

Economic Appraisal of CEC Construction

For DFID 19th October, 2011

What is intervention?

- Phase 2 of construction at 14 County Education Centres across 7 states
- Will make CECs operational
 - 2 x 50-capacity dormitories
 - Staff accommodation (for 8 + house for principal)
 - Water supply
 - Electricity supply
 - Latrines

What is rationale?

- Lack of qualified teachers; poor student learning
- Quality should not be neglected as quantity expands - addressing it later will be more difficult
- Quality rather than quantity determines benefits from education
- Teachers are the key to education quality
- Market failure, government failure

Intervention options

1. Direct MoU with UNOPS
2. Money through USAID who contract UNOPS
3. Money through GoSS
4. Do nothing

Option 1 vs. Option 2

- Benefits assumed equivalent so selection is on costs

	UNOPS Contract	Independent M&E // USAID Management fee	DFID management costs in FTE	Total
Option 1 (direct MoU with UNOPS)	£21.46m	£0.21m	0.25 Advisor 0.3 Prog Assistant 0.2 Dep Prog Manager	£21.70m
Option 2 (through USAID)	£20.49m	£1.23m	0.2 Deputy Programme Manager	£21.72m

Is UNOPS contract good VfM?

- In general costs are not outrageous but they are higher than any other comparable projects
- DFID should push these lower or genuinely consider approaching alternative management agents
- Some design issues should be re-considered to lower costs and boost VfM

\$ / m²

	AVERAGE
CEC Phase 2	\$886
Previous UNOPS in same states (2010-11)	\$787
DFID Community School Construction project (UNOPS)	\$629
BSF (2010-11)	\$660
MOE CEC Phase 1 (2007)	\$600
MOE MDTF Primary Schools (2009)	\$450
DFID International Benchmarks:	
International competitive bidding	\$270
Community managed programmes	\$100

Recommendations on unit cost / m²

- Generally negotiate lower
- Demand different unit costs for different parts of construction
- Keep close tabs on short term cost drivers that could change before contract finalised (illegal custom points & north-south border)

Water points

- Proposed design has 3 water sources
 - Borehole with submersible electric pump and 10,000 litres elevated tank
 - Borehole with hand pump
 - Rainwater harvesting (20,000 litre capacity)
- Total unit cost \$76,857 per CEC
- Individual costs in line with other UNOPS projects (limited other comparator data, but seem a bit higher)
- International benchmark is \$7,500 for a school
- Biggest question is whether all 3 sources at such a high capacity are necessary

Latrines

	Cost per individual latrine (stanch)
CEC Phase 2	\$5,036
Previous UNOPS in same states (2010-11)	\$6,445
DFID Community School Construction project (UNOPS)	\$2,250
MOE estimate	\$3,000
DFID International Benchmark	\$1,250

- Latrine costs seem too high
- Design is for each dormitory to have one four-door latrine – RECOMMENDATION: One dormitory should have two separate two-door latrines to be gender sensitive

Furniture

- Difficult to get cost comparisons as not done by BSF or UNOPS previously
- DFID international benchmark is \$2,000 per classroom (60 pupils)
- CEC phase 2 plan \$9,036 per classroom
- Community school construction plan for \$6,250 per classroom at a secondary school
- Seems scope for cost reductions, but inventory of furniture items should be considered

Solar panels

- Not yet common in South Sudan on scale planned, but lifecycle cost comparison:

	Solar Panels	25kVA Generator
Installation cost per CEC	\$135,429	(incurred anyway for back-up)
Fuel Cost & Maintenance per year	\$2,000	\$23,200
Saving per year	\$21,200	
Time to pay off investment	6.4 years	
Savings if 25 year life cycle	\$394,571	
Life cycle savings for 14 CECs	\$5.5 million	

- Risk – no technical capacity for maintenance

Cost-benefit analysis - assumptions

- Utilisation of CECs:
 - First 4 years, two separate cohorts enrolled on full INSET stages (3 months each)
 - First 4 years, two months other training conducted at CECs
 - Years 5-20, six months training per year
- Teachers stay in profession for average of 10 years (some will leave, some will stay longer)

Training costs

- Proxy of ECS estimates of £900 per teacher per stage
- Opportunity cost of teacher from being away from classroom

Training benefits

- Increased teacher productivity proxied by % increase in salary offered by government for trained (Grade 9) teacher vs. untrained (Grade 14) teacher
- Impossible to know how accurate this assumption is, but challenge for M&E
 - Evaluate impact of trained teachers on repetition, drop-out, enrolment, test scores

Unquantified benefits

- Increased teacher benefits outside of employment (e.g. better consumption/savings decisions, better health, enjoyment of training in itself)
- Spillover benefits to other teachers at same school
- Other uses of CECs
- Use of CECs beyond 20 years
- Peace benefits from residential courses bringing different tribes together
- Peace benefits from provision of education services generally
- Education of reasonable quality as an unquantifiable human right

Initial estimates

Net Present Value	£1.9m
Cost-benefit ratio	1.09
Internal Rate of Return	10.5%

- Positive NPV even with generally quite conservative assumptions
- When consider unquantified benefits economic case for project is sound

Risk / sensitivity analysis

- Biggest risk is if CECs not fully utilised
- Other major risks:
 - Low quality training
 - Construction delays (e.g. if more than minor touch-up required for existing facilities)
 - Low retention of teachers post-training
 - No GoSS provision of complementary inputs to teachers once back in classroom
 - No maintenance of CECs
 - Conflict disrupting use of school / destroying facility
 - No GoSS funding threatens long-term sustainability

Summary & Recommendations

- Option 2 channelling money through USAID is most cost-effective
- CBA shows project is better than counterfactual
- UNOPS should be pushed hard to lower costs (for negotiations other management providers should not be ruled out)
- Project benefits completely contingent on actual use of CECs – clear risk management and mitigation strategy should be adopted from start

Thank you.