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Martinez, Eleanor Phetteplace, Aditi Saksena, Andrés Santana-Miranda, Roberto

E. Villasante, Esther Wagner



Ghana Museums and Monuments Board

Bernard Sackey Kenneth Fomjegeba Francis Kwarayire Kofi Akyeampong Gyamfi



Asante Traditional Authority

Nsumankwaahene Bafoo Asabre Ababio Kogyawoasu lll



Manhyia Palace Museum

Justice Brobbey Gordon Frimpong





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Nana Akwasi Poku Nana Aboagye Siaw Agartha Ntim Lydia Okyere Akwasi Opoku



Edwenase | Atua-Kosua Kwame

Grace Ntriwaa Kwabena Ntiamoah Adu Poku Kwaku Agyepong Twusmasi Ampofo Paul Asuming Nana Karikari Opanin Kwabena Owusu Opanin Kwame Assuming Asare Bediako Dickson



Ejisu-Besease | Tano Yaw

Nana Sabi Antwi III Kwadwo Oheme Daakyi Asiedu Nana Daakyi Asamoah Nana Asi Sarpong Nana Kwabena Boakye Kwame Peprah



Adako Jachie | Kwasi Sima

Nana Osei Bosompem III Opanim Agyemang Duah Nana Nyarko Hon. Baffour Nana Akosuah Esther Kyei Asiamah Kyei

Community Interviewees

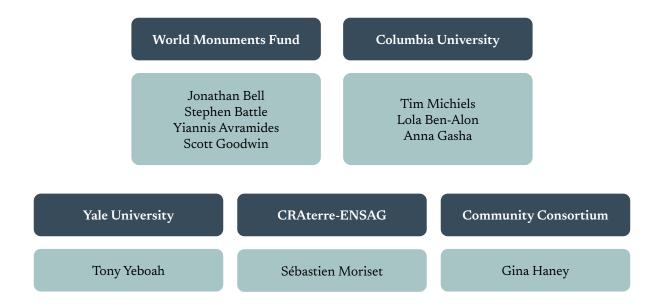
Nana Ama Bonsu Phillipa Dansowaah Adwoa Fremah Solomon Boateng Thomas Nana Baama Nana Techimaa Kwakye Dominic Anokyewaa Nana Akosua Kwaku Boateng Akosua Mary Lily Asare Patricia Donkoh Prince Asante Diana Antwiwaa
Esther Kye
Joyce Bookye
Ama Atta
Confort Nikansah
Esther Owuswaa
Fouzia Ayew
Kwassi Lotto
Eric William
Emmanuel
Prem Peh Kwame
Maame Agyerwaa
Foon Elijah

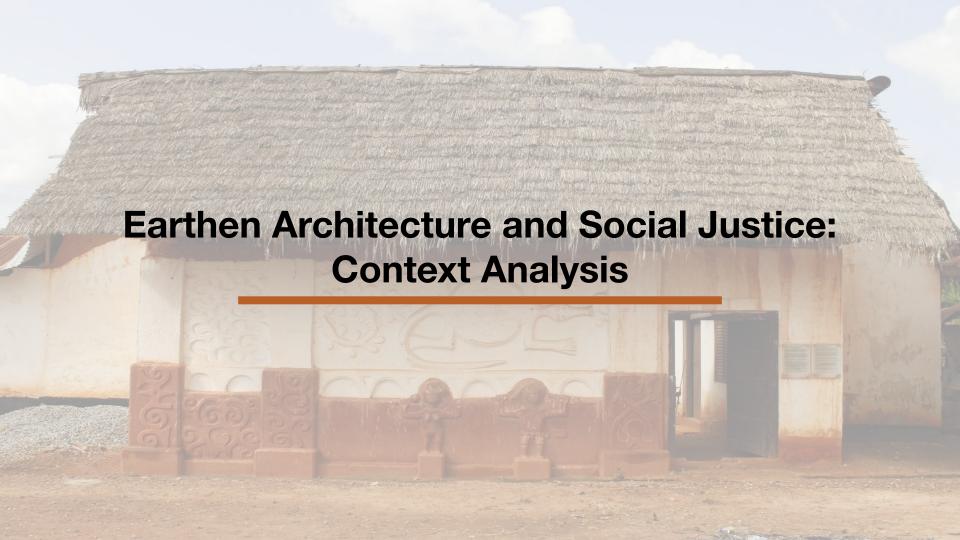
Bayern Dsoramesh Dylan



Patakro | Adansi Bonsam

Nana Okyere Tibo Darko Nana Kuti Asaadu Nana Owusu Osei Agyemang Sylvester Paul Yaw Duku Osei Agyemang Decosta Oppong Thomas Maxwell Owusu Frimpong Fordjour Danelson Opoku Stephen Kofi Poku Emmanuel Amponsah **Daniel Frimpong** Adom Christian Obeng Denis Kwabena Peprah Kwadwo Anokye Owusu Akyaw Tebo Christian





Earthen Architecture Origin Stories



Creating Social Identities and Collective Know-How



Colonizing Narratives



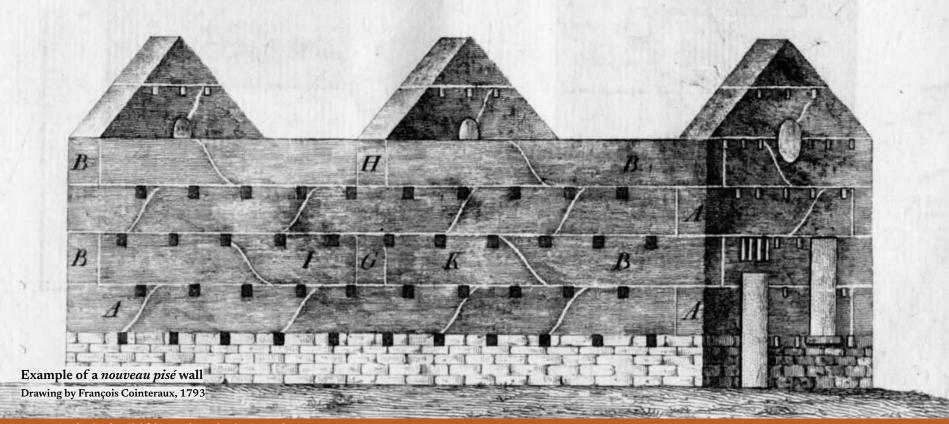
Huaca Huantille, Peru Image by Jose Morales



Rammed Earth in Joya del Ceron, El Salvador Image by Youngrobv

PL.VIme

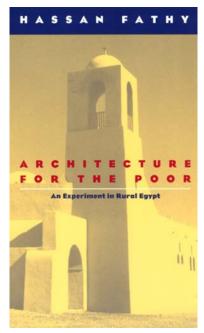
The Industrial Revolution and the "Modernization" of Earth



Social Discredit of Earth through Western Perspectives



Raw Earth and Poverty



Hassan Fathy's *Architecture for the Poor*Published in 1969



House built of clay in Prädikow, Germany Built ca. 1950

Raw Earth and Terminology

Strength and erosion resistance of mudbrick as an alternative local material for Australia's Northern Territory remote housing

THE FUTURE OF MUD

A Senegalese architecture firm is championing a lower-tech material than concrete to help cities prepare for climate change.

Beyond the mud hut: the return of raw-earth architecture

The extraordinary benefits of a house made of mud

The sustainable cities made from mud

Disaster-Related Misconceptions

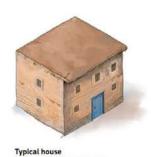
After Morocco Quake, Earthen Buildings Come Under Scrutiny

Recent disasters have raised questions about the seismic vulnerability of mud-brick and rammed earth construction. Can this traditional building style be made safer?

Morocco mud brick housing makes hunt for earthquake survivors harder

90% of the buildings in the city were destroyed. However, many people believe this was largely due to the poor build quality of the homes and structures as opposed to just strong ground shaking. At the time of the earthquake, most of the buildings were of adobe construction and not capable of sustaining earthquake





Built mainly with mud bricks

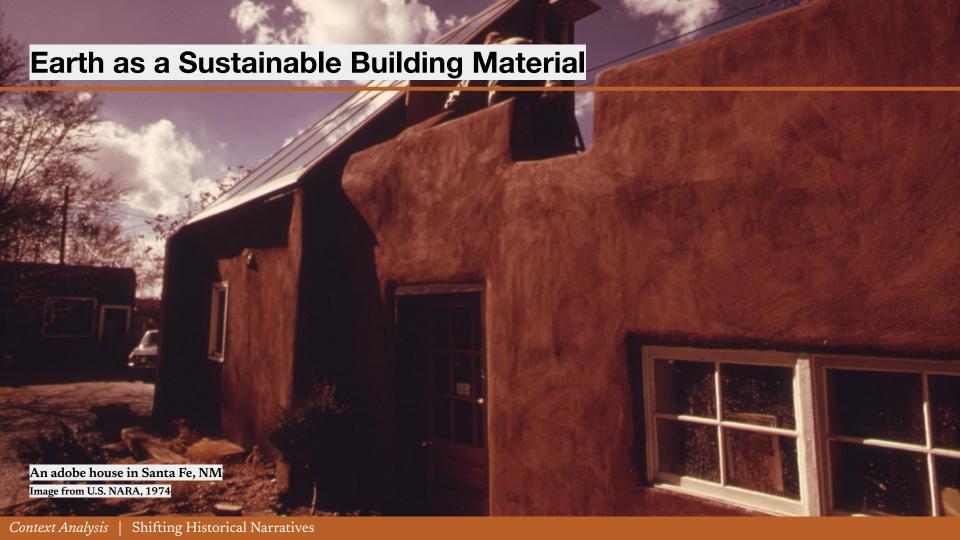




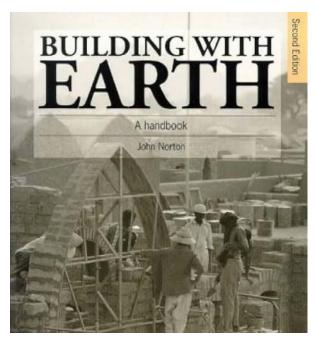
Earthquake Causes violent lateral shaking

Mud walls cannot withstand the shaking and crumble.

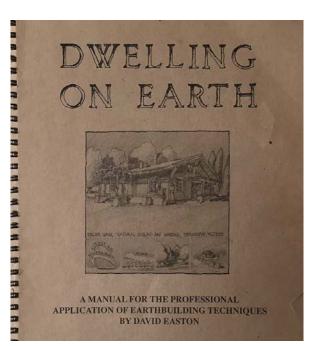




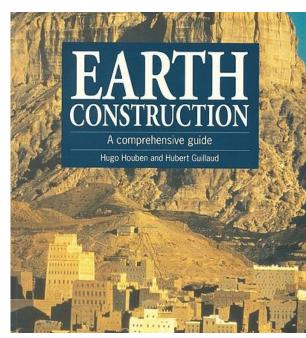
Building a Body of Literature



Building with Earth: A Handbook Published 1986



Dwelling on Earth: A Manual Published 1991



Earth Construction: A Comprehensive Guide
Published 1989

Techno-Scientific
Structuring of Knowledge

Masonry

Monolithic

In-Fill

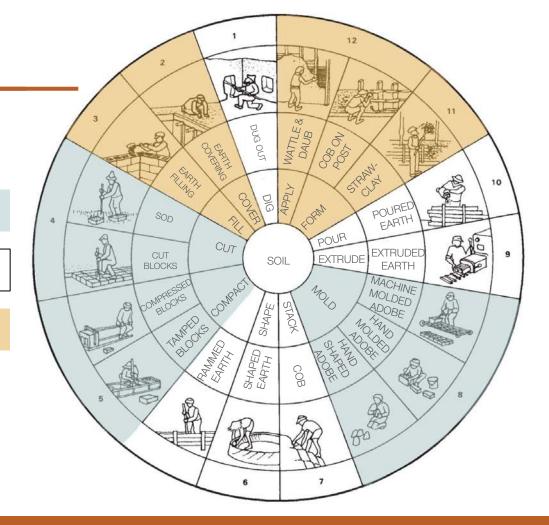


Chart of Simplified Earthen Construction Typologies

Image by CRAterre, modified by Eleanor Phetteplace

Advancing Study & Professional Practice

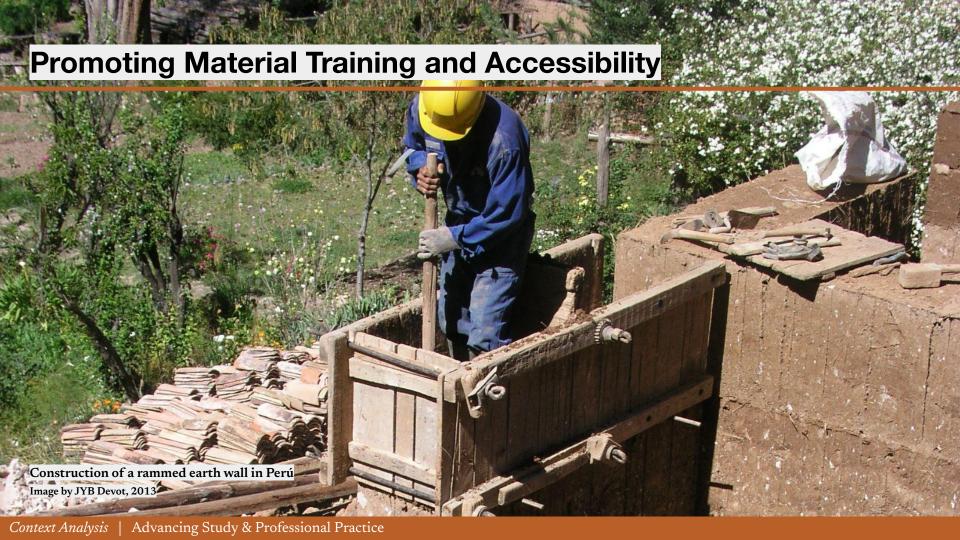


PAT Course
Image sourced from Getty Conservation Institute

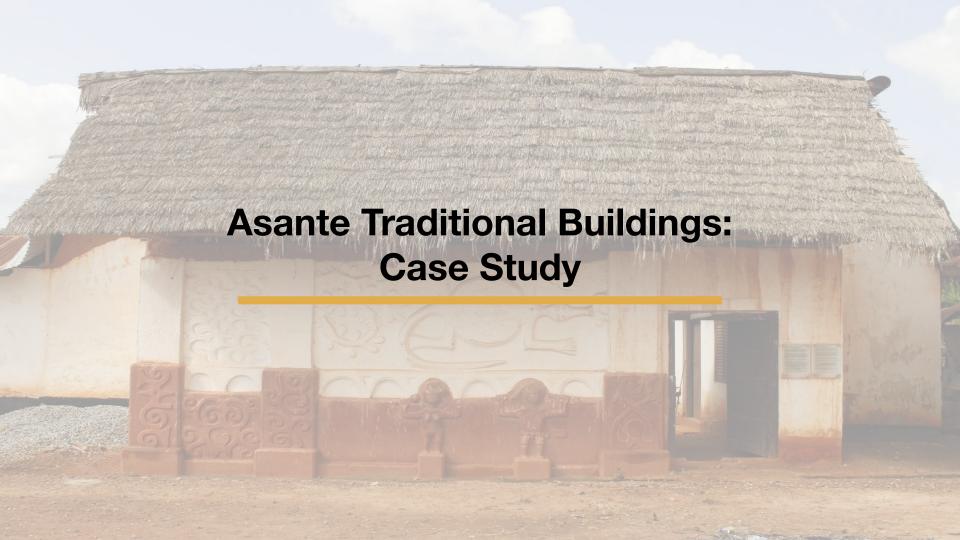


UNESCO Chair Institutions

UNESCO Chair









Physical Description & Construction Methods

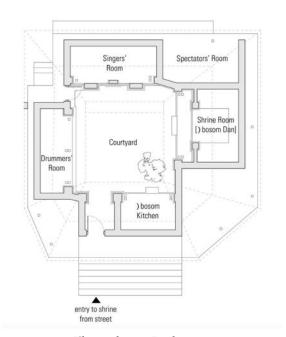


Exposed Wall at Adako-Jachie
Image by Daniela Martinez



Workers at Adako-Jachie Image by Studio Group

Layout and Significance



Floor plan at Bodwease
Survey and Condition Assessment by WMF and GMMB.
January 2014



Drummer's room at Patakro Image by Roberto E. Villasante

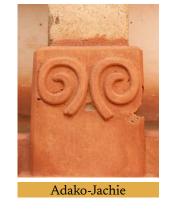
Spirituality Represented in Decorative Forms

Examples of Adinkra: Images by Roberto E. Villasante









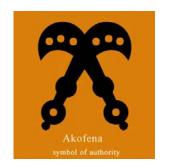


Examples of Symbols and Their Meanings:











Influencing Factors

Colonization of Resources & Markets

Colonization of People & Social Change

Asante Culture & Spirituality, and Religion

Heritage Policy

Spatial Transformation

Colonization of Resources and Markets



Forester and Workers Felling Tree
Image sourced from UK National Archives, Kew, England



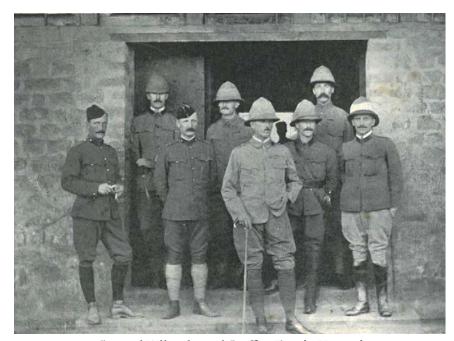
Buying European Goods at Market Image sourced from UK National Archives, Kew, England

British Campaigns in Ashanti



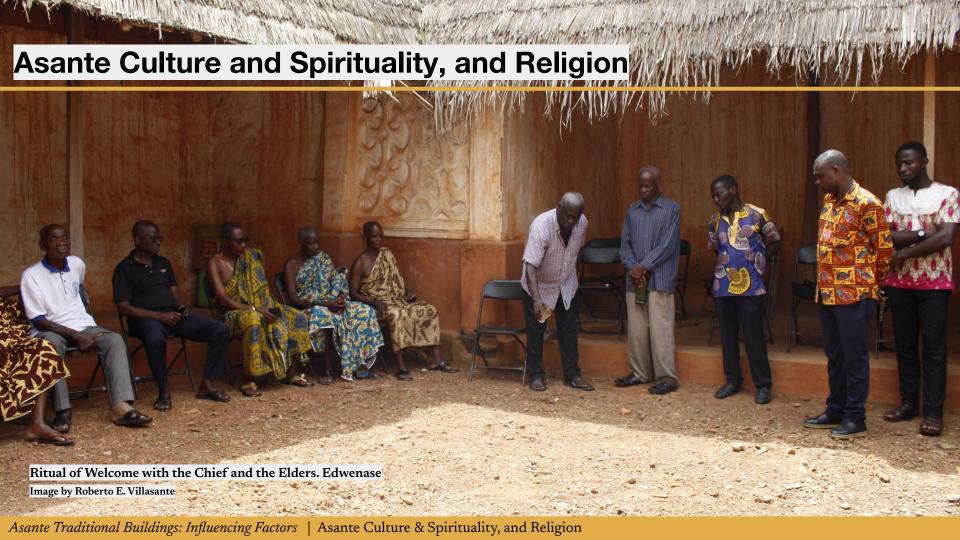
Battles & Destruction in Search of Golden Stool

Battles of the Nineteenth Century, 1901

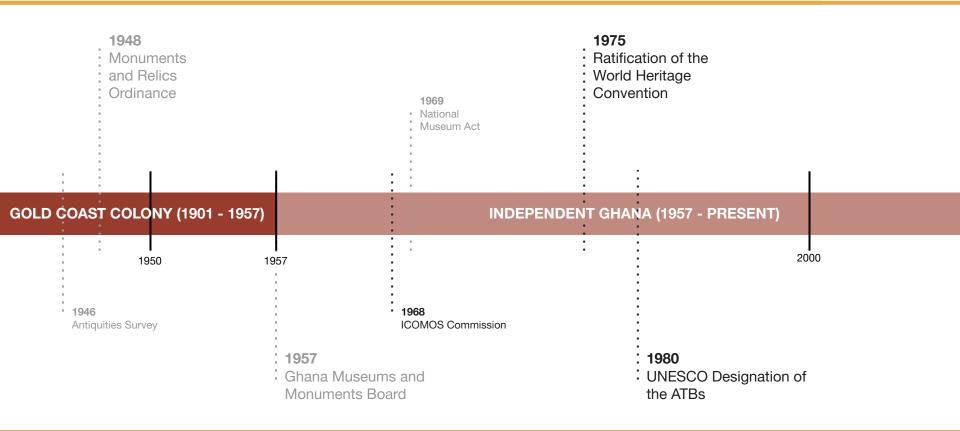


General Wilcocks and Staff at Fort in Kumasi Image by David Martineau Haylings, 1900

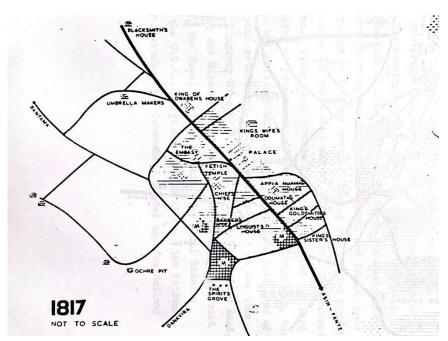




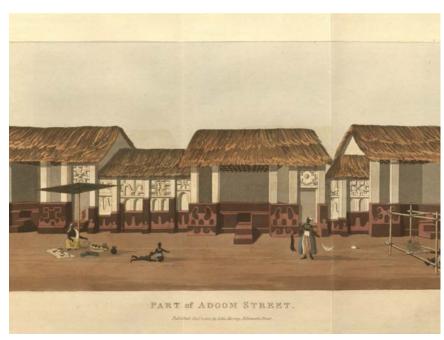
Ghanaian Heritage Policy in the International Context



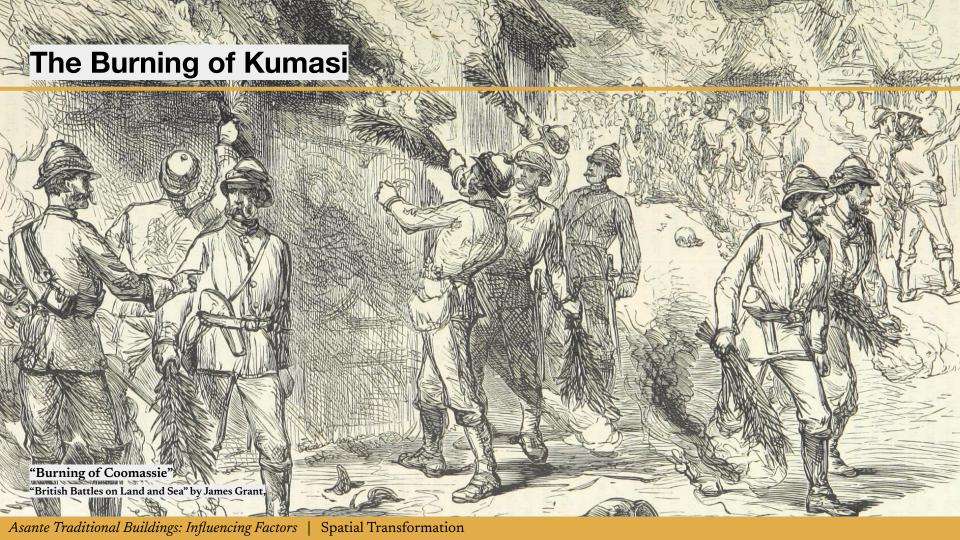
Changes in the Built Environment



Kumasi city map as described by Bowdich Image by Frederick A. Abloh



Traditional Kumasi Cityscape before the 20th century
"Part of Adoom Street" Bowdich 1819





1 Earth as Sustainable Construction	4 Limited Heritage Investment & Financing	7 Government Investment in Continued Use of Earth
Divide and Interplay Between New & Traditional	5 Complex Social Perceptions	Authority & Communication over ATBs
3 Limited Heritage Policy & Education	Tensions with Christianity	Traditional Knowledge & Skilled Labor

Earth as Sustainable Construction

Thermal Properties and Energy Consumption

Locally Sourced Materials

Recyclability

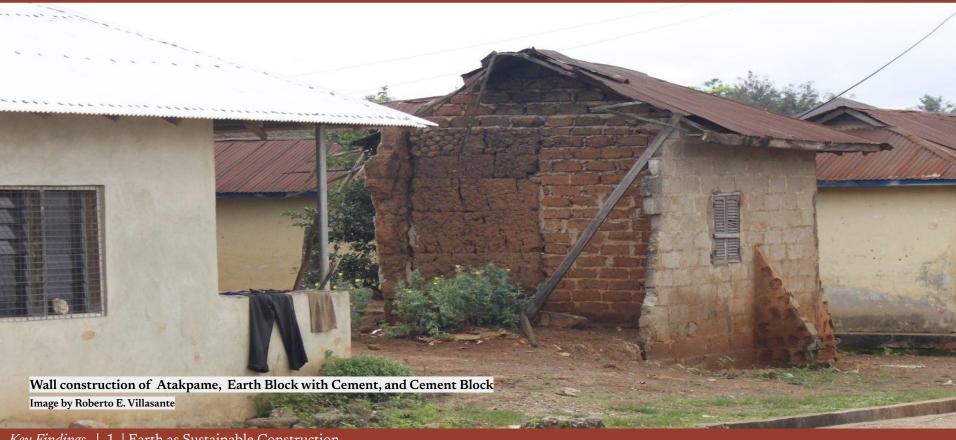
Land Consumption and Resource Availability

Thermal Properties: Impact of Roofing Compatibility





Recyclability



Recyclability

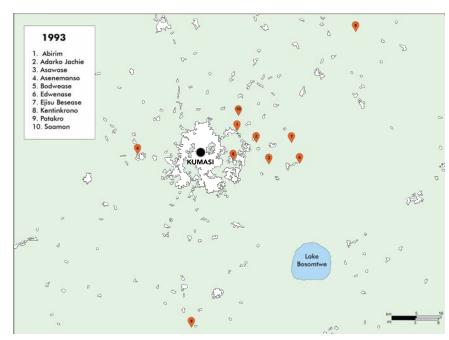


Use of Cement Mortar Image by Roberto E. Villasante



Use of Cement Mortar Image by Eleanor Phetteplace

Urban Expansion



Kumasi urban footprint by 1993 Image by Daniela Martinez based on aerial photography from 1993

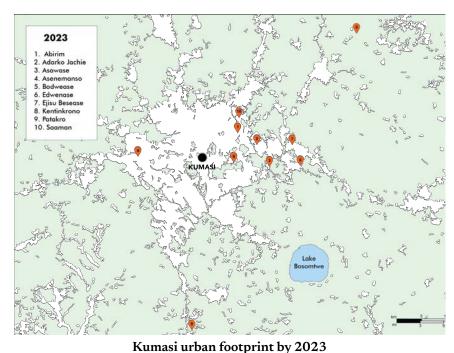


Image by Daniela Martinez based on aerial photography from 2013

Land Consumption



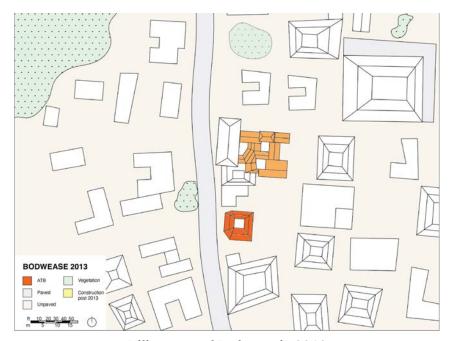
Village around Asenemanso in 2013
Image by Daniela Martinez based on aerial photography from 2013



Densification Around Asenemanso in 2023

Image by Daniela Martinez based on aerial photography from 2023

Land Consumption



Village around Bodwease in 2013

Image by Daniela Martinez based on aerial photography from 2013



Village around Bodwease in 2023

Image by Daniela Martinez based on aerial photography from 2023

Divide and Interplay Between New & **Traditional Earthen Architecture**

Divided Institutional Focus

Need for Combined Institutional Efforts

Rural Use of Traditional Materials

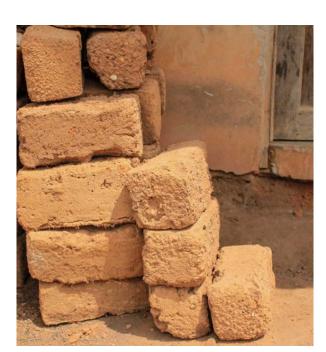
Kumasi Earthen Construction Types

Institutions Support New Earthen Architecture

Divided Institutional Focus



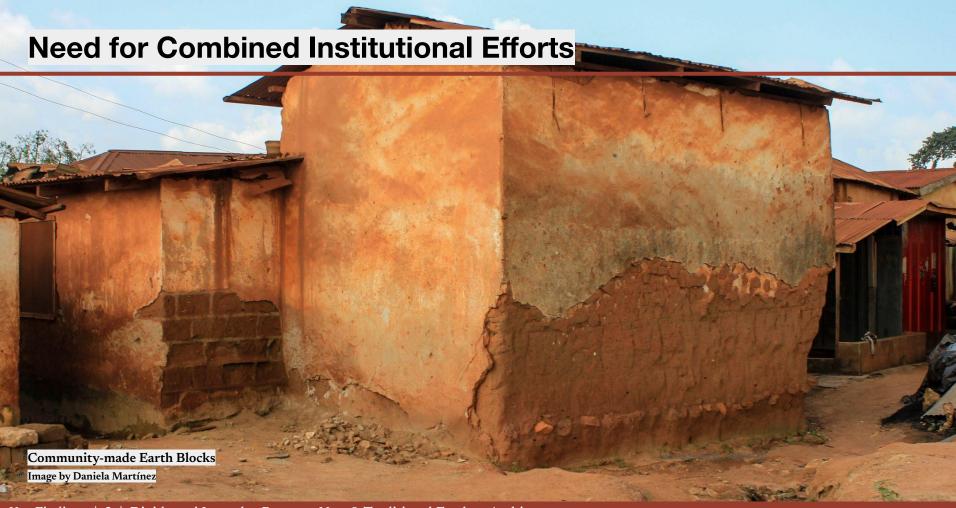
Traditional Construction Methods Image by Studio Group



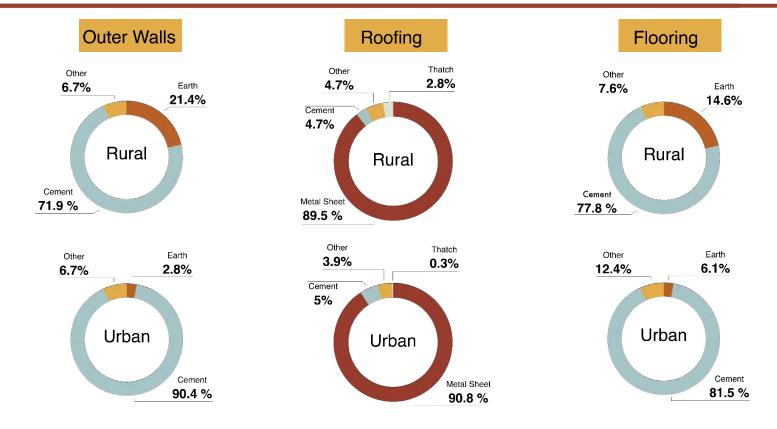
Community-made Earth Blocks Image by Daniela Martínez



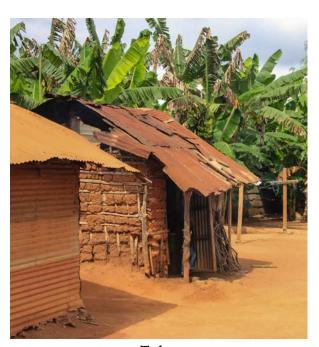
Lab-made Blocks, AAMUSTED
Image by Roberto E. Villasante



Rural Use of Traditional Materials



Mixed Use of Contemporary and Earthen Materials



Tadan Image by Daniela Martínez



Atakpamé Image by Roberto E. Villasante



Earth Block Image by Studio Group

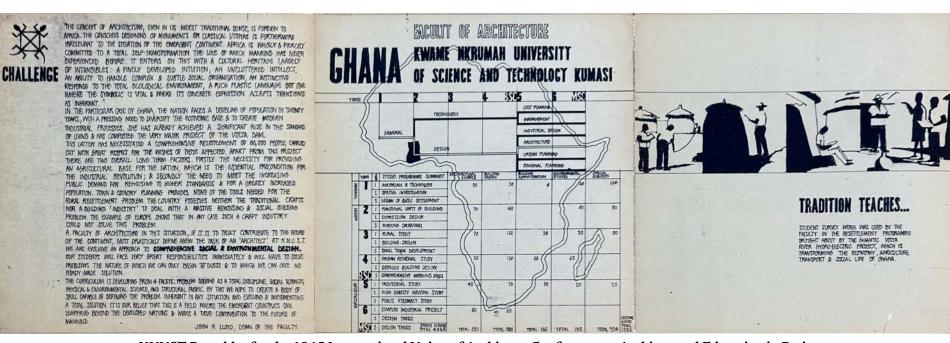


Limited Heritage Policy & Education

Limited Heritage Policy and Government Investment

Lack of Investment in Heritage Education

Lack of Investment in Heritage Education



KNUST Pamphlet for the 1965 International Union of Architects Conference on Architectural Education in Paris

J. Max Bond Jr. Papers, Avery Architectural and Fine Arts Library

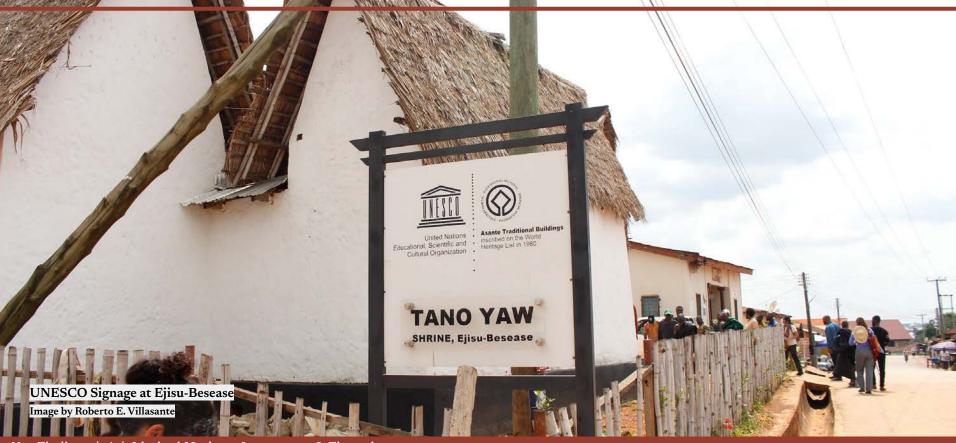
Limited Heritage Investment & Financing

Lack of Infrastructure for Tourism

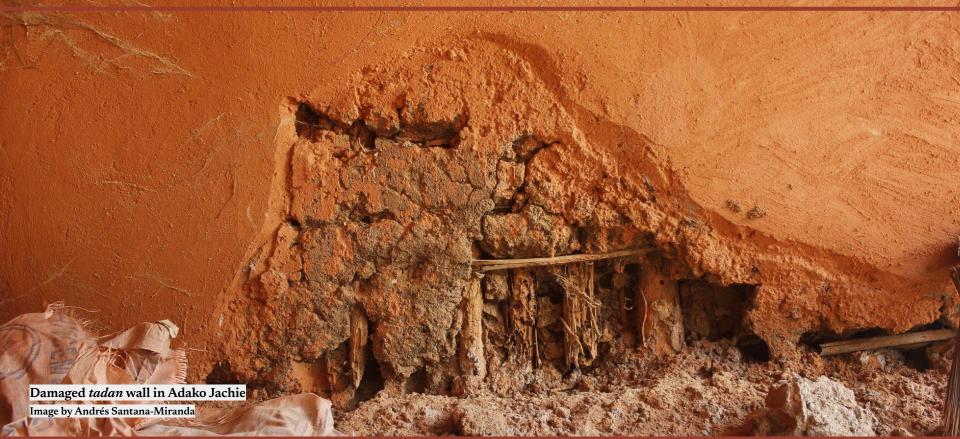
No Payback from Initial Investment

Insufficient Government Funding and Reliance on Foreign Resources

Lack of Infrastructure for Tourism



Insufficient Funding from Government and Asante Traditional Authority, and Over-reliance on Foreign Assistance



Complex Social Perceptions

Durability

Poverty and Social Status

Healthiness and Dirtiness

Tensions and Contentions

Complex Social Perceptions

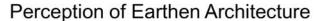


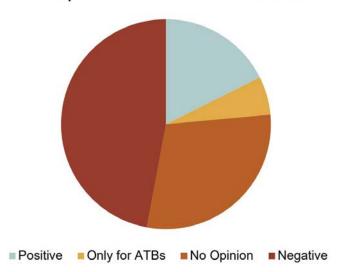
Discussions with regional chiefs and elders Image By Daniela Martinez



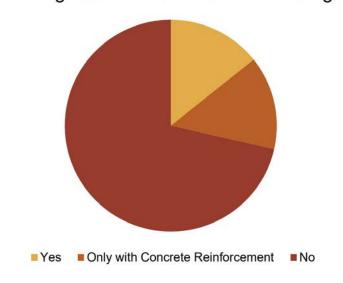
Discussions with shrine's caretakers Image by Daniela Martinez

Interviews with Adako Jachie Community Members





Willingness to Live in Earthen Building



Tensions with Christianity

Longstanding History of Conversion and Demonization

Contemporary Perceptions Informed by **Religious Tensions**



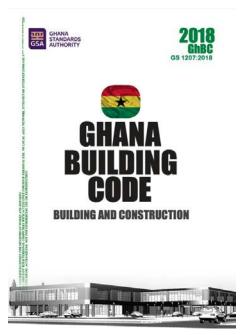
Government **Investment in the Continued Use of Earth**

Lack of Buildings Using Earthen Architecture

Complications of Building Codes



Complications of Building Codes



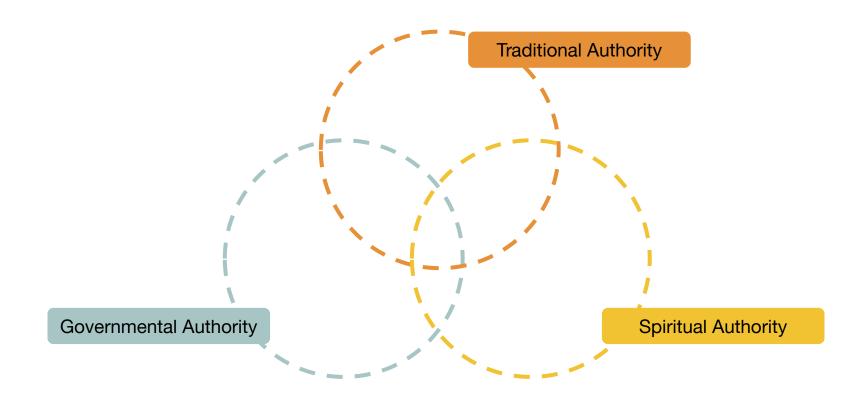
2018 Ghana Building Code Ghana Standards Authority



Earth block house and tadan building on the road to Patakro Image by Daniela Martínez

8 Authority and Communication Over Asante Traditional Buildings

Intersection Between the Different Authorities



Traditional Knowledge and Skilled Labor

Loss of Traditional Knowledge and Skilled Labor



Man Who Built His Own Tadan Home Image by Daniela Martinez



Self-Built Tadan on Roadside Image by Daniela Martinez

Earth as Sustainable Construction	Limited Heritage Investment & Financing	7 Government Investment in Continued Use of Earth
Divide and Interplay Between New & Traditional	5 Complex Social Perceptions	Authority & Communication over ATBs
3 Limited Heritage Policy & Education	Tensions with Christianity	Traditional Knowledge & Skilled Labor



Material Resource Protection

Ghana Museums and Monuments Board Earthen Building

Ashanti Region Earthen Architecture Symposium and Coalition

Community Engaged Tourism Development

Heritage Research and Documentation Accessibility



Contemporary Material Need

















Natural Materials Needed for Maintenance Images by Studio Team

Government-Protected Forests in Ghana

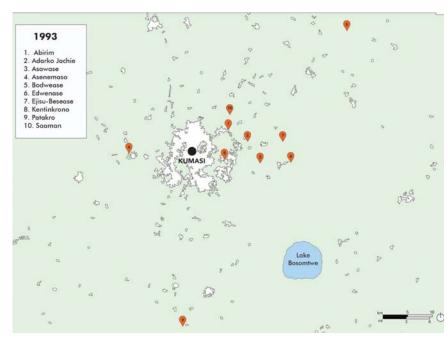


Protected Forests in Southern Ghana, Including Ashanti Region
Protected Planet

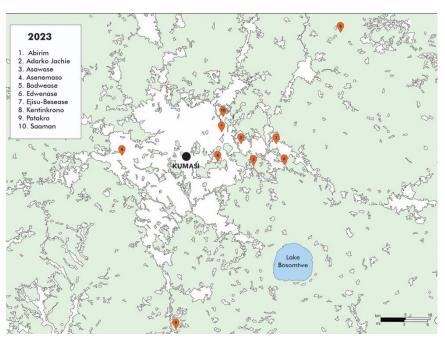
 National designations 		304
Forest Reserve	286	Ð
National Park	7	()
Resource Reserve	6	0
Strict Nature Reserve	1	Ø

Protected Forest Statistics for Ghana Protected Planet

Regional Deforestation



Kumasi Deforestation in 1993 Graphic by Daniela Martinez



Kumasi Deforestation in 2023 Graphic by Daniela Martinez

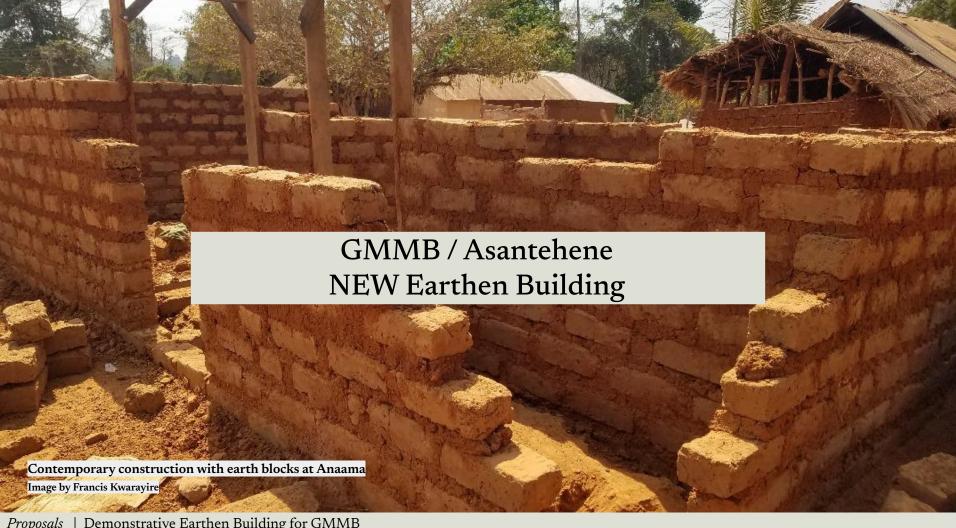
Maintaining Traditional Materials & Practices



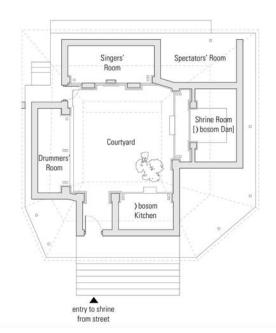
Replacement Metal Roofing at Asawase Image by Roberto E. Villasante



Traditional Thatched Roofing at Edwenase
Image by Roberto E. Villasante



From Spatial Injustice to Material Opportunity

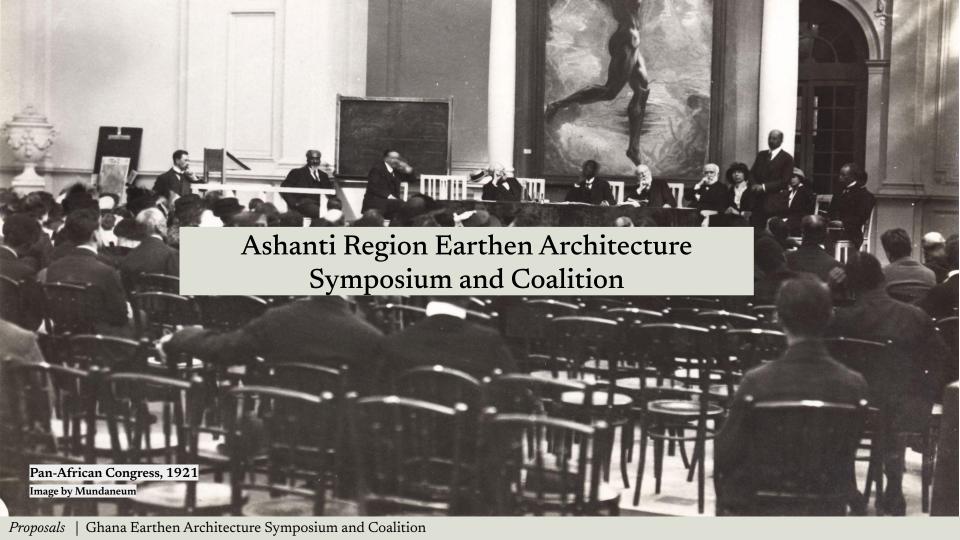


Floor plan of Bodwease
Survey and Condition Assessment by WMF and GMMB

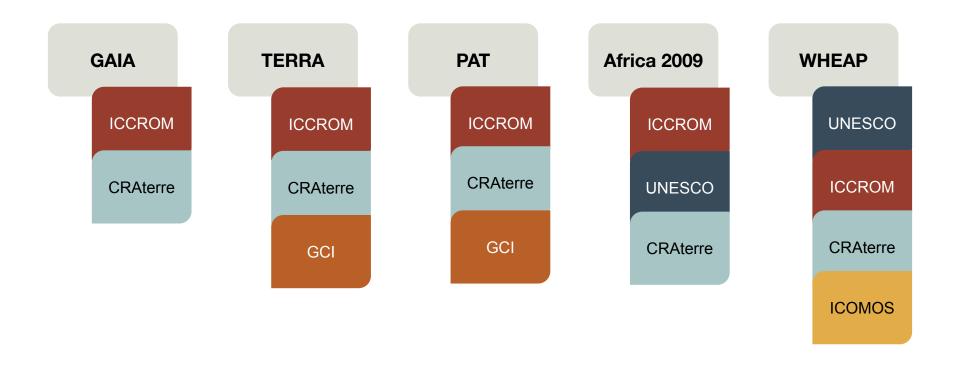


Prempeh II Jubilee Museum at the Cultural Centre Image sourced from TripAdvisor





Historic Patterns of Institutional Partnership





Ashanti Region Earthen Architecture Symposium and Coalition Proposals



Previous Measures



Signage with Site Name at Besease Image by Studio Group



Signage with Site Name at Asawasi Image by Studio Group



Signage with Site Description at Edwenase Image by Studio Group

Proposed Process

Understanding the Landscape

Build Local Capacity Integration and Partnerships

Funding

Review past interventions

Review other case studies

Engage meaningfully with community

Focus on knowledge sharing and awareness

Local chieftains and GMMB work collaboratively

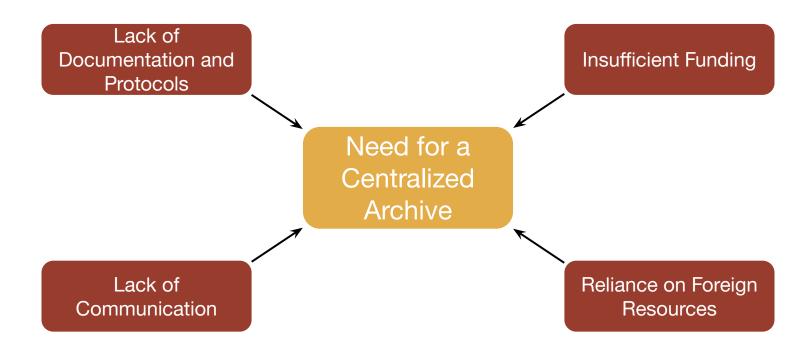
Involve local universities

Look at possible funding sources

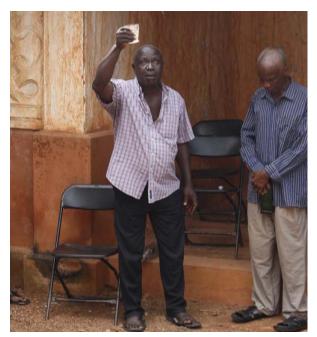
Develop a future collaborative plan based on equity and justice



The Present Barriers



Social Justice



Ritual of Welcome at Edwenase Image by Roberto E. Villasante



Nana Sabi Antwi III, Besease Chief Image by Roberto E. Villasante



Worker at Adako-Jachie Image by Roberto E. Villasante

