

Appendix 1

**APPLICATION**  
**PROJECT PREPARATION FACILITY PACK**  
**Annex A**

**September, 2024**

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## List of Abbreviations

<b>NEMC</b>	National Environmental Council
<b>BOQ</b>	Bill of Quantities
<b>CAD</b>	Computer aided Design
<b>TBS</b>	Tanzania Bureau of Standards
<b>NCC</b>	National Construction Council
<b>OSHA</b>	Occupation Safety and Health Authority
<b>MCB</b>	Miniature Circuit Breaker
<b>DoR</b>	Division of Responsibilities
<b>NPV</b>	Net Present Value
<b>IRR</b>	Internal Rate of Return
<b>ROE</b>	Return on Equity
<b>DCB</b>	Dodoma Clay Brick
<b>USD</b>	United States Dollar
<b>PAP</b>	Project Affected Person
<b>ToR</b>	Terms of Reference
<b>ROI</b>	Return on Investment
<b>ESIA</b>	Environmental and Social Impact Assessment
<b>APPF</b>	Afreximbank Project Preparation Facility
<b>DSCR</b>	Debt Service Coverage Ratio
<b>CSR</b>	Corporate Social Responsibility
<b>MoU</b>	Memorandum of Understanding
<b>DMS</b>	Degrees Minutes Seconds

## 1. Company Profile & Business Activities

Build Africa Holdings Limited (BAH) is a Tanzanian infrastructural input manufacturing and distribution holding company registered in 2014.

The company's **core business activity involves mining clay and using it for manufacturing building materials- bricks, roofing tiles, pavers and water tanks, but also producing aggregates.** Parallel with this, BAH would provide logistics services to support the company's transportation needs for raw inputs such as coal and gas; as well as delivery of final products to customers. In the long run, BAH will conduct Property and Real Estate management business as supplementary to the core business activity.

The aim of the company is to leverage on local resources to improve **viability** and **profitability**, access new markets and technologies, unlock new capital and reduce risks.

As an infrastructural entity, our focus is on supplying **green building material** in Sub-Saharan Africa. We have already identified operations site, having huge clay deposit in Tanzania and the Democratic Republic of Congo. We intend to:

- ✚ Provide access to affordable housing, by setting up clay building material plant of **485,000 bricks/day** production capacity in Dodoma, representing total investment of **\$ 24.0 million**.
- ✚ Over the next 5 years, clay brick project will not only increase construction of **affordable houses** but will also help in creating more than **500,000** incremental jobs in the country.
- ✚ BAH aims to alleviate building material shortage frequently plaguing the country by applying **green solution** in the construction sector in Tanzania.
- ✚ Access new markets and technologies, unlocking new capital and reducing risks. This strategy will be anchored on product quality, required customer service, end-to-end systems and technology, innovation and responsiveness to market needs.

BAH brings long- needed transformation in the building materials sub- sector, using clay as an alternative building material; leading to lowering the currently high construction costs relating to the wide use of cement; and providing bulk supply to developers and local builders.

## **2. Project Background**

Current dynamics in the housing construction industry demand necessary transformation through mechanised modernisation and product diversification, in order to exploit the huge demand for green buildings in our towns and cities. This takes into consideration the fact that, the Tanzania housing and construction sector is currently highly dominated by the use of cement which (as of now, is not only in short supply, but also carries some negative consequences, like excessive inhouse warming/hotness in dry seasons), needs massive combinations of other materials like steel iron bars, sand, water and gravel.

It is from this perspective that BAH made a comprehensive research into the building materials sub-sector to explore the types of resources, locally available, which can be used as an alternative to cement. Following this research, supported by experiences elsewhere, BAH came up with an unquestionable proof that, only clay resources available in more than 19 regions in Tanzania can transform the building materials sub-sector and housing industry landscape, to ultimately lower the house building costs, so as to facilitate construction of affordable houses in Tanzania and establish new commercial and industrial green cities and parks.

From this comprehensive research, BAH decided to initially focus on Dodoma Region where there are very significant clay deposits.

### **2.1 Location of the Dodoma Region**

The Dodoma Region is located in the central part of Tanzania, having an area of about 41,311Km<sup>2</sup>, situated between DMS latitude longitude coordinates 6°10'19.96"S, 35°44'22.09"E. It is the Region where the Capital City of Tanzania is located. The Region is endowed with a considerable wealth of natural resources; with a record of over 3 minerals of proven reserves. According to geological surveys carried out such deposits include Limestone, Clay, Heavy mineral and sand (Gypsums). These minerals have some prospect for industrial use. Currently, however, clay minerals appear not to be some of the most valuable among the minerals of the earth surface; yet they affect life on earth in far reaching ways. Clay is used in the manufacture of refractory products such as firedbricks and blocks, insulating bricks, refractory mortars and mixes, and monolithic and castable materials. There are very huge deposits of clay in Dodoma Region. The clay exploration exercise undertaken in 1972 and recent surveys revealed that clay deposits in Dodoma cover approximately 115.7959km<sup>2</sup> extending from Zuzu, Chididimo, Bihawana, Chisichili, Chizomoche, Isanha to Mwitikira Village in the Bahi District. In the past, two clay bricks factories were constructed within this area.

In this context, BAH opted to establish the Dodoma Clay Bricks Factory in Mbabala Ward, Dodoma Urban District where there is a proven very large clay resource potential.

## 2.2 The Dodoma Clay Bricks Project

Build Africa Holdings Ltd, registered in the United Republic of Tanzania in collaboration with Beta Holdings Group, a Private Company registered in the Republic of Zimbabwe intends to establish a clay bricks factory, **Dodoma Clay Bricks (DCB)** in Mbabala Ward, Dodoma Urban District. The factory project will be implemented by SABO SA from Greece. The DCB Factory will manufacture bricks, roofing tiles, water tanks, pavers and joinery accessories using clay. With new technology, the factory is expected to manufacture 500,000 to 1,000,000 bricks per day. When this factory is completed, it will supply its products countrywide, especially in Dodoma to cater for the Capital City Projects such as of the Modern Government City at Mtumba, Hotels, Shopping Malls, Schools and Hospitals, Commercial and Residential Houses. It is expected that, the clay building materials to be produced will drive down the construction costs, currently overly relied on cement products. There will be also greater speed in the construction process, eliminating embedded hidden indirect costs when using cement materials. More important, the clay building materials produced will largely contribute to making the Dodoma Capital a "Green City" through enhanced environmental conservation by the overall environmental impacts of clay bricks buildings, from initial production to overall operation; in terms of less energy usage, water consumption, reduced greenhouse gas emissions and recyclability; but also reduced excessive use of sand and gravel associated with cement application.

## 3. Estimates of the Project Preparation Costs

The total estimates for existing and forecasted project preparation costs are USD 189,022.48 and USD 612,401.34 respectively. (See Appendix B).

**Table 1: Preparation Studies on Feasibility, Technical, Environmental, Designs & BOQ,**

No.	Activity	Activity Descriptions	Existing*	Forecast*
1.	Feasibility Study	<ul style="list-style-type: none"> <li>• Topographical Surveys</li> <li>• Geo Technical Survey</li> <li>• Designs – Civil</li> <li>• Designs – Electrical</li> <li>• Designs – Mechanical</li> </ul>	34,946.20	40,312.90

2.	Clay Materials Lab Analysis	<ul style="list-style-type: none"> <li>• 12 Pits/Boreholes</li> <li>• 36 Bags of Clay Samples, @ 20kgs</li> <li>• Export Permits and Sample Transportation</li> <li>• Raw Material/Clay Investigation</li> </ul>	23,613.77	24,316.30
3.	Resettlement and Compensation Action Plan	<ul style="list-style-type: none"> <li>• Properties identification for people whose land falls within the Project area.</li> <li>• Baseline Socio-economic Survey</li> <li>• Census of Project Affected Persons (PAPs)</li> </ul>	-	11,294.40
4.	Projected Compensation	<ul style="list-style-type: none"> <li>• 120 PAPs</li> </ul>	-	72,867.50
5.	Environmental and Social Impact Assessment	<ul style="list-style-type: none"> <li>• Site visit for data collection and assessment</li> <li>• Preparation of registration documents (Scoping Report and ToR)</li> <li>• Project registration (NEMC)</li> <li>• Consultation process</li> <li>• Different measurements unit samples to be taken</li> </ul>	20,933.20	22,576.00
6.	Business Plan	<ul style="list-style-type: none"> <li>• Compliance Requirements</li> <li>• Financial Projections and Costs</li> <li>• Infrastructures - Availability of Water, Electricity, Roads,</li> </ul>	47,131.65	13,448.30

		Manpower, Coal, Other Fuels, Clays for the Project		
7.	Environmental and Social Impact Assessment Certificate	<ul style="list-style-type: none"> <li>Obtaining Certificate from NEMC</li> </ul>	-	17,145.30
8.	Mining License	<ul style="list-style-type: none"> <li>Obtaining Mining License from the Ministry of Minerals</li> <li>Land Occupancy Charges</li> </ul>	6,183.40	42,863.20
9.	Certificate of Incentive	<ul style="list-style-type: none"> <li>Obtaining certificate of Incentive from Tanzania Investment Centre</li> </ul>	-	1,114.44
10.	BOQ + Other Additional Works	<ul style="list-style-type: none"> <li>Land Use Plan</li> <li>Architectural Designs</li> <li>Bill of Quantities</li> </ul>	9,024.66	36,005.05
		<b>Total</b>	<b>141,832.88</b>	<b>281,943.39</b>

Note: \* USD

**Table 2: Transaction Advisory Services**

No.	Service Particulars	Existing*	Forecast*
1.	Technical Consultancy	14,858.60	102,251.33
2.	Legal Services	2,700.90	18,942.20
3.	Financial/Economics/Project Management Services	3,922.45	110,660.18
4.	Investments Advisory Services	2,318.05	28,478.70
	<b>Total</b>	<b>23,800.00</b>	<b>260,332.41</b>

Note: \* USD

**Table 3: Project Management Services**

No.	Service Particulars	Existing*	Forecast*
1.	Office Management	9,278.77	24,736.60
2.	Executive Committee -Monitoring & Evaluation	3,173.33	13,502.20
3.	Technical & Procurement Audit	4,011.10	8,886.74
	<b>Total</b>	<b>16,463.20</b>	<b>47,125.54</b>

Note: \* USD

**Table 4: Project Marketing and Fundraising Activities**

<b>No.</b>	<b>Service Particulars</b>	<b>Existing*</b>	<b>Forecast*</b>
1.	Investors and Lenders Meetings	5,003.70	11,601.00
2.	Seminars, Conferences & Trainings	1,005.50	10,177.67
3.	Interviews and Media Coverage	917.20	1,221.33
	<b>Total</b>	<b>6,926.40</b>	<b>23,000.00</b>

Note: \* USD

#### **4. Financing Plan of the Estimated Project Preparation Costs**

The Total Project Preparation Costs for the Dodoma Clay Bricks Project is USD 801,423.82 (Eight hundred and one thousand, four hundred twenty-three and eighty-two cents), broken-down as follows:

- BAH has already spent (Existing) USD 189,022.48 and is projected to incur (Forecast) USD 70,125.54 (see table 3 & 4) making 32.33% of the total Project Preparation Costs.
- The APPF will finance the forecasted Preparation Studies on Feasibility, Technical, Environmental, Designs & BOQ (Table 1) amounting to USD 281,943.39 and forecasted Transaction Advisory services (Table 2) USD 260,332.41. The two items bring the total amount financed by APPF read USD 542,275.80, that is 67.66% of the Total Project preparation costs.
- For analysis (see Appendix C)

## 5. Project Preparation Activities

Item	Activity	Purpose	Specifics/Rationale	Deliverable	Time/Days	Consultant(s)	APPF(US\$)
1.	Feasibility Study.	Site visit, Assessment of Terrain, Designs – Civils, Electrical, & Mechanical Designs.	Water, Electricity, Roads, Manpower, Gas, Coal, Fuels, Clays etc, Identification of Positions and Levels. CAD Drawings, Transformers, MCB's Conveying Systems, Chutes and Receivers.	Report & Drawings	90	<ul style="list-style-type: none"> <li>• UDSM Consortium</li> <li>• GST</li> </ul>	40,312.90
2.	Clay Deposits & Lab Analysis.	Evaluation of Existing Reports, determine bulkiness, economic value.	Analysis and recommendation on suitable production processes.	Report	90	<ul style="list-style-type: none"> <li>• UDSM Consortium</li> <li>• Cermalab</li> </ul>	24,316.30
3.	Environmental and Social Impact Assessment.	Effects assessment and mitigation measures within the site.	Site visit for data collection and assessment, Preparation of registration documents (scoping report and ToR), Project registration (NEMC), Consultation process, Different measurements	Report	90	<ul style="list-style-type: none"> <li>• GCG (Pty) Ltd</li> </ul>	22,576.00

			unit samples to be taken, Health, Safety, Environment, Mining.				
4.	Resettlement and Compensation Action Plan.	Establish records and statistics for valuation of properties.	Properties identification for people whose land falls within the project area, Baseline socio-economic survey, Census of Project Affected Persons (PAPs), Projected Compensation.	Report	90	<ul style="list-style-type: none"> <li>• UDSM Consortium</li> </ul>	84,161.90
5.	Business Plan.	Compliance Requirements, Familiarisation with Regulatory and Compliance Authorities, NEMC, TBS, NCC, OSHA etc	Raw Materials, Overheads, Cost Per Unit, ROI. Infrastructures - Availability of Water, Electricity, Roads, Manpower, Coal, gas or Others Fuels, Buyers, Competitors, Logistics, Administration.	Report	90	<ul style="list-style-type: none"> <li>• UDSM Consortium</li> </ul>	13,448.30
6.	Transaction Advisory Services.	Advisory Project support.	Technical Consultancy, Legal Services, Financial Management Services, Investments advisory Services,	<ul style="list-style-type: none"> <li>• MoUs</li> <li>• Services Procurement guidelines</li> <li>• Audit</li> </ul>	90	<ul style="list-style-type: none"> <li>• Afreximbank</li> <li>• BAH</li> </ul>	260,332.41

			<ul style="list-style-type: none"> <li>Engagement of Equipment Suppliers,</li> <li>Construction – Supervision, Installation – Supervision.</li> </ul>	procedure guidelines			
7.	BOQ + Other Additional Works.	Projections and Costs.	Bill of Quantities, Land use Plan, Architectural Designs.	Schedule of costs and Service Tendering Report	90	<ul style="list-style-type: none"> <li>UDSM Consortium</li> <li>BAH</li> </ul>	36,005.05
8.	Environmental and Social Impact Assessment Certificate	Certification award.	ESIA proposal accepted	Certificate	90	<ul style="list-style-type: none"> <li>NEMC</li> </ul>	17,145.30
9.	Mining License	Certification award.	Long-term mineral rights and land occupancy granted (33 years lease)	License	90	<ul style="list-style-type: none"> <li>Mining Commission</li> </ul>	42,863.20
10.	Upstream and Downstream Activities- Commissioning,	Safety and Operation, Efficiency, Skills Transfer to	DoR, Testing, Dry Running, Full Loading, Meeting Targets, Design of Procedures (End to End).	Report & Board Packs			

	Production, Training	Locals, etc	Inculcating Work Culture.				
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## 6. Project Preparation Implementation Plan

No.	Activity/Milestones	Target Time	Responsible
1.	APPF Application Submission	September 2024	BAH
2.	APPF Technical Review	October 2024	Afreximbank
3.	APPF Approval	Nov-December 2024	Afreximbank
4.	Project Launching Workshop	January 2025	BAH/Afreximbank
5.	First Disbursement	February 2025	Afreximbank
6.	Procurement of Goods/Services	Feb – May 2025	Afreximbank/BAH
7.	Project Advisory Committee Meetings	Once every month	BAH
8.	Mid-term Project Review	March 2025	Afreximbank/BAH
9.	Last Disbursement	April 2025	Afreximbank
10.	Afreximbank Project Supervision Mission	April 2025	Afreximbank
11.	Project Preparation Completion Report	May 2025	BAH

## 7. Project Financial and Economic Issues

Project financial projections indicate acceptable NPV and IRR to enable the project pay back initial capital invested fully at the fourth year. The said NPV for this project is 42.5 million and of IRR of 49.5% with an average ROE of 25.37%, this indicates high project growth and sustainability.

The average Debt Service Coverage Ratio (DSCR) for this Project is estimated at 4.86, having a minimum DSCR of 3.14; which is higher than the minimum required ratio of 2. This shows that, the Project will have high ability to repay the loan obtained and be able to meet all short-term project obligations; i.e. loan interest and other payables.

These ratios prove beyond any reasonable doubts that, the Dodoma Clay Bricks Project is commercially viable.

## 8. Market Assessment in Building Material Sub-sector for Tanzania

In Tanzania, there's a deficit of 3,000,000 units of houses needed in the country; and, due to demographic growth trends, housing needs grow at 200,000 housing units per annum.

A typical house in Tanzania of 81 m<sup>2</sup> requires approximately 3,000 size (5'X6') cement blocks, to build a wall, priced at Tshs. 1,600 (0.69 cents USD). This implies that:

- Housing market in Tanzania, demands 600,000,000 bricks per year.
- Swisscontact Survey in 2017 for SADC countries, indicates supply of building material for walling in Tanzania stands at 250,000,000 bricks per year; while 20% are made from clay (50,000,000), 40% from cement (150,000,000) and

20% from other sources. More than 80% of building material produced are manufactured informally, posing very high risks to safety, security and house durability because standards are compromised during manufacturing process.

- Therefore, the gap for walling building materials (bricks) is 350,000,000 bricks per annum, approximately 58% of all bricks demanded annually. That is 29 million bricks demanded per month or 1 million bricks needed every day. Over 5 years 1.7 billion bricks are demanded to close the existing gap, worth USD 1.2 billion.
- New house owners in Tanzania are mainly young employees (52.2%) and retirees (28%) who construct houses on incremental basis. Before building the houses they first choose the right building materials on comparative basis; establish the distinguishing features like strength and durability; but, also, pricing, to see if can make savings.
- A strong cement- vibrated brick needs a combination of cement and sand at a ratio of 1:1.25:4 for cement and sand respectfully; making the per output cost be 0.51 cents USD, water and labor included; compared to 0.034 cents USD of a similar sized clay brick.
- To enable easy market penetration, BAH will apply pricing strategy, cash discounts and after sales services, like free delivery to customers within 20 km from the selling point.
- Clay brick value proposition includes bulk supply, fast building and low maintenance costs. BAH will apply market segmentation and product differentiation to secure firm position in the building material sub-sector not only in Tanzania, but within the East African region as well.

## **9. Development Impacts of the Project**

The Project area is surrounded by more than 70 villages with a total population of more than 150,000 people. The Project intends to contribute significantly to raise per capita income to the entire surrounding communities by providing them with employment opportunities, housing support, education support and other social services.

In general, the Project anticipates to influence positively a number of aspects as outlined below;

- i) It is estimated that over 200,000 workers are directly employed across the building industry in production, transportation, bricklaying and plastering.

- ii) Increase individual per capita income through employment opportunities;
- iii) Increase local development through CSR, levy and other taxes paid to the local governments;
- iv) Generate energy ie, electricity and supplement to the national grid, because during firing bricks process, the plant generates 4 megawatts daily;
- v) Increase foreign currency;
- vi) The project will sub contract to local SME's activities such as, catering services, cleaning and environmental activities, security services, tailoring sevices etc,
- vii) Provide training opportunities to local builders on the use of clay bricks;
- viii) **Community Support:** Clay extraction has a temporary disruptive and adverse environmental impact. However, through CSR, BAH is committed to provide necessary support on some of the surrounding society's basic needs such safe water, primary school buildings and natural conservation initiatives. Restoration of clay pits can also provide land for agricultural farming, aquaculture fishing, tree planting and other productive uses.

## 10. Project Additional Information

The Dodoma Clay Bricks Project has involved two crucial stages, upstream preparatory and downstream planned activities.

### 10.1 Upstream Preparatory Activities

The upstream preparatory activities undertaken include strategic alignment with local and foreign key Project Partners, including, BETA Holdings Group, Plant manufacturers; IPIAC, Ying Feng, SABO SA, VERDES, Beralmar Technologies, Bongioanni Italy, TPDC Tanzania, INTRA Energy Corporation Ltd, but also Firing Technology Consultants, like BMMS and others towards implementation of the Project, of whom, several have already signed MoUs with BAH.

### 10.2 Planned Downstream Activities

On the other side, planned downstream activities will include commissioning and training of local Project Management Team and entire Project Staff. Commissioning will focus on safety and operations geared to meet the established set targets; while training will cover skills transfer to locals, inculcating work culture, social issues such as Gender, HIV/AIDS, Covid 19 and issues related to environment and climate change effects.

**Appendix B: Project Preparation Costs**

<b>No.</b>	<b>Component / Study</b>	<b>Existing*</b>	<b>Forecast*</b>	<b>Total*</b>
1.	Preparation Studies	141,832.88	281,943.39	423,776.27
2.	Transaction Advisory	23,800.00	260,332.41	284,132.41
3.	Project Management	16,463.20	47,125.54	63,588.74
4.	Project Marketing and Fundraising	6,926.40	23,000.00	29,926.40
	<b>Total Project Costs</b>	<b>189,022.48</b>	<b>612,401.34</b>	<b>801,423.82</b>

Note: \* **USD**

**Appendix C: Project Preparation Financing Plan**

<b>No.</b>	<b>Source of Funds</b>	<b>Existing*</b>	<b>Forecast*</b>	<b>Total*</b>
1.	BAH	189,022.48	-	189,022.48
2.	Equity Investor	-	70,125.54	70,125.54
3.	APPF	-	542,275.80	542,275.80
4.	Other Project Preparation Facilities	-	-	-
5.	Grants	-	-	-
	<b>Total financing Cost</b>	<b>189,022.48</b>	<b>612,401.34</b>	<b>801,423.82</b>

Note: \* **USD**