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Dipartimento di Architettura



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Renaissance Revelation Resilience*

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*Il punto di svolta del Mosaico paesistico-culturale:  
Rinascimento Rivelazione Resilienza*

Udine, Italy  
2016



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## THE SICILIAN LANDSCAPE REUSE, RENOVATION AND FINANCIAL FEASIBILITY ANALYSIS FOR A RURAL VILLAGE

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***Abstract.** The rural landscape heritage is a great richness for the Italian territory. Unfortunately, in recent years, he has undergone gradual degradation that have undermined and damaged the original quality characteristics. Interventions of recovery, reuse, repair and renovation of rural areas are needed in order to improve the quality of life and be a point of attraction for the community, whether they are residents, visitors, tourists or businessmen who intend to invest capital and resources. Suitable instrument for a first testing of the convenience viability of private investors interested in setting up operations is the pre-financial feasibility analysis, here used relating to a part of the proposed project. This study aims to reuse a system of rural minor architecture in the Sicilian hinterland, the Grotta Murata Village, for sports and recreation. The goal is to maintain and strengthen the historical memory for future generations through strategic interventions useful for building resilience.*

***Keywords:** Rural landscape, redevelopment, pre-financial analysis, self-sustainable conservation*

### **Introduction<sub>1</sub>\*\*\***

The extraordinary material heritage of Italy is characterized by the wealth of works of art, the cities and the territories. This cultural and natural heritage is a foundational element of national identity and contributes to the quality of individual and collective life. For this reason, in fact, it is one of the most important principles of protection and development which are enshrined in the Italian Constitution. Integral parts of the cultural heritage are the urban landscape and the countryside. Our focus is on the Italian countryside that is the largest and most vulnerable area of the national territory. As the historic centers of the cities, also some countryside are considered substantial part of the cultural heritage to be protected for their historical value but even for the economic potential that their landscapes represent for the local development. Unfortunately, over the years, the rural heritage has been affected by a slow and progressive deterioration that has compromised and is undermining the original

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<sup>1</sup> This work is the result of an interdisciplinary collaboration of the authors, with the following contribution of T. Cilona (Chapters \* ) and M.F. Granata (Chapters\*\*). Chapters\*\*\*are due to both the authors.

characteristics of its quality. In addition, the socio-economic crisis and the abandonment of rural areas, along with climate change, are accelerating the loss and degradation of traditional landscapes. Interventions of recovery, reuse and renovation then represent a key resource that can improve the quality of life in rural areas and the attractiveness of the latter in respect of local residents, visitors, tourists and entrepreneurs who intend to invest their resources. Preservation of the rural landscape, albeit partly man-made, requires the activation of adequate functions that can revitalize the territory. Traditional real estate distributed on the country, even if not endowed with special architectural or artistic valences, expresses cultural values as it is physical witness of specific historical periods and related social conditions. This is the reason why, nowadays, it is capable of expressing not only private use values but also social utility. Thus, innovation in the individual or collective use of rural abandoned traditional buildings can, on one hand, support their maintenance from a financial point of view, and at the same time aid the preservation of local identity of people. Conservation of minor cultural property can be assisted in particular way by financially self-sustainable solutions of reuse. In this paper, we propose the reuse of a group of rural buildings for sports and recreational activities. Specifically, we will cover the rural village of Grotta Murata in Sicilian hinterland in order to maintain and strengthen the historical memory through specific interventions useful to build resilience and ensure its ability to pass them on to future generations. Financial convenience of a strategic part of the proposed actions will be verified through a pre-feasibility and pre-financing analysis. The financial analysis is performed from a private point of view and focus on determining revenues and costs that lay on investors.

### **Cultural heritage: urban landscape and countryside\***

In 2004, the Code of Cultural Heritage and Landscape and, earlier in 2000, the European Landscape Convention, define the landscape as cultural heritage and expression of identity of a community, outlining a distinction between urban and rural landscape. For urban landscape we mean an expression of the historical and cultural heritage of every civilization told through their traditions, their architecture, the ways of living, to experience the city and to relate to the territory. Physical elements of the urban landscape are streets, squares, monuments, palaces, churches that together with the traditions, the culture of a people, constitute the cultural framework of the urban landscape seen as the ability to internalize their own territory (natural, rural, urban) [4]. The rural landscape, however, consists of the whole environmental system and anthropogenic, and it represent also man's ability to operate in accordance with procedures that vary according to different environmental conditions, the production techniques and constructive ones. In this scenario, they express cultural values of great importance related to farming, architectural techniques,

to the typical, agricultural food production, the forms of control and environmental management, the culture and traditions of the rural areas [22]. Our interest in the countryside aims at enhancing our culture, our history, our economy using growth models of sustainable development and new forms of self-sustainability of natural and anthropogenic environment. All this in order to develop and strengthen local resources rebuilding the identity of a website by applying settlement, economic and socio-political rules[16]. We are aware that the development of rural landscapes also depends on new forms of consumption and production, the ability to restore the original functions of the buildings, from the technological innovations that have to be assessed taking into consideration the impact on the territory.

### **The financial analysis for the conservation of historic farm buildings\*\***

The redevelopment project of the rural area includes several projects in retail business and entertainment and recreation business. Financial analysis is needed to know which of them can be realized as independent projects, the ones that can be considered as complementary activities useful to supplement the principal services, and those activities that eventually should be excluded from the comprehensive projects. In order to obtain this kind of information detailed financial analysis of each single business activity and a consolidated financial analysis should be implemented. The two levels of analysis will clarify the financial sustainability and profitability of the single business and of the global project. Financial method is the analysis, conducted from a private investors point of view, that classically supports decisions on business activities, as only effects relating the investors themselves and which can be evaluated in monetary terms are considered. It can also be used for the selection of possible project option, for the estimate of the necessary financial assistance and for explaining the project to potential investors. A positive outcome of financial analysis is a prerequisite for the implementation of the project aimed at reevaluate the rural territory.

### **The birth of rural villages in Sicily\***

According to some scholars, the birth of rural villages develops following three moments. The first is the foundation, the second refers to the people's moving, the third is called manipulation. In Sicily, the formation of the rural village takes place during the period of the agrarian reform and the fight against the ownership of large estates. From 1922 to 1943, in the so-called fascist period, the rural villages are designed and built by local architects, inspired by a rationalist trend, thus characterizing the agricultural landscape and all the Sicilian hinterland. Among the first settlements, located in relation to the distances and to the panoramic views, we remember those in the territory of

Mussomeli, Caltanissetta and Ramacca, in the province of Catania. They were followed the construction of the first rural villages including the village Sferro (Catania), Borgo Regalmici (Palermo), Borgo San Ferdinando (fraction of Prizzi, Palermo). Today, if we look at the Sicilian countryside, we see the remains of the houses abandoned by farmers and only a few have become summer residences. The recovery and development of such complexes of great value, both from a historical-institutional point of view and in relation to specific contents, leads us to reflect on how to reuse the different artifacts. If the agricultural reuse may seem unlikely, on the other hand it is clear that their abandonment produces only ruins. The buildings themselves, however, can become attractive factors for those who love history, traditions and more. Now you might ask, what do we have to do? We must turn these villages into new types of services which together with the permanent and temporary residency and identifying a tourist trail of discovery of large estates, it would be possible that recreation, entertainment, research, retail outlets, production of traditional products, wellness center can become part of them.

### **Case study: the village of Grotta Murata\***

According to the Law n. 2110, of 19 November 1925, Victor Emmanuel III founded the Institute for the reclamation of the island with the task to "promote, assist and integrate in Sicily, for reclamation purposes, with regard to the changes in the, in the activities of the private, individually or jointly, in coordination with the State". The action of the Institute began only in 1930. In the end , eight villages were built, each dedicated to a Sicilian hero who distinguished himself valiantly in battle: Borgo Salvatore Giuliano (1939-40), Borgo Antonino Bonsignore (1939-40), Borgo Peter Wolf (1939-41), Amerigo Borgo Fazio (1940), James Schiro Borgo (1940), Borgo Gigino Gattuso (1940), Borgo Rizza Angel (1940), Antonio Borgo Cascino (1940). The construction of these villages creates a real phenomenon of ruralization together with the transformations of the land, the accommodation of waterways, the creation of groups of railway tracks and roads. This scenario fits the construction of the village Grotta Murata, in Agrigento, commissioned by the autonomous state roads in 1936, in order to arouse in the menders a sort of feeling towards the houses assigned to them. It is placed along the highway n. 118 Corleone-Agrigento, to 121,450 km, and it displays the essential characteristics of rural architecture whose functional language is common to other villages of the period.

### **Territorial analysis\***

The village of Grotta Murata falls within the territory of the town of Sant'Angelo Muxaro, homonymous, 325 meters above the sea level. It is bordered to the

north by Alessandria della Rocca and San Biagio Platani, to the north-east with Casteltermini, to the east by Aragon, to the south-east with St. Elizabeth, to the south with Raffadali and Agrigento, in the south-west with Cattolica Eraclea, to the west with Cianciana (Figure 1a). The territory covers an area of 64.55 sq km, with shares ranging from 0 meters above sea level to 646 meters s.l.m. in the highest part. They stand out, in fact, in a hilly area predominantly with imposing massifs that alternate with flat areas where we find the archaeological sites of great interest and caving. The area of the village of Grotta Murata has always been a privileged location close to the river Halykos, name by which in the past indicated the river Platani, important communication and exchanges, and the SS 118. The latter, since the days of the Romans, was a major way linking Palermo to Agrigento. Near the area where they built the village of 'houses, there would be a *Roman statio*: the *statio pitiniana* along the route of the Itinerarium Antonini (Figure 1b).

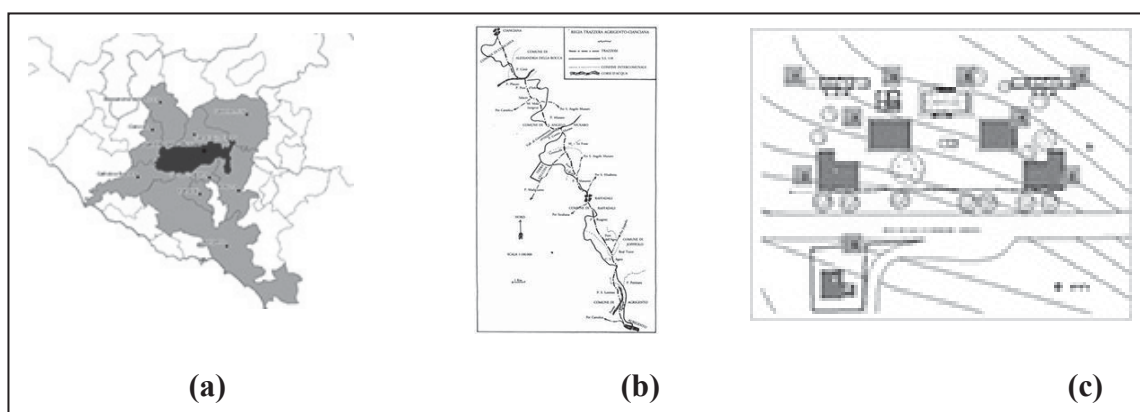


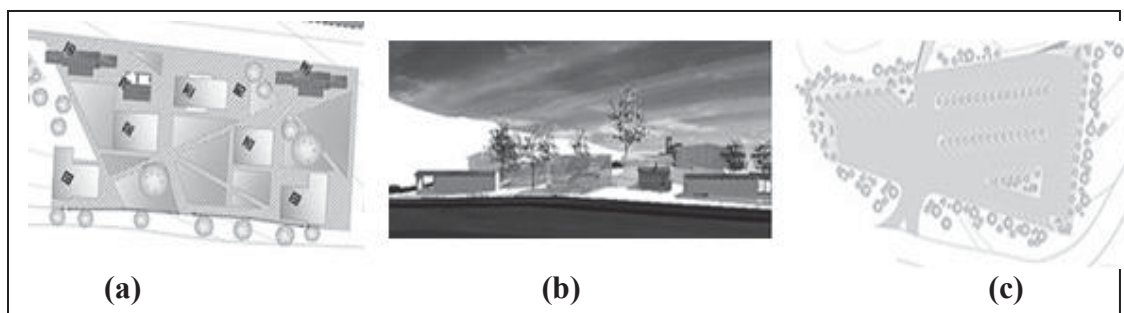
Figure 1. a) Territorial framework; b) The route of the Itinerarium Antonini;  
c) The Village of Grotta Murata – The place as it is

### Historical and Urban Analysis\*

The foundation of the village of Grotta Murata dates back to 1936 and consists of eight buildings, clearly rationalist, arranged symmetrically with each other (Figure 1c), various in planimetric shape depending on the intended use, with prospects of Pompeian red color, string courses and cornice of the fixtures yellow ocher. The buildings stand on a large square, once the meeting place of social life, in the center of which a well lies. Unlike other rural settlements, the village of Grotta Murata, while presenting the canonical characters of the architecture of colonization, shows anomalies as the absence of the tower and the house of the beam. In addition, there is no news on the name of the designer who almost certainly will be a technician of the Autonomous State Road. In fact, the documents consulted Anas Archives Palermo and Agrigento in the Land Registry, the project bears the signature of the Head Compartment Mario Spalletti company AASS the compartment of the viabilities of Palermo, dated March 15, 1940.

### **Desing: From a rural village to a multi-purpose center\***

The project of renovation of the village Grotta Murata was born to revitalize a forgotten place in order to recreate a space of aggregation that strengthens the character and identity of the site. Letting the people live their free time as protagonists and not spectators. Retrain to keep alive, even with different uses of architectural artifacts. Rearrange the pieces landscaped Grotta Murata broken by the time, recalling the memory of places faded over the years. The project proposes the use of the buildings and the area in front of the village as a multipurpose center (Figure 2a, 2b) where you can carry out research, training, catering and, at the same time, practice recreational, sports. The proposal suggests resuming properties using innovative high-performance materials, adopting advanced technology solutions. Of the eight buildings one will be reserved for research laboratories and agribusiness, other as info-point, museum, screening room (arts, crafts, customs and traditions), the other two buildings are reserved for business accommodation (B&B). In addition, there are a restaurant, a bar, a sandwich shop, a shop of handicrafts and areas for parks (Figure 2c). The strategic location of the village, in the countryside, in an area with lush vegetation, is perfect as a suitable place to build a go-kart( Part of the project is inspired by [17]), track, a bike path and a park where you can practice sports and hippoterapy.



*Figure 2. a) Project of the redevelopment; b) Render; c) Parking.*

### **Ex-ante financial analysis for the go-kart track business\*\***

Among the proposed activities aimed at the physical and economic recovery of the rural village, karting could be a strategic activity. It could be able to draw not only the typical youth male customers but also families, for the presence of near at hand activities able to satisfy different entertainment and social requirements. Therefore, a preliminary financial analysis related to the investment on the go-kart track and the linked activities provides investors with first information useful to understand the actual financial potential of the proposed recovery project for the Grotta Murata village. In this paragraph a

preliminary financial analysis of the investment on the go-kart track and directly related activities is drawn up. It gives some elements in order to understand if this component of the whole project has an autonomous financial feasibility and is able to share the financial success of the other planned business. Financial analysis is here used in an ex-ante situation, before the realization of the project. It is a pre-feasibility analysis, based on a rough synthetic analysis of prices that have to be detailed in a second stage of definition of the project, after the identification of potential good components of the project. Only if the basic final analysis gives a positive result, it is reasonable undertake a more onerous full feasibility study, based on an in-depth analysis of the market and on data affected by a less level of uncertainty. It is also a pre-financing analysis, aimed at supporting decision on the financing of the project, using risk capital, loan capital or mixed capital. Post-financing cash flows analysis will give information on the ability of the project to refund debts and the interests accrued over the year and to provide an appropriate cash-flow in order to satisfy the operating expenses. Financial analysis is based on a market analysis covering the competitive analysis, the positioning of the business in the local market, and the demand analysis; and the identification and evaluation of all the monetary flows deriving from the project, in order to obtain some profitability indicators, as the Net Present Value, the Internal Rate of Return and the Discounted Investment's Payback Period [7; 10].

### **Competitive analysis\*\***

With the aim of identifying the go-kart tracks competitors, the road distances (source: [www.viamichelin.it](http://www.viamichelin.it)) between the municipalities territories where the karting tracks existing in Sicily are located (source: [www.italiankart.it](http://www.italiankart.it)) and the municipality of Sant'Angelo Muxaro, where lies the village of cave Murata, are calculated. For our purposes we consider as competing tracks those that are not type-approved for international competition up to a distance of about 100 km, equal to a journey time of about 2 hours (source: [www.viamichelin.com](http://www.viamichelin.com)), namely those of Casteltermini, Cattolica Eraclea and Gela.

The track to be realized in the village of Grotta Murata is distinguished by the presence of recreational and commercial interest in the immediate vicinity that integrates the opportunity to practice or watch the sports on offer. The existence of a competing bid is not to be considered in itself as a negative element for the investment for the possibility of exploiting the presence of a clientele already available in the settlement area.

Table 1.

**Distances between Sant'Angelo Muxaro and the the existing go-kart track in Sicily**

<b>Existing tracks</b>	<b>Type-approved*</b>	<b>Distance (km)</b>	<b>Municipality territory</b>	<b>Type-approved*</b>	<b>Distance (km)</b>
Casteltermini (AG)	no	25	Solarino (SR)	no	225
Cattolica Eraclea (AG)	no	34	Melilli (SR)	no	213
Gela (CL)	no	106	Augusta (SR)	no	211
Trapani (TP)	no	205	Ispica (RG)	no	194
Castelvetrano (TP)	yes	125	Vittoria (RG)	no	139
Capo d'Orlando (ME)	no	242	Partinico (PA)	no	147
Messina (ME)	no	276	Lascari (PA)	no	116
Furnari (ME)	no	292	Ramacca (CT)	no	179
Brolo (ME)	no	247	Acireale (CT)	no	199

\*Source: Commission Internationale de Karting – FIA, Homologated circuits, 07/05/2015

**Positioning of the business in the local market and demand analysis\*\***

In Sicily the go-kart agonistic racers are 34 (source: [27]). For the relatively nearness to a type-approved go-kart track for international competition (see table 1), it is excluded to equip the planned track with the equipment that are required to host international competitions. Through a targeted promotional activity, it can be assumed to attract young people aged from 7 years and 30 years to practice karting as amateurs. As the central area of Sicily has road routes on mountain areas, it is believed that the origin of the potential pool of users can not normally extend beyond the distance of 100-150 km from Sant'Angelo Muxaro, less than athletic competitions or exceptional occurrences such as safe driving courses or parties.

The potential user base for the ordinary activities of the track is estimated from the population falling in the surrounding municipalities of Sant'Angelo Muxaro that are placed at a distance falling within the upper limit of 100-150 km, representing a journey time of approximately 2-2.5 hours due to the topographical characteristics of the road routes in the study area. The municipalities of the territory of Agrigento are mostly at a distance much less or about 50 km, with the exception of some that, however, show a significant proximity to at least one of the two competitor seats in the territory of Agrigento (table 2).

It is then assumed that only for special events the track of Grotta Murata could attract amateurs pilot and an audience from the more distant municipalities. Therefore, for the ordinary attendance the reference population for the track in Sant'angelo Muxaro is the male population aged between 7 and 30 years in the province of Agrigento, excluded the population of Lampedusa, Linosa, Caltabellotta, Menfi, Montevago, Sambuca di Sicilia, Santamargherita of Belice



and Sciacca. It amounts to 45,831 units (our elaboration on data from ISTAT, Census 2011).

Table 2.

**Distances from the existing and planned go-kart tracks in the area of Agrigento**

<b>Municipality territory</b>	<b>Distance from (km)*</b>		
	<b>Sant'Angelo Muxaro</b>	<b>Casteltermini</b>	<b>Cattolica Eraclea</b>
Caltabellotta	77	100	41
Licata	75	80	72
Menfi	108	114	56
Montevago	118	117	66
Ravanusa	69	69	76
Sambuca di Sicilia	106	103	66
Santamaria di Belice	114	110	62
Sciacca	90	97	38

A similar comparative study of the distances from competing tracks was conducted for the municipalities of the nearest provinces of Trapani, Caltanissetta, Enna and Palermo. Overall, the target population of the considered provinces is of 18,654 (our elaboration on data from I.Stat, Census 2011).

Specific marketing campaigns could attract users also among the many national and international visitors of the Valley of the Temples, the near UNESCO site (221,160 visitors in 2013; source: [18]). The percentage of males who play sports in Sicily, in relation to the considered age groups, is around 40% (our processing of data from [15]). In view of the average income and the use of leisure time habits of the population in question, it is assumed that about 5% of the male population who practice sports and are aged between 7 and 30 years may be involved in the practice of non-competitive karting. The potential users of the planned track, for the main ordinary business, are therefore about 917 people from the municipalities of the province of Agrigento. It is also assumed to attract as participants for exceptional occasions the 1% of the target population of the neighboring provinces, totaling 75 units. Finally, we consider that the sports activities will attract the 0.5% of annual tourists of the area of interest, that amount to 1,105 units.

**Identification and evaluation of monetary flows and calculation of financial indicators\*\***

We proceed now with the pre-financing cash flow analysis, aimed at providing first information about the required financing of the considered project. Table 3 summarizes the identification of monetary outflows and inflows deriving from the construction and the operational phases of the project.

Table 3.

**Monetary flows deriving from the project**

<b>Outlays*</b>	<b>Receipts*</b>
<p><b>Investment expenses</b> - Pre-production costs (legal and professional fees) and construction of the track (600 metres) with starting grid, warehouse for go-karts, timing room, maintenance shop, rent shop, spare parts shop, first aid room, refueling plant, lighting system, 780,000 €; go-kart (No. 20), 100,000 € – <b>Total 880,000 €</b></p>	<p>Karts rent (No. 2 monthly visit by nearer customers and No. 1 yearly visit by tourists, 462,160 €/year); participation in competitive races of various types (No. 1 race per month with No. 30 participants, 14,400 €/year); participation in amateurish races among adults and boys (No. 1 race for adults and No. 1 for boys a week, No. 10 participants a race, 32,400 €/year); sports and safe driving courses (No. 20 participants for course, No. 1 course for type a year, 32,000 €/year); private and company events and birthday parties (No. 15 participants for occasion, refreshments included, 32,400€/year); sale of goods for karts and private karts repair, 13,000 €/year; sale of food and drinks (No. 1 order for visit, 99,170 €/year) - <b>Total 685,530 €/year</b></p>
<p><b>Operating expenses</b> – Karts maintenance and insurance, fuel, track maintenance, advertising mobile banner on WEB-TV, staff (No. 6), power consumption for lighting the track, food and drinks supply, rate - <b>Total 500,000 €/year</b></p>	

\*The valuation of construction expenses was made using the market comparison approach, while the other outlays and receipts was taken from the current market prices.

As the land and the buildings are given in concession to investors, the salvage value is negligible. The life span of the project is assumed to be equal to 15 years, like the mean duration of a go-kart. The analysis is made in constant prices. It is reasonable assuming that the initial investment phase, during which only costs will occur, will take one year.

Table 4 shows the monetary flows, the pre-financing pre-taxation net monetary flows (NMF p-t), the pre-financing net monetary flows (NMF) and the pre-financing discounted net monetary flows (DNMF) (using a true discounting rate equal to 8%, equal to about the double value of current interest on medium-term private bonds) and the cumulative pre-financing discounted net monetary flows (CDNMF).

The values of the main profitability indicators resulting from the pre-financing cash flow analysis are: VAN = 99,553 €; TIR = 10.05%; payback period = 13 years. Negative values of the cumulative cash flow express a long and medium term borrowing requirement that could increase the return on invested capital, but only under the favorable condition that the profitability of equity of shareholders is lower than the interest on loan capital. Therefore, further study on post-financing cash flow analysis is required, in order to obtain a full picture on the financial convenience of the considered part of the project as an autonomous investment.

Table 4.

**Cash flow table of the project**

year	0	1	2	3	...	11	12	13	14
Receipts		685,530	685,530	685,530	...	685,530	685,530	685,530	685,530
Outlays	880,000	500,000	500,000	500,000	...	500,000	500,000	500,000	500,000
NMF p-t	-880,000	185,530	185,530	185,530	...	185,530	185,530	185,530	185,530
IRES ( 27,5%)	0	51,021	51,021	51,021	...	51,021	51,021	51,021	51,021
IRAP Taxable base	-	305,530	305,530	305,530	...	305,530	305,530	305,530	305,530
IRAP (4,82%)	0	14,726	14,726	14,726	...	14,727	14,727	14,727	14,727
Taxation(IRES+IRAP)	0	65,747	65,747	65,747	...	65,747	65,747	65,747	65,747
NMF	-880,000	119,783	119,783	119,783	...	119,783	119,783	119,783	119,783
DNMF	-814,815	102,694	95,087	88,044	...	47,567	44,044	40,781	37,761
CDNMF	-814,815	-712,120	-624,077	-536,033	...	-30,076	13,967	54,749	92,509

**Conclusion\*\*\***

In recent years, the interest on the rural landscape has acquired great importance in the context of developing policies in the economic, cultural, environmental and aesthetic field. The Ministry of Agriculture and Forestry (M.I.P.A.A.F.), with the support of a special Task-Force has included this subject as part of the National Program for Rural Development, defining measures dedicated to its preservation, protection, enhancement and upgrading of the rural villages. We believe that the policy on the one hand, and the community on the other, must take a greater interest in the issue of recovering the rural centers since they contribute to the economic growth of the territory. The conducted pre-financing financial analysis for the business on go-kart track shows that further investigation about financial feasibility of the project is requested. In addition, consolidated financial analysis of the whole reclamation project is needed. The consolidated study, together with the analysis related to the single business, enables potential investors to acquire useful information to define adequate strategies of investment. In particular, the comprehensive analysis will highlight the possibility to involve various investors interested in single specific activities o in the whole project, in order to create a system of investments in which the temporary reduction in profitability of an activity can be counterbalanced by a good financial performance of other activities.

**Summary**

Our country is characterized by the wealth of works of art, the city and the territory. This cultural and natural heritage is a fundamental element of national identity and contributes to the quality of individual and collective life of the Italians. Integral parts of the cultural heritage are the urban landscape and the countryside. considering the historic centers of the cities, even some rural area are considered substantial part of the cultural heritage to be protected for their historical value and economic potential since their landscapes represent the local development. Unfortunately, over the years the rural heritage has been affected by a slow and progressive deterioration that compromised and is undermining the original quality characteristics. In addition, the socio-economic crisis and the abandonment of rural areas,

along with climate change are accelerating the loss of traditional landscapes. The reuse of rural abandoned areas can trigger individual or collective processes of use, and it can support financially the maintenance of rural buildings as well as the maintenance of the cultural values to recovery the local identity of the population. This contribution proposes the reuse of the rural village of Grotta Murata, in Sicily, in terms of sport and recreational activities, in order to preserve and strengthen the historical memory through strategic interventions useful for building resilience and ensure its ability to pass them on to future generations. The pre-financial feasibility analysis appears as useful tool suitable to explore the economic and financial affordability of private investors interested in setting up the operations of its reuse.

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