

都市採礦25年的心得分享

Experiences sharing from 25-year Urban Mining

TMC Metal Group

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2011 Oct. 21

產業的過去 Origination

- 從拆船業說
Ship-breaking industry
- 環保法令的演進
Legal environment progressing
- 電子及半導體業的興起
Rise of Electronic and Semiconductor Industry

1969-1988

美加 TMC的前身 - 拆船業



1970
貨櫃船...



1970-1990

產業的過去 - 廢五金業時期



經濟發展 vs. 環境污染 (Development vs. Pollution)

- 進口工業廢料過於氾濫, 導至國內環境污染, 嚴重失控 ;
- 1993 Aug 台灣環保署毅然宣告廢五金全面禁止進口



6



產業的過去 - 環保法令的演進

-- 國際及台灣環保意識的覺醒

- **1987** : 台灣衛生署環保局正式升格為環保署
- **1989** : **116**國家於瑞士巴塞爾召開管制有害廢棄物跨國運送及處理公約大會 (**105**國簽署此公約)
- **1989** : 公民營清除處理機構管理輔導辦法
(分甲乙丙級清除機構及甲乙級處理機構);
台灣廢五金回收業自此走向秩序化管理

1990 ~

產業的過去 - 電子及半導體業的興起

— 台灣電子及半導體業漸漸興起

- 聯電, 台積電, 華邦電, ...
- 宏碁, 華碩, 鴻海, 仁寶, ...
- 飛利浦, 德儀, 高電, 日月光, 矽品, ...
- 友達, 奇美電, 聯詠, ...

經營現況 Status Quo

- **TMC**角色的定位

Self positioning of TMC Metal Group

- 產業版圖遷移及拓展

Geographical shift of related industry

- 客戶觀念的改變

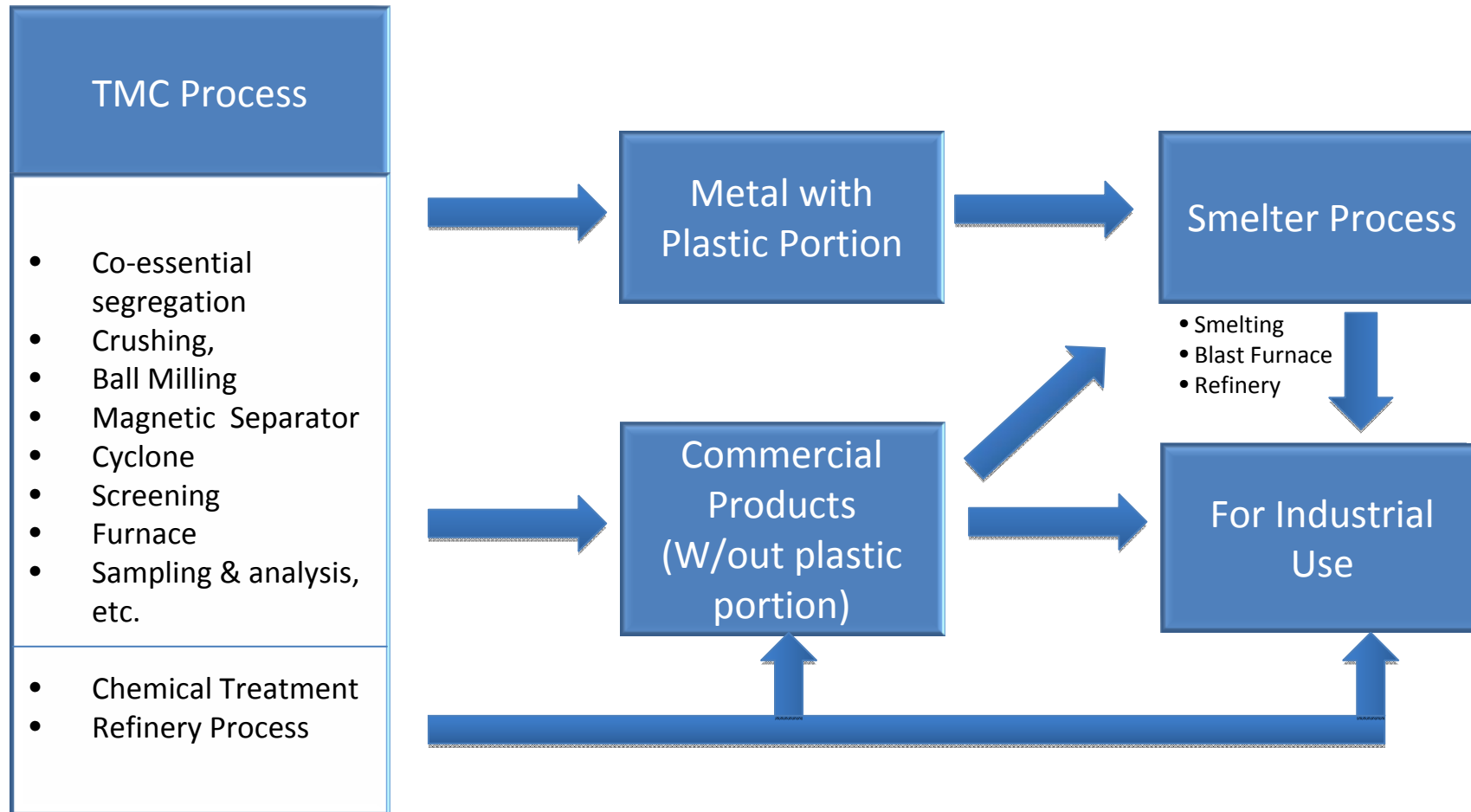
Mind-set transform at waste generator side

1987

台灣美加金屬公司成立 TMC set up

- **1986**：聘請美國冶金專家來台協助考察台灣廢五金回收；事後並遠赴加拿大參觀**Noranda** 礦業公司
- **1987**：與加拿大 **Noranda** 礦業公司於高雄大發工業區合資建立台灣美加金屬股份有限公司 (**1993**: 台灣廢五金全面禁止進口後, **Noranda** 撤資)

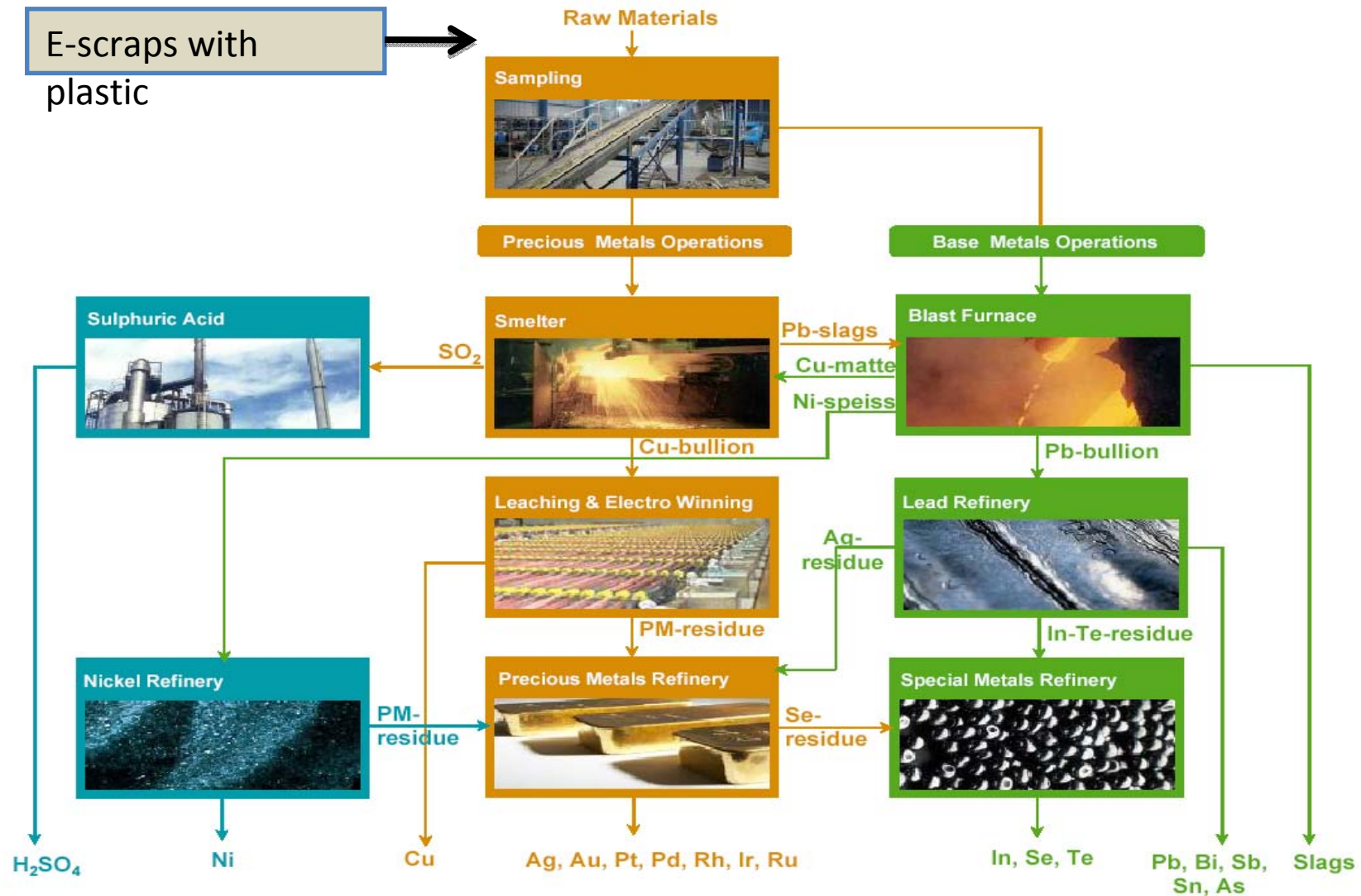
Part of Global E-scrap Refinery Cycle



Smelters with TMC Metal Group - TMC作為世界回收體系的一環



Environmental-friendly Treatment



TMC 經營理念

尊重環保 Respect The Environment

正派經營 Manage With Integrity

珍惜資源 Cherish Natural Resources

造福子孫 Benefit Future Generation



1993

TMC 率先取得台灣環保署核發的有害事業廢棄物清除許可證



1993

本人取得台灣環保署核發的有害事業廢棄物清除技術員資格



1997

1st ISO-14001 certificate in Taiwan recycling industry

RWTÜV
CERTIFICATE

RWTÜV e.V.
hereby certifies that
Taiwan May Chia Metal Co., Ltd.
No. 8, Tien-Tan 1st Street & 16,
Chien-Min Street, Ta-Fa Industrial
District, Kaohsiung Hsien,
Taiwan, R.O.C.

with its activities

Recycling and Processing of Metal Scraps

has established and applies an
Environmental Management System.

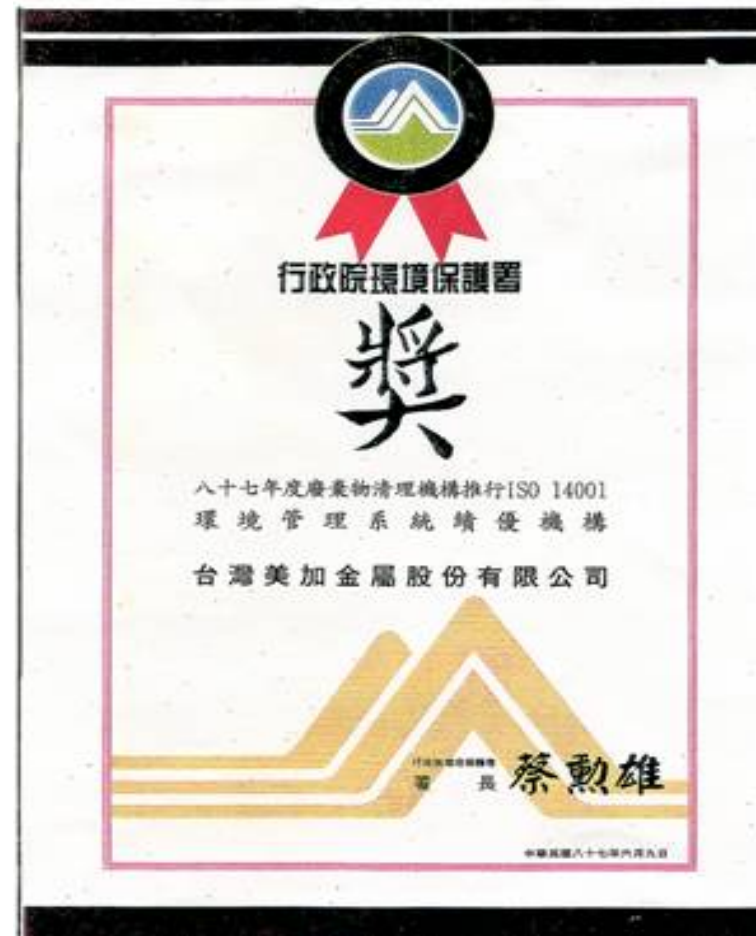
An Audit was performed, Report No. 713534/01
Proof has been furnished that the requirements according to
DIN EN ISO 14001
are fulfilled.

The certificate is valid until
10 / 2000

Certificate Registration No.
UM 1-17-0031

Essen, 09.12.1997

L. Hrus
RWTÜV - Certification Body
Environmental Management and
Occupational Safety



TMC plant - 廢水處理系統



TMC plant - 污染防治系統



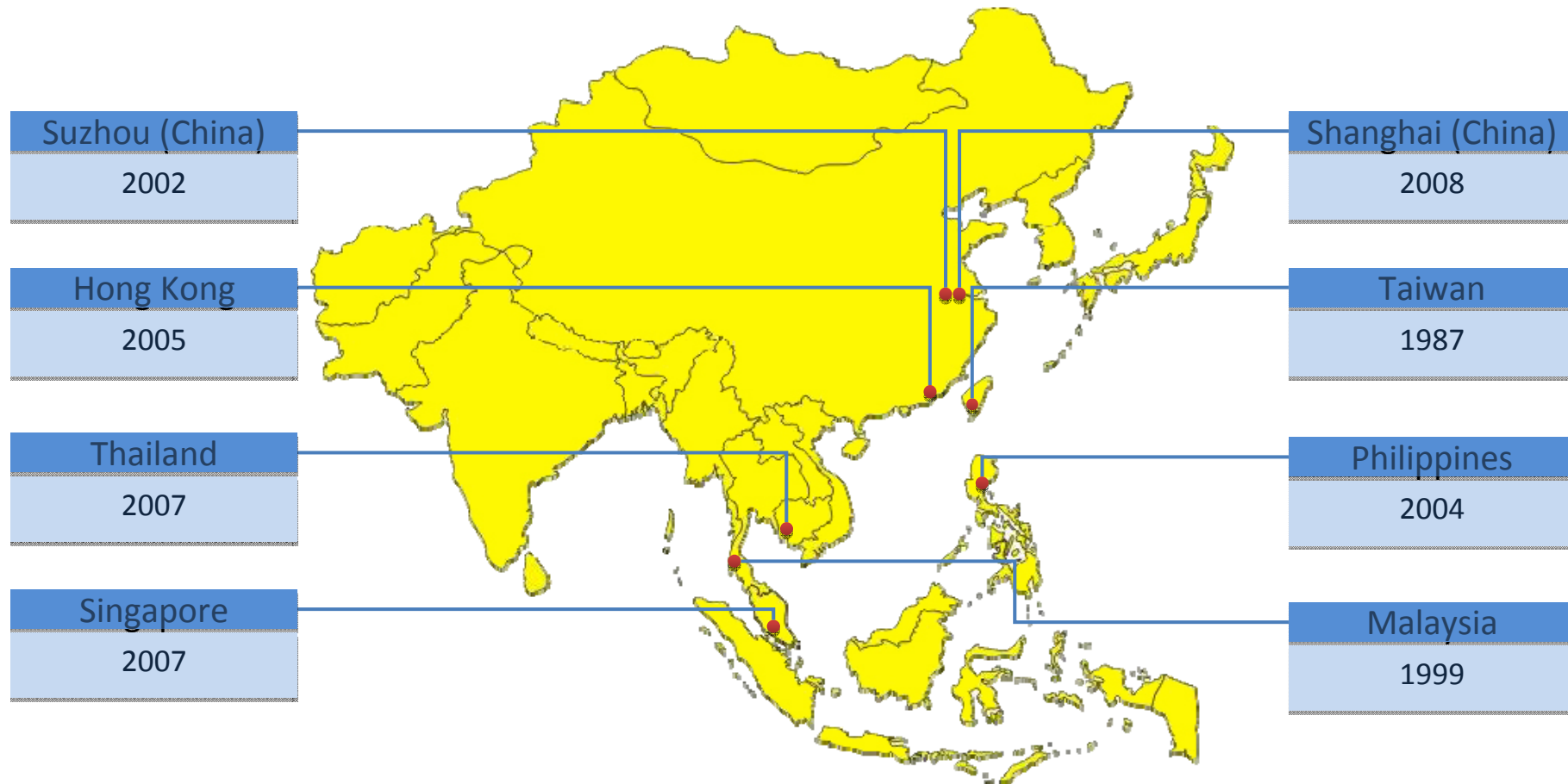
TMC plant - 倉儲區



產業版圖遷移及拓展 -1

- 為降低製造成本, 各跨國企業紛紛將工廠移至亞洲.
Manufacturers moved to Asia
- **1999, TMC 亟需重新定位**
TMC needs to re-position ourselves
 - ✓ 商機 (Opportunities) : 善用長期以來建立的商譽與客戶的信任
 - ✓ 使命 (Missions) : 以宣揚環保理念,造福地方的心情前往亞洲個鄰國設立分廠

跟隨客戶足跡至亞洲各國



<http://www.tmc-metal.com>

TMC

Taiwan Office



TMC Taiwan Plant



TMC Malaysia Plant



TMC Suzhou (China) Plant



TMC Philippines plant



TMC Hong Kong plant



TMC Shanghai (Shanghai) plant



TMC Thailand plant



TMC Singapore warehouse



產業版圖遷移及拓展-2

TMC Group 策略：

- 堅持各分廠的環保設備規格
Maintain our machine standards
- 慎選各分廠的領導幹部
Choose our management team
- 傳承公司文化及經營理念
Persist our value and culture

TMC Taiwan Certificate - ISO14001 & OHSAS18001



CERTIFICATE 

**Management system as per
ISO 14001 : 2004**

In accordance with TÜV NORD CERT procedures, it is hereby certified that
TAIWAN MAY CHIA METAL CO., LTD. 
 Ta-Fa Industrial District, Kaohsiung Hsien,
 Taiwan, Republic of China

applies a management system in line with the above standard for the following scope

Recycling and Processing of Metal Scrap

Certificate Registration No. 04 104 000031 Audit Report No. 2.5-3768/2010	Valid until 2013-02-08 Initial Certification 2000
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 Certification Body
 at TÜV NORD CERT GmbH

Hong Kong, 2010-02-09

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarkstrasse 20 45141 Essen www.tuev-nord-cert.com


TGA-ZM-07-05-00

ROC: FE3768, RC 0172, 0240-B

CERTIFICATE
 TÜV ASIA PACIFIC LIMITED
 hereby certifies that


TAIWAN MAY CHIA METAL CO., LTD.
 Ta-Fa Industrial District, Kaohsiung Hsien, Taiwan,
 Republic of China

has established and applies an Occupational Health & Safety
 Management System for

Recycling and Processing of Metal Scraps

An audit was performed, Report No. : **2.5-3768/2007**
 Proof has been furnished that the requirements according to

OHSAS 18001 : 2007

are fulfilled.

The certificate is valid until 01 March 2013
 Certificate Registration No: **2007004**

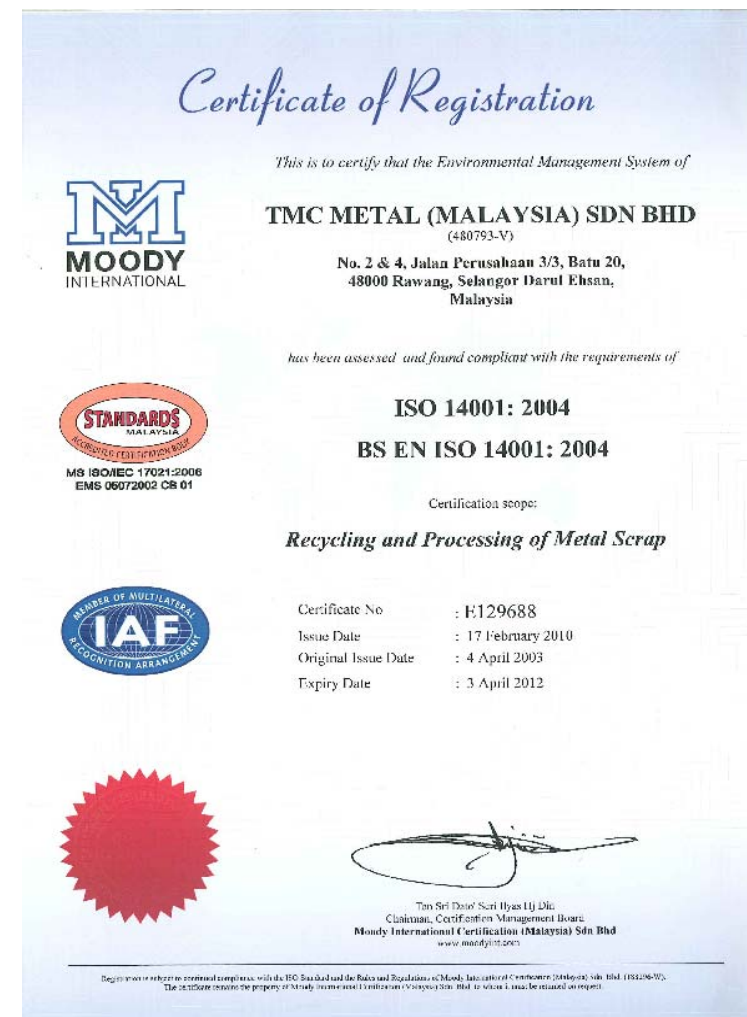

 Taipei, 02.03.2010


 Certification Body
 TÜV Asia Pacific Ltd.

TMC Taiwan Certificate - ISO 9001



TMC Malaysia Certificate - ISO14001



TMC Suzhou -ISO 14001 certificate



TMC Suzhou-ISO 9001 certificate



TMC HK Certificate -ISO 9001 & ISO14001

 <p>DET NORSKE VERITAS MANAGEMENT SYSTEM CERTIFICATE</p> <p>Certificate No. 98296-2011-AQ-RGC-RvA</p> <p><i>This is to certify that</i></p> <p>TMC Metal (Hong Kong) Limited</p> <p>2/F., Block 4, Nan Fung Industrial City, No. 18 Tin Hau Road, Tuen Mun, NT, Hong Kong</p> <p><i>has been found to conform to the Management System Standard:</i></p> <p>ISO 9001:2008</p> <p><i>This Certificate is valid for the following product or service ranges:</i></p> <p>Recycling and Processing of Metal Scrap</p> <p><i>Initial Certification date:</i> June 10th, 2011</p> <p><i>This Certificate is valid until:</i> June 10th, 2014</p> <p><i>The audit has been performed under the supervision of</i> Nicholas Fong Lead Auditor</p> <p><i>Place and date:</i> Shanghai, June 14th, 2011</p> <p><i>for the Accredited Unit:</i> DNV CERTIFICATION B.V., THE NETHERLANDS</p> <p> Chen Yi Management Representative</p> <p><small>Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid. DET NORSKE VERITAS CERTIFICATION B.V., Zeehavenweg 1, 2994 LB Borsodrecht, The Netherlands, TEL: +31 10 202 400 - www.dnv.com / www.dnv.nl</small></p>	 <p>DET NORSKE VERITAS MANAGEMENT SYSTEM CERTIFICATE</p> <p>Certificate No. 98297-2011-AE-RGC-RvA</p> <p><i>This is to certify that</i></p> <p>TMC Metal (Hong Kong) Limited</p> <p>2/F., Block 4, Nan Fung Industrial City, No. 18 Tin Hau Road, Tuen Mun, NT, Hong Kong</p> <p><i>has been found to conform to the Management System Standard:</i></p> <p>ISO 14001:2004</p> <p><i>This Certificate is valid for the following product or service ranges:</i></p> <p>Recycling and Processing of Metal Scrap</p> <p><i>Initial Certification date:</i> June 10th, 2011</p> <p><i>This Certificate is valid until:</i> June 10th, 2014</p> <p><i>The audit has been performed under the supervision of</i> Nicholas Fong Lead Auditor</p> <p> Chen Yi Management Representative</p> <p><small>Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid. DET NORSKE VERITAS CERTIFICATION B.V., Zeehavenweg 1, 2994 LB Borsodrecht, The Netherlands, TEL: +31 10 202 400 - www.dnv.com / www.dnv.nl</small></p>
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環保獎 - Taiwan EPA Awards

1998



ISO 14001
Excellent Environmental
Management Performance



1998



Excellency of
Environmental
Protection

環保獎 - Taiwan EPA Awards

2004



Excellent Plant of Industrial Waste for Treatment ,Reduction and Recycling

環保獎 - Suzhou (China) EPA Awards

2006



2008



2007



2010



2011

環保獎 – Thailand EPA Award

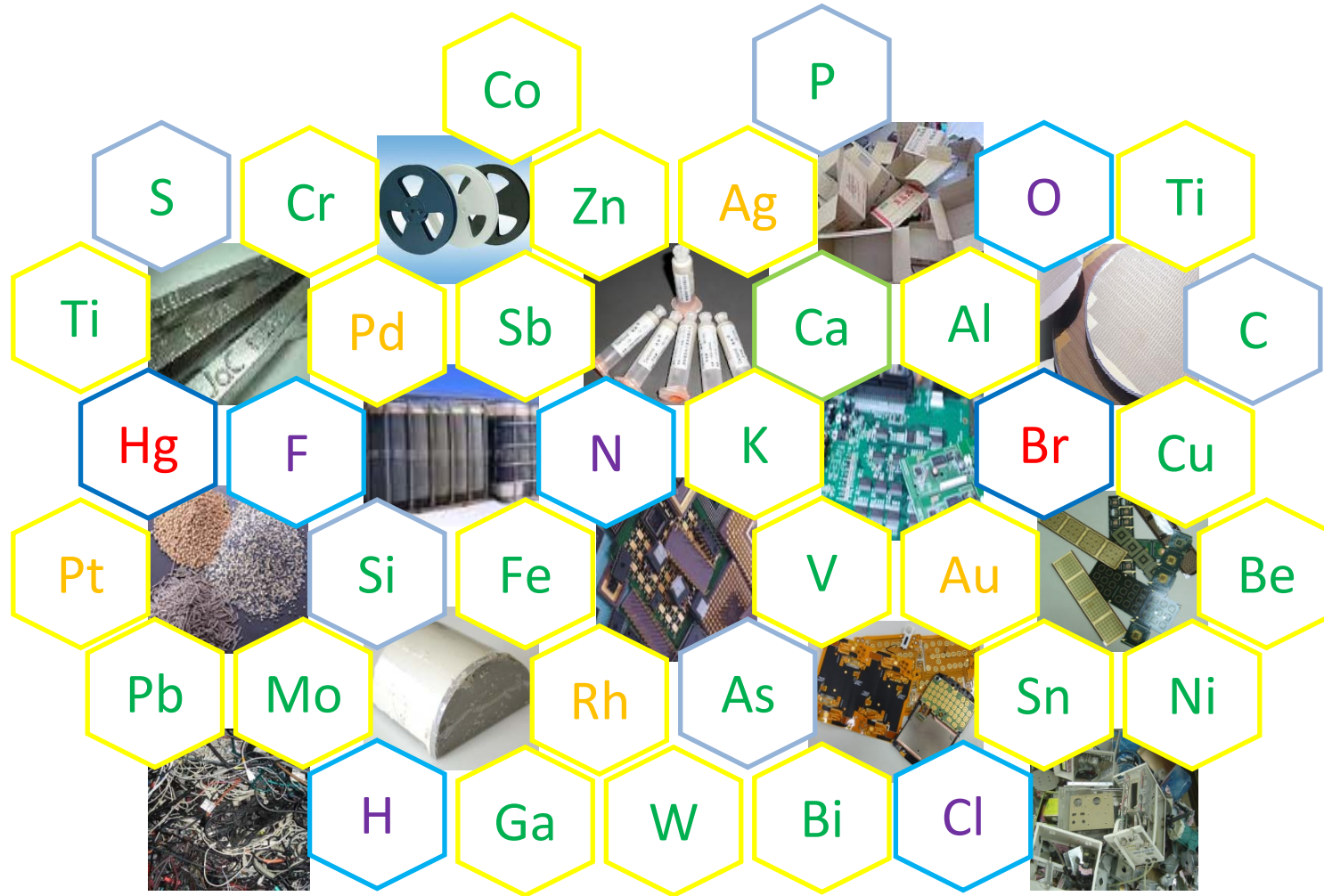


客戶觀念的改變

- 早期 - 賺錢為優先, 並無明顯環保意識 (視同一般商品, 價高者得標)
- 中期 - 到注重形象, 願意支付分攤TMC環保回收成本
- 近期 - 為減少廢料回收成本, 設計(**design-in**)可回收材料

客戶觀念的改變

開始使用特殊材料, 增加環保回收的複雜度及困難度 ...



客戶肯定: Customer Awards – Texas Instrument



1993
Supplier Appreciation Award



2000
Supplier Excellence Award



2002
Supplier Excellence Award



1999
Supplier Excellence Award



2001
Supplier Excellence Award



2007
Supplier Excellence Award

客戶肯定:

Customer Awards - tsmc & UMC

1998



TSMC

1999



UMC

展望未來 Vision

- 自然資源有限
- 台灣企業在電子廢料回收的發展利基
Pro & Cons of e-waste recycling for Taiwanese companies
- 政府可以扮演的角色
What we could possibly expect from Taiwan government

展望未來 Vision

自然資源有限

採金挖礦該到地底
下幾... ..公里???

How deep can we go?



總不能這樣找礦吧?!
Try this?



都會採礦是今後產業發展的必然驅勢

- ✓ Recycling is our solution
- ✓ Particularly Urban Mining



Vision

Pro & Cons of e-waste recycling for Taiwanese companies

－ 台灣企業在電子廢料回收的發展利基 (Advantages)

- 金屬冶金人才 Manpower
- 環保處理經驗 Experiences
- 熟悉產業市場 Market
- 客戶長期信任 Reputation

對今後台灣產業環境的期許

- 善用台灣環保產業既有的優勢; 創造產業發展的有利環境
- 鼓勵台灣環保產業, 核心技術根留台灣
- 於巴賽爾公約精神下, 協助鄰國改善環境
(允許輸入少量測試分析用及製程研發用的廢五金樣品申請進口)
- 展現自信, 帶領趨勢, 走在產業的前端.

Thank you

