Standardization Initiatives and Challenges in EDR.

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Introduction

- EDR (Ethio-Djibouti railway share company)
  - Railway share company owned by Ethiopian and Djiboutian government
  - Established on December 2017 for operation and maintenance of railway line from Addis to Djibouti.
  - Currently under management contract with Chinese company for the operation and maintenance of the line.
  - Operation and maintenance is conducted by Chinese standard usually known as Chinese Class II Standard.
According to UIC guideline to standardization document, standards are defined as “document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rule, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context”.
Global practice

- **International Standards**
  - ISO (International Organization for Standardization)
  - IEC (International Electro technical Commission)
  - UIC

- **Regional Standards**
  - The European Committee for Standardization (CEN) and
  - The European Committee for Electro technical Standardization (CENELEC)

- **National Standards**
  - U.S.A. ANSI
  - U.K. BS
  - Germany DIN
  - France NF
Standardization cont.

• African railway standard
  • So far Africa doesn’t have any significant union of railways, however some railway lines operate cross country like, Sitarail, Tazara and EDR.
  • African Union (AU) planned to construct railway line linking African's major countries with AHSRN Vision 2063.
  • For that plan to be realized Africa needs one regional railway design, construction and operation standard.
Standardization cont.

Ethiopian railway standard

Design

Construction

Operation and maintenance
Addis – Djibouti Overview from general Standards perspective.

Main technical standard

- **Gauge**: standard gauge 1435mm
- **Railway class**: national railway class II in China.
- **Number of main line**: double-track line from Sebeta-Adama; single-track line from Adama-Mieso–Djibouti
- **Design speed**: maximum travelling speed of 120km/h for passenger train; maximum travelling speed of 80km/h for freight train
- **Minimum curve radius**: 1200m in normal segment, and 800m in difficult segment
- **Centerline spacing**: 4m
- **Limiting slope**: 9‰, and 18.5‰ for dual-locomotive traction
- **Type of traction**: electric traction
- **Type of locomotive**: HXD1C locomotive as main line locomotive; diesel DF7G type as shunting locomotive
- **Traction mass**: 3500t
- **Effective length of receiving-departure line**: 850m for single-locomotive, and 880m for dual-locomotive
- **Type of block**: automatic block between stations
- **Number and type of existing locomotives and rolling stocks**: 35×six-axle 7200 kW HXD1C type electric main line locomotives; 6×six-axle 2200 kW DF7G type diesel shunting locomotives; 30×25G type passenger locomotives, including 20 hard-seat locomotives, 4 hard-berth locomotives, 4 soft-berth locomotives and 2 dining cars; 1100 freight locomotives.
List of standards for all disciplines of the Addis Ababa-Djibouti Railway: safety

- **Personnel**
  - Safety management
  - Personnel quality
  - Physical/psychological health
  - Standardized operation

- **Equipment and facilities**
  - Technical standards
  - Input guarantee
  - Maintenance and repair quality

- **Science and technology**
  - Guarantee of reinforcements
  - Control on unsafe behaviors
  - Monitoring of environmental hazards

- **Guarantee of reinforcements**
- **Self-control of personnel**
- **Guarantee of equipment and facilities**
- **Scientific and technical guarantees**
• Generally Ethiopian government is developing national design, construction, operation and maintenance standard in collaboration with Ethiopian standardization agency (EQSA).
• During Construction period, some efforts have been made to develop Railway standardization in consultation with the Russian Saint Petersburg Transport University (PGUPS).
• EDR as a cross country railway operator is planning to develop regional standard for the maintenance and operation of its railway line.
• This can also be done in collaboration and with the support from UIC.
The two major challenges in railway industry are:-

1. Technical human capital
2. Financial resource
Technical challenge

• To overcome the technical challenges EDR develops a capacity building model that will enable each key position in railway operation to be taken over with in the shortest possible time.

• The capacity building model is the key element of our management contract with the Chinese company
Financial challenge

• Basically the financial source of railway construction and operation are
Financial cont.

• It's known that railway line construction is highly capital intensive and for a continent like Africa it has been a major challenge for expanding railway infrastructure because of financial constraint.

• The major financial source for African railway line construction is loan based.

• Looking at Ethiopian scenario and EDR all the financial sources are from different global loans and Grants some times.
Conclusion

• For the construction and operation of cross country railway line Africa should develop its own regional design, construction, operation and maintenance railway standards for a safe and effective implementation.

• Regarding technical human capital, all African countries should engage in capacity building programs specifically for railway sector.

• With an effort of Railway Digitization by UIC, applied standards of continental Europe can easily be customized and disseminated to African Railways.
Conclusion cont.

• And finally regarding financial issue African Development Bank (ADB) should invest in railway sector for the development of railway infrastructure across the continent.
Let’s Standardize and make Two in One!
Many Thanks!!!
Merci Beaucoup!!!