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Third International Eco-City Conference and Permaculture Design Certification Course Yoff, Senegal, January 1996

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[Submitted Paper]

Background on Yoff, Senegal

Yoff is a 600 year old traditional fishing village situated on the western-most point of the African continent, known as Cape Verde, Senegal. Yoff shares the area with two other traditional villages of the Lebou Tribe, Oakam and Ngor. The villages are located approximately 30 kilometers to the north of Dakar, Senegal's capital and largest city of some 5 million.

The people of Yoff have traditionally lived sustainably from fishing, arts and crafts and subsistence farming. The Lebou are a highly cohesive group, sharing Wolof as a common language. With Islam well established some 700 years ago in West Africa, the Lebou integrate devout Muslim practice with ancient tribal (animistic) traditions. During the conference, the village of Yoff celebrated its annual ritual in honor of the protective goddess spirit of the village. A bull was sacrificed as part of this goddess ritual.

The villages of Yoff, Ngor and Oakam have been threatened culturally and physically by modern industrial developments, with increased severity over the past 100 years. In 1995 National Geographic featured a cover story on the devastation of fish populations, highlighting the plight of the traditional Senegalese fishing cultures. Factory fishing fleets, European and Lebanese, have been so voracious that local fish counts have dropped dramatically. Predictions of the collapse of fishing traditions in Senegal range to within a few years.

Additionally, years of French colonialism brought the "green revolution" and cash crops to Senegal. This drastically altered traditional agriculture practices and devastated the generational information base about self-sufficient natural farming. Huge monocrop plantations of peanuts deplete the land and deteriorate local nutrition, while primarily serving the French cosmetics industry. Aid organizations active in

Senegal, such as the Peace Corps, are still recommending pesticides, herbicides, and chemical fertilizers.

With the local industry base wiped out, the increasing population flocks to Dakar and other urban areas in search of jobs and currency. Human and industrial waste problems are escalating, intensifying health problems. Financial and governmental aid programs attempt to address only the symptoms of the problems. The population of Yoff has jumped from 25,000 ten years ago to nearly 40,000 in 1996. The village is running out of land to support the new homes necessary. Part of this problem is cultural, as polygamy is practiced and it is a sign of status to have more than one wife. Traditional village life incorporates large extended families in compounds.

One striking impression is that Yoff, with its strong cultural traditions, has all of the "social software" of an eco-village. The social organization and cohesiveness as a community is as impressive as anywhere on the planet. There are no police and no jails in the village. A complex hierarchical structure of religious leaders, council of elders and council of wise elders, and women's economic cooperatives (out-dating many recent developments around the world), hold the village together remarkably like a large family. Everyone in the village knows instantly if there is an important visitor, or if there is a special event, or if someone has a problem. Even the community dining and prolonged habit of greetings and introductions promote an extraordinary human intimacy.

The choice of Yoff as the site for the Third International Eco-City Conference is largely due to the work of one highly active and talented individual, Serigne M'Baye Diene. Serigne is known in the village as Khalifa, an honorary title which appears to bestow a great deal of respect, leadership and trust in a man who is not yet an elder. Serigne has a PhD in Nutrition from Cornell University, and his thesis presented ground-breaking insight into local community process as it relates to health and nutrition.

At Cornell, Serigne became involved with a community development project started by a group at Cornell, known as the Eco-village at Ithaca. Since 1992, Serigne has been working with this group (connected to Richard Register and Eco-City Builders) on plans to establish a sister village relationship and build an Eco-Center as a model for the expansion of Yoff village.

Following his completion at Cornell, Serigne now works on a US AID project in Dakar. He is the Director of a local organization, APECSY – the Association for the Economic, Cultural and Social Promotion of Yoff. Now active for over 10 years, APECSY has the full support of the village elders, and has successfully negotiated the return of tribal land from the government. APECSY is the organization that hosted the Third International Eco-City Conference and which sponsored the location and provided support for the first Permaculture Design Certification Course taught in West Africa.

The Third International Eco-City Conference

The Conference took place just outside Yoff, from January 7th through January 12th, 1996 with some 35 countries represented and several hundred in attendance. It is expected that full conference proceeding will be published through Ithaca. This

report is primarily concerned with the Permaculture Design Certification Course, and therefore only lists some of the major topics covered by presenters and panels at the Conference:

- The model of the existing eco-city of Curativa, Brazil;
- Traffic, transportation and the urban environment;
- Traditional African village design;
- Waste water treatment systems;
- Food security and urban agriculture;
- Women's cooperative banks;
- Solar and appropriate architecture;
- Population and urban stress;
- Health and Nutrition;
- Womens' role in development;
- Modernization and pollution;
- Appropriate technologies;
- Permaculture Design.

The conference included the participation of the Mayor of Dakar and Senegal's Minister of Environment as well as many Senegalese involved in urban planning, development, architecture and education. By all standards the conference was a huge success. It stimulated a great deal of enthusiasm for an ecological approach to future development. Most remarkable was the sharing of cultures. It became fully apparent how much traditional village cultures have to offer and teach the global eco-city and eco-village movement.

Permaculture Design Certification course

The Permaculture Design Certification Course was conducted just following the Eco-City Conference, from January 14 through January 25th, 1996. The course was comprised of 45 participants from the three villages of Yoff, Ngor and Oakam. The course was conducted within the old village of Yoff at the headquarters of **APECSY** (Association pour la Promotion Economique, Culturelle et Social de Yoff). B.P. 8502 Dakar-Yoff, SENEGAL tel/fax: 221.20.32.68.

Thomas Mack, of Ecological Design Arts, Santa Fe, New Mexico served as the lead permaculture instructor, greatly aided by Assistant Instructor Moustapha Barry, a Senegalese student in the United States who recently completed the Permaculture Design Course in Colorado. A number of Senegalese English teachers attended, some having been official translators for the Conference, and these participants were instrumental in translating all the course information into French and Wolof, and local idioms.

The composition of the student body, with 1/3 women, was highly diverse: gardeners, students, teachers, architects, engineer/surveyors, mothers, translators, etc. Several youths' associations from all three villages were represented, and quite a number of women's groups, including members of a women's dye and fabric making cooperative, garden/farm cooperative, women's rural and community development groups, with national networking within this latter group.

After a few days of positive reviews within the village of Yoff, several elders showed up and continued religiously throughout the remainder of the course. The elders offered contributions of tremendous value to the class, confirming the philosophy and describing how their fathers and grandfathers “did permaculture.”

Near the end of the course, the eldest participant said that all this reminded him of a story about the man who suffered an ulcer for fifty years, when along came his friend and inquired about the obviously painful condition. Indicating the stomach, the friend replied by asking the ailing man if he knew what the nature of that tree growing in front of his house was. Drinking the tea from the leaves of the branches of the tree for a period of one month, the man was cured of his ulcer.

“The answer is right in front of us,” declared the elder. The participation of the elders was extremely critical to the success of the permaculture course in Senegal. Another significant connection was made with the Jaroffe, or Spiritual Leader of the village of Oakam. The Jaroffe visited APECSY to register his wife for the ten day course, at which time an introduction to permaculture was provided with ample photo examples.

And, in addition to the traditional leadership, an excellent rapport was made with elders of the Mosque. Many students in class had training in the Koran, in Arabic, and consistently found passages in the Koran or among the Hadith (sayings and manners of the Prophet) which confirmed the permaculture philosophy.

The classroom time, generally two short lectures per day, covered the basics of the Permaculture Design Certification Course:

- Earth Care Ethics;
- Observation and Pattern Recognition;
- The Elements and Bio-cycles;
- Design Principles and Design Methodologies;
- Zone and Sector Analysis;
- Energy Accounting and Ecological Auditing;
- Soil Regeneration;
- Water Harvesting and Management;
- Erosion Control;
- Drylands Strategies;
- Waste Treatment;
- Small Animal Systems;
- Homestead and Home Design;
- Environmental Restoration Strategies;
- Forest Gardening and Regenerative Forestry;
- Economics and the Biological Resource Base;
- Community Enterprise and Development Strategies;
- Urban Design Strategies.

Plenty of time was structured for hands-on activities, which were usually conducted by first forming into smaller groups. Several observational exercises were conducted both within the village and throughout a 150-hectare property adjacent to the international airport at Yoff, which cannot be developed for housing and which the village is considering for an agricultural designation.

The village design exercise included inventories of unused resources and convertible wastes; housing layout; building design; water drainage patterns, traffic patterns, local vegetation, etc. Field observation exercises on the farm parcel involved drainage patterns, erosion indicators, guild and biological associations, vegetative patterns, solar orientation, wind orientation, fire, access, etc.

The field exercises also included collecting, remarking on, and documenting local useful plant species. The class as a whole identified, categorized and notated 52 species. All the information from this was published in poster form for future references, as were the notes from all the permaculture lectures.

Other hands-on activities included the construction of a "peebox" toilet for urine, which is simply a box stuffed with a sufficient amount of straw or other dry carbon material to absorb quantities of urine. The urine dries and rarely smells. The now nutrient rich straw is later used as mulch in the garden. There is a slow release of nitrogen along with the breakdown of the carbon material.

Together, the class planted a spiral mandala tree garden, as a model for forest gardening in the neo-tropics. First the collection of materials: seaweed, cardboard, water, sheep manure, some healthy soil, dry mulch material, stone and plant material. On a completely barren section of sand within the APECSY compound where the class was taught, a spiral mound was built up from the successive layering of these material, articulated by stone, and planted with several stories of perennials, including mango, banana, papaya, and guava, with passion fruit climbing up a bamboo stake until the trees reached supportable size. The afternoon event became a neighborhood spectacle of apparent delight.

Additional practical class activities included hand manufacturing of the Fukuoka seed pellets for drylands regeneration. This system combines many variety of seeds, including trees, shrubs, flowers, herbs, grains, ground covers, leguminous, etc. To this carefully selected "mixed bag" is added a light coating of live forest soil inoculated with the mycorrhizal spores, and then an outer coating of finely sifted clay (which contains latent minerals). The "mud pile" is moistened with bitter herb tea. The mycorrhizals provide the homoeopathic dose to spur germination; the clay keeps the birds away, retains water and adds minerals, and bitter herb tea serves as a detractor for rats, mice and small animals. The class made about a thousand in a few hours.

Design exercises were assigned as part of the standard Permaculture Design Course Curriculum. The two relevant assignments were the 150-hectare farm area; and the compound for the planned Eco-Center which would serve as the model for the village extension area. This village extension will eventually serve upwards of 6,000 people (extended family compounds). Six groups of 7 students formed to illustrate designs for the farm. This exercise stimulated a great deal of interaction among the course participants and provided an opportunity for some in the group to assume teaching roles, as presentations on each design were formally made by one selected from each group.

Time did not allow for the development of fully illustrated designs for the eco-center compound, but the class developed several dozen design criteria and specifications

for an urban design fashioned within the permaculture framework while preserving essential indigenous motifs. This exercise also required every student to assess his or her own home environment from an ecological design perspective, and again awakened a well-spring of contribution, dialogue and learning interaction among the students.

The overall response, while I cannot avoid subjectivity, was extremely positive. The Khalifa stated that something “magical” was happening with this group, and he was convinced that permaculture delivered the needed practical follow-up to the conference. One positive indicator of the course was the fact that people were already making compost at home before the course was over. Village permaculture study groups were formed by the end of the course.

Perhaps the most striking indicator was the “talent show” on the final night of the course. Participants composed groups to sing, dance, drum, recite and perform. The women composed a traditional lyrical ballad that honored the return to the earth and offered thanks for permaculture; the youth groups made up various rap songs. The overall feeling was rather like a joyous embrace and a celebration of optimism.

Future directions

APECSY, with its history and track record, its political and religious support, and the International Conference, has established a solid foundation for future success. As APECSY embraces permaculture with a view to the design of its vision for its future development, there is a high degree of potential for building upon the base work set by the Permaculture Design Certification Course.

APECSY has the attention of such organizations as UNESCO, US AID, the Ford Foundation, as well as the recognition of the Ministry of Environment, the Mayor of Dakar, and the President of Senegal.

It is recommended that a second design course be organized as soon as possible to maintain the momentum of the Conference and the first course. This course is important for two reasons:

1. The first course was seen as a side show of the Conference and the response of the village communities surprised everyone. No pre-registration was done. All the arrangements had to be made by the teaching team when they arrived in Senegal just prior to the Conference. At first, nobody knew what permaculture was, so nothing was done. This is to some degree due to a lack of attention, or even neglect by the Cornell, Eco-village at Ithaca organization, which had its hands full with the Conference.

The main point being that with advance organization, with the cooperation of the full capacity of APECSY, the composition of the student body will be more highly targeted. Non-governmental organizations, and the leadership of many more cooperatives, would be guaranteed.

2. The second point is that the village of Yoff has got projects under way that need immediate assistance – the extension of its village on vacant land with the

capacity for 6-8,000 people, and the design and development of a 150-hectare permaculture farm.

If possible, it is recommended that two people from Senegal be sponsored to attend the Sixth International Permaculture Conference in Perth, Australia, Autumn 1996. Efforts are currently under way to establish the Permaculture Association of Senegal (PAS), as an APECSY-sponsored program. A permaculture library was inaugurated with contributions of books and videos from Thomas Mack.

There are opportunities for trade with womens' cooperatives for naturally-dyed fabrics, and is exploring other potential products for trade with the "first world" to support local development of regenerative economic enterprise, based on biological resources. Another promising opportunity would be to set up a seasonal village apprenticeship/eco-tourism venture. Student fees for a six week stay would include the cost of a Permaculture Design Certification Course, meals and lodging in a family home in the villages of Yoff, Oakam and Ngor. Paying field scholars would split time between training, practical hands-on application, tourism around Senegal, and instruction in dance, and song.

It is recommended that Yoff link with the Global Eco-village Network (GEN), as it would be a mutually beneficial alliance. Internet training is currently being conducted at APECSY and at high schools in and around Yoff. Facilities to allow World Wide Web access are being installed. GAIA Villages or GEN might consider sending a small team of emissaries from its international network to Yoff to conduct an assessment, a briefing on GEN and a short Web training session.

Capital support is needed for the construction of the Eco-Center, as a model compound for permaculture urban development. It is recommended that the GAIA Villages or GEN mission to collaborate with APECSY on a fundraising strategy that combines for profit elements with aid and grant funds.

High potential regenerative enterprises have been identified which would combine well with permaculture trainings. Eco-tourism, mentioned above, is one. Forest products based on regenerative forestry projects has vast possibilities while contributing to restoration efforts. The most intriguing aspect of a tremendous range of forest products, is botanical pharmaceuticals.

Once the value of Senegal's botanical resources is widely known enough to be targeted for exploitation it is essential that trained community agroforestry projects are in place and local needs are being met as a priority. The "value-added" of botanical pharmaceuticals is in the process, extraction, distillation, etc. This is relatively low cost, low technology, with high skill requirements. Senegal's human potential is its most remarkable and abundant resource.

In conclusion, valuable groundwork was laid in West Africa through the Eco-City Conference and the Permaculture Design Certification Course. Follow up is necessary to solidify this groundwork. With sufficient support, Thomas Mack and other permaculture staff are prepared to return to Senegal to conduct additional permaculture trainings, lead design and work teams to implement a model permaculture farm in Yoff, and to develop economic projects.