



## ARCHAEOLOGY AND MUSEUM: WHAT STRATEGY FOR THE PROMOTION AND THE PROTECTION OF ARCHAEOLOGICAL SITES OF ANCIENT IRON METALLURGY IN CÔTE D'IVOIRE<sup>i</sup>

Kiénon-Kaboré Timpoko Hélène<sup>ii</sup>

Associate Professor in Archeology, ISAD,  
University Félix Houphouët-Boigny, Côte d'Ivoire  
Technical Adviser in charge of archaeological heritage at the  
Ministry of Culture and Francophonie of Côte d'Ivoire

### Abstract:

In Côte d'Ivoire, the archaeological research conducted for more than 100 years have revealed a rich archaeological heritage that includes various furniture remains and an enormous real estate property that integrates into human and environmental landscapes specific to each type of sites. Since 2010 research on ancient iron metallurgy in Côte d'Ivoire allowed the discovery of various technical heritage, majority of which consists of real estate remains as mining, reduction furnaces, slag heaps etc. The promotion of this specific technical heritage requires close collaboration between archaeologists, museum professionals and other heritage specialists. The state of Côte d'Ivoire has decided to finance the promotion of important sites of the technical heritage of the iron metallurgy to contribute to its protection, local tourism through community development. The problem is based on the strategy to set up for the promotion of this heritage in situ, which differs from the usual methodology of museum approach.

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<sup>ii</sup> <sup>ii</sup> Correspondence: email [tkienon@gmail.com](mailto:tkienon@gmail.com)

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**Resume:**

En Côte d'Ivoire, les recherches archéologiques menées depuis plus de 100 ans ont révélé un riche patrimoine archéologique composé de divers vestiges mobiliers et d'un énorme patrimoine immobilier qui s'intègre dans des paysages humains et environnementaux propres à chaque type de site. Depuis 2010, la recherche sur la métallurgie ancienne du fer en Côte d'Ivoire a permis la découverte de divers patrimoines techniques dont la majorité se compose de vestiges immobiliers comme les mines, les fours de réduction, les amas de scories etc. La promotion de ce patrimoine technique spécifique nécessite une étroite collaboration entre archéologues, les professionnels des musées et d'autres spécialistes du patrimoine. L'Etat de Côte d'Ivoire a décidé de financer la promotion des sites importants du patrimoine technique de la métallurgie du fer, pour contribuer à sa protection, au tourisme local à travers le développement communautaire. Le problème qui se pose est la stratégie à mettre pour la valorisation de ce patrimoine in situ, qui diffère de la méthodologie habituelle de l'approche muséale.

**Mots-clés:** technique, patrimoine, métallurgie, fer, stratégie, musée, promotion, protection

**Introduction**

Archaeological heritage forms a complex with the natural environment in which it is integrated. This is as important as the material that composes it. Indeed, the environment is composed of the elements of nature and of all that is evidence of man, such as cultural heritage. The archaeological heritage is an important component of this cultural heritage. It is characterized in most cases by the diversity and specificity of the remains. The archaeological heritage may be movable artifacts or immovable sites. In Côte d'Ivoire, archaeological research has enabled the discovery of a variety of sites and remains. Movable artifacts are usually made available to the Museum of Civilizations of Côte d'Ivoire for their protection and conservation or deposited in the laboratories of research centers. Much of the archaeological heritage is made up of immovable sites whose enhancement and protection pose real problems. The technical heritage of the ancient iron metallurgy is characteristic of sites. Indeed, sites consist of a variety of remains that are left in situ after the research. These are iron mine shafts, refuse heaps

(mainly slag and nozzles), and iron ore smelting furnaces whose diversity reflects that of the forms of technical traditions. How can these sites and assets be promoted and protected in a country where archeology is often ignored and misunderstood by much of the population? What strategies can be used for the enhancement and protection of this heritage in situ?

### **1. Diversity and Specificity of the Archaeological Heritage of the Ancient Iron Metallurgy and the Necessity of an Approach in Situ**

Planned research on the old iron metallurgy has been undertaken for almost six years and has revealed both the richness and diversity of this dated technology heritage, and the current state of research on the period between 1000 and 1900 AD. Indeed, much of the Ivorian territory, as revealed after a targeted survey of Côte d'Ivoire as a whole, is full of remains of this heritage retracing the operating chain of this heavy marker of the civilizations of some societies in Ivorian territory. Excavations in some locations, such as in the area of Korhogo (Poungbè) and Odiénne (Siola and Doumbala Department) in northern Côte d'Ivoire, have left in situ much of this heritage composed of iron mines, iron ore smelting furnaces and large piles of waste. These have often been in same place as all archaeological traces of the operating chain, providing an archaeological complex to promote a complete understanding of the historical, cultural and technical heritage. This rich heritage left in situ deserves to be known, protected and made known to the public. The museum policies of the Côte d'Ivoire do not take into account such technical heritage sites which consists of elements of several stages of the operating chain that range from the search for ore to the slag refuse from the smelting of iron ore. The notion of a museum of archaeological site set in the OCOM in 1978 and reiterated in 1987 by Guy C. Poinssot Barruol makes sense in the context of archaeological sites showing metallurgical techniques of iron whose understanding is inherent in a presentation of the diversity and particularity of the remains.

#### **A. The Iron mines**

In the operating chain of ancient iron metallurgy, iron ore extraction is an important step. Extensive remains of this operation are usually visible and with other artifacts constitute a complete chain in a process that starts with the search and extraction of ore. In the northern part of Côte d'Ivoire, circular wells, square or simple open pits, or others covered by slabs of

The surface rocks were discovered (Fig1). (Vincent Serneels 2013 and Kiénon-Kabore 2012) This heritage is witness to the extraction techniques of mining sites that

show patterns of traditional farms, digging techniques, movement in mines, mining methods, extraction choices etc. These sites are usually close to those heaps of waste left after smelting and to the smelting furnaces themselves.



Photo: Kiénon-Kaboré Timpoko

**Figure 1:** Iron mine at Pougbe (the Bagoue region)

## **B. Refuse heaps**

Refuse heaps consist of much smelted slag, nozzles, fragments of nozzles and furnace walls. (Figs: 2, 3, 4, 5). The organization of the iron ore smelting space determines them and indicates most of the time a part of the technical tradition. The importance of the organization of space available for clusters of slag shows that they cannot be assessed as being at the place of their operation in the full operational chain within their natural and cultural environment. The diversity of shapes of clusters is the result of the different techniques and traditions implemented. We discover clusters arranged in a ring, in a line, in a half-moon, or just a circular group etc. The organization of these clusters is determined by the arrangement of the furnaces in the space for smelting.



**Photo:** Kiénon-Kaboré Timpoko

**Figure 2:** Refuse heaps at Siola region of Odienné





Photos: Yéo Arouna

**Figure 3 and 4:** Iron reduction nozzles



Photo: Kiénon-Kaboré Timpoko

**Figure 5:** Blocks of slag

### **C. The Furnaces of Reduction of the Iron Ore**

The iron ore smelting furnaces, which are emblematic remains in the archaeological heritage of the ancient iron metallurgy, were discovered in large numbers at sites in northern Côte d'Ivoire in good states of preservation. They are of various shapes and arrangements in the reduction of areas, clearly showing the complexity and multiplicity of technical traditions that deserve to be known and valued (Figs: 6, 7, 8, 9, 10, 11, 12). These are stoves that reduce the level of forms, building materials, and bellows, organizing spaces in which they fit themselves constitute true crucibles of technical knowledge of ancient traditional Ivorian societies. Furnaces can have a slightly tapered shape, or tapered, pear-shaped, horseshoe etc. The techniques used for the construction of the furnace body are also ingenious. The uses of clay, straw and old recovered furnace elements that reduce waste in the construction of new furnaces are true traditional methods of preserving nature. Indeed, ventilation nozzles, the furnace walls, iron slag which result from previous smelting operations is reused in the construction of new furnaces for smelting in ancient iron metallurgy. The knowledge of these ancient techniques combined with moral and educational values can be real sources of resilience for our societies when facing full cultural and societal crises if they are valued and protected.



Photo: Serneels Vincent

**Figure 6:** Doumbala iron reduction furnace dated between 1300 and 1400 A.D.



Photo: Yéo rouna

**Figure 7:** Doumbala iron reduction furnace dated between 1665-2000 A.D.  
Coal collected at 105 m depth in the slag layer gives a somewhat broader fork





Photo: Ilboudo-Thiombiano Elise

**Figure 8:** Doumbala iron reduction furnace dating between 1890 and 1905 AD



Photo: Serneels Vincent

**Figure 9:** Siola iron reduction furnace dating between 18th and 19th century AD



**Photo:** Yéo Arouna

**Figure 10:** Siola iron reduction furnace dated to the 13 th century AD



**Photo:** Kiénon-Kaboré Timpoko

**Figure 11:** Nawavogo furnace (Dokélé Dougou) area of the bagoué not yet excavated



Photo: Kobénan Jacob

**Figure 12:** Diandéguéla furnace area of the Folon region not yet excavated

## **2. The Recovery and the Protection Strategies of Metallurgical Sites of Old Iron Metallurgy in Cote d'Ivoire**

In Côte d'Ivoire, the evaluation of the archaeological heritage has so far been made by the Museum of Civilizations of Côte d'Ivoire (MCCI). It is mostly concerned with movable artifacts whose most recent exhibition of archaeological remains dates back twenty years. Indeed, in 1993 under the Ministry of Culture in collaboration with the Ivorian archaeologists, an exhibition on "The history of Côte d'Ivoire in the light of archeology" was presented to the public. Apart from this activity, the Ivorian archaeological artifacts and sites have not been reevaluated despite more than a century of research. The Ministry in charge of tourism that should also take charge of these remains is unclear in its action plan for the archaeological heritage. We realize that archaeological sites have been abandoned without any policy of conservation or protection. However, efforts are being made. Indeed, since January 2016, the Ministry of Culture and Francophonie has set up an action plan for the management of archaeological heritage. It takes into account the protection and the enhancement of this fragile heritage so that the actions of local communities and state decisions may combine to yield significant results.

## **2.1 Protected forests, traditional customs and practices: assets for the protection and the enhancement of the archaeological heritage of ancient iron metallurgy in Côte d'Ivoire**

The issue of conservation and protection of the archaeological heritage is not a new topic. Yet even now, the problem remains unresolved for the majority of countries in sub-Saharan Africa. Technical solutions are essential but responsibility, requirements and community practices concerning the physical environment of archaeological sites are key elements in the promotion and the protection of this specific heritage (ICCROM, 2009). The majority of the ancient iron metallurgy sites in Côte d'Ivoire were discovered in protected forests and / or sacred areas (by the actions of the administrative authority or by the fact of local people's traditions and practices). The policies for protected forests and sacred areas allowed for the protection of smelting sites in some northern communities as Pougbe (Zone Korhogo, northeastern Ivory Coast), Siola (Odiene area, Northwest Côte d'Ivoire) etc. In the sacred forests that contain some sites of the operating chain of iron metallurgy, practice being social and spiritual, evaluation of these archaeological sites is possible and requires the organization and consent of communities who can become actors aware of the importance of their heritage. Surveys of these populations indeed suggest a possible recovery of certain sites in their social and cultural environments, in accordance with the demands of the traditional guardians, both economic and spiritual, of these places. This shows that what is sacred and protected in some environments can be related to the technical archaeological heritage of the iron metallurgy and be one of the archaeological sites' protection factor. These sites allow an approach to history and cultures that can also be an environmental preservation factor into which they fit, insofar as they constitute a set with their environment. They become an asset for the preservation of the environment and vice versa. Thus, the collaboration between environmental actors, museum experts and cultural heritage and archaeologists in Côte d'Ivoire is to encourage an interdisciplinary approach.

## **2.2 The Role of the State: an important tool for the enhancement and the protection of metallurgical heritage sites of Côte d'Ivoire**

In January 2016, the Ministry of Culture and Francophonie appointed for the first time a technical advisor in charge of archeology. Under the leadership of the Minister of Culture and Francophonie, Mr. Maurice Kouakou Bandama, a sub-department of archeology is being created and the archaeological heritage has received a decisive position in the department. Several activities related to the protection and the

enhancements of the archaeological heritage, including those of northern smelting sites of Côte d'Ivoire, are ongoing.

In terms of an evaluation and protection strategy for iron metallurgy sites, the role of the State is critical on several levels. Regarding the law on cultural heritage, there is a flaw in the texts and also in its application. Law 87-806 number of 28 July, 1987, on the protection of cultural heritage, discusses archeological heritage in Chapter III, Articles 37 to 45. However, none of them is applied in the field. Archaeological heritage sites in general and iron metallurgy in particular are all the more fragile since there are no regional structures devoted to archaeological heritage. The responsible regional directorates of culture which should reflect this heritage are not trained in the management of archaeological heritage and have mostly too modest an intellectual background to be able to address this specific heritage. Hence, there is a need for the State to train museum and heritage professionals in the management of archaeological heritage sites in general, particularly those ancient iron metallurgy sites whose evaluation and in situ protection should reflect the specificity of various artifacts. The strengthening of legal texts and the actual implementation thereof would enable regional service culture at the museum to have a legal framework for the protection and recovery of sites. The State should also fund metallurgical site evaluation advantages and establish a community development policy related to the archaeological heritage that could be a key factor in the fight against poverty. Public involvement could actually help not only the protection and the enhancement of archaeological sites but also provide ways for the public to support themselves through their cultural heritage and their economic well-being.

## **Conclusion**

The enhancement and the protection of heritage sites of ancient iron metallurgy fit into the overall consideration of physical archaeological sites in Côte d'Ivoire. But because of the context of the specific iron metallurgy sites that offer a variety of sites and artifacts, an interdisciplinary approach of museum services, heritage specialists, environmental specialists and archaeologists trained in technical heritage is necessary. The approach to metallurgical sites in a comprehensive presentation on the site allows us to understand the operating chain and understand the site on historical, technical, cultural and social grounds. The State's commitment to the institutional and financial plan is a vital basis for the protection and the enhancement of the sites. The role and involvement of local communities also enables the success of the process in the context of archaeological museums.

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