INTRODUCTION TO FRP TRAINING COURSE

Composites Research Group (CoReG)

UTM CENTRE FOR COMPOSITES (PUSKOM)

Faculty of Mechanical Engineering

Universiti Teknologi Malaysia

UTM CENTRE FOR COMPOSITE (PUSKOM)

- Centre of learning, awareness and R & D in the field of FRP Composites in Malaysia
- To provide expertise through consultation and training to local industries
- To be the link between UTM and other Research Institutions around the world

Fibre Reinforced Polymer Composites Course for IKBN Staff

CENFED UM and PUSKOM UTM

Course/Training Objectives:

At the completion of this course, each participant will be able to gain the followings:

✓Be conversant with the materials related to fibre reinforced polymer composite technology.

✓Understand the fundamental principles of tooling, fabrication and testing of advanced composite structure.

✓Gain a hands-on experience to fabricate pattern, mould and product of fibre reinforced polymer composite.

Fibre Reinforced Polymer Composites Course for IKBN Staff

(21st May – 25th May 2007)

UMP and UTM Centre for Composites (PUSKOM)

21-05-2007	Course Content	Presenter
9.00 – 10.30 am	Polymer Composite Materials and Technology **(L1)**	**Dr. Abd. Razak Rahmat**
10.30 – 11.00 am	Break	
11.00 – 12.00 am	Tooling and GFRP Product Fabrication Method **(L2)**	**Mr. Abd. Razak Abd. Rahim**
12.00 – 12.30 am	Quiz 1 and 2	**Dr. Abd. Razak Ahmad/ Mr. Abd. Razak Abd. Rahim**
12.30 – 2.00 pm	**Break**	
2.00 – 5.00 pm	Group Practical Session 1 (Basic Laminating Technique)	Mr. Abd. Razak Abd. Rahim/Mr. Shamsuddin Baharin
22-05-07	**Course Content**	**Presenter**
9.00 – 10.30 am	Production Techniques and Quality Control for FRP Composites **(L3)**	**Dr. Shukur Abu Hassan**
10.30 – 11.00 am	**Break**	
11.00 – 12.00 am	Product Design Methodology (Group Discussion and Presentation) **(L4)**	**Dr. Shukur Abu Hassan/ Dr. Mat Uzir Wahit /Dr. Abd. Razak Rahmat**
12.00 – 12.30 am	Quiz 3 and 4	**Dr. Shukur Abu Hassan/ Dr. Mat Uzir Wahit**
12.30 – 2.00 pm	**Break**	
2.00 – 5.00 pm	Group Practical Session 2 (Pattern Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**

23-05-07	Course Content	Presenter
9.00 – 10.00 am	Testing Methods for FRP Composites **(L5)**	**Dr. Mat Uzir Wahit**
10.30 – 11.00 am	**Break**	
11.00 – 11.30 am	Quiz 5	**Dr. Mat Uzir Wahit**
11.30 – 12.30 am	Group Practical Session 2 (Pattern Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**
12.30 -2.00 pm	**Break**	
2.00 – 5.00 pm	Group Practical Session 2 (Pattern/Mould Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**
24-05-07	**Course Content**	**Facilitators**
9.00 – 12.30 am	Group Practical Session 3 (Mould Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**
12.30 – 2.00 pm	**Break**	
2.00 – 5.00 pm	Group Practical Session 3 (Mould Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**
25-05-07	**Course Content**	**Facilitators**
9.00 – 12.00 am	Group Practical Session 4 (Product Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**
12.00 – 2.30 pm	**Break**	
2.30 – 5.00 pm	Group Practical Session 4 (Product Making)	**Mr. Abd. Razak Abd. Rahim/Mr. Shamsudin Baharin**

Why FRP composites ?



Part 1: Introduction to FRP Composites Technology and Products

Part 2: FRP Theory and Design Analysis

Part 3: Purchase and Quality Control of Raw Materials

Part 4: FRP Mould Tooling System

Part 5: Inspection and Quality Control of FRP Products/Structures

Part 6: Repair and Testing of FRP Products and Structures

Part 7: Prototype Development

FRP COMPOSITES R & D PROJECTS

Hovercraft Project

FRP Trash Trap

Composite Bus Project

Materials, Structures Testing and Composites Failure Investigation (CFI)

GFRP Grating Load Test

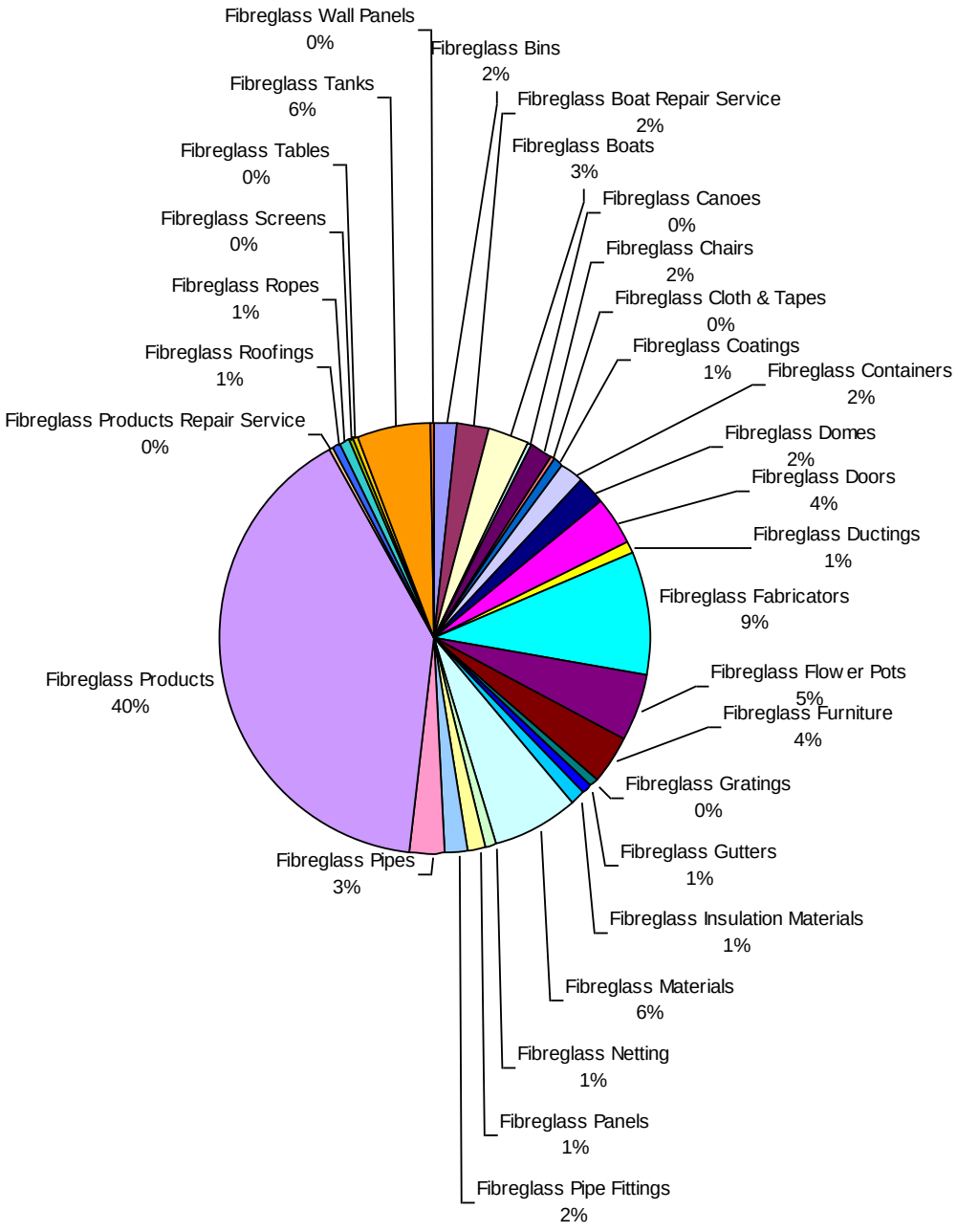
Field Load Test

CFI *Composites Failure Investigation*

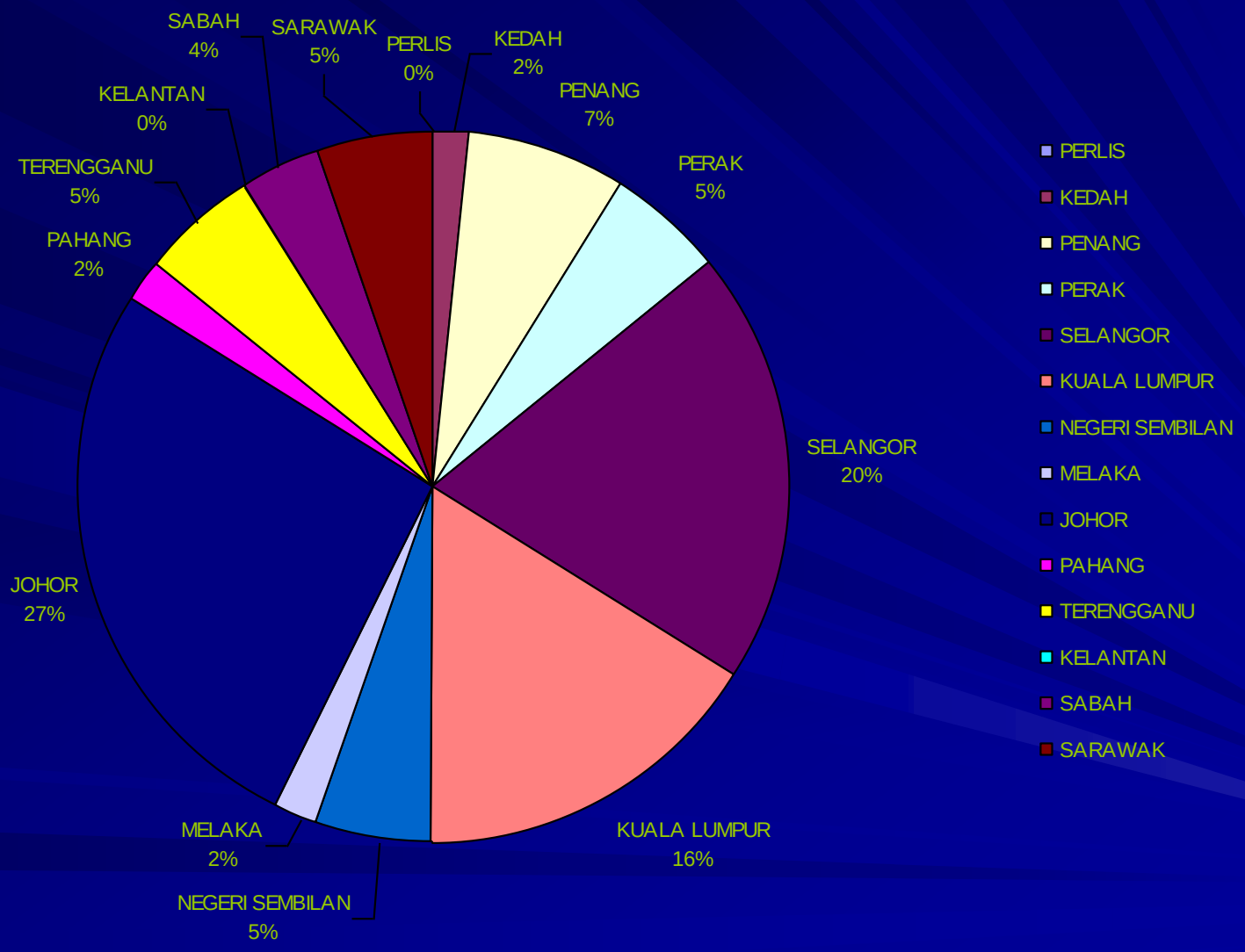
CFI *Composites Failure Investigation*

COMPOSITES PRODUCTS & APPLICATIONS IN MALAYSIA

Fiberglass Nature of Business



Fibreglass Fabricator



Fibreglass Applications

FRP Applied Projects


FRP Boardwalk - Taman Negara


FRP Tree Top Observation Plaform - Taman Negara


FRP Pedestrian Bridge - Sarawak Forestry Park

FRP material is **free of maintenance**. No need to repaint & maintain annually.

Fibreglass Applications

FRP Applied Projects

FRP Directional Signage Board

FRP Signage Board

FRP Signages

Fibreglass Applications

FRP Applied Projects

FRP material has **no recycle value**, so its **theft free** and suitable in city area.

Market Sector 1989-2006

Aerospace

-Commercial Aircraft

-Military Aircraft

Building & Construction

-Fire Retardant System

-Permanent Form Works

-Kiosk

-Decorative

-Cladding panels

- roof tiles
- window frames
- doors
- dormers
- conservatories

Chemical Treatments

-FRP Tanks

-Chemical Attack Resistant

Civil Engineering, Infrastructure & Offshore

-Strengthening

-Structural

-Composites Pipes

-Corrosion Resistant

-Theme park ride construction & decoration

-Garden furniture

-Surf, sailboard & canoes

-Fishing Rods, tennis rackets, golf club shaft, bicycle frame

Market Sector 1989-2006

Defense

-Lightweight Personnel body armour

-Naval vessels

-All-composite driveshaft

-Stealth material

Electrical & Electronic

-Switch-gear housings

-Outlet boxes

-Printed circuits

-Fuse tubes

-Cable trays

-Insulators

-utility poles

-Product casings

Marine & Shipping

-Workboats

-Fishing Vessels

-Car ferries

-Cruise ships

-Composites propellers

-Watertight Doors

Transport

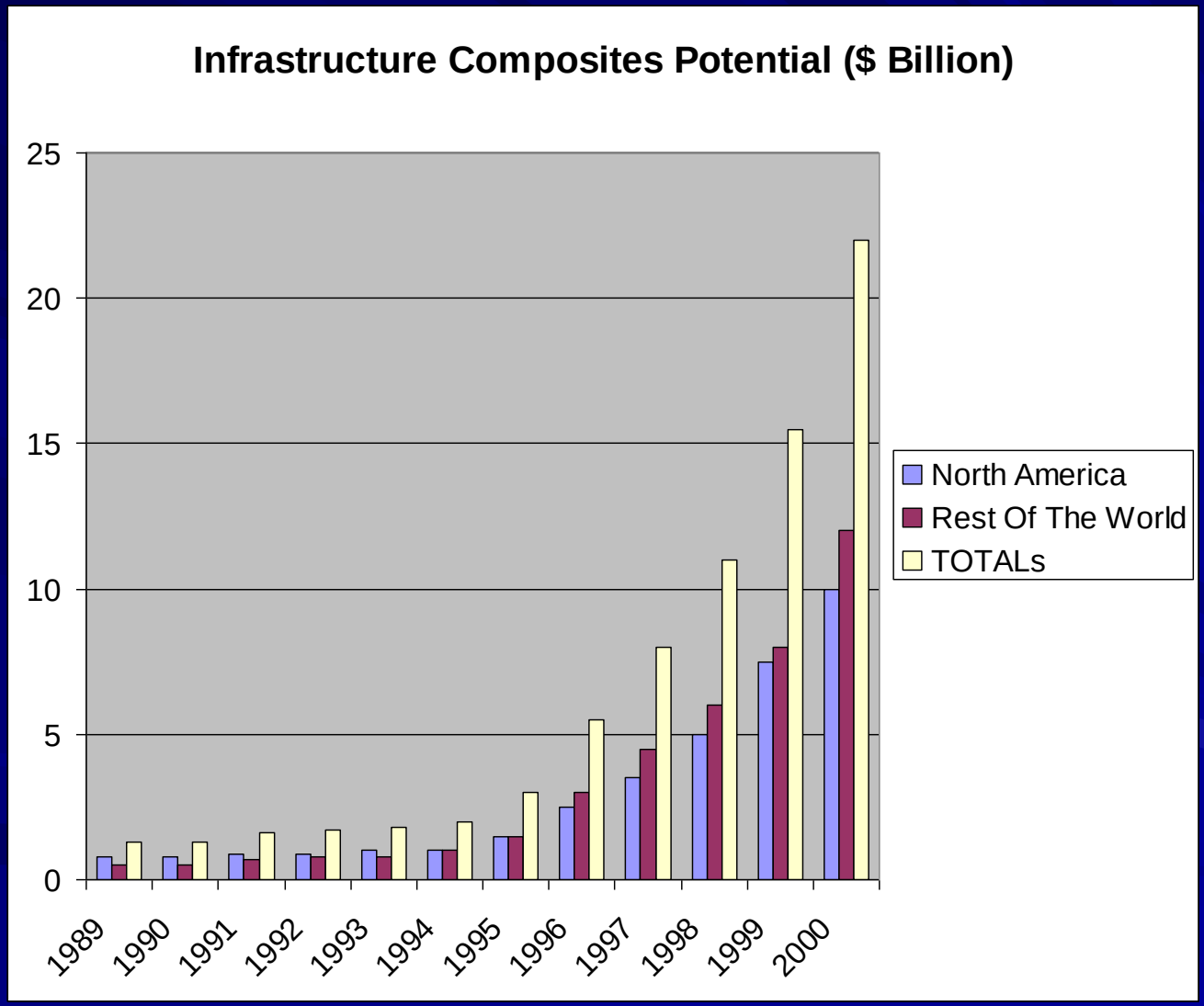
-Cars

-Electric vehicles

-Bus, Van & Trucks

-Mass-Transit & Railways

Market Sector



source : COMPOSITES – A Profile of The Worldwide Reinforced Plastic Industries, 2nd Edition


thank you very much
ALIYA
PARK LANE