



OCCUPATIONAL STANDARDS :

An Instrument In Self Regulating The Green Economy

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Department of Skills Development



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- Background of DSD
- National Occupational Skills Standard
- NOSS in Green Job
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Background of DSD



1971

LLPPKK

Lembaga Latihan
Perindustrian dan
Persijilan Ketukangan
Kebangsaan – LLPPKK
(National Industrial
Training And Trade
Certification Board –
NITTCB)



2nd MAY 1989

MLVK

- Reorganization of LLPPKK
- To summarize, coordinate and promote strategies and skills training programme in line with the economic growth of the country

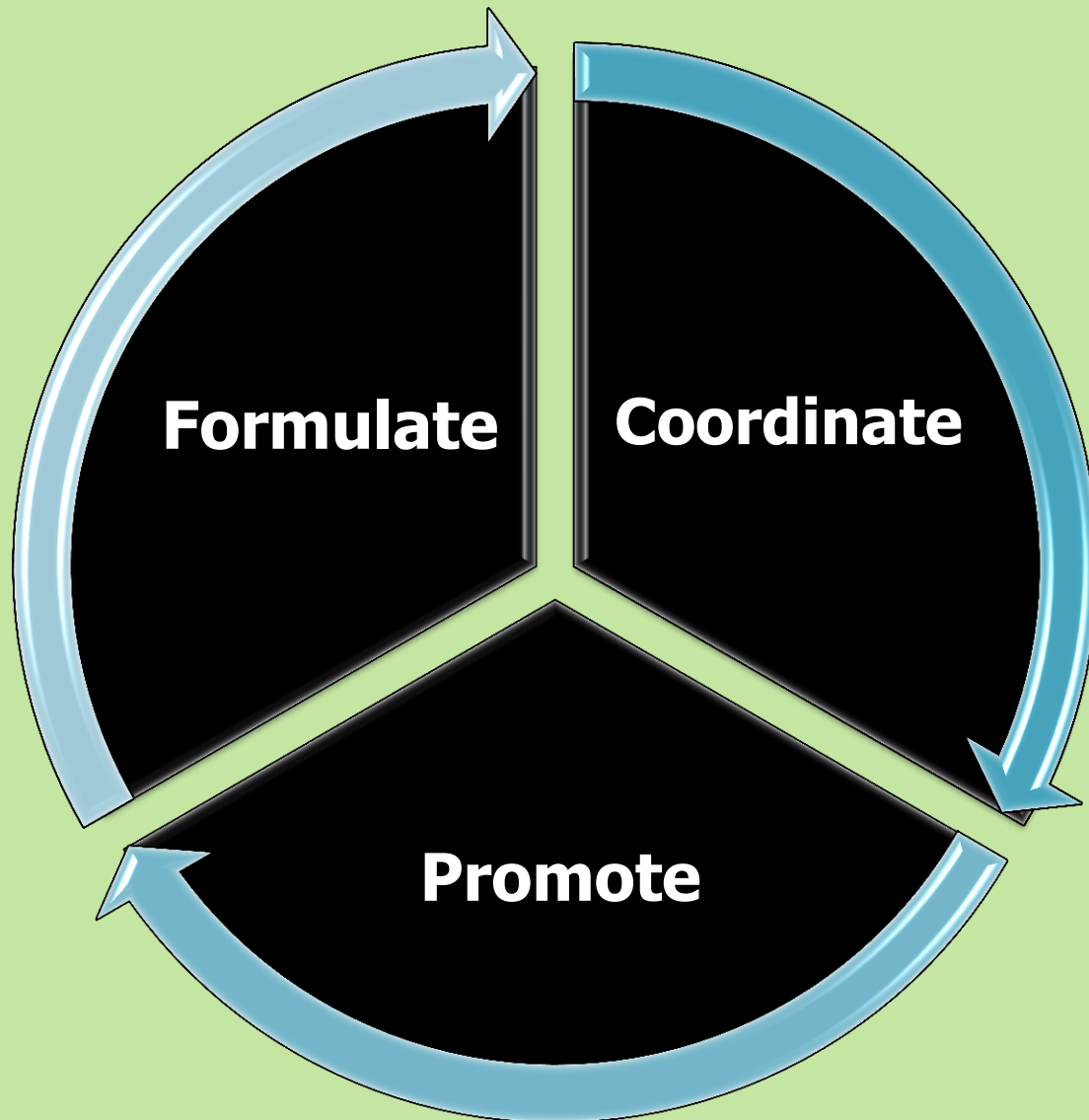


1st SEPT 2006

JPK

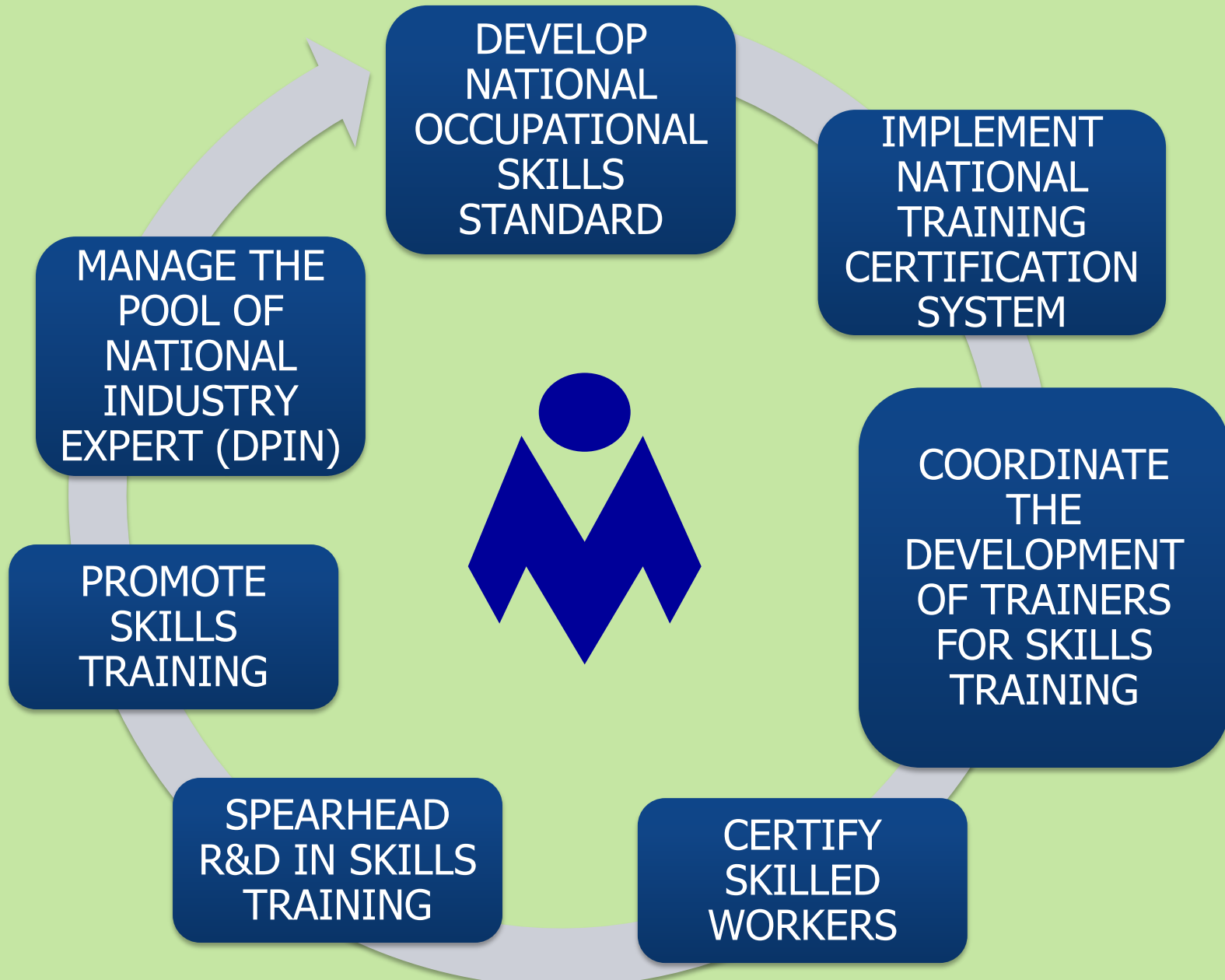
- National Skills Development Act- Act 652 (NASDA)

Roles of DSD

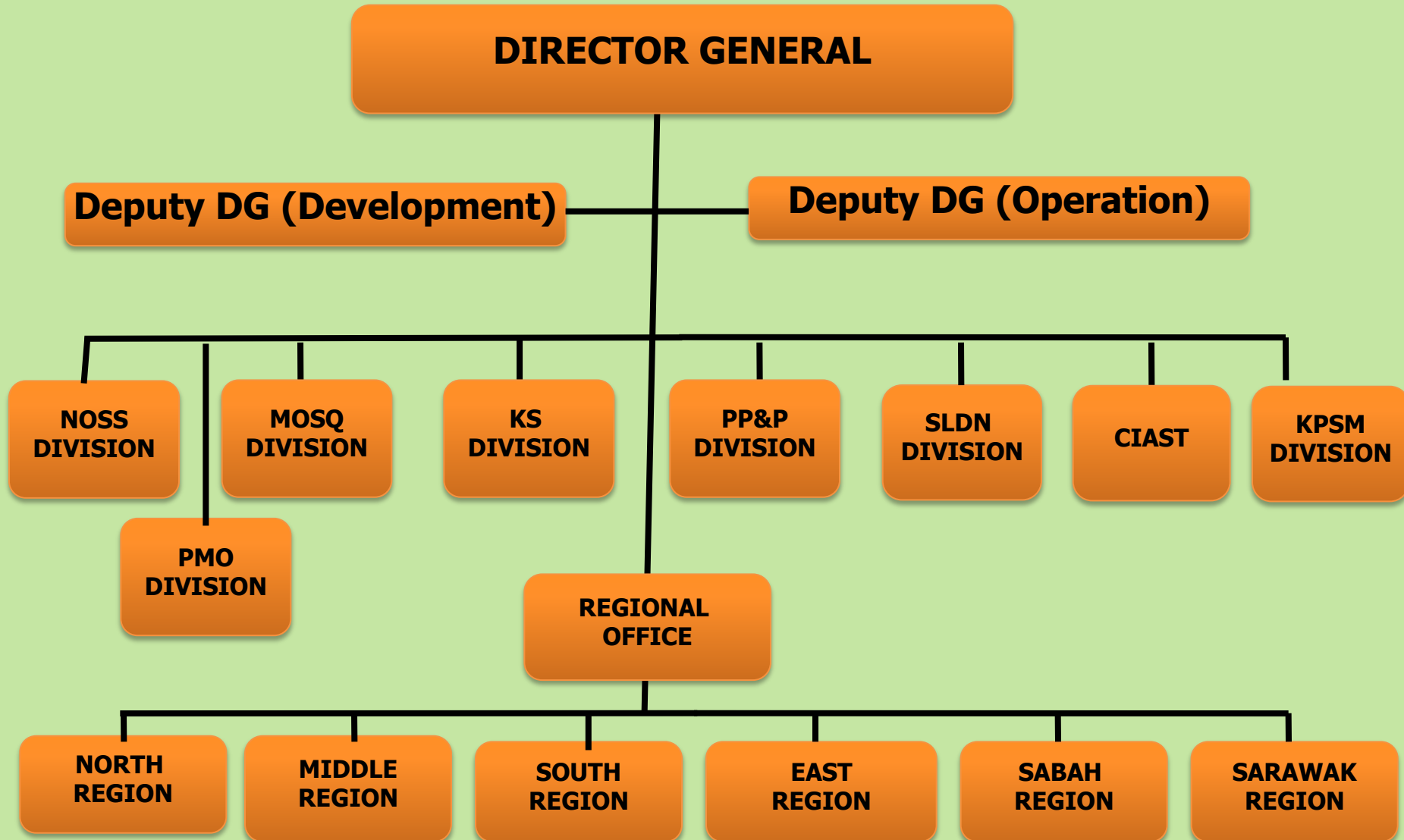


**skills training in
Malaysia**

Functions



Organization Chart



Questions to HR Managers

Do you need to retrain the workers to achieve the targeted performance ???

How to achieve service performance???

Do you

NOSS

Can you benchmark our worker skills to ensure their competence?

Are your workers competent enough to fulfill related standards and regulation??



What is NOSS?

A document which sets out the minimum specifications of skilled workers



Applications of NOSS

TRAINING WORLD

- Preparation of training and learning material
- Training Needs Analysis
- Assessment
- Certification



WORKING WORLD

- Hiring of Workers / Basis of wage structure
- Work Counselling
- Worker's Performance Assessment / Evaluation
- Job Description
- Career Development / Planning





NOSS STRUCTURE



The 5 levels of certification which reflects the career paths and occupational structure which covers the knowledge, skills and attitudes.

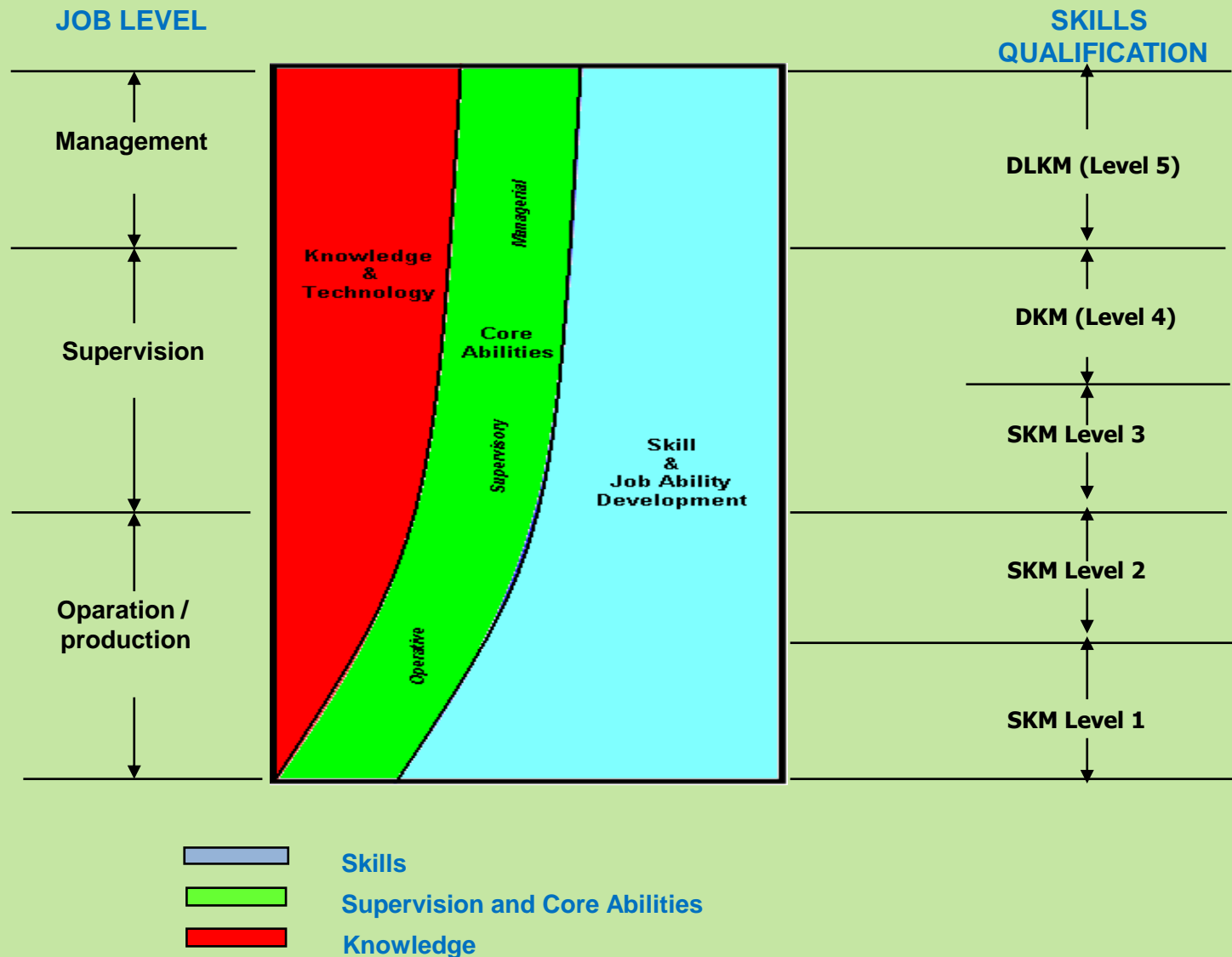
Diploma Lanjutan
(DLKM)

Diploma (DKM)

Sijil (SKM 3)

Sijil (SKM 1)

Malaysia Skills Certification System





MALAYSIA QUALIFICATIONS FRAMEWORK(MQF)

Level MQF	Sectors in MQF			Life Long Learning
	Skills	Vocational & Technical	Higher Education (Academic/Professional)	Accreditation of Prior Experiential Learning APEL
8			Doctoral Degree	
7			Masters Degree	
			Postgrad Cert/Diploma	
6			Bachelors Degree	
			Graduate Cert/Diploma	
5	Adv Diploma (DLKM)	Advanced Diploma	Advanced Diploma	
4	Diploma (DKM)	Diploma	Diploma	
3	Skills Cert. (SKM) 3	Vocational & Technical Certificate	Certificate	
2	Skills Cert. (SKM) 2			
1	Skills Cert. (SKM) 1			

Definition of Levels (L1-L3)

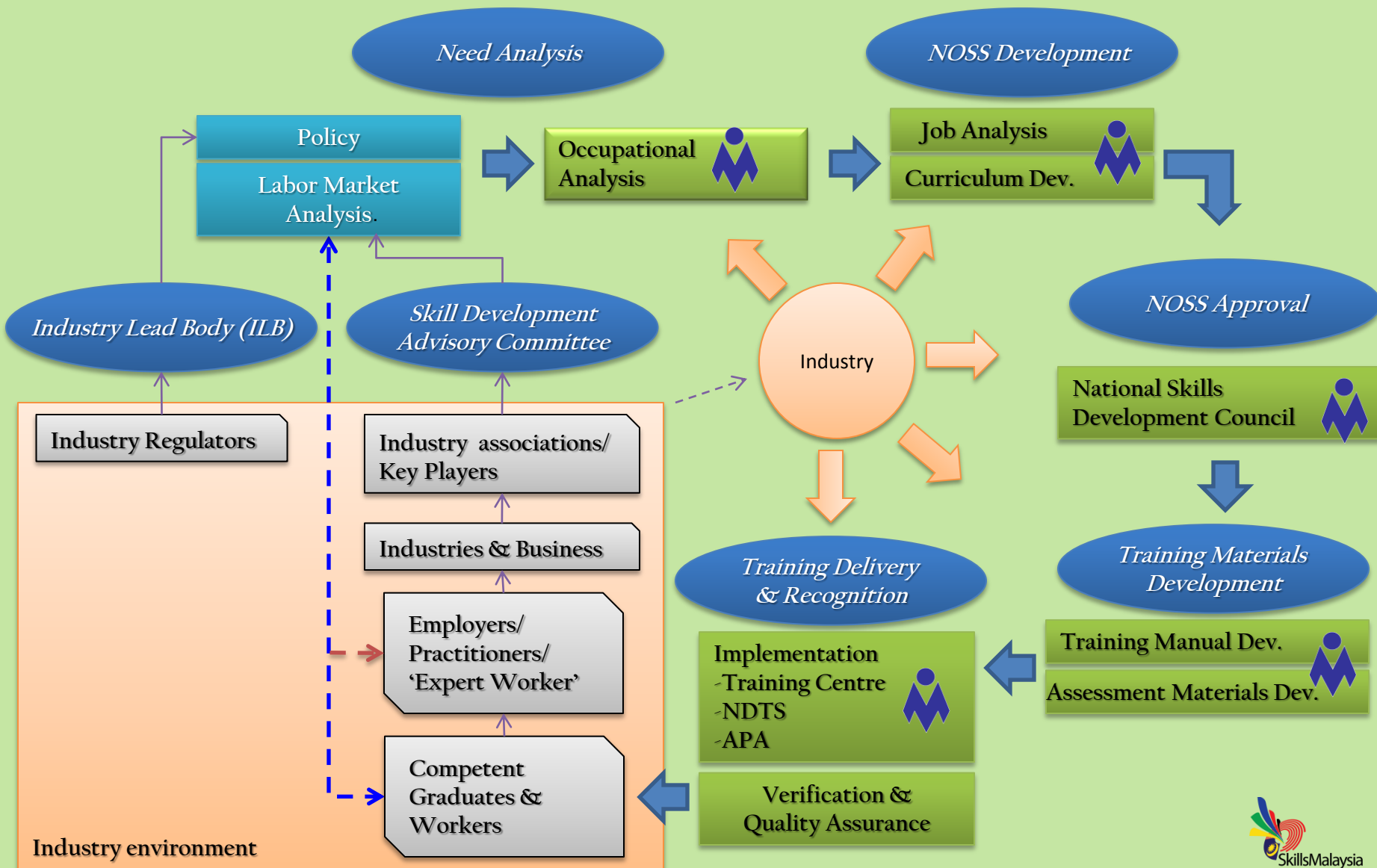
- **Level 1 :** 'Competent in performing a range of varied work activities, most of which are **routine and predictable**'
- **Level 2 :** 'Competent in performing a **significant range** of varied work activities, performed in a variety of context. **Some** of the activity are **non-routine** and required individual responsibility and autonomy'
- **Level 3 :** 'Competent in performing a **broad range** of varied work activities, performed in a variety of context, **most** of which are **complex and non-routine**. There is considerable responsibility and autonomy and control or guidance of others is often required'

Definition of Levels (L4-L5)

- **Level 4 :** 'Competent in performing a broad range of **complex technical or professional** work activities performed in a wide variety of context and with a substantial degree of personnel responsibility and autonomy. Responsibility for the work of others and allocation of resources is often present'
- **Level 5 :** 'Competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of context. Very substantial personal autonomy and often significant **responsibility for the work of others** and for the allocation of substantial resources feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation'



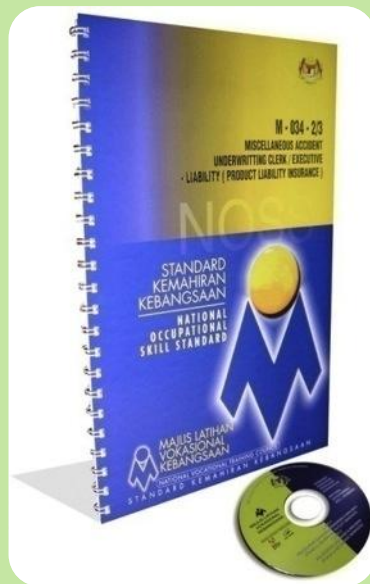
CHAINS OF STAKEHOLDER ENGAGEMENT



NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS)

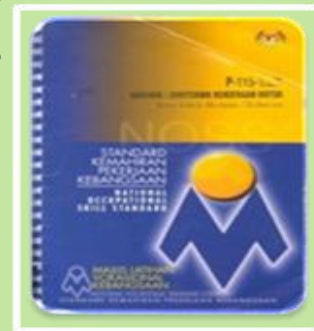
MAIN CHARACTERISTICS

1. BASED ON OCCUPATIONAL REQUIREMENTS
2. DIRECTLY RELATED TO CAREER STRUCTURE OF AN OCCUPATION.
3. DEVELOPED BY INDUSTRIAL PRACTITIONERS AND SKILLED WORKERS WHO DIRECTLY INVOLVE IN THE OCCUPATION.

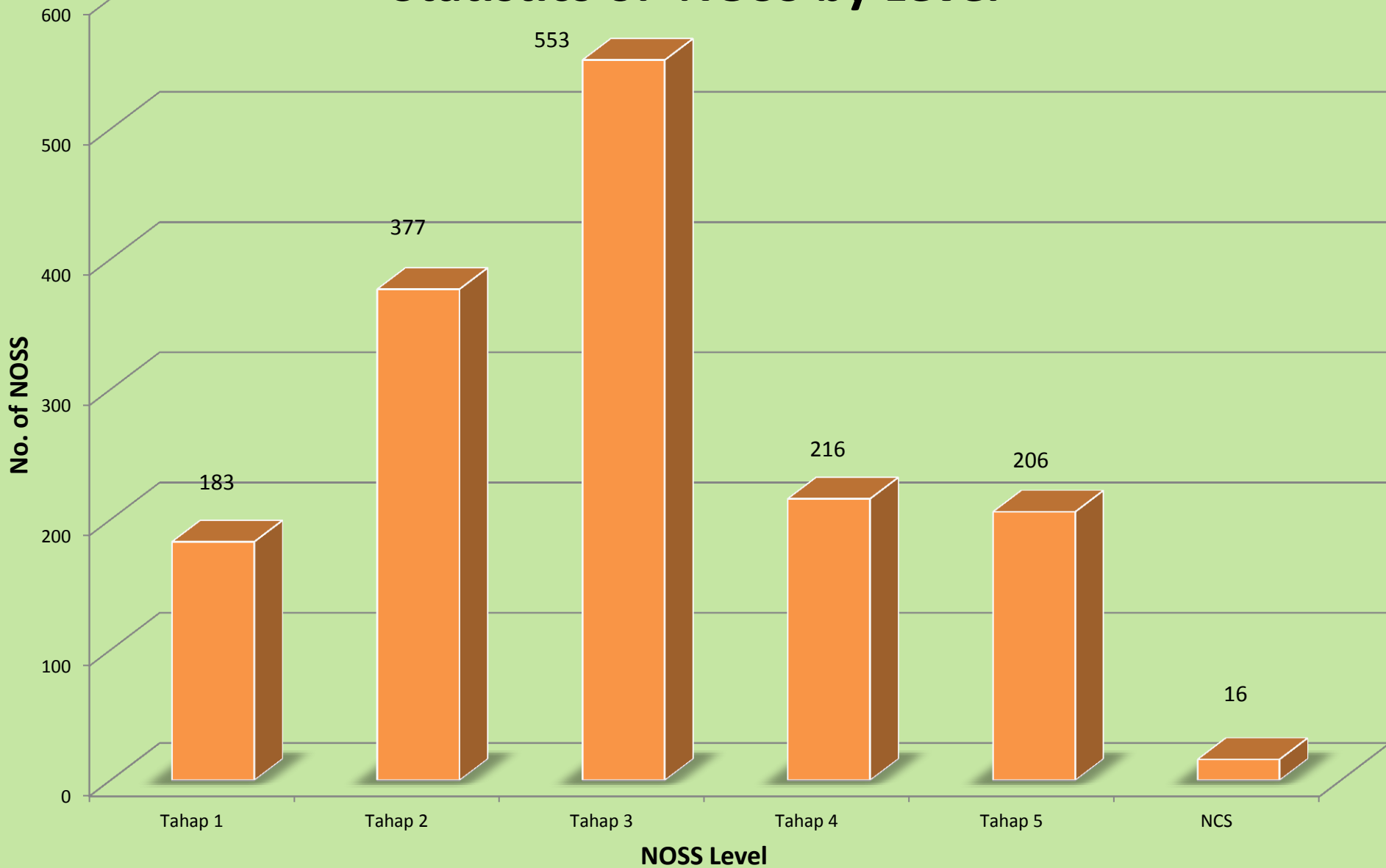


..and the skill sectors covered...

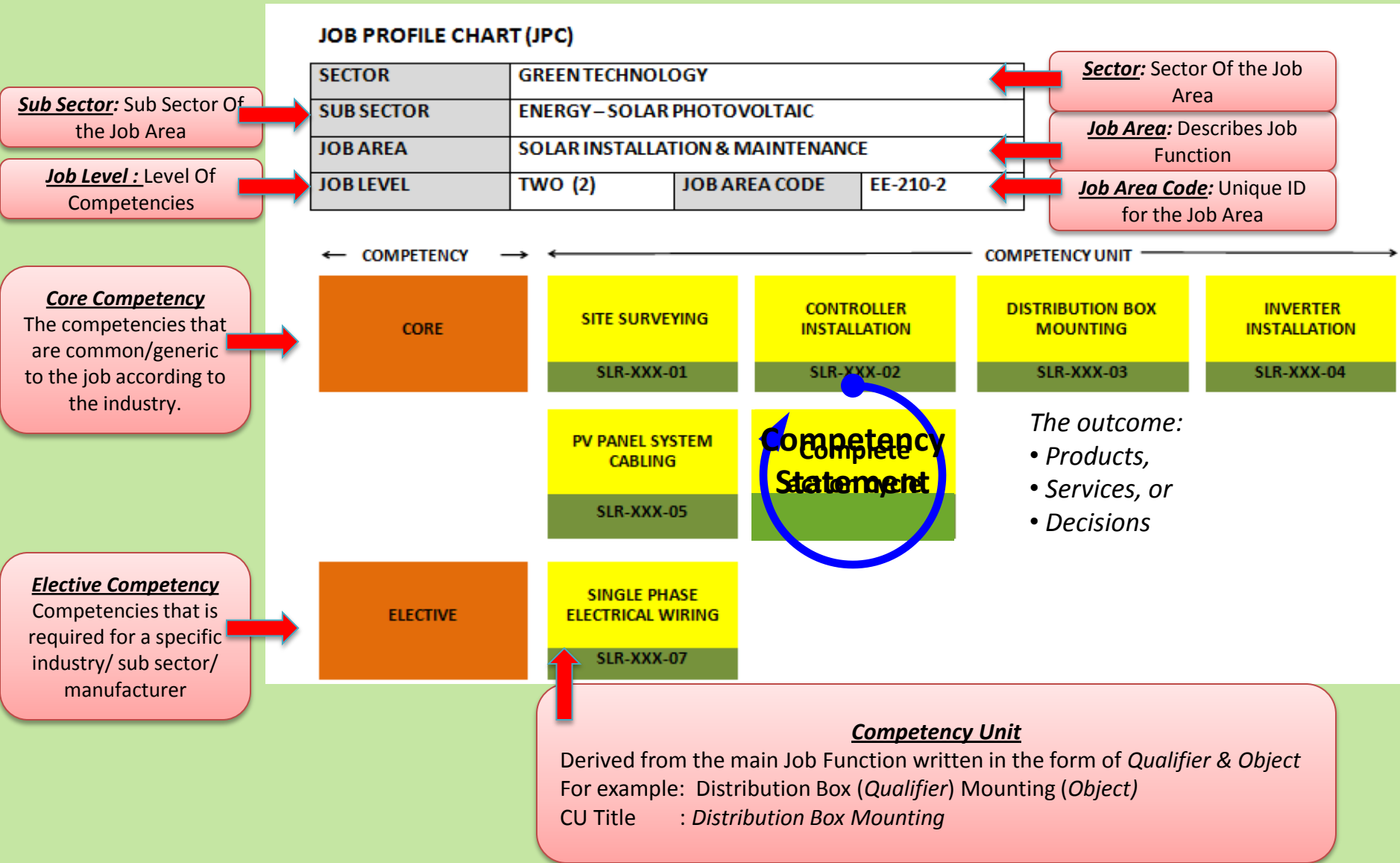
- | | |
|--|-----------------------------------|
| 1) E&E, Telecommunications & Broadcasting | 16) Business Management |
| 2) Information Communication & Technology | 17) Textiles & Apparel |
| 3) Machinery & Equipment | 18) Agriculture & Agro-based |
| 4) Mechanical & Electrical Service Maintenance | 19) Resource-based |
| 5) Transportation | 20) Biotechnology |
| 6) Materials – Metal & Non-Metal | 21) Education & Training Services |
| 7) Packaging | 22) Oil & Gas |
| 8) Printing | 23) <i>Halal</i> Industry |
| 9) Chemical | 24) Integrated Logistics Services |
| 10) Medical & Pharmaceuticals | 25) Distributive Trades |
| 11) Hospitality & Tourism | 26) Defence & Security Services |
| 12) Souvenir & Small Enterprise | 27) Care & Community Services |
| 13) Building & Construction | 28) Arts & Culture |
| 14) Landscaping & Environmental | 29) Mining |
| 15) Interior Decor | |



Statistics of NOSS by Level



Format: SC - Competency Profile Chart (CPC)



Format: SC - Competency Profile (CP)

Sub Sector	ENERGY – SOLAR			
Job Area	SOLAR INSTALLATION			
Level	Two (2)			
CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
1. Site surveying	SLR-XXX-01	Site surveying is to identify the orientation of the solar panel and the location of the equipment according to the regulatory requirements, technical specification and client's requirements. The personnel who are competent in site surveying shall be able to assess possible problems that may occur for the solar photovoltaic installation and	1.1 Identify site survey activities requirements 1.2 Identify site safety assessment criteria 2.1 Plan site survey activities 3.1 Carry out site survey activities 3.2 Carry out safety hazard identification	1.1 Site survey activities checklist and manuals collected 1.2 Site safety assessment criteria listed out 2.1 Site situational condition studied 3.1 Site situational report produced 3.2 Environmental safety hazard noted

CU Descriptor

Abstract of the Competency Unit

CU Work Activities

The Competency Unit is a comprehensive breakdown of each work activity in a work cycle.

Performance Criteria

Specifies the outcomes with regards to the accomplishment of the job function that meets the standard. Each work activity may comprise more than one performance criteria.

Format: CoCu

CURRICULUM of COMPETENCY UNIT (CoCu)

Sub Sector	ENERGY – SOLAR PHOTOVOLTAIC						
Job Area	SOLAR INSTALLATION AND MAINTENANCE						
Competency Unit Title	INVERTER INSTALLATION						
Competency Unit Descriptor	Inverter installation activities are to install the inverter components in accordance with the system design, regulatory requirements and technical specification. The personnel who are competent in the inverter installation shall be able to carry out installation activities including mounting, cabling and inspection of inverter system operation.						
Competency Unit ID	SLR-XXX-04	Level	2	Training Duration	42 Hours	Credit Hours	4
Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria	
1.1 Identify inverter installation requirements and specifications	i. Customer requirements ii. Ventilation requirements iii. Mounting point structural strength iv. Sound and vibration issues v. Source of inverter system installation manual vi. Inverter system installation manual vii. Inverter system installation tools	i. Check customer requirements ii. Check ventilation requirements iii. Check mounting point structural strength iv. Check sound and vibration		3 hours	Lecture	i. Customer requirements listed out ii. Ventilation requirement determined iii. Mounting and cabling tools and equipment determined iv. Mounting point structural strength determined	
				3 hours 30 minutes	Demonstration & Observation		

Training Duration

The minimum training period as to ensure the learner possesses the knowledge and skills to achieve learning outcome.

Credit Hours

1 credit hour = 10 hours training duration (including learning hours (Theory, Practical and etc.)

Training Hours

Training hours is the time taken to perform training activities

Work Activities

States the Work Activity as extracted from the Competency Profile

Related Knowledge

Essential knowledge to perform the work activities

Applied Skills

Skills which include the ability to perform work activities

Assessment Criteria

A list of critical elements to be assessed or will be derived from applied skills to achieve work activity competency

Format: CoCu...continue

Employability Skills	
Core Abilities	Social Skills
01.01 Identify and gather information 02.01 Interpret and follow instructions 02.04 Prepare brief reports 03.05 Demonstrate safety skills 06.02 Comply with and follow instructions 06.01 Understand system 06.03 Identify and highlight	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Multitasking and problem solving 5. Self-discipline 6. Teamwork

Core Abilities

Core abilities are essential workplace skills that cut across occupational and academic titles.

Social Skills

A social skill is any skill facilitating interaction and communication with others.

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Schematic diagram	1:1
2. Block Diagram	1:1
3. Measuring and Test Instruments	1:1
4. Components/Parts Specification	1:1
5. Equipment Data Book	1:2

Items

Includes a list of major and compulsory tools, equipment and materials required to complete a particular competency unit successfully.

Ratio

A social skill is any skill facilitating interaction and communication with others.

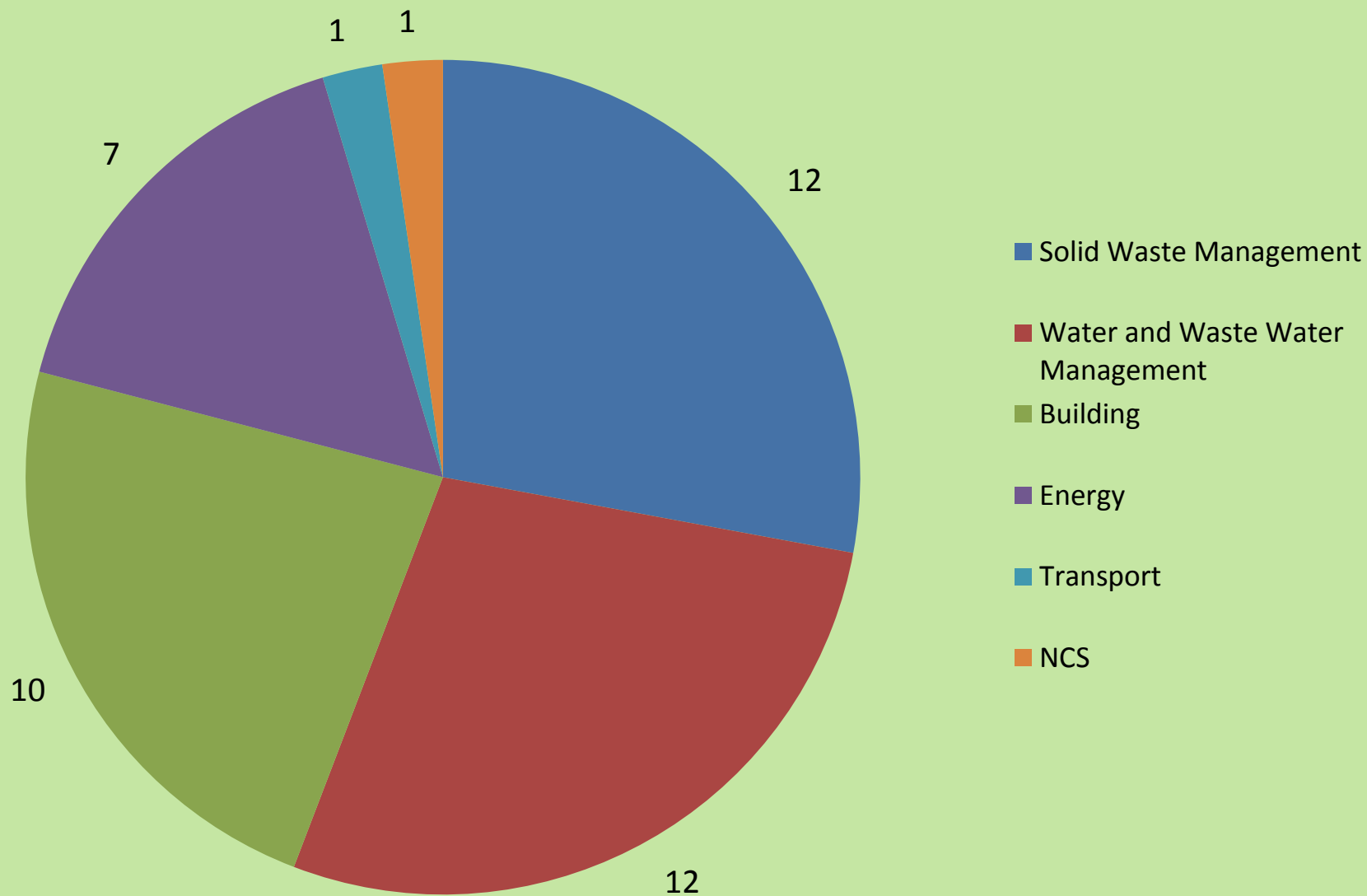
REFERENCES

1. German Solar Energy Society (DGS), Earthscan Publications Ltd. (January 1995), ISBN-13: 978-1844071319
2. Solar Energy International (SEI), New Society Publishers; 1 edition (September 2004), ISBN-13: 978-0866035402
3. Martin A. Green, Springer (December 21, 2005), Third Generation Photovoltaics, ISBN-13: 978-3540265627
4. Richard J. Komp, Aatec Publications; 3 Sub edition (June 1995), Practical Photovoltaics, ISBN-13: 978-0866035402
5. Falk Antony, Earthscan Publications Ltd.; illustrated edition edition (June 2004), ISBN-13: 978-1844074617
6. James P. Dunlop and In partnership with NJATC, Amer Technical Pub (January 1995), ISBN-13: 978-0866035402

List of references are such as:-

- Books
- Manuals
- Journal
- Standard Operation Procedure
- Web site
- Audio Visual Materials
- Acts and Statutory Regulations

No. of NOSS in Green Job



BII	NOSS	KOD	Number of NOSS
AREA : ENERGY			
1	Solar Installation and Maintenance Practitioner	EE-210-23	2
2	Solar Technology Designer	EE-210-45	2
3	Solar Panel Manufacturing Operation (Thin Film Modul)	EE-212-3:2012	1
4	Solar Panel Manufacturing Management	EE-212-45:2012	2

BII	NOSS	KOD	Number of NOSS
AREA : WATER & WASTE WATER MANAGEMENT			
1	Sewage Treatment Supervision	CM-031-23:2014	2
2	Waste Water Treatment Plant Operation Management	CM-031-45:2012	2
3	Industrial Effluent Treatment System (IETS) Operation Supervisor	LE-035-23:2013	2
4	IETS Operations Specialization	LE-035-45:2014	2
5	Scheduled Wastes Operation Supervision	LE-036-23:2013	2
6	Scheduled Wastes Operations Management	LE-036-45:2014	2

BII	NOSS	KOD	Number of NOSS
AREA : SOLID WASTE MANAGEMENT			
1	Solid Waste Collection Operation Supervision	LE-031-23:2012	2
2	Solid Waste Collection and Public Cleansing Operation Management	LE-031-45:2012	2
3	Public Cleansing Operation Supervision	LE-033-23:2012	2
4	Solid Waste Collection Truck Operation	LE-032-2:2012	1
5	Public Cleansing Mechanical Operation	LE-034-2:2012	1
6	Solid Waste Facility Supervision	LE-037-23:2014	2
7	Solid Waste Facility Management	LE-037-45:2014	2

BII	NOSS	KOD	Number of NOSS/NCS
AREA : BUILDING			
1	Energy Audit Data Measurement	LE-030-3:2012	1
2	Energy Audit Management	LE-030-45:2012	2
3	Green Building Consultation and Management	LE-040-5:2012	1
4	Hygiene Supervision	HT-070-23:2014	2
5	Hygiene Operation Management	HT-070-45:2012	2
6	Industrial Air Pollution Control System Supervision	LE-038-23:2014	2

BII	NOSS	KOD	Number of NOSS/NCS
AREA :TRANSPORTATION			
1	Natural Gas For Vechicle(NGV) Installation & Maintenance	TP-303-3:2012	1
NCS			
1	Green Technology Compliance	Z-050	1
TOTAL			43

‘Way forward?’



CERTIFICATION APPROACH

Institutional based training

Accreditation of training centre

Industry-driven

National Dual Training System (NDTS)

**MALAYSIAN
SKILLS
CERTIFICATE**

Worker Initiative

Accreditation of Prior Achievement (APA)



Benefits of Malaysian Skills Certification

**Meets Industry
requirements**

**Provide career path
and self development
equal to academics
qualification**

Produced qualified and
well trained workers to
increase
competitiveness
globally

Contact Details

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(KEMENTERIAN SUMBER MANUSIA)

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TERIMA KASIH