ABOUT THE
PHILIPPINE
ELECTRONICS
INDUSTRY

a snapshot

ERNIE B. SANTIAGO
SEIPI
CHANGING FACE OF EXPORTS

The Philippine Economy

1976

- Agro-Based: 49%
- Other Mftrs.: 11%
- Garments: 7%
- Electronics: 3%
- Mineral Petroleum: 18%
- Forest Based: 10%

Others: 2%

2004

- Electronics: 69%
- Petroleum Products: 18%
- Petroleum: 1%
- Cocon Products: 1%
- Processed Food: 2%
- Mach/Transport Eqpt.: 5%
- Garments: 6%
- Others: 18%

....from coconut chips to microchips

SEIPI
The Philippine Economy

A COMPETITIVE PHILIPPINE ELECTRONICS INDUSTRY

- 10% OF WORLD SUPPLY OF SEMICONDUCTOR MANUFACTURING SERVICES
- 50% WORLD PRODUCTION OF 2.5” HDD AND 10% WORLD PRODUCTION OF 3.5” HDD
- WHO ARE WITH US:
  - **INTEL PHILS.** – has largest microprocessor & flash test factory
  - **TEXAS INSTRUMENTS PHILS** - produces 100% of digital signal processors (DSPs) for Nokia cellular phones and 80% for Siemens and Ericsson
  - 3 OF THE LARGEST HDD PRODUCERS ARE IN THE PHILIPPINES:
    - Hitachi Ltd. (produces 500,000 HDDs a year);
    - Fujitsu Computer (manufacturer of HDDs for desktops, servers and file storage; magneto-resistive heads; & media disk);
    - Toshiba Philippines (HDDs, laptops)
Every month, the Philippines produces...

- 200,000 LAPTOPS
- 6 MILLION MAGNETIC HEADS
- 3 MILLION DSPs
- 2.5 MILLION HDDs
- 900,000 LCDs
- 700,000 ODDs

A COMPETITIVE PHILIPPINE ELECTRONICS INDUSTRY
The Philippine Electronics Industry

Classification of the Electronics Industry

- Components and Devices (Semiconductor)
  - Pentium III, DSPs, Integrated Circuits, Transistors, Diodes, Resistors, Coils, Capacitors, Transformers, Lead Frames, PCB

- Consumer Electronics
  - TV Sets, Electronic Games, Radio Cassette Players, Karaoke Machines, Radio Cassette, Recorder

- Office Equipment
  - Photocopy Machines and Parts, Electronic Calculators

- Control & Instrumentation
  - PCB Assembly for Instrumentation Equipment

- Electronic Data Processing
  - Personal Computers, Hard Disk Drives, Floppy & Zip Drives, CD ROM, Motherboards, Software Development, Data Encoding and Conversion, Systems Integration Customization

- Telecommunications
  - Telephones, Pagers, VHF, UHF Radios, Cellular Phones, Scanners, Satellite Receivers

- Communications and Radar
  - Pagers, CCTV, Radar Detectors, Marine and Land Mobile Radios, CB Transceivers

- Medical and Industrial
  - Spiro Analyzers, Smoke Detectors

- Automotive Electronics
  - Electronics Brake Systems (EBS), RC Systems, Car Radios, Wiring Harness

Source: Masterplan for Philippine Electronics Industry 1998
CHARACTERISTICS OF THE ELECTRONICS INDUSTRY

- **High Quality**
- **High Productivity**
- Dominated by MNCs
- Export Oriented
- Essentially engaged in assembly and test manufacturing and highly technical, labor intensive activities
- Growing base of component suppliers
- High Quality

Source: SEIPI Membership Survey
PROFILE OF TYPICAL ELECTRONICS COMPANIES

- ISO Certified
- Practices the Best Known Methods in Manufacturing (JIT, TQM, 5S, QPIC)
- Capabilities Range from IC Packaging, PCB Assembly, Full Product Assembly
- In-house Training Capability
- Runs at 3 Shifts a Day
- Better Compensation Package
- Non-Unionized with Low Turnover
- Located in Economic Zone or BOI Registered
- Operates with clean rooms and fully integrated manufacturing facilities
LOCATION OF ELECTRONICS COMPANIES

Metro Manila: 42%

Calabarzon: 48%

Northern/Central Luzon: 3%

Cebu: 7%

Sources: PEZA & BOI, as of September 2001
critical mass of global players
COMPANIES IN THE ELECTRONICS INDUSTRY

2004

NEW ENTRANTS
33 Firms
TOTAL NO. OF FIRMS
860 Firms

NATIONALITY:
72% Foreign
28% Filipino

Sources: Philippine Board of Investments (BOI) & Philippine Economic Zone Authority (PEZA)
COMPETITIVENESS OF THE INDUSTRY

people
EMPLOYMENT IN THE ELECTRONICS INDUSTRY

Sources: Philippine Board of Investments (BOI) & Philippine Economic Zone Authority (PEZA)

In thousands

Semiconductor
Rest of Electronics

376,000 people

SEIPI
<table>
<thead>
<tr>
<th>TOP 5 EXPORTS 2004</th>
<th>% TO TOTAL RP EXPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ELECTRONICS</td>
<td>69 %</td>
</tr>
<tr>
<td>2. Garments</td>
<td>6%</td>
</tr>
<tr>
<td>3. Agro-Based &amp;</td>
<td></td>
</tr>
<tr>
<td>Processed Food</td>
<td>6%</td>
</tr>
<tr>
<td>4. Machinery &amp;</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>4%</td>
</tr>
<tr>
<td>5. Forest/Mineral</td>
<td></td>
</tr>
<tr>
<td>Products</td>
<td>2%</td>
</tr>
<tr>
<td>6. Others</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: BETP/DTI
DESTINATIONS OF ELECTRONICS EXPORTS

- **Europe**: 2003-20%, 2004-19%
- **USA**: 2003-14%, 2004-13%
- **China**: 2003-7%, 2004-8%
- **Japan**: 2003-16%, 2004-20%
- **Other Asia**: 2003-43%, 2004-38%

Source: Bureau of Export Trade Promotion, DTI
## Exports of Electronics Industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports (in US$)</th>
<th>Growth Rate</th>
<th>% To RP Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>2.97 B</td>
<td>20%</td>
<td>28%</td>
</tr>
<tr>
<td>1993</td>
<td>3.78 B</td>
<td>27%</td>
<td>33%</td>
</tr>
<tr>
<td>1994</td>
<td>4.89 B</td>
<td>28%</td>
<td>36%</td>
</tr>
<tr>
<td>1995</td>
<td>7.55 B</td>
<td>55%</td>
<td>43%</td>
</tr>
<tr>
<td>1996</td>
<td>10.61 B</td>
<td>40%</td>
<td>52%</td>
</tr>
<tr>
<td>1997</td>
<td>14.98 B</td>
<td>41%</td>
<td>58%</td>
</tr>
<tr>
<td>1998</td>
<td>19.87 B</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>1999</td>
<td>25.34 B</td>
<td>27%</td>
<td>72%</td>
</tr>
<tr>
<td>2000</td>
<td>27.07 B</td>
<td>7%</td>
<td>71%</td>
</tr>
<tr>
<td>2001</td>
<td>21.60 B</td>
<td>-20%</td>
<td>68%</td>
</tr>
<tr>
<td>2002</td>
<td>23.76 B</td>
<td>10%</td>
<td>69%</td>
</tr>
<tr>
<td>2003</td>
<td>24.17 B</td>
<td>2%</td>
<td>68%</td>
</tr>
<tr>
<td>2004</td>
<td>26.64 B</td>
<td>10%</td>
<td>69%</td>
</tr>
</tbody>
</table>

Source: Bureau of Export Trade Promotion, DTI
<table>
<thead>
<tr>
<th>YEAR</th>
<th>INVESTMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>US$ 40 M</td>
</tr>
<tr>
<td>1993</td>
<td>220 M</td>
</tr>
<tr>
<td>1994</td>
<td>1.290 B</td>
</tr>
<tr>
<td>1995</td>
<td>2.160 B</td>
</tr>
<tr>
<td>1996</td>
<td>1.080 B</td>
</tr>
<tr>
<td>1997</td>
<td>1.470 B</td>
</tr>
<tr>
<td>1998</td>
<td>670 M</td>
</tr>
<tr>
<td>1999</td>
<td>790 M</td>
</tr>
<tr>
<td>2000</td>
<td>1.240 B</td>
</tr>
<tr>
<td>2001</td>
<td>720 M</td>
</tr>
<tr>
<td>2002</td>
<td>270 M</td>
</tr>
<tr>
<td>2003</td>
<td>230 M</td>
</tr>
<tr>
<td>2004</td>
<td>420 M</td>
</tr>
</tbody>
</table>

Sources: Philippine Board of Investments (BOI) & Philippine Economic Zone Authority (PEZA)
### Targets of the Electronics Industry

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Investments (US $)</th>
<th>Exports (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0.230B</td>
<td>24.26 B (11%)</td>
</tr>
<tr>
<td>2003</td>
<td>0.270B</td>
<td>24.60 B (2%)</td>
</tr>
<tr>
<td>2004</td>
<td>0.420B</td>
<td>26.64 B (11.2%)</td>
</tr>
<tr>
<td>2005</td>
<td>1.000B</td>
<td>28.00 B (5%)</td>
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ABOUT THE
INDUSTRY
ROADMAP
snapshot
VISION

TRANSFORM THE PHILIPPINES INTO A REGIONAL CENTER OF EXCELLENCE IN SELECTED ELECTRONICS INDUSTRY PRODUCTS AND PROCESSES

AND THUS BECOME THE INVESTMENT LOCATION OF CHOICE FOR DOMESTIC AND FOREIGN ORGANIZATIONS WHO WISH TO DESIGN, MAKE AND SELL THEIR PRODUCTS
THE STUDY ADDRESSES 2 KEY AREAS

1. Improving the Country’s Competitiveness
2. Expanding the Value Chain of the Industry

OBJECTIVES

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPORTS</td>
<td>US$ 22 B</td>
<td>US$ 50 B</td>
</tr>
<tr>
<td>EMPLOYMENT</td>
<td>300,000</td>
<td>1,000,000</td>
</tr>
</tbody>
</table>
THE COMPETITIVE LANDSCAPE STUDY

SEVEN (7) KEY INITIATIVES

1. Manufacturing Cost Control
2. Country Image
3. Targeted Sector Development
4. Allied Industry Development
5. MNCs and Domestic Value Chain Expansion
6. Center For Excellence
7. Wafer Fab
1. MANUFACTURING COST CONTROL

*how we can reduce the cost of business*
MANUFACTURING COST CONTROL

1. POWER COST
2. LABOR COST
3. TAXES
4. INCENTIVES
2 COUNTRY IMAGE

how we can improve the image of the country
COUNTRY’S IMAGE

1. INFRASTRUCTURE
2. SECURITY
3. EDUCATION
4. PEACE AND ORDER
5. CORRUPTION
6. PROMOTION
what should we do to further push the development of EMS
## TARGETED SECTOR DEVELOPMENT

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>SMS</th>
<th>EMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORLD</td>
<td>US$ 150 B</td>
<td>US$ 650 B</td>
<td></td>
</tr>
<tr>
<td>PHILIPPINES</td>
<td>US$ 16 B</td>
<td>US$ 6 B</td>
<td></td>
</tr>
</tbody>
</table>

SEIPI
what should we do to develop the allied and support industry
ALLIED INDUSTRY DEVELOPMENT

Direct and indirect materials and services

PACKAGING
CHEMICALS
MACHINERY AND EQUIPMENT
METAL STAMPING
METAL CASTING
MACHINING
SERVICES
TOOL AND DIE
DIRECT MATERIALS COMPONENTS
ALLIED INDUSTRY DEVELOPMENT

- Local materials are not available
- Local suppliers are difficult to find
- Unrealiability of local suppliers
- Local materials are more expensive
- Local materials do not meet the required quality standards
- Industry local requirements not known to many
5 MNCS AND DOMESTIC VALUE CHAIN EXPANSION

how can we retain existing MNCs/Filipino companies in the Philippines
FOUR (4) ENGINEERING FUNCTIONS

1. PRODUCT AND TEST
2. PROCESS
3. EQUIPMENT
4. QA/REL/FA

FOUR (4) LEVELS OF COMPETENCIES

LEVEL 1 - BASIC WORKING KNOWLEDGE
LEVEL 2 - CAN WORK INDEPENDENTLY
LEVEL 3 - CAN TEACH AND LEAD PROBLEM SOLVING
LEVEL 4 - CAN CHANGE AND IMPROVE WHAT IS KNOWN
How do we envision the COE
THE ENGINEERING GRADUATES PROGRAM

BS ENGINEERING: FROM 40K TO 200K

BS ENGINEERING

TRACK 2
ELECTIVES

TRACK 1
Regular BS

TRACK 3
BSEng Major in SET
- Minor in Product Testing and Circuit Design
- Certified by SEIPI

TRACK 4
REMEDIAL COURSES
- Statistics as applied in process
- Kinematics as applied in mechatronics
- Material behavior as applied optimization, etc.
THE CAPACITY BUILDING PROGRAM - ARCDI

VENUE:
- CONVERGENCE CENTER

COURSES/TRAININGS
- VALUE ADDED
- ASSEMBLY/MANUFACTURING

LABORATORY
- EQUIPMENT, BOOKS, CDS, ETC.
# THE HIGHER ADVANCED STUDY PROGRAM

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS</td>
<td>80</td>
<td>600</td>
</tr>
<tr>
<td>PHD</td>
<td>20</td>
<td>200</td>
</tr>
</tbody>
</table>
What should we do
**ASIAN WAFER FAB TRENDS**

<table>
<thead>
<tr>
<th>Country</th>
<th>Fab Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>31</td>
</tr>
<tr>
<td>Taiwan</td>
<td>28</td>
</tr>
<tr>
<td>Malaysia</td>
<td>4</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2 (Plans)</td>
</tr>
<tr>
<td>Thailand</td>
<td>1 (On hold)</td>
</tr>
</tbody>
</table>

**WAFER FAB**

- **Exports 01:** US$ 22 Billion
- **Imports 01:** US$ 15 Billion

*Wafer - US$ 10-12 Billion*
THE PHILIPPINE SEMICONDUCTOR AND ELECTRONICS INDUSTRY HAS ALWAYS BEEN CYCLICAL BUT IN AN UPWARD DIRECTION

THIS HAS NOT CHANGED

THEREFORE, WE MUST CONTINUE TO DO THE RIGHT THINGS TO PREPARE FOR OUR FUTURE SUCCESS

KNOWING THAT ADVERSITY ALWAYS TRANSCENDS UNIQUE OPPORTUNITIES, IT IS UP TO US TO MAKE THE MOST OF IT
SOME MEN SEE THINGS AS THEY ARE AND SAY … WHY?

I DREAM THINGS THAT NEVER WERE AND SAY … WHY NOT?

Bob Kennedy