

12/13/99

DRAFT

**University of Surrey
IIASA**

TSUNAMI

Project on

The Uninsured Elements of Natural Catastrophic Losses

1997 Umbria -Marche Earthquake

Preliminary Case Study Report

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1997 Umbria -Marche Earthquake Case

Summary

Estimates of direct property damage from the 1997 Italian earthquake are about 5490 Millions Euro (Millions US\$ 6036). The indirect losses to production and business disruption may also be quite significant, but could not be quantified. The seismic crisis continued over several months (a new epicenter was active 8 months after the first shakes).

The state has compensated or will compensate most of the losses. The event was the occasion to launch a campaign for the seismic micro-zoning, which has identified important local amplification factors of average seismic activities. In this way, reconstruction will take account of preventive measures to avoid future losses from earthquakes of relatively medium intensities.

Private insurance has a very low coverage in Italy, and data are not available. However the case study discusses the potential opening of a new market. Indeed new laws are proposed based on an all-hazards insurance to be linked to the fire insurance. At the same time incentives for private persons to buy insurance are foreseen (the state will reduce compensation to persons not insured). This proposal is intended by the government to reduce the impact of natural disaster on the Italian budget.

Criteria for compensation of losses and for reconstruction are described, together with an analysis of funds needed.

TSUNAMI Phase One

The 1997 Umbria-Marche Earthquake

1. General description of disaster

The Umbria-Marche Earthquake started with shakes of intensities VIII-IX (MKS) on September 26, 1997 with the epicenter at Colfiorito in Foligno (Umbria). In the subsequent four months approximately 3,300 shakes followed the first ones: ten had intensities larger than VI (MKS). Over 10,000 rescue operators were involved. The number of people assisting ranged from 13,500 on the first day to 38,000 after the violent shakes on mid October.

From March 26 to April 4, 1998, new shakes of intensities VII - VIII occurred with an epicenter in the municipality of Gualdo Tadino (Umbria). The number of victims was small (less than ten), but very serious damage to the cultural heritage, public infrastructure and other activities occurred. The collapse of part of the cupola of the San Francesco Basilica in Assisi demonstrated the problems of employing new technologies for restoration of old monuments. The urban structure is typical of many cities located in the seismically hazardous regions of central and southern Italy.

2. Economic and demographic indicators

The regions are located in central Italy (see Fig.1, which also gives an indication of seismic activity in Italy). Both regions are characterized by industries of small-medium dimensions, tourism, and agricultural activities. The tourism in Umbria has a cultural - historical character, many ancient towns have been classified as the ones with "highest" quality of life in the world. Marche has also a very important cultural heritage, but also a summer tourism on the Adriatic sea.

2.1 Population data¹

	Umbria	Marche
Inhabitants	~812 000	~1425000
Surface (sq-kms)	8 456 (29% mountains, 71% hills)	9 693 (31% mountains, 69% hills)

¹ Italian National Statistical Office, <http://www.istat.it/>.

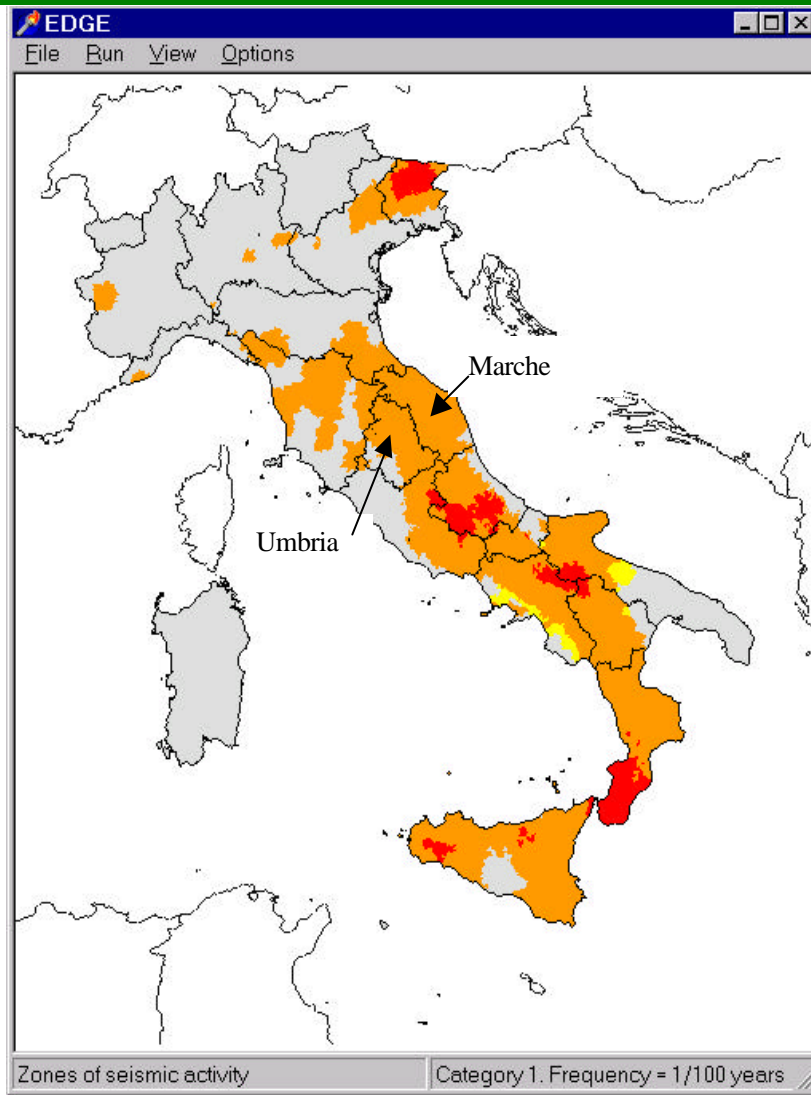


Figure 1. A map of seismic activity zones (Intensity at Frequency 1/00 years)

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2.2 Average income level of exposed populations

The source of this information is ISTAT ¹

Unemployment in 1997 was approximately 10.2 % average value for central Italy

	Umbria	Marche
GDP total in 1995 million Euro	9 620 (US\$10 577)	~ 18 500 (US\$20 341) ²
pro capita in 1996 with respects to the EU average	~ + 3 %	~ + 4%

Further economic and demographic data for Umbria are given in Tables 1.2.1 and 1.2.2 below:

Table 1.2.1³: Umbria Enterprises in 1997 (mostly medium-small)

Agriculture	21.532
Industry	
Manufacturing	10.161
Construction	8.679
Other	101
Services	
Hotels	3.334
Trade	20.277
Transport	2.972
Finance	1.297
Other	7.481
Other activities	243
TOTAL	76.077

² Exchange rate of 01/01/98 = 1.0995

³ Official site of the Region Umbria: <http://www.regione.umbria.it/>

Table 1.2.2. UMBRIA: Average monthly expenditure per family in 1996

Category	Euro (US\$)	%
Food and drink	368.80 (405.50)	18.9
Dwelling	343.10 (377.24)	17.6
Health care *	45.47 (49.99)	2.6
Transport and communication	432.80 (475.86)	22.2
Free time and education	134.55 (147.94)	6.9
Others	628.68 (691.23)	32.2
Total US\$	1 953.40 (2,147.76)	100

* in addition to National Health System

3. Institutional Aspects

3.1 Insurance

Private insurance plays only a very small role in the compensation of earthquake victims in Italy. Governmental proposals to include insurance as an important tool within the overall risk management policy were in discussion before the earthquakes. The aim was to reduce the *ex post* event costs to the state, which traditionally intervenes to compensate the victims. The proposals became more concrete after this earthquake. A proposal was included within the financial law for the year 1998, but was not retained (see Section 3.1.1). It was modified and included in the financial law for the year 1999, this time proposing insurance as mandatory, but again it failed. The proposed new law (Section 3.1.2) is now at the Parliament. However, it is not yet on the agenda, it is "sleeping" probably until the next major disaster.

3.1.1 Design of Law 2793: “Measures for the stabilization of the public finance”

This proposed law was presented by the Prime Minister Romano Prodi. The following discussion is rather detailed, since the proposal, which is similar to the existing French system, may eventually be interesting for the insurance policy framework.

The relevant article is the **Article 31bis (Measures related to insurance against natural catastrophes)**

Par. 1 states that fire insurance policies shall be mandatory and include coverage of losses from earthquakes and other natural disasters. A possible exemption layer shall not exceed 25% of the compensation. (This has to be put in relation with the provisions in Par. 5)

Par. 2 states that the policies already existing should be integrated within 6 months from the enforcement date of the law. For this the insurance companies may ask for an integration to the premium, and if this is not agreed among the parties the policies must be cancelled. (either all or nothing)

Par. 3 obliges insurance companies to create reserves according to previous laws D.lgs. 17 March 1995, N 175 and 20 May 1997, n. 173. In the discussion of the proposed law, it was stated that

*It should be clarified that the mechanism put in force now allows the Italian insurance companies to reinsure themselves on the international market for a value estimated up to ~3 billion Euro (3.3 billion US\$) a year for earthquake losses. For catastrophe events exceeding this value the Companies cannot face with, unless they accumulate reserves, which can create buffers to absorb larger losses. It is clear that for losses larger than this sum, there is not a policy, nor Company, nor Reinsurance market able to absorb and manage such risks, unless there is a relevant increase in the premiums. However the scheme allows the State to trust in a buffer of reinsurance coverage of about 3 billion Euro/y, a **sum which on average the State has paid in the past for all the catastrophe events (note that only for the recent Umbria-Marche earthquake governmental evaluations speak about an overall damage of ~1 billion Euros (1.1 billion US\$)).***

Par. 4 The state tax on the policy is equal to 12.5%.

This means that it is reduced from to 22.5 to 12.5 %. The incomes derived to the state will remain the same since the premium will be higher –but taxes will not aggravate the cost of the new policy to the citizens. See also Par.6

To show that these provisions will not change the state incomes from fire insurance policies, a series of simulations (few tables) have been presented: these estimated the premium for catastrophe risk to range between 0.4 and 0.6 ‰: the present premium for fire policy is 0.4‰. This could mean that an integrated policy might cost 100 - 125% more than a fire policy for a same coverage.

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*Par. 5 The buildings damaged by natural catastrophes are eligible for possible public compensation within the limit of the exemption at Par. 1. and if not covered by insurance within a maximum. This can be decided on a case by case basis established by a decree of the finance minister.*⁴

In this way the private citizen has an incentive to purchase insurance, and the state will save because it would only intervene in the 25% exemption layer. One can also expect other saving as the private compensation might be faster and therefore the reconstruction also faster, decreasing the costs for the state to provide provisional dwellings to homeless people.

Par. 6 The insurance premiums can be deducted from the personal tax for low income layers until a maximum of ~ 500 Euro (US\$ 550).

Par. 7. The aspects related to the reinsurance from catastrophe losses will be regulated by a subsequent decree by the Ministry of Industry: forms of both private and public negotiations might be foreseen

3.1.2 Proposal of law N. 5809-ter/1999

The proposal follows the principles described in the previous proposed law, but with reduced incentives. This proposal has been reviewed critically by the insurance industry.⁵

According to ANIA, the way of constitution of a consortium of reinsurers, the total capacity (1.5 millions Euro (1.65 million US\$) proposed) and the participation of the government in this consortium should be better defined. Furthermore, there should be also discussions on the anti-trust directives of the EU, whether this consortium could be seen as a monopoly.

With respects to the previous proposal there has been a "regression", ANIA says, with respect to two important provisions:

- 1) there would no longer be a governmental taxation incentive on the policy and the tax on the policy should remain at 25%
- 2) there should be a limit to the premium related to natural disaster risks, which should not exceed 50% of the fire insurance premium.

Again, public infrastructures and building, and business interruption would be excluded. The former would be compensated by the government; the latter would remain completely in the free market.

⁴ (this was already made law for the Umbria-Marche event)

⁵ ANIA: Personal Communication, 16 September 1999, see footnote 3.

3.2 Public Institutions and Regulatory framework

The laws and regulations on natural risks and civil protection can be found on the official site of the Department for Civil Protection <http://www.protezionecivile.it/>.

Civil Protection has a rather recent history in Italy, despite the long series of natural catastrophes to which Italy has been subjected. In this century, earthquakes resulted in more than 120,000 deaths; and in the last 20 years, the financial losses from earthquakes exceeded 63 billion Euro (69 billion US\$)

3.2.1 Building codes and seismic classification

The 1980 Irpinia earthquake (IX-X MKS) was a landmark in raising awareness and developing a policy for preparedness and mitigation. The affected territory was almost equivalent to that of Belgium. The severity of the human losses (~ 3,000 deaths and 10,000 injuries), and the delay and unpreparedness of the rescue organizations, were no longer acceptable given the economic and technological status of the country.

This event caused the reorganization of the civil protection philosophy. However, recurrences of calamities absorb resources for reconstruction and compensation, which have been largely supported by the state, and leave few resources for preventive measures.

Before the Irpinia earthquake the seismic classification, and therefore the applicability of seismic building codes, was determined only by seismic events in the last decades. Therefore, municipalities not damaged by past events were not classified, even when they belonged to a similar seismic activity area. Now a scientific classification of the Italian territory has been completed, but this does not yet take adequately into account the characteristics of the soil and their possible amplification effects.

However the major problem is the fact that still 64% of the buildings were constructed before this classification, 23 millions of people are exposed and the cultural heritage threatened. The possible financial aid that private insurance can give to the state finance by decreasing the cost of compensation of future disasters might allow the government to start a program for mitigation by backfitting at least major historical and public building.

The Umbria - Marche urban structure is typical of many cities located in the seismically hazardous regions of central and southern Italy. Two-thirds of the buildings were built in traditional masonry (mainly stonework) more than 60 years ago. Furthermore, it is a region with an enormous cultural heritage.

The law for the reconstruction and compensation⁶ for the first time foresees intervention for the prevention of similar events in the regions, but also extends analysis and

⁶ DECRETO-LEGGE 30 GENNAIO 1998, N. 6

Ulteriori interventi urgenti in favore delle zone terremotate delle regioni Marche ed Umbria e di altre zone colpite da eventi calamitosi

inventories to other hazards (e.g. hydrological) at least for major public buildings. According to this law:

- the regions are obliged to define homogeneous criteria for planning, designing and implementing the reconstruction: these criteria shall make compatible the structural intervention and anti-seismic measures with the preservation of the architectural, historical and environmental values. Whenever necessary the reconstruction must follow an Integrated Recovery Plan (PIR), this to avoid sparse interventions that might destroy the cultural habitat;
- they have to perform in cooperation with National services (CNR seismic research institutes of the National Research Council, ING National Institute of Geophysics, etc.) urgent analysis of microzoning to search for possible local amplification factors, to be considered in the reconstruction;
- to prepare a plan for urgent interventions on hydro-geological derangement, vulnerability of public or historical buildings, and if necessary technical prescription for strategic public building, also considering to relocate them in more safe positions.

From the report of the Umbria Regional Government after two years from the event⁷ it is possible to see how these prescriptions have been implemented. In particular

- the collapse risks linked with hydro-geological derangement have been identified, most of them were due to previous meteorological events between December 1996 and January 1997;
- between 1998 and 1999 a fast microzoning has been performed with involvement of about 130 professional geologists and 50 geologists from public administration. In 36 municipalities 782 sites have been analysed. The results seem to be rather significant since amplification factors up to a value of 2 have been detected over the seismic hazard assigned before to the municipalities concerned, as in the table:

	Perugia – Terni (towns capital of province)	Other Municipalities
Number of sites investigated	89	645
Average Amplification Factor (distributed between 1 and 2)	1,42	1,35

This work should be continued to cover the complete surface interested by the seism, 1.700 sq-km, this will require the continuation of the activity of 50 geologists. The data base will be used for antiseismic design basis.

3.2.2 Rescue organization and compensation of private losses

The Law n. 225/1992⁸ describes the responsibilities for the emergency planning and organization of the **rescue** operations.

⁷ Regione dell'Umbria – Giunta Regionale: Lo stato della ricostruzione. Settembre 1999.

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All municipalities should have an emergency plan made after hazard identification, and should have identified areas (with needed utilities) where outside rescuers could place tents, containers or campers for provisional housing of endangered people.

The degree of preparedness was in this case much better than in 1980. Some delays still occurred in making available provisional housing to the homeless. But this time in many cases the municipalities appear not to have implemented the law, and the area where such housing should have been placed was not always identified before the event.

10,100 rescue operators were involved. The number of people assisted ranged from 3,500 on the first day to 38,000 after the violent shakes on mid October.

Generally the Italian Government has always intervened to **compensate** the private construction damages with laws decided case by case. The basic reconstruction law in this case is the law N 6/1998 (see footnote 6). This law appoints as “Emergency Commissioner”, the two presidents of the regional governments: these are empowered to administrate the financial aid, deriving both from state, regional, private and EU funds. For details on the Umbria-Marche compensation, see

<http://www.regione.umbria.it/>, <http://www.regione.marche.it/>).

The criteria for **loss compensation** are as follows:

For main structures and external architectural elements both for families and activities

- 100% contributions for reconstruction/restoration of buildings completely destroyed or very severely damaged (the severity is technically defined according to the percent damage or vulnerability)
- compensation for other damaged buildings up to ~ 30 000 Euro (32 985 US\$) per dwelling unit or ~60,000 Euro (65,970 US\$) for private buildings for tourist/community activities

for internal elements and furniture for private dwellings

- contributions if family incomes are less than ~25,000 Euro/y (27,488 US\$), which can vary between 40 and 90 of the costs according to the family incomes, but only if the damaged structure is main residence.

for mobile goods to private families (including cars)

- only to “citizens” of the municipalities damaged, a contribution up to 40% of the losses with a maximum of ~25,000 Euro per family

for mobile goods to industrial, agricultural, commercial, tourist etc. activities

- contributions up to 30% of the losses with a maximum of 150,000 Euro (164,925 US\$) (for losses exceeding 2500 Euro (US\$ 2750) or 1500 Euro (US\$ 1650) for small enterprises

⁸ Legge 24 febbraio 1992, n. 225, Istituzione del servizio nazionale della protezione civile

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- funding with favourable interest rates up to a further 45% of mobile losses and cost for internal finitures of damaged buildings

Of particular interest for insurance policy is the article 6 of this law:

3.3 Article 6

If the damages caused by the seismic crisis are fully or partially compensated by payments from the insurance companies, the payments of the contributions foreseen in the present decree are made only up to the possible difference. In this case the contribution determined in this way is integrated by a further sum equal to the insurance premiums paid by the damaged subjects in the five years previous to the event date.

This sum however cannot be larger than the 50% of the reimbursement received by the insurance companies.

4. Total Losses and Insurance Cover

No full assessments of total losses exist. Available information on selected direct losses are shown below. The total losses private and public buildings, agricultural activities, roads and cultural heritage, as estimated below in, are 5490 Millions Euros (Millions US\$ 6036), including 1960 Millions Euros (Millions US\$ 2155) for Marche and 3400 Millions Euros (US\$ Millions 3740) for Umbria.

Table 4.1: Losses in Millions Euro

	Marche	Umbria	Total
Private Buildings + Activities*	1490	2010	3500
Agriculture Activities	180	390	570
Public buildings	150	590	740
State Buildings and Roads			130
Cultural heritage	140	410	550
Total Losses	1960	3400	5490
	US \$ 2155	3739	6037

* excluding Agriculture

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These were estimated after the first four months of seismic crisis⁹. It has been estimated that subsequent shakes have increased this figure by about 20 %.

In terms of physical damage, the number of damaged buildings is shown below:

	Umbria	Marche	Total
Number of Damaged Public and Historical Buildings	1,178	948	2,126
Number of Damaged Private Buildings and Activities	16,082	10,617	26,699
Number of homeless people	18,276	7,194	25,470

Indirect losses because of business interruption or damages to the tourism industries are not available.

The materials analyzed were: reports from the Civil Protections Department, reports to the Parliament by State Secretary to Civil Protection, reports from the governments of the two region involved, web pages of two national newspaper “Il sole 24 ore”, an economic news paper, and “La Repubblica”. In both cases there were many articles concerning the earthquake and the subsequent administrative provision, but not even simple guesses on total losses. In only one case a short comment on new data published by the Italian Statistical Office on increasing of “poverty” in central Italy, was put in relation to the event, as it will be discussed in the following.

Data are also not available on insured losses.¹⁰ Informed experts agree that the level of earthquake insurance is very low. In general only insurance for liability for car accidents

⁹ source: 12. DPC-informa (a periodical of the Civil Protection Department). Umbria e Marche, quattro mesi dopo. Gennaio-Febbraio 1998. Anno III -Numero 8. They were estimated after 4 months from the first events. These should be increased by ~ 20% after the 1998 shakes.

¹⁰ Source: ANIA (Italian National Insurance Company Association). A visit was spent in Milan on September, 16, 199 discussing with Dr A Marzano. Information was obtained on proposals for new laws on insurance (see below under chapter 2). The insurance companies do not communicate data on cat insurance coverage or losses.

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is mandatory and managed by private companies (or state owned, now being privatized), whereas mandatory insurance for accidents at the work place is generally managed by a public institution (INAIL). Taxation incentives exist for private insurance for life, pension and invalidity, but not for losses after natural disasters

5. Direct Losses

5.1 Corporate/Business Losses

Data not available

5.2 Public Sector Losses

Selected public losses were as follows:

Public buildings	740 million Euro	(814 million US\$)
State buildings and roads	130	(143 “ “)
Cultural Heritage	550	(605 “ “)
Total	1420 million Euro	(1561 million US\$)

A breakdown for Umbria and Marche is shown in Table 4.1.

5.3 Private Residential Sector Losses

Close to 27,000 private buildings were destroyed, but no figures exist on total losses for this sector

5.4 Agricultural Losses

Total losses from agricultural activities were 570 million Euros (627 million US\$): 180 million Euros (198 million US\$) in Marche and 390 million Euros (429 million US\$) in Umbria.

6. Indirect economic losses

As stated before data on indirect losses cannot be found.

The ITALY1998 Report, from the National Statistical Office shows no change in the unemployment rate or GDP increase or reduction for the regions concerned. In reality there was a money flow to the regions, and new inspection and design activities were started for the reconstruction.

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One of the major preoccupation in the first months after the seismic crisis was for the decrease of tourists visiting Umbria: in a regional press release of November 10 1997, the regional government stated a decrease of 42% in the number of tourists visiting the province of Perugia in areas not affected by the seism. The note also discussed the need of support this particular economic sector by public means and by credits by private banks.

In a note of the Italian National Statistical Office on the poverty in Italy¹¹ an increase of the poverty in central Italy was found. There were no regional statistics: central Italy includes regions as Toscana (Florence) and Lazio (Rome) as well.

1998 poverty data

	North		Center		South	
	1997	1998	1997	1998	1997	1998
Poverty in Italy %	6.0	5.7	6.0	7.5	24.2	23.2
Families	5.8	5.7	6.6	7.9	25.2	24.5
Individuals						

The ISTAT note does not attribute this phenomenon to the earthquake. However a comment in the newspaper the Repubblica, attributed to M. Zuliani from the National statistical Office relates the change in poverty to the earthquake, “which has enlarged the consumption differences between rich and poor families”¹².

Some further indications on indirect losses can be found on the provisions for compensation and emergency measures in the next section.

7. Post Financial Compensatory Measures and Rehabilitation

By analyzing the data on costs for temporary measures and reconstruction it is possible to see how the estimates made on the basis of the inspections after the event were significantly lower than the funds needed. Certainly the values of the lost buildings were lower than the cost of the restored ones, responding to the new anti-seismic criteria. Furthermore reconstruction is also the occasion for new investments in public infrastructures. However the figures seem to differ significantly.

¹¹ Note Rapide ISTAT, 14 July 1999, “The poverty in Italy”

¹² <http://www.repubblica.kataweb.it/online/fatti/poverta/1999/1999.html>

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From a number of ordinances of the Civil Protection Department, and Laws¹³ it is possible to extract some partial figures of the costs directly incurred and administrated by the state. The reconstruction is on the contrary administrated by the two regional commissioners and by a Commissioner appointed from the ministry of Cultural Heritage as far as monuments and other damaged artistic works are concerned.

Therefore the description of the interventions is organized correspondingly.

7.1 Costs supported and administrated directly by the state (source ordinances and laws in footnote 12)

7.1.1 Management of the first emergency

The table below does not include tools and materials made available without charge from voluntary organizations, or state institutions. Also the costs to the state of paying the normal salary to the fire brigades and other employed involved are not included.

	Millions Euro
Tools acquired by the prefects, replacement or renewal of facilities utilized by the civil protection operators and fire brigades	46.250
Compensation of overtime for people involved in the inspections and emergency operation, including support to voluntary operators	15.675
Emergency interventions on monuments	7.500
	Total 69.425
	US\$ 76.333

¹³ ORDINANZA N. 2669 del 1° ottobre 1997

ORDINANZA N. 2694 del 13 ottobre 1997

ORDINANZA N. 2694 del 13 ottobre 1997

ORDINANZA N. 2719 del 28 novembre 1997

ORDINANZA N. 2725 del 15 dicembre 1997

ORDINANZA N. 2728 del 22 dicembre 1997

ORDINANZA N. 2742 del 29 gennaio 1998

ORDINANZA N. 2779 del 31 marzo 1998

ORDINANZA N. 2783 del 9 aprile 1998

Testo del decreto-legge 27 ottobre 1997, n. 364 (in Gazzetta Ufficiale - serie generale - n. 252 del 28 ottobre 1997), coordinato con la legge di conversione 17 dicembre 1997, n. 434, recante: "Interventi a favore delle zone colpite da ripetuti eventi sismici nelle regioni Marche e Umbria".

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7.1.2 Other costs

	Millions Euro
Damages or new housing in regions of fire brigade and forest guard corps	6 (6.6 US\$)
Suspension/ delay in payment of taxes and contribution to the municipalities involved by the seism	> 5 (5.5 US\$)
Cassa Integrazione Guadagni (contribution to unemployment because of the seism) Provisions to workers and employed for which the activity was suspended by the funds of INPS (national institute for the social contingency)	n.a.
Increase of provisions for school buildings, in addition to what already was foreseen	5% of the total sum intended by the plan over the whole national territory

The above figures are relatively low in comparison with the overall costs. These figures demonstrate the delegation by the state of the cultural heritage restoration and administration of compensation to the regions.

7.2 Costs for the restoration of the cultural heritage

The data refer to funds assigned, and only partially utilized since the work is in progress. Also the funding is not yet definitive, since a portion of the funds have been utilized to prevent further damages, waiting for future restoration.

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Costs in Millions Euro	Umbria ¹⁴ updated Sept/99	Marche ¹⁵ updated Sept. 1998
Supported by several state/ regional programs	96.416	
EU funds converted to the purpose	40.390	
Private donations (including that from other local administrations) (<10% from outside Italy)	3.980	
Total	140.786 (US\$154.794)	> 9.3 (> US\$ 10.23)

7.3 Funds for compensation and reconstruction

As in the previous section, the data found for Umbria and Marche are related to different time periods, and the information is incomplete. This should not decrease their value, however, since the data are sufficient for understanding losses and compensation. The criteria for private compensation have been described in section 3.

7.3.1 Marche

The following data¹⁶ were reported in September 1998, one year after the seism. At this time, a total of 251.1 Million Euro (276.08 Million US\$) were available to the commissioner (the president of the region), of these about 1% were obtained by donations, and more than 94.4% by loans authorized by the emergency laws.

From the table below it possible to see that the provisions for commercial and agriculture activities represent a very low fraction of the total (~ 2.4%)

¹⁴ <http://www.beniculturali.it/>

¹⁵ <http://www.regione.marche.it/>

¹⁶ Funds available to the delegated commissioner (the president of the region). Progetto Tellus (regional information system for the reconstruction of damaged areas) at <http://www.regione.marche.it/>

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Million Euro (in brackets Million US\$)	Funded	Engaged	Paid
Compensation of people involved in inspections/ microzoning/ planning and emergency operation including urbanization of areas for provisional housing	35.829 (39.394)	32.216 (35,422)	14.998 (16.490)
Repair of buildings for principal home, in the cases where people could in very short time reutilize the houses	30.159 (33.160)	30.159 (33.160)	30.159 (33.160)
Repair of provincial roads	1.86 (2.05)	1.8 (2.05)	0.258 (0.284)
Contribution to the enterprises (not agriculture) to restart the activity and/or compensation of reduced activities	4.681 (5.147)	1.70 (1.870)	
Contribution to agricultural activities	1.3 (1.43)	0.506 (0.556)	
Hydrological derangement	10.337 (11.366)		
Building reconstruction	137.487 (151.167)	0.315 (0.346)	

7.3.2 Umbria

For the Umbria region, data are reported from a report, *The State of the Reconstruction – September¹⁷ 1999*, which was prepared two years after the earthquake. For the purpose of this study we show the following tables.

¹⁷ The report can be downloaded from <http://www.regione.umbria.it/>

Table 7.3.1. Summary of financial costs of the reconstruction (Million Euro) (in brackets Million US\$)

Type of the intervention	Cost estimated
Reconstruction of minor damages	254 (279)
Reconstruction of major damages, which do not require an integrate recovery plan (PIR)	2,328 (2,560)
Integrated Recovery Plans	2,250 (2,473)
Public Works	872 (959)
Cultural Heritage	1,353 (1,488)
Hydrological Derangement	158 (174)
Public Buildings for Residential Purposes	199 (219)
Productive Activities	70 (77)
TOTAL	7,484 (8,229)

Table 7.3.2. Number of families in provisional housing

	Receiving contribution for autonomous housing	Housed in "dwelling modules"	Total
Umbria Total	5 505	3 555	9 060

These costs will be supported by the community until the reconstruction is possible

Table 7.3.3: Resources assigned and paid (million Euro) (in brackets million US\$)

Type of intervention	Funded	Paid	Paid/Funded %
Urbanization of areas for dwelling modules	18.2 (20.0)	17.8 (19.6)	97.8
Contribution to families lodging autonomously	13.9 (15.3)	13.9 (15.2)	100
Contribution to commercial activities	18.0 (19.8)	16.8 (18.5)	93.1
Contribution to agricultural activities	12.2 (13.4)	5.6 (6.2)	45.7
Hydrological derangement and provincial roads	14.8 (16.3)	13.8 (15.2)	93.3
Contribution to the private sector for the restoration of houses which could be restored quickly	8.0 (8.8)	8.0 (8.8)	100
Public works	30.0 (32.9)	9.4 (10.2)	31.2
Other	5.7 (6.3)	4.5 (4.9)	78.9
TOTAL	120.8 (132.8)	89.7 (98.6)	74.3

The resources currently available for reconstruction total about 3,172.1 Million ECU (3,487.7 Million US\$), of which 121 Million ECU (133 Million US\$) are needed for the management of the interventions. These resources have been made available by public funds. In addition, the EU has contributed 0.566 Million Euro (0.622 Million US\$) for rehabilitation. International aid has been negligible.