

# Significant appraisal issues in value estimate of quarries for the public expropriation

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*key words:* value estimate, quarry compensation for public expropriation

## Abstract

*The determination of the compensation for the public ablation of quarries, which represents an historic example of terzium genus within the expropriation matter, has always been a sui generis topic in the jurisprudential doctrine and an interesting argument for Appraisal. The latter, in fact, must provide logical and*

*technical instruments for the monetary conversion of the principles developed and expressed by the judge.*

*This study starts from the results of a previous research carried out in 2009 and updates its conclusions projecting them in an illustrative case study.*

## 1. INTRODUCTION AND OBJECTIVES

The analysis developed by N. Morano and G. De Mare and published in 2009 on [Esproprio.it](http://Esproprio.it) had led to several certainties about the disciplinary and jurisprudential aspects at the time.

First, they faced the problem of defining the *temporal interval* in which to develop the accumulation of incomes that can be generated from the quarry in order to determine the expropriation compensation. This problem was solved by using as a reference the Supreme Court's ruling 272/09.

According to this judgment, the legal criterion of legitimacy authorization prevails on the economic potential of the mine. For this, the flow of income to be considered for estimation to be screened only until the expiry of the authorization of the cultivation, not considering future income flows.

It's clear that the period within which the vein is consumed depends on its power, but also depends on the local and national market conditions. Furthermore, the market expresses a variable demand over time, beyond which the production remains unsold.

Second, it dealt with the case of the value components that are outside of the income deriving from primary production (i.e., the quarrying activities). Therefore, they had crystallized the epochal jurisprudential adoptions in which they had been excluded from the compensation for expropriation those income contributions that were different from those previously mentioned, such as those related to the market value of surplus soils from mining operations (for example the soils intended for construction) or portions of the soil not yet cultivated. This profile was also compared with the disciplinary principle of the market value of an owned land (destined to quarry or not) which is inclusive of all rates considered useful in the economic sense by the forces that determine the market.

This paper aims to retrace the main changes that have taken place from 2009 to this day, highlighting any differences from the previous situation. In addition, it intends to show the consequences of a different interpretative approach of the ordinary and administrative courts and it wants to emphasize operational issues regarding the estimation of the income flow deriving from the exploitation of a mine.

## 2. THE TEMPORAL INTERVAL FOR THE ESTIMATE AND FOR THE DIMENSIONING OF THE QUARRY

The jurisprudential context is changed from the Judgment of the Supreme Court 6309/10, conceptually in line with the positions that the Constitutional Court has subsequently taken into Judgment 181/11.

In the Judgment 6309, which includes the contents of the Court of Cassation's Judgment No. 12354/99, it was reintroduced the principle of the pure market value. According to this principle, "this value is not reduced in the event that the specific activity through which it converts into income is subject to administrative authorization and the owner does not have this permission when ablation or illegal appropriation of land produces its legal effect.

This situation, in fact, does not negate the economic usefulness of good, which can be appreciated both by the owner and by third parties. Moreover this context does not exclude that the potential earnings, linked to the possible achievement of the authorization in the future, can create palatability and can be used as a measure of the market value of the property. In this case, this value can be used by the owner who intends to perform acts of private provision that are not precluded by the lack of the administrative authorization necessary to perform the activity".

For this reason, the jurisprudence considers as a quarry even a simple mineral deposit, giving to the estimate-technical assessment the responsibility for verifying the compatibility of the entrepreneurial exploitation of the site both with the law (through the verification of the compatibility with the plan of the regional mining) and with the economic conditions (checking the existence of an actual market for excavation materials).

Furthermore, it is delicate the situation for which the mineral deposits are not used for a long period and, at the same time, it is thought of to their reactivation (Cass. 20760/12).

The following two points play an important role in the appraisal profile.

The first concerns the precise determination of the period of exploitation, while the second concerns the size of the mineral deposit.

Meanwhile, the correct determination of the period of exploitation is possible in relation to the identification of the annual extraction capacity and of the total output of mineral deposit. The correlation and the combination of the three parameters (the period of exploitation, the annual extraction capacity, the power of the mining vein), in addition to the indications of unit price that the material found on the market, lead to the quantification of the income flows arising from mining and also, through financial accumulation (advanced or delayed depending on the significant moments in the expropriation

procedure), of the market value and of the compensation for expropriation.

The three mentioned parameters are dependent on a series of physical-economic factors (characteristics of the mining vein, ease of extraction, entrepreneurial organizational structure, market demand, etc.) and are subject to characteristic logical limits of each assessment of convenience for investment projects (Nesticò, Macchiaroli & Pipolo, 2015; De Mare & Granata, 2015; De Mare & Forte, 2015). For which, for example, it does not make sense to go beyond the 20-25 years ahead, for at least two reasons.

Primarily because the meteor effect (Nesticò & Galante, 2015) much consumes the financial values which exceed 20 years and makes negligible transferring them to current events, even using low discount rates like those characteristic of the current economic situation (Conte, 2015). And second, because it is paradoxical to assume the validity of the law of Jevons (Jevons, 1871), also known as "of the permanence of the conditions", for a too long period.

So, any forecast on the duration of the mining activity must be attributed to the principle of ordinariness, which indicates the values considered reasonable by the market operators in the spatial and temporal context analyzed, also in the case where it is assumed that the life period of the quarry is below that required for complete depletion of extractable and salable quantity.

The information necessary for the specific analyzes are contained in a plan (Regional Plan of Mining Activities) that is drafted by each company at the time of the authorization request. This plan illustrates the techniques and technologies extraction, the human and financial capital invested, the time frame required for future mining activities.

Any academic hypothesis is out of place, because it is far from the principles of the appraisal method based on the comparison of the good object of study with other similar real goods (in Cass. 5843/13, the CTU<sup>1</sup> suggests a period of useful life of 75 years for the quarry!).

About the above-mentioned issue, see paragraph 3 of this paper where there is a numerical example.

Very important is also the second question in the analysis, i.e. the capacity of the quarry.

Usually the opening of a mine or a quarry is preceded by at least two moments of analysis and study (Onida, 1982).

The first is the *geological propensity* (or research phase), which studies the surfaces, their possible extension and the characteristics of the ore; the second concerns the *mining propensity* (or analysis phase). In this moment you can find out how deep the quarry, what is the

<sup>1</sup> CTU is technical consultant in court.

mineralogical composition, what are the thicknesses of the layers that cannot be used. Moreover, in this phase it is possible to do investigations on market expectations.

Very important it is also the logistics of the site, the disposition of the excavation materials (including waste and landfill), the stability of natural and artificial slopes, the connections with the marketing places.

In the field of expropriation this verification data are extracted directly from the mining plan, that indicates the area of interest for the company and the size of the quarry. This is possible unless the company does not introduce some subsequent amendments in order to expand the extraction zone at a later date than that of preparing the plan. These changes must be implemented by a new plan approved by the administration.

It is complicated to ask a Technical Consultant to ascertain the potential of the mineral deposit; as we have seen, this operation is technically complex and very expensive. Moreover, it would be incorrect to define the borders of the extraction area by excluding potential building areas that do not have proper infrastructure (you see the considerations of the CTU in Cass. 20760/12).

Finally, we can stress that the recent regulations (CdS<sup>2</sup> 1762/10, Cass. 6884/13, Tar<sup>3</sup> Lombardia 1778/16) give to those who come expropriated the right to compensation for pecuniary damage even for those excavated materials (topsoil, sand, gravel, etc.) of mining activities that are subsequent to the occupation of the mine. This is true even when the soil is predominantly agricultural and is not classified as a quarry.

### 3. CONFLICTING INTERPRETIVE READINGS OF THE ADMINISTRATIVE COURT

As is known, the following sequence of laws: Decree No. 80/1998, L 205/2000, Presidential Decree 327/2001, decisions of the Constitutional Court 204/2004 and 191/2006, Joined Chambers of the Court of Cassation 22096/2015 and 15283/2016, has not dissolved the doubts about the jurisdiction with respect to some pathologies of the expropriation proceedings and compensation for damage.

All this has led to a change of trend: in fact, until 1998 the appraisal questions concerning the pathologies of the ablative procedure and the estimation of compensation for expropriation were developed by Ordinary Judge, while today they are competence of the Administrative Judge. It has introduced several estimate and technical modifications that are different from that provided in the past by the Supreme Court. Among the

most relevant news about the appraisal of the market value of the quarries in the expropriation field, we have the use of ISTAT coefficients (unacceptable in the Appraisal) for updating the market values (CdS 1762/10) or the prevalence of the authorization constraint in evaluating of the economic potential of a clay quarry (CdS 138/16).

Interesting in this context is also the amnesty mechanism (art. 42bis of Presidential Decree 327/01), managed by the Administrative Court, by which in the presence of an unlawful expropriation by the Public Administration, the illegitimate position can be remedied by transferring of the private property through a unilaterally public act. This mechanism provides for the quantification of compensation for expropriation by the Administration and its offer to the private owner. He can accept or deny the offer, this time addressing the Ordinary Judge (The Court of Appeal in only degree), with a long judicial procedure.

In this way, the owner is forced to resort to a dual assessment (administrative and ordinary) to obtain justice. Furthermore, he is subject to different methods for determining compensation for expropriation (as we saw earlier).

### 4. THE TECHNICAL DEFINITION OF THE TEMPORAL INTERVAL ESTIMATION - SAMPLE APPLICATION

The following case study originates from the need to determine the compensation for expropriation of a quarry for which had already been determined the sizes of the mineral deposit and the net unit price to be applied to the material for sale.

The legitimacy of mining activity was declared in compliance with Cass. 20760/12.

#### 4.1 Site Description

The soil to be estimated is located in Solla district of the town of Superiore and has been used as a rubbish tip by the Administration, according to the design inherent in a rsu disposal system, pelvis 1 of Superiore through the construction of a sanitary landfill.

With a measure of 29.05.1996 it has been arranged the occupation and with that of 26.10.2000 the expropriation.

The lawsuit for the allowance of the compensation for expropriation has been initiated at the local Court of Appeal by an act of December 2000 by the SPA society, which owns the site. The last technical study ordered by the court has summarized results of previous preliminary investigation that leading to the approval, shared by the parties, of the following points:

- the residual productivity of the quarry is 2,000,000 m<sup>3</sup> of clay on 14.5 ha, of which 1.570.000 m<sup>3</sup> at depths not exceeding 20.00 m;

<sup>2</sup> CdS is National Administrative Court.

<sup>3</sup> Tar is Regional Administrative Court.

- you mustn't consider the value of aggregates present in the quarry for 1,100,000 m<sup>3</sup>, of poor quality due to the high clay content;
- the experimental value of the production costs is 3.96 €/ m<sup>3</sup>”.

In addition, the unit value for the residual material in the vein is 1.22 €/ m<sup>3</sup>.

#### 4.2 Estimate of the monetary amount owed to the owner expropriated

The goal of the study is to quantify the value that the quarry could have on free market conditions at the time of ablation of the asset (26.10.2000). This value cannot simply be represented by the equivalent monetary value of the residue deposit, since the sale of 2 million m<sup>3</sup> of clay in a single year contradicts the characteristics of market demand emerged during investigations. Conversely, it should be assumed a time frame within which the clay that is available on site would be extracted and sold. The value of the asset as we get it by bringing, from the date of expropriation to the present time, the income flows generated by the exploitation that the quarry would suffer in the ordinary conditions from the time when it was occupied, with reference to a residual time of useful life that congruent with the type of quarry, with the quality of the extracted material and, of course, with the reference market. The availability of the deposit before the occupation (29.05.1996) has already been defined (2,000,000 m<sup>3</sup>), as well as its unit value (€ / m<sup>3</sup> 1.22) and for this reason you can simply postpone the revenues generated in the period of occupation up to the date of expropriation and anticipate the subsequent years, accumulating them on that date. The first of these two operations obviously includes the compensation for occupation, which for this reason mustn't be added to the final result, but is included in it.

There are two essential elements in this application.

The first concerns the exploitation period of the quarry (or cultivation period), that is the time span during which the residual material was extracted; this data is influential in carrying out the computation to be performed with the tools of financial mathematics; as is known, it can result from typical features of the productive sector studied or can be reconstructed based on the combination of equity and loan capital in similar investments (Conte, 2015).

#### 4.3 The period of cultivation

Previously described the variables that affect this indicator and considering that the exercise of mining activity depends on the availability of raw material and on the cost-effectiveness of the extraction (aspect connected

with the technical and technological characteristics of the company), in this section it was carried out a detailed survey of the target market valid in regional framework, which was considered homogeneous for its intended purposes.

The 11 surveyed clay pits to PRAE were investigated by means of the documentation made available by the Cava Activity Sector of the Region.

These are identified in Table 1.

**Table 1 - Detail of the reference sample for investigation**

N.	NAME OF THE QUARRY	MUNICIPALITY	PROVINCE
1	quarry 1	a	aa
2	quarry 2	b	bb
3	quarry 3	c	bb
4	quarry 4	d	aa
5	quarry 5	e	cc
6	quarry 6	f	aa
7	quarry 7	g	bb
8	quarry 8	h	bb
9	quarry 9	i	bb
10	quarry 10	j	bb
11	quarry 11	k	bb

The first column shows the fields of valid ID number for the regional offices; the second column shows the name of the place that hosts the quarry, followed by the municipality of location and the province.

The documents were analyzed to extract information related to the case under investigation.

In particular, we consulted the operating Relations produced in the 90's to meet the requirements of the Regional Law 30/1989, art. 19. From these documents, it is possible to derive the dimensions of the deposit and the extraction volumes for each year of operation, as well as the duration of the cultivation period. This makes the idea of the scenario that the sector could play in a contemporary period with that of the estimate, substantiating the immanence postulate of the forecasting required by disciplinary applications. In fact, having to establish the market value of the property in 2000, you must rebuild the economic climate perceived by commercial operators of the time, regardless of the actual realization of the assumptions on the development of the sector. In Table 2 shows information for the purposes described.

Table 2 - Analysis of exploitation characteristics for the survey sample

N.	NAME OF THE QARRY	MUNICIPALITY	DATE OF THE DOCUMENTS	USEFUL VOLUME (m <sup>3</sup> )	ANNUAL EXTRACTABLE VOLUME (m <sup>3</sup> )	CULTIVATION TIME (YEARS)
1	quarry 1	a	1998	1,979,916	90,000	20
2	quarry 2	b	1992	2,450,000	52,000	20
3	quarry 3	c	1992		44,500	20
4	quarry 4	d	1994	2,700,000	180,000	15
5	quarry 5	e				
6	quarry 6	f	2000		24,000	10
7	quarry 7	g	1992	4,581,000	43,750	20
8	quarry 8	h	1991	788,000	39,600	10
9	quarry 9	i	1992	1,500,000	100,000	18,5
10	quarry 10	l	1998	780,000	80,000	10
11	quarry 11	m	1992	700,000	50,000	15

The first column shows the code imposed by the regional office; followed by the name and location of the quarry; then the year of the consulted documentation processing; the volume of clay available useful for the extraction; the unit volume of clay to be extracted annually and, finally, the cultivation time.

As evident, there are certain information gaps (in lines 3, 5 and 6).

In general terms, it is evident that the quarries located in the province of aa (lines 1, 4 and 6) and those in the province of bb (rows 2, 3, and 7 to 11) show different exploitation conditions: the firsts recorded an annual average utilization planned to 98,000 m<sup>3</sup> and the second of 58,550 m<sup>3</sup>. The overall average value for the whole sample is 78,385 m<sup>3</sup>.

It follows that the quarries in aa province meet higher demand, evidently connected with the large presence of exploitation of raw materials (both in construction and in the waterproofing of landfills)<sup>4</sup>.

The vein under study, as noted, is located in the province of aa, so it's associated to the market segment now described.

The average value of the extractable volume annually speculated is 98,000 m<sup>3</sup>, with a cultivation period equal to the ratio between the entire available quarry (2,000,000 m<sup>3</sup>) and the maximum annual exploitation feasible:

$$m^3 \ 2.000.000 / m^3 \ 98.000 = \text{years } 20,41.$$

The reasoning finds support in the differentiated study of the sub-sample consisting of the larger quarries (in relation to the capacity of the reservoir, more than 1.5 million cubic meters), like the no. 1, 2, 4, 7 and 9. For this reason the removable annual volume is on average of 93,150 m<sup>3</sup>. While those of lesser potential, that is, the n. 8, 10 and 11<sup>5</sup>, recorded an average annual use of 56,533 m<sup>3</sup>. Another support to the above-mentioned reasoning is in the PRAE directions, which underline, about the province of aa, an historic demand considerably larger than the ongoing production.

Since none of the comparative cases have exceeded the limit of 20 years for the exploitation period, this limit is respected in the present computation.

#### 4.4 The discount rate for financial mathematical operations

The value to be adopted in the financial statement of income flows is derived from the writings of N. Morano, 2009, where it is said that "given the company's size and the quarry production values, for accumulation operations the rate is the 7%".

The rate can be confirmed also for our case, considering upward pressures on it related to the higher cost of the adjustable cash at the beginning of the century and downward pressures caused by the increased production capacity of the company (about twice one above-mentioned by Morano), resulting in lower need for loan capital in ordinary operations.

<sup>4</sup> About this, in the *Technical report* of the quarry no. 4 are available more details (pg. 1 of the *Plan of cultivation and restoring of a clay quarry for bricks - 1994*), where is explained that the production must be increased also referring to the realization of a 2B dump, which needs of waterproofing. This condition is similar to the quarry subject of the study.

<sup>5</sup> Nothing we can say about the remaining quarries no. 3, 5 and 6.

#### 4.5 Estimate of quarry material market value at 26.10.2000

Once they were assumed the annual production parameters and the discount rate, based on unit price of the clay (of €/m<sup>3</sup> 1.22), we can determine the overall value of the quarry to the date of expropriation through the final accumulation of the income not received for the period of occupation (29.05.1996 - 26.10.2000), equal to 4.41 years. This value must be added to the initial accumulation of income received from the time of expropriation until the end of the period of exploitation (further 15.59 years). The two values are:

*final accumulation for 4.41 years*

$$€m^3 1.22 * m^3 98.000 * (q^n - 1) / r = €594,391$$

with  $q = 1 + r$

$$r = 7\%$$

$$n = 4,41 \text{ years;}$$

*Initial accumulation for 15.59 years*

$$€m^3 1,22 * m^3 98.000 * (q^n - 1) / q^n * r = €1,113,167$$

with  $q = 1 + r$

$$r = 7\%$$

$$n = 15.59 \text{ years.}$$

The total value of the quarry at 26.10.2000 is as follows:

$$€594,391 + €1,113,167 = €1,707,558.$$

#### 5. CONCLUSIONS

The differential analysis conducted on the indemnity issues concerning the public ablation of properties intended for quarry, denotes an evolution in the last seven years of the discipline (the previous contribution developed by Morano N. and G. De Mare dates to 2009).

In particular, the court decided to direct attention on the application of the mechanism for the compensation (historically specific for the quarries, unlike the controversy concerning the building areas and those non-building) and on the economic potential of the properties found in the free market. Thus, they distance themselves from the previous regulatory criterion that requires administrative authorization for the conduct of mining activities at the time of occupation.

This change shifts the responsibility of determining the compensation for expropriation to the technical-evaluation sector, paying particular attention to the possibility of obtaining authorization in the next time distinct from the present and trying to remedy the legal vacuum.

Attention has also shifted on the occurs of productivity of the quarry depending on the actual demand of the existing market in the time of ordinary exploitation of the property.

The division of responsibilities between ordinary and administrative justice has boosted interdisciplinary interpretive uncertainties, often forcing the applicants to adopt different strategies in relation to the jurisdictional interlocutors.

The illustration of an exemplary case study, finally, clarified the correct application of the comparative method for the rational proposal of criteria of transparency, repetitiveness and demonstrability of the value estimate.

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