Risk Management Guideline for Occupational Standard and Professional Qualification Process in Thailand

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Abstract

This research is the qualitative aimed to conduct the risk management guideline for occupational standard and professional qualification process by collecting data from Key Informants based on purposive sampling such as consultants, working group, and endorsement board in total 49 samples with the semi-structured interviews.The data analysis was conducted with the content analysis to conclude and interpret according to the theories from the process namely 1) Publicizing the project to the target group 2) Studying occupational standards of role model countries 3) Conducting Functional Analysis to endorsement board for approval 4) Making assessment tools and 5) Testing assessment tools. The study found the significant risks from risk identification, risk analysis, and risk assessment at low and moderate levels that were concluded as follows 1) Designing PR media, format and period for specific professions 2) Set the small group for conduct Functional Analysis 3) Selecting the role model country with similar Thailand context 4) Recruitment of the working group that is relevant to the occupational standard 5) Setting Functional Analysis workshop 6) Determine the general core and specific competency classified by the public and private sector etc. 7) Design the assessment tools cover KSA and 8) Making profession experts database.

Keywords: Risk management, Occupational standard, Professional qualification, Functional Analysis

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Introduction

Thailand industrial structuring according to 20-Year Strategy of the development of Industry 4.0 (2017-2036) stated that for the national development to overcome the middle-income trap and move towards high income country, it is necessary to undergo industrial restructuring. The industrial restructuring constitutes a major mechanism to drive the country's economy by focusing on industrial development that uses advanced technology in production and the industry that is developed based on creativity and innovation approach. (Ministry of Industry, 2016).

The National Qualifications Framework (NQF) (2017) is the linkage of national qualifications system, linking between individual performance level as a result of learning, education, training, and experience. NQF comprises educational qualification framework from educational agencies, and occupational standards framework from agencies related to occupational skill standards to ensure the integrity of national manpower development system (Office of the Education Council, 2017a).

The research project to drive the manpower development based on the professional qualification system towards the outcome and impact on the educational sector in Thailand (TRIS Corporation Ltd., 2020) was to analyze the educational qualification framework in Thailand and in foreign countries including the ASEAN Qualifications Reference Framework (AQRF). During the Seventh AQRF Committee Meeting and Workshop in October 2019, the AQRF passed the resolution to approve the report of the comparison of Thailand's NQF towards the ASEAN qualifications reference framework. The agencies relevant to occupational standard process that may include Ministry of Education, Department of Industrial Works, Department of skill development. (Thailand Development Research Institute, 2017)

In order to produce and develop personnel in every professional field, to have Knowledge, Skill, Attribute of the operators based on the international equivalent standard, the system of professional qualification is needed to be developed as a driving tool. The national professional qualification system is the center to certify the competency of the manpower according to occupational standard in response to the demand of the business and the industry. The concept is to ensure that an individual's ability is recognized and awarded professional qualification in line with the competency, experience, and knowledge and to use the professional qualification for the development of career advancement.

Consequently, it is necessary for personnel to engage in occupational standards and professional qualification processes. Since 2015, Thailand Professional Qualification Institute (Public

Organization) in association with stakeholders in professional groups, associations, federations, public agencies, government sector, and private sector have jointly established occupational standards and professional qualification related to environmental works, and built networks for publicizing occupational standards and professional qualification to gain international recognition, strengthen workforce to develop their competencies and capability, and to catch up with progressive development and competitiveness of the country. Environmental professionals need to possess knowledge, skills, competence, and attribute that directly support their operations that would bring about the minimum or non-environmental impact output.

Currently, both complete and pending professional groups consist of 10 industries according to the order of Thailand Professional Qualification Institute Committee. These professional groups include logistics and supply chain professional group; agricultural, food & beverage professional group; real estate & public service professional group; service & financial professional group; health, sports & tourism professional group; communication & mass communication professional group; digital industry professional group; creative & entertainment industry professional group; manufacturing industry professional group; and energy & environment professional group from The order of Thailand Professional Qualification Institute Committee no. 262-271/2018, titled the Appointment of the Occupational Standards and Professional Qualification Sub-Committee.

This research is necessary to determination of needs with stakeholder analysis, cluster analysis, manpower analysis, demand-supply analysis, performance outcome Analysis, qualification certification system, certificate, curriculum, trainings, analysis of the requirements of labor standards, requirements of occupational standards, legal requirements, or professional licenses in the country. All must be in the form of Information that can confirm correctness and report to the community at the macro level in order to serve as the information to develop the occupational standard.

Therefore, in order to ensure that the process of establishing occupational standards and professional qualification be implements efficiently and comply with the principle of establishing occupational standards and professional qualification, it is advisable to study how to support the development of such process. One of significant concepts involves risk management which can be applied to the process of establishing occupational standards and professional qualification. The study includes risk assessment for each process of establishing occupational standards and professional qualification, aiming to analyze, evaluate, and manage risks of existing process of establishing occupational standards and professional qualification. Then we explore findings of

appropriate procedure, and propose the process of devising measures of risk management for establishing occupational standards and professional qualification with higher efficiency.

Objectives

1) To conduct risk assessment for establishing occupational standards and professional qualification process.

2) To propose risk management guideline for establishing occupational standards and professional qualification process.

Review Literature

The study involves the principle of the risk treatment and the risk treatment guideline, as well as related researches and include the key word related with functional analysis, key purpose, key role, key function, Vocational Qualification, Professional Qualification.

The National Qualifications Framework (NQF) is the linkage of national qualifications system, linking between individual performance level as a result of learning, education, training, and experience, with availability of educational qualification framework of educational agencies, and occupational standards framework of agencies related to occupational skill standards, as well as several organizations, so as to ensure the integrity of national manpower development system.

Thailand Professional Qualification Institute (Public Organization) produced the Occupational Standard and Professional Qualification Manual (Thailand Professional Qualification Institute (Public Organization), 2022) which divides the development of occupational standard and professional qualification into namely 1) Determine the needs of professional groups or industrial groups 2) Functional analysis of professional groups or industrial groups 3) Develop the unit of competence and establish the occupational standard and 4) Establish professional qualification according to occupational standard.

Occupational standards and professional qualification

New Zealand's occupational standards and professional qualification determines qualifications framework applicable to all educational agencies in both public and private sector. New Zealand is a best practice country that NQF uses as a model for studying occupational standards would rely on essential knowledge and skills for work as required by employers based on the advices from the industrial sector or the private sector in each country participating in developing the NQF. The characteristics of NQF and criteria of classifying levels of qualification based on the NQF of New Zealand. (Thailand Development Research Institute, 2017).

Functional Analysis

The studied of functional analysis results across a known and unknown assessor Meindl et al. (2017). Commonly, functional analyses are conducted by a trained clinician with the unfamiliar participant. This unfamiliarity might influence the outcome of the analysis, potentially leading to function misidentification. This examination study was responded of two participants during functional analyses that conducted by a known and unknown assessor. The influence of familiarity was observed across both participants; however, with extended exposure to the functional analysis was respond became similar across assessors for both participants. Mainly, conclusions different regarding function may be drawn at several points during this analysis. The findings are discussed with regard to the participant–assessor history influence and recommendations are provided regarding a functional analysis conducted.

The principle of the risk treatment and the risk treatment guideline

Risk assessment is the International Standard which provides principles and generic guidelines on risk management that can be used by any public, private or community enterprise, association, group or individual mean is not specific to any industry or sector. It can be applied throughout the life of an organization and a wide range of activities, including strategies and decisions, operations, processes, functions, projects, products, services and assets. It can be applied to any type of risk, positive or negative consequences. The design and implementation of risk management plans and frameworks will need to take into account the varying needs of a specific organization, particular objectives, context, structure, operations, processes, functions, projects, products, services, or assets and specific practices employed. This standard be utilized to harmonize risk management processes in existing and future standards. It is not intended for the purpose of certification (Society for Risk Analysis (SRA), 2015b).

The definition of risk means the event of uncertain that may occur in the future. It will have negative impact on reaching the objectives or goal of an organization. In other words, risk is the opportunity for mistake, loss, unexpected event, and undesired event so that it hinders operation from reaching the set objectives (Jody, 2022)

Risk management process based on ISO 31000:2009 include 5 main processes as follows: Identify risk factors; analyze alternatives for treatment of risk and the best risk response; apply the risk management plan into practice; control and monitor outcome; and review & make improvement when necessary. The model of ISO 31000:2009 includes the following: Establishing the context; risk identification; risk analysis; risk evaluation; and risk treatment. However, risk identification, risk analysis, and risk evaluation can be incorporated into risk assessment. The implementation is made based on the overall risk management process. In addition, it is necessary to carry out communication and

consultant regularly, as well as monitoring and reviewing when necessary (International Organization for Standardization (ISO), 2009).

The methods of risk analysis are the methodology for the analyze and evaluate of environmental impacts that designed for the environmental impact assessment process for develop assumptions, improvements, implementation and performance. The improving of the implementation process and use of risk analysis methods in environmental impact assessment process, the set objective has been achieved. The risk assessment is a process to determine the nature and scope of risk, and critical for develop policies and strategies. The processes of undertaking risk assessment are identified, estimation and ranking of risks includes potential losses of exposed population, property, services, livelihoods in environment, and assessment potential impacts on society. The client, regulator or elected/government representative will use the assessment for make decision the action course. The concept behind risk assessment is a structured, transparent, scientific process (Zeleňáková & Zvijáková, 2017). A paper of Aven (2012) is shown if criteria of risk acceptance are introduced as a risk management tool, they should be formulated by the authorities, is the common practice in several countries and industries, in the UK. Acceptance criteria of risk formulated by the industry would not in general serve the interest of the society as a whole. The main reason is that an operator's activity usually will cause negative externalities to society (an externality is an economically significant effect due to the activities of an agent/firm that does not influence the agent's/firm's production, but which influences other agents' decisions). The increased losses for society imply that wants to adopt stricter risk acceptance criteria than those an operator finds optimal in its private optimization problem.

Conceptual framework

ISO 31000 and risk analysis (ISO, 2009a) (ISO, 2009b) (Aven, 2016) define risk analysis (1) Establish context, which means for example to define the purpose of the risk management activities, and specify goals and criteria (2) Identify situations and events that can affect the activity considered and objectives defined. The methods have been developed for this task (3) Conduct cause and consequences analysis of these events, and impact to activities, objective and goal (4) Make judgements of the likelihood and impact of the events and their consequences, and establish risk characterization (5) Analyze and evaluate risk, to judge the risk significance and (6) Risk treatment. (Figure 1)

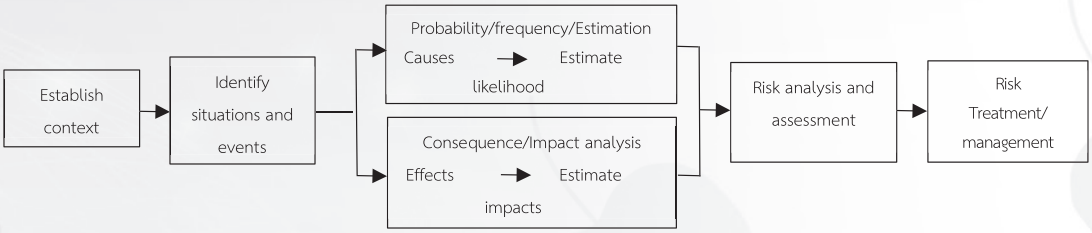

Figure 1 Risk Analysis and Assessment process

Note. Adapted from *Risk Management–Principles and Guidelines ISO 31000:2009.* by International Organization for Standardization (ISO), 2009a, (https://www.iso.org/obp/ui/#iso:std:iso:31000:ed-1:v1:en)., *ISO Guide 73:2009(en) Risk management—Vocabulary*. by International Organization for Standardization (ISO). 2009b, (https://www.iso.org/obp/ui/#iso:std:iso:guide:73:ed-1:v1:en)., "The risk concept—historical and recent development trends," by T. Aven, 2012, *Reliability Engineering & System Safety, 99*, 33-44 (https://doi.org/10.1016/j.ress.2011.11.006).

This research is the qualitative research (Wannee Kaemkate, 2008; Ongart Naiphat, 2008) to conduct risk assessment, and to propose measures of risk management (Aven, 2016) for the processes of establishing occupational standards and professional qualification ranging from the process of formulating operating plans to submitting the complete version of occupational standards and professional qualification. The processes consist of 1) Publicizing the project to the target group, 2) Studying occupational standards of role model countries, 3) Conducting Functional Analysis to be proposed to the endorsement board for approval, 4) Making assessment tools based on occupational standards, and assess quality of tools and 5) Testing assessment tools with the target group and proposing to the endorsement board for approval (Thailand Professional Qualification Institute (Public Organization), 2022).

Research methodology

1. Population Scope

1.1 The samples in the study are selected by a stratified random sampling (Chantavanich, 2009; Chantavanich, 2010; Krejcie & Morgan, 1970) for the total of 72 professional groups according to the announcement of occupational standards and professional qualification in the Royal Thai Government Gazette were investigated. After that these 72 groups were re-group into 54 groups and classified into ten industrial groups for establishing occupational standards and professional qualification.

1.2 Selecting the 7 professional groups related to economic value comprises. The 49 key informants from 7 professional groups are selected by a purposive sampling based on the structure of establishing occupational standards. These key informants were from advisory committee, working group, and endorsement board as described below.

1.2.1 Advisory committees were selected to serve as advisors to the occupational standards establishing project with 3 representatives from each group (a project leader, researcher and a coordinator) totaling 21 samples.

1.2.2 Working groups representing government or private sector with 3 representatives from each group totaling 21 samples.

1.2.3 Endorsement board comprises representatives of associations, federations, clubs, foundations, professional councils, federation of industries, chamber of commerce, and others in professional groups, including experts and representatives of related government organizations, totaling 7 samples.

2. Area Scope, this study is conducted in Thailand.

3. Timing Scope, this study explores the establishment of occupational standards and professional qualification during the 2015-2017 fiscal years (October 2014 – September 2017) and revised version during the 2020-2023 (October 2019 – September 2023).

4. Data Collection

4.1 Primary Data Collection – data were collected from semi-structured interviews by 49 key informants based on the structure of establishing occupational standards.

4.2 Data for the risk assessment of the establishing occupational standards and professional qualification process, an in-depth interview based on the case study theory, records the data of viewpoints and opinions throughout the interview, focusing on “risks in the processes” were employed.

4.3 Ensure completeness of data, and to collect additional data in case of insufficient data, or to determine a new source of data in order to acquire an instrument for deciding to summarize prospective ideas.

5. Data analysis

The content analysis is applied to the data acquired from the semi-structured interview for 3 groups of samples, namely, project consultants, working group, and endorsement board. There are three process to analyze the data as follow.

5.1 Risk Identification, the data analysis involves data interpretation to find out the meaning from collected data, to gain understanding about the data contents, and to use the cause

explanation and linkage of the samples' set of data by linking rationality both directly and indirectly. (Wannee Kaemkate, 2008; Ongart Naiphat, 2008). The further step is to summarize viewpoints toward risks in each process of establishing occupational standards and professional qualification. During the interview data acquired from the transcription and note-taking were analyze to gain understanding about the overall content. In reference to the above-mentioned processes in conceptual framework, our processes are modified situationally as follow: (1) Identify the processes (2) Review relation of process objective and objective of establishing occupational standards and professional qualification for each process. (Thailand Professional Qualification Institute, 2022; Dawn, 2002) (3)Identify the aim of each objective of establishing occupational standards and professional qualification. (4) Define risk issues and risk situation (5) Define cause and factor of risk issues and risk situation.

5.2 Risk analysis and assessment, use risk Assessment Criteria for prioritizing the significance risks (The Grasgow School of rt, 2023).

(1) Assessing possibilities of risks from the scale of impact and likelihood in order to determine levels of risk (1-5 scale) (a) Very low risk: No potential, being adequately controlled; no further control measures are required. (b) Low risk: No potential for serious consequences. Risk assessment is not essential. (c) Moderate risk: Potential for moderate consequences. Risk assessment is recommended. (d) High risk: The potential for extreme consequences but risk low probability. Risk assessment is recommended. (e) Very high risk: Potential for extreme consequences, with high probability. Risk assessment is necessary. (Aven, 2012; SRA, 2015a; Vanem, 2012)

(2) Comparing the potential impact on the objective of establishing occupational standards and professional qualification include time and aim (Project Management Process Improvement Office, 2003).

(3) Each significant issue classified and acquire from informant were review in order to further draw conclusions based on the research objectives. (Veland & Aven, 2015).

5.3 Risk treatment and management can be mixing main actions; take, treat, transfer, terminate (Project Management Process Improvement Office, 2003). The conclusions from the analysis and evaluate risk were drawn based on the research objectives aiming to explore risks of the processes. Risk treatment and management concept are opportunities to implement solutions that support risk avoidance, prevention and reduction. The risk avoidance technique would be not to own process. In reality, a minimal amount of risk still exists, but in certain scenarios, risk can be

avoided completely. Risk prevention aims to reduce the frequency or likelihood of the event or loss. This might mean preventing process breakdowns by maintenance and inspection schedules. Risk reduction aims to lower the severity of a particular loss that has already occurred. So, all of treatment and management depend on risk level. This research adapted the concept of risk management for set up the risk management related processes of establishing occupational standards and professional qualification that shown in figure 2

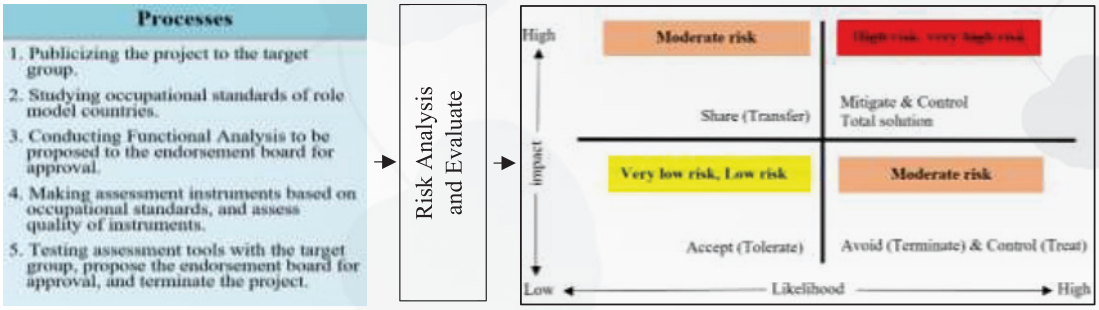

Figure 2 Risk management for establishing occupational standards and professional qualification process

Research results

The results of Risk management guideline in occupational standard and professional qualification process in order to improve and develop the personnel in all professional fields to have the knowledge, skill and attribute (KSA) for a manpower development system with international standards. The main idea is focusing on process improvement and proposed the guidelines for risk management to ensure the process is correct and appropriate. This research was presented as follows: 1) Risk identification 2) Risk analysis and assessment (VL= Very low, L = Low, M = Moderate, H = High, VH = Very high) and 3) Risk treatment and management and proposed guidance for establishing occupational standards and professional qualification more efficiently. This research analyzed and selected only signification risk issue in order to analyze and evaluate the likelihood and impact to avoid or prevent the process delay and incompletion as describe in Table 1

Table 1 Research result

Establish the occupational standard process	Risk identification	Risk analysis and assessment	Risk treatment and management
1st Process: Publicizing the project to the target group			
	1) Public relations do not reach people in professional groups and do not cover all groups 2) No frequency and period are determined as suitable for public relations	1) The target groups aimed by the public relations are numerous, different, and diverse, there are both relevant and irrelevant opinions on the professions (M) 2) PR media, media format, period do not reach the target group (L)	1) The group attending the PR session should be selected specifically for the professions 2) Designate PR media, media format, period to reach the target group and as mass media
2nd Process: Studying occupational standards of role model countries			
	1) Time of the analysis is too little 2) Some countries have a lot of information, some countries the information is not sufficient 3) Some countries have different contexts. 4) The study of foreign countries and the domestic analysis are not complete and do not reflect the different of groups and competencies 5) Selecting the working group is still specific and does not cover actual professions	1) Competencies analysis of foreign countries and the domestic are not complete and do not reflect the situations which have different professional groups and competencies (M) 2) There is lot of information but there is little time to work especially in large group (M) 3) The working group are not representative	1) Avoid the risk from meeting in large group to meeting in small group. 2) Reduce the scale of impact derived from the selection of the role model country by selecting the role model country with similar context to Thailand already established from the similar occupational standard. 3) Recruitment of the working group instead of selection.

Table 1 Research result (continued)

Establish the occupational standard process	Risk identification	Risk analysis and assessment	Risk treatment and management
3rd Process: Conducting Functional Analysis to be proposed to the endorsement board for approval			
	1) The number of times is too little for brainstorming 2) The groups attending the public hearing are too broad, diverse and not specific professions 3) Meeting is not held often so informal meeting has to be held and the analysis has to be accelerated so the competency issue is missing 4) Functional Analysis does not classify the types of work such as the public and the private sectors, and independent organizations.	1) Functional Analysis does not cover all professions , not general, but specific group, not covering actual professions (M) 2) Difficult to summarize the overview. Takes a lot of time to summarize (M)	1) Reduce risk by organizing training /workshop for specific professions to provide knowledge in conducting Functional Analysis. 2) Reduce impact from the determination of competency in professions which is not inclusive and does not cover in actual professions by determining the general core competency and classified by the public and private sector and the independent organization, etc.
4th Process: Making assessment tools based on occupational standards, and assess quality of tools			
	1) No classification of those who set the test papers such as academics, people in profession, and those with all-round knowledge 2) Some types of test papers do not suit the target group and are very academic	Test papers are very academic and too difficult and do not reflect the actual competency and cannot measure the Knowledge, Skill, Attribute (KSA)	Avoid risk from the assessment method that does not cover KSA by determining the appropriate ratio for academic and practical test papers as the role model for professions with similar characteristics

Table 1 Research result (continued)

Establish the occupational standard process	Risk identification	Risk analysis and assessment	Risk treatment and management
5th Process: Test assessment tools with the target group, propose the endorsement board for approval			
	1) Target group for testing is not the representative. 2) Selection of examiners based on their qualifications/skills are not sufficient to perform their duties 3) Examiners and those who sit for assessment test are not specified to give Feedback to improve the tools	1) Selection of the target group for assessment tool test may not constitute sufficient representation (M) 2) Process of assessment test does not reflect the assessment process that should actually take place (M)	1) Making a list of experts in each profession and database. 2) Determination of the target group that constitutes representation by specifying the selection criteria and conducts self-assessment before serving as representatives in the assessment test 3) Determine criteria and training the examiner to understanding prior to the assessment test.

Research conclusions

This qualitative research aimed to conduct the risk management in occupational standard and professional qualification process, the study results corresponded to the Objective 1) “To conduct risk assessment for the processes of establishing occupational standards and professional qualification” and 2) “To propose risk management guideline for the processes”. The study is collected the data from the Key Informants based on purposive sampling such as the consultants, the working group, and endorsement board in total 49 sample with the semi-structured.

The data analysis was conducted with the content analysis to conclude and interpret according to the principle of risk assessment and the occupational standard process. The study results found the significant risks from the risk indication and risk analysis at low risk and moderate risk level. The process that was improved and developed from 3 issues namely (1)

Risk identification (2) Risk analysis and assessment and (3) Risk treatment and management, The conclusion of the guideline of the whole process as follows:

1st Process: Publicizing the project to the target group: 1) The group attending the PR session should be selected specifically for the professions 2) Designate PR media, media format, period to reach the target group and as mass media.

2nd Process: Studying occupational standards of role model countries: 1) Avoid the risk from meeting in large group to meeting in small group. 2) Reduce the scale of impact derived from the selection of the role model country by selecting the role model country with similar context to Thailand already established from the similar occupational standard. 3) Recruitment of the working group instead of selection.

3rd Process: Conducting Functional Analysis to be proposed to the endorsement board for approval: 1) Reduce risk by organizing training /workshop for specific professions to provide knowledge in conducting Functional Analysis. 2) Reduce impact from the determination of competency of people in professions which is not inclusive and does not cover the people in actual professions by determining the general core competency (general) and the competency classified by the public and private sector and the independent organization.

4th Process: Making assessment tools based on occupational standards, and assess quality of tools: Avoid risk from the assessment method that does not cover KSA by determining the appropriate ratio for academic and practical test papers as the role model for professions with similar characteristics.

5th Process: Testing assessment tools with the target group, propose the endorsement board for approval: 1) Making a list of experts in each profession and database. 2) Determination of the target group that constitutes representation by specifying the selection criteria and conducts self-assessment before serving as representatives in the assessment test. 3) Determine criteria and training the examiner to understanding prior to the assessment test.

Discussion of results and recommendations

Discussion of results

Based on the significance and the background of the research problems to produce and develop the personnel in all professional fields, occupational safety risk management in all professional fields include small and medium-sized enterprises (SMEs) to have the Knowledge, Skill, Attribute of the persons who perform work with standard and on a par with

international standards, a tool is therefore used to drive the standard which is professional qualification system. The professional qualification system is the center of the certification of manpower's competency according to the occupational standard in response to the needs of the industrial sectors. It is the mechanism to ensure that individuals are recognized for their ability and receive the professional qualification consistent with the competency, experience, and knowledge to use the professional qualification in the development of their profession for progress.

In 1st It consisted of public relations of the project to establish occupational standard and professional qualification to the target group in the profession. The objectives and the goals of this process are to invite the professional groups to express opinions in the establishment of occupational standard and professional qualification. The study results revealed that in this process there was a significant risk. That is, the manual of occupation standard determines the needs of the professional groups or industrial groups. In the beginning, the establishment of occupational standard or unit of competence for any enterprise group must start with the determination of the needs of the enterprise group or professional holder. There must be determination of the definition framework, definition, scope, economic activities, and clear goals of the needs inside and outside the enterprise group in order to devise the purpose and then formulate the action plan to meet the objectives of the enterprise group and develop the professional holders for higher outcome. (Thailand Professional Qualification Institute (Public Organization)., 2022)

The study results revealed that in terms of risk issue, the public relations did not reach the people in the professional groups and did not cover all groups. There was risk as it was not consistent with the determined manual. Therefore, in some professional fields, there was risk and impacted the next process of professional standard development. The study results conducted the risk analysis and assessment, and recommended the guideline of risk mitigation, risk management and control. Therefore, the risk was at low and moderate levels. It was also found that in some professions, there was no risk for example, community solid waste management. As the operation followed the manual of occupational standard, there was no risk. It was found that from the review of the past research from foreign standards, the occupational standard was already established as the role model. For example, New Zealand's and Australia's occupational standard and professional qualification. (Thailand Development Research Institute, 2017)

consultant regularly, as well as monitoring and reviewing when necessary (International Organization for Standardization (ISO), 2009).

The methods of risk analysis are the methodology for the analyze and evaluate of environmental impacts that designed for the environmental impact assessment process for develop assumptions, improvements, implementation and performance. The improving of the implementation process and use of risk analysis methods in environmental impact assessment process, the set objective has been achieved. The risk assessment is a process to determine the nature and scope of risk, and critical for develop policies and strategies. The processes of undertaking risk assessment are identified, estimation and ranking of risks includes potential losses of exposed population, property, services, livelihoods in environment, and assessment potential impacts on society. The client, regulator or elected/government representative will use the assessment for make decision the action course. The concept behind risk assessment is a structured, transparent, scientific process (Zeleňáková & Zvijáková, 2017). A paper of Aven (2012) is shown if criteria of risk acceptance are introduced as a risk management tool, they should be formulated by the authorities, is the common practice in several countries and industries, in the UK. Acceptance criteria of risk formulated by the industry would not in general serve the interest of the society as a whole. The main reason is that an operator's activity usually will cause negative externalities to society (an externality is an economically significant effect due to the activities of an agent/firm that does not influence the agent's/firm's production, but which influences other agents' decisions). The increased losses for society imply that wants to adopt stricter risk acceptance criteria than those an operator finds optimal in its private optimization problem.

Conceptual framework

ISO 31000 and risk analysis (ISO, 2009a) (ISO, 2009b) (Aven, 2016) define risk analysis (1) Establish context, which means for example to define the purpose of the risk management activities, and specify goals and criteria (2) Identify situations and events that can affect the activity considered and objectives defined. The methods have been developed for this task (3) Conduct cause and consequences analysis of these events, and impact to activities, objective and goal (4) Make judgements of the likelihood and impact of the events and their consequences, and establish risk characterization (5) Analyze and evaluate risk, to judge the risk significance and (6) Risk treatment. (Figure 1)

personnel according to the principle as summarized in project risk management of (Office of Project Management Process Improvement, 2003)

Recommendations

The outcomes of this research hold practical applicability for government agencies involved in manpower policies, such as the Department of Skill Development, the Vocational Education Commission, and other educational bodies. These bodies can effectively utilize the established processes to formulate guidelines for enhancing skill standards, fostering Competency-Based learning, and more. Additionally, this research underscores the potential for streamlining existing procedures for developing occupational standards and professional qualifications. It is advised that these revisions take into account factors such as optimal timing, resource allocation, and budgeting to ensure the efficiency and effectiveness of the standards.

Future Research should be enhanced on the occupational standard and professional qualification and utilized to respond to the needs of a particular professional group, whether they correspond to the required competency and whether the relevant agencies and professional groups can utilize them to develop the country' s manpower, education, enhanced development and modified instruction curriculum in line with the demand of entrepreneurs. These people can work efficiently, appropriate to their competency, and proper performance criteria.

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