# ANGKASA CONSULTING SERVICES SDN BHD

# Newsletter

*Issue No.4* *June 2011*



In this newsletter several interesting events are featured:

1. DKLS Industries Bhd engaged ACS to carry out consultancy works for Phase 2 for the Improvement and Upgrading of the Water distribution System at Savanakhet, Laos Project.
2. The Hilir Perak Water Supply – Contract No. 9 – 'supply, delivery, installation of new river gate at Sg. Sungkai, raw water pumping plant, water treatment plant and associated equipment' was officially closed in September 2010.
3. ACS was commissioned by Puncak Niaga to carry out Dam Safety Inspection of 3 dams, mainly Tasik Subang, Klang Gates and Sg. Langat Dam.
4. Sg. Mersing Dredging of Navigation Channel - was officially completed in December 2010.
5. Technical Visit to IFAT ENTSORGA 2010, Munich, Germany by Ir. Lai Kim Fui.
6. ACS was appointed by EXIM Bank for ICE works for Road Rehabilitation Project in Fiji.
7. Valve Hydrostatic Test at Premier Valve Factory, South Africa by Ir. Ho Kien Siong.
8. Puncak Niaga engaged ACS to prepare turnkey proposal for Aurangabad Water Supply Project and Hogennakal Water Supply & Fluorosis Project (Package IV), India.
9. ACS was appointed by Bank Pembangunan M'sia Bhd for ICE Works for the Development of 10MW Renewable Energy Power Plant at Sg. Brooke, Kelantan.

## PHASE 2 WORKS – STUDY, DESIGN AND TENDER DOCUMENTATION & CONSTRUCTION SERVICES FOR THE IMPROVEMENT AND UPGRADING OF THE WATER DISTRIBUTION SYSTEM AT SAVANNAKHET, LAO *by Ir. Lim Yek Lan*

DKLS Industries Bhd ("Developer") engaged Angkasa Consulting Services Sdn Bhd to carry out consultancy works for Phases 1 and 2 Works. The works involve distribution study and design of water distribution upgrading works at Savannakhet, Laos ("Phase 2 Consultancy Works ").

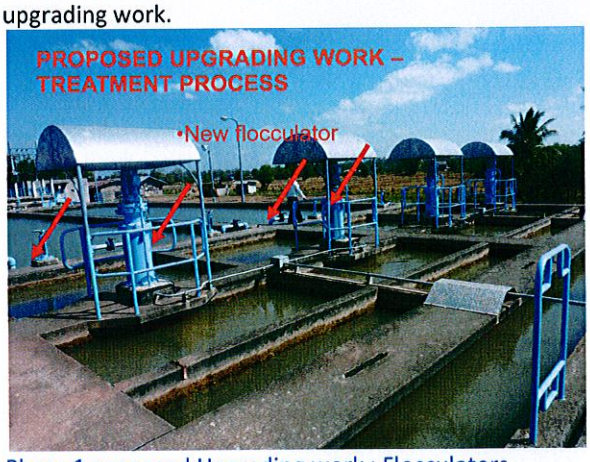
The water supply augmentation project at Savannakhet, Laos is divided into two phases as follows:

Phase 1 – Upgrading of the existing treatment plant from 15 Mld to 22 Mld

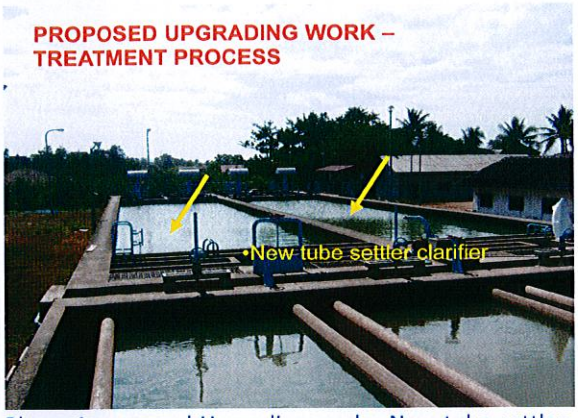
Phase 2 – Improvement of the existing distribution system to enable the system to supply 22 Mld

**PHASE 1 CONSULTANCY WORKS**

Under Phase 1 Works, the existing Nake water treatment plant will be upgraded from the current capacity of 15 Mld (20 hr) to 22 Mld (24 hr). ACS has been appointed as engineering consultant for the upgrading work.




Phase 1 proposed Upgrading work : Flocculators




Phase 1 proposed Upgrading work : New tube settler clarifier

**PHASE 2 CONSULTANCY WORKS**

The Phase 2 consultancy works will involve a water distribution study to assess the current water requirement and hydraulic capacity of the existing distribution system and recommend immediate improvement works to enable the water supply network to distribute 22 Mld of treated water to the consumers. This will be followed by detailed design.

The Phase 2 works cover the following objectives:-

i. Improvement of the existing distribution system to enable the system to supply 22 Mld of treated water.
ii. To provide a secure supply to the Savan Vegas Casino and Savan Park.
iii. To extend the supply beyond the urban areas to the peripheral areas currently experiencing inadequate supply and low pressure.
iv. To rectify the major weaknesses and deficiencies of the existing networks.

The scope of work consists of the following:-

a. Collect and review data, records, demography, and land use plan, related to the project area.
b. Carry out field exercise to identify and verify existing water supply distribution networks.
c. Compilation and updating the records and plans to complete mapping of the existing water distribution system.
d. Assess the current water demand of the project area.
e. Zoning of the distribution system. Assess demand, pressure and flows in each zones

a. Carry out distribution network simulation to assess the hydraulic capacity of existing distribution system.
b. Identify the deficiencies and weakness of the existing distribution system.
c. Identify suitable locations for improvement and upgrading of the distribution system.
d. Identify the scope of improvement works required to distribute 22 Mld of supply to the consumers including a dedicated supply main to the casino area, refurbish the existing two nos elevated tanks to back up supply during peak hours.

**Pressure gauge installation for pressure 24 hours pressure test reading**

**Valve mapping in Kaysone District**

**Water storage in District Education Department**

## Hilir Perak Water Supply – Contract No. 9

***Supply, Delivery, Installation of New River Gate at Sungai Sungkai, Raw Water Pumping Plant, Water Treatment Plant And Associated Equipment***

***By MAA***

Water requirement for the whole district of Hilir Perak was supplied from Bukit Temoh Treatment Plant in Tapah. The supply is by gravity and the water demand was 63.6Mld. The treatment plant was operating at its maximum capacity and was then providing approximately 55% of the treated water demand to the area.

In anticipation of the rapid developments in the area, a new water supply system was required to meet increase in the water demand. Lembaga Air Perak commissioned ACS to carry out detailed engineering investigation, design and supervision for the Hilir Perak water supply project.

Hilir Perak **Contract 9** started on the March 2002 and was commissioned in Dec 2005. The project is officially closed in September 2010. The estimated contract sum is RM 29 million.

**Treated Water Pumping Station**

**Treated Water Pumping Station with Roofing**

## Dam Safety Inpection For Tasik Subang, Klang Gates and Sg. Langat Dam

Angkasa Consulting Services Sdn Bhd (ACSSB) has been commissioned by Puncak Niaga (M) Sdn Bhd (PNSB) in August 2010 to carry out safety inspection for three (3) dams, namely Sg. Langat, Klang Gates and Tasik Subang dams located in the State of Selangor Darul Ehsan in accordance with the Malaysian Inter-Departmental Committee on Dam Safety "Guidelines for Operations, Maintenance and Surveillance of Dams', October 1989.

Tasik Subang Dam

The physical inspection of dam, appurtenances, draw-off towers, abutments and other ancillary structures were carried out. The existing O & M Procedures will also be evaluated and reviewed. The scope of works also covered inspection and recommendation on all the M&E equipments.

Klang Gates Dam

Sg. Langat Dam

Klang Gates – downstream view from dam crest

Tasik Subang Dam – Upstream view

Sg. Langat Dam – access footbridge to bellmouth spillway & drawoff tower

## SG MERSING – DREDGING OF NAVIGATION CHANNEL

*By MJM*

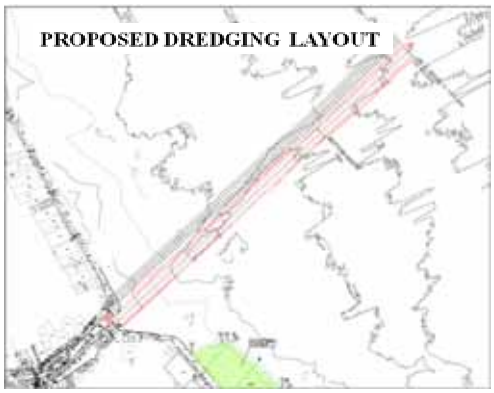
Mersing is located on the north east coast of Johor and is in a strategic location for both the fishing and tourism industry. Mersing was originally known as Rantau Panjang, its history goes back to the 16th century. Mersing town is the main port for ferries to Pulau Tioman and more than 40 other beautiful islands in the Seribuat Archipelago.

Sg. Mersing is mainly used by fishing boats and ferries, carrying tourists to the resorts on nearby islands. The Mersing river mouth has been plagued by siltation

problem, causing unsafe passage into the LKIM jetty for fishermen to load and unload their catch. The siltation problem besides causing hindrance to local fishery industry development, have also affected the ferry operators at Jabatan Laut ferry terminal. It also contributed to upstream flooding and other associated social economic problems.

Angkasa Consulting Services Sdn. Bhd. (ACS) has been engaged by Malpakat Construction Sdn. Bhd. as a lead design consultant for the project entitled "Projek Kerja-Kerja Pembaikan Muara Sungai Mersing, Johor Darul Takzim Termasuk Pembinaan Pemecah Ombak Serta Kerja-kerja Berkaitan" owned by the Department of Irrigation and Drainage (DID) on behalf of the Government of Malaysia.

The main objective in this project is to provide safe navigation for various class of fishing vessels/boats to and from LKIM Complex. The navigation channel must allow for sedimentation and sufficient navigational berthing and maneuvering requirements. The navigation channel will be dredged until the depth of -5.5m NGVD and this will allow large vessels (class C2 with draught requirement 2.5m) to enter the LKIM jetty freely at all times, except under extreme storms.




The physical works for the first stage is the interim dredging and removal of sunken boat. It has been divided into two (2) phases. For the first phase, the dredging work has been carried out from Sept 2007 until Nov 2007. The removal of sunken boat ran concurrently. The dredging work has to stop due to the North East Monsoon. After a long 'rest' due to the interruption by the other development project, the phase two works has been continued in July 2010 and expected to be completed by the end of November 2010.

## TECHNICAL VISIT TO IFAT ENTSORGA 2010, MUNICH, GERMANY

*By Lai Kim Fui*

IFAT ENTSORGA 2010 is one of the world's leading trade fair for environmental technology. The name "IFAT" is derived from the elements of Air, Fire, Water and Earth, which are also depicted in the IFAT logo. It showcases the entire range of products and services that the industry has to offer, covering everything from water, sewage, waste and raw materials management.

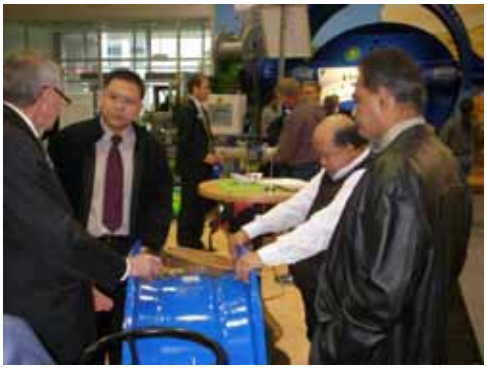
IFAT ENTSORGA 2010 was held at Munich Trade Fair Centre from 13 -17 September 2010. We were invited by a Germany based exhibitor to have a technical visit to the trade fair. We departed from KLIA on 0200am 12th September 2010 and arrived in Munich 1430pm 12th September 2010 via a transit in Dubai. There is a time zone difference of 6 hours between Munich and Kuala Lumpur.

We have spent total of 3 days (13-15 September 2010) in IFAT ENTSORGA. We have covered 8 out of the total of 16 halls, which are related to the water and wastewater industry. There are broad product range and extensive expertise concerning valves, fittings, motors, pumps and more. We were impressed by the innovations, new products, motivation and expertise bundled together in IFAT ENTSORGA.

From the visit to IFAT ENTSORGA, we realized that there are numbers of established valve and pump manufacturers in Europe, which have not extended their business to South East Asia. Some of these manufacturers have a proven track record back to few decades even a century. However, due to the limited understanding on the potential market and the business model in South East Asia, only few of them have set up a branch office in this region.

Visit to IFAT ENTSORGA has given us a unique look at the new perspectives of water and wastewater industry for the environment.


Photo Taken at West Entrance of IFAT ENTSORGA



Briefing by one of the valve manufacturers


Photo taken in front of 4 meter diameter butterfly valve

# VALVE HYDROSTATIC TEST AT PREMIER VALVE FACTORY, SOUTH AFRICA

**by Ho Kien Siong**

There is one 1100 mm diameter gate valve to be installed at the Kinta Dam stilling pond. The contractor, SKH has purchased a gate valve from Premier Valve Pty Ltd for this installation. Prior to the valve delivery to Kinta site, the valve was tested in the valve factory in South Africa.

ACS was requested by LAP to attend the valve testing with LAP in South Africa. We departed to South Africa on 31st July and reach Johannesburg on 1st August (Sunday). The journey took about 11 hours.

The testing was on the next day (Monday). The testing includes valve body hydrostatic test, seat test, dimension check and operational test. The valve test procedures and acceptance criteria that were used is BS EN 12266-1:2003.

Figure 1: Valve body test at Premier Valve factory

The valve is rated PN 16. The test pressure applied for test was 1.1 times for the seat test and 1.5 times for the body test.

The valve was successfully tested with no sign of leaks.

However the valve gate and body gap was noted bigger than the dimension shown in the shop drawings. Premier valve has agreed to rectify the defect to meet the requirement.

After the test, we returned back to Malaysia on Tuesday and reached KLIA on the following morning.

The valve will be installed at site around December 2010. The valve will be tested again at site immediately after installation. The test includes operating the valve under design flow and leak proof test.

Figure 2: Seat test at Premier Valve factory

## AURANGABAD WATER SUPPLY PROJECT AND HOGENNAKAL WATER SUPPLY & FLUOROSIS PROJECT – PACKAGE IV

ACS was appointed by Puncak Niaga to provide professional consultancy services for the pre-award stage for the above mentioned two projects in India.

The scope of work for both the projects comprise the following :

1. Investigation and site visit.

2. Prepare conception & preliminary design.

3. Provide outline diagram to enable the M&E specialist contractor for sizing up the M&E equipment and pricing.

4. Provide outline drawings to enable the client or sub-contractor to estimate quantity and price their bid.

5. Provide preliminary design statement of each components of proposed works.

6. Provide preliminary bill of quantity including all items of works in the project.

7. Quantity take off of C&S works, quantities of concrete, steel reinforcement and earthwork etc.

For the Aurangabad water supply project, we prepared the conception and preliminary design of the 192 MLD water treatment plant, pure water pipeline and master balancing reservoir (MBR) and for the Hogennakal project, the conception and preliminary design of the trunk main, booster pumping station, reservoirs, tapping point and re-chlorination stations.

The jobs were recently completed successfully.

## BERTAM DAF PHASE 2 WATER TREATMENT PLANT, DURIAN TUNGGAL, MELAKA

To provide additional water supply to meet the increasing domestic, commercial and industrial water demand for Melaka Tengah District, SMHB had made plan to construct a new Bertam DAF Phase 2 WTP. ACS was appointed on 12 Nov 2008 to carry out the design works and supervision of the construction of the Project. Pengurusan Aset Air Berhad (PAAB) is now the Client of the Project.

PAAB engaged ACS's engineering services to carry out detailed study, investigate, access, appraise all previous data & reports during detailed study stage, detailed design contract management and supervision of construction works.

## Development of a 10MW Renewable Energy Power Plant at Sungai Brooke, Kelantan

ACS was appointed the ICE for the project by Bank Pembangunan Malaysia Berhad. The project involves the development of a 10MW renewable energy power plant at Sungai Brooke, Kelantan.

The project is part of the Green Technology Financing Scheme (GTFS) promulgated by the Government of Malaysia as part of the green technology / renewal energy initiative. The ICE's scope of service includes:

a) Review contract / agreements

b) Verify statutory requirement have been met

c) Monitor development and construction

d) Verify and certify claims prior to disbursement of loan.

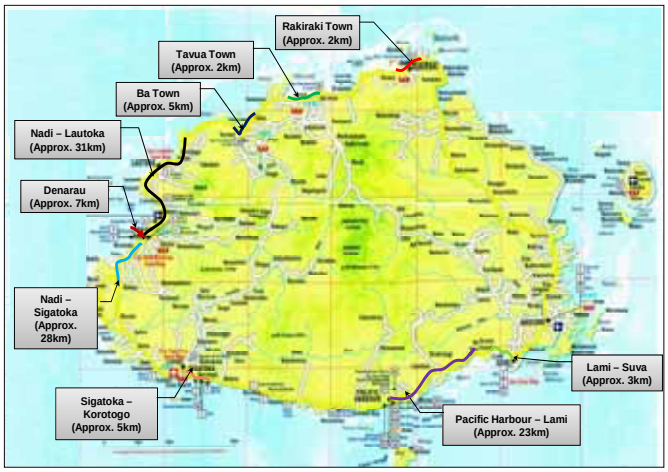
The above job was recently completed in Nov 2010 successfully.

# FIJI ROAD REHABILITATION PROJECT

*By Ir. Chang Chan Yang*

ACS was appointed by the Export and Import (EXIM) Bank of Malaysia as the Independent Checking Engineer (ICE) for the Fiji Road Rehabilitation Project. Fiji is a tropical island located in the Pacific Ocean approximately 2700 km east of Australia and 2100 km northeast of New Zealand.

The Fiji government has signed a contract with Naim Holding, our very own Malaysian contractor, to rehabilitate selected sections of the coastal roads on the main island of Viti Levu (see map).




***Methods of Rehabilitation***

The project involves repairing damaged roads within the selected road sections and resurfacing using premix. Almost all sealed roads in Fiji are of chipseal finish. Chipseal is essential made up of compacted single size aggregates bonded by bitumen. It is inferior due to its weaker strength, coarser finish (less comfortable ride) and wears out faster than asphaltic concrete or premix, the most common road finish in Malaysia. As a result the government of Fiji has accepted Naim's suggestion to use premix as the finished layer for the rehabilitated roads. The project is funded by loan from EXIM Bank to the government of Fiji.


Typical chipseal surface

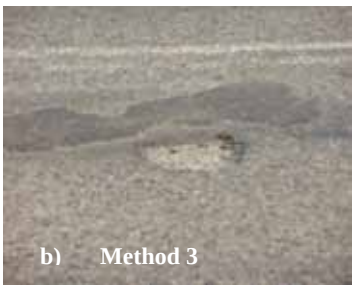
The road rehabilitation will be carried out using either one of three methods. The first method involves removing the first 200mm of the damaged road followed by refilling and compacting of 150mm roadbase (crusher run) and topping up with 50mm thick premix. This method is used where the road finish level has to be maintained e.g. in urban areas where the road is bounded by kerbs on both sides and at rail crossings.

The second method involved scarifying the existing chipseal surface, topping with 150mm roadbase and finally 50mm premix. This method is used where there is no physical restriction to raising the road level.

The third method is for repairing potholes. The method is essentially similar to the first method.
Lastly, a total of approximate 106km of road surfaces, including sections rehabilitated as mentioned above, will be topped with 50mm premix and provided with road markings.


a) Method 1


b) Method 2


b) Method 3

*Typical examples of locations for the three types of road repairs*

***Our scope as ICE***

EXIM Bank requires us to:

a. verify and validate the Bill of Quantities (BQ) in the contract. This is to ensure that the BQ is free of arithmetic error, complete (no major missing items), consistent with the specification and drawings and that the basis of quantity derivation is reasonable.

b. verify interim progress claims submitted by Naim and certified by the Engineer i.e. the PWD of Fiji. Each claim will be accompanied by a request for loan drawdown by the Fiji government which will be used to pay the contractor. ACS will be required to verify the claim before EXIM Bank can release the loan. As such our representative will need to carry out a site audit once every 1.5 months.

***A Feather In ACS's ICE Cap***


For ACS, the Fiji project is very significant - a feather in our cap, for a number of reasons. Firstly, we have expanded our service to a totally new region of the world i.e. the pacific island region. Secondly, we have a new client in EXIM Bank. Thirdly, our appointment is a testimony of our growing expertise in the field of ICE. According to Ir. CY Chang, the Project Manager for the Fiji and other ICE projects, each ICE is unique. Not only is the nature of the works vastly different (our ICE involvement has included a papermill, SMART tunnel, Sg Selangor Water Supply Phase 3, mini hydropower, etc) each loan is also different in their terms and conditions (T&C). As ICE we need to know the T&C well especially those pertaining to loan disbursement. Each new ICE project increases the range and variety of ICE projects ACS is involved with and reinforces our ICE capability and expertise. This stands us in good stead to secure future ICE projects.

The Fiji Road Rehab Project is also a testimony of the Malaysian capability -construction undertaken by a Malaysian company, financed by loan from a Malaysian financial institution and independent checking by a Malaysian consultant.

# Company ISO Internal and Focus Audit

An external audit was carried out on the ISO 9001:2008 system from June 2011. The audit covered all 18 procedures as documented in the ISO Quality Manual. 5 teams consisting 2 internal auditors each audited the procedures including existing and new projects. In summary, 11 Corrective Actions Request (CAR) were issued and 4 observations were made during the internal audit.

An external audit was carried out by Lloyd's Register Quality Assurance Limited (LRQA) as part of the Surveillance (Focus) Visit on 9th December 2010. The audit focuses on the certificate renewal which is scheduled in June 2011. A three day audit is scheduled for the certificate renewal which covers all procedures in the ISO system No major non compliance was found during the visit.

The management wishes to thank all staff for their cooperation, effort and dedication especially the ISO Committee and the internal auditors.

## FACELIFT OFANOTHER KIND

The 1st floor at ACS had a face-lift. The renovation was going on for a month.

Finally a new conducive working environment for all our colleagues at 1st floor. See photos below:

## ENGINEERS TALK

Recently on the invitation from ACS, Jurutera Perunding Services Sdn Bhd conducted a presentation for our monthly Engineers Talk. The talk was presented by Mr. Sunny Lee.

The usage of the following subjects were presented:-

(i) Satellite Imageries

(ii) IfSAR (Interferometric Sythetic Aperture Radar)

(iii) GPS Technology – Navcom GPS System

(iv) 3D Visualisation.

Almost 15 ACS staff attended the talk and benefitted with more knowledge.

## New Colleagues

We welcome our new colleagues who joined our team.

1. Cik Nor Aisyah Bte Mohd Idros –A fresh draughtswoman and also a Diploma Holder in Business Management.
2. En. Mohd Fairuz Bin Musthaffa graduated from Universiti Teknologi Mara in Civil Engineering and has 8 years of working experience.
3. Mr. Ong Choong Hwa joined us as a Water Supply Manager.
4. En. Mohd Zaidi joined as a draughtsperson
5. Mr. Lee Leong Yee joined us as a Civil Engineer.
6. Ms Foong Ying Chyung joined us as a Environmental Engineer.
7. Zahieri Asyraf Bin Hamzah joined as a Electrical Engineer on 20 June 2011
8. Ms Ang May Nee joined as a Civil Engineer on 7 Jul 2011.