inches all across the bed that season.

We do the same thing with rabbits in tractors. We do a lot of green manuring. Then we put rabbits directly on the green manure crops. They mow them down and manure them. We also use rabbit hutches in a unique way. We move them directly over the new generation of beds. We put in a few bottom stones for the terrace, set the hutches right in them, the manure falls, earthworms come in, begin to aerate the soil. We build it up directly. We harvest the rabbits for meat.

We also have geese. We're developing

a pond. The geese have free-range in the orchard. They're very good at fertilizing. They tend to nestle in the orchard mulch.

Pigeons share a section of the chicken coop, separated, secure, and with a straw yard of their own which works the same way. The rabbits winter in their hutches, as long as they get sunshine during the day. The geese take care of themselves.

**PB:** Have you had any problems with insects or pests or predators, deer?

**JO:** For deer, I put up an eight-foot deer fence very near the beginning. The Fish and Game Service helped buy the material. It's been very valuable. In the beginning we had more problems with pests, but as the soils have become more fertile, we've had fewer and fewer pest problems. I still keep an eye out for aphids. We do regular releases of ladybugs each year, until they start to propagate on their own. We have a few slugs in the greenhouse from time to time, but by managing the watering schedule, we keep that in check. We raise a litter of cats each year. They control mice in the greenhouses. Our pest losses run about 5%. We use an IPM program of predator insects, some soap sprays. I haven't used any pyrethrum for a couple of years.



Course fare: laying out swales with a water level.



Compost insulates north side of greenhouse. Snowmelt from roof moistens pile. Squash is living mulch and catch crop. Chicken house (rear) adds heat.

**PB:** Have you created pest predator habitat in the area?

**JO:** Yes, there are lots of plantings of the Umbelliferae, clumps of lovage and other rampant perennial hosts for predator insects. I interplant dill and cilantro in the garden to confuse the insects and host predatory wasps. We interplant marigold and calendula in the beds. A lot of these things reseed themselves. In the fall I'll take dill and just shake the seeds over the terraces. It comes up in the cracks between the rocks. That way we get a second, multi-functional crop which doesn't interfere with the main crop. We sell the herb and get the insect control.

**PB:** What are your conclusions about greenhouses and coldframes, cloches, etc? Are there parallels for other climates?

**JO:** My sense is that every climate will dictate a different design for greenhouses. My greenhouse wouldn't necessarily be appropriate for other climates. It would probably be overbuilt for many climates, since I have been safe down to -20° F without any fossil fuels. I have a backup heating system for it which I can use if the temperature drops that severely (below -15° F). I also built a wood-burning sauna onto one of the greenhouses which acts as a backup heating system.

**PB:** It sounds as if you've made maximum use of the elements on your site to prime those greenhouses.

**JO:** Yes, integrating chickens, compost, greenhouse, sauna, even using the snow cave effect on the south wall has helped. Every little bit of buffering adds a degree or a half a degree.

When considering what sort of greenhouse is necessary, one has to consider the sunlight, temperature, humidity, the crops grown, the overall use of the greenhouses and the resources available. Sometimes cloches are all that's necessary. I find that the simplest strategies work the best.

I saw a large set of greenhouses in the Okanagan (Valley of central Washington). They were used for drying baby's breath in the summer time, and for other crops in the winter. You just have to be imaginative.

With the global climate change, greenhouses will become even more important as time goes on. Especially if the erratic weather conditions which we are seeing now continue. Hamaker (John Hamaker, *The Survival of Civilization*) thinks that most growing will be done in greenhouses in time to come.

**PB:** You mentioned education as part of your local economy.

When and how did you begin to teach?

**JO:** Well, I taught skiing for twelve years, and then in 1985 I was hired as the land manager for the Verena Project which is a permaculture site at a school, the Aspen Community School at Aspen, Colorado at 8,000 ft. I taught the children to do garden exercises there. We taught mathematics, farming, and health through the garden format. That was a two-year experience. It was quite successful in terms of the teaching. In 1987 I started teaching garden workshops. Now I'm up to about six garden workshops a year. I do garden and PC related workshops outside of the area too. In 1987 I organized, hosted, and co-taught the first Permaculture Design course at CRMPC. In 1990 we ran the fourth annual PDC.

**PB:** Your operation includes internships. How does that work?

**JO:** It works better as time goes on. We have two separate facilities to house interns. We have a library, and the main house. Students come to learn the market garden operation, from compost to soil preparation to propagation to marketing. I find that the more mature the students are the better the system works.

**PB:** Young vegetables and mature students...

**JO:** I'm also getting better at it myself. I generally have four interns in the summer program and one or two in the winter program. I like to have people there for at least four to five months so they get a feel for the changing of the seasons and can get a full picture of the marketing operation.

**PB:** What kind of students are you attracting now?

**JO:** We're beginning to get students with bachelors degrees in biology. Students are coming from Slippery Rock University (in Pennsylvania) which has a Master's program in Environmental Studies/Sustainable Systems. Last year I had one



It pays the bills: 25 ingredients make the ever-changing salad mix...

student from Slippery Rock and this year I'm interviewing two. They have 27 students now in the program who have an option to do internship in lieu of a thesis for their Master's degree. We offer a good opportunity for some hands-on experience of a working model. It works well--people coming from this level of interest are more sincere and more intent on doing the necessary work to make the operation run.

**PB:** Moving into a professional stream, in other words. Do you do other publicity or outreach work?

**JO:** Locally my workshops are the only organic gardening or permaculture workshops offered. I have ten-years' experience in the area as a grower. I do TV shows on Grassroots on permaculture, a bi-weekly radio garden show, where I feature PC programs. Grassroots is a local public educational cable TV station. I'm on the steering committee for a sustainable ag conference and I speak at regional meetings. I do booths at local fairs. At least a dozen articles have been written about my operation. We get a lot of inquiries about permaculture. This spring *East-West Journal* is going to publish a story on the salad green operation. We answer and distribute a lot of information about permaculture by mail.

**PB:** Have you had any grant funding?

**JO:** We've only received about \$2000 in grants so far. It was given for scholarships to workshops. But I see other monies on the horizon. I'm going to be doing more grant work when I get back.

**PB:** You've mentioned Slippery Rock University and internships. Where do your students come from? Are they in the local catchment or do they come from across the country, and what has been the local response to your work?

**JO:** Most people hear about my operation as something that's working and paying for itself. Slippery Rock has been helpful; UC-Santa Cruz has sent people. Internships are being more widely used now. I don't get many local people on internships. *The Activist* provides a major source of contacts.

Locally I've been somewhat isolated from the agricultural community. The extension agents pretty much ignore me. I think they're kind of embarrassed because they still promote the 90-day growing season. There isn't a lot agriculture promoted in our area. It's more tourism. So they mostly ignore me. Individual gardeners and homesteaders are very receptive to what's going on. They're the ones who attend my workshops and

who support me.

**PB:** How would you characterize the evolution of the permaculture system you've set up?

**JO:** One of my goals is to become redundant. At this point I've set goals to stabilize the market garden and to introduce more perennials right in the garden itself. The evolution of the design is to phase out of annuals and into perennials. By converting part of my land into perennials, tree crops, fruits, berries, I will gradually shift the balance. It's a logical progression, rather than to be locked into the market garden strategy, constantly putting more land into production, getting more markets, hiring more people. There's some latitude now to convert comfortably to a less productive, a less high-revved system.

I've been developing a small orchard for several years, but trees grow slowly at 7,000 ft. My next step is to plant semi-dwarf fruit trees in the middle bed of each terrace. That will produce some shade for the salad greens, but as I put more beds into production, I can maintain the salad output while adding another crop.

In terms of the site development and the infrastructure, most of the hard work's been done. The facilities have been paid for. The soil's very fertile, and the productivity of the system has a lot of momentum. Very little effort now has to go in to get a lot of output. All of the composting and all of the soil fertility, all the cultural practices have been very successful to this point. It's very easy to produce the product.

I can now branch into more consulting, harvesting the evolution of the system as an educational resource. As it develops, the site is a fantastic resource for teaching. Outside the deer fence, what I call the compound, we're developing swales on the higher ridges, building gabions, planting nitrogen-fixing shrubs and berries. The site is becoming more permacultural as time and resources are freed up.

I don't think I'll eliminate the salad operation. The other aspects of the economy will just be built up: education, nursery, orchard, consulting, moving toward better balance and stability in the system.

**PB:** Do you plan to extend PC work?

**JO:** I'm looking forward to working with the Guild. It will be an opportunity for me to do some professional development. I've been somewhat isolated, keeping my nose to the grindstone of the market garden, but as I have more latitude, I hope to travel more, become

involved with some Third World projects. One, in Nicaragua, which I've worked with involves putting a water line in a small town near Jalapa in northern Nicaragua. Now they're open to the possibility of establishing an agroforestry or a permaculture project at a school. They have the land and they have the interest. The funding is available through the Jalapa-Boulder sister city project. In a matter of a year, I imagine, we will be holding a course there and starting a nursery to get that project underway. Glenwood Springs (CO) will be initiating a sister city relationship with the town where this project will be located. Δ

#### Hard Edges

My firm belief, your ideology  
barbed wire, shiny bombs, steel eyes

#### Cold Edges

Concrete, hi-rise, toxics, traffic  
skyscraper

#### Hostile Edges

Slammed doors, fists, needles, bottles,  
insults, goodbyes, cardboard houses,  
bread lines.

Stop. We are not steel, cold, not barbed.  
We are fluid, soft, vulnerable.  
Teach us another way.

Our hearts are still beating.  
We believe in healing, we've seen it.  
Metal rusts, eyes soften, we can  
learn to listen.  
Grass grows through cracks in the road.

Before we begin we must be clear.  
Before we change government, military,  
hostility  
we must change ourselves.

We begin with small steps.  
Treating our neighbors, our brother,  
ourselves with love.

The next step, we branch out,  
as the healthy oak grows into the sun.

We are not alone.  
Spiders, earthworms, birds  
still work the soil.

We must go to one another,  
go to the land.  
Soften edge by edge  
with our skin, our sweat, our spirit.

—Deborah Schnuelle, 1990

# IPC4: The Setting

Peter Bane

At the end of a dusty and rutted road three hours walk from the charmless industrial city of Biratnagar a new Nepali village rises from the sun-baked plain. Surrounded by former forest lands which now grow sugar cane monocrops for absentee Indian landlords, Sahabganj farm represents the hope of the Institute for Sustainable Agriculture Nepal (INSAN) to demonstrate a regenerative model for Nepali farmers.

Since American aid-supplied DDT cleared Nepal's swampy, lowland Terai zone of malarial mosquitos and opened the area to settlement some forty years ago, a bubble of relative prosperity has drawn migrants and immigrants by the millions down from the hills and across the Indian border to these new territories. Like the pig in the proverbial snake, this bubble has shifted from east to west in a scant two generations, gnawing at its growing edge broadleaf sal forest which is habitat to elephant, rhinoceros, and Bengal tiger; digesting in its middle the accumulated centuries of forest fertility in but a few years; and leaving in its wake the bones of exhausted fields, their fees bought for a pittance by (mostly) Indians with the capital to extract a few more years of yield through chemicalized and mechanized monocropping. In the end, the weary clay itself is dug up and burnt (with imported coal) into bricks.

Along the way a complex culture and agriculture become ever simplified: wooden buildings vanish, giving way to straw, bamboo, brick, and concrete. Trees disappear from the landscape. Walls sprout dung cakes drying for fuel. Women in colorful saris, carrying the life of the village on their heads or in their bellies, dwindle into specks in a distant field of sugar cane, serving the absent landlord, supplying the tables of overfed Northerners. India last year was the world's largest producer of white sugar. It sells much of that at a price below the cost of production.

Lying at the tail of this snake, Sahabganj presented the Fourth International Permaculture Designers Convergence with a challenge: How will Permaculture evolve to include countries of the Third World? With 2/3 of the planet's population, all of its principal centers of biological diversity, both wild and cultivated, and a wealth of traditional cultures

undergoing rapid change from the economic pressures of industrialism and global trade, the South, or "Two-Thirds World", as delegates quickly named it, holds the key to our common future.

Over 60 graduate designers from a dozen countries of Europe, Asia, North America and Australasia met Feb. 2-6, 1991 at newly constructed INSAN facilities near the Nepali-Indian border. Against a backdrop of nightly buffalo rustling and occasional cross-border banditry by Indian dacoits, work continued on the mudbrick-and-thatch buildings even as participants deliberated the thorny issues of worldwide cooperation, funding, First/Third world edges, and professional development.

INSAN's design for the farm, drafted with the help of designer/teacher Prasad Chetri, who with Michael Pilarski of Washington taught the pre-convergence design course on site, and farm manager Jaya Prakash Subedi, incorporated the influx of foreign visitors as an element in the regeneration of soil fertility—pit latrines were established in newly planted bananas fields on either side of the compound and several hundred pounds of manure were captured to the ultimate benefit of the farm. Border plantings of sesbania and baubinia trees had yet to provide shelter from the road's dust and noise and the parching mid-day sun. Laborers from the local villages, hired at a modest premium over wages offered by

the sugar barons, hauled mortar, worked thatch, pumped water from shallow tube wells, and tended the already extensive vegetable gardens.

Three newly constructed buildings will house administration, library, and dormitory for future course students and occasional visitors. Together they shape an hexagonal plaza which served Convergence delegates admirably as an outdoor meeting hall. With the help of Australian architect Brian Woodward, INSAN devised a striking three-winged design using traditional materials. Bricks were quarried on-site from an area planned as a pond.

Arriving in a haze of culture shock and travel stress, the mostly Northern Convergence participants were rallied to their task by the spirited singing of Friends of the Trees Director, Michael Pilarski, and by the unusually fine and hearty cooking of Sushila Dahal, wife of INSAN's director, Badri Dahal, leading a team of volunteer cooks under rudimentary conditions. How enormous quantities of *dal baat*, (brown rice, vegetables, and lentil curry) were issued morning, noon, and night from a kitchen little bigger than this writer's office left most of us in grateful awe. No less wondrous, the simple sanitary arrangements kept us clean and healthy for the duration of the Convergence. Some wondered later as food poisoning at Kathmandu's elegant Blue Star Hotel laid low 3/4 of the Conference delegates, whether Permaculture hadn't some important lessons to remember about self-reliance. Δ



Built of local materials with local skills. Thatchers guaranteed the roof for 11 years. The bricks are unfired.

# Design for a Sustainable World

## Resolutions Report of IPC 4

After opening ceremonies, Convergence delegates heard reports from Nepal, U.K., Hong Kong, Macau, U.S.A. including regional groups from the East Coast, Northwest, Hawai'i, and Rocky Mtns., Western Australia, Permaculture Services, PC Nambour, Epicentre Sydney, Holland, New Zealand, Belgium, and Scandinavia.

Principal issues which emerged from the presentations and subsequent deliberations were the need for professional development and support structures, improved access to funding, curriculum revisions, broadening of the community with special reference to non-English speakers and Third World groups, the value of First/Third World exchanges, the maturation, public prominence, and function of PC journals, and the growing significance of bioregional governance and village development.

### The Guild

As the only recognized body of authority in Permaculture, the biennial Convergence elected to establish an International Guild of Permaculture Practitioners,

To maintain standards for professional conduct and work and to provide for quality control, problem solving, and complaint resolution;

To assist and support professionals working in the field by offering peer protection and resource sharing;

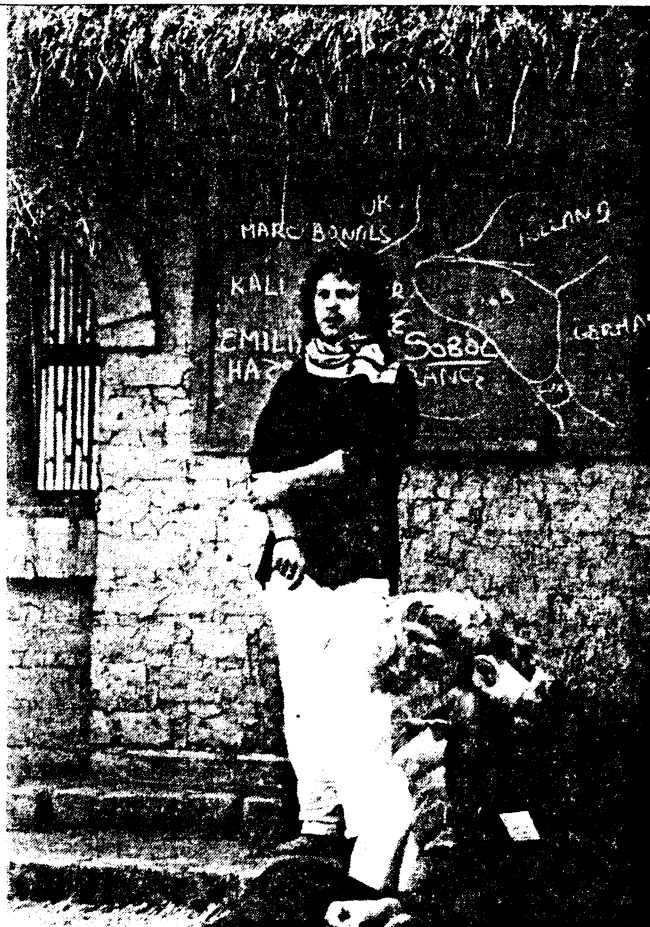
To hold records and c.v.'s of course graduates through a central skills registry, message center, and database, dubbed "The Letterbox", which would function as a resource for the Guild but would be accessible to all consultants, designers, teachers, trainees, and PC groups on a fee basis;

To issue diplomas or certificates only where a bioregional or national institute does not exist to do so, or where an individual for political reasons so elects to qualify;

To present awards for professional excellence biennially on the occasion of the International Designers Convergence;



Brick quarry at Sahabgung. Sugar cane fields dominate the area. Photos by P. Bane



George Sobol, PC-UK coordinator, standing, reports the rapid growth of British Permaculture. Simon Pratt, treasurer and teacher, takes notes.

To nominate, consider, and accept or reject its own members by sponsorship of three present members, leading to publication through a publically available bulletin, followed by fair assessment with objections timely stated and rebuttals allowed;

To approve courses based on the use of stated and published curricula and the employment of a guild member as a primary teacher;

To encourage and support the full accreditation of PDC graduates by articulating a strategy and process for the attainment of professional status within two years of certification, as follows:

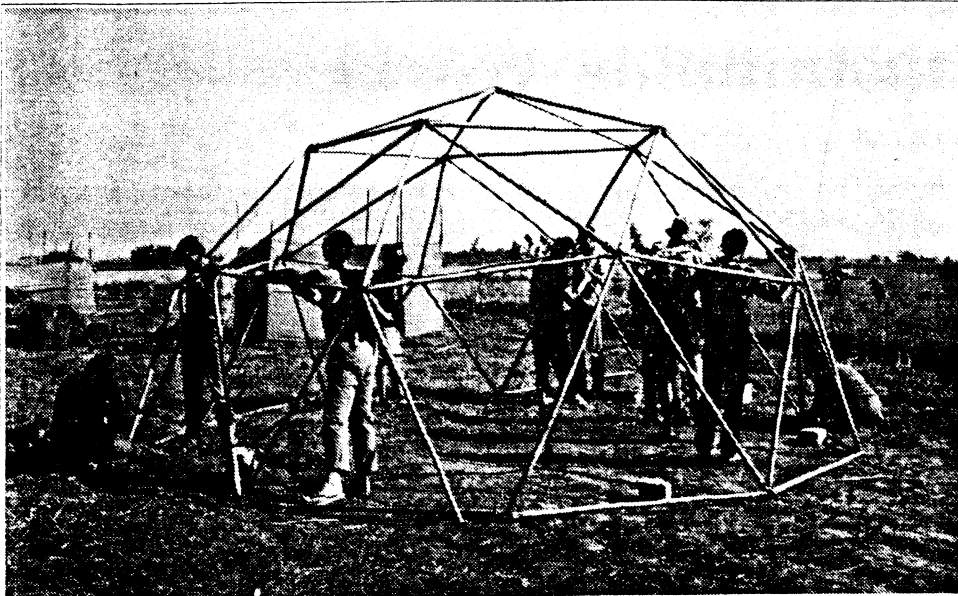
Graduates shall endeavour to:

1. Join (or form) a local permaculture group;
2. Receive (or develop) a list of local sites to visit, wherein to work, learn, and design;
3. Attend and organize field days, teaching as appropriate;
4. Attend advanced and specialized courses;
5. Undertake bonded traineeship(s) under guild members;
6. Work in teams on actual projects;
7. Set up their own projects, creating work for PC teams led by guild members.

Voluntary Service Organizations (VSO, Peace Corps) are an appropriate agency for the accomplishment of #'s 5, 6, and 7.

The Convergence nominated the following 13 persons to be the initial Guild members based on:





A globe, a greenhouse, or a model of permaculture organization?

1. Completion of PDC with certificate,
  2. Minimum of two years professional work post-certificate,
  3. Completion of 10 documented designs or equivalent substantiated work,
  4. Sponsorship by three guild members or nomination at the International PCD Convergence,
  5. Presence at the 1991 Convergence,
  6. Acceptance by the nominee:
- Tony Andersen (Denmark)  
 Netra Chhetri (Nepal)  
 Badri Dahal (Nepal)  
 Miles Durand (W.A.)  
 Cynthia Edwards (U.S.A.)  
 Chris Evans (Nepal/U.K.)  
 Lea Harrison (Australia)  
 Steve Hart (New Zealand)  
 Max O. Lindegger (Australia)  
 Bharat Mansata (India)  
 Jerome Osentowski (U.S.A.)  
 Margaret Peace (N.Z.)  
 Michael Pilarski (U.S.A.)

The Guild meeting in private session developed the following guidelines for qualification under various specialties.

"Subject to successful completion of the permaculture design course; qualifying period of work may be prior to the course provided it is PC-related:

Site design—10 designs recorded on paper (or justification for larger projects).

Site development—At least three years involvement, but can be just one site. Process of attaining sustainability for the site should have been started. Documentation preferred (e.g. photos).

Education—Teaching of ten design courses (or equivalent in workshops, lectures); at least 50% of the teaching on these courses; at least 5 design courses.

Written evaluation from participants for

each course preferred, essential for one course. Curricula also to be submitted.

Administration—Three years full-time work (or equivalent) in permaculture administration.

Architecture—Ten designs which contain sustainable and affordable alternatives and develop aesthetics.

System establishment and implementation—Three years full-time work (or equivalent) establishing and proving an essential system for permaculture design and implementation.

Trusteeship—Establishment and maintenance of legal structures for holding land in perpetuity, over a 5-year period.

Community development—Establishment and maintenance of alternative community systems, within a bioregional context, which have maintained themselves over a 4-year period.

Research—A significant contribution to the body of knowledge of permacul-

ture through original research.

Finance—Establishment and maintenance of systems offering real alternatives to conventional financial systems over a four-year period.

Media and communications—Work which has furthered the spread of permaculture in a significant way.

Manufacturing—Design or manufacture of appropriate technology that makes a significant contribution to design and implementation of PC systems."

#### Permaculture Journals

The designers in convergence acknowledge the significant contribution of permaculture journals and publications to the furtherance of the PC movement regionally and internationally, including *The PC Activist*, *The PC Edge*, *International PC Journal*, and the *PC News* (U.K.). These journals represent the movement in its diverse applications.

The time when a single public organ was sufficient has long since passed. All the journals are encouraged to publish these resolutions and the proceedings of IPC4.

#### Curriculum

We commission the revision of the 1985 Permaculture Design Course Curriculum; while accepting its adequacy in many areas, we encourage reform based on inclusion of the following units:

What is Culture?

On Becoming a Designer

Urban PC (to be augmented)

PC for Children

Accounting for Cultural and Economic Variations

Methods of Learning PC

Soils (to be upgraded)

Converting Consumer Addiction

Observation Skills Exercise

Aesthetics

The curriculum should be centered in



Open air deliberations, from left, Margaret Peace (NZ), Yam Malla Thakuri (INSAN), Raju Babu Shrestha (INSAN), Colleen Cabot (Wyoming)



the PC fundamentals of ethics, principles and patterning, and all courses should develop cyclically from these bases.

The curriculum revision committee will consist of the following persons initially: Cynthia Edwards (U.S.A.), Simon Pratt (U.K.), Colleen Cabot (U.S.A.), David Laffie (Macau). They will coordinate international submissions and circulate drafts to all regions in preparation for adoption by IPC5.

#### The Letter Box

We promote a letterbox and database to facilitate international networking and professional research and project management, and recommend the following:

1. The initial location shall be in the U.K. under the direction of PC-UK.
2. International standard hardware (Apple Macintosh) and software (to be



Guild nominees from left, Steve Hart, Margaret Peace, Bharat Mansatta, Jerome Osentowski, Tony Andersen, Cynthia Edwards, Max O. Lindegger, Michael Pilarski, Meggan Williams (withdrew), Miles Durand, Chris Evans, Badri N. Dahal, Lea Harrison (seated)

announced shortly) shall be adopted by all nodes.

3. The network shall create backup and successor locations elsewhere whose training shall be provided as a duty of the host node (UK) and paid for from operations revenue. The host operating team shall be multi-person to ensure viability.

4. The host node shall rotate among capable bioregional and national groups, moving concurrently with a convergence, not necessarily with each, with the aim of replicating its function as broadly as possible within the PC network.

5. Host functions shall include post, e-mail, phone, fax.

6. Financing of set-up and operations should come from grants, subscriptions, user fees, and guild membership fees.

7. E-mail shall remain confidential to regular subscribers, while the international PC electronic conference shall remain open to all via Econet, Greenet, Pegasus, The Web, etc. The database shall be available by fee to all responsible users.

8. The host node shall issue a bi-monthly bulletin.

9. The database shall include: species lists and seed sources, a skills register, active designers, teachers, guild members, bioregional PC groups.

10. Data collection shall be based on standard forms, the replication of which is encouraged.

#### IPC5

The Convergence accepts the offer of PC Scandinavia to host IPC5 in Copenhagen, Denmark in August/September, 1993 with pre-Convergence PDC in Nor-

3. Clear, timely pre-Convergence communications;

4. Strong organizing, scheduling, and facilitating capacity, to minimize unnecessary strains on participants;

5. Good publication facility before, during, and after proceedings including electronic facilities;

6. Ample opportunity for small group and individual interaction; during both convergence and conference.

#### Funding

We endorse the report of a committee on funding which has created a resource guide and workshop proceedings. We also encourage the funding of seven projects which seem to us directly relevant to permaculture practice in the global context:

1. Letter Box (aforementioned).
2. 2nd/3rd World participation to IPC5.
3. \*Judith Chase's community farming work outside Kathmandu.
4. \*Mahesh Pant's village-level education work in Nepal.
5. \*A Nepali language PC newsletter.
6. \*Prasad Chetty's research on indigenous agricultural techniques.
7. A Nepal-based revolving micro-loan fund to operate on principles of social collateral.

\*(Readers interested in details of these and related projects are invited to contact *The Permaculture Activist*.)

#### Villages

The following persons constitute a network for village development:

- Max O. Lindegger (Queensland)
- Peter Bane (Hawai'i)
- Tracey Clunies-Ross (UK)
- Brian Woodward (NSW)
- Netra B. Chhetri (Nepal)
- Richard Mueller (Hong Kong)
- Pamela Gray (NSW)
- Deborah White (S.A.)
- Arthur Getz (Japan)
- Charles Marsh (North Carolina)
- Teruo Miura (Japan)
- Richard Webb (Hong Kong)
- David Laffie (Macau)
- Fransje de Waard (Holland)
- Tony Andersen (Denmark)
- Miles Durand (W.A.)
- Colleen Cabot (Wyoming)

#### Vision

Finally, the Convergence and Conference summarize our work in the following statement of vision:

"We are one system of design for renewing the culture of the earth. From Nature's creativity and from the many variations of human endeavour, we derive our principles. From this ground,

way and related activities in three Nordic countries, details to be determined by PC Scandinavia, following the Nordic Convergence in April, 1991 and published by August, 1991 to all groups.

Themes of the next Convergence will include:

- Urban ecology: Reconstructing Northern cities
- Bioregionalism
- Co-Housing/Eco-Cities
- Structuring of 2nd/3rd World aid

We enjoin the convenors of IPC5 to use PC sites, practitioners, and products in the hosting, service, and supply of IPC5 to the greatest extent possible and to provide:

1. Help to 2nd/3rd World participants;
2. Sensitivity to language facility;

we evolve towards a whole and sensuous embrace of life. We care for people. We care for the earth. We give of our abundance to support these ends. We are diversity. We are unity. We are connected to each other and to all of life.

"To support this vision we call for a unifying practice of permaculture. We express a flexible and responsive structure appropriate to our ethics, which binds us together as a single planetary force for constructive action and which derives its energy from the diversity of our many communities. Our education programs are tailored to local needs and systems while maintaining standards of excellence derived from our best examples and exponents.

"Existing governments, financial institutions, and philanthropic ventures should see our local practitioners as being supported by a grounded and sustainable worldwide structure. As practitioners of permaculture, we create fluid networks of information: streams and rivers of assistance sharing our common human and natural heritage. As the cells of a body are nourished by the circulation of breath and blood, we are supported by an efficient communication system of local and international journals, newsletters, libraries, and electronic media. From a unifying vision of worldwide cooperation, and from the pulse of connectedness, local groups derive

strength for the detailed work of developing strategies and implementing designs.

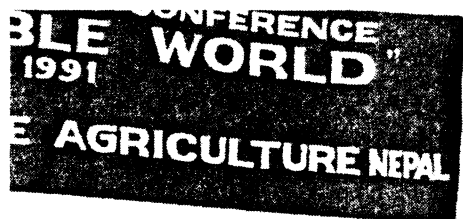
"We are an ethical organization of individuals, families, and villages promoting:

- \* Abundance by design.
- \* Cultural and biological diversity.
- \* Free movement of people, knowledge, and cultural offering.
- \* Earth repair in all regions.
- \* Enhancement of human well-being and quality of life.

"Our work is based on:

- \* Application of ecology to human habitat.
- \* Bioregional governance.
- \* Perennial agriculture, forestry, and fisheries and their connections.
- \* Local and community reliance.
- \* Solar energy economics and appropriate technologies.
- \* Education for sustainability." Δ

*This report compiled by Peter Bane from Conference and Convergence papers.*



Conference opening: The Minister of Agriculture, INSAN Director Badri Nath Dahal, and Conference coordinator Cynthia Edwards (USA)

## The World's Largest Permaculture Project

Peter Bane

The CARE Nepal project in Kaski District of which Netra Chhetri is the senior technician stretches over 73 square kilometers and includes 31,000 people in 7,000 households. It may well be the largest permaculture project in the world. Located in Central Nepal about half an hour east of Pokhara by main road, the project area embraces two small lakes, Begnas Tal and Rupa Tal, both of which have been enlarged by recently constructed dams, and the steep terraced hillsides surrounding them. It lies in the subtropical zone of the mid-hills at about 1,000 meters average elevation. The native broad-leaf forest there is dominated by *Castanopsis spp.* Citrus has been grown widely throughout the district.

Though potentially a rich area, the region's principal export has in recent years been labor, with most men having

to find extra work off the farm to support their families. We saw here, as elsewhere in Nepal, evidence of serious deforestation and the downward spiral of fertility loss. Significantly, however, the villagers of this area, recognizing the virtue of the conservation program, have given over their common grazing lands, a large section of steep hillside, to the care of Chhetri and his staff. With the cooperation of villagers who built several miles of stone fences, and who now patrol the area against intrusion by grazing animals, the former commons has been planted to trees. In a few years it will begin to yield fodder and fuelwood resources.

For this planting, and to support the program generally, Chhetri has organized five tree nurseries. Together they produce about 225,000 seedlings per year which are distributed at a cost of 1 1/2 rupees each (US 4¢) to the villagers. The nurseries are well-run by local people

and have been handsomely built from local material. Chhetri confides that his supervision consists mainly of seeing that enough material for compost is available to the nurserymen. Everything else runs smoothly on its own.

CARE provides small subsidies to the villagers to maintain the stone pathways which are the arteries of commerce and transport throughout the area. In an interesting comment, Chhetri regretted the payments, "Fifty years ago these people maintained their own pathways. Why can they not do it now?" Apart from issues of foreign dependence, it seemed to some of us that two generations of declining soil fertility coupled with a degraded diet (white rice is nearly everywhere the staple) had probably sapped the people's vitality and pushed them subtly but inexorably below the margin of sound livelihood. As people's individual economies began to deteriorate, common work such as path maintenance and sound management of the grazing lands had been progressively abandoned. Δ

# Conservation Farming

Netra B. Chhetri

Four years ago (1986) when conservation farming was introduced in our project area conventional farming was the main trend. The project being relatively new, guidelines on how to implement agriculture programs using the principles of conservation in the watershed area were not clearly defined. However, the technicians, in spite of having strong conventional agricultural academic background, were receptive to the idea of implementing sustainable agriculture. The transition from such a scenario to today, where the section works through the medium of conservation farming has been both interesting and very educative.

Implementing the concept of conservation farming required making gradual changes in the implementors' ideas. Then the task of modifying the traditional farming system to embrace the concept of conservation farming was given importance.

Conservation farming addresses the needs of a subsistence farmer. Conservation farming is nothing but a system of food, firewood, and fodder production on a sustained basis.

It encompasses traditional, conventional, organic farming practices. The objective of this type of farming is not just to boost production but to be able to do so on a sustained basis. While extending the concept of conservation farming, we aim for the optimum use of local resources and knowledge.

I would like to state clearly that conservation farming as discussed here encompasses the principles of permaculture, and has been adapted to suit the needs of the farmers of Kaski.

We have approached conservation on five fronts: gardening, including homestead improvement and kitchen gardens; agroforestry; multiple cropping schemes; income-generating activities; and training and extension work.

In all of these areas we emphasize methods which are simple and locally adaptable. Our focus lies on gradual improvement of the farmer's situation using practices which are socially acceptable. To do this we attempt to mobilize local resources, knowledge, and experience.

CARE's key strategies in establishing the conservation farming program have been to target the subsistence farmer, strongly to support conservation of soil and water, and to consult at every stage with the farmers themselves to incorporate as closely as possible their feedback into the design and implementation of the program. Everything we do must be practical and viable in the farmers' context.

The three phases of the project involved work amongst the technicians and staff, then between the technicians and the farmers, and finally among the farmers themselves. To carry out our aims the CARE technicians spent time at the beginning of the project bolstering morale and team spirit. This had been very low at the time I arrived four years ago. After first engaging our own staff in the program goals, we began to go to the farmers, visiting their homes, holding training programs and many informal talks during which we discussed the concepts of conservation farming.

Allowing time for these new ideas to circulate within the community, we again approached the farmers to gauge the extent of each person's genuine interest. On this basis, we initiated plans for interested farmers to convert only one or two fields at the beginning, so as to limit the risk for each participating farmer. When the conservation practices began to take

effect, we went back to the farmers to evaluate and consider further extension.

As the program began to take hold among the farmers, we arranged excursions to demonstration plots and encouraged discussions and the sharing of ideas. This led to learning by observing, using the successful farmers as a resource.

The techniques of soil conservation and fertility improvement which we introduced to the farmers of Kaski District are basic. They included mulch cropping using both live and dead organic material, crop rotation combining legumes and cereals, composting of crop by-products: dry and green leaf litter, animal dung, etc., and green manuring using *Crotolaria*, rice bean, mung bean, cowpea, and local green leaf manure (*Adatado vesia*, *Sepium insigne*, *Artemesia vulgaris*, and *Albizzia*).

Our design for conservation farming included tree crops for fruit, fodder, fuelwood, timber, and ornament, subsistence food crops including cereals, grain legumes, oilseeds, and vegetables, grasses for fodder and thatch, cash crops such as coffee, fruit, cardamom, spices, and bulbs (*Allium spp.*); and a range of animals including cattle, poultry, and aquaculture.

The major constraints we encountered in implementing our plan were of three types: 1) the need for careful, patient attention to individual farmers and their specific needs; 2) a lack of awareness of conservation methods among the farmers and a lack of technicians adequately trained in this type of work; and 3) the difficulties of implementing large-scale cultural change among traditional villagers, i.e., conflicts and confusion.

For any field worker wishing to implement this concept we make the following recommendations:

Continued pg. 27



Chhetri encourages farmers to plant useful trees on the terraces and hillsides.

# Funding: The Value of Interregional Exchanges

Peter Bane

Travellers from the industrial North are struck by the laborious nature of material culture in Southern agricultural societies, and by the extent to which natural and low-energy materials predominate. Machine-made objects and the aesthetic of mechanical perfection are the exception, not the rule.

Nepal is an excellent example of such a traditional agricultural and artisanal society in transition. It has a highly articulate and long-standing tradition of craft. Metalworking is still widely practiced. Human labor may be readily employed for almost any job of fabrication. Virtually everything in sight, from the gravel in the roadbed to the contour of the land itself has been made or modified by hand.

While this wealth of labor and hand skills born of necessity makes Nepal's economy relatively resilient and flexible, the lack of even minute amounts of capital imposes seemingly needless costs on millions. In one village which Lea Harrison visited, for example, the economic margin was so slight that the difference between savings for growth and continued stagnation hinged on the cost of haircuts. Lacking a barber, the people had to go to the next village for services. Analyzing their economy revealed that investing in a pair of scissors and training for a barber would create funds as well as time for village development. Such stories are legion.

In offering powerful analytical and design skills to Third World villagers and farmers, we must remain aware of the importance of working "at the edge." Thus a bundle of techniques and approaches, loosely dubbed "rolling permaculture", has evolved on the ground in Nepal. The strategies are appropriate to many situations. In converting marginal farmers to conservation and fertility-building practices, designers and extension workers are challenged to begin change with the most neglected or marginal bits of the landscape: abused common lands, paths and roadways, field edges, rocky or swampy land. Even such underexploited areas as school yards can provide a beginning from which to build demonstrations and support.

## The First/Third World Edge

Exchanges between First World designers, travellers, expatriates, and internationally-minded permaculture groups and Third World farmers, villagers, extension workers, and NGO's (non-governmental organizations) pose many edges across which the potential differences may be productive. Information is one such edge, prestige or credibility, and funding are others.

Smallish amounts of money which are readily available in the industrial countries can, judiciously applied, make large changes possible in the traditional and marginal economies of Third World countries. Even a few hundred dollars, a sum available to most individuals and certainly to all small groups, can start a tree nursery, secure seed, or subsidize the conversion of a dozen acres of degraded land to green manure crops. When spent on locally-produced hand implements or other supplies, aid money creates a significant multiplier effect, increasing broad-based prosperity as it enters the system.

Foreigners, especially wealthy Northerners, still enjoy considerable political and intellectual prestige and some goodwill which can be employed to the benefit of permaculture developments in Nepal and elsewhere. Teachers brought from abroad, VSO workers, and the whole range of foreign 'experts' may influence government and institutional decision-makers to

revalue local permaculture efforts, traditional practices, or indigenous resources. Telling people in Nepal that we well-informed post-industrial experts from the North regard their skills, technology, crop cultivars, and social patterns as valuable, may spare them some of the massive loss of culture and technology which we ourselves have experienced through the Industrial Revolution. Even more effectively, listening to what they can teach us, inviting some of them to our countries to share knowledge, and paying fairly for cultural material (not just artifacts), show the value we place in their offerings.

The converse is also true, of course. While permaculture knowledge is often undervalued in the energy-rich North, that same knowledge may be welcomed in Southern countries. Northerners returned from abroad and especially those who have worked on the ground in foreign countries have valuable knowledge and can apply prestige earned abroad to influencing change at home. Projects can often be designed and funded in Third World countries using minimal NGO funds or VSO backing to accomplish far-reaching results and provide design experience which could not easily be garnered in the more capital-intensive industrial economies.

Thus, an integrated developmental approach would take account of the potential across the First/Third World divide to generate a currency of travellers, teachers, and interns carrying information and cultural offerings between the two poles. It would link PC groups North and South. It would in particular fund Third World nationals to come to First World countries where those contacts could not otherwise occur. Opportunities exist to coordinate hosting and residence with work and teaching between linked groups.

## Permaculture Economics

Just as water, energy, and fertility cycles are key to the establishment of permaculture systems, so information, funding, and resource cycles are key to the establishment of permanent human cultural systems. We can learn from the highly regarded success of Bangladesh's Grameen (Village) Bank which pioneered micro-lending on principles of social collateral in 1983. Small amounts of money (under \$100) are lent to individuals, usually women, when they have formed a group of co-borrowers. The future access of others in the group to loans depends on repayment by each member in turn. Peer pressure and the basic economic ingenuity of villagers at a survival level has resulted in a 98% repayment rate.

Other techniques for funding and resource cycling include the establishment of nurseries which payback their investment in seed and stock to form other nurseries; free distribution of small livestock whose first offspring are pledged to extend the program to the next farm or village. Rolling loans in particular should be available for PC extension work, to subsidize the establishment of tree shelterbelts, terraces, swales, and green manure crops, all elements of the landscape which will in a few years yield many times their cost of establishment, but which the marginal farmer could not afford.

## Creating Infrastructure

The positive impact of First World funding and knowledge is increased dramatically by amplifying it through on-the-ground resources in Third World countries. Key resources to the creation of which initial effort should be directed include:

Human resources: trained local people, extended skill resources, teaching and extension materials;

Material resources: small-scale nurseries, national seed and scion banks, seed collection sites and services, hand implements and other appropriate tools, small breeding livestock, rolling investment funds for extension work;

Community resources: regional information/resource centers, market research, presentation materials for (self) documentation (media), importing foreign 'experts' for credibility.

Another kind of work which can be done in First World countries that has a big impact on the Third World is political work, especially with national governments and international aid agencies. Often more important than doing good is preventing harm. We should pressure governments to fund more small projects and fewer gigantic projects—no more Aswan High Dams, thank you. We can also conduct workshops on fund-raising for permaculture to spread the wealth and the knowledge of how to get it.

#### Where to Find the Money

IPC4 delegates identified five categories of funding sources:

Personal action: people-to-people aid, alternative tourism, and personal tithes;

Grassroots action: sister PC groups, direct marketing services for Third World groups and products (Rainforest Crunch, Central American crafts, etc), office-by-office employee donations, voluntary tree-planting projects where available wages or government subsidies are garnered and passed on to Third World projects, perhaps less expenses, and fund-raising by events: fairs, bazaars, dances, concerts;

Institutional action: sister city projects, student tithes to finance Third World students, Third World internships for First World graduates, churches, school charity days, other environmental/green networks and agencies;

Municipal action: carbon taxes;

Corporate action: business tithes—support for Third World projects, business donations, 'green' companies/tree taxes, corporate sponsorships.

Elaboration of fund-raising techniques was the subject of a Conference working group. We will report in a future issue on the proceedings of that workshop. Δ



A work party stops to allow travellers passage. Many miles of stone steps connect Kaski's hillside villages.

Photos by Peter Bane



Netra Chettri shows off citrus seedlings. Compost is the key to growing a quarter million trees per year in five nurseries.

#### Conservation Farming, continued from pg. 25

- 1) Thoroughly understand the farmer and the local situation.
- 2) Start small and emphasize programs in which the farmers show interest.
- 3) Never set up conditions in which the farmers depend upon the project to carry out the programs, i.e., encourage self-reliance throughout.
- 4) Proceed by stages.
- 5) Respect local knowledge.
- 6) Respond to farmers' opinions promptly and evaluate their feedback regularly.
- 7) Remain open and receptive to new ideas.

Four years ago when we first thought about conservation farming our biggest constraint was our own lack of confidence. The concept was relatively new and not enough information was available to us. Since then we have gained valuable experience on conservation farming by working through and with more than a hundred farmers in different situations and conditions. While results are only now being seen, and more work obviously remains to be done, we are confident that this type of conservation farming is headed in the right direction. Δ

*Netra Chhetri graduated from the Agricultural College at Chirwan and took one of the first permaculture design courses organized by INSAN. In conjunction with his responsibilities as senior technician on the Kaski project for CARE-Nepal he has implemented PC designs for local farmers as well as the project as a whole. He was nominated to the Intl. Guild during IPC4.*



# Live Fencing

Lea Harrison

Traditionally fencing was a combination of earthworks and hedge and tree species that often included thorny plants. I have seen live fences of this type still very much in use in England and Europe. They are, however, becoming increasingly uncommon as they are removed for road widening, subdivision, and the modern practice of wire fencing.

I have also seen live fences in use in developing countries, but here again they are in danger of being replaced by "modern" wire fencing that gives the farmer the prestige of being progressive.

Permaculture principles state that we need at least three uses for any element that we place in a system. By appropriate species selection and design, live fences can give us the following:

- a barrier to keep livestock in or out
- food, as fruit and nuts
- fodder for animals, including bees, poultry and grazing animals
- green manure and mulch to maintain soil fertility
- firewood and timber for poles, posts, and stakes
- microclimate effect, e.g. wind shelter
- pest predator habitat
- fire and radiant heat barrier where fire retardant species are selected
- trellis for vines
- privacy barrier
- beauty

Wire fences provide us with a barrier, but give none of the other ten uses. Also, wire fences decay over time needing eventual replacement at no little cost in money and labour. A living fence becomes more productive as time passes.

Therefore, it is important for us to re-value the live fence; to stop its disappearance from areas where it has been used traditionally and to introduce it to areas where there is no history of live fencing.

Having looked at the many benefits of

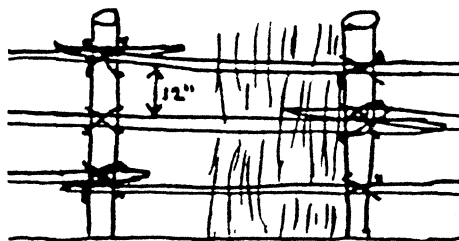


Cactus Fence, Nepal.

These impenetrable barriers also provide habitat for spiders, a significant pest predator. Photo by Lea Harrison

the live fence, let us consider its "problems". Firstly, it takes time to establish; secondly, how effective is it as a barrier?

Unless the species selected are not edible to browsing animals, we need a temporary barrier while the live fence is growing. In Western countries a wire fence can be used as a once-only input to provide this initial barrier. In warm climates, where live fence establishment

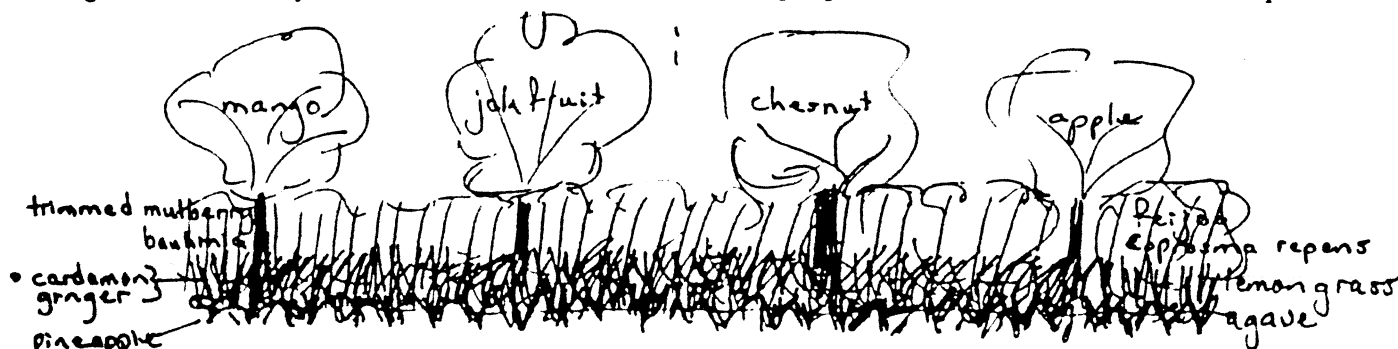


is relatively fast, this wire can be removed and used again to establish a live fence elsewhere. In cooler climates with slower growth rates the live fence will replace the wire as an effective barrier before the wire decays. In developing countries temporary fences of dead plant material are used. For example, posts of

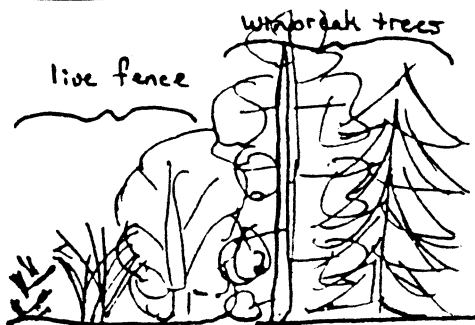
bamboo and branches are used with maize stalks, bamboo or palm fronds tied across them at about 12" intervals. More stalks, bamboo, or grasses may then be woven through the horizontal for keeping small animals and poultry out. In a warm climate such a fence will last only about two rainy seasons, but this is long enough to establish the live fence to stage where it is becoming an effective barrier.

Effectiveness as a barrier depends on appropriate design, species selection, and maintenance. Shrubs of a medium height (eg. feijoa, *Coprosma repens*) can be planted closely to form a dense hedge or taller-growing species (eg. mulberry, bauhina, leucaena) can be planted closely and kept trimmed to keep them bushy. If they are allowed to grow tall, they will lose their effectiveness as a barrier. Trimmings can be used as fodder, green manure, or mulch. At intervals a large tree can be planted (eg. mango, chestnut) to provide diversity and shelter.

Where windbreak is a desired use, several rows of larger trees can be used in addition to the live fence, or two live fences can be used with a strip of wind-







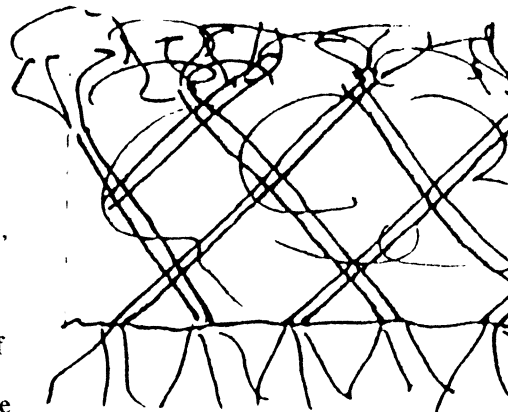
break/forestry in between. Thorny plants (eg. lemon trees, rose bushes, *Acacia farnesiana*, holly, hawthorn, and cactus) are all good live fence species, forming a strong barrier. The whole structure can be tied together by trellising vines on it (eg. grapes, kiwifruit, *Dolichos lab lab*).

If there are areas where a plant has died or the fence is a bit thin, weaving dead plant material through the living uprights will provide temporary protec-

tion while a new plant grows. The European traditional practice of pleaching can make a live fence an even more effective barrier to large animals. A pleached fence must be kept trimmed. Trimming can be done by people or by direct, periodic browsing by animals.

An effective barrier for small animals, especially poultry, is sometimes desirable. Here we choose additional low growing species that are planted thickly at the base of the taller plants. A row of lemon grass, cardamon or berry bushes planted with a row of pineapple or agave forms a dense, chook-proof barrier. A ditch in front of this, which also acts as a swale and mulch trap, makes it an even more effective barrier.

Live fences are designed as a barrier, but we need to consider their other uses by the gardener or farmer. For example, we can select species for fruit production,



Pleached fence  
or for bee forage, and so on.

In conclusion, we can think of wire fences as a high energy cost, short term barrier that we can use to establish long term, multi-functional, diverse, productive living fences!

Δ

## A Re-Foodforestation Cluster For the Maritime Northwest

### Rick Valley

Oftentimes people want to plant fruit and nut trees in degraded land in lesser used areas (zones 3-4) but have difficulty due to browsing pressure from deer and elk. The trees we want to see are often regarded as delicacies by the herbivores we love. Reasoning with them may work for some people, but I don't yet speak deer myself. Enclosures made to protect single trees are often made too small, and end up preserving the tree as a pruned bush, wrapped in crushed chicken wire.

Larger enclosures are more costly, but if you work on the idea a bit. . .

1) Take a size of 8 to 12 feet in circumference, add a way to open it occasionally, and you've got a space you can move around in, to water, cut grass, and pester rodents.

2) Plant your eventually huge, dominant tree in the middle (such as a chestnut, walnut, pear, mulberry, etc.)

3) Plant edge species around the edge (!): small trees and shrubs such as hawthorn (*Crateagus douglasii*), wild plums, american persimmon, paw paw, wild rose (*Rosa nutkana*), oregon grape (*Berberis nervosa*), crab apple (*Malus fusca*) and saskatoon (*Amelanchier alnifolia*). There are myriad possibilities.

4) Toss in a few nitrogen-fixing trees and shrubs: broom, black locust, shepherdia, ceonothus, eleagnus. As things get too crowded you can mulch them out. The result is a miniature of plant succes-

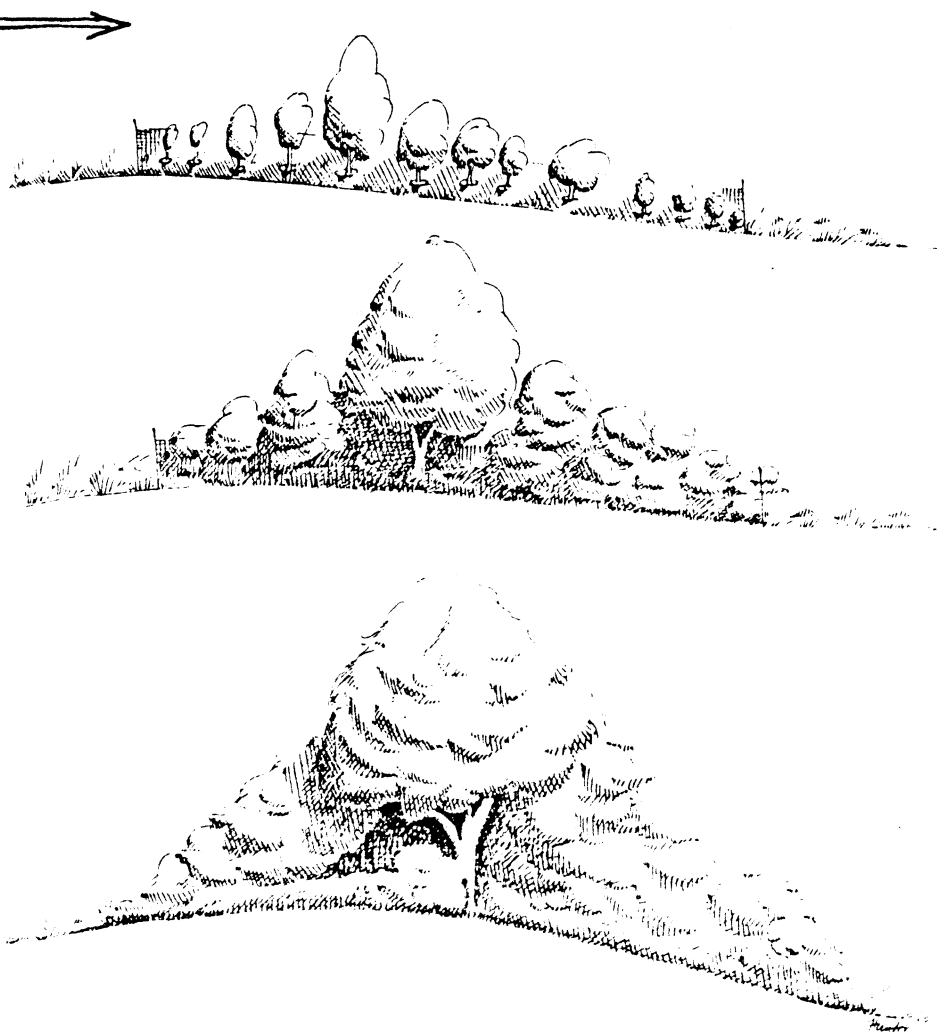


Illustration by Hunter Beyer

sion in a clearing, but reversed: instead of moving in from the border, we've got it moving out from our little stockade.

But won't the big tree shade out the rest? Well, many of these plants send suckers out, and can move outwards as the nut tree grows. Some can be "layered" by us, or will do it themselves, as, growing out from the shade, they topple to earth and plant their branches anew. And, all of the edge plants are great producers of seed, and will put out descendants by the score.

While the fence lasts, the deer will prune the protruding branches, and once the thicket is tight, you can remove the wire and use it elsewhere. If there are sufficient openings at the bottom of the fence, small predators (skunks, cats, foxes) will use the thicket and soon minimize rodent damage. Many of the edge plants are armed with thorns, and will protect the thicket once the fence is gone.

#### Hardware

Wire sheep or hog fencing can be wrapped around posts of any available conifer; you may need to do some minimal treatment of the in-ground end (charring, old motor oil) if it looks like you need the enclosure to stand more than three years. If poles are in shortage, or extra strength is needed, you can fashion circles of concrete reinforcing wire, which will stand on its own, only needing to be pegged to the ground so that it doesn't get pushed aside, as cattle and hogs will gladly do.

#### Before You Begin

Observe the browse patterns around your land, or at neighbors, and determine the height you need the fence to be. Sheep don't need much, but horses and elk can reach high. Imagine doing this in giraffe country. . . . Δ

*Rick Valley designs, teaches permaculture, & operates Great Northern Bamboo at 3328 SE Kelly, Portland, OR 97202.*

### Permaculture Design Course at Linnaea Farm

**Dates:** August 3-18, 1991

**Location:** Cortes Island, BC, Canada

**Instructors:** Rick Valley, Simon Henderson

**Accommodation:** Dormitories, tenting.

Linnaea Farm is a 315-acre land trust with forests, ecological reserves, pastures, livestock and market gardens. We are situated on a lake, great for swimming and canoeing.

**Cost:** C\$550-650, price breaks up to June 1. Some work trades available.

**Contact:** Liz Richardson (604) 935-6370

Victoria Smith (604) 935-6413

Linnaea Farm, Box 98,

Manson's Landing, BC CANADA V0P 1K0

## Permaculture Educational Programs

### Basic and Advanced Design and Teacher Training 1991 Permaculture Courses in Hawai'i

Max Lindegger and Lea Harrison return to Hawai'i in September, 1991 to give a series of permaculture courses at the Wood Valley Retreat Center. The 3-part series begins Sept. 7th with two weeks of Basic Design. That will be followed by one-week Advanced Design and Teacher Training Courses.

Lea Harrison has taught permaculture for ten years on four continents. Max Lindegger, principal architect of Australia's Crystal Waters permaculture village, has executed well over 600 PC designs in a global range of climates and conditions. Their partnership, Permaculture Services Ltd (Australia), have developed to a high degree the curriculum which has resulted in the emergence of Advanced Design and Teacher Training Courses. They have now jointly taught the two advanced courses in all major regions, the U.S., Europe, and Australia.

This will be Permaculture Service's third appearance in Hawai'i. The Advanced Design Course curriculum is all new material recently developed by Max Lindegger and will include substantial hands-on work. The Basic course will emphasize design for tropical and subtropical regions and will include a number of guest speakers from the Hawaiian Islands introducing cultural and botanical material from this bioregion.

The course site is a Buddhist Retreat Center in a small, wooded, subtropical valley at 2,000' on the south slopes of Mauna Loa. The

area enjoys sunny mornings, frequent afternoon showers, and cool evenings. Apples, peaches, bananas, and figs grow within walking distance of the facility situated on the edge of a large sugar cane plantation. The remote rural area is splendid for walking and lies 8 miles from the nearest public beach.

Accommodations will include camping, dormitory lodging, and a few private rooms. A \$100 deposit is required for registration. Payment in full by July 1, 1991 earns the registrant a \$50 discount per course.

**Dates:** Sept. 7-21, 1991

Basic Design Course

Sept. 24-30 Advanced Design

Oct. 3-9 Teacher Training

**Location:** Wood Valley Retreat

Center, Island of Hawai'i

**Cost of Instruction & Meals:**

Basic Design (14-days) \$675

Adv. Design (7 days) \$375

Teacher Training \$375

**Lodging:** Camping on Site \$50/wk

(bring your own tent...)

Dormitory charge \$100 /wk

Private Room (limited)

\$140/person/week double

\$185 per week single

**Contact:** Carl Winge 808-929-9028

Peter Bane 808-929-9463

Permaculture Hawai'i

PO Box 5167

Kailua-Kona HI 96745

### Central Rocky Mountain PC Garden -Greenhouse Workshop

**Dates:** May, 1991 (four weekends: 4-5, 11-12, 18-19, 25-26)

**Location:** Basalt Mountain, CO

**Description:** These two-day workshops will address Permaculture as it can be applied to market gardening using the existing garden as a demonstration. We will cover composting, soil preparation and amendments, mulching, cover cropping, plant propagation, fertilizer teas, cloches, small animal foraging systems, natural weed and insect control methods, succession planting, gourmet crops, low maintenance perennials, edible flowers and ornamentals, sprouts, fruit trees, and the transition from greenhouse to outdoor terraced beds.

Jerome Osentowski promotes the concept of a 12-month growing season in Colorado's Roaring Fork Valley. Learn permaculture principles as they apply to the four seasons.

**Instructor:** Jerome Osentowski

**Cost:** \$50 per day

**Contact:** 303-927-4158

CRMPC, PO Box 631, Basalt, CO 81621

### Friends of the Trees 1991 Permaculture Design Course

**Dates:** June 29-July 14, 1991

**Location:** Mendocino, California

**Description:** A permaculture design course emphasizing restoration forestry and tree crops. Certificates will be offered.

**Instructors:** Chris Evans, Michael Pilarski

Chris comes from the U.K. via 6-year's working experience in Nepal where he is senior technical adviser to INSAN (Institute for Sustainable Agriculture-Nepal). He has established a number of demonstration farms for INSAN in the mid-hills, and has focused on fruit crops and traditional labor exchange practices. Michael Pilarski directs Friends of the Trees, the Actinidia Enthusiasts Society, and Travellers Earth Repair Network. He taught most recently a course in subtropical permaculture at Biratnagar, Nepal. Both men are members of the International PC Guild.

**Cost:** \$450-\$600 sliding scale

**Contact:** Friends of the Trees,

PO Box 1068,

Tonasket, WA 98855.

509-486-4726

## Experiential Design A Permaculture Design Course for Drylands Co-sponsored by PC Drylands and Prescott College (AZ)

**Dates:** May 2-29, 1991

### Block I

May 2 Introduction and orientation  
May 6-9 Methodology of permaculture:  
philosophy, ethics, patterning

### Block II

May 13-16 "Reading" drylands: trees, soils,  
water cycles, water harvesting

### Block III

May 20-23 Developing integrated designs

### Block IV

May 27-29 Invisible structures:  
The social and economic fabric  
May 10, 17, 24 Independent study days.

Participants may stay on-site during breaks.  
**Location:** The course site is 150 acres of rolling grassland and rugged buttes 30 miles north of Prescott, Arizona. Lectures will be held in an existing solar adobe structure. The privately-owned tract is being developed according to an existing permaculture plan, offering a wealth of opportunities for hands-on work and design exercises. Campsites are available on site; alternatively, inexpensive accommodations are available in nearby Paulden, Chino Valley, and Prescott. Participants will provide their own food.

**Instructors:** Tim Murphy will be the main instructor. One of his permaculture designs, commissioned by Pima Community College East Campus, is now being implemented. He has also been a consultant to permaculture projects at Desert Botanical Garden and the San Xavier District of the Tohono O'odham Nation. Larry Santoyo brings to PC design a ten-year background in landscape design, resource ecology, and restoration work in California and Washington. He directs Great Northwest PC Institute, and specializes in adapting permaculture concepts to organizational, economic, and community structures.

**Description:** This month-long course is a unique opportunity to integrate theory and

practice in permaculture design. Participants will learn to "read" the landscape, map and analyze energies affecting a site, and develop integrated designs for sustainable systems. The course blends the theoretical framework of the drylands design course curriculum with daily hands-on activities.

Hands-on components include:

- observation/pattern recognition
- surveying
- planting and seeding techniques
- site assessment
- water harvesting
- reclamation techniques
- supervision of earthmoving equipment
- placement of accessways
- assembling and placing arrays of elements
- small-group design work.

**Cost:** \$650 for the full course, \$190 per block. A \$50 non-refundable deposit holds a place in the course. Registration limited to 16

total, six from outside Prescott College. Attendance of individual blocks is possible.

*Permaculture: A Practical Guide for a Sustainable Future* is required reading.

**Contact:** Vicki Marvick

Permaculture Drylands  
P.O. Box 27371  
Tucson, AZ 85726-7371  
602-824-3465

## Six-Day Tree Intensive North Central WA

**Dates:** August 20-25, 1991

**Location:** Whispering Pines Farm, Lake Chelan, Wash. and horticultural hotspots of Northeast and North Central Washington.

**Description:** Hands-on grafting, budding, propagation, tree planting, seed collecting, pruning, & other practical tree skills.

**Instructors:** Michael Pilarski and guest instructors

**Cost:** \$250-300 sliding scale

**Contact:** Friends of the Trees, P.O. Box 1068, Tonasket, WA 98855. 509-486-4726.

## Certificates Anyone?

The College of the Permaculture Institute of Australia would like to remind N. American permaculture graduates who completed their design courses two or more years ago that they are probably eligible for a Diploma of Permaculture Design. (Dip. Perm. Des.)

Many of the luminaries of the US permaculture movement, such as Michael Pilarski, Tim Murphy, Simon Henderson, Scott Pittman and Cynthia Edwards, have not applied for their diplomas; in fact, in 10 years we've only issued 8 diplomas for N. America. We can only assume you are all so busy you haven't had the time or...you are all just naturally modest and retiring. (Bill says, after his recent visit to the US with Larry, Simon and Tim, the latter isn't a likely explanation!)

So, for those who would like to remedy this large gap in their qualifications, here's how to go about it. Tell us which areas of expertise you have been involved in for at least two years (since your initial Design course). The eligible categories are listed below.

Send an accompanying letter signed by a referee, who may be your initial course teacher, a diplomate of the college, (with only 8 in the US this might prove difficult, but try Guy or Sego!), a trustee or director of PINA.

A fee of A\$30 or US\$38 is payable to the Permaculture Institute, PO Box 1, Tyalgum NSW 2484, Australia. Your diploma will then be airmailed to you.

If you would like us to send our new permaculture sunseal, an illuminated permaculture logo in stained-glass colours for windows, please include an extra US\$5.

The eligible categories are as follows:

**SITE DEVELOPMENT** - Designing and working on their own or another site as a demonstration of permaculture principles.  
**SITE DESIGN** - Completing not less than ten

designs for others in permaculture systems.  
**ADMINISTRATION** - Directing, or conducting, or assisting consultancy groups, associations and institutes and developing strategies in permaculture work.

**EDUCATION** - Work on curricula, teaching, or course work in permaculture education.

**FINANCE** - Setting up or operating financial systems for ethical investment, community revolving funds, or other self-financing systems for communities.

**TRUSTEESHIP** - Setting up or operating land—or property—trusts for ethical ends, or land access offices, or allied institutions.

**SYSTEM ESTABLISHMENT AND IMPLEMENTATION** - Setting up or operating nurseries, earth moving systems, soil conservation strategies, or the supply of goods or services to the permaculture system; working on the implementation of design systems.

**MEDIA /COMMUNICATIONS** - Creating or operating publications or audio-visual aids to communication and education in the permaculture system. Software development.

**MANUFACTURING** - Establishing or creating strategies or workshops producing hardware or goods for permaculture design use, or essential technology; researching and marketing such technology.

**COMMUNITY DEVELOPMENT** - Planning, assisting with, or implementation of community development projects, urban systems, villages, or work with disadvantaged groups.

**ARCHITECTURE** - Designing or building low-cost and low-energy-use structures.

**RESEARCH** - Making a significant contribution via field or academic research into permaculture systems and needs.

Marilyn Wade  
Permaculture Institute, PO Box 1  
Tyalgum 2484 NSW Australia

## Central Rocky Mountain PC 5th Annual Permaculture Design Course

**Dates:** October 19-31, 1991

**Location:** On the site of Jerome's market garden operation at Basalt Mtn, Colorado, 8 acres of remote mountain terrain at 7000'.

The course will emphasize permaculture as applied to market gardening, desert homesteading using water harvesting strategies, & the use of trees for environmental restoration.

**Instructors:** Jerome Osentowski, Michael Pilarski, Joel Glanzburg.

**Cost:** \$500 to \$600 sliding scale - includes all organic meals, camping curriculum materials and field trips. \$100 deposit required for registration. Limited to 25 participants.

**Contact:** Jerome Osentowski  
P.O. Box 631, Basalt, CO 81621  
303-927-4158

## Womyn's Permaculture Design Course in PA "Grounding the Metaphysical"

Dates: May 31-June 15, 1991

**Description:** Two weeks of mind-body-earth awareness will be the theme of Dancing Green's 1991 Womyn's Permaculture Design Course in Pennsylvania. The course will encompass permaculture, food production, housing, water, energy, community development, appropriate technology, money, and self-deepenings, with personal ceremony and earthwork. Conditions will be "primitive and earth immersive." Participants will earn permaculture design apprentice certification.

**Instructors:** Dawn Shiner and Jo Clayson.

**Contact:** Dancing Green, PO Box 157  
Cochran, PA 16314.

## Sustainable Development For the Third World 7th Annual Paired Courses

Using Permaculture and Appropriate Technology to extend traditional techniques.

Dates: June 22-July 6, 1991

Oaxaca, Mexico

August 3-17, 1991

Cottage Grove, Oregon

**Description:** Permaculture techniques, reading the landscape, cultural anthropology, regenerative agriculture, forest management and agroforestry, simple construction, integrated pest management, organic food production, soil care and erosion control, water conservation, simple solar devices, fuel-efficient cookstoves. Field trips will be an important part of both courses.

**Cost of Each Course:** \$750 pays tuition, meals, accommodations, and field trips. It does not include travel to and from courses. Half of tuition funds scholarships for Third World participants. A \$100 non-refundable deposit ensures you a place (Mexico course limited to 10 persons from USA). A 10% discount for full payment 60 days in advance, for enrolling a second person, or for full Aprovecho members. A 10% surcharge for registrations within 15 days of the course.

**Contact:** Aprovecho Institute  
80574 Hazelton Rd  
Cottage Grove, OR 97424.  
503-942-9434.

## Recent Events of Note

**March 8-10, 1991. Permaculture Workshop, Slocan Valley, BC.** Larry Santoyo. Contact Greg Lamoureux, 604-226-7302.

**March 15-24, 1991. Permaculture Design Course. Lake Buchanan, TX.** Patricia DuBose, Phil Zbylot. Contact Mariah Wentworth, 1501-A Terrapin Ct. Austin, TX 78746. 512-327-5633, -756-7878.

**March 23, 1991. Permaculture Workshop, Univ. of Idaho, Moscow, ID.** Larry Santoyo. Contact Great Northwest Permaculture, 20073 Marble Valley-Basin Rd., Addy, WA 99101, 509-935-4578.

## Regional Reports

### Dispersal of Surplus - Care for Community

#### "Gifting One Another"

##### 6th Annual Eastern PC Conference

Dates: October 11-13, 1991

**Location:** Standing Stone State Park, between Celina and Livingston, Tennessee.

**Description:** The 5th Annual Eastern PC Conference in Maryland planted a tree in memory of Dr. Robert Macoskey, generated start-up funds for the '91 Conference, and collected for seeds to start a tree nursery in Nepal. As hosts for the 1991 Conference, we would like to encourage this sort of real work. Our theme is "Gifting One Another". This is a call for papers, input, and ideas for the Conference. What gifts can you share?

We also want to take a long-term approach towards improved conferences. Last year was a good beginning. Starting with \$361.50 generated by: auction \$281.50; travel allotment for two speakers (thanks to Andy & Stuart Wilson) \$30; and a \$50 carryover, our financial goals are to have 1) \$1,000 seed money for next year's conference, 2) funds to publish the proceedings of this conference, and 3) money to fund another tree nursery project.

We will hold an auction again this year; please bring something for it (books, crafts, garden produce, plants, tools, games, services, the kitchen sink, etc.) All proceeds go to the producers of the next conference. We want to hear from anyone to help publish the proceedings or subcontracting the whole thing. Thus far, we've received one proposal.

Also in keeping with our theme, we're designing a "trickle-in" transport system. It's not very "Perma-" when 40 conferees require 35 vehicles. What can we do? We propose that folks from New England, for example, can hook up with folks from Pennsylvania or Virginia to share transport and expenses of

#### Sustainable Systems: Master of Science Program Slippery Rock University

Based on fundamentals of ecology, principles and practices of permaculture, research methodology, and the literature of sustainable systems.

A 35-hour program in three specializations:

- Agroecosystems Ecology and Sustainable Agriculture, including hands-on sustainable crop, orchard, and livestock practices
- Built Environment, including landscape design, building construction, and energy management
- Sustainable Resource Management, including wildlife and forest management, economics, and open space planning.

Department of Parks and Recreation  
Environmental Education  
Slippery Rock University  
Slippery Rock, PA 16057 412-738-2068

getting here. To facilitate, we need to know ahead of time if you'll be attending and if you'll need a ride, will have space to put someone up, can share a ride, etc.

Accommodation will be in two dormitories with bunks for 50. There is tenting space near by. The Lodge has full professional kitchen facilities. Boat rentals will be available if the lake has not been drained—private boats are not allowed. Access is from Nashville, Knoxville, or Cookeville. If coming to Cookeville by bus, make advance arrangements by mail for pickup (\$5/person each way).

**Cost:** Until Oct. 1: \$50-\$75 (sliding scale)

After Oct. 1: \$60-80

Daily fee (Sa or Su): \$30-\$40 (incl. meals)  
family rate: \$75-100

The fee includes three nights' accommodation (Fr. Sa, Su)—whether tenting or in the lodge, and eight meals (cooperative kitchen) (Fr. eve.-Mo. morn). Bring your own bedding.

**Contact:** Adam & Sue Turtle  
Earth Advocates, Rt. 3, Box 624  
Livingston, TN 38570

#### Community Permaculture: Greens in New Hampshire

The green movement promotes ecological sensitivity, local economics, and sustainable lifestyle among its basic 10 key values. As greens and permaculture practitioners, we offer the following suggestions:

It is growing harder for young people to be on the land. (We promote conservancy/community land trusts and shared local economy.) It's even harder for folks to have a land base, while building sustainable relationships with each other and the natural order, while seeking to practice natural farming, appropriate soft technologies and ecologically sensitive livelihood.

We would like to see an in-training program called Community Permaculture where all the components of sustainable culture are being perfected. We envision a one or two year co-participant internship (say 1600 hours/year) where sustainable economics, social self-reliance, permaculture design and practices, personal creativity, etc. are strongly encouraged.

We have 49 acres, 5 housing units, ponds, streams, gardens, etc. that could be used for such a project (12 to 20 people). We would welcome dialogue around such an idea. Our desire is to co-create a "green village" model based on life enhancing values permaculture practice (10 years practiced on the land). We are working with the Greens with the idea of holistic locals (bio-circles) as a means of restructuring corporate society.

Bruce Shearer, Namasté Green, Rt. 2, Box 578  
Barnstead, NH 03225. 603-776-7776

# The Permaculture Network-- 1991 Designers Directory: A Questionnaire

Permaculture emphasizes relative location, energy conservation and production, and local resources and competences. We are a network of many individuals, but taken together we represent a large-scale phenomenon.

What you know and what you produce are valuable--the demand for PC is huge.

## The Gift Must Always Move...

*The Permaculture Activist* encourages Design Course graduates and readers to **CONTRIBUTE TO THE NETWORK:**

We would like curriculum vitae (c.v.) from everyone living in N. America who has completed a design course. We will compile this information and publish it as *The 1991 Permaculture Designers Directory*.

Please copy this page and send it to your friends and acquaintances who should be listed. The 1987 edition of this Directory listed over 400 individuals, a large portion of the 450-some known graduates at that time. We imagine the number has doubled since.

Please read and respond to the questionnaire below. Feel free to enclose a resume, business card, or professional brochure.

**We make referrals.** Return the completed form to us by Oct. 1, 1991.

We anticipate a price for the completed Directory of \$13.50, postpaid. Contributors to the directory may buy at the pre-publication price by sending \$10.00 to:

**The Permaculture Activist  
P.O. Box 3630  
Kailua-Kona HI 96745 USA**

U.S. funds please. Airmail extra, (U.S., Canada, Mexico-\$2; W. Hemisphere-\$3; Europe-\$5; Asia, Africa, Pacific-\$7).

## TELL US ABOUT YOURSELF...

**Name**

**Date, location, and teacher(s) of**

Permaculture Course you completed

**Telephone:** Home, Work, Fax, Email...

**Business or Organization**

**Address**

**Occupation**

**Group Affiliations / Special Licenses**

What land do you own or manage?

**Bioregion.** Any organizing activity?

## PRODUCTS & SERVICES?

you provide for Permaculture:

Farm/garden products

Tree Crops, Animals

Fresh market vegetables

Nursery Products or Seed

Non-edible farm or forestry products

Farmers: how do you market?

Manufactured items

Wholesalers: what do you handle?

Retailers: what do you carry?

Design or Consulting services

Organizing Activity

Publications

Other services, products or work related to Permaculture (paid or unpaid).

## OTHER SKILLS of use to Permaculture

Wildcraft: fishing, hunting, trapping, sailing, tracking, seed collecting, navigation.

Cultivating skills: gardening, propagation, forestry, soil conservation, irrigation design, PC implementation, edible landscaping,

Building skills: plumbing, electrical, glazing, carpentry, masonry, roofing.

Crafts: woodworking, ceramics, weaving, papermaking, clothing, thatching, tannery, dyeing, jewelry, metalwork, leatherwork, stitchery and needlework, knitting, netmaking, boatbuilding, glassblowing, distillery, brewing, vintnery,

Human and Animal Care: health services, nutrition, cooking, veterinary, animal breeding, beekeeping.

Communications skills: writing, graphic arts, drafting, foreign languages, public speaking, teaching.

Information skills: legal, interviewing, journalism, computer database, library, research,

Design & Technical skills: alternative/appropriate technology & energy, surveying, architecture, engineering,

Organizational skills: organizing co-operatives, business operations, manufacturing, entrepreneurial, etc.

## COMMENTS OR SUGGESTIONS?

Do permaculture design and teaching empower people and landscapes?

What tools are needed for successful design work? For implementation?

What cultural adaptations are required for sustainable land use in your region?

What support business, groups, or sources, do you need to sustain permaculture as your livelihood?

Are there particular products and services you need but cannot find?

Can you feed & house other people if they contribute to your farm/homestead/business?

What knowledge, resources, and skills can you offer to the network that will help others implement PC?

# PERMACULTURE COMMUNICATIONS

*Permaculture I & II:* \$16.50 each

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***Permaculture Communications,  
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## Regional Reports

### Earth Advocates

Greetings from Nobody's Mtn. It was a busy fall settling the new plant acquisitions in for the winter. Our bamboo collection is up over 100 species and cultivars now with more arriving this spring. We inoculated 30 oak logs with a new strain of shiitake mushroom spawn from a trade we made at the Eastern Permaculture Conference in October with Paul Goland ("Captain Mushroom" of West Virginia). And the 3,000 gallon in-ground rainwater cistern was completed with a ferrocement roof in mid-December. It's now being filled from our 620 square foot corrugated tin roof.

1991 will bring new challenges. We'll host the 6th Annual Eastern Permaculture Conference in October with a pre-conference Introduction to Permaculture at the Mtn. We'd like suggestions for speakers, topics, and help.

Several building projects are in the works: a bog garden, more cactus gardens, additions to lake ecology, more bamboo, and research into candidate species for the SE Highlands.

We're looking through requests from possible interns for the 1991 growing season (one-month minimum stay). We need a few serious-minded folks. Since our research operation is entirely self-funded, we can't pay interns; however, we don't charge to study here. We do ask interns to "bring your own everything," which means tent or small travel trailer, cookstove, gear, food, etc. Half of each day is spent on a project of our choosing, while the other half-day is self-directed. We have an excellent library, a lake for swimming, a waterfall, and good clean spring water, along with 360 acres of woods to roam.

Applicants should write soon expressing their interests and background in some detail. Please include a SASE with all inquiries.

We also do research and consultation by mail. Send your inquiries (along with a donation and SASE, please), and we'll try to help you either directly or by referral. Should you want a telephone discussion, send us time brackets (several) during which we can call, and be prepared to accept a collect call.

We're all in this together — hoe your turnips and keep singing.

Sue and Adam Turtle, Nobody's Mountain,  
Rte 3, Box 67, Livingston, TN 38570

### Restoration Forestry Book

Temperate and tropical forests will be the subject of a new book, "Restoration Forestry: Forest Practices for a Sustainable Future," soon to be published by Friends of the Trees.

The book will incorporate the proceedings of last November's Restoration Conference, organized by permaculturists, held at Lost Valley Center near Eugene, Oregon.

To obtain a copy, contact Friends of the Trees Society, P.O. Box 1064, Tonasket, WA 98855, (509) 486-4726.

### Household Wetland Project

At Gap Mountain Permaculture in Jaffrey, NH, we are working to make a lasting impact on the way we treat household wastewater. A designed wetland (rock bed/emergent) that will process greywater from a single family residence, is taking shape.

After struggling three years for an experimental permit from the state, we finally got it. We want to see if this type of greywater processing can be done in our cold climate without benefit of a heated enclosure. David Jacke, one of the principals at Gap Mountain, has designed the system, and began building it during last summer's permaculture design course with help from students and one intern.

### Request for A Permaculture Inventory

Permaculture Hawai'i, a non-profit, tax-exempt organization devoted to public education, is preparing to produce both a broadcast-quality video and a slide-show about permaculture. We will use these to educate policy-makers and the public and for fund-raising.

We would like to know about permaculture sites, nurseries, forestry, or aquaculture projects in order to select locations for filming. We would prefer locations in North and Central America.

A hopeful spin-off of this project would be better communication within the PC network.

We would like to know about:

- 1) Good or innovative permaculture TEACHERS: who, where, and why so.
  - 2) SITES that illustrate aspects of permaculture: what kinds of work have been done, and a contact who can interpret the site.
  - 3) SLIDES of sites, with written interpretation which you could donate to the project (tax-deductible), or which we could duplicate at our expense, please enclose them in this survey or let us know how we can obtain them with minimum inconvenience to you.
  - 4) GROUPS organized around permaculture such as urban-rural, producer-consumer coops, land trusts, permaculture communities, designers, suppliers, etc. with contact info.
  - 5) FILM EXPERTISE: Any film-maker, producer, investor, or other skilled or resourceful person who might be interested in or sympathetic to such a project.
  - 6) YOUR SUGGESTIONS to make this work more effective and serve more people.
- Please call: 808-889-5906 or write:  
Ken Boche, Permaculture Hawai'i  
PO Box 5167, Kailua-Kona HI 96745

### Elfin Permaculture Design Course in Florida

**Dates:** October 18-November 9, 1991  
**Location:** Orange Park, Florida

The course will be held at the Granary Whole Foods Store in Orange Park, a major suburb of Jacksonville. Students will produce an integrated design for the store and grounds stressing energy conservation, catchment, intensive plantings, useful native plants, and water gardens.

Plumbing from the house to the wetland is now in place, and the enclosure walls for the aquatic bed are complete. Greywater from the house will drain to a south-facing terrace, which forms the north wall of the wetland. Another rock wall completes the wetland enclosure. We were pleased to receive donation of a liner for the aquatic bed, but cold weather overtook the project before we could install it.

Gap Mountain is looking forward to spring, not only for the joys of the planting season, but because of the planting of a special bed—one we will monitor closely for the next 5 yrs.

For those living in warmer climate zones, plans are available for \$20 from David Jacke, 9 Old County Rd., Jaffrey, NH 03452.

### Internships and Residence at Gap Mountain PC

Gap Mountain Permaculture (GMP), a center for research, education and demonstration in Jaffrey, NH, offers internships. These may be independent, or part of a high school, college, or grad-uate course of study. GMP offers no credit for these programs, but we've worked with students who have received credit from schools in which they were enrolled.

Applicants should have some experience and skills, not necessarily in permaculture. Examples of some possible projects: work in gardens and orchards, domestic greywater treatment, marsh construction and monitoring, chicken forage development, permaculture building retrofits, topographic surveying, water system design and development, observe insect and plant interaction in the orchard, organize workshop, courses, etc. Interns and staff will meet weekly to discuss the work.

We will also meet weekly to discuss aspects of permaculture that may not seem directly related to work projects on land and buildings, for example: "sustainable psychology," LETS system for an alternative economy, spiritual and philosophical assumptions and implications of permaculture, the practice of observation, and others suggested by members of the group. Interns spending 2 months or more at GMP may take workshops free, and will pay reduced rates for design courses held the same calendar year(s) as their stay.

Various forms of internships are available including seasonal and non-resident internships, and long term residency. Spaces are limited. For more information or to apply, call David Jacke at 603-532-6877 or Jude Gregory at 603-532-7027, or write to GMP, 9 Old County Rd., Jaffrey, NH 03452.

The course meets from Mo-Sa incl. some evenings. Formal instruction begins Oct. 21. Graduates will receive PC design certificates.  
**Instructors:** Dan Hemenway, Cynthia Baxter  
**Cost:** \$600, lodging and meals extra. \$100 deposit. Enrollment limited to 20. Course outline and biblio. available for \$4.00  
**Contact:** Dan Hemenway, 7781 Lenox Av. Jacksonville FL 32221. Typed letters please...

## Learn Solar Technology

Solar Technology Institute in Carbondale, CO announce their '91-'92 Solar Home Program. Participants learn to design and build state-of-the-art solar homes that are self-reliant, thermally efficient, healthy to live in and environmentally conscious.

The Program consists of the following 'how-to' and 'hands-on' workshops beginning in September:

- Sept. 9-20 Photovoltaic Design and Installation
- Sept. 23-Oct. 3 Advanced Photovoltaics for Remote Homes
- Oct. 7-10 Micro-Hydro Power Systems
- Oct. 14-24 Solar Home Design and Construction
- Oct. 28-Nov. 21 Energy Efficiency and Solar Remodeling
- Jan. 13-23, '92 Passive Solar Design for Professionals
- Jan. 27-Feb. 20 Heating the Energy Efficient Home
- Mar. 2-May 1 Solar Building Skills

Workshops are also on offer for Summer '91:

- July 8-19 Photovoltaic Design and Installation - Colorado
- Aug. 5-9 Solar Energy for the Developing World - California
- Aug. 26-30 Solar Technology for Rural Health Care - Colorado

**Solar Home Program** instructors Ken Olson and Johnny Weiss of Appropriate Technology Assoc. have taught solar building design and construction for ten years at Colorado Mtn. College. Write Solar Technology Institute, PO Box 1115, Carbondale, CO 81623 or call (303) 963-0715.

## POWWOW

An occasional British publication with permaculture info, village interest, back-to-the-land, local trading, and political eye openers. Good international insights, European grassroots. Donations from 50p (US\$1) upwards per copy.

POWWOW,  
Box 7, Wassall Rd.  
London SW9 6JB, U.K.

## PC Resources from Hong Kong

Permaculture Asia, Ltd. offer:

1. *Provisional Checklist of Potential Permaculture Plants for S.E. Asia, South China, and Hong Kong.* Uses and growth requirements of 100 trees, shrubs, climbers, and grasses. \$5.00 US
2. *Permaculture Teachers Resource Directory.*

160 references to books, journals and organizations relevant to Permaculture. \$5.00 US

3. *"Applying for Sponsorship."* Notes for hopeful applicants. \$1.00 US

Richard & Margaret Webb  
21 Kings Park Flats  
6-12 Kings Park Rise  
Kowloon, Hong Kong

## Letters

### Guild Irrelevant?

Dear Friends,

Re: Relevance of Permaculture and the proposed International Guild of Permaculture Practitioners.

At the Permaculture Convergence in Biratnagar, it was decided to form an international guild to help maintain and improve the standards of permaculture practice. A working group of nominees was asked to discuss and decide what was meant by standards with reference to the functioning of the guild. There was also talk of professional competence, qualifications for membership, drafting a certified core curriculum and specifying minimum requirements for teaching. There seemed implicit acceptance of the need for a centralized structure, whether it be a federation or a guild. To me, all this sounds like a step towards fossilization.

If we view permaculture as a hol-

istic quest for sustainable land use and culture based on ethics, standardization is neither possible nor desirable. Historically, permaculture preceded the word. Native peoples all over the world followed sustainable patterns long before the term was coined. Where such systems survive in parts of the two-thirds world (now self-destructing rather than developing), "permaculturists" would do better to learn than try to teach.

Where the land has already been ravaged and the continuity of traditional knowledge lost, permaculture can usefully serve as one—but not the only—perspective bridging traditional knowledge and current practice. The idiom and approach of permaculture teaching seems more coherent to people exposed to modern, scientific ways of thinking. Some, however, may still realize the severe limitations of attempting "design" based on a limited knowledge of the infinite inter-relationships in nature.

Nature can be generous, but human arrogance is a major stumbling block. Progressively, it may be possible to rediscover sustainability

## Permaculture Books

*Permaculture I: A Perennial Agriculture for Human Settlements.* Bill Mollison & David Holmgren (1978). 127 pp. paper. illus. An elegant statement of principles, clear definitions, extensive species lists—selected for temperate to subtropical climates. 16.50

*Permaculture II: Practical Design for Town and Country.* Bill Mollison (1979). 150 pp. pap. illus. Design criteria; landscape analysis; broadscale technique, plant/animal interaction, soil improvement, arid and humid climates, waterworks and aquaculture, forage systems. 16.50

*Permaculture: A Practical Guide for a Sustainable Future.* Mollison (1990) 576pp. cloth. 450 illus. + 130 color photos, N. Amer. re-print of *The Permaculture Designers' Manual*. Global treatment of cultivated ecosystems. Resource for all landscapes and climates. 35.00

*The Best of Permaculture: A Collection.* Max Lindegger & Robert Tap, eds. (1986) 136 pp. paper. illus. Choice examples from around the world: PC, building biology, urban forestry, land restoration 15.00

*Conceptual Permaculture Report: Crystal Waters Village.* Lindegger & Tap. (1989) 80pp. pap. illus. Advanced proposal for an agricultural economy at the 1st PC village in Australia. Fine documentation. 22.00

*Crystal Waters Permaculture Village Owner's Manual.* 2nd ed. Nascimanere. (1990) 54pp. pap. illus. Nuts and bolts for the owner/builder. Passive solar design; hard-to-find info on rammed earth, sod roofs, pole construction, building biology. Subtropical focus. 11.00

*Western Permaculture Manual.* ed. David Brown. 160 pp. paper. illus. "A significant contribution to the development and explanation of permaculture"—David Holmgren. Philosophy, ecological theory, design principles, relevant technology, silviculture, husbandry, and 10 years practical experience from the PC Assn. of W. Australia. 14.00

*Designing and Maintaining Your Edible Landscape Naturally.* Robt. Kourik. (1986) 370 pp. pap. illus. + 19 color photos. Permaculture in the home garden. Mulch gardens, double digging, root zones, intercropping, pruning, companion crops, natural pest control. 17.00

*City Food, Crop Selection in Third World Cities.* Isabel Wade (1986) 54pp. paper. line drawings. Efficient food production with limited resources. Treats many tropical fruits, nuts, and vegetables not familiar to N. Americans: growth requirements, food values, planting calendars; common & botanic names & uses for 100+ crops; extensive biblio. 7.50

*EcoCity Berkeley: Building Cities for a Healthy Future.* Richard Register. (1987). 140pp. pap. illus. Valuable and visionary view of Berkeley and the Bay area 25, 50, and 120 years in the future. Scenarios of ecological city transformation. Design for city regions. 11.00

*EcoCity Conference 1990: Report of the 1st Intl Conference.* Urban Ecology. 128 pp. paper. illus. Over 150 presenters on 80 topics. Communities, design, transport, workplace, wilderness, cohousing, recycling, traditional cultural models, new towns, green city programs—a feast of ideas and examples. Includes a directory of resources. 7.00

*The Man Who Planted Trees.* Jean Giono. (1985) 56pp. paper. 20 woodcuts. Beautifully illustrated by Michael McCurdy. 6.95

*Dwellers in the Land: The Bioregional Vision.* Kirkpatrick Sale. (1985) 217pp. cloth. A sourcebook for much of the current bioregional movement. His vision of a community-based governance points to a new paradigm for politics appropriate to permaculture. 12.95

*Directory of Intentional Communities 1990-91.* 312 pp. pap. illus. 300+ N. American and 50+ international communities, 200 alternative resources and services, 35 articles on community living. Comprehensive, exciting survey of a maturing movement for cultural transformation. Especially interesting historical perspectives. 12.00

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II, 2	May '86	IPC 2 & PC Design Courses
II, 3	Aug. '86	Int'l PC Conference Program
II, 4	Nov. '86	Conference Wrap-up #1
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through new, revolutionary phases. But much of this effort is informal, gradual and decentralised. And most people doing good work may not have even heard of permaculture, which rather sounds like another institutionalised technology.

Permaculture cannot afford to set itself up as a new priesthood. Formalisation and standardization have several dangers, apart from being pretentious. Appropriate practice or teaching is necessarily dependent on local conditions, and cannot be dictated from a remote centre. The magnitude and urgency of problems today demand countless "barefoot" practitioners of holistic living and earth healing. As Bill Mollison says, it doesn't matter what they are called.

In countries like India and Nepal, the old commonsense principles stated in permaculture can help in regenerating the land. Numerous ideas and examples compiled in permaculture publications may be useful. But knowledge of local conditions and the myriad indigenous species of the region is critical. There can be no model. And we have only begun to learn. Systematic documentation and smoother channels of communication are more needed than futile certification criteria, which seem to have undertones of monopolisation and control. Rather than set itself apart, permaculture needs to integrate with local effort, and shed some jargon for wider outreach. The label of permaculture is not important.

I would like to add an observation on the International Convergence. Why were there so few people from the two-thirds world, and why were their voices hardly ever heard?

Regarding the Conference in Kathmandu, it would seem to me that five days of talking in a luxury hotel is talking on the wrong foot. We should not gloss over the fact that conspicuous consumption by an elite minority hogs more natural resources and contributes to more environmental damage than any lack of ecological alternatives among millions of people marginalised by modern development. Ignoring that, "sustainability" is just another word in today's dictionary of double speak. And it is only too easy to be co-opted by the problem side of the world.

Perhaps I have been brutally frank. But I hope this helps in some way.

With warm wishes,  
 Bharat Mansata  
 Classic Books  
 10 Middleton St.  
 Calcutta 700 071 INDIA

**Mahalo, Madelon & Seattle Tilth!**

Friends,

I have subscribed to *The Activist* for several years under my own name. As it is time for me to renew again, and also as I seem to use *The*

*Activist* at work more than at home, please cancel my name from your list, and instate a lifetime membership for the Seattle Tilth Assn. The check for \$350 is enclosed. (I donated the money to Seattle Tilth for this purpose.)

Madelon Bolling,  
 Seattle Tilth Office Coordinator  
 4649 Sunnyside Ave. N.  
 Seattle, WA 98103

### **Permaculture and Prisoners**

Dear Editor:

George Sobol (president of PC-U.K.), a retired Sergeant Major, and I need to impose on your generosity if I may. I need to get in touch with the "Vietnam Veterans Association" or any other ex-servicemen's association. George Sobol and I are involved in a joint project to assist Prisoners of Conscience held in detention camps world wide through Amnesty International. You can contact the International Secretariat of Amnesty International in London (my number is 550990).

Surviving for 14 years in a jungle detention camp is no picnic. Growing food, raising chickens, and staying healthy under these circumstances is torture. Lack of permaculture knowledge a disaster. Most prisoners of conscience are intellectuals not farmers. Help! Is anyone out there in Africa, SE Asia, S. America, and the Middle East?

Permaculture means survival for all of us, but for some the acquisition of permaculture knowledge and techniques means the difference between life and death now. Growing food for these people increases diet, improves health, physical and mental wellbeing, allows barter, surprises the authorities, and aids rehabilitation!

Questions: How about a permaculture system designed especially for camps of all climates? How about a PC starter kit for each climate, of seeds and instructions? Any designers care to put their ideas in? How about contacting the author with anything you can do to help?

Any information on indigenous food, medicinal plants, herbs, and raising livestock or plants, from any source in any language, urgently needed. All input gratefully received.

D. Flaherty  
 2 Heol Y Clun  
 Beddau, Mid Glam  
 S. Wales CF38 2RL U.K.

**Permaculture Pyrenees Moves**

Marc Bonfils & Emilia Hazelip write that because of prolonged drought, they have relocated to Toulouse:

Permaculture Toulouse  
 F-31520 Ramonville St-Agne, France

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## Books and Publications

SEARCH Publication - Iconography for Junior High & High School students. Macintosh-Aldus Pagemaker 3.0 applications. Whole thought concepts. \$40 - 2 disks. Eric B. Wuersten, 2320 N. 28th St., Tacoma WA 98403 USA (206)272-3544.

AT LAST! *Greenward Ho!*, an ecological approach to sustainable health is in print. \$35 ppd from Tom Ward, POB 1282, Ashland, OR 97520.

**Free Water**—Learn how to save and use—don't continue to lose your free water! Learn water and soil building method effectively used in Australia. No engineer or consultant required. Just read, study, and apply P.A. Yeomans' Keyline system yourself! Reproduced book *The Challenge of Landscape*, \$25.00 plus \$2.50 shpg in USA, \$1.50 CA sales tax. Check or money order to: Frank Esprilla, PO Box 206, Guinda, CA 95637.

TECHNICAL BULLETIN on Gap Mountain Permaculture "Mouldering" Toilet: Describes basic functioning, design considerations and construction details for cold climate privy. \$12 ppd from Dave Jacke, 9 Old County Road, Jaffrey NH 03452.

Portable Dwelling Info-Letter: about living in tents, yurts, domes, trailers, boats, remote cabins, other mobile or quickly-made shelters plus plans for simple, low-cost, low-impact com-

forts and conveniences. Sample \$1. Box 190-pa, Philomath, OR 97370.

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"Permaculture is Caring for Our Earth Mother": Long Sleeve T-Shirts, Ash grey or White, Lg or XL. \$15 + \$2 shpg. in USA, \$5 shpg overseas. Med. and XXL \$1 more. \$2/shirt supports permaculture work through Eastern N. American Permaculture. Other environmental designs available. H. Conable, 6 Canterbury Woods, Queensbury NY 12804.

## Feed & Seed

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ORGANIC DRIED BANANAS grown with mulch in volcanic cinder soil, air dried, no additives. Paradise Bananas, PO Box 2156, Pahoa HI 96778. 808-965-8522.

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## Apprenticeship

Family-operated mail-order nursery seeks couple or single person to learn

trade, eventually take over business. Specializing in disease- and pest-resistant fruits and nuts, N-fixing trees and shrubs. Permaculture and agroforestry. Housing available. Love & knowledge of plants essential, grafting and budding skills, good observation skills, willing worker. Scenic area, secluded and peaceful. You'll not get rich here, but you can earn a living carrying on work of restoring the health and fertility of the soil while feeding people. Write Hector & Susie Black, Rt 14, Bx 159 Cookeville, TN 38501. (615)268-9889.

POSITION AVAILABLE for Apprentice (inexperienced - room & board; experienced - room & board + salary). Integrated greenhouse and market gardens, developing permaculture orchard. Marketing unique salad mix and herbs to Aspen resorts. Beautiful secluded location. Jerome Osentowski, Box 631, Basalt CO 81621. 303-927-4158.

## Communities

Permaculture Community. Green Village & Student Summer Camp: Core Family Practicioners wanted (8-12 adults), also campers. We need skilled permaculture people! Namaste Family 442, Box 578 Barnstead NH 03225. (603)776-7776

Seeking N. Calif PC contacts and conversation for cooperative PC village creation. Keith Johnson, Garden of the Heart Permaculture, 7639 Sonoma Hwy, Santa Rosa, CA 95409 (707)833-1853

## Services Offered

Will garden in exchange for room/ pay in west coast community/city. Trained and experienced. Ken Bunzel, 8157 Forest Hills Cir., Franklin, WI 53132. (414)529-9596

PC-trained architect available for consultation by mail. Creative design process teaches you to transform your vision into reality. Affordable rates. Patty Ceglia 3325 Creamery Rd. New Hope, PA 18938. 215-297-8079.

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ELFIN PERMACULTURE DESIGN ASSOCIATES offers permaculture design and consulting services in all regions. Contact: Dan Hemenway, 7781 Lenox Av. Jacksonville FL 32221 USA for details.

## Subtropical Fruits: A Compendium of Needs and Uses

Max O. Lindegger  
A 2-color poster, 26"x30", lists 100 species and varieties of subtropical fruit from Abiu to Wampee, alphabetically by botanic family, with tolerances, plant and fruit products, characteristics, cultural requirements, bearing season, and remarks. Bibliography. An invaluable aid to the permaculture designer.  
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# CALENDAR

**May, 1991: 4 Weekends. Garden & Greenhouse Workshops. Basalt, CO.** Contact Central Rocky Mtn. PC, PO Box 631, Basalt, CO. 303-927-4158. details pg. 30.

**May 2-29, 1991. Permaculture Design Course. Prescott College, AZ.** Tim Murphy, Larry Santoyo. Contact Vicki Marvick, PC Drylands, P.O. Box 27371, Tucson, AZ 85726-7371, (602)824-3465. details pg. 31.

**May 17-19, 1991. Shared Living Communities Workshop. Pahoehoe, HI.** Ken Norwood. Contact Kalani Honua, RR2, Box 4500, Pahoehoe, HI 96778, (808)965-7828.

**May 30-June 7, 1991. Pacific Women's Conference, "Empowering Women To Achieve," Hilo, HI.** Sponsored by the National Assembly of the Baha'is. Contact Univ. of Hawai'i at Hilo, CCECS Conference Center, Hilo, HI 96720-4091. details pg. 38.

**May 31-June 15, 1991. Womyn's Permaculture Design Course. Cochranton, PA.** Dawn Shiner and Jo Clayson. Contact Dancing Green, PO Box 157, Cochranton, PA 16314. details pg. 32.

**June 2-7, 1991. 2nd Intl. Windbreak Symposium: Windbreaks and Agroforestry. Ont. CANADA.** Contact: Charles S. Baldwin, Ridgetown College of Agric. Technology, Ridgetown, Ont., Canada, N0P 2C0.

**June 6-8, 1991. Workshop. "Towards Sustainable Strategies of Urban Design". Ames, IA.** Peter Jacobs. Contact Design Summer Program, 134 College of Design, Iowa State University, Ames, Iowa (515)294-8710.

**June 17-21, 1991. Black Locust: Biology, Culture and Utilization. East Lansing, MI.** Contact John Hanover, Dept. Forestry, Michigan State Univ., East Lansing, MI 48824.

**June 18-19, 1991. 2nd UK Conference on Urban Forestry. Dudley, England.** Contact Mrs C. A. Field, Lea House, Walsall Wood Road, Aldridge, Walsall, WS9 8QU, West Midlands, U.K..

**June 22-July 6, 1991. Sustainable Development for the Third World. Oaxaca, MEXICO.** Contact Aprovecho Institute, 80574 Hazelton Rd, Cottage Grove, OR 97424. 503-942-9434. details pg. 32.

**June 24-August 16, 1991. Summer Course. Introduction to Sustainable Agricultural Systems (Agronomy 192). Davis, CA.** Contact Mark Van Horn, Student Experimental Farm, Department of Agronomy, Univ. of Calif. Davis, CA 95616 (916)752-7645.

**June 29-July 14, 1991. Permaculture Design Course. Mendocino, CA.** Michael Pilarski, Chris Evans. Contact Friends of the Trees, PO Box 1068, Tonasket, WA 98855, (509)486-4726. details pg. 30.

**July 8-19, 1991. Photovoltaic Design and Installation Workshop. Carbondale, CO.** Contact Solar Technology Institute of Colorado, PO Box 1115, Carbondale, CO 81623.

**July 11, 1991. Total Eclipse of the Sun. Island of Hawai'i.**

**July 11-14, 1991. Planet Fest '91. Planetary Lifestyles Conference & Energy Exposition. Lothlorien Nature Sanctuary, Bedford, IN.** Contact Earth Base Projex, PO Box 1328, Bloomington, IN 47402-1328.

**July 14-27, 1991. Permaculture Design Course. Slokan Valley, BC.** Larry Santoyo. Contact Greg Lamoureux, Box 43, Winlaw, BC, CANADA V0G 2J0, (604)226-7302.

**July 25-28, 1991. Conference of the Intl. Communal Studies Assn. Elizabethtown, PA.** The Young Ctr. for the Study of Anabaptist and Pietist Groups. Contact Office of College Relations, One Alpha Drive, Elizabethtown, PA 17022-2298 (717)367-1151.

**August 5-9, 1991. Workshop on Solar Energy for the Developing World. California.** Contact Solar Technology Institute of Colorado, POB 1115, Carbondale, CO 81623.

**August 3-17, 1991. Sustainable Development for the Third World. Cottage Grove, OR.** Contact Aprovecho Institute, 80574 Hazelton Rd, Cottage Grove, OR 97424. 503-942-9434. details pg. 32.

**August 3-18, 1991. Permaculture Design Course. Cortez Island, BC.** Rick Valley, Simon Henderson. Contact Linnaea Farm, Box 98, Manson's Landing, BC CANADA V0P 1K0 or call Liz (604)935-6370 or Victoria (604)935-6413. details pg. 30.

**August 20-25, 1991. Tree Intensive Workshop. Lake Chelan, WA.** Michael Pilarski, Michael Hample. Contact Friends of the Trees, POB 1068, Tonasket, WA 98855, (509)486-4726. see pg. 31.

**August 26-30, 1991. Workshop on Solar Technology for Rural Health Care. Carbondale, CO.** Solar Technology Institute of Colorado, POB 1115, Carbondale, CO 81623.

**September 7-21, 1991. Permaculture Design Course. Island of Hawai'i.** Lea Harrison, Max Lindegger. Contact PC Hawai'i, PO Box 5167, Kailua-Kona, HI. (808)929-9028. details pg. 30. See also courses below:

**September 24-30, 1991. Advanced Permaculture Design Course. Island of Hawai'i.** pg.30

**October 3-9, 1991. Permaculture Teachers Training Course. Island of Hawai'i.** pg.30

**October 11-13, 1991. 6th Annual Eastern Permaculture Conference. Standing Stone State Park, TN.** Contact: Earth Advocates, Rte 3, Box 674, Livingston, TN 38570.

**October 19-31, 1991. Permaculture Design Course. Basalt, CO.** Jerome Osentowski, Michael Pilarski, Joel Glanzburg. Central Rocky Mtn PC, PO Box 631, Basalt, CO 81621, (303)927-4158. details pg. 30.

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