

Maritime Institute@NP

- **Thrusts**
- **R&D Focus**
- **Technology Development Plan**
- **Customized solutions for the Marine & Offshore Industry with special emphasis on SMEs**
- **Manpower training for Marine & Offshore Industry**
- **Collaborators**
- **Learning & Development for Staff**
- **Facilities**
- **Org Chart**

Thrusts

- **Research & Development activities in Marine and Offshore Technology**
- **Productivity and customized solutions for the Marine & Offshore Industry with special emphasis on SMEs**
- **Manpower training for Marine & Offshore Industry**

Focus Areas for Research & Development Activities

- **Green Technology in Marine and Offshore**
- **ROVs & AUVs**

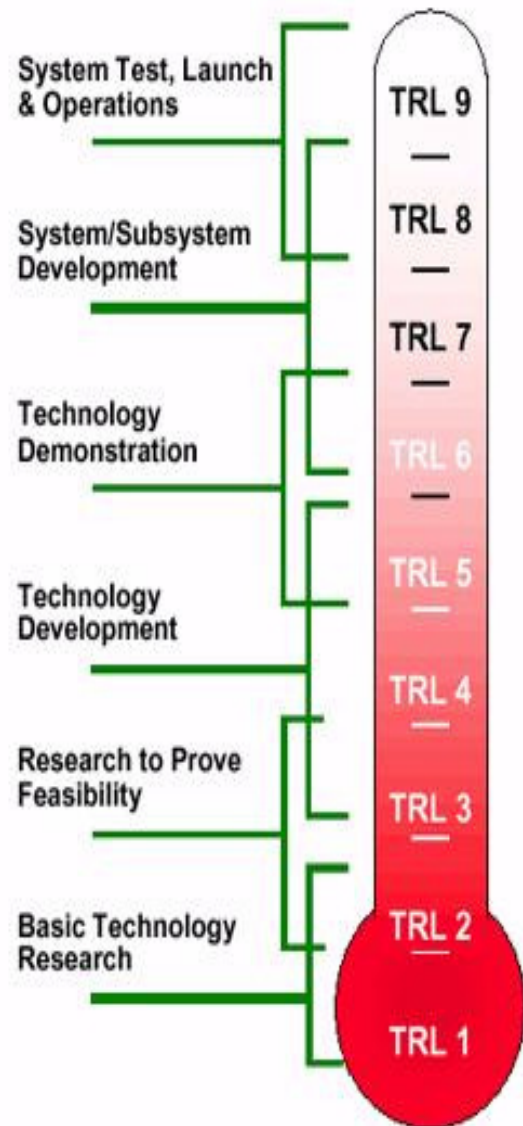
Technology Development Plan

		Present TRL	2013	2014	2015	2016	2017
Reduction of Ship Resistance	Resistance Lowering Bow Wings	TRL2	TRL4		TRL6		TRL8
	Air Lubrication	TRL3	TRL4				
	Reduction of Resistance Using Heating Elements	TRL1			TRL4		
Ballast Water Management	UV system	TRL1			TRL7		
	Electrolytic Chlorine System	TRL2		TRL5			
	Holistic System	TRL1					TRL8

Technology Development Plan

		Present TRL	2013	2014	2015	2016	2017
Air Pollution caused by marine and offshore activities and shipyard environment	Detection of SOx and NOx in exhaust gas	TRL2		TRL4			
	Control of Dust from Blasting and Painting	TRL3	TRL6				
	Control of Paint Overspray	TRL1		TRL4			
	Efficient Air Blower	TRL6	TRL7	TRL8			
ROVs/ AUVs	Underwater Hull Cleaning ROV	TRL4	TRL6	TRL7			
	Subsea Inspection AUV	-		TRL4			

TECHNOLOGY READINESS LEVEL (NASA)



Actual system "mission proven" through successful mission operations

Actual system completed and "mission qualified" through test and demonstration in an operational environment

System prototyping demonstration in an operational environment

System/subsystem model or prototyping demonstration in a relevant end-to-end environment

System/subsystem/component validation in relevant environment

Component/subsystem validation in laboratory environment

Analytical and experimental critical function and/or characteristic proof-of concept

Technology concept and/or application formulated

Basic principles observed and reported

Customized solutions for the Marine & Offshore Industry with special emphasis on SMEs

- **Through COIMOT**
- **Products and solutions for improving productivity**
- **Development/Improvement of products**
- **System integration and automation**
- **Undertake 30 projects each year**

Manpower training for Marine & Offshore Industry

	No of courses per year	Number of students/participants per year
Full time Diploma in Marine and Offshore Technology	1	140
Part time Diploma in Marine and Offshore Technology	1	20
Part time Specialist Diploma in Marine and Offshore Technology	2	40
Bridging Course in Marine and Offshore Technology for Degree program	1	15
Marine and Offshore options for diploma in Automation and Mechatronic Systems	1	30
Short courses in Marine and Offshore	3	200
Seminars and workshops	3	150

Collaborators (NP Departments)

- **Centre of Innovation Marine and Offshore Technology**
- **Centre of Innovation Environmental and Water Technology**
- **School of Engineering: Mechanical Engineering Division, Electrical Engineering Division, Electronics & Computer Engineering Division**
- **School of Life Sciences and Chemical Technology**
- **School of Design and Environment**
- **School of InfoComm Technology**

Collaborators (Outside NP)

- **Newcastle University(SIT)**
- **NTU, NUS**
- **University of Glasgow(SIT)**
- **IIT Kharagpur**
- **Shipyards and Ship Operators: e.g Keppel Offshore and Marine, Sembcorp Marine, ST Marine, APL**

Some Facilities

- **Towing tank**
- **Wind Tunnel**
- **Solar Energy Centre**
- **Other NP facilities**

Energise

**Learning &
Development
of Staff
(Tripl-E)**

Empower

Enable

Technology

**Focus Areas for
Learning &
Development of Staff**

**Communication
and Teamwork**

I&E

Towing Tank



Length = 15 m
Breadth = 2 m
Max Water Depth = 1m
Max Speed = 2m/s

Wind Tunnel

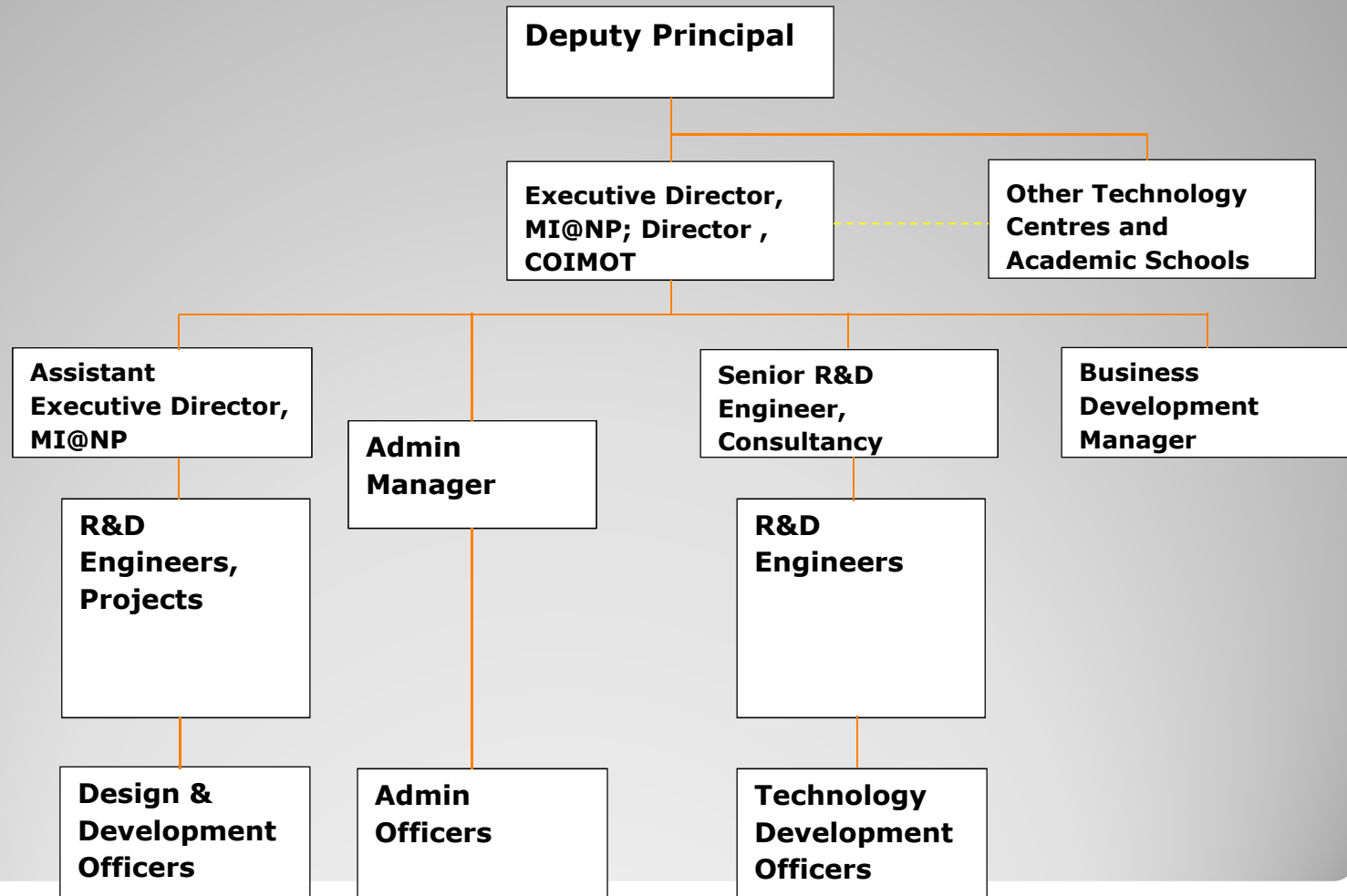


Length of wind tunnel :14 m
Length of test section : 2m
Test section: 1.2m X 0.8m
Max speed : 45 m/s.

Solar Technology Centre



Organisation Structure



Thank You

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