



International Link and Services for Local Economic Development Agencies
for a fair, human, sustainable and inclusive development

ILS LEDA NOTEBOOK N°3 LED AND ENVIRONMENT

Giancarlo Canzanelli

Description

1. Summary
2. The Approach
3. Migration and LED
4. Best Practices
5. How to make it in practice

JANUARY 2014

ILS LEDA
ilsleda@ilsleda.org

1. Summary

Environment contributes both directly and indirectly to economic development and employment, as stated by the UNDP-UNEP-Poverty-Environment program, and this contribution is particularly important in developing countries, since the key sectors impacted by the environment are: agriculture,, energy, forest, fishing, and tourism.

In fact key pressures on natural resources and associated impacts are typically localised, and inhibits business environment; key environmental factors affect migration, health, labour productivity, as well as the vulnerability to environmental and climate change are mainly localised; and also environment inattention causes decline of income, and inattention comes mainly from people living and acting in specific places.

On the other side Local economic development can contribute to protect environment in a very effective way, because local actors are very interested to save the local environment for the future survival of their human and natural resources, cooperation among the local business community, local administration and civil society can realise several cooperative synergetic initiatives, maximizing results and saving resources (waste and energy management, irrigation, etc.), and because at local level it is easier, effective and efficient organising groups for disaster prevention, and environmental monitoring and control

The paper shows the interdependence between environment and local economic development mainly through best practices, by which it derives interesting learned lessons about how to make in practice strategies and actions for environmental protection and environmental economy at local level.

Recommendations regard how to promote these strategies and actions, what are their contents in terms of participation, use and valorisation of the local resources, shared planning, and on issues such as reforestation, waste management, environment protection, biodiversity, and eco-tourism, and finally how to implement the above mentioned strategies

2. The approach

A comprehensive guide to learn the best approach and practices about the environment contribution both directly and indirectly to economic development and employment is provided by the UNPEI, a UNDP-UNEP-program¹ in the document “Poverty-Environment (P-E) Mainstreaming into Local Economic Development (LED) Strategies)

http://www.unpei.org/sites/default/files/event_documents/LED%20Step%20by%20Step%20Guide%20for%20PE%20Mainstreaming%20021111with%20new%20case%20studies.pdf

These contributions are particularly important in developing countries and can have a significant impact on a country’s gross domestic product (GDP), since the key sectors impacted by the environment are: agriculture,, energy, forest, fishing, and tourism.

The environment and GDP

In Brazil, the most recent agricultural census showed that one rural job is created for every 8 hectares cultivated by small farmers, whereas large-scale mechanized farms provide only one job for every 67 hectares, on average. In Brazil, employment in biofuels or biomass is estimated at half a million jobs.

In China, employment in solar thermal and biofuels/biomass is estimated to account for 600,000 and 226,000 jobs, respectively.

In India, replacing traditional cooking stoves with advanced biomass cooking technologies in 9 million households could create 150,000 jobs, not including jobs generated in biomass collection and biomass plantations. In New Delhi, the introduction by 2009 of 6,100 buses powered by compressed natural gas is expected to create 18,000 new jobs.

In Papua New Guinea, some 23% of the more than 130,000 rural households earn their income from fishing.

In the Pacific Islands, large numbers of women gain economic benefits from fishing either directly or indirectly by working in related jobs such as selling fish, exporting and marketing.

In Cambodia, fisheries generate 10% of GDP.

In Ghana, the national costs of environmental degradation are estimated at 9.6% of GDP.

In Tunisia, the gross cost of environmental damage is equivalent to 2.7% of GDP, while in Egypt, this cost amounts to 5.4% of GDP.

In West Africa, fisheries can represent up to 15-17% of national GDP and up to 25-30% of export revenues.

Source UNDP-UNEP-PEI Program)

¹ The Poverty-Environment Initiative (PEI) of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) is a global programme that supports country-led efforts to mainstream poverty-environment linkages into national development and sub-national development planning, from policymaking to budgeting, implementation and monitoring. - See more at: <http://www.unpei.org/#sthash.xoxSF8Ly.dpuf>

Each of these sectors, in fact, relies on natural resources, natural ecosystems, natural stocks, biodiversity and natural beauty for success. There is a direct correlation between the environmental damage and a reduction of revenues. Therefore, if the environment is allowed to disintegrate, income can be expected to decrease, and it is a big problem for poor areas.

A limited access to electricity often means reduced access to water, sanitation, irrigation, health, and other social services whose provision requires adequate electric power supply (for pumping). This has a direct effect on the population's ability to work efficiently. An increase in electricity tariffs may push the low-income households to use of off-grid resources – such as coal, diesel-fired generators, firewood, and dung – resulting again to deforestation, greater air pollution (including greenhouse gas emissions) and increased incidence of respiratory and water-borne illnesses.

3. Environment and local economic development

The LSED Wealth program² points out development is beneficial when it can give an affirmative answer to the question: is the development enhancing the wellbeing of the local community and environment in a sustainable manner. The challenge of healthy development is to anchor development plans in the local context: in economic, social, cultural and environmental activities that affirm values of social justice and environmental health.

The program utilises an alternative approach that views locality as a geographic and social anchor, rich in assets, despite social and cultural attributes that may often perceived as liabilities rather than strengths, or even as impediments to development. Locality is the acknowledgement of the ownership of local populations of own resources and their right to enjoy the fruits of their development.

The UNDP-ART program³ considers environment and biodiversity as a primary resource for local socio-economic development, as bulk on which to build local economic development strategies and plans, and an opportunity for creating sustainable jobs and businesses, anchored to different value chains, such as eco-tourism, green economy, and to basic needs such as clean water, clean energy, and effective waste management.

Local economic development can contribute to protect environment in a very effective way.

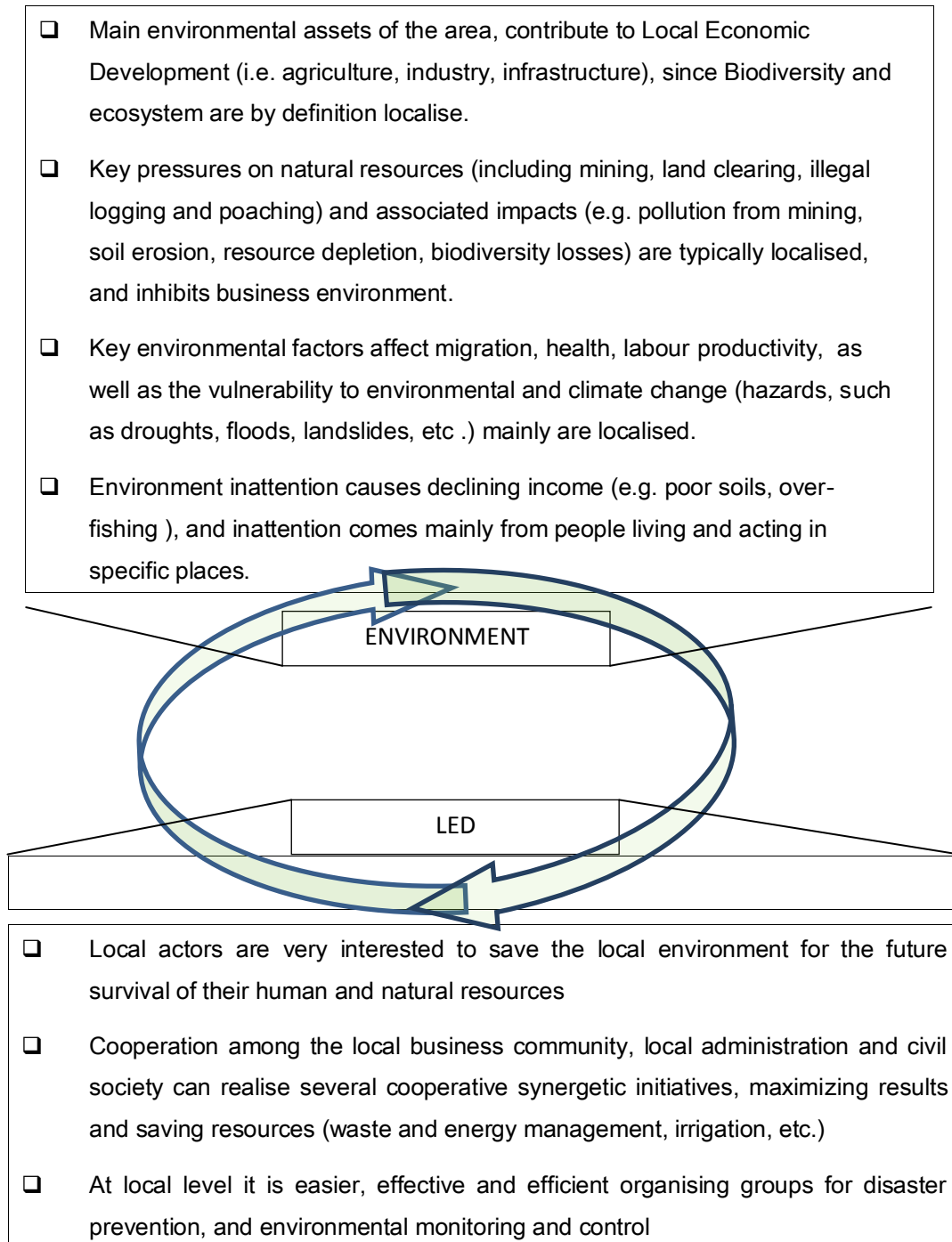
As the LSED program (Local Sustainable Economic Development) states focusing on the “local” and demanding that resources be directed towards the local economy and population is an alternative to the

² <http://www.lsed-wealth.org/cgi-webaxy/item?96>

³ <http://web.undp.org/geneva/ART/>

dominant development approach that is geared almost entirely towards “importing” financial and human capital from the center to the periphery”⁴

LED AND ENVIRONMENT RELATIONSHIPS



ILS LEDA elaboration on a picture from Wealth-LSED Program

⁴ Lsed.wealth is partnership project between Israel, Palestine, Italy, and Portugal, funded by the European Neighbourhood and Partnership Instrument (ENPI).

3. Best practices

Ecological forest farms, for their environmental regeneration of river basins in Cuba (from www.ideassonline.org)

Ecological forest farms represent a coherent solution to various global environmental problems. Throughout the world, deforestation, soil erosion, dwindling biodiversity, desertification, water pollution, and other forms of environmental deterioration threaten the nutritional well-being of rural populations and the agricultural sustainability of river basins.

Varying in size from 25 to 75 hectares, forest farms offer a feasible alternative, guaranteeing a secure supply of food, reforestation and woodland management for rural populations. To give forest farmers a broad sense of social belonging, the farms are designed as part of ecological rural development programmes and are set up with technical, economic, social and environmental aspects in mind.

In Cuba, the Agriculture Ministry, through the GEAM (Hill-Farming Management Group), which oversees the Ecological Forest Enterprise System, the IIF (Forestry Research Institute), and the SEF (State Forestry Service), has set up 848 farms and planned another 5,000 in the medium term. In only 6 years, forest farms have been responsible for planting 13,643 hectares, a figure that represents almost 35% of the country's annual total. In regions with limited production (poor soil and/or affected by frequent droughts), a 95% survival rate has been achieved in all planted areas. This contrasts with a historical average of 36.1 % in similar circumstances when conventional methods were used. Moreover, the incidence of illegal logging and forest fires has diminished (39%). Average salaries have also increased.

The impact of this innovation has been greatest in the eastern region of Cuba, where people have problems securing water and food. Of the 8,573 hectares that have been planted, more than 3,000 (35%) make up a woodland belt consisting of 14 multipurpose forestry cultivars, which acts as a water regulator along the banks of the river Cauto, the largest in the country. Due to the care and attention they receive, the trees have shown greater rates of success (85%) and survival (more than 95%) compared to traditional reforestation methods. This has led to improved soil and water quality, and greater protection and shelter for wildlife.

The ecological forest enterprise system, which was set up by a ministerial resolution, follows various stages of operation, based on the principle that the forest farmer's tenancy of the land is tied to regular production.

In return, farmers are given free use of an area of between 25 and 100 hectares, with or without a wood, including some hectares for agro-forestry production to satisfy family needs.

Then, a forestry management plan is drawn up, in line with the company's overall management and organisation plans, and categorised accordingly (soil and water protection, production, etc.).

This management plan stipulates what work needs to be done over the forest farm's production cycle (tree nursery, planting, maintenance, treatments, exploitation, fire prevention). An important element is that forest companies guarantee decent housing and living conditions, as well as access to basic social services, for the farmers and their families. Areas set aside for agro-forestry production must follow the basic principle of minimum ploughing and include permanent diversified agricultural products. This is achieved by planting fruit trees, preferably grafted, and taking simple measures to preserve and improve the soil that require low input and do not affect the environment, so as to satisfy food needs sustainably and promote excess production to increase family revenue. Similarly, in deforested areas, depending on reforestation conditions, the spaces between the trees in the first years of growth can be exploited agriculturally to help finance costs.

In the case of forest livestock systems for the production of cheap milk and meat, again the basic principle applies of utilising multipurpose forest plants to provide forage, shade and windbreaks. Trees that produce fruit for livestock feed should also be planted.

Park Company for sustainable tourism (from www.ideassonline.org)

In general, protected natural areas in Italy are areas that, while historically important, are also the least developed areas of the country. Since the 1950s, various development initiatives have been implemented in these areas. However, they have met with little success as they have all been top-down in approach and re-applications of a standard industrial model. Since 1999, Park Company (in Italian Compagnia dei Parchi-CDP) has promoted the re-launching of these rural and protected areas by setting in train a virtuous circle linking the environment, the territory, the economy and tourism. CDP enables income generation in areas that have been neglected but that possess a wealth of particular assets, and allows the local populations to re-launch a tourism-based micro-economy with a small investment outlay.

CDP is an innovative, non-profit, limited liability consortium that generates income by using suitable existing properties as tourist accommodation. In this way, it promotes fresh economic development based on local resources.

Through a bottom-up approach, CDP makes full use of the distinguishing qualities of the protected areas, not only their natural heritage, but also their history, culture, folklore and architecture. It achieves this through a process of sustainable development.

CDP operates through an agile organisational structure consisting of a head office, which is responsible for bookings and tourism marketing, and a network of affiliated accommodation structures.

Between 1999 and 2004, CDP extended its operations to 16 protected areas. Working with the various park authorities, it has created a network of more than 1,000 accommodation structures and promoted them through the Internet, trade fairs and tourism links. In terms of quality, CDP has fostered a culture of tourist hospitality in areas not traditionally associated with tourism and also promoted a feeling of pride in local

identity. CDP works by generating income from existing properties (houses and other forms of accommodation) and from local products (e.g. local specialities, handicrafts and small enterprises). It also fosters the development of new tourism-related services. This model enables local people and enterprises to achieve financial returns for a small outlay within even a short time

CDP is unique because it has adopted a bottom-up structure that promotes the many and varied interests of the people living in protected areas. It acts as a link between various social groupings, fostering dialogue among local actors, and valorising their architectural, environmental and tourism resources

Puerto Princesa Watch–Philippines - (from UN HABITAT /best practices improving the living environment: <http://www.bestpractices.org/bpbriefs/environment.htm>)

Puerto Princesa City has 129,577 people with a land area of 2,381 sq. kms. Its incumbent Mayor, Hon. Edward S. Hagedorn, first assumed office in July 1992. Illegal logging, slash-and-burn farming, blasting of cyanide, and trawl fishing were rampant in the city. The forests were depleted and marine life was almost dying. Worst still, the city's coffers were nearly empty.

Nevertheless, the Mayor started a major environment initiative in August 1992 which had the following components: Forest Protection (Bantay-Gubat, or Forest Watch), Marine Resources Protection (Bantay-Dagat, or Baywatch), and Forest Rehabilitation. He deputized and mobilized citizen volunteers. Using his own money, the Mayor procured radio handsets, motorcycles, and pump boats. NGOs rendered technical and legal assistance. The village officials, including indigenous people, became the city's "eyes and ears" in spotting all forms of violations against the environment. To augment the resources of the Program, the Mayor tapped the city's calamity fund by mandating the city council to declare a state of calamity in the city.

Today, Puerto Princesa City's forest cover has increased to more than 2000 hectares, and continues to protect and preserve more than 7,200 hectares of coastal waters. The program has influenced the State to reshape national policies in favor of local governments. The program showcases how social mobilization and a strong political will can help protect the environment, shape the future of a city and influence national policy.

Biological districts (from www.ideassonline.org)

A bio-district is a geographical area where farmers, citizens, tourist operators, associations and public authorities enter into an agreement for the sustainable management of local resources, based on organic production and consumption (short food chain, purchasing groups, organic canteens in public offices and schools). In bio-districts, the promotion of organic produce is inextricably linked with the promotion of the land and its special characteristics so that it can fully realise its economic, social and cultural potential.

The first bio-district was launched in Italy in 2009 by the AIAB Associazione Italiana per l'Agricoltura Biologica (Italian Association for Organic Agriculture) in an area inside the National Park of the Cilento, Vallo di Diano and Alburni. After 3 years, the Cilento bio-district now includes 30 municipalities, 400 enterprises, 20 restaurants and 10 tourist establishments that use local organic produce.

Generally, they result from the needs of organic farmers who are looking for local markets that can appreciate their produce, and the public, who are increasingly looking for healthy and environmentally friendly food at fair prices. However, many other actors and organizations play a crucial role in the establishment and management of bio-districts, especially public authorities and schools which, with their increasingly green activities and purchases, can influence consumer habits and local markets. Tourist operators, in turn, are keen to offer new seasonally adjusted products such as eco-routes and rural tourism.

The Cilento Biodistrict is located in the National Park of Cilento, Vallo di Diano and Alburni. It covers an area of 3,196 square kilometres and includes 30 municipalities, 400 organic farms and three major archaeological and cultural sites (Paestum, Padula and Elea-Velia). The Cilento is recognized as a World Heritage Site by UNESCO and by the Network of Biosphere Reserves.

Initial activities focused on creating a network of organic farms, producer associations, bio-city organizations, caterers, eco-tourism operators, and consumers, through short supply chain initiatives. In three years, the Cilento Bio-district had attracted a large number of local actors and produced results that had a great impact on the region.

The usable agricultural area comes to approximately 2,000 acres, consisting of fruit trees (32%), seed crops/vegetables (22%), grassland (46%). The main tree crops are olives, widespread in all areas, vines, fruit and figs, common in hilly areas. Livestock farms are also included.

The 400 organic farms are controlled and certified, in accordance with the ethical and social principles on which organic agriculture is based.

The average turnover (including organic markets, fairs, and summer promotions in seaside resorts) has increased in the last two years by 20%. Today the entire produce, and not just a part, as before, is marketed as organic.

As far as eco-tourism development the bio-district has created a network of 20 restaurants and 10 bathing establishments, committed to promoting the produce of farms and farming associations; has realised eco-tourist routes take you to farms, holiday farms, bio-cities, organic state-owned land, environmental sites important for their biodiversity and local traditions), linking inland rural areas and coastal tourist areas, has created the initiative bio-beaches and the website www.biospiagge.it for presenting on the beaches the best organic products and bio-routes, and sensitising to preserve the coastal environment.

Seed Banks (from www.ideassonline.org)

Experiences realized in Bangladesh, Costa Rica, Ethiopia, Honduras, India, Nepal, Thailand, Zambia and Zimbabwe pioneered various types of Community Seed Banks.

Community Seed Banks are collections of seeds that are maintained and administered by the communities themselves. Seeds can be stored either in large quantity to ensure that planting material is available, or in small samples to ensure that genetic material is available should varieties become endangered. Community Seed Banks play a strategic role in enhancing farmers' access and control of seeds, allowing them to access to planting material they desire, as well as contributing to the conservation and sustainable use of crop genetic diversity.

Community seed banks usually store seed from a wide range of individuals, informal groups and NGOs who share seed among themselves, sometimes only occasionally. Seed is primarily retained from participants' own production with no formal quality control, but individual selection process and handling skills are involved. More recently, some community seed banks have been set up in partnership with the formal sector - chiefly plant breeding research institutes. (<http://sustainablelivingsystems.org/communityseedbanks.pdf>).

A typical seed bank initiative has been carried out by the Mexico National Government for promoting the participation of all stakeholders involved (researchers, producers), the conservation and sustainable use of plant genetic resources, and ensuring the preservation of the genetic wealth of the country, and achieving benefits with its use. (see <http://www.cibiogem.gob.mx/Eventos/Documents/Taller/Presentacion-RGS.pdf>)

It began operating in 2002 with the participation of 50 instances with more than 300 members (scientists, farmers, professional service providers), 46 Networks (300 activities), and through strategic actions: such as conservation *In situ* (natural habitat), *ex situ* (genebank) conservation, use and enhancement (value added), and capacity building.

The initiative organized 25,754 accessions to seed safeguard, 5,000 accessions of maize, 1,052 of avocado, 1,492 of orchids, 320 of nopal, 166 of tejocote, 100 of chayote, 100 of Guava.

Among others it developed the participatory improvement of 26 landraces of maize in 10 states, increase of the yield of 8 t / ha in Chalqueño, distributed through 14 community banks in Oaxaca, Yucatan, Chiapas, Mexico City, Chihuahua, Amecamecay. (see <http://www.cibiogem.gob.mx/Eventos/Documents/Taller/Presentacion-RGS.pdf>)

Eco-sustainable city in China (from www.ideassonline.org)

Dongtan, the first zero-impact and eco-sustainable city, is being planned and built in Shanghai, on the island of Chongming, at the mouth of the Yangtze River. The Chinese Government and the Shanghai Industrial Investment Company (SIIC) want to realize, through the design of this city, an outstanding experience that can be reproduced in other areas of the country to meet the challenges of sustainable development of urban areas.

Designed to accommodate 500,000 people, and spread over 630 hectares, Dongtan will be realized with energy self-sufficient buildings, equipped with photovoltaic roofs and wind turbines. The infrastructures are designed using ecological and energy-saving criteria, with wastewater treatment systems. The city will recycle most of the waste produced. In Dongtan, transport (cars, trams and boats) will use electricity or hydrogen cells, reducing the emission of carbon dioxide and noise pollution. The city will be largely self-sufficient even for food, using the surrounding land for the realization of organic farms and agro-industrial activities, such as aquaculture.

Its approach is about the concept of integrated urbanism, which includes, Human and Environmental Health, Economic Vitality and Individual Prosperity, Energy, Housing, Nutrition and Urban Rural Linkages, Mobility and Access, Education and Culture, Governance and Civic Engagement, Water, Materials and Waste, Ecological Footprint

The construction of this city, which represents a new approach to urban planning, as claimed by Alejandro Gutierrez of the ARUP Studio in charge of its design, is followed with great interest all over the world. The construction of the city of Dongtan will be a laboratory of great interest for the application of environmentally friendly technologies in all fields.(see <http://www.arup.com/assets/download/8CFDEE1A-CC3E-EA1A-25FD80B2315B50FD.pdf>)

Ecocitizen Programme in Macae, Brazil (from UN HABITAT /best practices improving the living environment: <http://www.bestpractices.org/bpbriefs/environment.htm>)

Macaé City produces 80% of the Brazil's oil and its oil reserves have been heavily exploited since 1980. Located 182 kilometres from Rio de Janeiro, Macaé has a 40-kilometre coastline and a diverse ecosystem with expansive beaches, forests and mountains. Between 1980 and 2000 there was population growth from 40,000 to 120,000 leading to unequal growth and environmental deterioration accompanied by lack of basic urban services to meet the demands of the growing population. A daily mobility of 35,000 workers linked to the Petroleum Company (Petrobras) coming from neighbouring towns presents a major challenge to the city's maintenance.

The Ecocitizen Programme was initiated in Macaé to raise social awareness on the protection of the environment, as a means to improve quality of life. The process was institutionalised in 1999 by an NGO, the Environmental and Contemporary Culture Studies Centre. Through questionnaires given to several sectors of the community, priorities and needs were outlined. Strategies were created to sensitize the citizens on various environmental issues. Schools, religious groups and local organisations provide volunteers and open space for different activities. Local and international universities provided technical support. Creativity and social engagement were strengthened through the awareness process. The blind were given materials written in Braille outlining the programme's activities. The programme has been working closely with the private, public and academic institutions. Changes in people's attitudes towards the environment are regularly monitored through field research. This programme engages different sectors of the community in an innovative way to address health and environmental issues.

It has yielded the following results:

- Reduction of indiscriminate waste disposal by 4 tons per day;
- A 70% increase in use of public waste containers;
- Separation of garbage at source has increased by 70%;
- Work related accidents among garbage collectors have decreased by 87%;
- Creation of a recycling industry that processes waste into briquettes which eliminate use of fossil fuel when cooking;
- The garbage collectors' income has gone up by 40% per month through sale of recyclable material which is becoming more popular among the population;
- Improved aesthetical value of the city that has boosted tourism, business and entertainment activities.

Programme for Watershed Co-Management through Responsive Participatory Actions, Barobbob, Philippines (from [UN HABITAT /best practices improving the living environment: http://www.bestpractices.org/bpbriefs/environment.htm](http://www.bestpractices.org/bpbriefs/environment.htm))

The Barobbob watershed is a forested area of 439 ha which irrigates 400 ha of land and supplies drinking water to 2,000 households. However, poverty and insecure tenure of illegal forest occupants within the watershed moved them to use 'slash and burn' farming as a survival strategy, leading to deforestation and frequent forest fires. Coupled with the widespread practice of illegal timber poaching, this situation led to soil erosion and a declining water supply. Campaigns against violators of forestry laws increased the number of

arrests, but had little effect on conditions, only increasing antipathy between occupants on government officials.

In 1997 the provincial government negotiated with the Department of the Environment and Natural Resources (DENR) and the newly created 'BWOA' (a community management group for the forest) to reform the watershed management by securing the tenure of informal forest dwellers, linking new tenure arrangements with food security and conservation measures and developing a transparent and participatory system of watershed management. Detailed strategies were negotiated and written up as Agreements specifying the rights and responsibilities of residents.

The Barobbob watershed co-management shows the value of serving the interests of local people in natural resource management, allowing local residents to act as effective 'social fences' to protect forests. Secure tenure and shared management has resulted in an end to grass and brush fires, the water supply and quality has ceased to deteriorate, and there has been improved maintenance of 11 ha of reforestation stands and 167 ha of residual forests.

This success has led to the approach being expanded to the Lower Magat Forest Reserve, comprising 24,000 ha of public forest land, and efforts are being made to disseminate information about the approach to other Provincial Governments in the Philippines through the DENR

Regional Integration for Availability of Water, Sao Paulo, Brazil (from UN HABITAT /best practices improving the living environment:

<http://www.bestpractices.org/bpbriefs/environment.htm>)

The rapid increase in population to (4 million inhabitants in 62 municipalities) in the Piracicaba, Capivari and Jundiaí river basin region in addition to the withdrawal of water from the river basin to supply the greater Sao Paulo metropolitan area resulted in depleted local water supply. In addition there was low coverage at 3% of sewage collection and treatment in the region. The Consortium PCJ (Piracicaba, Capivari and Jundiaí rivers) was created as a result of the need to have a regional body to resolve issues related to water resources in the region. Initiated in 1989, the Consortium involved 11 cities, a number that has grown to 42 cities and 34 companies. The project also contributes to the economic, social and environmental sustainability of the region.

The main priorities and strategies were identified through open fora and events for local leadership development, involving stakeholders from different sectors. Regional integration, planning and management for sustainable water supply and awareness raising on environmental protection, are the main priorities. An integrated support programme was developed for the implementation of the Consortium that outlined specific

projects: Cities Support; Technical Cooperation; River Basins Management; Industrial and Urban Waste Treatment; Domestic and Health Solid Waste Management; Protection of Water Springs for Public Supply; Public Water Distribution Systems Management; Replanting Forest Areas, and Environmental Education.

Community mobilisation was carried out by local groups, and co-ordinated largely by women. Responsible citizenship and environmental awareness were stimulated through schools and youth groups, and the programme has been carried out with the support of local governments and the private sector. A Water Collection and Production Plan for the Piracicaba and Capivari Rivers was elaborated and a Basin Committee founded. The PCJ Consortium has assisted the creation of other similar initiatives, which utilise sound management practices such as: cost recovery, budgeting and priority definition, executive secretariat structure, environmental education, participatory process model and methodology, etc. The experience has contributed to the definition of a River Basin Management Policy.

Integrated Solid Waste Management Programme, Loja-Ecuador (from UN HABITAT <http://www.bestpractices.org/bpbriefs/environment.htm>)

The City of Loja was characterised by dispersed dumping yards in inhabited areas, which led to outbreak in infections and contagious diseases. There was no coordination in household waste collection efforts and recyclers were working in inhumane conditions. As part of the "Action Plan for Loja - 21st Century", Loja Municipality elaborated the Integrated Solid Waste Management Programme in consultation with members of the public and other stakeholders. The Plan focuses on supporting the poor and marginalised citizens and environmental conservation through use of new technologies.

Through comprehensive information and educational campaign, the community members actively contributed to the establishment of a sanitary landfill. Through a resilient door-to-door campaign, municipal personnel deliver green and black waste bins, informational pamphlets and collection schedules to each household. 80% of the city's households separate waste at source. A system of fines and higher fees for non-compliance was introduced to promote separation of household waste at source. Biodegradable waste is used to produce compost in a worm composting plant which is later sold. All the recyclable materials are processed and sold while special arrangements have been made for safe disposal of toxic and infectious hospital waste.

The program covers more than 80% of the Municipality, with a participation rate of 90% of the population and has resulted in the improvement of the quality of life of Loja residents and changes in their behaviour and attitude towards their environment. The institutional capacity of Loja Municipality has been strengthened at

the local and national level as programmes have been put in place to share their experience with other municipalities.

Albania: Vlore: A zero emission region (from www.ilsleda.org)

In Albania the UNDP-ART Programme supported the local actors coordinated by the Regional Councils in the regions of Shkodra and Vlora in elaborating a participatory strategic development plan. Here is the case of Vlora, where AULEDA (the regional economic development agency) was committed to be the focal and coordinator point.

The process was conducted in four phases.

First phase: Identification of needs and resources, through consultation with local actors.

Second phase: Creation of preliminary analysis committees for cultural, infrastructural, environmental and social aspects.

Third phase: Definition of reference development scenarios; through discussions about scenarios with stakeholders to define strategic plan priorities.

Fourth phase: Definition of the draft strategic plan through the following steps: Definition of actions to be implemented for each strategic line; Concentration and project selection; Definition of integrated development projects; Development of management system in implementing the plan.

Finally the following vision was defined: The Vlora Region is a ZERO EMISSION TERRITORY (ZET), and four strategic axes were identified for four areas of the regions: Vlora: Cultural and Eco-Touristic region; Shushice Valley: Rural Ecological District; Coastal Eco-Tourism Zone; Delvina: Organic Food District, all anchored to the defined vision and addressed to it.

Biodiversity in Lebanon (from www.ilsleda.org)

The UNDP ART GOLD program in Lebanon has been working in three areas: Bekaa, North Lebanon, South Lebanon, and the Southern Suburbs of Beirut.

The bio-diversity in these areas is characterized by the following habitats (Ramadan-Jaradi & Ramadan-Jaradi, 1999).

Islands: three protected islets (Ramkine, Sanani and Palm), consisting of rocky shores and sand beaches, with scattered low bushes, scrubs and annual herbs.

Coasts: the continental shore extends for about 250 km; which have cliffs and sandy or shingle beaches and heavy demographic whose pressure has resulted in the disappearance of most coastal plants.

Urban areas: include parks and private gardens. (One of the chief characteristics of urban habitat is the large number of exotic plants such as *Casuarina*, palms, agaves and many species of acacia).

Coastal plain: usually narrow, but non-existent in places where the mountains rise directly from the sea, with eucalyptus woodland, fruit orchards, and pine plantations.

Maquis: the climax vegetation of the Lower Mediterranean zone with *Quercus*, and *Sarcopoterium*, *Terebinthus*, *Ceratonia*, *Laurus*

Garrigue woodland.

Olive groves: usually on terraced slopes

Pine forests and *Oak forests:* and *Quercus infectoria* in the Middle Mediterranean zone; *Quercus calliprinus*, *Quercus infectoria*

Cedar forests: just 12 limited stands from north Lebanon to Arz Maasser Al Chouf, and totals only around 17 km².

Fir forests: *Abies cilicica* also occurs in the Cedar zone in north Lebanon, from Qammouha to its southern limit at Ehden.

Tragacanth: represented by stony and rocky hills in the Subalpine and Alpine zones

Anti-Lebanon hills: relatively arid uplands

River valleys: with their own peculiar vegetation: *Nerium oleander*, *Platanus orientalis*, *Rhododendron ponticum* and *Drosera rotundifolia* among others. The softness of the limestone has allowed even small rivers to create impressive valleys, in some places with near-vertical sides.

Orchards:

Cultivation: cereals are farmed in Akkar and Tyre plains, and vegetable cultivation is practiced throughout the country, and honey and milk particularly in the Bekaa valley and its fringes.

Semi-desert: limited to a small area of the Hermel, north Beqaa, with typical plants as *Artemisia*, *Hammada*, *Salsola*, *Achillea*, *Scorzonera* and *Gymnarrhenea* (found once in a dry place).

Aammiaq wetland: Aammiaq wetland (2.80 km²), inundated in winter, but not in summer, where only two small areas of open water remain.

Inland waters: Qaraoun lake, Tanayel and Yammouneh ponds, Anjar channels, and springs, streams, rivers and fishponds, which are usually fringed with riverine or marshy vegetation.

During the action-research activities, the following areas have been taken into consideration for their remarkable potential to integrate biodiversity safeguard and territorial development (and, consequently, to induce "sustainable" development):

- North Lebanon: Qammoua Natural Park (Akkar – Donniyeh, Cedar and Fir Forests habitats), Tannourine Cedars Forest Nature Reserve, Palm Island Nature Reserve;
- South Lebanon: Tyre Coast Nature Reserve, and El Mansouri Beach
- Bekaa valley

The ART GOLD Lebanon program has identified the following strategies for the above mentioned areas:

- Education and sensitization for citizen for improving their knowledge about local biodiversity, physical patrimony, productive and cultural activities, attractive local heritage.
- Collective management through formulation of the protected area's borders, partition, strategic and operative planning and management

- Identification of juridical and administrative tools for establishing a Protected Area; promotion of new local civil society associations.
- Realization of basic infrastructures such as recovery and restoration of small population centres, according to local traditional building rules, and for energy, water and waste territorial systems.
- Design and implementation of a system for delivering services for human and economic development.
- Territorial marketing, including the definition of the marketing targets for each one of the existing value chains in the area; organisation of a territorial brand; definition of the marketing strategy, including internal and external marketing.
- Tourism planning, including support to the shared designing activity of a Local Tourist the System, strategically connecting the following sub-systems: attractors, hospitality, production, services.

The association of virtuous municipalities in Italy (see www.comunivirtuosi.org)

The Italian association of virtuous municipalities gathers local administrations aimed at providing health and perspectives to their citizens and adopt good practices for it. They stimulate the adoption of new lifestyles of citizens and thus guarantee the economic energy consumption, reduction of waste and at the same time improvement of the quality of people's lives. Those, who adhere, believe that it is possible to intervene for the protection of environment, enhance quality of life and protect the common goods

Objectives of the virtuous community are:

- 1) to make the " local machine " efficient from an energy standpoint, improving efficiency and reducing fuel consumption relative to public lighting , to the management of schools, museums , sports facilities , libraries and other public facilities
- 2) to realize the land management on the basis of "no land consumption", focusing on the rationalization of already built spaces, on bio- building , on zero cement, and the recovery of brown-field sites, overcoming the traditional policy of issuing building permits , which provide easy cash for the public coffers.
- 3) To take measures for energy efficiency (for example, some cities have replaced the lights of the traffic lights with low energy bulbs
- 4) To increase green purchasing, preferring goods and services with less hazardous to human health and the environment
- 5) To reduce air pollution through the adoption of policies and projects on sustainable mobility such as car-sharing, bike-sharing, car-pooling, integrated public transport, walking bus, bus call, shared taxi, pedestrian and cycle paths, choice of alternative less polluting fuels to oil, and in compliance with local agricultural production.

6) to promote proper waste management, no longer seen as a problem but as a resource, through the differential "door to door" collection, which should be at least 70%; with the activation of specific projects aimed at reducing the production of the thesis waste, at awarding the most virtuous citizens, with a policy that aspires to the "zero waste goal "

7) to stimulate new life styles of the local authorities and their communities through policies and projects aimed at stimulating simple daily and sustainable choices of citizens

8) to favor exchange of information and experiences between virtuous communities, through organizing conferences , courses, seminars and roundtables are organized.

Some examples of common virtuous

Carugate, the first town in Italy has adopted a building regulation at the forefront in Europe: Anyone who wants to construct a building or to obtain a permit to renovate an existing one, have the obligation to issue the environmental certification.

The City of Follonica has given new life to waste setting up a market in which all citizens can participate through a magnetic card that records every purchase and sale . At this "ecologic station" the citizens can give items that no longer use (toys, bicycles , furniture, etc.). The card will be credited with points which can in turn buy other people's items .

Rosà distributed cloth diapers to new mothers in the country, convincing them to stop buying disposable ones that do not pollute and cost very little (5000 diapers are estimated be used by each child in its early years. Furthermore kids can get away with diapers from a very small , through different techniques, and patience and rags to clean.).

Castellarano has started a project for the installation of solar panels by the citizens to produce hot water, just going to the office municipality of environment, knowing the affiliated installers, and having guidelines to access to a fund, facilitated by the credit institution involved in the municipal project.

Ferrara has experienced public participation on the importance of new lifestyles. Families have been involved in the study of lifestyle and its impact on the nature and socio-economic balance between North and South, through public meetings, workshops and hands-on workshops , advice and information leaflets , guided and group outings. In the next step they have been acknowledged you about and sustainable sober behaviors, and useful tools with immediate impact on daily life as flow reducers for saving water, detergent tap, low energy , etc .are distributed,.

The mayor of the town of Berlingo, in the province of Brescia ,has transformed a site -where there was an illegal dump of lead and other substances- in a pedestrian square, in which, inter alia, two schools and a fitness facility are present. The entire complex is self-sufficient from an energy standpoint. A 50 kilowatts

photovoltaic system was placed on the roof of the elementary school, another one of 30- kilowatt on the roof of the nursery, and a similar system to the gym there is another one of 10 kilowatts. In addition to these structures has been recently built a photovoltaic bowling. These plants has paid the costs of the same structure without costs for the municipal budget . The two school buildings are heated by a heating system with low enthalpy that allows to feed the heating flow of the of buildings. This system has a considerable advantage for the municipality which , since it came into operation, no longer had to deal with the costs related to gas heating.

5. How to make it in practice

From the case studies the main indications for LED initiatives for environment management and protection regard Leadership and management, Promotion, Implementing technology, are the following ones

1. Promotion

It is interesting to notice there is a large variety of creative instruments for promoting the initiatives about environmental related programs

They go from simple public campaigns (Cuba Mexico, China) to a more comprehensive campaigns, as the Brazilian Mace case, including questionnaires given to several sectors of the community on priorities and needs, sensitization of the citizens, volunteers and open space for different activities provided by schools, religious groups and local organisations, or the Philippine Puerto Princesa case with citizen volunteers. radio handsets, motorcycles, and pump boat, or in the Philippine Barobbob and Ferrara, where people were awareness by schools and youth groups, open fora and events for local leadership development, involving stakeholders from different sectors.

Very special is the case of Albania, where the presence of a LEDA, structure which already includes as members the representatives of the local administration, civil society and community, has facilitated either the convocation of the participants, the confidence and the concrete participation to the initiative.

The UNDP ART Gold operated through Local Working Groups, including local administrations, and civil society representatives (farmers, universities, artisans, women, small entrepreneurs, NGOs, etc.)

In other cases (Italy, Ecuador) the promotion was only carried out after the successful experimentation of the initiatives, the dissemination of the results and it assumed the role of duplicating it.

2. Participatory governance

Realizing relevant sensitization, awareness and training activities for motivating and making capable the population and institutions, through the real participation of people, not only on consultative way, but with mechanisms and structures allowing decision making.

While leadership is in the majority of the cases is assumed by the local authorities (in the minority by national, or communitarian NGO, like the seed bans), governance refers to public-private partnership schemes.

In the majority of the case it regards public-communitarian partnership, either through agreement with citizens for them to maintain the land if tied to regular production (Cuba), or through joint management (joint team, as the cases of Park Company, Barobbob, San Paolo, Albania, Lebanon, Biologic Districts, many Italian Virtuous Municipalities) or joint execution (Puerto Princesa, Albania). In some cases, as in Macae, it is a public-private partnership for execution of the initiative, promoted by a national NGO.

3. Implementation

Realizing a direct link between the strict preventive and regular environment protection and maintenance activities and the income generation ones, exploiting the great opportunities for business working in the environmental chain (green economy, eco-tourism, organic food, alternative energy cycle, waste management, water management, etc.)

In the majority of the analysed cases the approach for the implementation of the LED-environment programs and initiatives is based on

- a) The use of the local resources
- b) The comprehensive valorisation of these resources (within the value chain approach), and the production of added value, through reinforcing existing businesses and creation of new ones.
- c) The aware participation of the population to the decisions
- d) The shared planning

This was applied to differentiated activities:

- A) Reforestation: in Cuba the diversification of agriculture products and their sales, within a value chain approach was carried on, and in Philippine securing the self-tenure of informal forest dwellers was linked new tenure arrangements with food security and conservation measures
- B) Waste management: waste management value chain, including collection at home, differentiation, realization of compost, or products from recycling, and sale, either for urban areas (Ecuador, various virtuous Italian Municipalities), or rural (Brazil).

- C) Environment protection: comprehensive programs for the environmental protection, through information and exchanges of knowledge and development of articulated-coordinated environmental projects for sustainable management of local resources, as in Macae with the projects about River Basins Management; or in Albania, where a comprehensive strategic plan for Vlora: a Zero Emission Territory, was agreed, or in some virtuous commons in Italy, or in the bio-districts for the preservation of the local organic products and the link with eco-tourism, or in the case of seed banks for the preservation of the local traditional healthy products and environment.
- D) Bio-diversity and Eco-tourism: valorization of natural heritage, history, culture, folklore and architecture for income making eco-tourism initiatives. In some case businesses related to hospitality in the old houses held by the population and related tourism service was implemented and realised disperse hotel (Park Company); in other ones protection and valorization of bio-diversity, through participatory strategic planning were carried out (Albania, and Lebanon), in other ones the bio-diversity was preserved through maintaining the local seeds (seed banks), or eco-tourism was related to biologic local traditional products (bio-districts).

4. Execution structure

Establishing a reference structure able to carry on, on permanent bases, the above-mentioned tasks (participation, links, awareness, etc.) and services (business support, access to credit, marketing, job creation).

In many cases this has been the anchorage for effective and efficient execution of plans.

It is the case of the Local Economic Development Agencies of Albania and Lebanon, the Park Company Association for the homologous initiative, or the Associations of Biologic Districts, a NGO (Barobbob) a Community Management Group (Macae), or a Consortium (San Paolo).