The Role of the Engineer in Humanitarian and Development Work

TO DO NO HARM

A Case Study: Dualta Roughneen,
BE CEng, MIEI
Background

• B. Eng (Civil) NUIG 2001

• Site Engineer, Coffey Construction: Cork IT underground utilities; Foynes Harbour Road construction:

• Assistant Resident Engineer, Mayo Co. Co., Rathrooene Landfill construction
Development and Humanitarian Experience

• Project Manager, GOAL, Afghanistan, Rural Rehabilitation programme
• Water & Sanitation Officer/Manager, Concern Worldwide, North Korea; rural and urban water supply
• WaSH Advisor, Concern Worldwide, Darfur, Sudan; rural water, sanitation and hygiene programme
• Engineering Coordinator, Concern Worldwide, Liberia: market access and water supply programme
• Disaster Management Coordinator & WASH Advisor; Plan Ireland, Ireland and roving; Cameroon, Ethiopia, Niger, Burkina Faso, Haiti
Five Key Challenges

• Role
• Technological
• Social
• Human Resources
• Contract Management
• Security

DO NO HARM
The Role of the Engineer

• UN/NGO/Development/humanitarian
• Afghanistan: Projects Manager: Design; Build; Tenders; Contract Management; Community Cash Programmes
Korea: Design and Procurement; Rural Water Supply; Large Scale Urban Water Supply; School Sanitation’
Hygiene Behaviour
Country Representation with MoFA
The Role of the Engineer

• Sudan: drilling wells; logistics; technical problems; hydrogeology; security management

• Liberia: contract management;
Technological

Afghanistan

- hand dug wells up to 40m
- handpumps
- stone masonry dams and retaining walls
- bridges
- rural roads
- water storage
Technological

• North Korea
  – Gravity fed rural water supply
    • PE pipe, low quality, quality assurance
  – Heavy duty pumped urban water supply programmes
    • Low voltage, low frequency, breakdowns
Social

• Project design and selection
• Instrumental- bigger picture
  – Market access
  – Education
  – Peace-building
• Governance
Social

• Health outcomes in North Korea
  – Behaviour change
  – Education

• Economic Outcomes in Liberia
  – Improved food access
  – Lower costs for markets

• Governance & peace building in Afghanistan
  – Temporary service providers
  – Cash for work
North Korea

- Centrally planned economy
- Communal labour supply
- Infrastructure driven
- Quality control
(Human) Resources

• Communal Work Teams
...or child labour?
(Human) Resources

• Low-skilled labour in Afghanistan
  – Low skilled contractors

• Direct construction management in Afghanistan
  – Specialised sub-contractors for well-drilling

• Direct drilling team management in the Congo

• Liberia & Afghanistan: qualified engineers?
  – No universities for years
  – No accreditation
  – Low literacy and numeracy
  – Falsified certification
Contract Management

• Afghanistan:
  – For profit construction companies or NGOs?

• No national guidelines
  – No CESSM

• Legal framework absent
  – Where lies the responsibility?

• Are ISO standards applicable?
Afghanistan

• Community construction:
  – 40km of low quality road
  – Infrastructure programme or social protection programmes
  – Labour management
  – Managing community conflict
North Korea

• Supply contracts for materials
• Quality control: TAPS
• No internal markets
• Cronyism and corruption
• Government interference

Labour Contracts:
Non existent!
Sudan:

- Security:
  - Force majeur: Drilling contracts
    - Wheels stolen
    - RPG
  - Labour Contracts:
    - Strong labour Laws
    - Inertia
Liberia

Contract Management
- Train and build
- No national standards
- No accountability
- Quality standards
- Corruption
Security

• Afghanistan?
• Sudan?

• North Korea? No Problem.