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Economic, environmental and social benefits achievable with Vallerani System

Economic Benefits:

- speed and optimization of intervention
- reusing abandoned fields
- value of the annual wood volume
- value increase of the treated land
- productions value of : - agricultural - forest - pasture - industrial plantations - bio energy plantation- under wood
- value of production provided by domestic and wild animals
- value of CO2 captured
- value of tourism and rural tourism generated by the work, etc. .

Environmental Benefits:

- reversal of environment degradation
- maintenance and enhancement of natural biodiversity
- reconstruction of the vegetation cover
- increased soil fertility
- capture of CO2
- reduced soil erosion
- reduction of wind speed
- increased rainfall and infiltration into groundwater
- only use of rainwater with VS

Social Benefits:

- employment and training in disadvantaged areas
- training of skilled labor
- hunger, poverty and social tensions reduction
- reduction of emigration
- confidence and hope reborn



Table 1 Estimated costs for 1 MTU on an 8 year project plowing 1'800 Ha/Year								
		1st year	2nd year	3rd year	4th year	5th year	6th-8th year	
M a s h i n e s	1	Tractor New Holland 240 hp purchase price ex work € 90.000	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 0.00
	2	Plough "Delfino" purchase price ex work € 42.500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	3	SUV purchase price ex work € 42500	€ 8'400.00	€ 8'400.00	€ 8'400.00	€ 8'400.00	€ 8'400.00	€ 0.00
	4	Pick up service 4x4 purchase price ex work € 25.000	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 0.00
	5	Spare parts and service 12% of machines investement € 189900	€ 22'790.00	€ 22'790.00	€ 22'790.00	€ 22'790.00	€ 22'790.00	€ 68'370.00
	6	Fuel and oil variable date due to local conditions	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 162'000.00
		Subtotal	€ 116'690.00	€ 116'690.00	€ 116'690.00	€ 116'690.00	€ 116'690.00	€ 230'370.00
L o c a l s	7	Tractor driver 3 + auto driver 2 (5x360x15€) drivers are paid throughout the year to avoid abandon of the project	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 81'000.00
	8	Working cost x sowing x ha €. 10.00 x 1'800. Local workers are employed for a total of 3'000 days for 8 years (each worker can sow one hectare a day)	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 54'000.00
	9	Seed x ha €. 5.00 x 1'800/day local workers are employed in seed collection	€ 9'000.00	€ 9'000.00	€ 9'000.00	€ 9'000.00	€ 9'000.00	€ 27'000.00
		Subtotal	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 162'000.00
E x p e r t s	10	Vallerani System Expert valid for up to 3 M.T.U. in the project	€ 60'000.00	€ 40'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00
	11	National Expert + Assistant valid for up to 3 M.T.U. in the project	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 120'000.00
		Subtotal	€ 100'000.00	€ 80'000.00	€ 70'000.00	€ 70'000.00	€ 70'000.00	€ 150'000.00
		TOTAL	€ 270'690.00	€ 250'690.00	€ 240'690.00	€ 240'690.00	€ 240'690.00	€ 542'370.00
TOTAL PROJECT COST IN 8 YEARS								€ 1'785'820.00
		Total project cost in 8 years	€ 1'785'820.00		Total worked hectares	14'400.00	x	
		Total worked hectares	14'400.00		Micro basin/ha	286.00		
		Cost/ha	€ 124.02		Micro basin tilled in 8 years	4'118'400.00		
		Total project cost in 8 years	€ 1'785'820.00					
		Micro basin tilled in 8 years	4'118'400.00					
		Each micro basin cost	€ 0.43					

Table 2 Estimated costs for 3 MTU on an 8 year project plowing 1'800 Ha/Year								
		1st year	2nd year	3rd year	4th year	5th year	6th-8th year	
M a s h i n e s	12	3 Tractor New Holland 240 hp purchase price ex work € 270'000	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 0.00
	13	3 Plough "Delfino" purchase price ex work € 127'500	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 0.00
	14	SUV purchase price ex work € 42500	€ 8'400.00	€ 8'400.00	€ 8'400.00	€ 8'400.00	€ 8'400.00	€ 0.00
	15	3 Pick up service 4x4 purchase price ex work € 75'000	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 0.00
	16	Spare parts 12% of machines investement € 514'500	€ 61'740.00	€ 61'740.00	€ 61'740.00	€ 61'740.00	€ 61'740.00	€ 185'220.00
	17	Fuel and oil variable date due to local conditions	€ 162'000.00	€ 162'000.00	€ 162'000.00	€ 162'000.00	€ 162'000.00	€ 486'000.00
			Subtotal	€ 326'640.00	€ 326'640.00	€ 326'640.00	€ 326'640.00	€ 671'220.00
L o c a l s	18	Tractor driver 9 + auto driver 4 (13x360x15€) drivers are paid throughout the year to avoid abandon of the project	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 210'600.00
	19	Seeds: € 5.00/ha x 1'800 ha X 3 MTU. Locals are employed in seeds collection	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 81'000.00
	20	Working cost x sowing x € 10.00/ha x 1'800 ha x 3 MTU. Each worker can sow one hectare a day.	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 162'000.00
		Subtotal	€ 151'200.00	€ 151'200.00	€ 151'200.00	€ 151'200.00	€ 151'200.00	€ 453'600.00
E x p e r t s	21	Vallerani System Expert valid for up to 3 M.T.U. in the project	€ 60'000.00	€ 40'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 10'000.00
	22	National Expert + Assistant valid for up to 3 M.T.U. in the project	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00
		Subtotal	€ 100'000.00	€ 80'000.00	€ 70'000.00	€ 70'000.00	€ 70'000.00	€ 50'000.00
		TOTAL	€ 577'840.00	€ 557'840.00	€ 547'840.00	€ 547'840.00	€ 547'840.00	€ 1'174'820.00
TOTAL PROJECT COST IN 8 YEARS								€ 3'954'020.00
		Total project cost in 8 years	€ 3'954'020.00		Total worked hectares	43'200.00	x	
		Total worked hectares	43'200.00		Micro basin/ha	286.00		
		Cost/ha	€ 91.53		Micro basin tilled in 8 years	12'355'200.00		
		Total project cost in 8 years	€ 3'954'020.00					
		Micro basin tilled in 8 years	12'355'200.00					
		Each micro basin cost	€ 0.32					

Table 1 Estimated costs for 1 MTU on an 8 year project plowing 2'400 Ha/Year								
		1st year	2nd year	3rd year	4th year	5th year	6th-8th year	
M a s h i n e s	1	Tractor New Holland 240 hp purchase price ex work € 90.000	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 0.00
	2	Plough "Delfino ³ " purchase price ex work € 42.500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	3	SUV purchase price ex work € 42500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	4	Pick up service 4x4 purchase price ex work € 25.000	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 0.00
	5	Spare parts 16% of machines investement € 189900	€ 30'400.00	€ 30'400.00	€ 30'400.00	€ 30'400.00	€ 30'400.00	€ 91'200.00
	6	Fuel and oil variable date due to local conditions	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 216'000.00
	Subtotal	€ 142'400.00	€ 142'400.00	€ 142'400.00	€ 142'400.00	€ 142'400.00	€ 307'200.00	
L o c a l s	7	Tractor driver 3 + auto driver 2 (5x360x15€) drivers are paid throughout the year to avoid abandon of the project	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 81'000.00
	8	Working cost x sowing x ha €. 10.00 x 2'400. Local workers are employed for a total of 3'000 days for 8 years (each worker can sow one hectare a day)	€ 24'000.00	€ 24'000.00	€ 24'000.00	€ 24'000.00	€ 24'000.00	€ 72'000.00
	9	Seed x ha €. 5.00 x 2'400/day local workers are employed in seed collection	€ 12'000.00	€ 12'000.00	€ 12'000.00	€ 12'000.00	€ 12'000.00	€ 36'000.00
	Subtotal	€ 63'000.00	€ 63'000.00	€ 63'000.00	€ 63'000.00	€ 63'000.00	€ 189'000.00	
E x p e r t s	10	Vallerani System Expert valid for up to 3 M.T.U. in the project	€ 60'000.00	€ 40'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00
	11	National Expert + Assistant valid for up to 3 M.T.U. in the project	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 120'000.00
	Subtotal	€ 100'000.00	€ 80'000.00	€ 70'000.00	€ 70'000.00	€ 70'000.00	€ 150'000.00	
TOTAL		€ 305'400.00	€ 285'400.00	€ 275'400.00	€ 275'400.00	€ 275'400.00	€ 646'200.00	
TOTAL PROJECT COST IN 8 YEARS							€ 2'063'200.00	
	Total project cost in 8 years	€ 2'063'200.00	:	Total worked hectares	19'200.00	x		
	Total worked hectares	19'200.00		Micro basin/ha	286.00			
	Cost/ha	€ 107.46		Micro basin tilled in 8 years	5'491'200.00			
	Total project cost in 8 years	€ 2'063'200.00	:					
	Micro basin tilled in 8 years	5'491'200.00						
	Each micro basin cost	€ 0.38						
Table 2 Estimated costs for 3 MTU on an 8 year project plowing 2'400 Ha/Year								
		1st year	2nd year	3rd year	4th year	5th year	6th-8th year	
M a s h i n e s	12	3 Tractor New Holland 240 hp purchase price ex work € 270'000	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 0.00
	13	3 Plough "Delfino ³ " purchase price ex work € 127'500	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 0.00
	14	SUV purchase price ex work € 42500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	15	3 Pick up service 4x4 purchase price ex work € 75'000	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 0.00
	16	Spare parts 16% of machines investement € 514500	€ 82'320.00	€ 82'320.00	€ 82'320.00	€ 82'320.00	€ 82'320.00	€ 246'960.00
	17	Fuel and oil variable date due to local conditions	€ 218'000.00	€ 218'000.00	€ 218'000.00	€ 218'000.00	€ 218'000.00	€ 654'000.00
		Subtotal	€ 403'320.00	€ 403'320.00	€ 403'320.00	€ 403'320.00	€ 403'320.00	€ 900'960.00
L o c a l s	18	Tractor driver 9 + auto driver 4 (13x360x15€) drivers are paid throughout the year to avoid abandon of the project	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 210'600.00
	19	Seeds: € 5.00/ha x 2'400 ha X 3 MTU. Locals are employed in seeds collection	€ 36'000.00	€ 36'000.00	€ 36'000.00	€ 36'000.00	€ 36'000.00	€ 108'000.00
	20	Working cost x sowing x € 10.00/ha x 2'400 ha x 3 MTU. Each worker can sow one hectare a day.	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 216'000.00
	Subtotal	€ 178'200.00	€ 178'200.00	€ 178'200.00	€ 178'200.00	€ 178'200.00	€ 534'600.00	
E x p e r t s	21	Vallerani System Expert valid for up to 3 M.T.U. in the project	€ 60'000.00	€ 40'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 10'000.00
	22	National Expert + Assistant valid for up to 3 M.T.U. in the project	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00
	Subtotal	€ 100'000.00	€ 80'000.00	€ 70'000.00	€ 70'000.00	€ 70'000.00	€ 50'000.00	
TOTAL		€ 681'520.00	€ 661'520.00	€ 651'520.00	€ 651'520.00	€ 651'520.00	€ 1'485'560.00	
TOTAL PROJECT COST IN 8 YEARS							€ 4'783'160.00	
	Total project cost in 8 years	€ 4'783'160.00	:	Total worked hectares	57'600.00	x		
	Total worked hectares	57'600.00		Micro basin/ha	286.00			
	Cost/ha	€ 83.04		Micro basin tilled in 8 years	16'473'600.00			
	Total project cost in 8 years	€ 4'783'160.00	:					
	Micro basin tilled in 8 years	16'473'600.00						
	Each micro basin cost	€ 0.29						

Table 1 Estimated costs for 1 MTU on an 8 year project plowing 3.000 Ha/Year								
		1st year	2nd year	3rd year	4th year	5th year	6th-8th year	
M a s h i n e s	1	Tractor New Holland 240 hp purchase price ex work € 90.000	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 18'000.00	€ 0.00
	2	Plough "Delfino" purchase price ex work € 42.500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	3	SUV purchase price ex work € 42500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	4	Pick up service 4x4 purchase price ex work € 25.000	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 5'000.00	€ 0.00
	5	Spare parts 20% of machines investement € 189.900	€ 37'890.00	€ 37'890.00	€ 37'890.00	€ 37'890.00	€ 37'890.00	€ 113'940.00
	6	Fuel and oil variable date due to local conditions	€ 90'000.00	€ 90'000.00	€ 90'000.00	€ 90'000.00	€ 90'000.00	€ 270'000.00
		Subtotal	€ 167'890.00	€ 167'890.00	€ 167'890.00	€ 167'890.00	€ 167'890.00	€ 383'940.00
L o c a l s	7	Tractor driver 3 + auto driver 2 (5x360x15€) drivers are paid throughout the year to avoid abandon of the project	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 27'000.00	€ 81'000.00
	8	Working cost x sowing x ha € 10.00 x 3'000. Local workers are employed for a total of 3'000 days for 8 years (each worker can sow one hectare a day)	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 90'000.00
	9	Seed x ha €. 5.00 x 3.000/day local workers are employed in seed collection	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 45'000.00
		Subtotal	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 72'000.00	€ 216'000.00
E x p e r t s	10	Vallerani System Expert valid for up to 3 M.T.U. in the project	€ 60'000.00	€ 40'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00
	11	National Expert + Assistant valid for up to 3 M.T.U. in the project	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 120'000.00
		Subtotal	€ 100'000.00	€ 80'000.00	€ 70'000.00	€ 70'000.00	€ 70'000.00	€ 150'000.00
		TOTAL	€ 339'890.00	€ 319'890.00	€ 309'890.00	€ 309'890.00	€ 309'890.00	€ 749'940.00

TOTAL PROJECT COST IN 8 YEARS							
							€ 2'339'390.00
		Total project cost in 8 years	€ 2'339'390.00	:	Total worked hectares	24'000.00	x
		Total worked hectares	24'000.00		Micro basin/ha	286.00	
		Cost/ha	€ 97.47		Micro basin tilled in 8 years	6'864'000.00	
		Total project cost in 8 years	€ 2'339'390.00	:			
		Micro basin tilled in 8 years	6'864'000.00				
		Each micro basin cost	€ 0.34				

Table 2 Estimated costs for 3 MTU on an 8 year project plowing 3.000 Ha/Year

		1st year	2nd year	3rd year	4th year	5th year	6th-8th year	
M a s h i n e s	12	3 Tractor New Holland 240 hp purchase price ex work € 270'000	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 54'000.00	€ 0.00
	13	3 Plough "Delfino" purchase price ex work € 127'500	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 25'500.00	€ 0.00
	14	SUV purchase price ex work € 42500	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 8'500.00	€ 0.00
	15	3 Pick up service 4x4 purchase price ex work € 75'000	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 15'000.00	€ 0.00
	16	Spare parts 20% of machines investement € 514'500	€ 102'900.00	€ 102'900.00	€ 102'900.00	€ 102'900.00	€ 102'900.00	€ 308'700.00
	17	Fuel and oil variable date due to local conditions	€ 270'000.00	€ 270'000.00	€ 270'000.00	€ 270'000.00	€ 270'000.00	€ 810'000.00
			Subtotal	€ 475'900.00	€ 475'900.00	€ 475'900.00	€ 475'900.00	€ 1'118'700.00
L o c a l s	18	Tractor driver 9 + auto driver 4 (13x360x15€) drivers are paid throughout the year to avoid abandon of the project	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 70'200.00	€ 210'600.00
	19	Seeds: € 5.00/ha x 3'000 ha X 3 MTU. Locals are employed in seeds collection	€ 45'000.00	€ 45'000.00	€ 45'000.00	€ 45'000.00	€ 45'000.00	€ 135'000.00
	20	Working cost x sowing x € 10.00/ha x 3'000 ha x 3 MTU. Each worker can sow one hectare a day.	€ 90'000.00	€ 90'000.00	€ 90'000.00	€ 90'000.00	€ 90'000.00	€ 270'000.00
		Subtotal	€ 205'200.00	€ 205'200.00	€ 205'200.00	€ 205'200.00	€ 205'200.00	€ 615'600.00
E x p e r t s	21	Vallerani System Expert valid for up to 3 M.T.U. in the project	€ 60'000.00	€ 40'000.00	€ 30'000.00	€ 30'000.00	€ 30'000.00	€ 10'000.00
	22	National Expert + Assistant valid for up to 3 M.T.U. in the project	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00	€ 40'000.00
		Subtotal	€ 100'000.00	€ 80'000.00	€ 70'000.00	€ 70'000.00	€ 70'000.00	€ 50'000.00
		TOTAL	€ 781'100.00	€ 761'100.00	€ 751'100.00	€ 751'100.00	€ 751'100.00	€ 1'784'300.00

TOTAL PROJECT COST IN 8 YEARS							
							€ 5'579'800.00
		Total project cost in 8 years	€ 5'579'800.00	:	Total worked hectares	72'000.00	x
		Total worked hectares	72'000.00		Micro basin/ha	286.00	
		Cost/ha	€ 77.50		Micro basin tilled in 8 years	20'592'000.00	
		Total project cost in 8 years	€ 5'579'800.00	:			
		Micro basin tilled in 8 years	20'592'000.00				
		Each micro basin cost	€ 0.27				

WATER HARVESTING WITH VALLERANI SYSTEM®

	Hectare (ha) working / year	each hectar	1'800 ha	2'400 ha	3'000 ha
B A S I C D A T A	Line spacing distance mt.	5			
	Length of each motion unit mu (1 microbasin + 1 collection bag) mt.	7			
	Plowed lines / ha	20			
	Plowed soil / ha	10%			
	Micro basins / ha / 1 m ³ each	286			
	Micro basins / year		514'800	686'400	858'000
	Digged / m ³ / year		514'800	686'400	858'000
	Kilometer worked / ha	2			
	Kilometer worked / year		3'600	4'800	6'000
W A T E R	Rainfall 200 mm/year				
	Rain directly collected in plowed line / m ³	200			
	50% run-off / m ³ ⁽¹⁾	900			
	Water harvesting / ha / m ³	1'100			
	Water harvesting / m ³		1'9800'000	2'640'000	3'330'000
W A T E R	Rainfall 300 mm/year				
	Rain directly collected in plowed line / m ³	300			
	50% run-off / m ³ ⁽²⁾	1'350			
	Water harvesting / ha / m ³	1'650			
	Water harvesting / m ³		2'970'000	3'960'000	4'950'000
(1)	Total rain fall 2'000 m ³ /ha. 200 fall directly into the microbasin and 50% of the remaning 1'800 m ³				
(2)	Total rain fall 3'000 m ³ /ha. 300 fall directly into the microbasin and 50% of the remaning 2'700 m ³				