sustainable rural housing

NAVRONGO-BOLGATANGA, GHANA

HABITAT ET INFRASTRUCTURES PUBLIQUES DANS LE DISTRICT DE NAVRONGO-BOLGATANGA

2002 - 2006

MISEREOR,
PROJECT N° 130 006 1001 ZG

MINISTÈRE DES AFFAIRES ÉTRANGÈRES
DIRECTION GÉNÉRALE DE LA COOPÉRATION INTERNATIONALE ET DU DÉVELOPPEMENT
MISSION POUR LA COOPÉRATION NON GOUVERNEMENTALE
PROJET G 020016
CONVENTION 4389/002/00024
Quelques données sur la région concernée par le projet.
Population : environ 900 000 habitants (5% de la population totale du Ghana)
Superficie : 18 600 km² (7,8 % de la superficie du pays)
Économie : les principales ressources économiques et vectrices d'emplois sont d'origine agricole (environ 85 %)
With a population of 917,253, the Upper East region covers 7.8% of Ghana’s land mass. Much of the landscape is broad savannah grasslands, dotted with strange-looking baobab trees, or striking Sahel terrain.

For political administration, the region is divided into six Districts: Bawku East, Bawku West, Bongo, Builsa, Kassena-Nankana and Bolgatanga (or ‘Bolga’ as it is known locally), the capital of the region.

The local villages, with their distinctive building style, have evolved over several generations and are well adapted to the lifestyle of the people and local conditions, and provide a distinct contrast to those in other parts of Ghana.

In terms of poverty indicators, it is estimated that 90% of the regional population is below the poverty line, compared to the national average of 66%\(^1\). The main economic activity of the people is agriculture in which 85% of the economically active population are engaged. The people combine rotation and mixed cropping with livestock production in their land use system. This farming system has the potential of improving soil fertility as well as meeting the annual food and cash requirements of the people. A single cropping season, which depends on rainfall, occurs from May to October with considerable under-employment of labour. This is followed by a long dry season, resulting in a seasonal migration to the southern Ghana.

The rank order of the five occupations is same for males and females. The proportion of females in sales work (13.3%) is twice that of males (5.8%). The proportion of males in agriculture is 71.8 per cent compared with 61.2 per cent females.

\(^1\) Ghana living standards survey report 1999
90% of the housing stock in Upper East Ghana is built of earth. Building methods tend to change under the influences of “modernity” and the “internationalisation” of building styles. However modern building materials are out of the reach of a great majority of the population. As a cost saving measure, this results in a tendency to make use of these modern materials in conjunction with local building materials. But, a lack of scientific knowledge often results in people making technical errors that render the “modern” buildings less durable and less adapted to the local conditions than the traditional buildings.

As a result, there is a need to improve on the existing traditional buildings, adapting them to changing socio-cultural conditions as well as the technical and economic capacities of the people.
Most of the public buildings built recently in the area were constructed using conventional “modern” construction materials and technologies.

The cost of executing such projects is usually high and government budgets seldom respond to the actual needs of the local population. Their financial and technical maintenance is often beyond the reach of the local population. Most of the local construction firms do not have the necessary financial and technical capacity to qualify for tendering for such projects.

The construction of such “modern” buildings often results in the gradual abandon of maintaining old buildings which already exist on the same site. These old buildings could have been rehabilitated with a fraction of the funds spent on the new buildings.

The use of improved local building technologies in new construction projects will help increase the stock of public buildings, using locally derived budgets, and, at the same time help create jobs locally. Furthermore this will enable more local construction firms to tender for such building projects resulting in a better impact of these projects on the local economy.
It is a strong testimony of local identity and it is perfectly adapted to local cultural habits as well as environmental conditions, especially climate.

It is particularly well adapted to the financial and economic capacities of small local construction firms as it does not need expensive equipment or access to huge cash reserves. It ensures accessibility to the vast majority of the population, especially with regards to economic accessibility.

It has a large impact on the local economy. A large part of the budget is invested locally; especially on manpower.

It is easily recycled with very little consumption of energy.

It has the capacity to respond suitably to contemporary architectural requirements: from the most simple to the most complicated.
Quelques-uns des avantages de la construction terre :

Affirmation de l’identité locale et parfaite adaptation à l’environnement naturel et culturel.

Particulièrement bien adaptée aux capacités techniques et financières de petites entreprises locales.

Une grande accessibilité économique pour la majorité de la population.

Impact important sur l’économie locale. La plus grande partie des budgets sont injectés dans l’économie locale, et en particulier dans la main d’œuvre.

Facilement recyclable à faible coût énergétique.

Capable de répondre à tous les besoins contemporains en terme d’architecture nécessaire au pays et ceci du plus simple au plus complexes.
POTENTIAL OF CONTEMPORARY EARTH ARCHITECTURE AROUND THE WORLD
OPPOSITE PAGE
1. France
2. Nigeria
3. Austria
4. USA
5. Burkina Faso
6. India
7. Germany
8. Peru
9. South Africa

THIS PAGE
1. Uganda
2. French Guyana
3. France
4. France
The idea of the project came during previous project implemented in Navrongo from 1997 up to 2002. One was devoted to the conservation of Navrongo Cathedral which is a very interesting example of an adaptation of traditional building techniques to modern needs and which is adorned with magnificent traditional mud bas-reliefs. Since the beginning of the century, Navrongo Catholic Mission has often stood at the centre of development of the area, and it was thought that the Cathedral could buttress very well such a project on sustainable building construction.

In continuity of this project, a programme aiming at sensitizing the local population and decision makers on the potential and value of earthen architecture was implemented in May 2000. Training sessions were organised using as a support the rehabilitation of the old Abatey classroom block in Navrongo. Simultaneous all partners worked on the design of the cathedral museum to demonstrate a contemporary use of earthen architecture. This museum was built between 2000 and 2002.

In the view of the large interest of so many people and organisations in the area, a workshop was organised to define strategies for further developments of sustainable building construction in the region.

It was attended by 27 participants originated from 21 different organisations, including Catholic and Government bodies, Training
Grâce au soutien de Miséreor et du Getty Grant Institute, un premier projet conciliant à la fois le programme de conservation de la Cathédrale de Navrongo (bâtiment remarquable, construit en terre il y a plus de 100 ans) et un programme de revalorisation de l’architecture de terre (réhabilitation d’une école primaire devant être détruite et construction du musée de la cathédrale en utilisant une architecture de terre moderne et valorisante).

Ce premier projet, mis en place de 1997 à 2002, a permis de sensibiliser populations et décideurs locaux. Au cours de séminaires organisés pendant ce projet (février puis mai 2001), la situation du secteur de la construction dans le district a été analysée et un document de projet a été établi. Le comité de coordination de ce projet a été élu au cours du séminaire de mai 2001. Le projet a prit le nom de SECOTEP.

**HISTORIQUE DU PROJET**

Institutions, NGO’s, and finally some artisans. The workshop was opened by Bishop Lucas Abadamloora, and facilitated by the NABOCADO (Father Ayaga) and CRATerre-ENSAG.

It was concluded by the election of representatives of the various categories of organisations and institutions and a statement from the participants was prepared. It was asked to the NABOCADO and CRATerre-ENSAG to follow-up the recommendations of the participants through finalising a “project proposal” based on the framework that they had elaborated.
Due to foreign influences, the local population started building structures with expensive building materials that they cannot afford, ending up with unfinished structures.

Sous l’influence des standards « internationaux » les populations locales commencent à utiliser des matériaux qu’ils ne peuvent pas vraiment s’offrir, souvent sans pouvoir finir la construction de leur maison.

The educational system is Western oriented, with no compulsory subject dealing with traditional building technologies. As a result, there is some loss of the local know-how, no research is carried out to modernise these architectures.

Les matières concernant les architectures traditionnelles ne sont pas présentes dans les programmes de formation, et encore moins intégrées aux programmes des examens du système de base de l’éducation technique, elles sont donc négligées.

Decision makers at national and international level lack understanding of traditional practices and often regard them as obstacles to development rather than as potential sources of solutions to development issues; or as a base of reflection to identify the actual needs and capacity of the people and to identify adequate areas of research and training. A study and understanding of local building cultures will facilitate the identification of possible areas of research and the definition of suitable training programmes to improve the living conditions of the local population.

Par manque d’informations, la plupart des décideurs nationaux et internationaux considèrent les cultures constructives traditionnelles comme un obstacle plutôt que comme un levier possible de développement. L’étude et la compréhension des cultures locales permettent de mieux connaître les besoins et capacités locales et d’identifier des voies de recherche et, au delà, de définir des formations adéquates, à même d’améliorer les conditions de vie des populations locales.

Lack of appreciation of the value of traditional buildings and the poor maintenance practices on these buildings, tend to increase the low opinion of traditional buildings.

Le manque de reconnaissance de la valeur des constructions traditionnelles entraîne un abandon de leur entretien, ce qui renforce la mauvaise opinion que la population a de ces architectures.
PROPOSED SOLUTIONS AND ACTIVITIES
SOLUTIONS ET ACTIVITÉS PROPOSÉES

ASSESSMENT OF THE SITUATION AT DIFFERENT LEVELS (LOCAL KNOWLEDGE, INSTITUTIONAL TRAINING CAPACITIES, DEVELOPMENT OPPORTUNITIES...)

Analyse des différentes composantes du secteur local de la construction.

PROMOTION OF EARTHEN ARCHITECTURE (AWARENESS, WORKSHOPS, SEMINARS, INVOLVEMENT OF NATIONAL AND INTERNATIONAL DECISION MAKERS, AND DEVELOPMENT OF ATTRACTIVE ARCHITECTURE)

Promotion des architectures de terre

ENHANCE LOCAL CAPACITIES WITHIN THE EXISTING STRUCTURES INVOLVED IN THE PRODUCTION OF HOUSING AND PUBLIC BUILDINGS (ORGANISING THEORETICAL AND ON-SITE TRAINING, TENDERING FOR DESIGN, PRODUCTION OF TECHNICAL DOCUMENTATION, INTENSIVE COURSES AND STUDY TRIPS TO FRANCE, NETWORKING OF EXISTING RESOURCE CENTRES AND INSTITUTIONS INTERESTED IN DEVELOPING LOCAL BUILDING TECHNOLOGIES AT NATIONAL LEVEL).

Renforcement des compétences locales et mises en réseau des acteurs de la filière impliqués dans la promotion et le développement des architectures vernaculaires.

CONSTRUCTION OF DEMONSTRATION BUILDINGS (HOUSES, PUBLIC BUILDING, REHABILITATION).

Construction de bâtiment de démonstration (habitation, bâtiment public, réhabilitation)

INVolVEMENT OF TECHNICAL SCHOOLS AND ENHANCEMENT OF THE LECTURERS’ CAPACITIES IN THE FIELD OF BUILDING WITH LOCAL MATERIALS

Sensibilisation des écoles d’enseignement technique et renforcement des compétences des enseignants dans le domaine des technologies de construction en matériaux locaux.
THE CATHOLIC DIOCESAN DEVELOPMENT OFFICE

The Diocese of Navrongo-Bolgatanga coincides with the Upper East Region of Ghana. It extends beyond the political administration to include the West and East Mumprusi and Bunkpurugu-Yuyoo Districts of the Northern Region. The Diocese is divided into eleven (11) administrative districts - Kasena-Nankana, Bongo, Bolgatanga, Bawku East, Bawku West, Talensi-Nabdam, Garu-Tempande, Sandema, Mamprusi West, Mamprusi East and Bunkpurugu-Yuyoo Districts.

The Navrongo-Bolgatanga Catholic Diocesan Development Office (NABOCADO) was established in 1981. It is a wing of the Diocesan Bishop’s Secretariat of the Navrongo-Bolgatanga Diocese. The Secretariat itself is made up of two wings thus: the pastoral and development. The development wing deals with socio-economic development issues. NABOCADO therefore provides professional and technical assistance to its partners and local communities within the context of development programmes.

DEPARTMENT OF RURAL HOUSING (DRH)

The DRH is an arm of the Ministry of Works and Housing and has local offices throughout Ghana. Its mission statement is to formulate and implement programmes for the provision of adequate and decent housing for the benefit of the economically challenged members of society.

The Department fulfils this through maintaining high standards of excellence and competence in:
- Providing and facilitating access to decent shelter
- Disseminating creative and innovative research findings in the production and use of improved local building materials
- Providing on-the-job training in construction skills
- Facilitating maintenance of rural housing.

Le Bureau de Développement Diocesain (NABOCADO) a été établi en 1981. Il propose une assistance technique à ses partenaires locaux dans le cadre de leur propre programme de développement.

Le DRH dépend du Ministère du travail et de l’habitat, il est en charge de l’amélioration de l’habitat pour les plus pauvres.

HABITAT FOR HUMANITY GHANA est affilié à HABITAT FOR HUMANITY INTERNATIONAL. Cette ONG est active internationalement depuis 1967 et au Ghana depuis 1987. Son mandat est d’aider les plus pauvres à avoir accès à un logement décent.

AZITA est une entreprise tout corps d’état qui s’est particulièrement investie dans la construction de bâtiments en terre au cours de ces dernières années.

Mr Séiṣud, architecte, à rejoint le SECOTEP en 2005 afin de renforcer l’équipe technique du projet.
HABITAT FOR HUMANITY, GHANA (HFHG)

HFHG is a grassroots housing programme which is present in Ghana since 1987. It is a non-profit, ecumenical Christian housing ministry that seeks to eliminate housing poverty throughout the country. HFHG is a registered NGO, affiliated to Habitat for Humanity International which was founded in 1976 and is active in more than 70 countries worldwide.

HFHG builds and rehabilitates simple and decent homes through volunteer labour and donations of money and materials. HFHG provides a non-profit, no interest loan in the form of building materials to homeowners and repayment ranges from five to ten years.

ARCHITECT SEIDU

Mr Seidu is an architect who joined the project early 2005. His role is to develop attractive and relevant architecture using local building materials for medium and high income people who contact SECOTEP in this regard.

AZITA ENTERPRISE

AZITA enterprise has been registered with the Registrar-General of the region and the Ministry of Works and Housing since 1996 as general merchants, importers and exporters, road and building construction, plumbing and sewerage contractors.

Since 2004, AZITA Enterprise has been the major partner to the NABOCADO Bolgatanga in matters of construction or training artisans in earthen architecture. Between 2004 and 2006 they were involved in more than seven construction projects.
OLL est une école formant des étudiants au niveau CAP et BEP dans le domaine de la construction.

Bawku Tech et Bolga Tech sont deux instituts de formation technique délivrant des diplômes de niveau Bac technique.

Three technical schools were close partners of the project. All of them had representatives within SECOTEP:

OUR LADY OF LOURDE (OLL)
OLL is a Secondary Technical School (STS) based in Navrongo. OLL provides a three year training programme to qualify students as artisans or small contractors. Block laying and concreting are part of the topics taught within OLL curricula. Students can also join the Technical institute after completing the STS programme.

The average student population at the OLL is 448
OLL staff include 21 Teachers and 22 Administrative staff.

BAWKU TECHNICAL INSTITUTE AND BOLGATANGA TECHNICAL INSTITUTE
Based in Bawku and Bolgatanga, these technical institutes are part of the 23 existing in Ghana. They provide a three year training programme to qualify students as artisans, technicians and small contractors. Block laying and concreting, as well as construction and science and calculations are part of the topics taught within the Technical Institute curricula. Students can join polytechnics after completing the Technical Institutes’ programmes.

The average student population at Bawku Tech is 850
The staff strength comprises 41 Teachers and 52 Administrative staff.

The average student population at Bolga Tech is 1760
The staff include 86 Teachers and 100 Administrative staff.

CONTACTS

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BOLGA TECH
Martin N. ALOARA; Principal
SECOTEP representative: John Bosco AYITIO,
**KNUST - KwAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY.**
**CENTRE FOR SETTLEMENTS STUDIES**
The mission of KNUST is to provide an environment for teaching, research and entrepreneurship training in Science and Technology for the development of Ghana and Africa. KNUST will also provide services to the community, be open to all the people of Ghana and positioned to attract scholars, industrialists and entrepreneurs from Africa and other international communities.

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**CRATERRE-ENSAG**
CRATERRE-ENSAG, the International Centre for Earth Construction, is an NGO (CRATerre) as well as a scientific organisation within the School of Architecture of Grenoble (ENSAG) in France. Since its creation in 1979 CRATERRE-ENSAG has actively contributed to the promotion of scientific and technical knowledge on earthen architecture. CRATERRE-ENSAG was the main consulting partner of SECOTEP during the project implementation.

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**BRRI - BUILDING & ROAD RESEARCH INSTITUTE**
BRRI is a commercial-oriented national research and development organisation in the building and roads construction sector. Its mission is to profitably provide research and development products, processes and services to the building construction and road sectors and for the socio-economic development of Ghana.

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**KNUST - KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY.**
**CENTRE FOR SETTLEMENTS STUDIES**
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**ECODEP**
This private firm has been actively involved in the promotion of earthen architecture in Ghana since 1993. ECODEP produces sensitization materials, organises lobbying activities and implements building construction activities.

**EARTH CONSTRUCTION DEVELOPMENT PROJECT (ECODEP)**
ECODEP participates to the seminars and workshops organised by SECOTEP and always gives its full support to SECOTEP activities.

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SECOTEP was to be monitored and coordinated by representatives of key local institutions involved in the building construction and development sectors. This team continuously analysed the progress of the project and the relevance of proposed activities for meeting the needs of the existing situation and its evolution as well as the capacity of local agencies to implement them.

This definitely gave the main local stakeholders a true project ownership while guaranteeing its sustainability.

Seminars were organised in order to prepare each phase of implementation. These seminars were followed by workshops with selected key actors in order to help to determine the most appropriate strategies necessary to achieve project goals according to seminar results and recommendations. The following themes were examined:

- **Year 1** Local know-how and existing appropriate building technologies
- **Year 2** Needs of local training institutes
- **Year 3** Appropriate building technologies
- **Year 4** Dissemination strategies

Workshops were also organised yearly in order to discuss results and disseminate them:

- **Year 1** Local know-how and existing appropriate building technologies
- **Year 2** Appropriate institutional training in building technologies
- **Year 3** Dissemination strategies
- **Year 4** Program results and perspectives

Beside this approach, the following global framework of activities was scheduled:

- **2002** Assessment of the existing situation
  Upgrading the conditions of housing and public buildings
- **2003** Building maintenance and rehabilitation (private and public)
  Institutional training strategies
- **2004** Technical assessment
  Institutional training implementation
- **2005-06** Appropriation and dissemination
Le projet a été coordonné par une équipe composée de représentants des organisations locales impliquées dans le secteur de la construction et du développement local. Ceci a garantit l'adéquation entre les objectifs du projet, les activités mises en place et la capacité des instances locales à les mettre en œuvre, et donc l'appropriation et la durabilité des acquis.

En préalable de la mise en place de toute activité, des séminaires suivis par des ateliers de travail ont été organisés sur les thèmes suivants :
- Année 1 Savoirs faire et cultures constructives existant
- Année 2 Besoins des centres de formations
- Année 3 Technologies et architectures adaptées
- Année 4 Diffusion

Le projet a été mis en place selon la trame globale suivante :
- 2002 Analyse de l’existant et Proposition pour l’amélioration de l’habitat et des constructions publiques
- 2003 Maintenance et réparation des ouvrages, stratégies relatives à l’enseignement technique
- 2004 Formation des enseignants des instituts techniques
- 2005-06 Phase de diffusion.

Demonstration building:
school in Kasugu
École prototype de Kasugu

Formation des acteurs locaux
Formation of trainers
PROJECT STRATEGIES RELATED TO EACH SPECIFIC OBJECTIVE

1. DESIGN, DEMONSTRATION, ON-SITE TRAINING
   (public and private buildings: new construction and rehabilitation)
   1. Assessment of the existing situation
   2. Design
   3. Construction of prototypes (artisans training)
   4. Design Fine tuning
   5. Construction of prototypes: training the trainers
   6. Construction of new prototype buildings under the full financial and technical responsibility of local partners

2. INSTITUTIONAL TRAINING
   1. Assessment of the existing situation
   2. Development of adequate teaching material
   3. Refresher courses for lecturers
   4. Implementation in the curricula of pilot schools
   5. Evaluation
   6. Study trips and intensive courses in France organised for some participating lecturers at CRATerre-ENSAG, Grenoble, France

3. SENSITIZATION, AWARENESS
   1. Compilation of visual support
   2. Development of slide shows illustrating the project
   3. Design, production and diffusion of a project poster
   4. Design, production and diffusion of a project brochure

4. RESEARCH AND DEVELOPMENT
   1. Compilation of data on the socio-economic evolution of the local situation
   2. Data compilation on the state of local research into the subject matter
   3. Implementation of an adequate research programme aimed at compiling and documenting the existing local know-how in earth construction.
1 CONCEPTION, DÉMONSTRATION, FORMATION (bâtiments publics et privé ; neuf et réhabilitation)
   1 État des lieux
   2 Conception
   3 Affinage de la conception
   4 Construction de prototypes / formation d'artisans locaux
   5 Construction de nouveaux prototypes / formation de formateurs
   6 Prises en charge financière et technique de nouveaux bâtiments témoins par les acteurs locaux

2 FORMATION INSTITUTIONNELLE
   1 État des lieux
   2 Création de matériel pédagogiques
   3 Formations en direction des enseignants des écoles techniques
   4 Intégration dans l'enseignement existant
   5 Évaluation
   6 Cours intensifs proposé à Grenoble (France) par le CRATerre-ENSAG

3 SENSIBILISATION ET DIFFUSION
   1 Bibliothèque de documents visuels
   2 élaboration d'un diaporama synthétisant le projet.
   3 Création d'une affiche synthétisant le projet
   4 Création d'une plaquette illustrant le projet

4 RECHERCHE ET DÉVELOPPEMENT
   Collecte d'informations sur l'évolution économique, climatique, etc de la zone du projet
   2 Collecte d'informations sur l'état de la recherche locale
   3 Mise en place d'un programme de recherche visant à compiler et documenter les savoir-faire locaux existant non encore répertoriés

STRATÉGIES PROPOSÉES EN LIEN AVEC LES OBJECTIFS SPÉCIFIQUES DU PROJET
RESULTS (1)

DESIGN, PROTOTYPE AND ON-SITE TRAINING

VARIOUS TECHNICAL DOCUMENTATION WERE DEVELOPED
(plans, technical descriptions,....)
• School complex
• Urban housing for public workers
• Technical guide on the use of local materials
• Technical guide for rehabilitation purposes
• Technical recommendations for designing evolutionary buildings

PROTOTYPE BUILDINGS HAVE BEEN COMPLETED. THEY WERE USED AS SUPPORTS FOR ON-SITE TRAINING.
• Kasugu school complex
• Rehabilitation of Wale Wale health centre
• Teacher’s accommodation in Bolgatanga

Comparative socio-economic study of two similar buildings (school complex) based on drawings developed for the Kasugu pilot project constructed in Kasugu, Northern Ghana

<table>
<thead>
<tr>
<th>EARTHEN ARCHITECTURE</th>
<th>CEMENT BLOCKS WITH CONCRETE STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COST PER SQUARE METER OF LIVING SPACE</td>
<td>68 Euros</td>
</tr>
<tr>
<td>(March 2007 1 euro = 12.300 cedis)</td>
<td>(50 Euros if community involved)</td>
</tr>
<tr>
<td>PERCENTAGE INVESTED IN LABOUR</td>
<td>23 % (15.6 Euros)</td>
</tr>
<tr>
<td>MAINTENANCE OF THE WALLS</td>
<td>Easily handled by the local population</td>
</tr>
<tr>
<td>LIFE EXPECTATION</td>
<td>50 Years and more, according to maintenance</td>
</tr>
</tbody>
</table>
CONCEPTION, DÉMONSTRATION, FORMATION SUR LE TERRAIN

PLUSIEURS DOSSIERS TECHNIQUES (PLANS, MÉTRÉS, DESCRIPTIFS TECHNIQUES…) ONT ÉTÉ ÉLABORÉS :
- Complexe scolaire
- Logement urbain « type fonctionnaire »
- Guide technique pour l’utilisation des matériaux locaux dans l’habitat
- Guide technique « rénovation »
- Principes à prendre en compte dans la conception de bâtiment évolutif

DES BÂTIMENTS TÉMOINS ONT ÉTÉ RÉALISÉS. ILS ONT SERVÎ à METTRE EN PLACE LES ACTIONS DE FORMATION DES ARTISANS ET CADRES LOCAUX.
- Construction du complexe scolaire de Kasugu.
- Réhabilitation du centre de santé de Wale Wale.
- Logement de maître à Bolgatanga.

RÉSULTATS (1)
INTENSIVE COURSES IN FRANCE
• 4 participants in 2003 (The CC representatives)
• 3 participants in 2004 (2 lecturers and one manager from « Habitat for Humanity »)
• 3 participants in 2006 (A lecturer, an architect and a contractor)

TRAINING SESSIONS ORGANISED AND FUNDED WITH THE PROJECT BUDGET
• 20 artisans (Kasugu)
• 10 artisans (Wale Wale)
• 50 students and 5 lecturers (Boltech)
• 18 lecturers from various technical institutes, colleges and schools
• 4 BRRI research engineers (as trainers)
• 2 engineers from DRH

TRAINING ORGANISED AT LOCAL LEVEL WITH LOCAL FUNDS
• 1 ECODEP engineer
• 4 ECODEP artisans
• Students and lecturers from Bawku tech
• Students and lecturers from OLL
• 80 masons.
• 1 BRRI architect completed a post-graduate masters course on earth architecture at ENSAG

DEVELOPMENT OF TEACHING MATERIAL
Taking into account the existing situation, some teaching materials were developed and supplied to institutional project partners:
• Tradition and modernity
• Raw material characteristics
• Production methods
• Construction methods
• Design
• Cost calculation and socio-economic impact
PROMOTIONAL TOOLS

In order to ensure the promotion of the project goals, a poster (1000 units) was produced and supplied to the SECOTEP in 2004. A project brochure (1000 units) was produced and supplied to the SECOTEP in 2007.

AWAWARENESS

Numerous seminars related to the various project objectives were organised. This allowed the direct sensitization of more than 400 people and organisations. Media coverage of these events helped to inform the majority of the inhabitants resident within the project area. Resource persons from all over the country took part in these seminars.

THE FOLLOWING THEMES WERE DISCUSSED:
• Local know-how and appropriate building technologies
• Needs of technical training institutions
• Rehabilitation of buildings
• Appropriate construction technologies: local and national needs

RESEARCH & DEVELOPMENT

According to the recommendations made during the seminar on “Appropriate construction technologies, local and national needs”, the research activities handled during the project focused on documenting the traditional existing know how. During the same time, one BRRI engineer successfully attended the post graduate diploma (master on earth construction) at ENSAG. His thesis was about the traditional know how in northern Ghana.
AFTER DEMONSTRATION BUILDINGS WERE COMPLETED, LOCAL PARTNERS BUILT THE FOLLOWING WITH THEIR OWN FUNDS.

- A dormitory in Sirigu (DDO)
- Two women centers in Sirigu (DDO)
- A day care center in Mirigu (DDO)
- A church in Mirigu (DDO)
- A meeting hall in Navrongo (DDO)
- Teacher’s accommodation in Bawku (Bawku tech)
- Three nutrition centers in Navrongo district (Ministry of Health and DRH)
- A museum in Gwulu (ECODEP, Ministry of tourism)
- Private houses in various part of the diocesan (AZITA enterprise, trainees)
- A guest house in Navrongo (privé avec des conseils du projet)
- Farmer’s meeting hall at China (DDO, AZITA enterprise)
- Classroom block at Zaari (DDO, Gouvernement local, AZITA enterprise)

SUR LEUR PROPRES FONDS, LES PARTENAIRES LOCAUX ET LES BÉNÉFICIAIRES ONT RÉALISÉ LES CONSTRUCTIONS SUIVANTES:

- Un dortoir
- Deux centres de réunion
- Une crèche
- Une église
- Une salle de réunion
- Un logement de maître
- Trois centres de nutrition
- Un musée
- Des annexes d’habitation
- Un complexe hôtelier (privé avec des conseils du projet)
- Salle de réunion pour les paysans
- Salles de classe

Le projet a redonné ses lettres de noblesses aux architectures en matériaux locaux.

L’enseignement des techniques de la construction en matériaux locaux est effectif au sein de deux institutions de formations techniques implantées dans le nord Ghana.

Les approches techniques, stratégies et méthodes proposées par le projet ont été adoptées par les partenaires locaux dans leurs propres programmes de développement.

Au travers de ses différentes actions, il a permis de mettre en relation un grand nombre de personnes impliquées dans la problématique de l’habitat.

ACHIEVEMENTS

Change of people’s perception on the use of local building materials.

Effective teaching of the use of local materials in the two technical schools in northern Ghana.

Implementation of proposed technologies within the building programmes of local partners.

Networking of national bodies dedicated to the promotion of local building cultures.
All partner institutions were entirely autonomous before the project. The project enhanced their existing skills or helped them to have local access to these skills. Most of them have already adopted the promoted technical approaches within their own development programmes.

The program regarding the introduction of local building technologies within the Ghanaian curricula achieved its objectives.

- Through what was done at the level of the pilot schools, it showed that the concept is relevant and can be effectively implemented.
- Competent resource persons are now capable of actualising this specific objective (make compulsory these technologies within the existing curricula).

The limitation these institutions face is that they depend on the regional or national syllabus policy. As long as the topics related to local building culture are not compulsory and examined, these issues will not be properly taught at school level.
LESSONS LEARNT

POSITIVE AND NEGATIVE POINTS OF THE STRATEGIES OF INSTALLATION OF EACH SHUTTER OF THE PROJECT

SEMINARS / SÉMINAIRES

They made it possible for local actors to participate fully in the elaboration of the solutions to be adopted.
Ils ont permis aux acteurs locaux de s'approprier la problématique et d'être actifs dans l'élaboration des solutions à mettre en place.

New relevant ideas which emerged could not always be taken into account (flexibility of the project), which resulted in some frustration for the owners of these ideas.
Les idées nouvelles et pertinentes qui émergent ne peuvent pas toujours être mises en places (flexibilité du projet), ce qui peut entraîner la frustration chez les porteurs de ces idées.

NETWORK (PROJECT IMPLEMENTATION AND NEW PARTNERSHIPS) / TRAVAIL EN RÉSEAU

This enhanced the impact of the project both at local and national levels allowing the sharing of experiences gained by each partner.
Ceci élargit l'impact du projet à l'échelle locale et nationale, tout en bénéficiant des expériences acquises par chacun.

Conflicts may occur between particular interests of the organizations represented and the project. This entailed delays in the implementation of certain activities.
Il peut y avoir des conflits d'intérêts entre les organismes déjà en place et le projet. Cela peut entraîner des retards, voire le blocage de certaines activités.

DEFINITION BY LOCAL ACTORS OF ACTIONS AND STRATEGIES TO BE IMPLEMENTED / DÉFINITION PAR LES ACTEURS LOCAUX DES ACTIONS ET STRATÉGIES À MENER

Through agreements on the possibilities offered by the project (budget, programming, strategies, activities, etc.), local actors were able to partake fully in decision-making process of the project. It is a qualitative approach (reaching the project's objectives) and not a quantitative one (implementing the activities).
Ceci permet de mettre en concordance les possibilités offertes par le projet (budget, programmation, etc.), et les actions et stratégies définies comme prioritaires, et permet donc une réelle appropriation du projet par les acteurs locaux. C'est une approche qualitative (atteinte des objectifs du projet) et non quantitative (mise en œuvre des activités).

Required efforts at flexibility and rescheduling the initial programming. This slowed down the implementation of scheduled activities.
Demande des efforts de flexibilité et de remise en question de la programmation initiale. Ceci ralentit la mise en œuvre des activités prévues.
DEMONSTRATION AND TRAINING / DÉMONSTRATION ET FORMATION

At this stage, ideas were concretized and their relevance checked. The necessary resource persons were trained so that they could implement the proffered solutions on a larger scale. It helped to sensitize and inform the various target groups, which in return gave an external evaluation of the actions carried out.

Cette étape aide à concrétiser les idées développées et à vérifier leurs applicabilitées. Elle permet de former les personnes ressources indispensable à une mise en application à grande échelle et donne l’opportunité de sensibiliser et d’informer les publics cible qui, en retour, donne une évaluation extérieure des actions mise en place.

It was not always easy to reconcile the approaches implemented by partners (village participation, visibility, etc.) within the framework of executing building construction respecting a given time schedule.

Il est parfois difficile de s’appuyer sur des projets communautaires pour mettre en place ce type d’activité. Les objectifs visant à obtenir une construction de qualité en créant les compétences nécessaires, ceci dans un délai le plus court possible, rentrent souvent en conflit avec la nécessité de s’adapter aux rythmes des populations bénéficiaires à qui il est demandé une participation physique et financière.

EVALUATION / ÉVALUATION

The evaluation (technical, economical, cultural and environmental) of the solutions suggested permitted adjustments to be made before their promotion and development on a large scale.

L’évaluation globale et régulière du projet permet le réajustement des méthodes, stratégies et activités proposées avant leur promotion et leur développement à grande échelle.

PRACTICAL APPLICATION BY LOCAL PARTNERS WITHIN THE FRAMEWORK OF THEIR ACTIVITIES / APPLICATION PAR LES PARTENAIRES LOCAUX DANS LE CADRE DE LEURS ACTIVITÉS

The local actors could take stock of the challenges they will have to face in the after-project phase to ensure the sustainability of the action.

Ceci permet aux acteurs locaux de prendre la mesure des contraintes auxquelles ils devront faire face dans l’après – projet afin d’assurer la pérennité de l’action engagée.

The fact of allocating limited funds for local partners involvement, if this is an element which guarantees the project sustainability, sometimes involved groping and delays in the implementation of the critical actions necessary to achieve the project objectives.

Le fait de n’allouer que peu de moyens aux institutions pour la mise en place des activités proposées, si cela est un élément qui garantit la pérennité du projet, entraîne parfois des tâtonnements et retards dans la mise en œuvre de la masse critique des actions nécessaires pour atteindre les objectifs du projet.
The current project successfully showed the potential of local building techniques to meet the construction needs of local populations. Priority was given to technical and economic themes. In the future, it will be necessary to give more importance to the cultural aspects related to the built environment and its use, in order to develop architectural solutions adapted to the lifestyles of the various target groups of the project.

The construction of quality demonstration buildings, associated with the training of local craftsmen, is the most appropriate activity for the creation of a durable improvement of the condition of the built environment. This activity must be maintained and extended. In order to reach the widest public possible and to guarantee a wide impact, all organisation who would have construction projects/programmes in northern Ghana are invited to contact the local project partners for the revalorisation and the promotion of local building materials.

Networking the various Ghanaian and international actors who work at promoting these architectures has allowed strong achievements in the field of the experience sharing, in limiting the risks of activity duplication, in the effectiveness of using existing complementary skills, in lobbying activities, etc. It is recommended that these partnerships be reinforced and widened so that this field will be recognized as it ought to be.

In spite of the efforts developed, a large amount of local know-how remains unidentified and undocumentated. Still this knowledge is often the most effective source for the development of ideas which allow a rational and effective use of local resources for the modernization of the existing building cultures. It is recommended that each actor of the project organises coordinated activities, with respect to the means available to them, to collect these information.

If local institutions have acquired the necessary skills needed to respond to the most common problems related to the housing situation in northern Ghana, their capacity to develop adequate solutions for other geographical areas in Ghana where the architecture and general conditions are different is to be considered as limited.

Some actions implemented during the project are only within the first stages of completion. This is particularly true with regard to the integration of the teaching of local building techniques in the technical teaching program in Ghana. The SECOTE is will support its members who will carry out such activities on their own. The organisation of a national seminar on this subject, involving the relevant representatives of the concerned ministries, would make it possible to define the hurdles to be overcome in order to achieve this goal.
Le projet a démontré avec succès le potentiel des architectures de terre à répondre aux besoins des populations locales en terme de construction. Les thèmes de l’accessibilité technique et économique ont été privilégiés et il est nécessaire de poursuivre activement en attachant plus d’importance aux aspects culturels liés à l’habitat et à son usage, ceci afin de développer des solutions architecturales encore mieux adaptées aux modes de vie des différents groupes cibles du projet.

La construction de bâtiments «témoins» de qualité, associé à la formation des artisans locaux est l’activité la plus à même de créer une amélioration durable de la situation de l’habitat. Cette activité doit être maintenue et étendue. De façon à atteindre la masse critique nécessaire à garantir un réel impact au projet, il est recommandé aux organisations qui ont dans leur programme/projet la construction de bâtiments au Nord Ghana de prendre contact avec les partenaires locaux du projet de façon à participer à la revalorisation et à la promotion des architectures en matériaux locaux.

La mise en réseau des différents acteurs ghanéens et internationaux qui travaillent à la reconnaissance de ces architectures a montré ses points forts dans le domaine de l’échange d’expérience, dans la limitation des risques de duplication d’activité, dans l’efficacité en utilisant les complémentarités existantes, dans les activités coordonnées de lobbying, etc... Il est recommandé de renforcer et d’élargir ces partenariats afin que cette filière soit effectivement reconnue comme elle est en droit de l’être.

Malgré les efforts développés, il est à noter qu’un grand nombre de savoir faire locaux ne sont toujours pas correctement identifiés et documentés. Or ces connaissances sont souvent la source la plus efficace vers le développement d’idées nouvelles permettant un usage rationnel et efficace des ressources locales en vue de la modernisation des cultures constructives existantes. Il est recommandé que chacun des acteurs du projet s’investisse dans la documentation de ces savoirs-faire.

Si les partenaires locaux ont acquis les compétences nécessaires pour répondre aux problèmes les plus couramment rencontrés dans le Nord Ghana, ils n’ont pas encore acquis les compétences techniques nécessaires pour amener des réponses parfaitement adaptées à d’autre zone géographiques du Ghana ou les architectures traditionnelles et les conditions environnementales sont différentes.

Certaines actions engagées par le projet ne sont qu’à leurs premières étapes d’achèvement. Ceci est particulièrement vrai en ce qui concerne le volet d’intégration de l’enseignement des techniques de construction en matériaux locaux dans l’enseignement technique dispensé au Ghana. Le SECOTEP fera tout son possible pour appuyer les membres qui, en son sein, sont porteurs de ce type de projet. La mise en place d’un séminaire national sur ce sujet impliquant les représentants adéquats des ministères concernés permettrait de définir les étapes à franchir afin d’atteindre cet objectif.
As a result of the reduction of construction costs (less transport, cheaper raw materials, increased involvement of the local population) local partners were able to implement more projects than before. These are all opportunities to train more artisans and to sensitize more people. This will help to change the general mindset about local architecture and will help beneficiaries to access local artisans who are able to duplicate such technologies in their own localities.

At the national level, the DRH has been involved in promoting the use of local materials for housing improvement for over 30 years. The project approach [acknowledgement of the ingenuity of local building cultures] will be complementary to that of the DRH which is based on the promotion of appropriate technologies.

Habitat for Humanity has been active in Ghana since 1987 and has already built more than 2300 houses. It can now propose building systems and technical solutions to the local populations, considered as superior in quality, while reducing cost by 15 – 25%. Habitat for Humanity wishes to implement this approach within its entire programme.

Capacities of local technical schools have been enhanced thanks to the training activities organised. Each institution adapted part of their curricula to be able to properly train their students on local building cultures. The ultimate objective of these institutions is to formalise this teaching so that the modules on local building cultures could be spread at the national level.

During the last four years, SECOTEPI developed its own identity and implemented more activities than initially scheduled. Today, SECOTEPI includes seven organisations who want to carry on the initiated activities, particularly in the field of lobbying and services given to its members and other beneficiaries [develop the available documentation and make it available to any interested person or institution].

In order to achieve the project goals, both at SECOTEPI level and at the level of institutions involved, all partners express the will to reinforce their partnership within the following years. Various projects documents involving local, national and international actors are currently in their elaboration processes.
Du fait de la réduction du coût global de la construction le DDO peut mettre en œuvre plus de projets de construction que par le passé, chacun permettant de former de nouveaux artisans et de sensibiliser de nouveaux pans de la société.

Au niveau national, le Département pour l'Habitat Rural est impliqué dans la promotion des matériaux locaux en vue de l’amélioration de l’habitat rural. L’approche proposée par le projet, basée sur la reconnaissance de l’intelligence des cultures constructives locales, viendra en complémentarité de celle actuellement promue qui est plus axée sur la promotion de technologies alternatives.

Habitat for humanity travaille au Ghana depuis 1987. Le projet lui a permis d’avoir accès à des systèmes constructifs qui permettent de proposer aux populations locales un produit considéré comme supérieur en qualité tout en réduisant son coût de 15 à 25 %. Habitat for humanity souhaite appliquer cette approche à l’ensemble de son programme au Nord Ghana.

Les activités de formation menées par le projet ont permis de renforcer les compétences des enseignants qui ont pu y participer. Les institutions partenaires du projet ont intégré l’enseignement des cultures constructives locales dans le contenu de leur enseignement. L’objectif à atteindre maintenant est de formaliser cet enseignement afin qu’il fasse partie des matières contrôlées lors d’examens de fin d’années.

Au cours de ces quatre dernières années, SECOTEP a créé sa propre identité et a mis en place un grand nombre d’activités complémentaires à celles initialement prévues. SECOTEP est aujourd’hui constitué de 7 organismes qui souhaitent continuer les activités initiées, en particulier dans les domaines de la mobilisation des acteurs locaux et des services qui leur sont offert.

De façon à faciliter l’atteinte de ces objectifs, tant au niveau du SECOTEP qu’à celui de chacune des institutions impliquées, tous les partenaires ont souhaité renforcer leur collaboration pour les années à venir. A cette fin, plusieurs documents de projets impliquant acteurs locaux, nationaux et internationaux sont actuellement en cours de préparation.

**PERSPECTIVES**
1992

AT THE REQUEST OF THE NAVRONGO-BOLGATANGA BISHOP, AN EXPERT FROM MISEREOR VISITED THE NAVRONGO CATHEDRAL TO ASSESS ITS CONDITION

1995

DYMPNA SAVAGE ASSESS THE HISTORICAL BACKGROUND OF THE CATHÉDRALE DECORATION; THE DIOCESE CONTACTS CRATERRE-ENSAG AS THE CATHEDRAL TOWER SHOWS SOME WEAKNESSES.

1997

GETTY GRANT MISSION; THIERRY JOFFROY (CRATERRE-ENSAG), DYMPNA SAVAGE, MARC KWANI

NEEDS EVALUATION FOR THE CATHEDRAL RESTORATION

THE CATHEDRAL TOWER IS BUILT BACK

1998

DEVELOPMENT OF PROJECT PROPOSAL FOR THE CATHEDRAL RESTORATION

1999

CATHEDRAL RESTORATION

MUSEUM CONSTRUCTION

2000

Demande de l’évêché d’évaluer l’état de la Cathédrale de Navrongo

L’étude de la cathédrale est réalisée

Évaluation des besoins pour assurer la restauration de la cathédrale. Reconstruction du clocher

Élaboration du projet de restauration

Restauration de la cathédrale; évaluation des besoins en terme d’amélioration de l’habitat. Construction du musée
**2001**

**CATHEDRAL RESTORATION**

**WORKSHOP IN NAVRONGO IN ORDER TO ASSESS THE HOUSING SITUATION IN NORTHERN GHANA**

**DESIGNATION OF THE PROJECT COORDINATION COMMITTEE (DDO, BOLTECH, DRH, ACTION AID)**

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**2002**

**DEVELOPMENT OF PROJECT PROPOSAL FOR EARTHEN ARCHITECTURE PROMOTION**

**BEGINNING OF THE SECOTEP PROJECT (AUGUST 2002)**

**ASSESSMENT OF THE BUILDING SITUATION IN NAVRONGO BOLGATANGA DIOCESE, FIELDS ENQUIRIES**

**THE CC MEMBERS ARE NOW FROM DDO, BOLTECH, DRH, AND NORTHERN CONSULTANT**

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**2003**

**PROJECT IMPLEMENTATION**

**KASUGU DEMONSTRATION PROJECT AND ON SITE TRAINING**

**WORKSHOP ON REHABILITATION NEEDS**

**SECOTEP CONTACTED BRRI**

**THE PROJECT GAVE ITSELF A NEW NAME: SECOTEP (SUSTAINABLE EARTH CONSTRUCTION TECHNOLOGIES PROJECT)**

**WORKSHOP ON TRAINING CENTRE NEEDS**

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**2004**

**PROJECT IMPLEMENTATION**

**SIRIGU DORMITORY PROJECT; WALE WALE REHABILITATION**

**REFRESHER COURSE FOR LECTURERS FROM TECHNICAL SCHOOLS**

**SECOTEP CONTACTED KNUST**

**HABITAT FOR HUMANITY, BAWCU TECH AND OLL JOIN SECOTEP**

**THE CC MEMBERS ARE NOW FROM DDO, DRH, BOLTECH, BAWCU TECH, OLL**

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**2005**

**PROJECT IMPLEMENTATION**

**BOLTECH DEMONSTRATION HOUSE AND ON SITE TRAINING**

**THE UPPER EAST MINISTRY OF HEALTH ADOPT THE SECOTEP APPROACHES**

**ONE BRRI REPRESENTATIVE ATTENDED THE POST GRADUATE MASTER PROGRAM ON EARTH ARCHITECTURE IN GRENOBLE**

**THE DDO ESTABLISHES LINKS WITH A LOCAL CONTRACTOR (AZITA ENTERPRISE) THAT ACT AS ON SITE TRAINER AND PROJECT MANAGER**

**THE CC MEMBERS ARE NOW FROM DDO, DRH, BOLTECH, BAWCU TECH, OLL, SEI DU ARCHITECTURE**

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**2006**

**PROJECT IMPLEMENTATION**

**HABITAT FOR HUMANITY BUILT A RURAL HOUSE PROTOTYPE USING THE SECOTEP APPROACH**

**BAWCU TECH AND OLL IMPLEMENT EARTH TECHNOLOGIES WITHIN THEIR CURRICULA**

**THE CATHEDRAL BECOMES A MINOR BASILIC**

**THE NAVRONGO MUSEUM WAS OPENED**

**THE DDO IMPLEMENTED A TRAINING STRATEGY AIMED AT IMPROVING RURAL HOUSING**

**DRH GAVE SUPPORT TO ECODEP A GHANAIN ORGANISATION WHICH IMPLEMENTS EARTH ARCHITECTURE PROJECT**

**THE DDO BUILT A CHURCH AND A DAY CARE CENTRE USING THE SECOTEP APPROACH**