Capacity Building in the Region

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IIC Technologies

1st Extraordinary ROPME Sea Area Hydrographic Commission Meeting
February 9-11, 2014

Overview

- Capacity Building: What it means
- Issues & Challenges + Trends
- IIC Technologies: Hydrographic Data Value Chain
- IIC Academy: Capacity Building
  - Nautical Cartography
  - Multibeam Surveying
  - Surveying & Mapping
- Individual Hydrographic Certification
- Take Home Message

Capacity Building: What it Means

Capacity Building: What it Means

The IHO has an active program to create capacities, which helps countries to develop and improve their hydrographic capabilities. The capacity-building projects are carried out, very often, in cooperation with other international organizations and the growing involvement of the industry.

Capacity Building is defined as the process by which the Organization assesses and assists **in sustainable development and improvement** of the States, to meet the objectives of the IHO and the Hydrography, Cartography and Maritime Safety obligations and recommendations described in UNCLOS, SOLAS V and other international instruments.

Issues & Challenges + Trends

Issues & Challenges: Organizational

- Multidisciplinary learning
- Producing while Learning; Earning while Learning
- Continuous Improvement
- Evaluate Training Effectiveness
- Retention of staff and knowledge
- Minimize cost; Academic Bubble
- Certification: Investment

Issues & Challenges: Student's View

IIC TECHNOLOGIES

- Professional, progressive instruction, modern equipment
- Engaging instruction: hands-on, practical
- Marketable; **Certification**
- **Flexible**; Multi-media: video, on-line, remote learning;
- **Modular**: learn in stages; practice in between - "blended learning"
- **Earning while Learning**; convenience: location, hours, access
- **Quality**

Issues & Challenges: Trends

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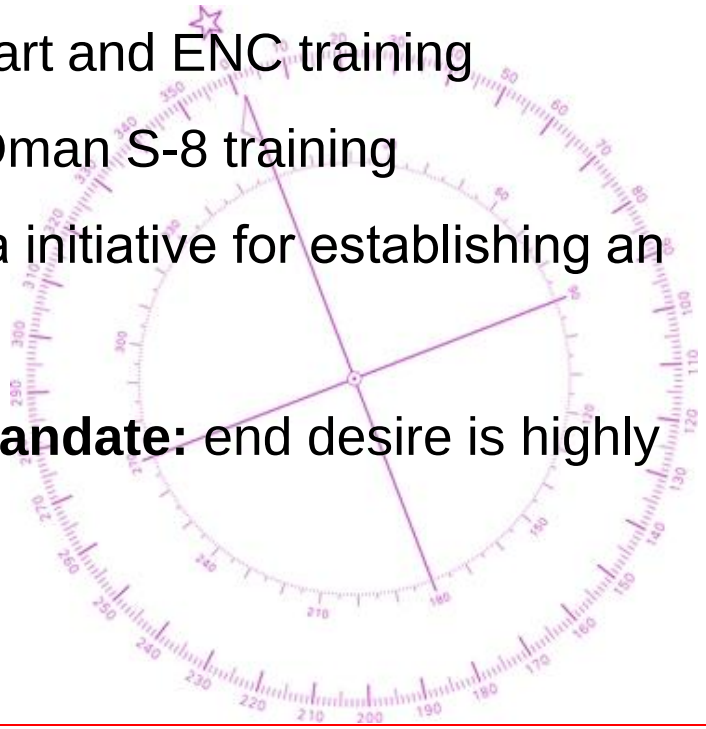
- Digital age: remote connectivity
- YouTube, Wikipedia
- Khan Academy: 1000's of hours, www.khanacademy.org
- MOOC's: Massive Open Online Courses
- Udemy Free Courses:
  - "our goal is to disrupt and democratize education by enabling anyone to learn from the world's experts"
- ITunesU free courses: play audio/video lectures, read
- Standford, UC Berkley, MIT, Duke, Harvard, UCLA, Yale, Carnegie Mellon: 100,000s of students registered for free

Hydrographic Agencies: Trends

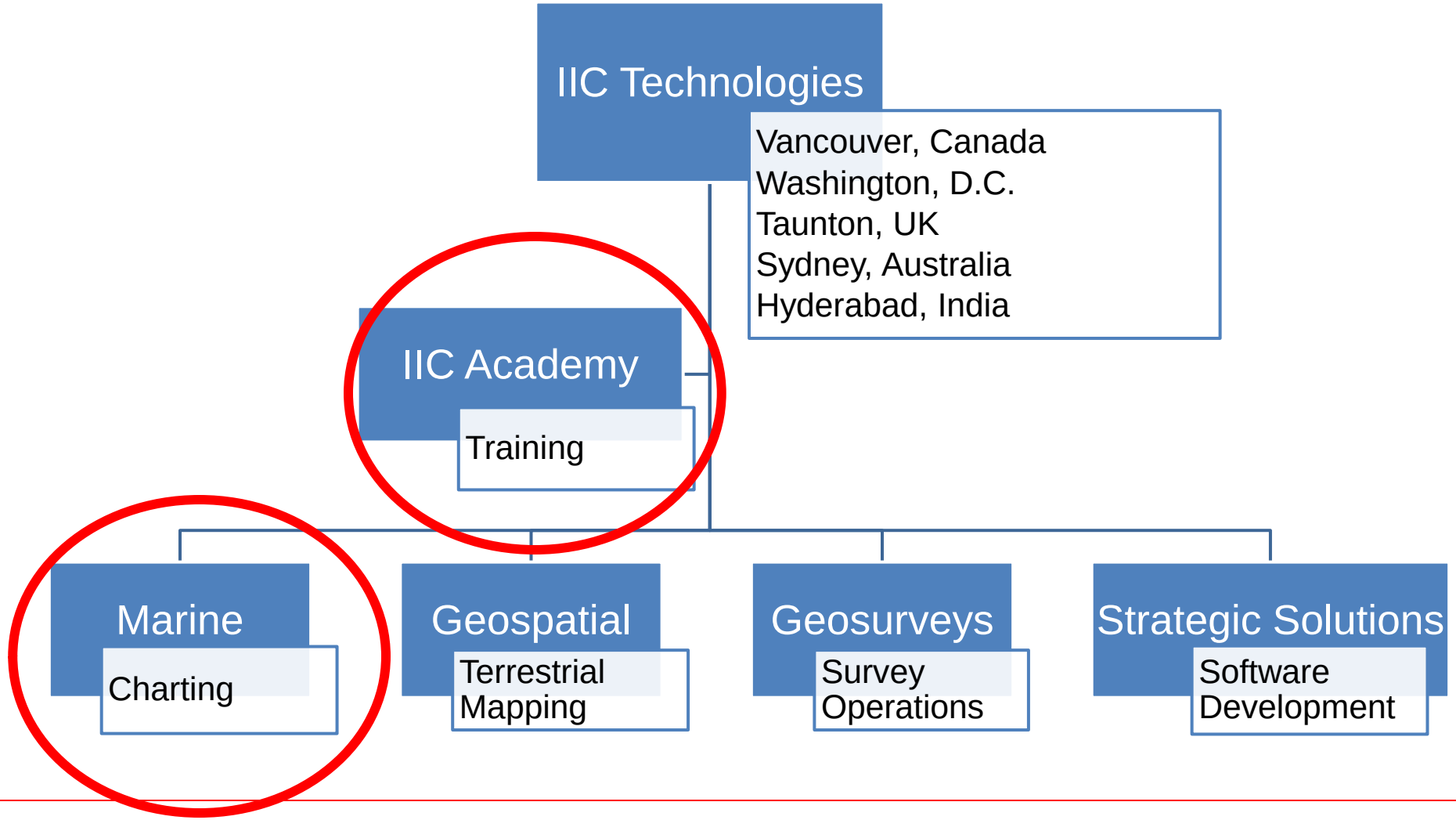
- **Strong push for standardization in training:** e.g. Australia HO ENC program
- **Embedded instruction, longer term:** e.g. LINZ paper chart compilation
- **Intensive instruction** on expensive platforms: e.g. Multi-beam echosounder training in India; USM paper chart and ENC training
- **HOs are keen to invest in capability**: e.g. Oman S-8 training
- **Regional investment:** e.g. Korea's East Asia initiative for establishing an S-8 program
- **IHO has a very strong capacity building mandate:** end desire is highly functioning national HOs around the world



IIC Technologies

Hydrographic Data Value Chain

IIC Technologies: Overview



Hydrographic Data Value Chain

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Data Value Chain

Data Acquisition	Survey Data Processing	Marine Products	Verification & Validation	Updating & Maintenance
• Hydrographic • Geophysical • Oceanographic • Airborne Lidar • Satellite	• Bathy Data Cleaning • Surface Modeling • Image processing • Deconfliction	• ENCs / IENCs • Military Overlays • Paper Charts • Geophysical Products	• Spatial Accuracy • Feature Verification • Logical Consistency • 3rd Party Checks • Vertical/Horizontal Consistency	• Database maintenance • Data Assessment • Data critical updates • Data management • Data warehousing

Capacity Building

IIC Academy

IIC Academy

Headquartered at Visakhapatnam, the Academy seeks to be an international center of excellence offering customized programs on nautical cartography, terrestrial and marine surveys, GIS, photogrammetry and LiDAR.

IIC Academy Overview

IIC TECHNOLOGIES

Foundation: "learning by doing and reflection"

Industry Ready: practice component is executed in the production floor using realistic case studies. Employable and productive

Scalability & Modular: The development of course content is highly modular. This enables customization of courses to meet the specific requirements of the end-users.

Flexible: The delivery of programs are highly flexible, delivered anytime, anywhere.

Results: Employable and productive.

Recognized Programs: The Academy has made positive impact on capacity building in geospatial related areas, which has been recognized by international bodies.

Quality & Performance Measurements

IIC TECHNOLOGIES

Feedback Survey from Reporting Managers to Assess the Efficacy of Training on the Foundations & Practice Of Photogrammetry

Name of the Employee

Report period Dec 2012 to Mar 2013

#	Performance Attribute	Poor	Fair	Average	Good	V Good
	Technical					
1	Understands 3D planimetric and DTM compilation techniques	[ ]	[ ]	[ ]	[ ]	[ ]
2	Competence in extraction and compilation of planimetric and DTM features	[ ]	[ ]	[ ]	[ ]	[ ]
3	Can work SSK – IFSC, ISSD, ISDC and micro-station	[ ]	[ ]	[ ]	[ ]	[ ]
4	Can perform 3D compilation as per project specs	[ ]	[ ]	[ ]	[ ]	[ ]
5	Adheres to standard processes and norms during compilation	[ ]	[ ]	[ ]	[ ]	[ ]
	Behavioural					
6	Understands instructions and seeks appropriate clarifications	[ ]	[ ]	[ ]	[ ]	[ ]
7	Accepts feedback willingly with positive spirit to improve	[ ]	[ ]	[ ]	[ ]	[ ]
8	Plans work and meets all deadlines	[ ]	[ ]	[ ]	[ ]	[ ]
9	Takes ownership of all assigned tasks	[ ]	[ ]	[ ]	[ ]	[ ]
10	Cooperates with other team members and reporting managers	[ ]	[ ]	[ ]	[ ]	[ ]

Please suggest at least one area on where training needs improvement:

2011 – 2013 Progress Report

Trained over 1200 participants, in areas related to marine and land survey, nautical cartography, GIS, photogrammetry, and LiDAR, both in India and abroad.

IHO Cat B S8 (Nautical Cartography)

Full IHO Cat B S8 (Nautical Cartography)

M.128

FIG - IHO - ICA International Board on
Standards of Competence for Hydrographic Surveyors
and Nautical Cartographers

CERTIFICATE OF RECOGNITION

The FIG-IHO-ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, having reviewed the course programme **"Marine Geospatial Information"** submitted by the IIC TECHNOLOGIES ACADEMY (INDIA) against the "Standards of Competence for Nautical Cartographers" S-8 (3rd edition), and being satisfied that it meets the requirements prescribed for a category B course, hereby awards this certificate of recognition for a period of 6 years.

Signed at Monaco

Prof. Dr. Lysandros Tsoulos
Chairman of the Board
This day the 1st of July 2012

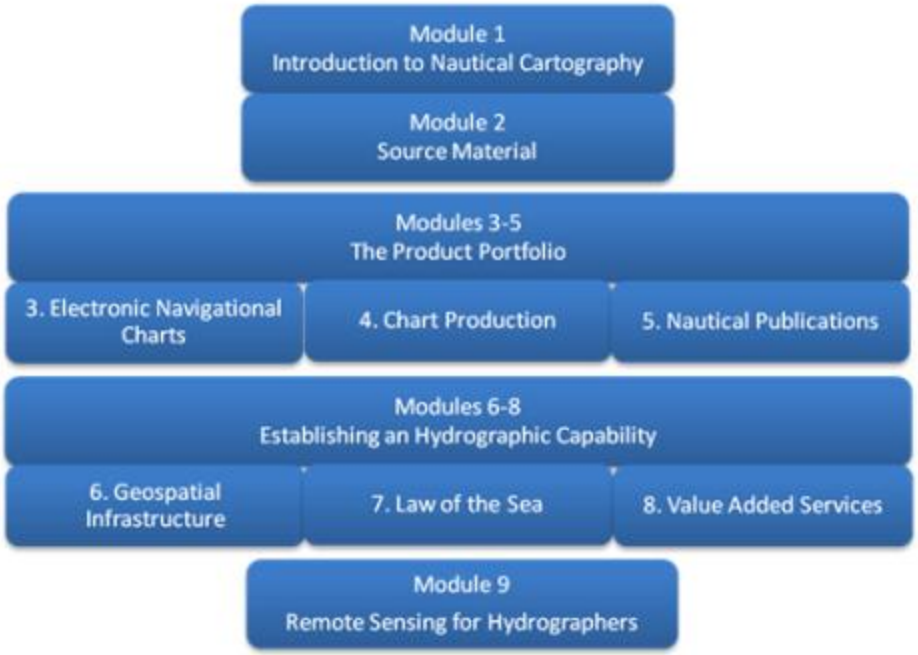

Figure 2. The modular design of IIC's S8 nautical cartography course.

Planned for 2014 - IHO Cat B S8 (Nautical Cartography) (Portable)….
(recognition pending)

S8 Cat B MGI course - India

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IHO Cat B S8 - Oman

The course was conducted between 06 May and 08 Nov 2013. Seven participants from the Royal Navy Oman attended the course. Six participants have already received their end-of-the-course completion certificate, and the seventh officer who had discontinued the course being on the family-way has rejoined and continuing. She is expected to complete the course on 17 Mar 2014.

Training & Modular Courses Abroad

Nautical Cartography course - KSA

Ten participants from the GCS attended the course. The faculty and course content support was provided by the Academy to facilitate GCS complete their first S8 Cat B course on Nautical Cartography.

On site training

Secondments of skilled staff to provide onsite, on the job training and mentoring

Customised training drawn from the full range of course content within the S5 and S8 syllabi.

Brazil, DHN	2 Data Production Cartographers	3 Months
LINZ, New Zealand	1 Data Production Cartographer	9 Months
GCS, Saudi Arabia	6 Hydrography, 10 Cartography	1+ Years
KIOST, Korea	Establish Cat B S8 Program	2 year

S5 & S8 (GCS Saudi Arabia)

S8 MI & M3 (AHO Australia)

Module M4 (Courtesy of LINZ)

Hydrographic Operations

Annual Multibeam Training Course
(February 2012, 2013, 2014… 2015)

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IIC ACADEMY
TRANSFORMING BUSINESS - ENRICHING LIVES

Annual Multibeam Training Course
(February 2012, 2013, 2014… 2015…)

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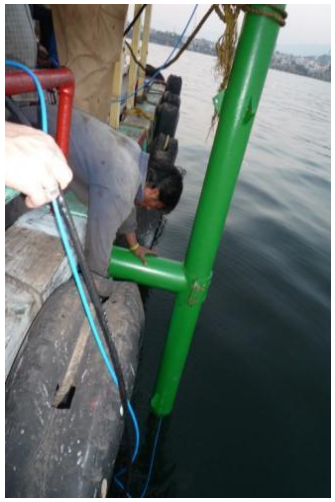

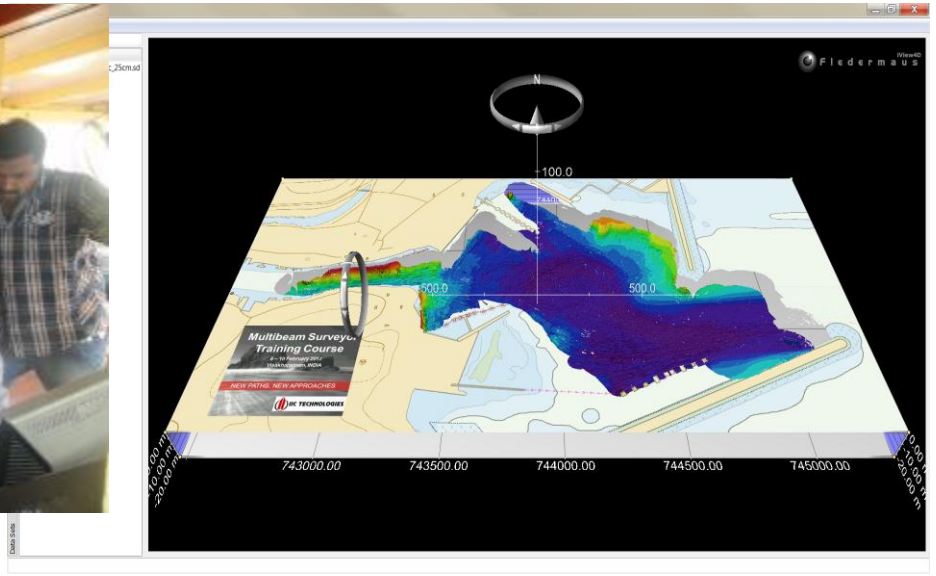

Multibeam processing - Nigeria

A two week course on multibeam processing and analysis was conducted for the Geo-Lab Technical Services, Harcourt, Nigeria. Twelve participants attended the course.

Cat B S5 Capacity Building: Saudi Arabia

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Capacity Building: India IWAI

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Inland Waterways, Navigation Software training
Kolkata, India

Courseware Developed

- **Hydrographic survey S5 Cat ’B’;**
- **Marine Geospatial Information S8 Cat ’B’ (modules 1 to 3);**
- **Cartographers Training Program on ENC Production;**
- **Basic of Charts, ENC Production and Navigation Displays**
- Foundations and practice of LiDAR;
- Foundations and practice of Photogrammetry;
- Foundations and practice of GIS;
- GIS and AutoCAD – customized course for Dhharay Technology;

Recent papers presented / published

Recruiting and Training for the Future - Marine Geospatial Information Learning

Shekhar MURTHY, India
IIC Technologies Academy

Duncan WARDLE, UK
IIC Technologies Group

Derrick PEYTON, Canada
IIC Technologies Group

Topic L: The hydrographic profession

INTRODUCTION

Amongst its wide range of geospatial services, IIC has been producing ENCs and Charts on behalf hydrographic offices for more than a decade. During this time we have trained several hundred

HYDRO 2012

Approaches to Hydrographic Training and Capacity Building

Technology and Blended Learning for Flexible, Modular Training

The Challenge: To provide a stimulating educational framework that blends relevant theory with practical exercises without removing individuals from their work environment for too long a period and optimising investment in complex and expensive equipment that may only be used a few weeks per year. The IHO FIG/IHO/ICA International Board for Standards of Competence (IBSC) has recognised the need for the competency standards to continue to evolve to meet these contemporary and future requirements. This paper presents an approach taken to modernise the training and capacity building aspects of these challenges.

Hydro International Jul-Aug 2013

Pedagogical Foundations for Effective Competency Building in the Hydrographic and Cartographic Sectors

Sub-Theme: Mapping for Sustained Development

INCA 2012

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Surveying & Mapping Programs

National Survey Authority - Oman

Overall fifty participants from the NSA, Oman attended different courses on:

(a) Photogrammetry

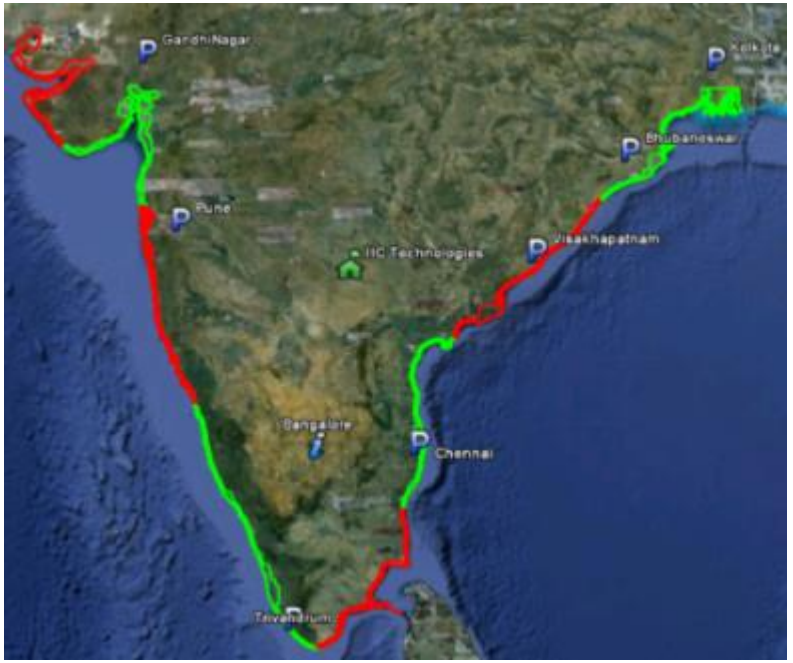
(b) Field Surveying

(c) GIS

(c) QA-QC

Survey of India - processes

The SICOM-II project also involves training of the Survey of India employees in use of the software, systems and processes developed by IIC. Three batches of 20 participants each were trained over the next 3-4 months



Hydrographic Certification

Australia

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SSSI Hydrography

Members Students Interest Groups Events Online Forum Search website

Spatial Professionals | Professional Streams | News & Resources | Member login

List of Certified Hydrographic Surveyors

Home / List of Certified Hydrographic Surveyors

Australasian Hydrographic Surveyors Certification Panel (AHSCP)

Download the list of Current Certified Professionals in Hydrographic Surveying (15 November 2013, PDF)

The following hydrographic surveyors were certified during September 2013:

- Mr Timothy Conner (CPHS1)
- Mr Colin Davidson (CHPS2)
- Mr Eric Fremouw (CPHS2)
- Mr Josyula Chandrasekhar (CPHS2)

Scheduled Certification Meetings and Future Applicants

Future certification meeting dates and the names of applicants to be assessed will be posted on the AHSCP page. Should an individual or organisation wish to provide comment on an applicant, this is to be provided to the AHSCP Secretary at least two weeks prior to the scheduled meeting. Comment can be made using the Referees

Hydrography
History
Hydrography Commission
Certification
List of Certified Hydrographic Surveyors
Hydrography CPD
Hydrographic Industry Issues
Resources
Awards

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ACLS·AATC
Association of Canada Lands Surveyors

Recommendations to the

ACLS Offshore Issues Committee

on a process for

CERTIFICATION OF HYDROGRAPHERS IN CANADA

Canada

Have five (5) years varied experience related to hydrographic surveying
Exemption: 3 years credit provided with proof of successful completion of relevant IHO/FIG/ICA Cat A or CAT B accredited training.*

Submit a Hydrographic Field Survey (Training) Report based on a minimum of four weeks supervised field training. *Exemption: not required with proof of successful completion of relevant IHO/FIG/ICA Cat A or CAT B accredited training.*

Obtain Basic Marine Qualifications:
1) Transport Canada (TC), Marine Emergency Duties: MED A1 and or MED A3
2) TC Small Vessel Operator Proficiency (SVOP)
3) Industry Canada- Restricted Operator's Certificate-Marine Communications (ROC-MC)

CLS Commission?

Yes

CBEPS Certificate of Completion

Write CLS exams and receive CLS commission

Become a member of the ACLS

Designation: ***CLS, CH***

(CLS & Certified Hydrographer)

No

Successful completion of on-line Hydrography CLS exams

Become an Associate Member (non-voting) of the ACLS

Designation: ***CH***

(Certified Hydrographer)

* Compliant with IHO S-5, S-8 Guidelines for Individual Recognition

Take Home Message

Capacity Building involve more than training. It should be a **strategy** that involves a long time vision towards the enhanced production, modernization, and development of human resources leading to overall organizational objectives.

Capacity Building is;

- training of hydrographers and cartographers
- enhanced capacity of data collection and production
- embedded assistance and training
- modular, flexible, blended

There are various forms of capacity building frameworks available within the ROPME region

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Thank You

www.iictechnologies.com