

MEXICO

Introduction

The year 2017 was marked by a series of hydrometeorological and geological events of different magnitudes that hit Mexico in different parts. The earthquakes of September 7th and 19th, 2017 increased the destruction and left hundreds of families affected. On September 7th, an earthquake of category 8.2 with an epicentre in the Gulf of Tehuantepec mainly affected the states of Chiapas and Oaxaca. The number of homes damaged were 63,335 in Oaxaca, 58,366 in Chiapas, and 712 in Tabasco. 1,075 schools were affected in Oaxaca and 1,571 in Chiapas, 90 health units, and 194 public buildings were partially or totally destroyed. On September 19th, another earthquake of magnitude 7.1 with an epicentre in Axochiapa, Morelos had an impact on eleven states, including Mexico City. A total of 50,610 homes, 83 health units, 133 churches and 16,136 schools were damaged and there were a total of 369 deaths. The damages to the cultural heritage were considerable (see Table 1).

Mexican States	No.
Puebla	465
Estado de México	344
Oaxaca	323
Morelos	260
Tlaxcala	133
Chiapas	111
Ciudad de México	92
Guerrero	83
Tabasco	26
Hidalgo	25
Veracruz	15

Table 1: Heritage properties affected by the 2017 earthquake (Source: Government of the Republic, INAH, 2017)

In the eleven states, a total of 1,877 properties listed by INAH (National Institute of Anthropology and History) were damaged (see Table 2):

Type of property	Number of properties
Historic monuments	1796
Museums and cultural centers	56
Archeological Zones	22
Artistic monuments	2

Table 2: Moderately to severely damaged properties (Source: Government of the Republic, INAH, 2017)

Three sources of funding for reconstruction have been launched:

1. The FONDEN (Natural Disaster Fund); 221,556,215.00 pesos (11,268,806.00 USD) have been approved.
2. The insurance sector has mainly supported the private and public sectors with the insurance contracted for the INAH Historic Monuments. According to the Mexican Association of Insurance Institutions (AMIS), the cost of earthquakes in 2017 rose to 16,449 million pesos (836.63 million USD), including 13,491 million pesos (686.18 million USD) mainly for damage to buildings and 2,861 million pesos (145.51 million USD) for disaster bonds of the Government of Mexico.
3. The private sector was organised in the face of the 2017 disaster with the creation of the Fuerza México private trust and a contract with Nacional Financiera was signed a day after the earthquake on September 20th. The Trust does not receive or exercise public funds and is oriented to administer and operate the funds and donations made by business organisations and individuals. This trust supports reconstruction (housing, schools, markets and temples) with 249 million pesos (12.66 million USD) in six municipalities in Oaxaca and two in Chiapas.

To date, as regards the State of Morelos, of the 259 heritage properties under restoration following the earthquake of September 19th, 2017, 158 have been completed.¹ These restorations have been carried out thanks to different financial sources, such as FONDEN (Natural Disaster Fund), the private sector (Slim Foundation), and insurances.

The Main Threats Identified for Tangible and Intangible Assets as of 2017

1. Mining activity

The archaeological zone of Xochicalco (World Heritage Site) is in danger due to mining activity. The mine exploitation project is being developed on the El Jumil and Colotepec hills, in an area of 696.92 hectares belonging to the community of Tetlama, Morelos, half a kilometre from the archaeological zone of Xochicalco. The Canadian company Álamos Gold (formerly Esperanza Silver) operates the hills with an open pit mine and has caused fractures as a result of explosive detonations in the hills near the archaeological zone of Xochicalco. In the north of Xochicalco, there are large caverns whose unstable roofs are formed by horizontal slabs of rocks. The vibration of the explosions could cause them to collapse, which would destroy an important part of the city of

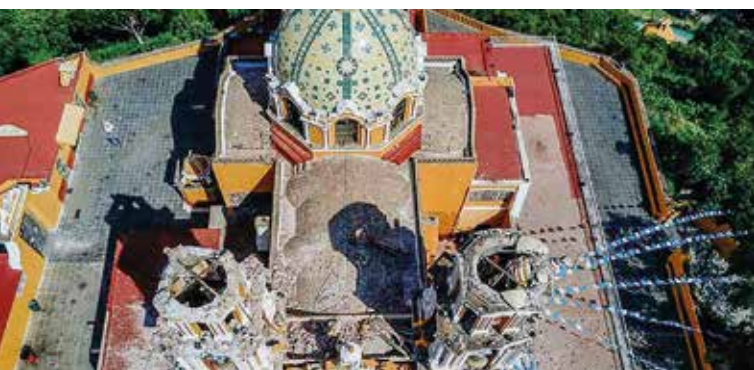


Fig. 1: Church of Los Remedios, Cholula, State of Puebla, September 2017 (photo INAH)

Xochicalco, including the Observatory cave, located north of the Acropolis. Water flow, both surface and underground, would be one of the most severely impacted natural resources, and this not only because of the huge amount of water that open-pit mines require for the leaching of the mineral (which they perform with cyanide), but also because once the exploitation is over (which will occur in little over a decade), mineral remnants can severely contaminate water and soils throughout the region.

2. The construction of hydroelectric dams

2.1. Dam project “Paso de la Reina” project, State of Oaxaca

CFE (Electric Federal Company) plans to build the Paso de la Reina hydroelectric dam project on the Río Verde, located on the



Fig. 2: Church of San Juan Bautista, Tlayacapan, Morelos, September 2017 (photo INAH)

Oaxaca coast. The curtain of said work, 155 metres high, would be located approximately one kilometre above the Chatina community. Paso de la Reina and its reservoir would flood 3,320 hectares, owned by indigenous Mixteco, Chatinos and Afro-Mexican peoples, affecting 17,000 inhabitants. This project requires an investment of USD 1,100 million. Currently, the hydroelectric project is in the phase of feasibility studies, without yet having the study of environmental impact, nor the conclusion of socio-anthropological studies.

2.2. Dam project “La Parota”, State of Guerrero

CFE intends to build the La Parota hydroelectric project in its territories. The work would affect an area of 17,000 hectares, belonging to four agrarian communities, 16 *ejidos* and a private property, located in the municipalities of Acapulco, Juan R. Escudero, San Marcos, Chilpancingo, and Tecoaapa. The work would have a high social impact, since it would cause the displacement of 25,000 people and affect another 75,000. When flooding the localities and affecting the traditional productive spaces located on the banks of the Papagayo River and its mouth, the poverty conditions of the population of the area would be exacerbated. In addition, it would be against the riparian and mangrove ecosystems located in the coastal part when the natural flow of water is disturbed.

2.3. Dam project “Las Cruces”, State of Nayarit

The Las Cruces hydroelectric project would be built on the San Pedro Mezquital river in the state of Nayarit, as part of the Northwest Interconnected Hydraulic System (shino). The hydroelectric power plant would flood 4,547 hectares of communal lands of five agrarian nuclei of the Coras, Huicholes and Mexicaneros towns: the indigenous communities of San Pedro Ixcat, municipality of Ruiz; San Juan Corapan and Rosarito, municipality of Rosamorada; San Blasito and Saycota, municipality of Acaponeca, Nayarit. According to CFE, it would only move to the town of San Blasito in the area of the reservoir, which has 54 inhabitants of the Cora people and 18 homes. However, the communities estimate that around 6,137 inhabitants would be affected, of which 80% belong to these indigenous peoples.

2.4. Dam “El Zapotillo”, State of Jalisco (under construction)

If the El Zapotillo dam is concluded with a curtain of 105 m, the communities of Temacapulín, Acasico and Palmarejo will be flooded, which will mean the forced displacement of 1,500 inhabitants. The livelihoods of communities downstream and upstream will also be destroyed or damaged, affecting more than 15,000 people. The death of traditions and culture will be accompanied by the loss of a unique historic and cultural heritage, constituted by the towns themselves with their squares, their typical environment and their ancient architectures. There is a statement by the Jalisco delegation of the National Institute of Anthropology and History according to which 70% of the buildings are cultural heritage. In addition, “El Señor de la Peña”, a figure painted by nature on the rocks surrounding part of the town, would be destroyed. The historic monument of the Basilica of Our Lady of Remedies from the 18th century would also be destroyed.

2.5. Dam project “Veracruz”, State of Veracruz

The Veracruz hydroelectric project promoted by the private company Electricidad del Golfo is located in Veracruz on the Apatlahuaya River. The work includes the construction of a dam with a



Fig. 3: Mayan railway route in Yucatan (Source: <http://planoinformativo.com/605456/tren-maya-proyecto-para-impulsar-el-crecimiento-del-sur-de-la-peninsulanacionales>)

30-metre-high curtain, a four-hectare reservoir and a three-kilometre-long tunnel. The Zongolica region affected by the project has high biodiversity and is the source of the Blanco River. This region has been inhabited since pre-Hispanic times by Nahua groups and has approximately 150,000 inhabitants, living in 14 municipalities, of which twelve are considered to be highly marginalised: Mixtla de Altamirano and Texhuacan are among the ten poorest municipalities in Mexico. The main productive activities are agriculture, forestry and livestock; there are very many smallholdings so that private property is predominant. This work will impact more than 20 communities, mostly indigenous Nahua by violating their individual and collective rights to information, consultation, healthy environment, health, water, housing, territory, etc.

3. Adobe houses destroyed by the 2017 earthquake and not considered in the INAH/INBA catalogues

Following the earthquakes of September 2017, many traditional adobe houses collapsed or were severely damaged, particularly in the states of Oaxaca, Chiapas and Morelos. The balance of the earthquakes of September 7th and 19th, 2017, was 184,000 damaged homes. The SEDATU (Ministry of Agrarian, Territorial and Urban Development) provided the victims with bank cards with 120,000 pesos (6,000 USD) for the reconstruction of destroyed homes and 15,000 pesos (762 USD) for the repair of partially damaged homes. Not all damaged homes were made of adobe; however, there were some companies that proposed that adobe houses be replaced by houses of cement blocks, thus contributing to the disappearance of this traditional type of construction.

Nonetheless, there were some interesting experiences of reconstruction with clay, with technical advice from specialists for clay constructions. But this did not happen in a massive way and most of the reconstructed houses were made of cement blocks and based on designs that were not traditional.

4. The construction of the Mayan railway

The so-called “Mayan railway” aims to connect different tourist points between Yucatan, Quintana Roo and Campeche to boost tourism and not only focus on the area of Cancun, which mainly monopolises the flow of visitors. 1,500 kilometres of railroad are to unite the main cities of the Mayan world in the five south-eastern states: Yucatan, Quintana Roo, Campeche, Chiapas and Tabasco. In total, these are 15 stations, of which Palenque, Calakmul, Mérida, Tulum and Bacalar stand out.

The route of the train that will cross the ecological reserve of Calakmul, recognised as a UNESCO World Heritage Site, has raised concerns about the ecological impact this work could have in the area. Given this, those responsible have said that the felling of trees will be minimal, since already built railway lines will be used, as well as roads and power lines.

The areas where the Mayan train will run have vast archaeological remains located along the planned route. In total, the Public Registry of Archaeological and Historic Monuments and Zones of Mexico has registered 1,709 vestiges located along the Mayan train route. In addition to the archaeological remains, there are 24 cenotes that could also be affected by the construction of this new railroad project. INAH will evaluate and classify the remains in order of relevance and will determine if they could be moved to

avoid modifying the planned train route. Various organisations have warned about the possible negative effects that this initiative could have on an area of such archaeological wealth.

5. Proposals on the various threats

1. Mining activity: One of the proposals is that municipal councils declare themselves as mining-free territories and that the current authorities, both at the federal and state levels, as well as the elected politicians will modify the mining concessions and permits. In the case of Xochicalco, the proposal is to expand the protection perimeter of the archaeological zone.
2. Construction of hydroelectric dams:
 - Initiate a national audit by an independent body to assess the financial, social and environmental cost-benefits of dams built since 1972.
 - Cancel all ongoing projects that are violating human rights, particularly those that have not presented a public consultation process.
3. Adobe houses destroyed by the 2017 earthquake: Create participatory housing reconstruction programmes exclusively for traditional adobe houses with the support of professionals specialised in heritage construction.
4. Mayan train: The role of INAH would be to evaluate for each section how the train route could be constructed without affecting the archaeological remains.

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Risks and Socio-cultural Impacts in the Sierra Tarahumara, State of Chihuahua

Introduction

The indigenous communities that settled in the region of the Sierra Tarahumara (Fig. 1) in the state of Chihuahua have had ancestral possession of their physical space since before the Spanish presence on the American continent. However, today they are not legally recognised in this territory so that land dispossession, transgression of their habitat, and the beneficial use of their natural and cultural environment are a constant struggle.

The megaprojects in the region with different lucrative purposes and interests for tourism proposed by the Mexican government have not brought great economic benefits to the population, but to national and transnational business groups. They have even commercialised the image of the Tarahumara indigenous people, but not only that: the Tarahumara territory of low and high mountains

is a favourable place for drug production, because it is difficult to reach and has few communication routes. It is located in the so-called Golden Triangle, formed by sinuous mountains and ravines, in the limits of the states of Chihuahua, Durango, Sinaloa and Sonora. Here narcotics have been produced by criminal groups for several decades (Fig. 2), which has led to other problems not only against territorial sustainability. It has also caused pressure to the millinery culture established there, redirecting it into a process of transculturation and loss of identity.

The Sierra Tarahumara is the largest forest territory in Mexico and has silver mines; so it is considered one of the most valuable natural areas in the country. In addition, due to its environment, it has a tourist potential of great national and international relevance. As to the preliminary registration of the missionary infrastructure that has practically been abandoned, this includes 80 Jesuit and 40 Franciscan missions, although it is possible that the total number is close to 160 missionary settlements (Fig. 3).

Relevance of cultural/natural heritage in the Sierra Tarahumara

By its very nature, Tarahumara is extremely relevant for Mexico; not only because it is one of the most beautiful areas in the entire country, but because it is a unique biological region worldwide (Fig. 4), generating water, oxygen, biomass and biodiversity. These are aspects that not only benefit those who inhabit the area, but also the states of Texas in the USA and the states of Sonora and Sinaloa in our country, for the water generated there flows into these territories.

The safeguarding of the built heritage and the environmental wealth of the Sierra Tarahumara can be determining elements of identity and basis for the development of the region. It even meets the necessary conditions to submit a World Heritage nomination to UNESCO for the recognition as cultural and natural heritage, based on a dichotomy. However, the reality is that the loss of the missionary infrastructure and the various threats to the habitat threaten future development possibilities.

Current risks

- I. The current vulnerability of the built heritage is, to a large extent, the result of insecurity caused by criminal groups and drug trafficking, existing in the region for more than 30 years. Among other aspects, this results in extreme poverty and displacement of the original population.
- II. The region has a high degree of violence and insecurity, the population competing with organised crime for physical space.
- III. Therefore, today there are problems of various kinds, both socio-economic and cultural, which are reflected in high levels of migration, a low educational level, inequality, segregation, unemployment, as well as racial discrimination and violence resulting from a struggle for land tenure.
- IV. Cultural policies have not helped prevent the deterioration and loss of the historic infrastructure built during the 17th and 19th centuries. This leads to different risks:
 - There is no current survey of mission buildings still preserved.
 - There are no conservation and maintenance programmes.
 - There is no record of the deterioration and loss of historic structures (Figs. 5 and 6).

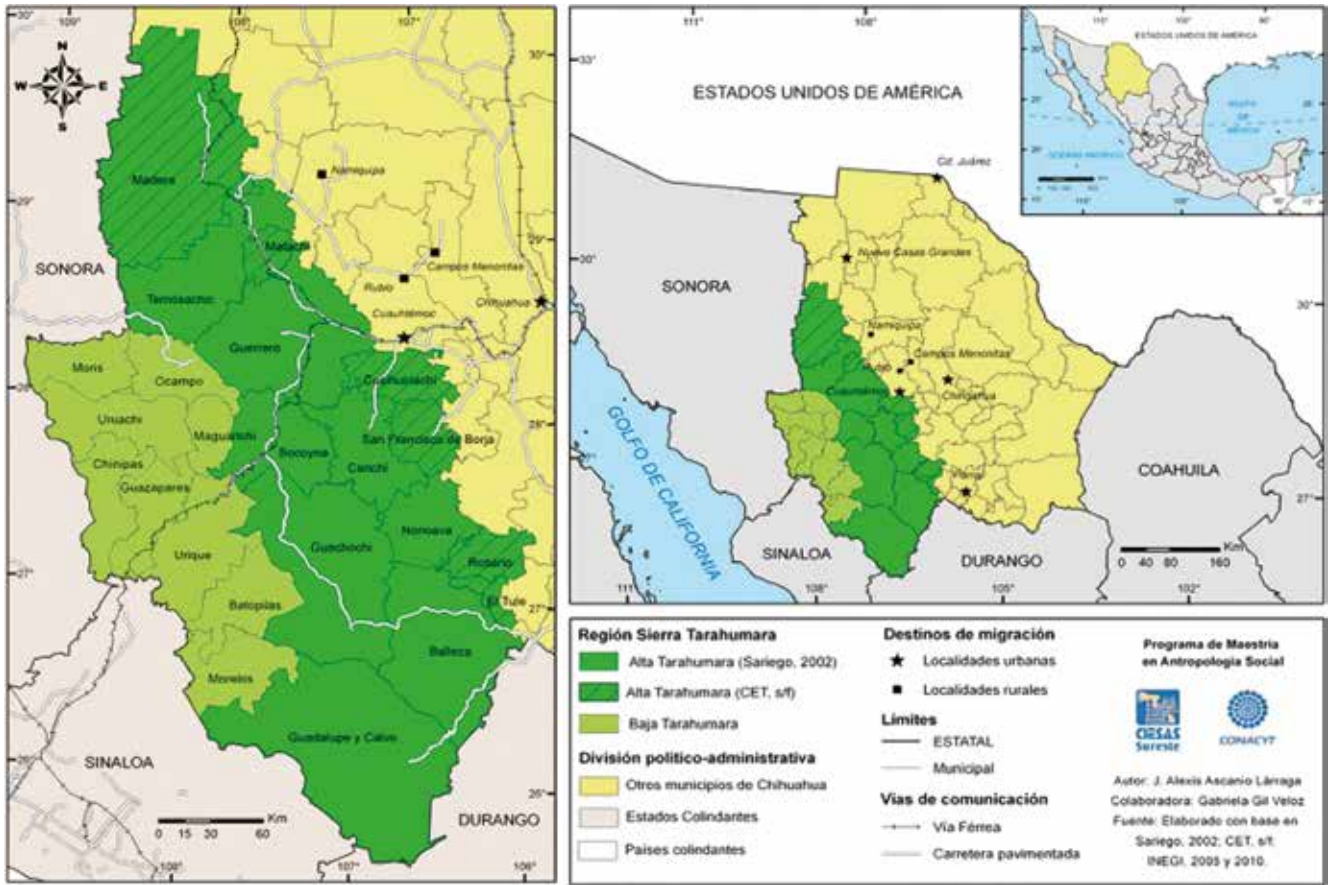


Fig. 1: Location map of the Sierra Tarahumara region, Chihuahua state, Mexico (taken from: ASCANIO, Lárrega, J. Alexis, Master's Program in Social Anthropology, CIESAS Southeast, CONACYT).



Fig. 2: Criminal groups arrested in the Tarahumara region, September 23, 2016.



Fig. 3: Location of the mission settlements by municipalities (Source: INAH Chihuahua Center, Jesuit Missions Project Archive of the Sierra Tarahumara, 2007)



Fig. 4: Commercialisation of the image of the Tarahumara indigenous



Figs. 5 and 6: Jesuit church of San Felipe de Jesus, Zaragoza Valley

V. Although the cultural heritage is made up of natural diversity and material works of great relevance that together belong to the cultural legacy of Mexico, its protection is not part of the

vision and attention of state and federal authorities, nor are there sound policies of preservation. Therefore, the heritage's abandonment reflects "the lack of recognition and deep study of its historical and natural values".

The results on the impacts on the habitat of the territory have not yet been determined; a general scheme of remediation of affectations and prevention of risks has been imposed, in which the narco culture seems to stand out, while distrust in government actions grows. It is a fact that the population has the right to claim ownership of their land for the common good.

Impacts of modernity

The current vulnerability of the built heritage of the region is the result of insecurity caused by criminal groups and drug trafficking, among other equally important problems.

In the years 2014 and 2015, two megaprojects were proposed that did not benefit the communities in the Sierra Tarahumara. These were in addition to the Barrancas Cobre-Creel regional airport, although in a different way and without final results. The indigenous population has manifested and defended its geographical space, after having suffered damage by other megaprojects, especially for commercial purposes. This includes the Tarahumara culture, through the exploitation of the indigenous image and of the natural and cultural resources.

Although the government rhetoric refers to efforts to reduce inequalities and international law protects indigenous populations, with regard to indigenous rights the reality is that their cultural rights are rarely respected. The channels of communication with the indigenous population have been fractured by imposing several actions. Although the Mexican state has a huge historical commitment to the towns and communities of this region, the Tarahumara people now struggle to maintain their traditional lifestyle in the *ejido*, which is closely related to the isolated and rugged land it occupies.

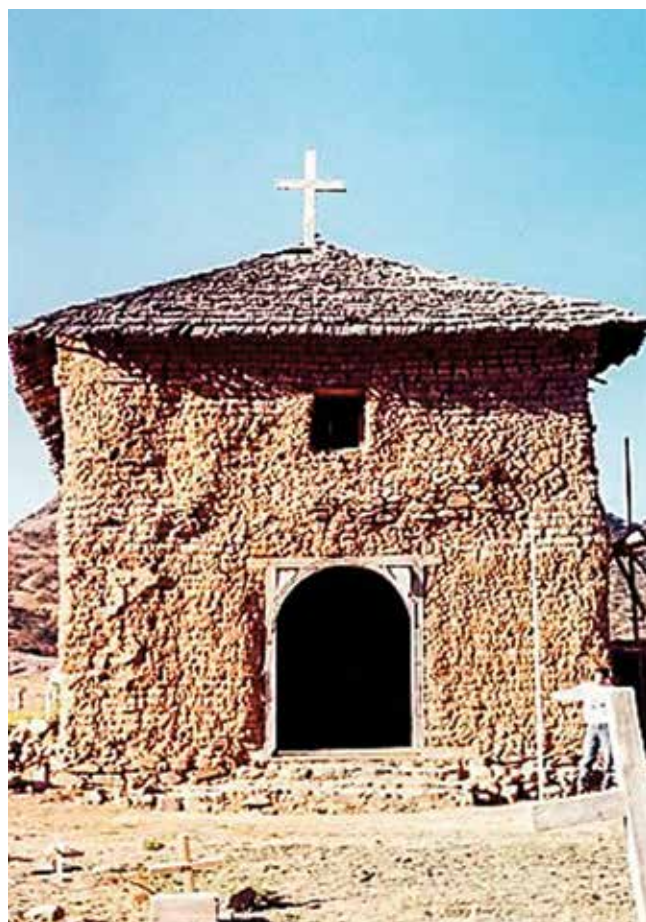
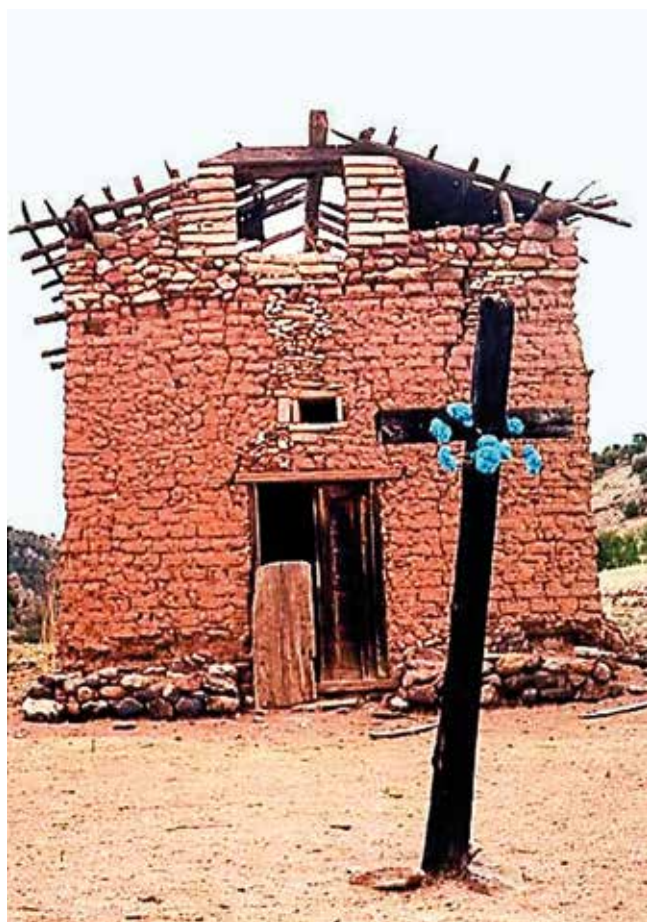
Final conclusions and actions in process

The Sierra Tarahumara is a region of great contrasts, coexisting cultures and overlapping economic activities, including mining, forestry, tourism, and drug trafficking. The forests of the Sierra are home to approximately 280,000 individuals, of which approximately 20 percent are indigenous with unique cultures, such as Tarahumaras o Rarámuri, Ópatas, Yaqui, Pimas, Papágos y Mayos.

The region also hosts large-scale mining and forestry projects, so there would be no reason to strive for fairer social conditions for the regional population. However, as long as these do not exist, social differences and conflicts will continue.

Similar delay conditions are also reflected in the cultural sphere; this fact is also observed in the lack of serious studies and historical documentation of the missions, of their evolution and current physical state, of care and maintenance of the properties. This is accompanied by material loss and modifications to the original structures, which is also a great damage to the built historical memory of the region, so that the sum of efforts is not only a necessity but a commitment to the historical future of the Tarahumara territory. The main points for its preservation are:

- I. Manage and preserve the physical space and material infrastructure of cultural or natural heritage value (Figs. 8–11).
- II. Adapt policies and programmes to specificities of cultural identity.



Figs. 7 and 8: Missionary churches of San Antonio, Guazarachi, Balleza and San José Jicamorachi



Fig. 9: Missionary church of Santo Angel Custodio, Batopilas

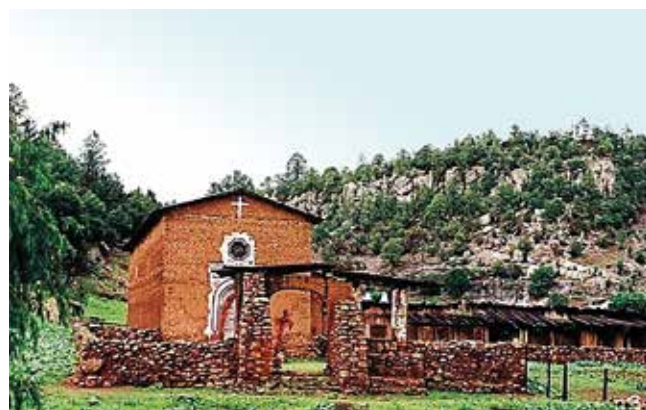


Fig. 10: Missionary church of San Ignacio in Guachochi

III. Entry into cross-cutting policy areas concerning the organisation and connection of the towns in the territory.

IV. Regard the territory as something that generates economic value, cultural identity and quality of life.

What is clear is that the population of the region have been violated in their physical space since the colonial era. So there must be a resilient commitment to allow them to opt for other options, such as the right of the population to settle on the basis of their recomposition through the resilience of their living conditions, through the analysis of risks or threats that compromise their sus-

tainability, such as improving security, preserving their cultural heritage, reducing marginalities, social inclusion, improving employment and educational opportunities, etc. And on the other hand, there are the conditions for improving agricultural production and meeting the needs of families for basic food, in order to create flows that will enable the social and environmental reconstruction of the community.

The final objective would be to be able to refer to these reflections that arise from communal or individual spaces where their historical expressions are part of a new way of looking at their buildings, customs or traditions, where specific changes in forms,

structures or organisations are emerging, which become options for an initial resilience project focusing on induction, through the establishment of a platform of participatory observatories, which

will enable the recovery of sustainable lifestyles based on their cultural heritage and natural community environment before the loss continues.

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Footnote

¹ Source: Head of the INAH Morelos Center.