

## PROJECTS UTILIZING THE VALLERANI SYSTEM UP TO JULY 2010

Aware of the seriousness of the world wide desertification problem and the impossibility of obtaining significant results using manual labour, Mr Vallerani has developed a mechanized system of water harvesting. The Vallerani System is based on the traditional manual practice of harvesting and concentrating the runoff waters, improving the soil conditions and allowing the direct sowing of forestry seeds.

This technology has already been utilized on a global surface of more than 110,000 ha, in Niger, Morocco, Egypt, Tunisia, Senegal, Burkina Faso, Chad, Sudan, Kenya, Syria, Jordan and in north China. The system makes it possible to control and reverse the environmental degradation and desertification processes and to increase significantly the agro-sylvan-pastoral productions.

Listed below are the main demonstration projects and the results achieved.

Several other projects have been started in different countries but the final results are not yet available. We are also missing some of the relevant statistics such as the size, the location, the rainfall precipitation in the area of the project.

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|------------------------|--|
| <b>1. Country/year</b> | Niger (1988)   |
| - Location             | Tanout (Damergou, Province of Zinder)  |
| - Project name         | Projet intégré de Réhabilitation du Damergou (PIRD)  |
| - Financing agency     | Italian cooperation (FAI)  |
| - Special plow used    | Delfino and Treno  |
| - Treated surface      | 312 ha   |
| - Rainfall (mm/year)   | from 200 to 230 mm   |
| - Comments             | the machines were able to recover lands abandoned or too hard to be cultivated by hand. The results were astounding. The cereal production per ha increased three times (from the 400/500 Kg/ha of the traditional agriculture to 1000/1500 Kg/ha). Several species of seeds from local forest trees were sowed with more than 60% of germination. In spite of the results, the project has not been refinanced. |
| - Documentation        | - the project report<br>- il programma di sviluppo rurale integrato nella regione saheliana (Istituto Italo-africano, 1992)  |
| <br>                   |  |
| <b>2. Country/year</b> | Niger (1989 – 2003)  |
| - Location             | Tera, Tillabery, Ouallam)  |
| - Project name         | Project Agro-Sylvo-Pastoral (PASP)   |
| - Financing agency     | GTZ (German cooperation)   |
| - Treated surface      | more than 70,000 ha  |
| - Rainfall (mm/year)   | average rainfall 250 mm  |
| - Special plow used    | 5 Delfino  |
| - Comments             | the work was performed on abandoned land, as a result fodder production increased 200 to 400%  |
| - Documentation        | abstract of reports GTZ  |

**3. Country/year** Marocco (1989)  
 - Location Oujda  
 - Project name Pasture improvement  
 - Financing agency Arbores Morocco (Ministry of Forestry)  
 - Treated surface 500 ha  
 - Rainfall (mm/year) 200 mm  
 - Special plow used Delfino  
 - Comments the calcareous and unproductive soils have been restored and as a result, the fodder production improved 200 to 400%.  
 - Documentation Ministry of Forestry

**4. Country/year** Egypt/Sinai (1988 – 91)  
 - Location El Maghara (Northern Sinai)  
 - Project name Integrated rural development in Northern Sinai  
 - Financing agency Italian cooperation  
 - Treated surface 850 ha  
 - Rainfall (mm/year) 60 mm  
 - Special plow used Delfino  
 - Comments the pasture improvement was substantial. Both seed planting and transplanting of fruit trees (including olives) were successful under very arid conditions.

**5. Country/year** Niger (1996)  
 - Location Maradi  
 - Project name FAO/NER/90/016  
 - Financing agency FAO  
 - Treated surface 70 ha (in the Dan Kada Dodo forest)  
 - Rainfall (mm/year) 250 mm  
 - Special plow used Delfino  
 - Comments after three years, the project had planted less than 2000 seedlings instead of the 20.000 initially foreseen. This was caused by the difficulty of digging the holes by hand. Mr. Vallerani was then sent to demonstrate the potentialities of his special plow. In 23 hours the plow dug out 15,000 crescent form micro basins (5,0 m of length); and the trees planting followed by hand.  
 - Documentation Vallerani mission report FAO

Following this intervention, the State Minister of the Environment of Burkina Faso, used the “Delfino” plow obtained by the Niger government. Experimental activities for the plantation of Acacia Senegal in the villages of So, Mone-So, Bodol and Sintao could be implemented. The results obtained convinced the State Minister to ask FAO to introduce the Vallerani technology in the FAO project for food security in Burkina Faso (see project 10 below).  
 - Documentation GPC/RAF/303/ITA

- 6. Country/year** Senegal (1997 - 98)
- Location Saint Louis
  - Project name GPC/SEN/035/NED (PROWALO)
  - Financing agency FAO
  - Treated surface 322 ha
  - Rainfall (mm/year) 220 mm
  - Special plow used Delfino
  - Comments Forest rehabilitation in the Walo lands, with direct sowing of forest trees and pasture improvement was conducted.
  - Documentation Prowalo report of the 18.11.98
- 7. Country/year** Tunisia (1997 - 98)
- Location Kairouan/Sousse
  - Financing agency Swiss agency for Development and Cooperation
  - Rainfall (mm/year) 250 mm
  - Special plow used 2 Delfino, 1 Treno
  - Comments At the request of the Ministry of the Environment one Vallerani special plow was used to demonstrate environmental rehabilitation. Due to the excellent results obtained, a year later two other plows were financed
- 8. Country/year** Syria (from 1997)
- Location ICARDA Research Center
  - Financing agency ICARDA/CGIAR
  - Treated surface
  - Rainfall (mm/year)
  - Special plow used Delfino
  - Comments having witnessed the demonstration activities in Tunisia, ICARDA, the CGIAR Research Center in charge of the development of arid lands, bought a Delfino plow to be used in the research station in Syria.
- 9. Country/year** Burkina Faso (1997 - 1998)
- Location Titao, Djibo, Aribinda, Sabori
  - Project name Foret et sécurité alimentaire en Afrique sahelienne (GCP/RAF/303/ITA)
  - / Comments The excellent results achieved in improving cereal production, pasture yields and tree plantation, caused a very high increase of requests from the surrounding rural communities for interventions with the Vallerani System (for more than 2000 ha). Such request could not be accommodated because of the limitations of the project.
  - Documentation
    - FAO project reports
    - Article on "ONU Programme", the Information magazine of the UN (Dec. 1998)
- 10. Country/year** Chad (1998)
- Location Mao (Kanem)
  - Project name Projet-pilote de Lutte contre la Désertification (PPLCD)
  - Financing agency IFAD (with Italian and Swiss funds)

- Treated surface 550 ha (in 50 days); 1999: 170 ha
  - Rainfall (mm/year) 250 mm
  - Special plow used 1 Delfino, 1 Treno
  - Comments The pilot project has been undertaken to protect from the advancing desertification the Kanem Villages and Oasis, as well as the lake Chad. Since the main cooperation agencies had failed in their intervention efforts to stop desertification, an intervention with the Vallerani System was programmed. The very significant results obtained with the VS in cereal and fodder production justified the refinancing of the project for another two years and the purchase of a second Technical unit, composed by a tractor and a Delfino plow.
  - Documentation IFAD reports
- 11. Country/year** Burkina Faso (1999)
- Location Gorom-Gorom
  - Financing agency ADRA/DANIDA
  - Treated surface 600 ha
  - Rainfall (mm/year) 400 mm
  - Special plow used 1 Delfino, 1 Treno
  - Comments the rehabilitation of about 100 ha of degraded land (initially with machines borrowed from the FAO project) resulted in the ADRA purchasing its own equipment.
  - Documentation ADRA/Burkina Faso
- 12. Country/year** Burkina Faso (1999)
- Location different areas of the country
  - Financing agency Ministry of the Environment
  - Treated surface
  - Rainfall (mm/year) 200/300
  - Special plow used 2 Delfino, 2 Treno, 2 tractors
  - Comments Four special plows were purchased on the basis of the very positive results obtained by FAO & ADRA projects (see project 09 and 11) in 1997 – 99.
  - Documentation to be requested to the Ministry of Environment
- 13. Country/year** Burkina Faso. (2001)
- Location Salmossi
  - Project name Giovani ticinesi in Burkina Faso
  - Financing agency fundraising by the 10th class of the Rudolf Steiner school of Origgio (Lugano) CH
  - Treated surface 500 ha
  - Rainfall (mm/year) 480 mm.
  - Special plow used 1 Delfino
- 14. Country/year** Burkina Faso (2003 - 2013)
- Location 12 villages in the Oudalan province
  - Project name “Deserto Verde Burkinabé”
  - Financing agency “Deserto Verde Burkinabé” association

- Treated surface 1800 ha (up to June 2010)
- Rainfall (mm/year) 200 – 300 mm
- Special plow used Delfino
- Comments Due to the excellent results achieved the project has been extended from 1000ha to 2000ha. The tree germination is up to 95%, wild animals such as the rabbit, the hedgehog and many insects reappear after decades. Biodiversity, environmental and human conditions improve significantly.
- Documentation [www. desertoverde.ch](http://www.desertoverde.ch)  
Article on: Bois et forets des tropiques, 2010 N° 304 (2)

- 15. Country/year** Burkina Faso, Niger, Chad, Sudan, Kenya, Sénégal (2004 – 2006)
- Project name The Acacia Operation Project (AOP) (GTFS/RAF/387/ITA)
  - Financing agency Italy, Trust Fund for food safety and food security, with FAO
  - Treated surface Senegal: 3.660 ha; Burkina Faso: 2465 ha; Niger: 2.175 ha; Chad: 395 ha; Sudan: 2.180 ha; Kenya: 285 ha
  - Rainfall (mm/year) 150 mm – 350 mm
  - Special plow used 6 Delfino, 6 Treno
  - Comments The main objective of the project are: - to strengthen analytical and operational capacity in six pilot countries; - to face food security and desertification problems through community-based actions; - to rehabilitate dry lands and establish agro-sylvan-pastoral systems, giving particular attention to the sustainable management of local resources.  
All goals being achieved, FAO prepared in 2009 a new project: “Rehabilitation of Degraded Forest for Food Security, Desertification Control Environmental Conservation, and Adaptation to Climate Change” affecting also Kenya and Ethiopia. The funding provides US\$ 30,986,182 for the first five-year phase (out of a ten-year program)

- 16. Country/year** Syria and Jordan (2004 – 2006)
- Project name The Vallerani Water Harvesting Project
  - Financing agency CGIAR - Swiss agency for Development and Cooperation - ICARDA
  - Treated surface
  - Rainfall (mm/year) 186 mm
  - Special plow used 1 Delfino
  - Comments Results have been so impressing that ICARDA prepared a new project involving also: Libya, Tunisia, Morocco, Algeria and Mauritania. This project is being presented to different underwriters for fundraising.

- 17. Country/year** China (2005)
- Project name Project for the Afforestation of a Pilot area in the Autonomous Region of Inner Mongolia with application of the “Vallerani System”
  - Financing agency Academy of Forest Inventory and Planning of the State Forestry Administration, China
  - Treated surface foreseen 1000 ha, realized 3200 ha

- Rainfall (mm/year) 180 mm – 280 mm
- Special plow used 2 Delfino; 1 Treno
- Comments Letter of 5th novembre 2007 by the General Director Of the Accademy of Forestry Inventory and Planning, State Forestry Administration of China, Li Zhongping to the Italian Ministry of Environnement, Land and Sea and the Sino-Italian Cooperation Programme for Environmental Protection, Project Management Office: “Sino-Italy cooperation project for the Afforestation of a Pilot Area through the application of the “Vallerani System” Technology in the Inner Mongolia Autonomous Region has been prosecuted for two years. Under the great support of Italian parts, the afforestation activities have been successfully implemented in pilot areas. In comparison with the traditional methods, the results show that “Vallerani System” technology has function of deep, rapid cultivation and rain collection, with economical and practicality characters. The trees survival rate has been increased 30-50% cultivation rate has been increased 1000 times and the cost of afforestation has been decreased 4 times. The System can be used in various types of land in pilot areas. Up to now, the System has been used in 1986 ha of afforestation and sped up forest and ecosystem construction. Local government and people hope that the “Vallerani System” Technology can be used in afforestation projects to combat desertification. The “Vallerani System” Technology is successful in Inner Mongolia... This will not only contribute to the combating desertification for China, but also for the entire world...”
- Documentation Technical report 2007, 2008, 2009, final report 2010 by Prof Wang Junhou.

In 2003 Reach Italia, Africa Office, Gorom Gorom, Burkina Faso, bought a Delfino plow and started promoting soil rehabilitation projects and fundraising actions which led to the realisation of the projects listed below. The surface treated is mostly relatively small but the interventions are very significant since they are part of larger development assistance projects which include instruction, health, water accessibility.

The projects are realized in the north of Burkina Faso;  
rainfall is 200-300 mm/year;  
documentation: CILSS.PRA SA-LCD-POP Dev 2009.

- I. Country/year** BF (2004)
- Location 4 villages of Oudalan
- Project name Project of Local Development of Oudalan
- Financing agency PDL Oudalan
- Treated surface 80 ha

- II. Country/year** BF (2004)
- Location commune of Gorom Gorom
- Project name PIOSSASCO
- Financing agency PIOSSASCO
- Treated surface 60 ha

<b>III. Country/year</b>	BF (2004)
- Location	3 community of Soum (Djibo)
- Project name	SENU/SOUM
- Financing agency	SENU
- Treated surface	59,1 ha
<b>IV Country/year</b>	BF (2007)
- Location	Gagara 2
- Project name	CAP Solidarité Suisse
- Financing agency	CAP Solidarité Suisse
- Treated surface	40 ha
- Comments	Thanks to the sowing of dung containing the treated surface has a germination rate of at least 80% both for tree as for herbaceous layer.
<b>V. Country/year</b>	BF (2007)
- Location	Gagara 2
- Project name	PIOSSASCO
- Financing agency	PIOSSASCO
- Treated surface	40 ha
- Comments	site providing fodder for the village's animals
<b>VI. Country/year</b>	BF (2007)
- Location	Markoye
- Project name	PLCE
- Financing agency	PLCE
- Treated surface	20 ha
<b>VII. Country/year</b>	BF (2009)
- Location	Essakane village
- Project name	Essakane
- Financing agency	IAM GOLD Essakane SA
- Treated surface	185 ha
- Comments	the quality of the intervention ended into REACH being asked to organize the training of the tractor driver as the society bought its own UMVS in 2010.
<b>VIII. Country/year</b>	BF (2009)
- Location	Darkoye village (Oudalan)
- Project name	Environnement and development management association
- Financing agency	AGED
- Treated surface	30 ha
- Comments	the treated surfaces have been reforested by the financing agency

<b>IX. Country/year</b>	BF (2009)
- Location	Gagara 2 (Oudalan)
- Project name	CAP Solidaire Suisse
- Financing agency	CAP Solidaire Suisse
- Treated surface	10,5 ha
<b>X. Country/year</b>	BF (2010)
- Location	Lilingo (Oudalan)
- Project name	Ondernemers Zonder Grenzen a Gorom (Belgian ONG)
- Financing agency	Ondernemers Zonder Grenzen a Gorom (Belgian ONG)
- Treated surface	100 ha
<b>XI. Country/year</b>	BF (2010)
- Location	Zouwaye village (Oudalan)
- Project name	BBRAIL
- Financing agency	BBRAIL
- Treated surface	50 ha
<b>XII. Country/year</b>	BF (2010)
- Location	commune Gorom (Oudalan)
- Project name	ROTARY
- Financing agency	ROTARY
- Treated surface	50 ha
<b>XIII. Country/year</b>	BF (2010)
- Location	Essakane village(Oudalan)
- Project name	ESSAKANE SA
- Financing agency	ESSAKANE SA
- Treated surface	10 ha
<b>XIV. Country/year</b>	BF (2010)
- Location	(Oudalan)
- Project name	PANA
- Financing agency	PANA
- Treated surface	10 ha
<b>XV. Country/year</b>	BF (2009-2011)
- Location	14 villages (Oudalan)
- Project name	Projet de Recuperation et Restauration des Sols Agro-sylvo-pastoraux P2RSA (UDL)
- Financing agency	Region of Lombardia, Italy
- Treated surface	300 ha in 3 villages (June 2010)
- Comments	the project provides to rehabilitate 3000ha of degraded soil in 14 villages.