

FROM THE EDITOR.....

Our Association has been functioning for a long time.

In the meantime, members of our association need to take steps towards the growth of our Association through frequent communication and active participation. I humbly request you to raise your voice and propose new targets for the new session. We will look at your suggestions for improving the ACESL activities positively and incorporate your ideas for the benefit of the members.

Now with the construction industry gathering momentum it is high time to improve and widen our knowledge in, among others, the proper use of FIDIC Conditions of Contract. Further, we need to disseminate such knowledge among the stakeholders of the industry including the consultants, contractors, regulatory bodies and client organizations in Sri Lanka.

So, thank you very much and wish you a bright future.

Annual General Meeting

The Annual General Meeting for the Year 2017 is scheduled to be held on 8th December, 2017 at The Grand Solis, 533, Nawala Road, Rajagiriya, Sri Lanka.

Council requests all the members to attend and actively participate share your thoughts.

Filling the vacancy in the Council

Eng. S.A.U.D.C. Siriwardhanawas appointed as a Council Member, filling the vacancy created due to demise of Eng. K. Suntharalingam, Council Member and Past President.

Strategic Plan for ACESL

A committee was appointed with Eng. Dr. Kamal Laksiri as the Chairman, is reviewing the past corporate plans of the ACESL to prepare a strategic plan to meet the current trends and future requirements.

All members are invited to share their valuable

ideas, suggestions and comments etc. in preparing this strategic plan.

CONGRATULATIONS.....



Prof. Umesh Rangika Halwathura, our Council Member and Chairman of our Young Professionals Forum, was awarded *The Young Scientist Award -2017* by TWAS (*The World Academy of Science*). With a PhD in Structural

and Building Services Engineering, from the University of Moratuwa, he is also the youngest full professor in the current system in Engineering in Sri Lanka under UGC circular 916 and the youngest full professor at University of Moratuwa

Being a hardworking academic with a passion to do things differently, he has so far obtained seven patents for his unique innovations. The Mud Concrete Block, A Heat Insulation System, Mud Paving Block, Self-Compacting in-situ Cast Mud-Concrete Load Bearing Wall System, Vegetated Roof Slab System, Modular Formwork System for In-situ Cast Walls made out of self-compacting soil-based materials and a Bamboo Heat Insulation Panel for Roof Slabs.

ACESL warmly congratulate Prof. Halwathura for his achievements and wish him great success.

INTERNATIONAL WORKSHOP ON CONTRACT MANAGEMENT

The ACESL conducted a two-day International Workshop on Contract Management, providing essential practical know-how for working on today's international projects. This Workshop Training covered the topics including; the History of FIDIC and its suite of Contracts, explanations and illustrations on the use of the FIDIC Conditions of Contract for Construction (Multilateral Development Bank Harmonized Edition June 2010), and its differences with the FIDIC Conditions of Contract for Construction (the "Construction Contract" – Red Book) and the FIDIC Conditions of Contract for Plant and Design-Build (the "Design-Build Contract"- Yellow Book). The course was designed for Engineers, Project Managers, Claims Managers, Consultants, Contractors and all Project staff and to help the participants have confidence in working with these documents whether representing employers, consultants or contractors.

The workshop was conducted by FIDIC Accredited Trainer, Eng. Malith Mendis FIESL FICE CEng.Council Member and Past President of ACESL, Member of FIDIC Capacity Building Committee and Sri Lanka Country Representative of the Dispute Resolution Board Foundation.

Prof. Mohan Kumaraswamy of the University of Hong Kong was the Chief Guest who gave a valuable introduction on practical issues in contract management. His presentation on the same topic quoting his wide experiences and interactive with participants.

FIDIC accredited Certificates were issued to all participants in the workshop.

The event was sponsored by **Ultra Tech Cement Lanka (Pvt) Ltd.**

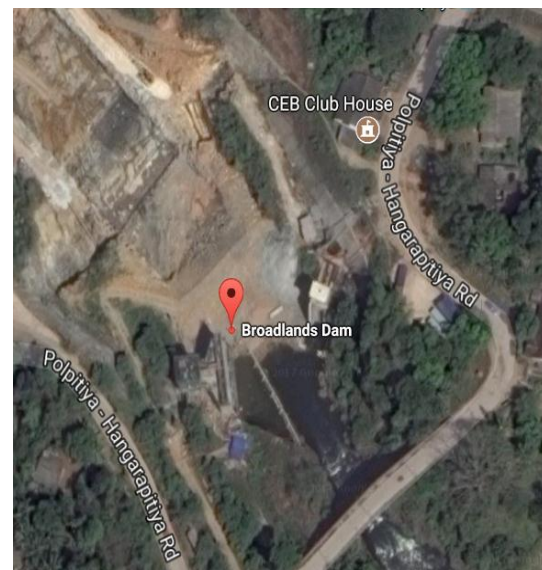
Training Programmewas held on 18th and 25th, November 2017 at OZO Colombo Hotel.

Broadlands Hydropower Project and the Subsidence occurred on 07th August 2016

Reported by Eng. HPR Gunawardena, Engineer's Representative/Team Leader, Broadlands Hydropower Project

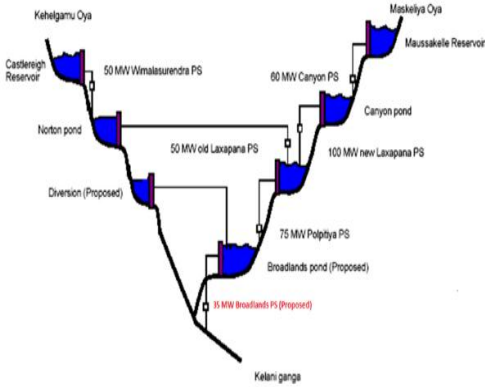
General

The Broadlands Hydropower Project is located 65 Km away from Colombo in the borders of Nuwaraeliya and Kegalle Districts which belongs to Central and Sabaragamuwa Provinces. Broadlands hydropower project has been identified as a feasible project in the long term generation expansion plan of Ceylon Electricity Board (CEB) and it is considered as the last hydropower



development in the Kelani river basin of Laxapana complex

CEB and China National Electric Equipment Corporation(CNEEC) entered into a contract in October, 2010 for the Design, Construction & Commissioning of the Project at a contract price of nearly US\$82 million



Generating Scheme of the Laxapana Complex

The Scope of Work includes Design and Construction of a Concrete Gravity Type Main Dam across Maskeliya Oya, Diversion Weir across Kehelegamu Oya, Water Conveyance Structures, Power House (2 of 17.5MW = 35MW of Installed Capacity), Switch Yard, Transmission Lines and associated ancillary works and finally commissioning of the Project.

The Contractor (CNEEC) commenced work in August, 2013, but the progress has been hampered initially due to various issues such as land matters and other issues during the construction and Contractor’s own delays. However, the Contractor carried out works simultaneously both in the up-stream side and the down-stream side of the Headrace Tunnel, Kehelegamuwa Oya Diversion Tunnel and Powerhouse area till August 2016, despite few minor incidents which hampered the progress time to time.

The incident which is illustrated below was a major incident which hampered the progress of the work significantly.

Incident of Subsidence occurred on 07th August 2016.

When the excavation work in the headrace tunnel was carried out in the up-stream side, a cavity was identified along the axis of the headrace tunnel beginning from the chainage F0+146m On 05th June 2016, while the Contractor tried to enter into the cavity, water and soft material bursting took place in this tunnel and above the tunnel axis ground cracks were observed in several places and

in some houses, cracks were observed at walls and floor. After this incident, 21 houses located around the tunnel trace were evacuated and resettled them immediately by paying them a reasonable compensation. Another 12 houses were scheduled to be evacuated.

The Contractor carried out necessary treatments to the cavity in the tunnel within about two months period. On 07th August 2016 at about 7.00 am, while excavating the treated area, a sudden collapse was occurred at the same location of the tunnel resulting formation of a funnel shaped subsidence of about 20m diameter and 7m deep above the tunnel trace, an abundant house sunk into the earth fully.



Sudden Subsidence of land above the tunnel trace On 07th August 2016

On 08th August 2016, a meeting was held at the site with the participation of the representatives from CEB, CECB and the Contractor where it was decided to backfill the sinkhole at the earliest in order to avoid secondary collapse and to avoid possible damages to the nearby public road due to the presence of the weak geological conditions in the area and rainy weather conditions.

Accordingly, a discussion was held on 08th August 2016, to aware the strategies to be taken in order to continue the work with the participation of the affected parties, OIC of Ginigathena Police Station and government officials in the area on and no objections were shown by the villages for the suggestion proposed.

On 11th August 2016, Honorable Minister for Power and Renewable Energy visited the site with the Members of Parliament in the area. The Government Agent-Nuwaraeliya, Assistant Government Agent-Ginigathhena, The OIC-Ginigathhena Police Station and Gramasevaka of

the area also joined the visit. Thereafter a discussion was held at the site with the participation of all distinguish visitors and the affected villagers, which was headed by the Honorable Minister.

At the discussion held with the GA - Nuwaraeliya, some of the land owners were demand very high amounts of money as the compensation for their lost properties in order to allow the Contractor to re-commence the works.

The GA - Nuwaraeliya pointed out that there is no possibility to pay compensation as demanded by the villages and requested the Employer to get the valuation of the land and the properties from the Valuation Department and make payment of compensation accordingly, before recommence the work.

Accordingly, the Valuation Department has prepared a valuation report within a short period for the payment of compensation for whose properties and lands which were affected due to the activities of the Broadlands Hydropower Project. Compensations were made to them accordingly by the Contractor as per the provisions made in the Contract.

Tunnel excavations were continued. Thereafter, there were no any objections from the villagers.

Previous Site Records:

14/05/2016 Cavity was identified from the probing done at chainage F0+136.6, 1m below the crown. 0-13 m fresh rock 13-16 m silt and water. But water gushing was not so significant.

16/05/2016 Tunnel was flooded due to heavy water flow of the Maskeliya Oya river.

17/05/2016 to 23/05/-2016 Only the dewatering was carried out.

04/06/2016 Started blasting for pilot hole at the Centre of the tunnel face. One blast was carried out for the pilot hole. A mixture of mud and water gushing was observed. Some ground settlement also was observed at the surface above the ground level.

08/06/2016 to 16/07/-2016 Grouting was carried out, Total of about 330 tons of cement were inserted in four rounds commencing from 08/06/2017 up 2016/7/27

16/07/2016 Blasting re-commenced and continued.

Site Records on 06th and 07th August 2016

05.48 p.m. A boulder blast was carried out at near the crown of the tunnel.

07.00 p.m-00.00 a.m. Mud started to flow through the tunnel face while shotcrete operation.

00.30 a.m-01.30 a.m. A wire mesh was attached with a layer of shotcrete to the tunnel face. But couldn't control the mud flow and wire mesh was detached.

01.30 a.m-03.00 a.m. A crown shaped steel rib was erected to support the tunnel.

03.00 a.m. - 07.00 a.m. About 15 number of perforated pipes were installed through the steel rib. The mud flow rate was increased due to the vibration from the Jackhammers.

07.00 a.m. The mud flow rate increased gradually and ground surface above the tunnel face collapsed.

Reasons and root cause for the failure.

Karst in the marble rock was filled with clay and penetrated into the tunnel causing mud flow

Early observation

According to the following reports, existence of a karst marble has been identified.

- Feasibility Report (1984-1986) by CECB
- Detailed Geophysical Survey by National Building Research Organization
- Data from existing boreholes by CNEEC
- Probing carried out during construction
- Precautions taken
- Fortifying the excavated tunnel at 0+146.5 m with steel ribs + wire mesh + shotcrete > 200mm + rock anchors
- Consolidation grouting of the cavity
- Short footage excavation was recommended with precautions such as driving pilot hole, fore polling and minor blasting.
- Immediate measures were taken to avoid secondary collapsing/failures.
- Evacuated 4 houses due to crack appearing
- Instructed the Contractor
 - to survey subsidence and cracks on

- ground surface to demarcate the affected area
- To avoid water infiltrating in to the site
- To fill the subsidence with suitable material to avoid expanding of collapsed area
- Not to remove the material inside the tunnel which may act as a retaining structure.
- Actions taken to ensure safety of people and houses in case of any future subsidence
- People who were vulnerable to be affected were evacuated in advance
- Continuous monitoring was done for technical approaches and measures to be taken to avoid similar incidents in future.
- Early observation (Probing, geophysical survey, bore holes along the center line, ground water monitoring, settlement monitoring, etc.)
- Pre-supporting (Fore polling, leading grout)
- Excavation with respect to ground condition and immediate supporting

ACESL to host the 2018 FIDIC ASPAC Conference

Sri Lanka has been selected as the host country for the FIDIC ASPAC Conference 2018. This decision has been made in the last Executive Committee meeting held in October this year in Jakarta, Indonesia. Eng. Malith Mendis, Past President and Dr.KamalLaksiri, Immediate Past President ACESL attended this meeting representing ACESL. As per this decision FIDIC ASPAC international Conference will be held in Colombo in June 2018. ACESL will shortly appoint a steering Committee and commence preparations for this important event. ACESL has hosted a FIDIC ASPAC conference previously in 2012 successfully. ACESL members are requested to take note of This event and to keep the time reserved to attend this important international event.

ACESL representation in committees or councils in other organizations

Committee or Council	ACESL Represented by
Construction Industry Development Authority (CIDA)	
The National Advisory Council on Construction	Eng. Dr. Kamal Laksiri
The Board of Management	Eng. Ranjan Gunawardena
The Committee on Rules and Regulations of Adjudication	Eng. Malith Mendis
The Credential Committee	Eng. Kirthi Sri Senanayake Eng. Prabhoda Jinasena
The Committee to Draft Criteria / Procedures / Rules & Regulations related to Technical Auditing	Eng. Kirthi Sri Senanayake
The Technical Standards, Rules & Regulations Committee	Eng. R. Rupasinghe
The Environmental & Public Health committee	Eng. Prabodha Jinasena
Chamber of Construction Industry, Sri Lanka	
Council of CCI	Eng. Kirthi Sri Senanayake

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Council noted that the first part of the FIDIC Workshop on “Practical use of the FIDIC Conditions of Contract” was held on 18th November 2017 and there were over 90 participants. Prof.Mohan Kumaraswamy was the key-note speaker who made a very useful presentation on the same topic quoting his wide experiences. Accredited Trainer Eng. Malith Mendis conducted the FIDIC Workshop,and the second part will be held on 25th coming Saturday which will be followed by the issuing of Certificates. President thanked all the Council Members who contributed a lot to have that event a success.

