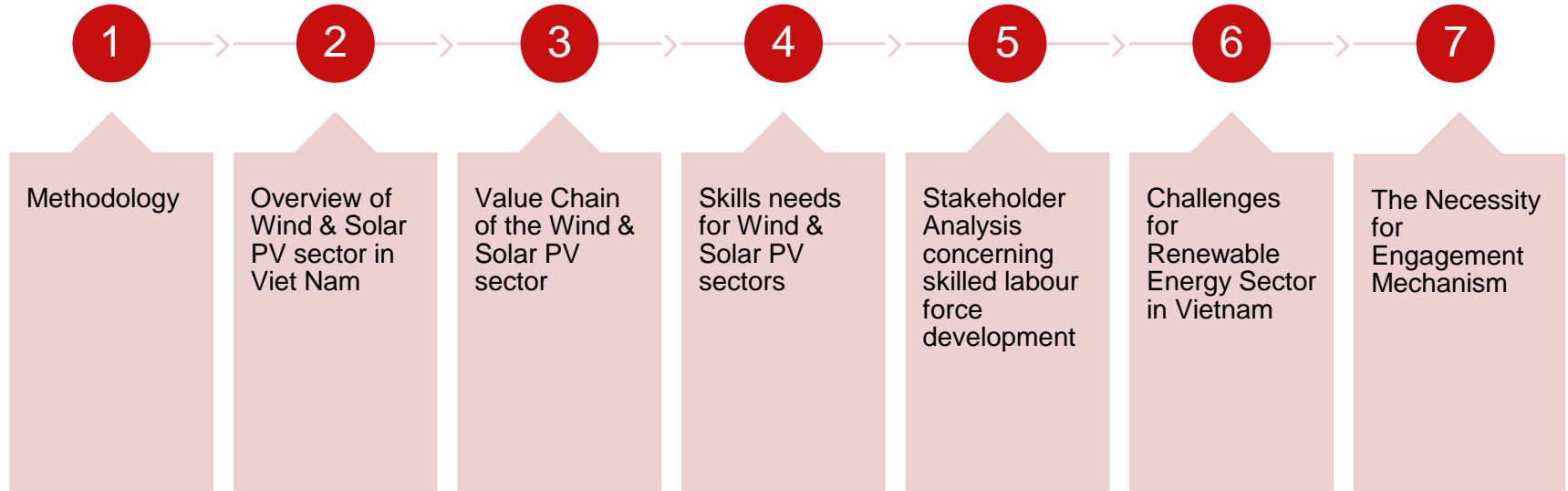




Key Findings: Stakeholder Mapping for Renewable Energy Sector - Wind and Solar PV

Ms. Nguyen Hung Thao - Mr. Nguyen Giao Hoa

CONTENT



METHODOLOGY

Desk research on business, institution, and relating agencies on RE globally and in Vietnam

Analysis of value chain and stakeholders to assess impact on HR development for RE in VN

Interviews with stakeholders with high impact on HR for RE in Vietnam. Identifying their challenges related to HR.

Analysis of interview results and suggestion of a working mechanisms to improve HR for all stakeholder.

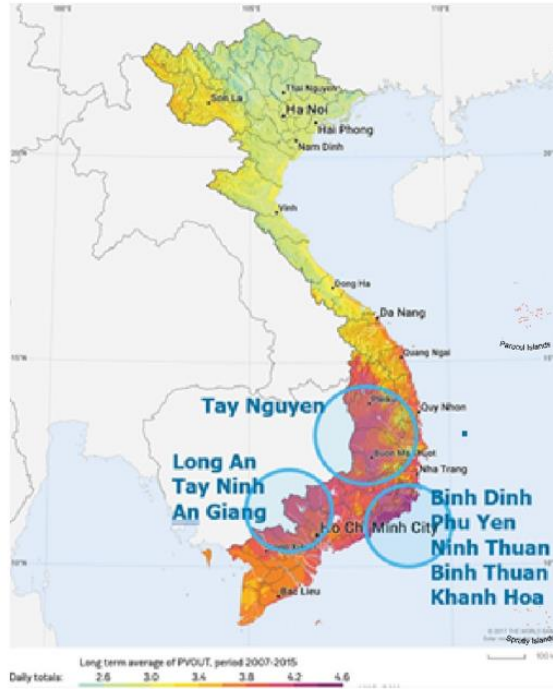
LIMITATION

- Qualitative study, not quantitative
- Methodology based on desk review and Key In-depth Interviews
- Lack of secondary data related to RE
- Size of sample is limited
- Focus was on vocational training and less on higher education

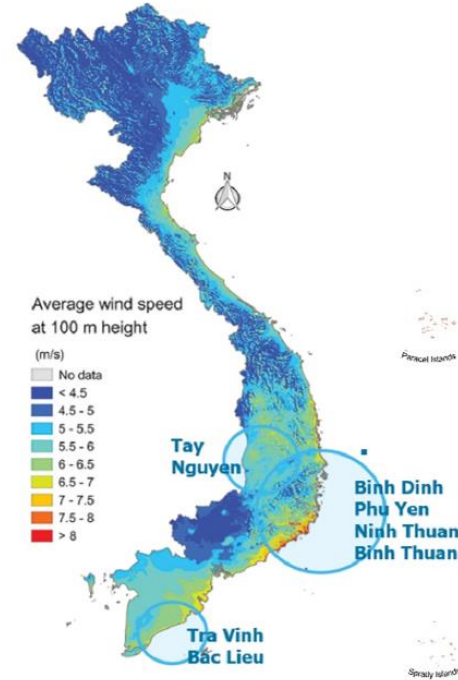
A landscape photograph featuring several white wind turbines standing on a hill. The foreground is a golden-brown field with several large, cylindrical hay bales. Behind the field is a dense line of green trees. In the background, a blue body of water is visible under a clear sky with some light clouds. The title text is overlaid in the center of the image.

Overview of Wind and Solar PV sector in Vietnam

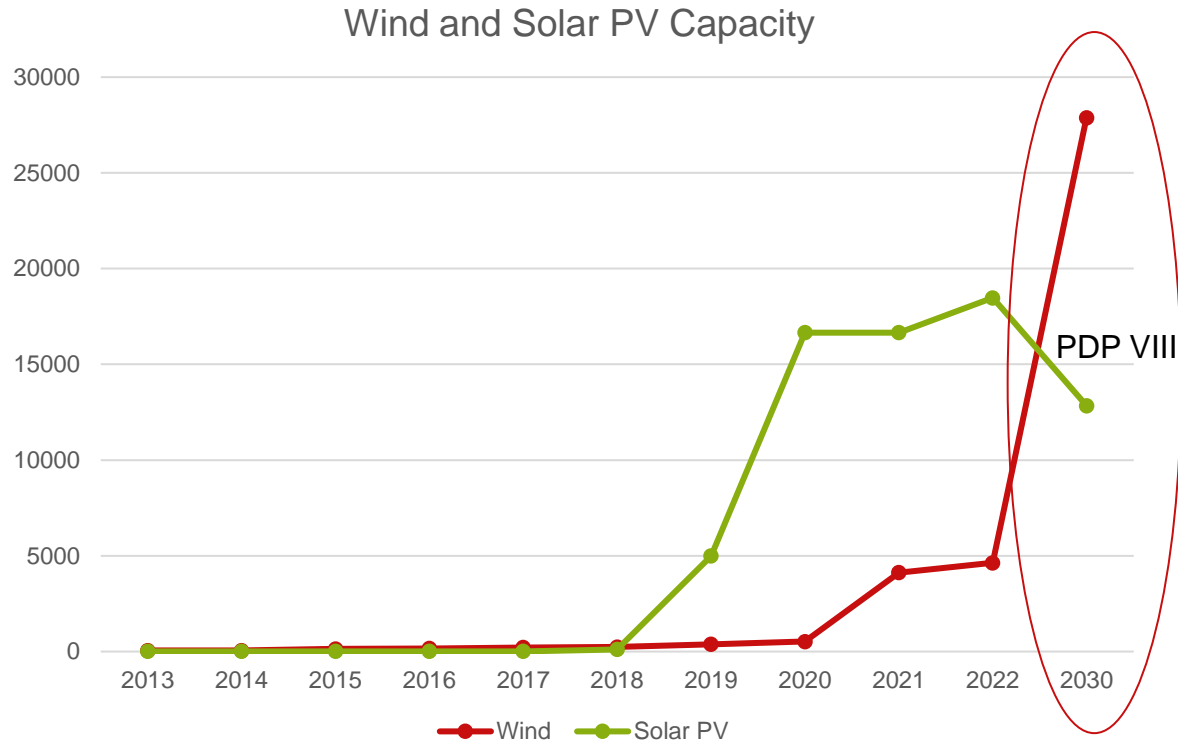
Potential areas for wind and solar PV power in Viet Nam



Province with Solar PV Potential in Viet Nam



Province with Wind Potential in Viet Nam



In 20230, total capacity
On-shore wind: 21.88 GW
Off-shore wind: 6.00 GW
Solar PV: 12.84 GW

Source: PDP VIII, and IRENA statistic 2022.

Total power capacity of Vietnam in 2030










Power Source	Capacity (MW)	Percentage of Total Capacity
Onshore Wind Power	21,880	14.50%
Offshore Wind Power	6,000	4.00%
Solar Power	12,836	8.50%
Biomass Power and Waste-to-Energy	2,270	1.50%
Hydropower	29,346	19.50%
Pumped-storage Hydropower	2,400	1.60%
Energy Storage	300	0.20%
Cogeneration, Waste Heat, Blast Furnace Gas, and By-products of Technology Lines in Industrial Zones	2,700	1.80%
Coal-fired Thermal Power	30,127	20.00%
Domestic Gas-fired Thermal Power	14,930	9.90%
LNG-fired Thermal Power	22,400	14.90%
Flexible Power Sources	300	0.20%
Imported Electricity	5,000	3.30%
Total Capacity	150,489	

Source: PDP VIII








A network diagram is shown on a white background. It consists of several small, round, colorful beads (blue, green, yellow, and red) that are pinned to the surface with thin metal pins. These pins are interconnected by a network of thin, brown, braided string, creating a web-like structure. The text "Value Chain of the Wind and Solar PV Sector" is overlaid in the center of the image.

Value Chain of the Wind and Solar PV Sector

Wind

Stakeholders present in Vietnam				Most companies in Vietnam in construction, transportation, O&M and environmental fields		EVN	Government, MoIT, MoLISA	Local people, government	School, MoIT, MoLISA	Bank, Fund	NGO, agencies
Phase 1 	Raw Material Extraction	x	x			 (Ctrl) -	x	x	x		
Phase 2 	Component Manufacturing	x	x				x	x	x		
Phase 3 	Site Preparation			x			x	x	x	x	
Phase 4 	Construction, Logistics, and Transportation			x	x		x	x	x		x
Phase 5 	Installation, Testing and Commissioning			x	x		x	x	x		x
Phase 6 	Sales, marketing, and customer service			x			x	x	x		x
Phase 7 	Operation, Transmission, Distribution and Maintenance			x		x	x	x	x		x
Phase 8 	Decommission			x	x	x	x	x	x		X

Solar PV

Stakeholders present in Vietnam		Mostly for export		Most companies in Vietnam in construction, transportation, O&M and environmental fields			EVN	Government, MoIT, MoLISA	Local people, government	Schools, MoIT, MoLISA	Bank, Fund	NGO, agencies
Phase 1 	Raw Material Extraction	x	x					x	x	x		
Phase 2 	Component Manufacturing	x	x					x	x	x		
Phase 3 	Site Preparation			x				x	x	x	x	
Phase 4 	Installation, testing, and commissioning			x	x			x	x	x		x
Phase 5 	Sales, marketing, and customer service			x				x	x	x		x
Phase 6 	Operation and Maintenance			x		x	x	x	x	x		x
Phase 7 	Decommission			x	x	x		x	x	x		x



Skills Needs for Wind and Solar PV Sectors

Technical Skills	
Electrical Systems	Knowledge of electrical systems and components used in RE systems
Mechanical Systems	Understanding of mechanical systems and components in RE systems
Troubleshooting Skills	
Repair	Knowledge of repair techniques for equipment and systems
Maintenance	Understanding of maintenance requirements for equipment and systems
Safety and Compliance Skills	
Health and Safety Regulations	Knowledge of health and safety regulations related to installation, operation, and maintenance of wind and solar PV energy systems
Environmental Regulations	Understanding of environmental regulations related to RE systems
Industry Standards	Knowledge of industry standards related to RE systems



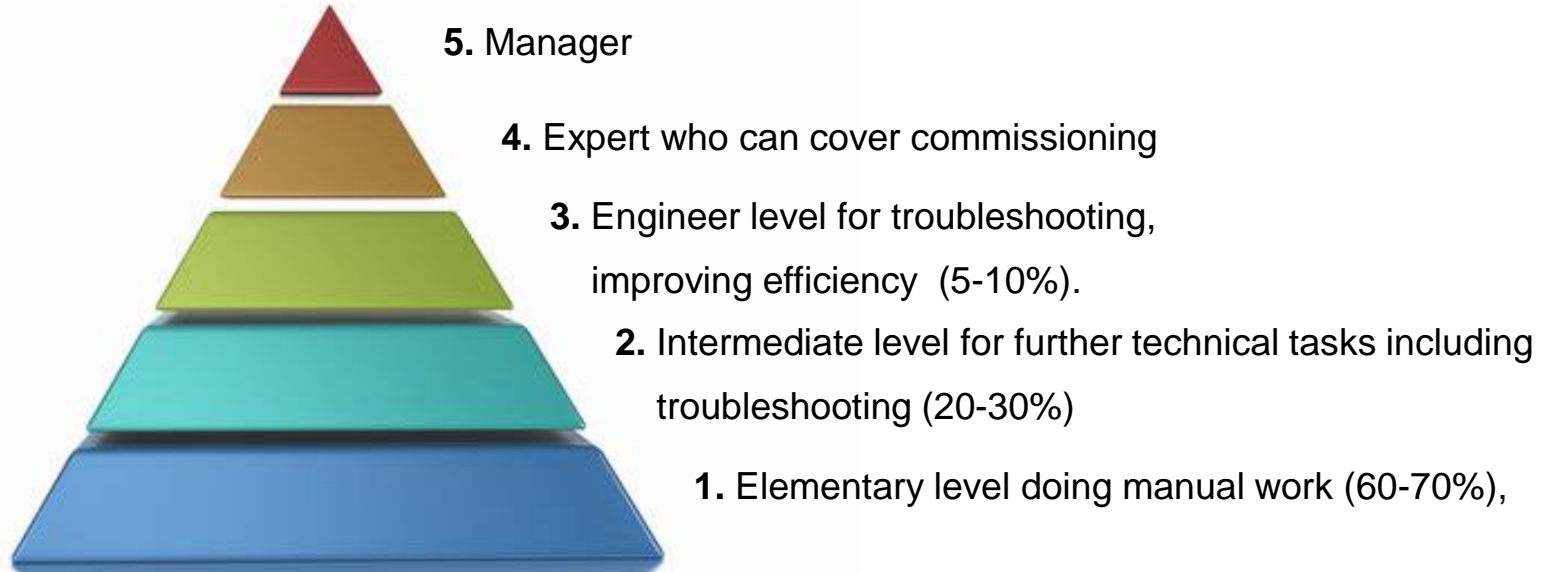
Project Management Skills	
Project Planning	Ability to plan and organize wind and solar PV energy projects
Budgeting	Understanding of budgeting and financial management for RE projects
Risk Management	Ability to identify and mitigate risks associated with RE projects
Stakeholder Engagement	Knowledge of methods for engaging stakeholders in RE projects
Business Skills (Companies need workers with business skills to understand the economic and financial aspects of wind and solar PV energy projects. This includes skills in financial management, marketing, and business development.)	
Communication and Collaboration Skills	Effective communication and collaboration to work effectively with others. Good people skills, work collaboratively in teams, and communicate technical information to non-technical stakeholders.
Analytical and Problem-Solving Skills	Analyze data, identify problems, and develop solutions. This includes skills in data analysis, modelling, and simulation.
Innovation and Creativity	Workers need to be able to think creatively and develop innovative solutions to challenges.
Adaptability and flexibility	To be able to adapt to modern technologies, work practices, and regulations. This requires a willingness to learn and a flexible approach to work
Digital skills	Need to have digital literacy skills (software usage and tools for data collection, monitoring, and analysis).
Gender-sensitive skills	To ensure that women are included and empowered in RE sectors

Skills demand in RE in Viet Nam

- Currently, jobs are mostly on Operation and Maintenance (O&M), few on design and development.
- Most of major equipment and machinery are imported.
- Technicians for wind farms are in high need while demand for solar PV sector is low.
- The wind sector requires more specific training and knowledge due to more advanced and complicated machinery and higher-risk working conditions.
- Business can hire from other fields (electrical, mechatronics, construction) and provide further specialised training on RE.
- Due to scarcity of work force. Some businesses rely on O&M teams provided by suppliers or 3rd - party.
- Companies are satisfied the graduates have good technical, O&M skills and soft-skills no matter they come from universities or vocational colleges.

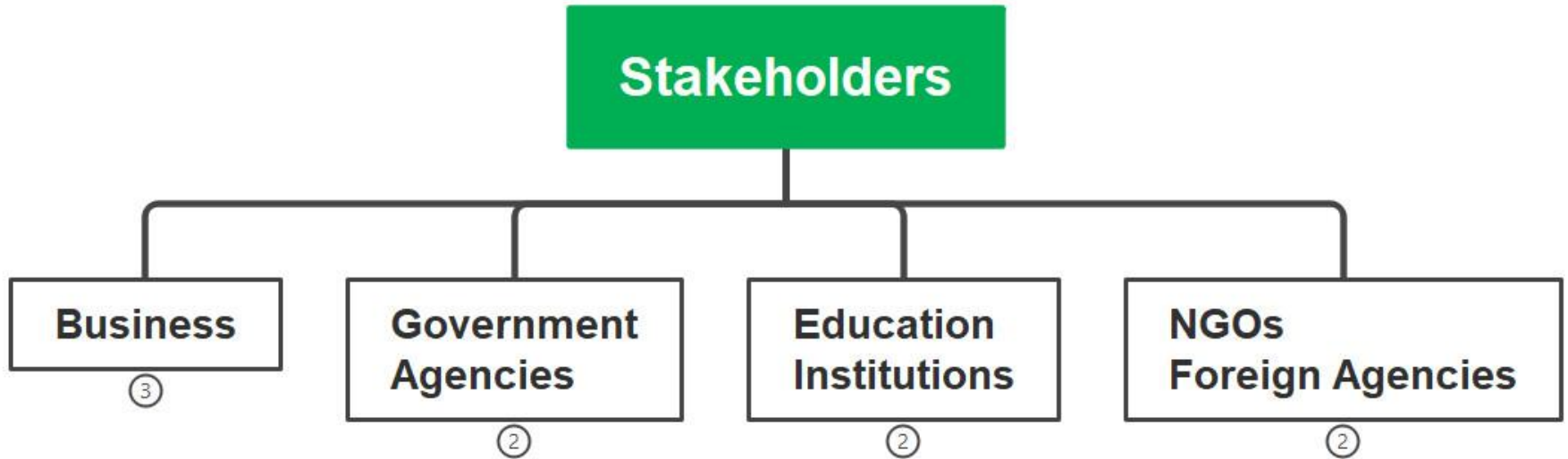


Technicians for O&M positions can be categorized into 5 levels



The background of the slide features a network diagram on a grey surface. Several colored pushpins (red, green, blue, and yellow) are placed at various points, connected by a web of thin black lines. Some lines form a structured network on the left, while others are more chaotic and tangled on the right. A blue pushpin is also shown separately on the right side, with its line extending into the tangle.

Stakeholder Analysis concerning skilled labour force development



Business

Companies

Festo VN, Thuan Binh,
Vu Phong, IBS, BIM Group,
Trung Nam, GEC, Tidisun,
EVN etc.

Business
Association

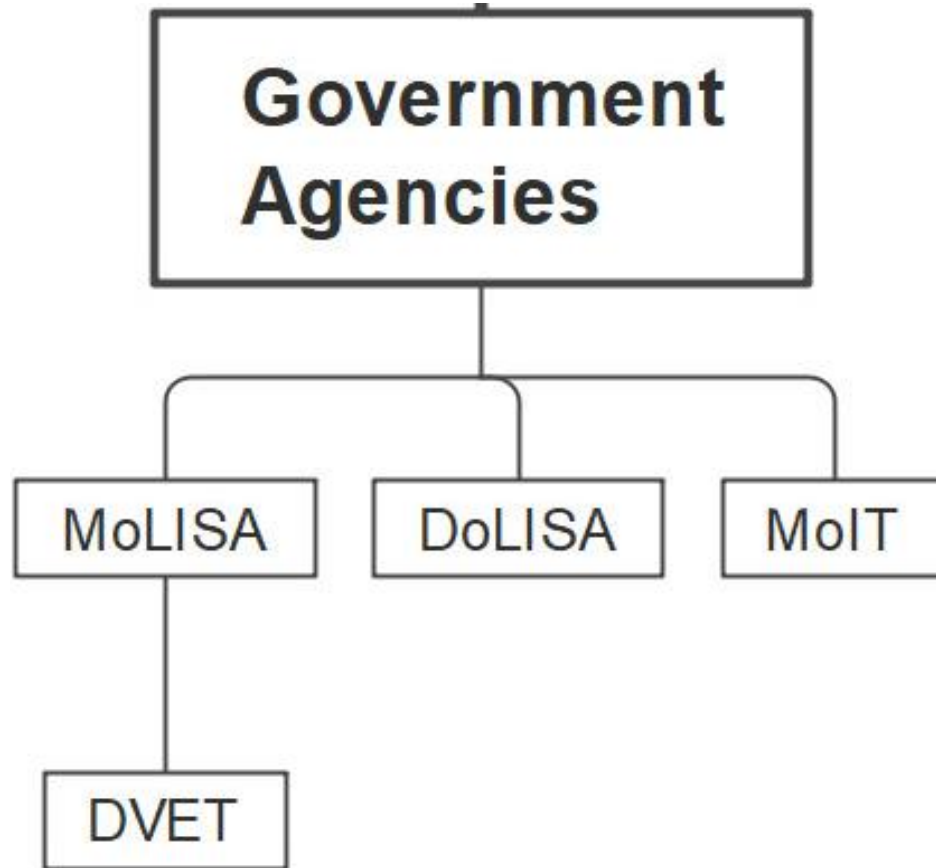
VCEA

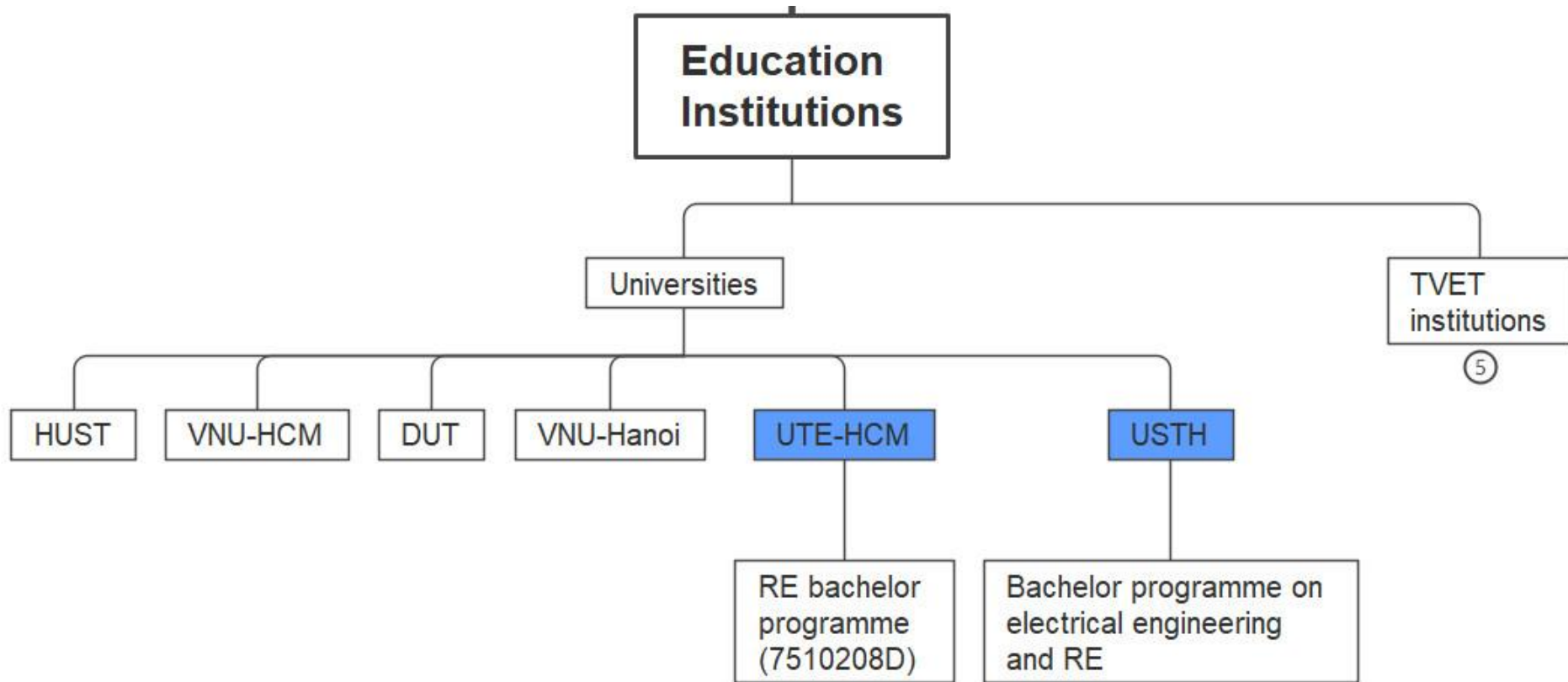
VEA

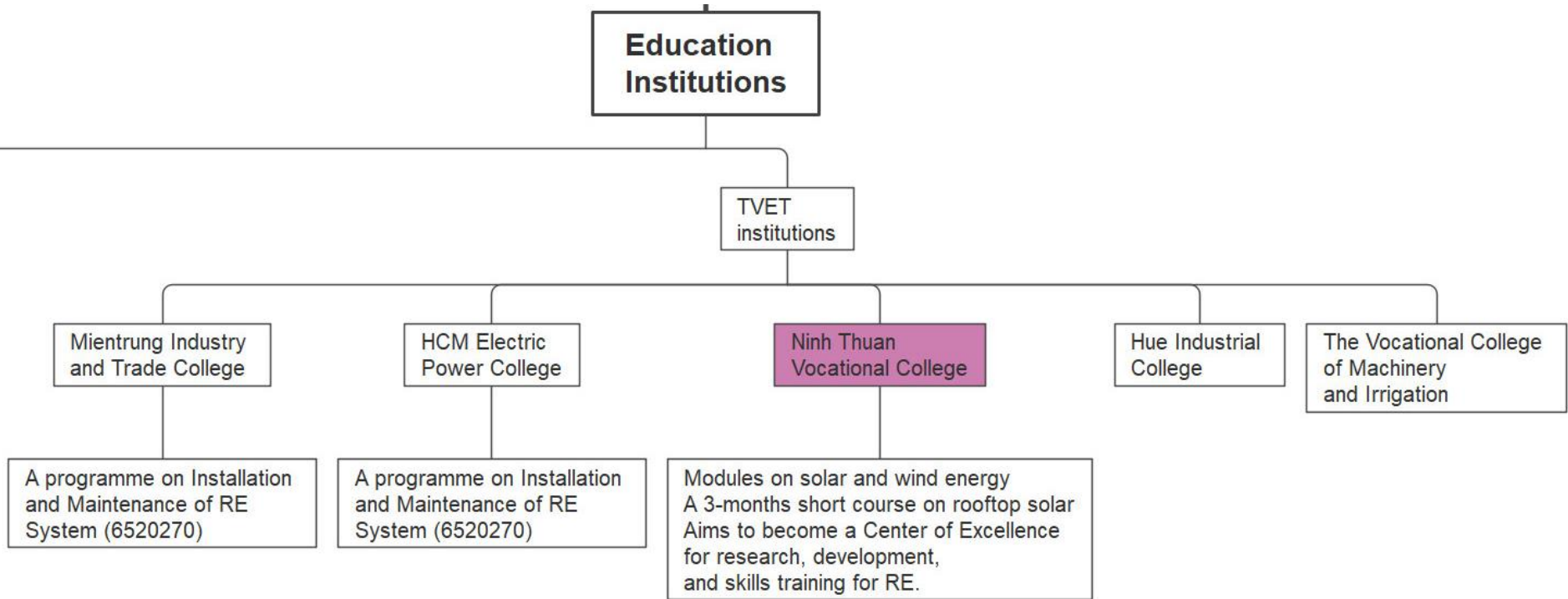
VCCI

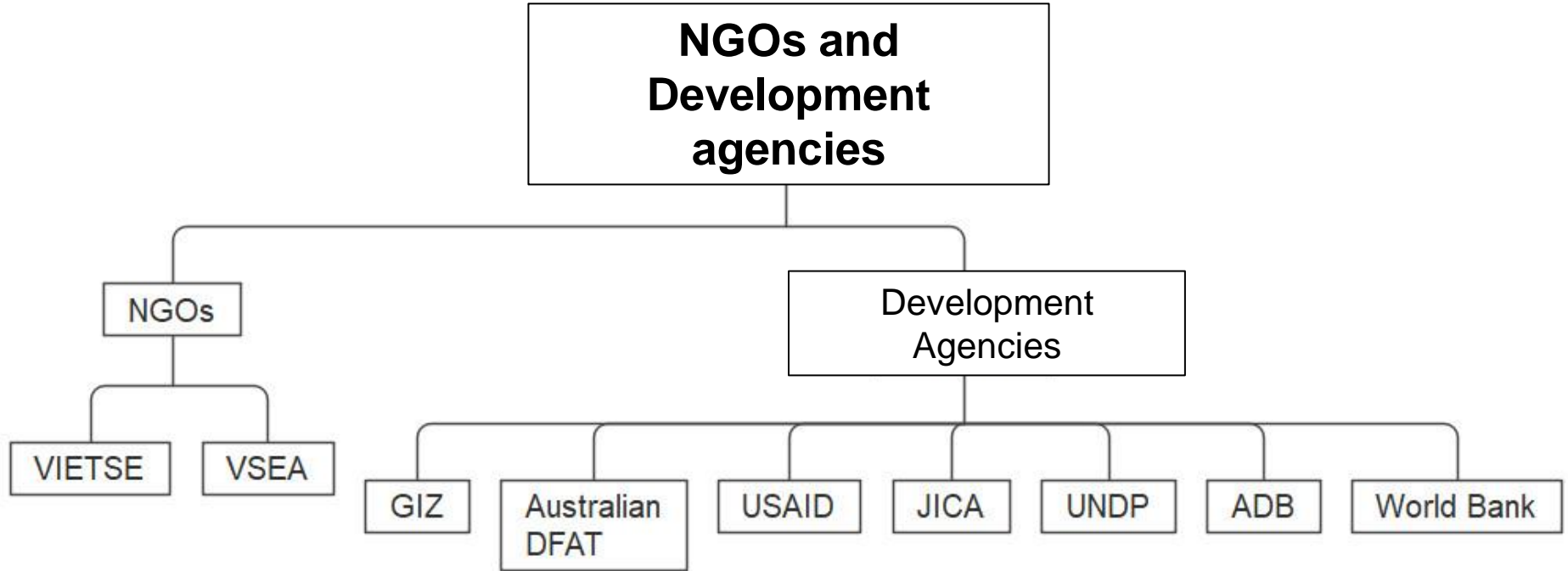
Binh Thuan
Wind and Solar
Energy Association

Private training
service provider









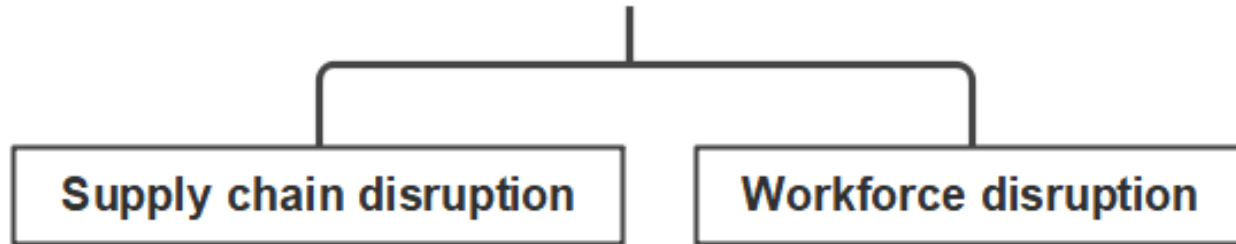
A scenic landscape featuring rolling green hills under a clear blue sky. Several large white wind turbines are positioned across the hills, with one prominently in the foreground. A winding road is visible on the slopes. In the distance, a small village and a river are nestled in a valley.

Challenges for Renewable Energy Sectors in Viet Nam

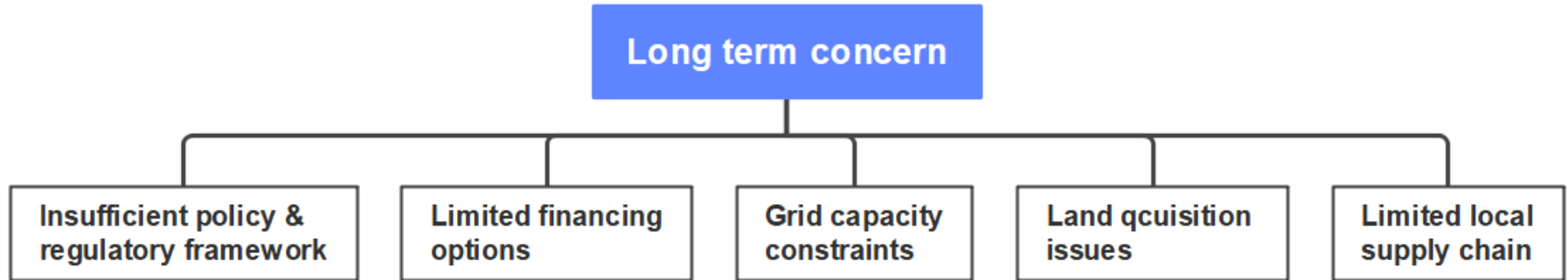
Challenges for Renewable Energy Sectors in Viet Nam



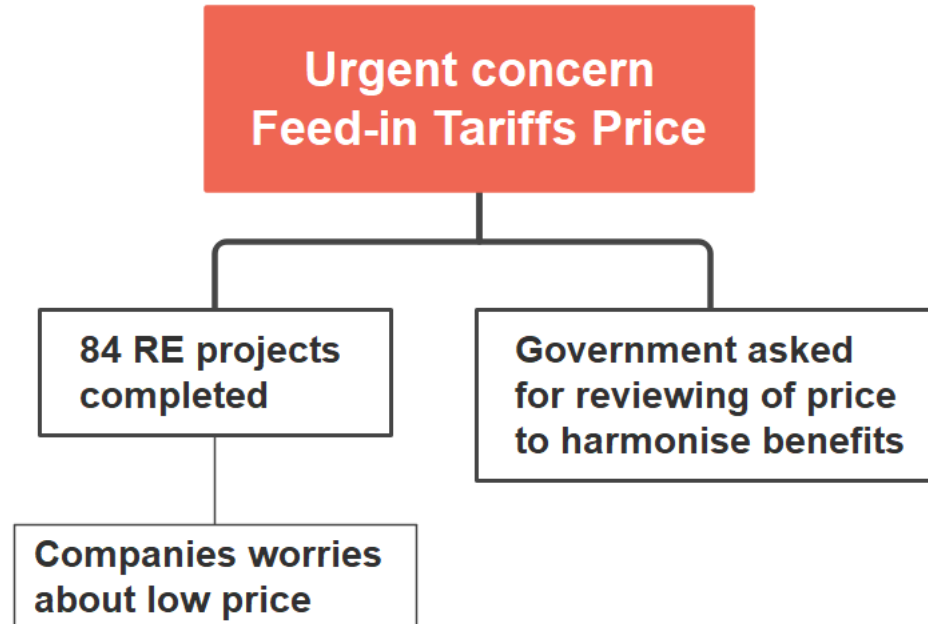
COVID-19



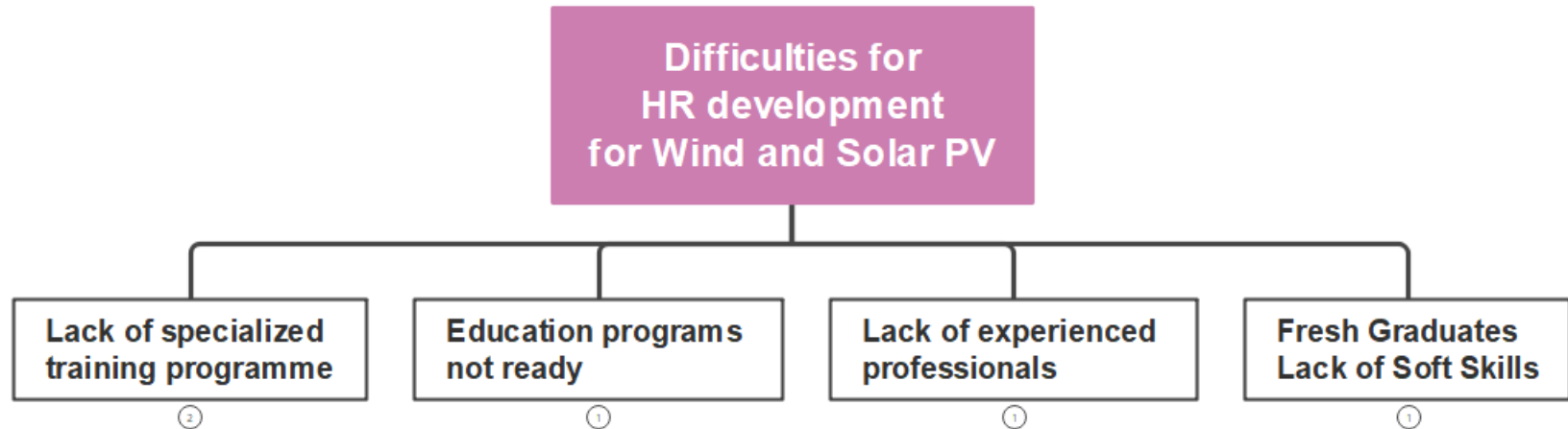
Challenges for Renewable Energy Sectors in Viet Nam



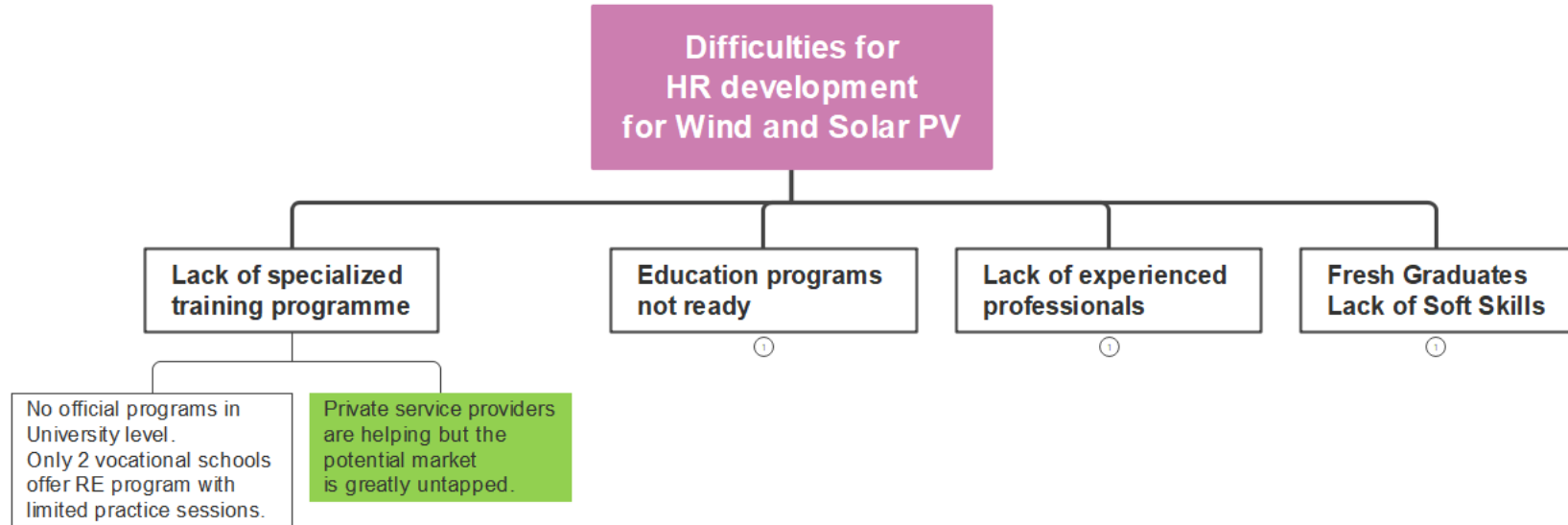
Challenges for Renewable Energy Sectors in Viet Nam



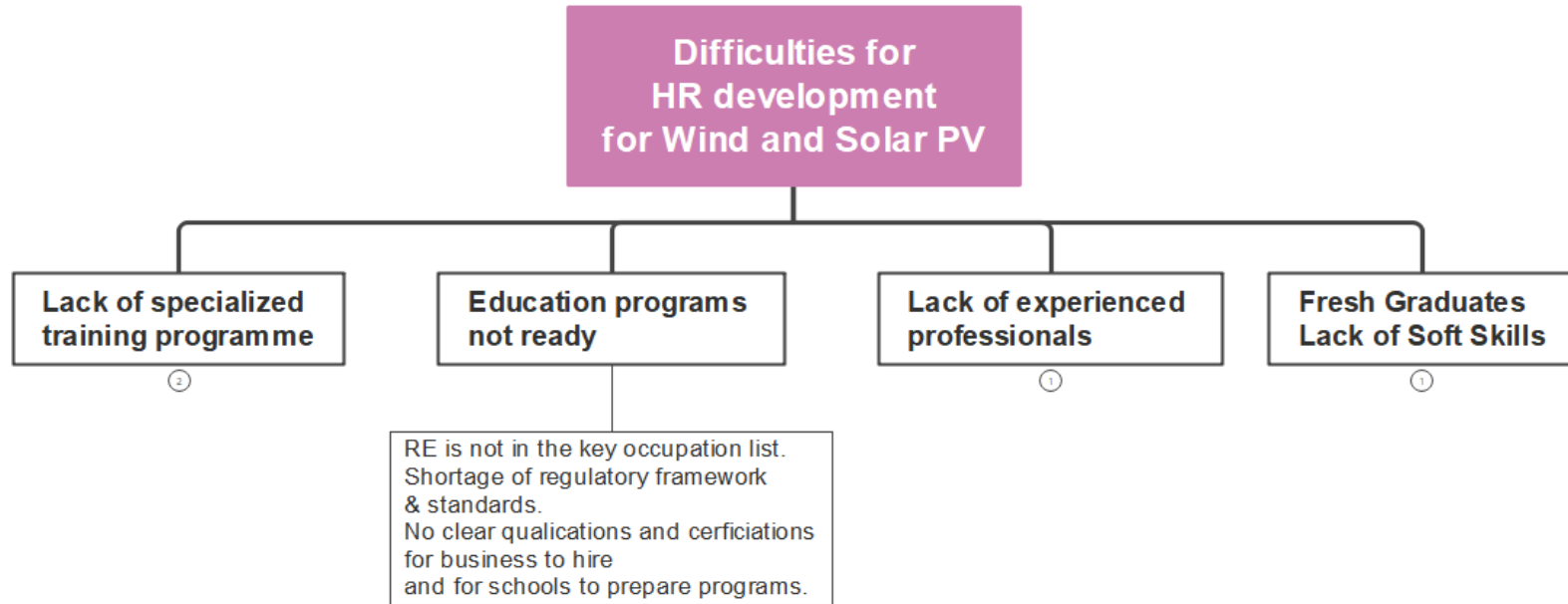
Difficulties for Skilled labour force in Wind and Solar PV



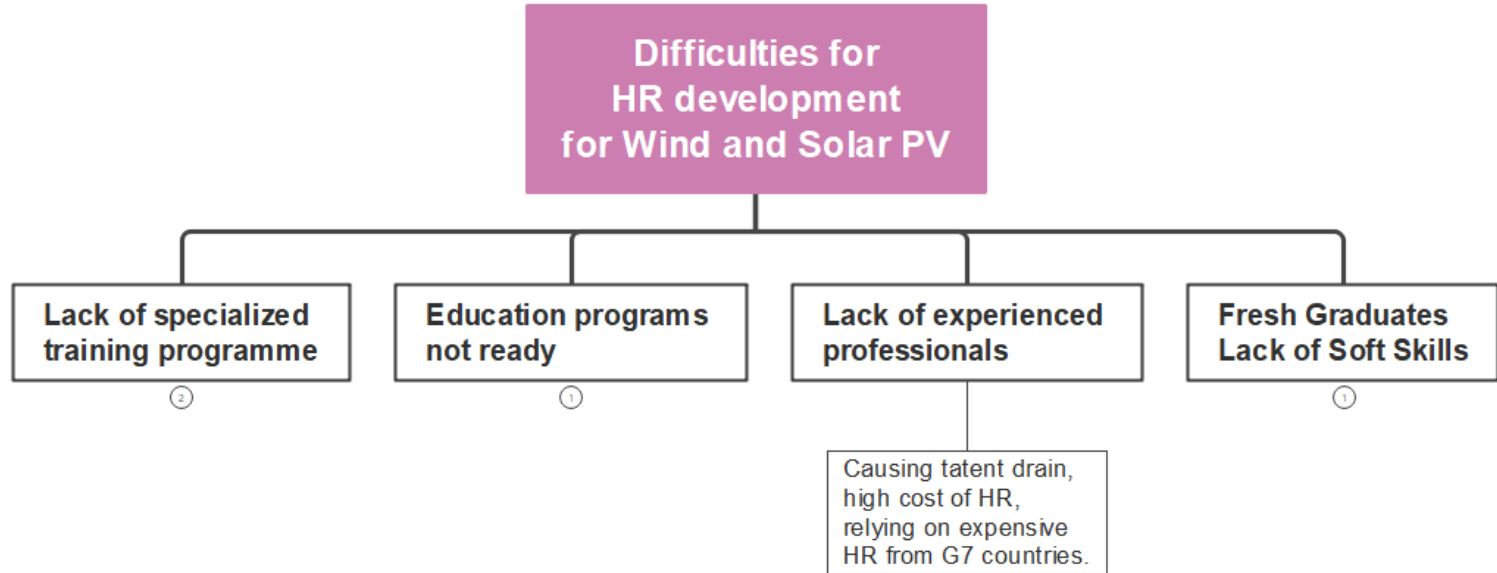
Difficulties for Skilled labour force in Wind and Solar PV



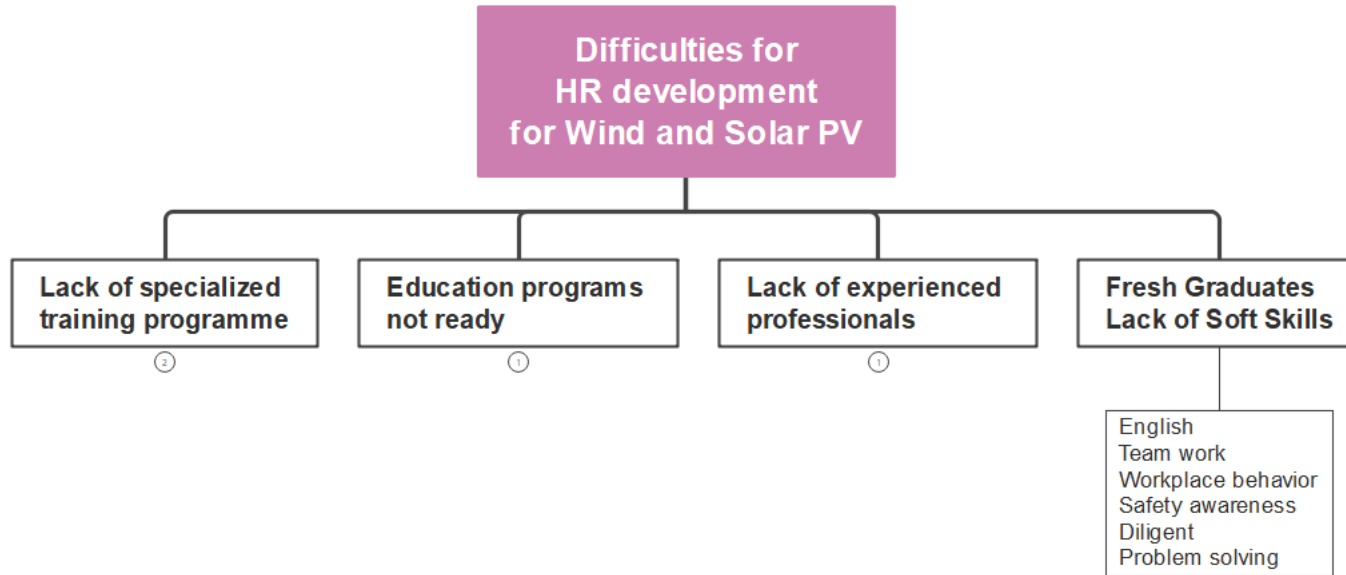
Difficulties for Skilled labour force in Wind and Solar PV



Difficulties for Skilled labour force in Wind and Solar PV



Difficulties for Skilled labour force in Wind and Solar PV





The necessity for Engagement Mechanism

Some Skills Councils models in Vietnam



Bringing industry and
VET together



Quality Advisory Board
in TVET

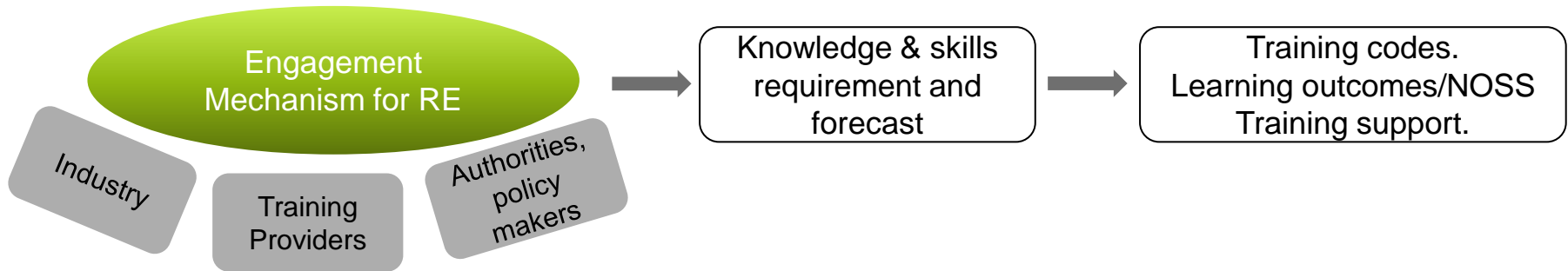


National skills council set up to boost
agricultural productivity and competitiveness

DANISH PILOT MODEL OF LOCAL OCCUPATIONAL SKILLS COUNCILS (LOSC)

**TVET PROGRAMME – GIZ SUPPORTS 18 INDUSTRY ADVISORY BOARDS
ESTABLISHED AT PARTNER TVET INSTITUTES AND PROVINCIAL TVET COUNCIL IN
NINH THUAN PROVINCE**

Engagement Mechanism for RE sector:





Thank you for your attention!