

Center Title and Acronym: African Railway Education and Research Institute (ARERI)

Host University and Country: Addis Ababa University, Ethiopia

Center Website Address: <https://areri.aau.edu.et>

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Primary Thematic Discipline of Center: Railway Industry (Transport)

Brief Description of Center:

Great plans of railway construction and rehabilitation of infrastructures are actively executed in eastern African countries, including Ethiopia, Kenya, Uganda, Djibouti and others. For example, as one of the top priority national projects, Ethiopia alone has an ambitious plan of constructing more than 5000Km railways network and the East African Railway Master Plan has also allocated 29 billion USD for repair works and construction of new lines, triggering a huge demand of railway engineers to design, construct, monitor and operate railway systems. However, due to the unavailability of railway education/research center at an advanced level, all the regional countries have been suffering from severe lack of skilled manpower.

To meet this drastic demand, Addis Ababa Institute of Technology (AAiT) of Addis Ababa University established a Railway Engineering Center and, in collaboration with Ethiopian Railway Corporation, launched MSc program in 2012 with 3 railway engineering majors and has produced 380 MSc graduates including 30 Djibouti students.

The Railway Engineering Center was upgraded to African Railway Education and Research Institute (ARERI) to run MSc and PhD programs in railway specialization to serve as a railway education/research hub in Africa. Consequently, ARERI has attracted 35 students from Eastern and Southern Africa and best national/regional/international partners to pursue a cutting-edge education and research that could alleviate problems related to railway systems.

In fact, after five years, ARERI aims to train annually 5 PhDs, 50 MScs, and 20 short-term training graduates, of which more than 20 % will be from regional countries. Out of degree theses, ARERI will publish 10 technical papers annually. The teaching-learning process will be supplemented with professional visits, academic internships, professional workshops/conferences to incorporate world class practices into the program, which will continuously be assessed and evaluated against the designed goals and objectives.

Key Objectives and Expected Outcomes:

Key Objectives	Expected Outcomes
Achieving Learning Excellence	<ul style="list-style-type: none"> ▪ Twenty five (25) PhDs and two hundred fifty (250) MSc, of which about 80% will be national and 20% from the region. Overall, at least 30% of all fellowships will be females to ensure gender inclusivity. ▪ Five (5) short courses relevant to the needs of the railway industries' development.
Program review and accreditation	<ul style="list-style-type: none"> ▪ Three (3) program reviews ▪ Two (2) program accreditation
Promoting and integrating national and regional sector partners	<ul style="list-style-type: none"> ▪ Signing MOU with private sector/ industry (4) ▪ Signing MOU with institution/civil society (3)
Enhancing and achieving research excellence	<ul style="list-style-type: none"> ▪ Twenty (20) students exchange.

	<ul style="list-style-type: none"> ▪ Editorial assistance to increase publish-ability of papers. ▪ Five (5) conferences and workshops held. ▪ Journal of African Railways started. ▪ At least fifty (50) publications published in peer-reviewed Journals by the end of the project period. ▪ Six (6) papers published with regional author (s). ▪ Six (6) papers published with international author (s).
Promoting and integrating national, regional and international academic partners	<ul style="list-style-type: none"> ▪ Two (2) professional visits for experience sharing. ▪ Thirty (30) faculty students attend international conferences. ▪ Eight (8) regional professors visited. ▪ Eight (8) international professors visited. ▪ Ten (10) collaborative researches. ▪ Fifteen (15) research teams supported
Achieving sustainable financing	<ul style="list-style-type: none"> ▪ Work with national, regional and international partner academic institutions and railway industries
Participating in benchmarking exercise	<ul style="list-style-type: none"> ▪ Work with world class railway institutes
Ensuring timely procurement	<ul style="list-style-type: none"> ▪ ICT and laboratory infrastructure of host enhanced. ▪ Teaching and research facilities procured, installed and commissioned by the first and second and third years of the project.

Major Accomplishments to Date:

1. Benchmarking visit to Southwest Jiaotong University (SWJTU), China and Korean Railroad Research Institute (KRRI) and Korean Institute of Machinery and Materials (KIMM), Korea
2. Recruitment of 2 academic staff from Rwanda educated in USA and Korea and 4 administrative staff from Ethiopia
3. 3 MSc Curricula are revised and newly 4 PhD curricula are developed and approved by the University
4. 82 students are admitted (65 MSc and 17 PhD) and 50 are from National and 32 are from the regional
5. Orientation and Program Kickoff was organized for all students. One week bridge course and railway industry visit was organized for all students
6. 5 visiting professors from partner universities from Norway, China and Korea have approved their visit scheduled to teach and advise students in this academic year.

Primary Regional and Global Partners:

- Dar es salaam University, Tanzania
- Makerere University, Uganda
- Kenya Railway Institute, Kenya
- Djibouti University, Djibouti
- Norwegian University of Science and Technology (NTNU), Norway
- Southwest Jiaotong university (SWJTU), China
- Korean Railroad Research Institute (KRRI), Korea
- Korean Institute of Machinery and Materials (KIMM), Korea
- Birmingham University, United Kingdom