

Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013

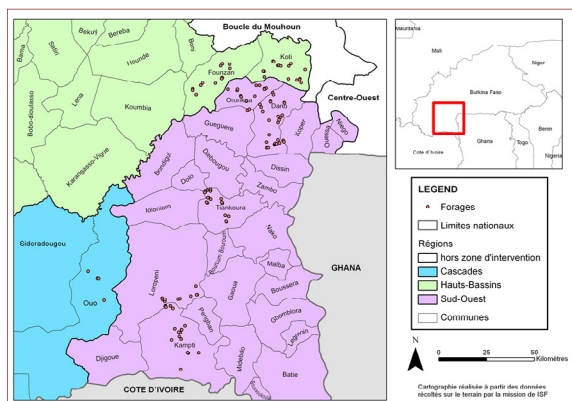
Water and sanitation access in the South-western Region of Burkina Faso

I. Angeluccetti^{1,2}, V. Coviello^{2,3}, S. Grimaldi⁴, P. Vezza⁴, A. Koussoubé⁵

(1) Politecnico di Torino, DIST; (2) Ingegneria Senza Frontiere, Torino; (3) CNR-IRPI, Torino; (4) Società Cooperativa Primo Principio, Alghero (SS); (5) ONG CISV, Torino

Context and issues

In the last few years the achievement of the Millennium Development Goals concerning access to water and sanitation has been announced. However, entire nations are still facing significant water issues. Burkina Faso is one of the country that still counts an important number of water-related disease cases, although acknowledged efforts have been done for incrementing safe drinking water and sanitation access so far. The South-western regions of the country have experienced an augmenting immigration flux from neighboring countries (e.g. Ivory Coast) and a growing gold mining activity, both formal and informal. These conditions cause an increasing pressure on the scarce drinking water infrastructures.



The cooperation project

The European Union funded project FED/2011/264-206 address the above mentioned issues through the water supply system restoration, the application of the national laws concerning water governance and the construction of improved sanitation facilities.



On the left a water well to be restored, on the right a case of drinking water pumped for informal mining activities; Burkina Faso (photos V.Coviello)

Expected results

More than 55.000 persons will have access to an improved water source.

More than 20.000 pupils of 62 schools and the patients of 29 health centers will have access to sanitation infrastructures.

Organisational and management skills of municipalities and environmental regional offices will be improved and will permit the functioning and maintenance of the water and sanitation network.

Beneficiaries behaviour with respect to the water and hygiene practices will be improved.



Women at a deep water well; Burkina Faso (photo V.Coviello)



Women at a deep water well; Burkina Faso (photo V.Coviello)

The project is led by the Italian NGO CISV, in partnership with 8 municipalities of the South-western region of Burkina Faso and the regional environmental authorities, with the technical support of ISF-Torino.

Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

SUSTAINABLE BIOMASS IN DEVELOPING COUNTRIES

Federico Barigazzi, Stefano Bechis - UNIVERSITA' DI TORINO-DISAFI

Paolo Giglio – TERRE SOLIDALI Onlus

Thomas A. Lawand - SOLARGETICS LTD. Montréal, Canada

In developing countries, an unsustainable level of consumption of firewood for domestic use has been reached, resulting in severe deforestation in some areas.

Considering that the only sustainable solution to this problem is switching to fuels other than wood, a gasification stove (AARON) has been developed by our research unit, starting from a scheme originally developed by the Brace Research Institute of Montréal (Canada).

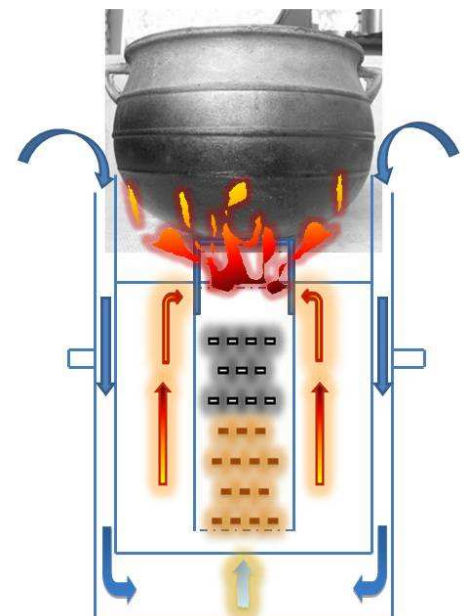
This stove uses pelletized agricultural residues instead of wood, and does not produce smoke (apart from some periods during start-up and shutdown) during regular operation. Its adoption, on a large scale, is likely to greatly reduce wood consumption and incumbent smoke-related pathologies.

The activity was carried out in the framework of the project *Energies durables dans les régions d'Agadez et de Tillabéry* (NIGER) promoted by the European Commission - Energy Facility ACP – EU.

AARON has been appreciated for its ease of use and the absence of smoke. Aaron has been certified by the Centre National d'Energie Solaire of Niamey. Currently 1000 units are under production in Niger with the side result of a certain boost to the local economy. Pellets are produced locally, principally from millet residues.



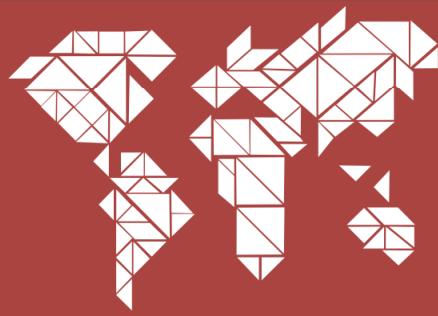
French fries cooking with Aaron.



Aaron scheme and airflow.

	Efficiency %	Power (kW)	Specific Consumption (kg/l)*
Traditional fire on 3 Stones	14,70	2,80	0,34
AARON	30,07	4,55	0,08

*The specific consumption is calculated in kg of fuel used per liter of water brought to 100 °C.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

APPLICATION OF SOLUTIONS DEVELOPED FOR DCS IN ITALY
Stefano Bechis, Federico Barigazzi – UNIVERSITY OF TORINO – DISAFA
Giulio Re – SCUOLA LA MALVA
Thomas Anthony Lawand, SOLARGETICS LTD.

Abstract - A solar drier type named Icaro, originally developed for Sahelian climate, has been adapted to European conditions. A drier built following this new design has been installed at La Malva school in Bibiana, Italy. The unit did undergo several tests during 2013 summer, in the framework of a regional project named Sundryfruit.

Achieved Results - The Icaro solar drier has been adapted to European conditions. Tests indicate that temperatures and airflow obtained by the unit are suitable for drying.

Objectives - To adapt to European conditions an existing successful technology developed for Sahelian climate. To demonstrate that smart, eco-friendly appropriate solutions are suitable also for developed countries.

Methodological approach - The drier design has been modified in order to technically and economically adapt it to European conditions. With regard to technical conditions the tilt angle of the solar collector was increased and a transparent cover has been added on the cover to enhance air heating. The overall size of the drier has been increased to raise the volume/surface ratio, thus assuring higher internal temperatures. Besides the effect on temperatures, size enlargement allows a scale economy.

Conclusion – The new drier proved to be well adapted to temperate climate conditions. However drying time is generally longer than in African conditions, mainly because of fresher and humid nights. This aspect is a technical and economic disadvantage, and further study is going on, at present, in order to speed up the process.



Icaro solar dryer under final preparations for testing



raspberry being dried on trays



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013

MILK AND DAIRY PRODUCTS SUPPLY TO URBAN AND PERIURBAN MARKET IN NIGER BY THE CREATION OF A COOPERATIVE DAIRY UNIT

Anna F.A. Cantàfora*, Filippo De Monte[§], Simone Stella[°], Massimo Zecchini*, Miro C. Crimella*
 *Università degli Studi di Milano, Dipartimento di Scienze Veterinarie e Sanità Pubblica (DIVET)

anna.cantafora@unimi.it

[§]ONG Africa '70

[°] Università degli Studi di Milano, Dipartimento di Scienze Veterinarie per la Salute, la Produzione Animale e la Sicurezza Alimentare (VESPA)

Abstract

Milk and dairy products are considered more and more as an essential element for the human nutrition in developing countries, above all in urban and periurban contexts. A development project to improve the quality of the milk chain in Niger was carried out by the Dipartimento di Scienze Veterinarie e Sanità Pubblica in collaboration with the Dipartimento di Scienze Veterinarie per la Salute, la Produzione Animale e la Sicurezza Alimentare and NGO Africa'70. The farmers involved in the project, grouped into a cooperative (Association des Producteurs Laitiers de Say - Hawrinde Biradam, APL) and trained on milking and milk management, became suppliers and operators of the dairy unit realized by the project. The unit, located in the Department of Say, was equipped with a laboratory, used for physico-chemical (temperature, pH, density) and microbiological (TBC, *Enterobacteriaceae*, *E. coli* and *Staphylococcus aureus*) analyses of milk and products. If milk quality was adequate, it was pasteurized or used for the production of yogurt and mozzarella; all milk and dairy products were sold in the market of Niamey.

The presence of a dairy unit in a periurban area allows a constant provision to the milk growing demand of urban and periurban consumers, assuring the availability of hygienic products. The farmers' involvement in supplying and managing the dairy unit can be considered a point of strength of the project, following a structure already validated in previous experiences (CLN – Cooperative Laitiere de Niamey, Redou Gniwa at Maroua, Cameroon); this social model made the beneficiaries aware of their role in a collective project and responsible for the milk quality available on the local market.

Objectives

Development and cooperation

To create of a dairy unit allowing a constant provision to consumers.
 To organize farmers for an improvement of local cow's milk hygiene.

Research

To evaluate the hygienic status of cow's milk delivered to the dairy unit.
 To evaluate the influence of transport on the quality and microbial load of milk delivered.

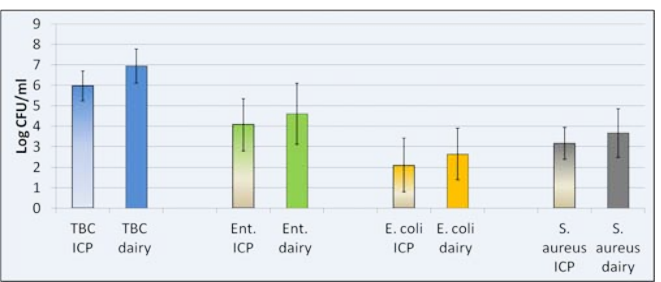
Achieved Results

A total of 129 local farmers from 19 villages in Say Department were grouped in the cooperative Association des Producteurs Laitiers de Say (Say cow's milk producers association) - Hawrinde Biradam (APL/Say), and a small dairy processing unit, with a laboratory for basic microbiological analyses, was built in 2009. All farmers involved were trained on milking and milk management, and became suppliers and operators of the dairy unit realized by the project.



Village → Intermediate Collection Points (ICPs) → Dairy Unit → Market of Niamey

Traditional milking	Collection at ICPs	Preparation for the transport	Transport by bicycle	Arrive at the dairy unit	Control (T, pH, density)								
Storage in a cooler tank	Transport to Niamey	Transformation in mozzarella	Microbiological analyses	<table border="1"> <tr> <td>T (°C) at ICP</td> <td>32,7±2,8</td> </tr> <tr> <td>T (°C) at dairy</td> <td>31,1±3,8</td> </tr> <tr> <td>pH at ICP</td> <td>6,47±0,1</td> </tr> <tr> <td>pH at dairy</td> <td>6,54±0,07</td> </tr> </table>		T (°C) at ICP	32,7±2,8	T (°C) at dairy	31,1±3,8	pH at ICP	6,47±0,1	pH at dairy	6,54±0,07
T (°C) at ICP	32,7±2,8												
T (°C) at dairy	31,1±3,8												
pH at ICP	6,47±0,1												
pH at dairy	6,54±0,07												
				<p>During transport, milk temperature decreased gradually, thanks to the application of wet cloths to the plastic churns</p>									



The results obtained by microbiological analyses showed

- high bacterial numbers, considering international dairy quality standards (IDF, 1990), but in line with data obtained by the studies conducted in similar production contexts (Millogo *et al.*, 2010; Bonfoh *et al.*, 2003)
- high contamination values linked to traditional milking procedures, such as manual milking in non-dedicated, uncovered areas
- increase in mean values due to milk transport, $\Delta TBC = 0.99 \text{ Log}$, $\Delta \text{Enterobacteriaceae} = 0.61 \text{ Log}$

Conclusion

The diffusion of the awareness on the importance of microbiological contamination of milk can be an incentive for farmers to improve the quality of their production. Training programs represent the most efficient mean to promote the diffusion of technical knowledge and responsibility among all the stakeholders along the whole production chain. To be effective, hygiene promotion programs should be performed repeatedly and last for extended periods.

Methodological approach

The farmers' involvement in supplying and managing the dairy unit can be considered a point of strength of the project, following a structure already validated in previous experiences; this social model made the beneficiaries aware of their role in a collective project and responsible for the milk quality available on the local market.

References: Bonfoh *et al.*, 2003. Microbiological quality of cows' milk taken at different intervals from the udder to the selling point in Bamako (Mali). Food Control, 14, 495–500. INTERNATIONAL DAIRY FEDERATION (IDF). (1990). Handbook on milk collection in warm developing countries. Brussels: International Dairy Federation. Millogo, V., Svennersten Sjaunja, K., Ouédraogo, G. A., Agenás, S. (2010). Raw milk hygiene at farms, processing units and local markets in Burkina Faso. Food Control, 21, 1070–1074.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

'Italy in Senegal': large-scale investments and support for family farming

Giorgio Roberto

Università Degli Studi di Torino – Scuola Universitaria in Scienze Strategiche

Abstract

The mobility project – which lasted five months (from April to September 2012) – came from the definition of Land Grabbing of the Tirana Declaration and was aimed to find out if the phenomenon was happening in Senegal, and eventually discover which of the Italian companies were involved.

To do this, I compared the two methods of aid to agriculture in Senegal. The first was the one led by the largest companies, whereas the second one was the support for families farming carried out by the Italian NGOs on Senegalese territory.

I also compared the presence of Italy in the private and public sector.

Achieved Results

- Recognition of the laws that allow foreign private investors to access to the land in the territory of Senegal.
- Localization on a map of the agricultural investments made by companies with Italian participation
- Analysis of two international cooperation projects that deal with the support for farm families and food security.
- Study of two Italian companies operating in Senegal in the cultivation and processing of jatropha: *Tea cooperative society* and *SBE Senegal*. A further analysis has been done to the *Tampieri* company operating in the field of sunflowers in Fanaye and the *African National Oil Corporation* operating in the field of jatropha.
- Creation of a matrix for the collection of data for each studied agricultural investments and development of a database for the classification and data management.

Objectives

The result of the research was a qualitative and quantitative information on which land had been taken away from local farmers by Italian investors in order to product biofuels and / or food for exportation. Here follows a list of the main objectives:

- A database on the use and ownership of land as far as the Italian factories installed in Senegal
- An analysis of the relationship between the use of local populations and the evolution of land grabbing
- A detailed analysis that leads to the understanding of the processes and dynamics of the formal acquisition of land by foreign and domestic investors and the role of local authorities.

Methodological approach

The research methodology has been developed as follows:

- Interviews with university professors and companies managers of the area
- Field visits
- Compiling the database of the companies
- Photographic documentation

Conclusions

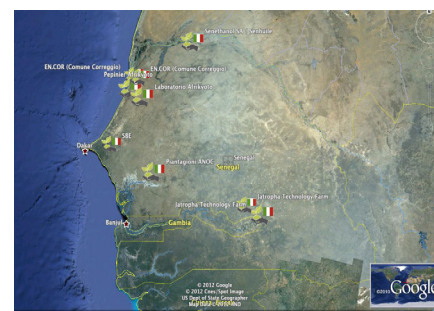
This research can be seen as a basic work for the creation of a database of Italian companies operating abroad. Future researches could expand the research I carried out and implement the database already in place and, at the same time, integrate whatever is still missing.

My suggestion is to investigate on all those organizations which provide secure, sustainable and eco-friendly certifications.

A further field of investigation should be the one of the emission of carbon credits.



Potou's jatropha nursery (pépinière)



Localization of the agricultural investments made by companies with Italian participation



Examples of micro gardens carried out by the NGO ACRA in Dakar



Woman in a certified organic cotton field which has been given by the support from the 'NGO M.A.I.S.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

TEN YEARS OF COOPERATION ON SUSTAINABLE AGRICULTURE BETWEEN CHINA AND ITALY

Maria Lodovica Gullino*, **, Angelo Garibaldi*, Massimo Pugliese*, **, Corrado Clini***

*University of Torino, AGROINNOVA, Via L. da Vinci 44, 10095 Grugliasco (TO)

**University of Torino, DISAFA

***Italian Ministry for Environment, Land and Sea



Ministero dell'Ambiente e
della Tutela del Territorio e del Mare

Abstract

In the year 2000 the Italian Ministry for Environment, Land and Sea and the State Environment Protection Administration of China jointly launched the Sino-Italian Cooperation Programme for Environment Protection. In this framework several cooperation and technology transfer projects in different rural areas of China have been carried out with special attention to sustainable crop protection.

The projects, located in Inner Mongolia, Xinjiang, Shandong, Hebei and Chongming Island, were aimed at increasing yields and quality of vegetable crops (e.g. tomato, eggplant, pumpkin, and cabbage), fruits (e.g. grape) and cereals.



Fig. 1 – Watermelon field trial with organic mulching.

Achieved Results

The implementation of innovative technologies characterized by low cost of application, simple set up and management and economic suitability to the local conditions provided successful results. Obsolete, polluting pesticides were replaced with chemicals having a lower environmental impact. Drip irrigation systems in substitution of the old, water-consuming techniques of flood irrigation were used to distribute fertilizer at reduced dosages. Polyethylene mulching films were replaced by the use of starch-based biodegradable plastic films and organic mulching (Fig. 1). Grafting on resistant rootstocks (Fig. 2) was used to reduce plant stress to soil salinization and disease caused by soil-borne pathogens. In the demonstration areas, consumption of water, pesticides and fertilizers were reduced by 5–6 times, while the new mulching films, being completely biodegraded a few month after the cropping cycle, solved the problem of white pollution.

Objectives

- Transfer of innovative technologies for sustainable agriculture
- Reduce agricultural pollution caused by chemicals and plastics
- Increase food safety and security
- Increase farmers income

Methodological approach

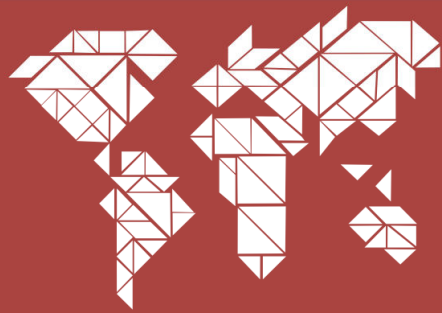
Academic institutions, public research centres and private companies have joined the Programme with the aim to ensure the replicability and long-term sustainability of the new technologies adopted. Workshops and seminars have also been organized in order to inform stakeholders on scientific, technical and economic feasibility of the new proposed techniques.



Fig. 2 – Grafting on resistant rootstocks

Conclusion

Sustainable agriculture systems were able to reduce the environmental pollution, resulting in an increase in incomes and positive economic benefits, while maintaining production costs similar to that of the conventional systems in many cases. Meanwhile, the innovative technologies also improved the agricultural product quality and safety.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

CREATING AND IMPROVING PROFESSIONALS IN THE MANAGEMENT OF LIVESTOCK FARMING IN THE SAHELIAN AREA

Tiziana Nervo¹ (tiziana.nervo@unito.it), Gabriella Trucchi², Moumouni Issa³, Marichatou Hamani³, Alhassane Yenikoye³,
Victorin Codjia⁴, Carlo Semita²

¹ University of Turin-Department of Veterinary Science, ² University of Turin-CISAO, ³ University Abdou Moumouni of Niamey-Faculty of Agronomy, ⁴ Ministry of Agriculture, Livestock and Fisheries (MAEP) of Benin

Abstract - Thanks to financing provided by the **Piedmont Region** and the **Associazione delle Fondazioni delle Casse di Risparmio del Piemonte**, in 2009, some of the researchers of the CISAO (Interdepartmental Centre of Research and Scientific and Technical Cooperation with Sahelian and West African Countries – www.cisao.unito.it) of the University of Turin, supported by the associated **Universities of Niger, Benin and Burkina Faso**, pursued two training courses in Niamey (Niger).

Achieved results

- Course for technicians in Artificial Insemination (AI): 17 technicians and veterinarians (from Niger, Benin and Burkina Faso) have been learned; three of them were women.
- Course addressed to skilled workers: 22 subjects (from Niger, Benin and Burkina Faso) have been trained.
- Learning assessment with questionnaires and custom tabs, containing observations and comments to fill the gaps of every apprentice.

Methodological approach

2 courses have been structured:

- a) Training of higher-level and graduated technicians in AI;
- b) Training of not high school graduated skilled workers in livestock and milk production techniques.

Step 1 in Italy: stage of the 3 African coordinators which provided some common tasks and other specifications according to their skills.

Step 2a in Niger: training in AI techniques with lectures supplemented by several practical training including relatively innovative issues in the African context such as animal welfare and occupational safety.

Step 2b in Niger: training of skilled workers with lectures, translated into the local languages, and practical exercises about the correct approach of cattle and cattle chute, also highlighting the risk associated with the work and the need to adopt safety precautions.

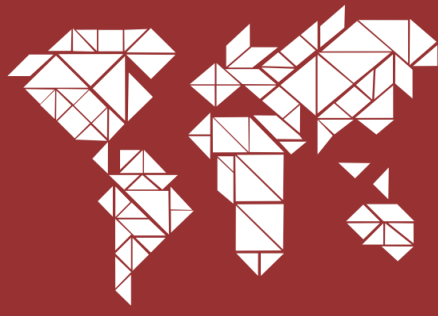
Objectives

- Sustainability of agro-livestock development programs.
- Capacity-building and improvement of the expertises of the employees.



Conclusion

Course participants showed that they were satisfied with the activities. The technicians in AI were contacted to evaluate comments and experiences after implementation of the acquired expertises. The skilled workers expressed enthusiastic appreciation demonstrating a certain pride in being joined by a training initiative, as a first experience for many of them.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013

ENVIRONMENTAL RESOURCES AND DECAY IN CAPE VERDE. A SURVEY IN SANTO ANTÃO AND SÃO VICENTE

Stefano Orlandi, Angela Calvo

Department of Agricultural, Forest and Food Sciences – University of Turin

Abstract

The research in Santo Antão and São Vicente (Cape Verde) has been undertaken from August to September 2007 as part of the multidisciplinary project "From waste to resource" focused on Sahel and funded by Regione Piemonte. The survey concerning water and energy availability and waste production has been carried out through semi-structured interviews, based on specific questionnaires, addressed to local authorities, to some associations of producers and to processors of agricultural products (small farmers, local liquor producers, small retailers, etc.).

The analysis of the collected data allows us to formulate the following considerations:

- as regard water resources, it seems essential to keep on the reforestation program, with species adapted to the Cape Verdean climate (e.g. *Prosopis juliflora* L.), of which local population has now directly experienced the benefits. Educational programs should be carried out especially in urban areas, while in rural areas facilities for drip irrigation should be extended.
- as regard energy development, it was found that the wind turbines, in absence of proper maintenance, have a limited use over time, while the evaporative desalination provides a longer service life. This observation, far from theoretical hypotheses, teaches how much in cooperation projects is necessary to take into account the local and the actual conditions, which determine the project outcome over time.
- as regard the problem of waste, awareness and habits of local population are, at the moment, inadequate; in many areas, the ground, despoiled from the tree, is covered by waste. Proper waste management would stop the environmental decay and initiate a new deal, with the reapportionment and the safeguard of habitat by a responsible population, able to make progress

International aid is still fundamental in terms of financial and technical contribution, but only the involvement of an aware enough local population can allow and truly guarantee a sustainable development.

Objectives of the research

The main objective of the study was to acquire a deep knowledge about environmental decay in Cape Verde islands, inhabited by humans from the discovery (1445-1462), Portuguese colony until the proclamation of independence on July 5th 1975. In particular, Santo Antão and São Vicente, characterized by a rapid population growth and a hasty modernization process, are at risk of reducing water and forest resources and of increasing waste production.

Methodological approach

The survey concerning water and energy availability and waste production has been carried out through semi-structured interviews, based on specific questionnaires, addressed to local authorities, to some associations of producers and to processors of agricultural products (small farmers, local liquor producers, small retailers, etc.).

When the interviewee was more available (as in the case of the Director of the Ministry of Agriculture of Santo Antão), a second interview was made on possible solutions to face the problems of water shortage, desertification and uncontrolled presence of illegal dumping.

Achieved Results

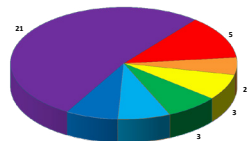
The collected data show:

- the lack of water and energy resources that can be addressed, at least in urban centers, with desalination plants;
- the need for continuing the reforestation program initiated since independence, promoting the conscious participation of the population, especially in protecting planted areas;
- the urgency of a proper waste management, the extent of which is such that not only collection and disposal are needed, but also separation and recycling are mandatory.

Interviewed people

Small farmers

- Agricultural producers and processors
- Officials of the Ministry of Environment and Agriculture
- Employees of the Environmental Sector of the Municipality
- Leaders of environmental associations
- Managers of food industries
- Craftsmen



Questionários sobre produção de produtos agrícolas

Empresa: Localidade:

Superfície:

Características:

Tipo de aprovisionamento energético e consumo médio (mensal):

Tipo de aprovisionamento de água e consumo médio (mensal):

Existe problemas de água ou de energia?

Cultivo executado e trabalhos (do trabalho do terreno até a colheita)

Cultivos	Superfície	Produção média	Trabalho efectuado	Decorso médio (mês/ano)

Máquina usada (também para o transporte)

Tipo	Quantidade em uso	Marca	Idade média	Mantenção e reparação

Produto usado na fertilização e luta antiparasitária

Tipo	Marca	Quantidade (kg/ha)	Tipologia de tratamento

Onde são vendidos produtos agrícolas?

Como são embalados?

Quão e quanto são os produtos em excesso?

Alguns produtos em excesso é usado nas empresas agrícolas. Como?

Como se recolhe o lixo?

Existe recolha diferenciada por tipologia de lixo?

SANTO ANTÃO

• Superfície: 779 km²
 • População: 54.000 inhabitants
 • Dorsal E-O
 • Climate differences:
 Rainfall: N-E >200 mm/year, S-O <200 mm/year
 ↳ municipalities:
 • Ribeira Grande (chief town)
 • São Vicente
 • Porto Novo
 • Economical development on agriculture

SANTO ANTÃO – The municipality of Porto Novo (Sud)

• CHARACTERISTICS
 • 568 km²
 • 9.000 inhabitants
 • WATER
 • NOT drinking
 • Municipal cistern
 • Desalination plant
 • ELECTRICITY
 • Diesel central
 • WASTE
 • 4.000 m² dump
 • Periodic incineration
 • 0.5 kg/person/day
 • Illegal dumping

SANTO ANTÃO – The municipality of Ribeira Grande

• CHARACTERISTICS
 • 166 km²
 • 52.000 inhabitants
 • WATER
 • Lining
 • Municipal water system
 • ELECTRICITY
 • Diesel central
 • WASTE
 • 4.800 m² dump
 • Periodic incineration
 • 0.4 kg/person/day
 • Illegal dumping

SANTO ANTÃO – Agricultural producers in the municipality of Porto Novo

• WATER
 • Not drinking
 • Serious shortage
 • Cistern, non-capillary water system
 • ELECTRICITY
 • Not distributed in some areas
 • CROP TYPE
 • Maize
 • WASTE
 • Maximum reuse
 • Illegal dumping

SANTO ANTÃO – Agricultural producers in the municipality of Ribeira Grande

• WATER
 • Reduced from 70s
 • Municipal canalization
 • Drop by drop or flooding
 • ELECTRICITY
 • Efficient
 • CROP TYPE
 • Sugarcane (groove)
 • Vegetable and fruit
 • WASTE
 • Packaging reusing
 • Pesticides packaging
 • Illegal dumping

SANTO ANTÃO – Agricultural processor in the municipality of Porto Novo

BOLONA DAIRY
 • Project funded by Regione Piemonte
 • Local product valorization
 • ALL IN ALL
 • Cheese-making (1.5 l cheese form)
 • WATER
 • 2 m³ system
 • ELECTRICITY
 • Solar panels
 • Diesel generator
 • WASTE
 • Packaging reusing
 • Pesticides packaging
 • Illegal dumping

SANTO ANTÃO – Agricultural processor in the municipality of Ribeira Grande

SANTO ANTÃO INDUSTRIAL SOCIETY
 • ACTIVITIES
 • Sugarcane processing (grogue, honey, liquor, vinegar)
 • WATER
 • Water system
 • ELECTRICITY
 • Diesel central
 • WASTE
 • Packaging non-recoverable thrown in municipal bins
 • Sugarcane waste joined to maize for animal feed

SÃO VICENTE

• Surface: 227 km²
 • Uninhabited until 1794
 • Flat morphology
 • Arid climate
 Rainfall: <200 mm/year
 • 83.000 inhabitants concentrated (93%) in chief town Mindelo
 • Economic development only on trade and tourism

SÃO VICENTE – Agricultural producers association Tchón d' Hollanda Municipality of Mindelo - Ribeira de Vinha

• CHARACTERISTICS
 • 30 ha total area
 • 3.300 m² plots
 • 40000 of 96 agricultural producers
 • WATER
 • Wastewater Treatment
 • Drop by drop
 • ELECTRICITY
 • Diesel generator
 • CROP TYPES
 • Many types
 • WASTE
 • Packaging reusing
 • Pesticides packaging incinerated
 • Dispersal

SÃO VICENTE – The municipality of Mindelo

• CHARACTERISTICS
 • 229 km²
 • 83.000 inhabitants
 • WATER
 • Drinking
 • Reverse osmosis desalination plant
 • ELECTRICITY
 • Evaporation desalination plant
 • WASTE
 • 5 ha dump
 • Periodic incineration
 • 0.9 kg/person/day
 • Wild or animal dispersal
 • Illegal dumping

SÃO VICENTE – Agricultural producers in the municipality of Mindelo-Cahau

• WATER
 • Reduced from 40s
 • Wells dried-up since 75
 • Drop by drop
 • ELECTRICITY
 • Problems
 • CROP TYPES
 • Many types
 • WASTE
 • Packaging reusing
 • Pesticides packaging incinerated or scattered

FORESTRY 3.000 ha (<1%) in 1975 → 95.000 ha (>20%) in 2007

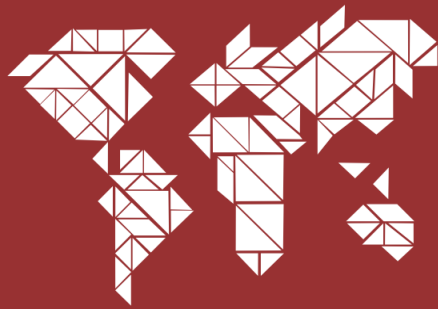
OBJECTIVES:
 • Fight against desertification with species adapted to the Cape Verdean climate (e.g. *Prosopis juliflora* L.)
 • Soils protection against erosion
 • Water conservation
 • Biodiversity safeguard (Euphorbia luckeyana Bleed)
 • Wood, coal and fuel production
 • Creation of jobs

WASTE
 PROBLEMS:
 • Population growth (urban expansion)
 • 34% of the population not reached by waste collection
 • Illegal dumping
 • Smells and fumes from incineration
 • Dispersal by wind and stray animals
 • Groundwater pollution
 • Negative impact on the landscape

Conclusions
 Considering population growth and increased tourism, financial and technical contributions are necessary to ensure water and energy supply and waste management. The interventions should be realized through:

1. Economic investment for a better management of municipal waste, consisting in:
 - more staff;
 - more equipment (bins, containers, garbage trucks);
 - programs for disposal and recycling.
2. Local population involvement :
 - spreading of water saving culture (drop by drop irrigation system);
 - reduction of illegal dumping;
 - forest protection.

In this context, international aid must cooperate with the Cape Verdean people to safeguard their environment, restoring the basic habitat elements for life. An authentic cooperation implies coming together to find a way to sustainable development, which certainly passes through the respect for the environment but, above all, for the local population.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013

LA RIFORMA SILENZIOSA -COME LO STATO RUBA LA TERRA-

Dott.ssa Alessandra Portis
Università degli studi di Torino

Land grabbing in Senegal e la debolezza normativa

Il fenomeno del *land grabbing* è stato oggetto di innumerevoli analisi multidisciplinari nel corso degli ultimi anni, avendo catturato l'attenzione di ricercatori dai back ground più disparati, per via delle implicazioni globali drammatiche date dalla sua diffusione. Tuttavia, vi è pochezza d'analisi del fenomeno dal punto di vista giuridico. Sulla base di questa considerazione, il mio progetto ha cercato, nel suo piccolo, di colmare questa lacuna. Attraverso un caso studio in Senegal, tramite l'analisi della disciplina proprietaria e fondiaria senegalese, ho messo in evidenza come la debolezza normativa abbia permesso un atteggiamento elusivo da parte dello Stato che, non rispettando la legge formale, svendendo la terra dei suoi cittadini.

Approccio metodologico e modalità di svolgimento della ricerca

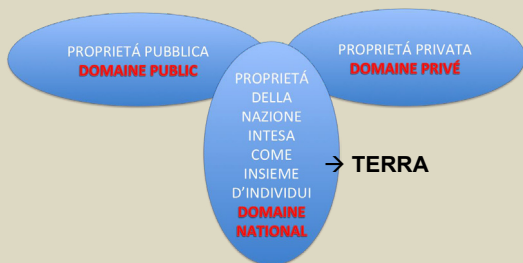
- ✓ **Why?** Dimostrare come lo Stato senegalese eluda la disciplina formale per garantirsi maggiori benefici economici e per incentivare le possibilità d'investimento in campo agricolo nel paese;
- ✓ **Where?** Dakar e zona del Ferlo, Regione di Louga;
- ✓ **When?** Da gennaio a marzo 2013;
- ✓ **Who?** Gli attori coinvolti nella ricerca sono stati: esperti di diritto fondiario, funzionari della Pubblica Amministrazione implicati nei processi di concessione e locazione di terre, presidenti delle Comunità Rurali, come ultimo livello di decentramento amministrativo, ed infine beneficiari di concessioni amministrative sulla terra;
- ✓ **How?** Attraverso l'analisi del *corpus* normativo disciplinante il diritto fondiario e il diritto di proprietà per lo studio della struttura formale di accesso alla terra, attraverso interviste in loco agli attori coinvolti nel processo di concessione per la modalità pratica di accesso alla risorsa terra;



L'obiettivo: disciplina formale vs applicazione sostanziale

DISCIPLINA FORMALE

1. Tripartizione del diritto di proprietà



2. Domaine National (DN)

Sulle terre del **Domaine National** è esercitabile solo un **diritto d'uso** tramite concessione (**Affectation**), approvata con delibera dal Consiglio Rurale. Sono **vietate** locazione (**Bail**) e diritto di proprietà (**Titre Foncier**).

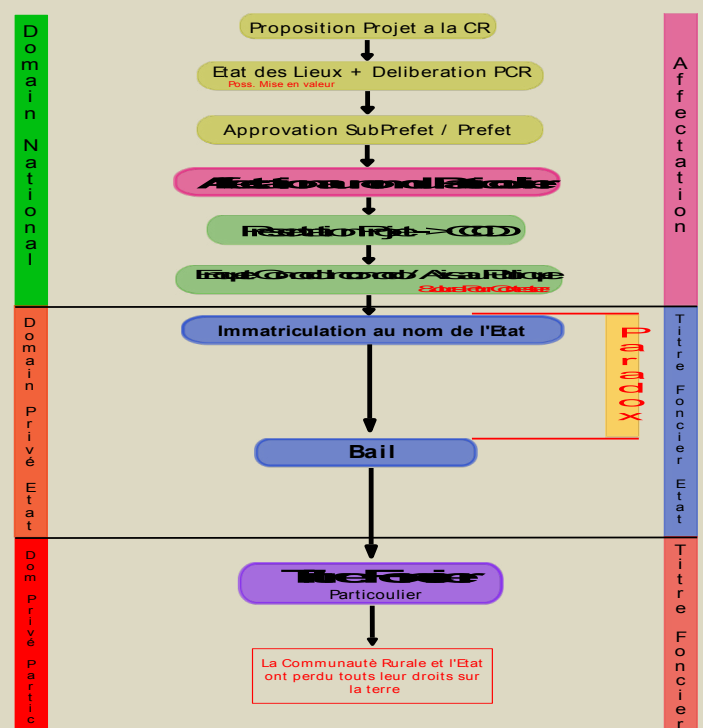
3. Affectation

- ✓ Concessa solo agli appartenenti alla Comunità Rurale;
- ✓ Con obbligo di valorizzazione della terra in 2 anni;
- ✓ Vietata agli stranieri.

4. Pubblica Utilità

Eccezione: in casi di **pubblica utilità**, stabiliti per legge, le terre del **Domaine National** possono essere oggetto di **Bail** e **Titre Foncier**.

APPLICAZIONE SOSTANZIALE





Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013



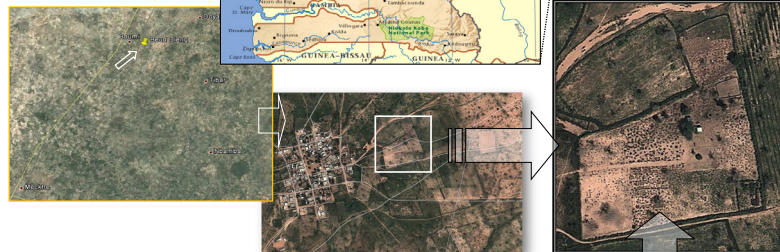
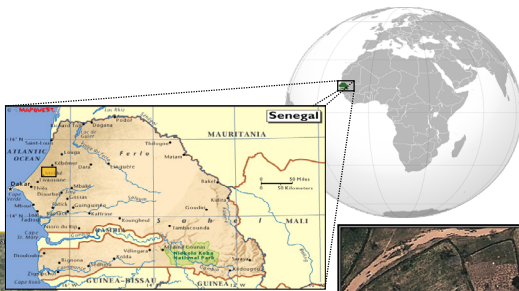
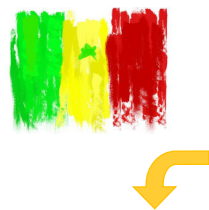
- Sun and Water management for a reliable and sustainable horticultural production -

Maurizio Previati, Stefano Bechis UNIVERSITY OF TORINO – DISAFA
Davide Canone, Stefano Ferraris UNIVERSITY OF TORINO – DIST

The H₂Ortisol Model

Introduction

Rural areas of most Sahelian countries are characterized by subsistence agriculture with productivity rather poor and a consequent exodus of people from country zones to cities. Having that in mind, many governments are developing plans for a "return to agriculture" with the objective of stabilizing communities in their areas of origin and revitalizing the local economy by increasing the agricultural production, especially horticulture. However, an increase in productions and domestic incomes should necessarily pass through the implementation of new strategies aiming at the sustainable development of agricultural infrastructures, the adoption of new equipments, and the training of people in order to improve the sustainable utilization of the factors of production: soil, water, and energy.



Objectives

H₂Ortisol aims to be a sustainable and replicable modular system of a vegetable garden, conceived to minimize operating costs and reducing the waste of natural and energetic resources.

Methodological approach

The H₂Ortisol pilot project has seen the installation of 5 drip irrigation sectors (for horticultural purposes) with pumping systems powered by solar energy without the support of any battery.

More over, this system adopted a water tank located at ground level and a booster PV pump tailored to supply the necessary water volume calculated on the base of cultivated plants physiological needs.

Finally, security devices have been adopted to preserve the integrity and the functionality of the whole system, both in case of energy imbalances, lack of water, and/or abnormal pressures.

Achieved/Expected Results

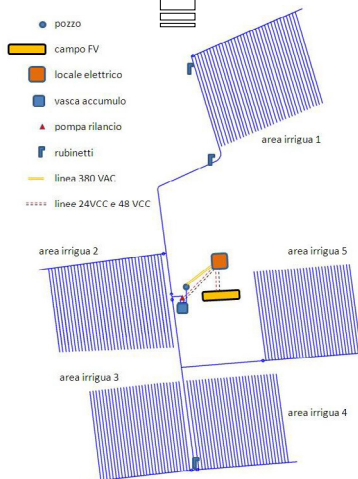
- Increase and improvement of production areas;
- creation of jobs places and reduction of local exodus;
- raise of domestic incomes;
- increase of knowledge and awareness on the good local development capability;
- activation of local microeconomies;
- food local prices mitigation and stabilization;
- better nutrition;
- contribution to the decrease in illnesses due to poor nutrition;
- valorization of soil and water.

Conclusions

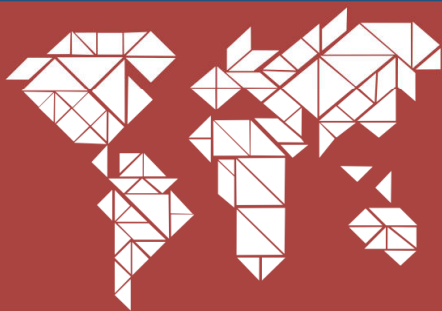
The widespread of H₂Ortisol projects on the sahelian territory can strongly contribute, (especially if coupled with solar drying systems or for the food conservation), to:

- the self-sustenance of rural communities,
- the revitalization of the local economies,
- the reduction of the rural exodus,

According with the main political programs implemented by governments in the area and with a particular attention to the



Water supply system details



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

TRANSFER OF AGRO-LIVESTOCK TECHNOLOGIES FOR BIODIVERSITY PRESERVATION IN SAHELIAN ENVIRONMENT

Carlo Semita¹ (carlo.semita@unito.it), Riccardo Fortina², Francesco Cristofori¹, Ousseina Saidou Touré³, Moumouni Issa³, Marichatou Hamani³, Alhassane Yenikoye³, Tiziana Nervo⁴

¹ University of Turin-CISAO, ² University of Turin-Department of Agriculture, Forest and Food Sciences, ³ University Abdou Moumouni of Niamey- Faculty of Agronomy, ⁴ University of Turin-Department of Veterinary Science

Abstract - Between 2001 and 2011 the Interdepartmental Centre of Research and Scientific and Technical Cooperation with Sahelian and West African Countries (CISAO – www.cisao.unito.it) of the University of Turin has supported many activities to preserve and enhance biodiversity at the Experimental Sahelian Station of Toukounous (Niger). These activities and projects provided for the transfer of techniques and innovative but sustainable agro-livestock technologies to the staff of the Faculty of Agronomy of the University of Niamey and of the Ministry of Animal Industries of Niger. All the actions were part of the Food Security and Poverty Reduction Programme in West Africa of the Piedmont Region.

Achieved results

- Improvement of milk production through the application of a model of management of forage resources and the improvement of the composition of the herd.
- Progressive knowledge of the operational context.
- Dissemination of the project on a larger scale through to awareness-raising and diffusion of the activities and the results both in Italy and locally.
- The Toukounous Station has assumed a considerable educational value becoming a location for practical works and stages for the local universities students.

Methodological approach

Adoption of a scientific approach progressively adapted to the social, economic and cultural local situation.

Objectives

- Analysis of the priority needs and available local expertises;
- Development of a model for the use of local forage resources.
- Proper management of a herd of the dairy native zebuine breed Azawak.



Cages for the evaluation of local forages



Milk analysis



Involvement of consultants



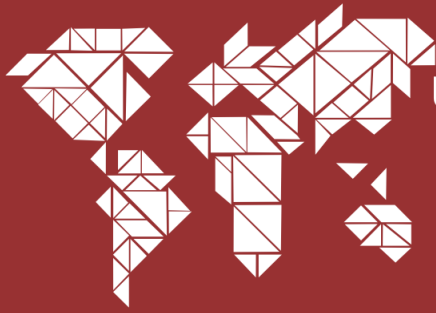
Expertise transfer



Breeder bulls selection, semen production, artificial insemination.

Conclusion

The participatory process has proven to be one of the keys to the success of the project which is replicable for further safeguard actions of other local breeds of Niger (e.g. Kouri cattle, red Maradi goat) and which has been applied in similar contexts in other countries of the Sahel (e.g. Burkina Faso) by other groups of decentralized cooperation.



Imagining cultures of cooperation: Universities networking to face the new development challenges

III CUCS Congress
Turin, 19-21 September 2013

IMPROVEMENT OF THE DAIRY PRODUCTION CHAIN IN THE RURAL AREAS OF ECUADOR THROUGH THE USE OF REPEATABLE TEACHING MODEL

Martina Tarantola¹, Gianluca Pressi², Paolo Rodighero², Luca Nicolandi³, Emma Della Torre³, Ivan Garcia⁴, Carlos Arce⁴, Claudia Durando⁵, Achille Schiavone¹

¹Dipartimento di Scienze Veterinarie – Università di Torino, Italy.

²AVEC-PVS Associazione Veterinaria di Cooperazione con i Paesi in Via di Sviluppo – Cavaglià (BI), Italy.

³S.C. Igiene degli allevamenti e delle produzioni animali – Dipartimento di Prevenzione - ASL TO 4 - Regione Piemonte, Italy.

⁴Fepp-Fondo Ecuatoriano Populorum Progressio – Quito, Ecuador.

⁵Ufficio Solidarietà e Immigrazione – Comune di Settimo T.se (TO), Italy

Abstract. The decentralized cooperation activities of Piemonte Region (2007-2011) funded a three inter-linked projects to support the rural areas of Ecuador (Provinces of Cotopaxi, Canar and Tungurahua) with the aim of improving the whole dairy production system (milk, dairy products and marketing), through technical support and a training repeatable model. The project activities, through informative meetings organized in Piemonte, contributed to raise the local population awareness on the problems of the Ecuadorian Andean communities.

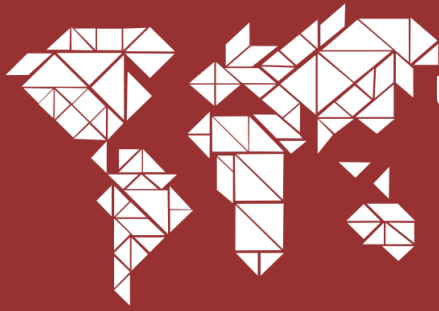
Objectives. Even if in recent years Ecuador has been experiencing major social and political changes, the majority of the population is still living in a chronic poverty condition, worsened by the global economic crisis. The project was focused on strengthening the capacity of the actors involved in the milk/dairy production chain through the provision of multi-disciplinary training, in order to achieve a repeatable teaching model for rural areas of Ecuador, in Cotopaxi, Cañar and Tungurahua Provinces. In rural areas there is a strong need of education/training programs¹ because the small producers hardly have access to local public and private institutions, due to logistical and economic reasons. In Italy the project aimed at raising the citizens' awareness to the problems of developing countries, particularly of the Ecuadorian Andean communities.

Methodological approach. The Piemonte Region (Italy), through decentralized cooperation programme, from 2007 to 2011, funded three inter-linked projects presented by the Municipality of Settimo Torinese (TO), aimed at improving the milk/dairy sector and the creation of a teaching repeatable model for rural areas of Ecuador. The partners of the project were: Dipartimento di Scienze Veterinarie, University of Torino; AVEC-PVS Associazione Veterinaria di Cooperazione con i Paesi in Via di Sviluppo (<http://www.avec-pvs.org/>) and Dipartimento di Prevenzione - ASL TO 4 - Regione Piemonte; FEPP - Fondo Ecuatoriano Populorum Progressio (Ecuador) and Fondacion Consorcio de Queserías Rurales Comunitarias (Ecuador).

In consideration of the participatory needs assessment the following training courses have been planned and conducted: dairy production techniques; management, feeding and welfare of dairy cows; milking hygiene and animal health; control of the quality of milk and dairy products; production of new types of cheese; optimization of the administrative management and HACCP plans for dairy processing plants; marketing strategies for dairy products.

Achieved Results. From the training courses, held by local and international experts and attended by 225 breeders and producers, technical manuals have been obtained (milking hygiene, marketing guidelines, HACCP simplified and milk/dairy chain technical manuals). The publications, in Spanish language, have been distributed to the rural associations and local and international development organizations. A small laboratory for the analysis of milk quality was set up (*Solex* equipment, densimeter and *Milk Analyzers Lactoscan*). Four mobile and three fixed refrigerated units have been appointed for dairy products marketing. A small scale feed manufacturing plant was also established for cattle feeding. Three dairy local experts attended a 55-day formation course in Italy. In Italy cultural awareness evenings and meetings in some schools have been held (project activities presentation, ethnical dinners and short course of cheese tasting).

Conclusion. The collaboration among all the stakeholders, in a long term project, has permitted to assess the real needs of Ecuadorian rural population involved in milk/dairy production, changing over time the strategies of intervention by a "backwards" process, from an enhancement of the final product to an improvement of the raw material. The creation of a repeatable teaching model, which identifies among its objectives the production of operating manuals and/or guidelines by the participants themselves, ensures more sustainability to the project, improving its efficacy and efficiency. In Italy, the sensitization activities have certainly increased the knowledge and awareness of the rural Ecuadorian population problems and needs.



Imagining cultures of cooperation: Universities networking to face the new development challenges

III CUCS Congress
Turin, 19-21 September 2013



A MULTILINGUISTIC APPROACH TO PRESERVE VINEYARD LANDSCAPES' AGROBIODIVERSITY. Francesca Varvello Università degli studi di Torino-Dipartimento di Giurisprudenza

Abstract

The purpose of this study consists in examining the function of language in the vineyard landscapes' development outlining the need of a "multilinguistic" approach to preserve their agro-biodiversity. Indeed, as authenticated by international legal instruments, traditional agricultural techniques - typical of indigenous cultures - are frequently in accordance with contemporary environmental needs and constitute the solution for the conservation and use of rare resources - soil and water in this case. Then, the vine-makers become directly partners of the International Community in conserving the agrobiodiversity of landscapes. Furthermore, it is widely admitted, in doctrine, the proportionality between the safeguard of native language and the preservation of biological diversity, because of the fundamental role of the nominal identification of natural elements and managing techniques and, of course, the role of language in oral transmission of knowledge.

Achieved Results

1. The reflection starts with a case study of the vineyards already inscribed into the World Heritage List or under nomination through the Tentative List: the importance of the **cultural element** emerges, by definition, considering them as cultural landscapes. Indeed, human contribution is evident in all the wine-sites examined, making them rich in "biocultural diversity".
2. The second step underlines the importance of traditional and local agricultural techniques for the preservation of biological diversity: an agricultural landscape characterized by a low-intensive cultivation (as vineyards) is typically **rich in agro-biodiversity**.
3. The subsequent reflection represents the connection between the previous considerations: as traditional techniques, expression of the cultural identity of the local community, are essential for biodiversity conservation, **the preservation of the cultural peculiarity safeguards the agro-biodiversity of vineyards**.
4. The fourth and conclusive reflection takes into consideration language as one of the most representative cultural elements: it is widely admitted, in doctrine, the proportionality between the safeguard of native language and the preservation of biological diversity, because of the fundamental role of the nominal identification of natural elements and managing techniques and, of course, the role of language in oral transmission of knowledge. Considering, than, that some of the vineyards already inscribed under the World Heritage List are located in a territory reported by the Atlas List for the language in danger, is possible to assume that **a policy of multilingualism preservation could directly affect the agro-biodiversity of the related vine - but not just them - cultivations**.

Objectives

The principal objective of this study was to demonstrate the mutual correlation between the safeguarding of language - as a manifestation of the cultural background and identity of a local community - and the preservation of agro-biodiversity of cultivations, providing, as such, an exemplification of the consideration that «cultural diversity is as essential for humanity as biodiversity is for nature».

Methodological approach

A step-by-step approach has guided this study, starting from an analysis of the related international instruments (signally the World Heritage Convention; the Convention on Biological Diversity; the Universal Declaration on Cultural Diversity and the further 2005 Convention; etc.) and moving towards a case-study of vineyard cultural landscapes to reach, with the sustain of the contemporary doctrine, the following conclusion.

Conclusion

