MATARA-BELIATTA RAILWAY EXTENSION PROJECT; Sri Lanka
PART II; update January 2018

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The Government of Sri Lanka and the Ministry of Transport have entrusted the construction of the Matara to Beliatta Phase I railway extension to China Machinery Corporation (CMC).

The difficult topography and geology of the terrain is challenging. The rail-extension will consist of twelve bridges, and two tunnels. Railway stations will be set up at Babrenda, Kekanadura, Wewurukannala and Beliatta The alignment is kept without any tight horizontal and vertical curves, gradients, and it will come nearly level-crossing free.

It will take probably another 3-5 years to finalize this high costly and prestigious project. Still the earth filling for the Beliatta Railway Station and marshalling yard is not completed. Several new high earth-fillings are yet not properly settled. Such high fillings with local available soil will need at least 4 years to settle. It is questionable if the high fillings on marshy subsoil without inside state-to-the-art Geo-Mesh/Grid (Steel or Geotextile) elements for stabilization to prevent yielding will have the appropriate yielding stability, bearing capacity and support modulus for the later to be laid track and Railway Stations in progress.

Problematical could be also the stiffness transitions (abrupt change of the vertical stiffness) between soft embankment strata and hard open-deck concrete bridges at the numerous abutments;

see: Chapter VIII.6: ***DYNAMIC PROBLEMS AT TRACK TRANSITIONS***, page 268ff in the handbook of Dr. Arnold D. Kerr, ***FUNDAMENTALS OF RAILWAY TRACK ENGINEERING***, Simmon-Boardman Books Inc., Omaha, USA, ISBN: 0911382-40-2, 2003.

The formation should have a **Support Modulus** of at least 20 MPa/m², ***"A Track is as good as what is underneath"*** and ***"Without a well-bearing Sub-Soil and Sub-Grade no stable Rail-Track" -*** see ***INTRODUCTION: FUNDAMENTALS OF MODERN RAIL-TRACK TECHNOLOGY*** **,1.)** :

1.) J.S.Mundrey/F.A.Wingler in ***INDIAN RAILWAY TRACKS - A TRACK ENGINEERING COMPENDIUM,*** Foreword, page 11ff, Paragraph 8.9, p 285ff and Paragraph 18.10, p 567ff and ***ANNEXURE***; free for download from http://www.drwingler.com ;

2.) ***Design of Formation for Heavy Axle-Load***, Report No. RDSO/2007/GE: 0014, November 2009, Geo-technical Engineering Directorate Research Designs & Standards Organisation, Lucknow – 226011, India:
http://www.rdso.indianrailways.gov.in/works/uploads/File/0014.pdf;

3.) Chapter 8 in Dr. Bernhard Lichtberger, ***TRACK COMPENDIUM***, Eurailpress, Hamburg, Germany, ISBN: 978-3-7771-0421-8, 2011, ***THE SUBSOIL***, p. 217ff;

4.) Prof. Claus Göbel, Prof. Klaus Lieberenz, ***HANDBUCH ERDBAUWERKE DER BAHN***, eurail-press, Hamburg, Germany, ISBN: 978-3-7771-0430-0, 2013; Chapter 3/4;

5.) see for Geo-Grid Applications in Railways, Tensar International Corp.: www.tensarcorp.com ;

6.) see also **Part I** of ***MATARA-BELIATTA RAILWAY EXTENSION PROJECT, Sri Lanka***, http://www.drwingler.com .

The top-with of the bearing Formation should be 8.50 m with a slope of 1 in 30 to the centre. The Blanket Thickness should be 60 cm and the Ballast Thickness under the sleeper sole 35 cm: see ***TRACK STANDARDS FOR BROAD GAUGE ROUTES;*** Chapter 18,8, page 562, J.S.Mundrey/F.A.Wingler ***INDIAN RAILWAY TRACKS - A TRACK ENGINEERING COMPENDIUM,*** free for download from http://www.drwingler.com .

The costly 26 km rail-extension project might come finally to at least 25-30 Million US Dollar per kilometer track-route (overall Project Costs of about 500 to 600 mio. US $), and it will become a big financial burden for the country.

The author inspected the ongoing works in June 2016, June 2017 and January 2018. In the period of the last 5 month not much progress had been visible.

For a track-laying opening ceremony with the State Minister for State Enterprise Minister, Mr. Lakshman Yapa Abeywardena on January 12^{h}, 2018, some already corroded Chinese 25 m long UIC 60 E1 rails have been carried from the Hambantota storage yard and laid temporarily between Matara and the Nilwala Ganga Bridge without weld-connections on India manufactured concrete sleepers marked with the SLR stamp, and with Indian shoulder plates for UIC60 rails, clipped to the rails with Indian Mark III ERC Clips, but inserted with the ERC-Leg in the shoulder-plate housing provisionally by Chinese workmen in the wrong direction, so that the needed clamping force, to hold the rails properly, is not reached, and this on an unfinished formation without the required 1 in 20 slope for draining the water off under the already laid Sub-Ballast. On this trace already once under President R. Premadasa (President from 1989 until 1993) a rail-track had been laid up to the Nilwala bridge for political demonstration.

Sri Lankan Minister for State Enterprise Development Lakshman Yapa Abeywardena said during the tracklaying ceremony on Friday 12.01.18. that the Island Nation was hoping to "***finish the first phase of the project in the coming months"***, which would benefit the public and tourists.

The current state of affairs in January 2018 is delineated with the updated **PICTURE GALLERY**. In January 2018 the author got the impression that the work at several places has come close to a standstill and that it will take another 3 to 5 years until a train-service can be provided up to Beliatta.

PICTURE GALLERY; Status January 2018

End of the Coastal Line at Matara; 17th Jan. 2018

Indian Mark III ERC Clip inserted with the Leg in the Shoulder-Plate Housing the wrong Way on Indian Concrete Sleeper with Indian Shoulder Plate on a short temporarily laid provisional and warped Demonstration-Track with insufficient Sub-Ballast, Ballast-Cushion and Ballast-Shoulders between Matara and the Nilwala River Bridge for a political Track-Laying Ceremony on January 12th 2018

Track laying Ceremony with a temporarily laid provisional and warped Track with already corroded UIC69E Rails, not connected by Welding, and with wrong inserted Indian Rail Fastening Mark III ERC`s on India manufactured Concrete Sleepers and on a not yet sloped Formation with insufficient Sub-Ballast, Ballast Cushion and Ballast Shoulders; 12th Jan. 2018; source Daily News 16th Jan. 2018

Unsettled fresh Embankment Filling between Wewurukannala and Beliatta

Earth- and Sub-Grade Works in Progress near new Wewurukannala Railway Station

View towards future Wewurukannala Railway Station of Embankment Filling in Progress

View towards Wewurukannala Railway Station under Construction of unfinished Fly-Over

Unfinished Fly–Over at Walasgala-Beliatta Road near Wewurukannala

Landfilling for Beliatta Terminal in Progress

Unfinished Embankment Works for Beliatta Railway Station

Unfinished Landfilling at Beliatta under Snail-Progress

Unfinished Underpass Works for Station Access Road at Beliatta

Heavy Slope Corrosion at Landfilling for Beliatta Railway Station

Unfinished Works at Beliatta Railway Station has nearly come to a Standstill

Works at Skeleton of Beliatta Railways Station has come to a Standstill

Works at Skeleton of Beliatta Railways Station has come to a Standstill

Road Transport of 10 already corroded Rails from Hambantota Storage Yard to Matara for Rail-Track Laying Ceremony for political Purpose

Corrosion on UIC60 E Rails, manufactured in China according to the European Standard EN 13674-1 by PZH Pangang Group, Pazhihua, Sichuan Province

Corroded UIC60 E Rails for Matara-Beliatta Extension Project

Handling of Rails by Adventis Project at Hambantota Storage Yard