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## Case Study 3.3: Chankillo, Peru

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### **Presentation and analysis of the site**

*Geographical position:* San Rafael, Casma district, Casma province, Ancash region, Peru.

*Location:* Latitude 9° 33′ 18″ S, longitude 78° 14′ 13″ W. Elevation 300m above mean sea level.

*General description:* Chankillo is a ceremonial centre with ritual, administrative and defensive attributes located in the coastal desert just outside the flood-plain of the Casma-Sechín river basin.

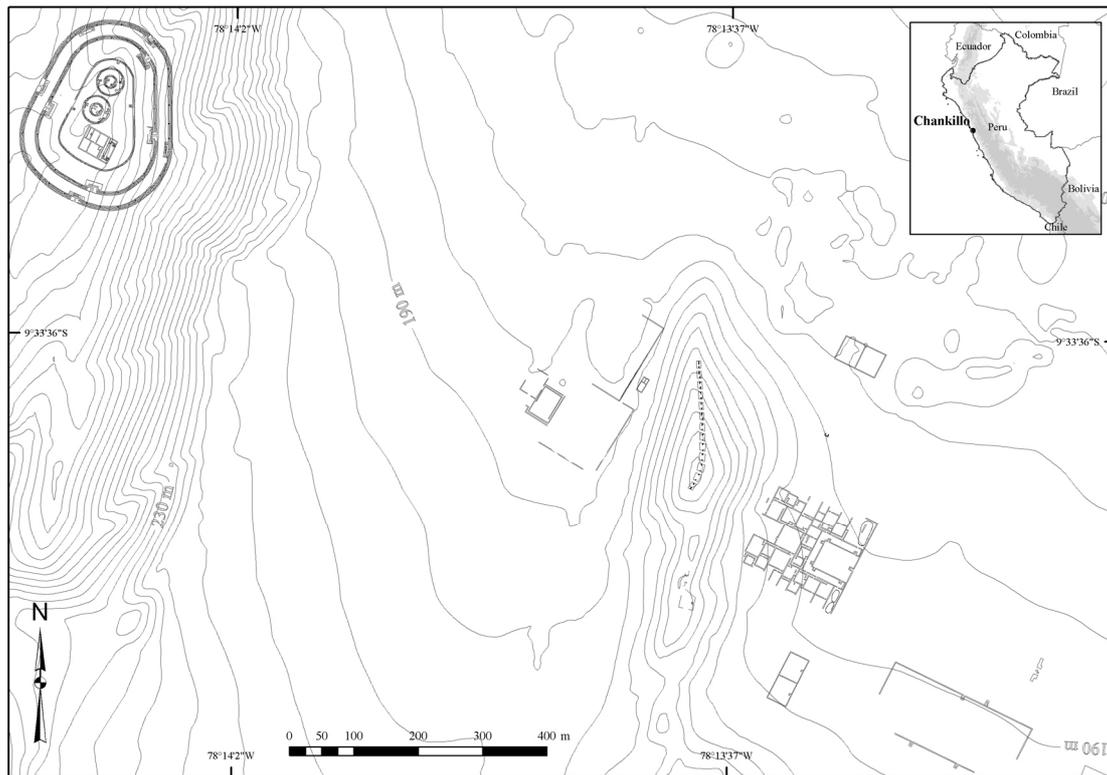
*Inventory of the remains:* Chankillo is characterized by its standing architecture, of which the principal elements are the hilltop Fortress; the solar observatory (the Thirteen Towers and observing points to the east and west; the Plaza area, with an administrative complex and several other buildings; and a geoglyph group. Prominent among the artefact collections are ceramic warrior figurines.

*History of the site:* Radiocarbon dates range from 350 BC to 100 BC, placing occupation in the late Early Horizon. The site appears have been dedicated to regulating seasonal events such as religious festivals and to sun worship, and possibly to maintaining a seasonal calendar through solar observations. Excavations indicate an abrupt disruption by warfare, marked by the destruction of its main temple and religious symbols, its entombment, and its abandonment. There was no significant re-occupation, save for looted burials that may date to the Early Intermediate and Middle Horizon, and an Inca offering placed at the base of a tower during the Late Horizon.

*Cultural and symbolic dimension:* Unlike the architectural alignments upon a single astronomical target found at many ancient sites around the world, Chankillo's Thirteen Towers span the entire annual solar rising and setting arcs as seen from the two observing points, not only giving direct indications of all four solstitial rising and setting points but also the means to identify every other day in the year by observing sunrise or sunset against the intervening towers. In this sense, Chankillo is unique worldwide as a functioning solar observatory and an extraordinary example of native landscape timekeeping.

*Authenticity and integrity:* Archaeological research confirms the authenticity of the standing architecture at Chankillo. It also underlines its integrity as a ceremonial centre. There is no evidence of modifications in the past or present (restoration). The Temple of the Pillars, a sacred building inside the Fortress, was partially destroyed and buried after the conflict around 100 BC. Further research is needed to confirm its full extent, in particular to the east.

*Documentation and archives:* A 1970 earthquake destroyed Casma, along with official records. Rosa Fung and Victor Pimentel led a research project in 1968–69 (the state of their records is unknown). The Chankillo Archaeological Project has carried out research since 2001; its documentation is stored at the Pontificia Universidad Católica del Perú in Lima.



**Fig. 3.3.1.** Plan of Chankillo. © Ivan Ghezzi.

## Present site management

*Present use:* Chankillo is a cultural resource in Casma province, and a site of ongoing archaeological research since 2001. It is often visited by parties from local schools and by national and international tourists; these visits have increased markedly since 2007, when the (inter)national media highlighted it as ‘America’s earliest observatory’. However, there is no infrastructure to manage visits. Communities in the vicinity consider it part of their cultural heritage, protect its boundaries, and keep an eye on tourists.

*Protection:* Chankillo is officially recognized as national cultural heritage, and its limits have been defined. It is administered by the Peruvian National Institute of Culture (INC) from local offices (Sechín Museum, Casma). Nevertheless, there is no INC infrastructure nor staff presence. Its buffer zone can only be used for the purposes approved by the INC.

*State of conservation:* In regard to its state of conservation, Chankillo can be subdivided into three areas: the Fortress (25% deterioration, plaster and mortar loss); the Thirteen Towers area (60% deterioration, plaster and mortar erosion, serious cracks, risk of total collapse); and the Plaza area (15% deterioration due to protective sand coverage). No conservation intervention is documented or visible. Artefacts recovered by the Chankillo Archaeological Project have received preventive conservation, and are stored at the Sechín Museum in Casma.

*Context and environment:* Chankillo is located in the coastal landscape of Peru, one of the world’s driest desert areas, 400 km north of Lima and 15 km from the Pacific coast. Lying to the west of the Andes mountain range, this landscape of foothills, valleys, and plains has remained geologically stable for thousands of years. The site itself lies adjacent to the irrigated and fertile southern branch of the Casma-Sechin river basin, amidst rock outcrops and sand ramps, near the rugged foothills of the western slopes of the Andes. Like many other coastal valleys, the Casma-Sechin river basin has long been an ‘oasis’ for settlement in an otherwise inhospitable desert.

*Archaeological/historical/heritageresearch:* Chankillo was first reported by explorers Ephraim Squier and Antonio Middendorf, and naturalist Antonio Raimondi, in the late 19th century. In the early 20th century Roosevelt, Tello, Kroeber, Collier, and Thompson discussed its function and chronology. Fung and Pimentel's synthesis of their 1968–69 excavations remains the most comprehensive description of the site to date. Later, Pozorski, Topic, and Wilson reported it in their surveys. Since 2001, Ghezzi has led the investigations of the Chankillo Archaeological Project. There is a consensus on the date and function of the most significant features (the Fortress and the Thirteen Towers).



**Fig. 3.3.2.** Aerial view of the Fortress. Photograph © Servicio Aerofotografico Nacional, Lima.

*Main threats or potential threats to the site:* Chankillo is increasingly exposed to threats of cultural origin, such as the robbery of stones for use as building material, the dumping of construction debris and city rubbish, and uncontrolled tourist visits. It is also affected by the damaging action of winds, daily thermal variation, seasonal humidity and earthquakes. Wind erosion causes the loss of mortar, which weakens the stone masonry, causes cracks to appear and stones to fall, and thus brings about the gradual collapse of walls. The structural instabilities caused by these physical-mechanical flaws compound the risk of collapse due to earth tremors, a common occurrence in Peru. The general neglect of the site causes greater exposure to all the factors mentioned, and significantly increases the rate at which deterioration occurs, as does damage caused by unsupervised tourism.

*Management:* The implementation of a Management Plan, which will include a Master Conservation Plan, an Interpretation Centre, and outreach programs, is one of the long-term goals of the Chankillo archaeological project.

### Additional bibliography

- Ghezzi, I. (2006). "Religious warfare at Chankillo", in *Andean Archaeology III*, edited by W. Isbell and H. Silverman, pp. 67–84. Berlin: Springer.
- Ghezzi, I. (2007). "La naturaleza de la guerra prehispánica temprana: la perspectiva desde Chankillo", *Revista Andina* 44, 199–225.
- Ghezzi, I. and Ruggles, C. (2007). "Chankillo: a 2300-year-old solar observatory in coastal Peru", *Science* 315, 1239–1243.



**Fig. 3.3.3.** The Thirteen Towers as seen from the Fortress. © Ivan Ghezzi.