

Savannah Damongo MRO Centre

Phase 2 Development Proposal and Preliminary Cost Plan

Prepared for Paul Augustus Hay and prospective financing and technical partners
Global Exchange R&E Corporation and African Airways ACE Ghana Aviation
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Executive proposal

We propose a maintenance, repair and overhaul centre and aviation skills campus at the planned Savannah Damongo aviation development in Ghana. The centre would support the African Airways and Air Charter Express operating network and, subject to approval and contracted demand, serve third party regional and international operators.

This proposal is the Phase 2 MRO and training annex. It adapts the supplied Rwanda based MRO concept to a proposed Ghana greenfield location. It does not assume that an operational airport, existing hangars, land title, technical partner commitments or maintenance approvals are already available at Damongo.

Decision item	Proposal basis
Initial development work	US\$1.50 million for feasibility, design, approvals planning and commercial validation
Core MRO and training capital	US\$31.02 million including 20% contingency on US\$25.85 million direct cost
Opening liquidity reserve	US\$3.60 million equal to six months of modelled fixed operating cost
MRO development envelope	US\$36.12 million base case including the development work above
Preliminary sensitivity range	US\$28.37 million to US\$48.53 million for the same defined MRO scope

All project prices in this annex are new, unquoted planning assumptions in US dollars. The uploaded source contains market size figures but no project capital or operating budget. The range is a sensitivity test, not an independently estimated confidence interval. Airport infrastructure, land, taxes and other exclusions remain additional.

The added minimum infrastructure option is US\$103.56 million for an indicative 3,200 metre runway package and one basic wide body servicing hangar, before opening working capital and the stated exclusions. The more developed airport plus core MRO scenario is US\$124.27 million including the core MRO reserve and removing the duplicated MRO apron allowance. Detailed schedules follow in the airport addendum.

Immediate request

Authorize a separately controlled US\$1.50 million development workstream for consideration, with release in agreed milestones. Construction funding would be considered only after site access, the airport interface, engineering quantities, supplier quotations, the approval pathway and credible customer demand are validated. No financing commitment is represented by this proposal.

Phase 2 scope and Ghana operating model

Damongo would be the proposed principal development site for this workstream. Accra would remain the operational and commercial interface with the existing Ghana aviation network. Any interim maintenance work at another airport must be performed by an appropriately approved organisation under a separate agreement.

Stage	Defined scope	Release condition
2A Development	Site and airfield interface studies, concept design, environmental screening, AMO certification plan and customer validation	Documented site access and approved development budget
2B Core centre	Hangar, selected workshops, stores, training rooms, equipment, limited initial aircraft ratings and opening liquidity	Buildable airport connection, approved design, funding and credible contracted demand
2C Later expansion	Wide body base maintenance, engine overhaul and test cell, major modifications and passenger to freighter conversion	Separate engineering, OEM or design approval rights, business case, capital budget and approvals

Initial service priorities

Start with a deliberately limited set of aircraft and engine types selected from actual fleet and customer contracts. The proposed first capability includes approved line maintenance, scheduled airframe work within the granted ratings, inspection, cabin rectification, selected component support and engine removal or installation. Engine overhaul, engine test cells and freighter conversions are excluded from the initial operating promise and budget.

The six aircraft airline concept alone does not establish sufficient third party work for the centre. Conduct a bottom up demand study covering aircraft types, maintenance events, billable hours, customer ferry costs and competing approved facilities. Internal maintenance reduces airline costs but is not additional consolidated group revenue; intercompany income and expense must be eliminated.

Governance and delivery roles

Global Exchange would coordinate project sponsorship, financing and commercial development. African Airways would develop international customer relationships and equipment coordination. Air Charter Express would provide Ghana operating input, subject to a documented scope and its permissions. A qualified MRO technical operator would be competitively selected; none is represented as appointed.

Paul Augustus Hay would sponsor the program and Christopher Anderson would coordinate Ghana operational input under agreed mandates. The Royal Savannah Trust would coordinate land and local project interfaces. A project company, land lease, technical management agreement, reporting controls and reserved decisions must be documented before commitments. Equity percentages are to be negotiated, not treated as executed terms.

Site engineering and regulatory requirements

The land reference for the wider Savannah project and the proposed 1,000 acre airport and tank farm reserve are management planning context, not proof of a legally allocated MRO parcel. Survey and demarcate the parcel, confirm authority to grant the lease, verify title and community rights, and complete independent legal and technical due diligence.

Engineering interface	Required evidence before final investment decision
Aircraft access	Approved airport masterplan and a funded, deliverable runway and taxiway connection; pavement, geometry and operational suitability for the selected aircraft
Hangar and apron	Aircraft specific clearances, door height, floor loading, jacking loads, fire strategy, docking system and pavement design
Ground conditions	Topography, geotechnical study, flooding and drainage assessment, access roads and utility capacity
Environment and community	Applicable environmental approvals and consultation; fuel, oil, solvent and hazardous waste handling; water, emissions and noise controls
Reliable operations	Power with backup, water, data connectivity, physical security, rescue and fire interfaces, spares import and transport arrangements

Separate approval tracks

Ghana Civil Aviation Authority guidance requires a maintenance organisation certification process. An airline AOC does not by itself grant approval to operate a new MRO facility. The centre requires an appropriately scoped AMO approval, suitable accountable and nominated personnel, maintenance procedures, tooling and calibration, approved maintenance data, training, quality and safety controls, and release to service authorisations.

The airport and any approved training organisation follow their own applicable approval tracks. Agree current requirements and charges directly with GCAA before finalising the budget. No EASA, FAA or foreign customer recognition is assumed; pursue additional approvals only where justified by customer demand and resources.

Facility planning allowances

The preliminary model tests an 8,000 square metre hangar, 3,000 square metres of workshops and stores, 1,500 square metres of training and administration, and an 18,000 square metre MRO apron. These are quantity allowances, not a final layout, guaranteed aircraft fit or an approved aerodrome design. Hangar configuration must be engineered before aircraft capacity is advertised.

GCAA references checked 23 October 2026: Maintenance Organisations Cert and Aerodrome Certification. Full source URLs appear in the source register at the end of this annex.

Capital cost and funding scope

Each amount below is an editable management planning allowance created for this adaptation. No rate is a supplier quotation or a recovered cost from the Rwanda proposal. The specialised aviation structures are not priced using the residential construction benchmark used elsewhere in the Savannah project.

Direct cost item	Quantity	US\$ rate	US\$ million
Hangar structure and services	8,000 m ²	1,200	9.60
Workshops and stores	3,000 m ²	900	2.70
Training and administration	1,500 m ²	900	1.35
MRO apron pavement	18,000 m ²	100	1.80
Internal utilities and site works	1 lot	2,000,000	2.00
Aircraft tooling and docking	1 lot	3,000,000	3.00
Ground support equipment	1 lot	1,500,000	1.50
Maintenance IT and initial data setup	1 lot	600,000	0.60
Initial training and commissioning	1 lot	800,000	0.80
Opening spares and consumable stock	1 lot	2,500,000	2.50
Direct cost subtotal			25.85
Contingency at 20% of direct cost			5.17
Core capital including contingency			31.02
Stage 2A development work			1.50
Six month fixed cost reserve			3.60
MRO envelope including opening liquidity			36.12

Development work allowance of US\$1.50 million comprises site and survey work US\$0.25 million; design and engineering US\$0.35 million; environmental and social studies US\$0.15 million; certification planning US\$0.25 million; customer and technical diligence US\$0.20 million; and project, legal and commercial setup US\$0.30 million. This includes no separately verified statutory fee.

Additional costs excluded from this envelope

Land acquisition or lease premium and compensation; airport runway, shared taxiways, terminal, navigation aids and airport fire services; external access and trunk utilities; tank farm; hotel and city development; import duties, VAT and other taxes; financing fees and interest during construction; cost escalation after the pricing date; engine overhaul and test cell; freighter conversion tooling and licences; aircraft acquisition. These are unpriced additional workstreams, not zero cost items.

Operating economics and utilisation test

The steady state test below is a feasibility screen, not a validated earnings forecast. It assumes 150 total staff, including 90 productive maintenance staff. The source proposal's approximately 1,300 jobs is not adopted as a Damongo launch staffing commitment.

Annual fixed operating cost assumption	US\$ million
150 staff at average US\$36,000 fully loaded cost	5.40
Utilities and facility maintenance	0.65
IT subscriptions and insurance	0.60
Security and administration	0.30
Recurring quality and staff training	0.25
Total annual fixed operating cost	7.20

Productive capacity is 90 staff × 1,600 available billable hours per staff member per year = 144,000 hours before utilisation. The test labour charge is US\$100 per billed hour. Variable cash cost is assumed at 15% of labour revenue, separate from the fixed costs above. No third party quotation, customer contract or rate validation supports these assumptions yet.

Utilisation test	Billable hours	Labour revenue US\$m	Operating result US\$m
45 percent	64,800	6.48	(1.692)
65 percent base	93,600	9.36	0.756
80 percent	115,200	11.52	2.592

Operating result is labour revenue less variable cash cost and fixed operating cost, before depreciation, financing, tax and replacement capital. Break even is approximately 84,706 billable hours, or 58.8% utilisation at these assumptions. The test excludes parts resale margin, training income, parking, overhaul income and conversion income until contracted evidence exists.

Cash and consolidated group treatment

The US\$3.60 million reserve equals six months of fixed cost only. Separately size receivables, supplier deposits, spares replenishment and construction cash flows; a slow ramp or customer payment delay may require additional liquidity. Treat opening spares as stock capital and avoid charging the same stock acquisition twice in project funding and operating expenses.

Internal fleet maintenance hours cannot be counted as both external MRO sales and an unadjusted airline maintenance expense in consolidated projections. Establish transfer pricing and eliminations. A debt service coverage ratio and investor return cannot be represented until financing terms, tax, depreciation, ramp timing and cash collections are modelled.

Implementation milestones and finance attachment

Indicative elapsed period	Work package	Decision gate
Months 0 to 3	Land and airport interface diligence, initial GCAA engagement, customer demand study and technical partner process	Proceed only if site and airport delivery are credible
Months 3 to 6	Concept design, environmental pathway, aircraft ratings strategy, budget validation and initial customer commitments	Agree engineered scope and procurement package
Months 6 to 12	Detailed design, approvals, bankable quotations and financing documentation	Final investment decision and staged funding
Months 12 to 24 or later	Construction, systems installation, recruitment, training and certification preparation	Facility readiness and compliance demonstrations
Months 24 to 30 or later	Authority inspections, limited capability launch and customer ramp	Launch only within approvals actually granted

These are planning windows from an authorised project start, not calendar commitments. Airport construction, land access, approvals, supply lead times and financing may extend the schedule. No maintenance launch is assumed before aircraft access and required facility approvals are available.

Phase 2 attachment instruction

Attach this annex as P2 MRO 01 to the African Airways ACE Ghana Aviation development proposal. Record US\$36.12 million as an indicative MRO and training allowance inclusive of US\$1.50 million development work and US\$3.60 million opening liquidity. The development allowance is part of the envelope, not an amount added a second time.

Keep the airport and runway, hotel, training approval extensions, city infrastructure, fuel infrastructure and later heavy overhaul work in separate cost centres. The airport addendum provides a preliminary runway and minimum hangar option; the complete Phase 2 request remains undetermined because other workstreams and exclusions remain unpriced. Do not add this annex to the initial fleet loan request without a separately reconciled funding decision.

Funding approach for negotiation

Seek a blend of sponsor development capital, technical partner participation, equipment finance and infrastructure funding suited to the project risks. Existing aircraft financing requests do not establish MRO loan terms. Any proposed sponsor and partner allocation, moratorium, interest rate, security package or guarantee must be negotiated and approved in its own documents.

Release funds against independently verified milestones, with procurement controls, cost reporting, change approval and a lender monitored draw process. Secure a completion and interface plan covering the airport and MRO so that a completed hangar is not left without operational aircraft access.

Source adaptation and estimate register

Uploaded source element	Damongo adaptation
Rwanda title and Kigali hub with conflicting Harare reference	Single proposed location in Savannah Damongo Ghana; no existing airport facility assumed
Three site pan African network	Damongo core site with an Accra interface; additional international satellites deferred
Broad aircraft and engine overhaul service list	Start with limited approved ratings; heavy overhaul and conversion deferred
US technical support and named historical team	Technical partner procurement and fresh written mandates required; no historic party is shown as committed
COVID grounding and 2019 to 2029 market projections	Historical context removed from current demand claims; customer work orders must support the case
Approximately 1,300 jobs and September or October 2020 visits	150 staff test assumption at steady state; new gated implementation timetable
Dollar figures in market charts	Retained only as historical market information; none treated as Damongo project costs

Review of source costing

The supplied DOCX contains text boxes, charts, photographs and narrative. Review included its main text, embedded text box content and rendered pages. No project capital schedule, unit cost estimate, operating budget, funding amount or priced equipment list was identified. The billion dollar figures refer to market size or forecast spending. The source's visible 2020 planning references make it unsuitable as a current cost quotation.

Estimate basis and uncertainty

The capital sensitivity range applies a 25% reduction or 40% increase to the US\$25.85 million direct cost, then applies the same 20% contingency and adds US\$1.50 million development and US\$3.60 million reserve. Low US\$28.365 million; base US\$36.120 million; high US\$48.528 million. It does not cover excluded airport works, taxes, finance or future escalation.

All quantities, unit rates, staffing, labour charge and utilisation assumptions are proposal preparer assumptions dated 23 October 2026. They require replacement by a Ghana quantity surveyor's estimate, engineering design, equipment supplier quotations, certified technical operator plan and customer supported volume case. They are not vendor quotations, approved budgets or guaranteed costs.

Procurement and approval handoff

The next work package converts this review ready proposal into an investment decision package. Assign an owner and evidence reference to each item before final funding approval.

Required package	Deliverable	Proposed lead
Land and airport interface	Verified lease and survey, airport masterplan interface, funded runway and taxiway programme	Trust and independent land counsel with aerodrome engineer
Civil and building works	Quantity survey, aircraft specific hangar design, pavement and utilities estimates, competing contractor bids	Aviation design and quantity surveying team
Technical capability	Initial aircraft ratings, maintenance data rights, tools and calibration list, approvals plan and staffing	Selected qualified MRO technical operator
Commercial demand	Customer letters or contracts, work packages, labour hours, rates, ferry costs and credit terms	African Airways and ACE commercial team
Environmental and social	Applicable approvals, consultation, waste and safety management plans	Environmental adviser and Ghana authorities
Finance and cash flow	Tax and duty review, ramp model, cash reserve test, financing terms and consolidation eliminations	Project finance and accounting advisers

Source register

1 User supplied AA Domongo MRO 0200804 Proposition for Rwanda Based MRO DOCX. Original concept retained as source material; project costing absent. Original Rwanda and Kigali illustrations are not represented as Damongo site photographs.

2 Ghana Civil Aviation Authority Maintenance Organisations Cert. Current web guidance checked 23 October 2026.
<https://www.gcaa.com.gh/web/licensing-certification/maintenance-organisations-cert/>

3 Ghana Civil Aviation Authority Aerodrome Certification. Current web reference checked 23 October 2026.
<https://www.gcaa.com.gh/web/licensing-certification/aerodrome-certification/>

4 Management instructions in this project: Phase 2 Damongo airport, MRO and training campus; Ghana operating collaboration with ACE; wider Savannah development context. No land conveyance, authority approval or technical operator agreement was supplied for this review.

5 Airbus Aircraft Characteristics Airport and Maintenance Planning portal. Checked 23 October 2026.
<https://www.aircraft.airbus.com/en/customer-care/fleet-wide-care/airport-operations-and-aircraft-characteristics/aircraft-characteristics>

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Minimum runway and servicing hangar option

This addendum responds to the request for a minimum cost international aircraft runway and servicing hangar. International status does not prescribe a single runway length or grant customs, immigration or airline traffic rights. This is a limited initial infrastructure concept, not a contractor tender or a guaranteed lowest achievable cost.

Design assumptions for valuation

Use 3,200 metres × 45 metres as the runway planning geometry, with 7.5 metre shoulders each side. Target a Code E aircraft envelope for initial study, with one connector taxiway rather than a full parallel taxiway and a shared 30,000 square metre apron. Aircraft performance, elevation, temperature, wind, obstacles, runway slope, declared distances, pavement strength and rescue category require specialist validation. This geometry does not guarantee unrestricted long haul operations for every A330, A350 or B777 variant or payload.

Runway package item	Quantity	US\$ rate	US\$ million
Runway pavement	144,000 m ²	220	31.680
Runway shoulders	48,000 m ²	70	3.360
Earthworks and formation	1 lot	8,000,000	8.000
Strip safety areas and drainage	1 lot	6,000,000	6.000
Runway end turn pads	1 lot	1,000,000	1.000
Connector taxiway	13,800 m ²	160	2.208
Shared apron	30,000 m ²	150	4.500
Lighting navigation and weather allowance	1 lot	4,500,000	4.500
Rescue fire and security equipment	1 lot	3,000,000	3.000
Basic operations and control buildings	1 lot	2,000,000	2.000
Internal access and utilities	1 lot	3,000,000	3.000
Surveys design and approvals planning	1 lot	3,000,000	3.000
Direct runway package			72.248
Contingency at 25 percent			18.062
Runway enabling package			90.310

Runway pavement is an all in assumed pavement works rate excluding the separately shown bulk earthworks, shoulders, drainage and turning pads. The connector allowance is 600 metres × 23 metres. Lighting, navigation, weather, rescue and control budgets are provisional lump sums; the final instrument approach and operational category are not specified or approved.

Minimum hangar valuation and Phase 2 reconciliation

The basic servicing building is a single bay with a nominal 90 metre × 90 metre footprint, plus 800 square metres of support rooms. Door and clear internal geometry must be engineered for the selected aircraft, including wingtip, tail and maintenance clearances. It is a sheltered servicing concept, not an engine overhaul shop or a complete heavy maintenance capability.

Minimum hangar item	Quantity	US\$ rate	US\$ million
Hangar shell	8,100 m ²	650	5.265
Aviation floor and slab	8,100 m ²	180	1.458
Aircraft hangar doors	1 lot	1,000,000	1.000
Electrical services and fire systems	1 lot	1,200,000	1.200
Support rooms	800 m ²	650	0.520
Basic servicing tools and GSE	1 lot	1,100,000	1.100
Design and commissioning	1 lot	500,000	0.500
Direct hangar cost			11.043
Contingency at 20 percent			2.209
Minimum servicing hangar			13.252

Alternative scope	US\$ million	Treatment
Runway package plus minimum hangar	103.562	90.310 plus 13.252 before opening working capital
Same limited scope sensitivity range	77.671 to 144.986	Direct cost sensitivity of minus 25 percent and plus 40 percent with stated contingencies
Runway plus developed core MRO	124.270	90.310 plus 36.120 less 2.160 duplicated apron and its contingency

These are alternatives, not cumulative budgets. Do not add the minimum hangar to the developed core MRO budget. In the developed case the shared airfield apron replaces the MRO model's US\$1.80 million apron plus US\$0.36 million contingency. Revalidate that the shared area and pavement design actually meet both operating plans.

The limited infrastructure case excludes land and compensation, passenger terminal and border facilities, fuel farm, external trunk services, tax and duties, finance and escalation, full parallel taxiway, advanced instrument landing systems where required beyond the allowance, technical licences and full MRO certification, opening stock and working capital. Quantity surveyor and contractor quotations are essential before committing funds. Material earthworks or weak ground could exceed the sensitivity range.

Engineering basis: current Airbus Aircraft Characteristics and GCAA aerodrome certification references guide the required design validation; they do not supply project prices. All rates above are unquoted preparer assumptions dated 23 October 2026.