

**THE APPROACH TO DEVELOP SUITABLE ADMINISTRATION  
OF FORENSIC SCIENCE IN THAILAND THROUGH THE  
APPLICATION OF SUFFICIENCY ECONOMY**

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Thesis  
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THE APPROACH TO DEVELOP SUITABLE ADMINISTRATION OF  
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ABSTRACT

The purpose of this research is to understand the sufficiency economy philosophy as it applies to the development of forensic science, to analyze the forensic science administration resolution conception, and to find an approach to develop the forensic science administration system of Thailand. The research used quantitative and qualitative methodology which collected data from questionnaires from 254 forensic science officers and interviews from 17 experts and administrators in the fields of forensic science and criminal justice. There was a moderate level of agreement on related issues; structure, media and volunteers; budget, human resources and knowledge; and policy planning and implementation. The differently experienced officers have significant agreement in the forensic science administration development. And there was consensus regarding the appropriateness of applying the sufficiency economy and contingency theory which is modern administrative management for resolving and developing forensic science administration. The approach models to improvement emphasize professional committees and professional society. It is also recommended that 1) All forensic science units should collaborate together at every stage. 2) A distinctive mission and responsibilities should be concretely assigned. 3) Emphasis on knowledge and research for developing forensic science practitioners and organizations should be established.

KEY WORDS: SUFFICIENCY ECONOMY / FORENSIC SCIENCE / CONTINGENCY  
/ ADMINISTRATIVE MANAGEMENT

แนวทางการพัฒนาการบริหารระบบงานด้านนิติวิทยาศาสตร์ที่เหมาะสมสำหรับประเทศไทย  
ไทยโดยการปรับใช้ปรัชญาเศรษฐกิจพอเพียง

THE APPLICATION TO DEVELOP SUITABLE ADMINISTRATION OF FORENSIC  
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#### บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อทำความเข้าใจหลักเศรษฐกิจพอเพียงในการนำมาปรับใช้ในการพัฒนางานนิติวิทยาศาสตร์ วิเคราะห์แนวคิดในการแก้ไขปัญหาจากผู้เชี่ยวชาญ และศึกษาแนวทางในการพัฒนาระบบบริหารงานนิติวิทยาศาสตร์สำหรับประเทศไทย โดยดำเนินการวิจัยทั้งเชิงปริมาณ และเชิงคุณภาพ เชิงปริมาณทำการเก็บรวบรวมแบบสอบถามจากผู้ปฏิบัติงานจำนวน 254 คน และเชิงคุณภาพทำการสัมภาษณ์เชิงลึกผู้เชี่ยวชาญและผู้บริหารในหน่วยงานนิติวิทยาศาสตร์และกระบวนกรยุติธรรมจำนวน 17 คน ผู้ปฏิบัติงานส่วนใหญ่ให้ความเห็นในระดับปานกลางต่อประเด็นที่เกี่ยวข้องกับการบริหารงานด้านนิติวิทยาศาสตร์อันได้แก่ โครงสร้าง สื่อและอาสาสมัคร งบประมาณ ทรัพยากรบุคคลและองค์ความรู้ และนโยบาย ผู้เชี่ยวชาญและผู้บริหารมีความเห็นสอดคล้องเกี่ยวกับความเหมาะสมในการนำหลักเศรษฐกิจพอเพียงมาปรับใช้ในการพัฒนาการบริหารงานนิติวิทยาศาสตร์ โดยปรับใช้ร่วมกับหลักทฤษฎีโครงสร้างเชิงสถานการณ์ซึ่งเป็นแนวทางในการบริหารสมัยใหม่ จากผลการวิจัยสามารถเสนอรูปแบบเพื่อเป็นแนวทางในการพัฒนาได้ 2 รูปแบบคือ การมีคณะกรรมการวิชาชีพ และการมีสมาคมวิชาชีพ โดยงานวิจัยนี้มีข้อเสนอแนะได้แก่ 1) หน่วยงานนิติวิทยาศาสตร์ทุกหน่วยงานควรประสานความร่วมมือกันในทุกด้าน 2) ควรมีการกำหนดภารกิจและความรับผิดชอบของแต่ละหน่วยงานให้ชัดเจน และ 3) ควรให้ความสำคัญในด้านองค์ความรู้และการวิจัยเพื่อให้เกิดการพัฒนากับผู้ปฏิบัติงานและองค์กรด้านนิติวิทยาศาสตร์

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## **LIST OF ABBREVIATIONS**

|           |   |
|-----------|---|
| AAFS      | = American Association of Forensic Science  |
| ASCLD-LAB | = American Society of Crime Laboratory Directors – Laboratory Accreditation Board |
| ATF       | = Alcohol, Tobacco and Firearm, Treasury Department                               |
| CIFS      | = Central Institute of Forensic Science   |
| CRFP      | = Council for Registration of Forensic Practitioners                              |
| DEA       | = Drug Enforcement Officer  |
| ENFSI     | = European Network of Forensic Science Institutes                                 |
| FBI       | = Federal Bureau of Investigation   |
| FSS       | = Forensic Science Service  |
| IRS       | = Internal Revenue Service  |
| ISO       | = International Standards Organization  |
| MBO       | = Management by Objectives  |
| NFSTC     | = National Forensic Science Technology Center                                     |
| NIJ       | = National Institute of Justice   |
| OJP       | = Office of Justice Program   |
| RTP       | = Royal Thai Police   |
| SOCOs     | = Scene of Crime Officers   |
| SWG       | = Scientific Working Group  |
| UKAS      | = United Kingdom Accreditation  |

## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Reason and Consideration**

Forensic Science is the application of multi-disciplinary in science to examination the evidences in criminal case, analyzing and the conclusion of expert's opinion. The examination results and investigation reports should be use for trial in court. Because the rights and freedom protection are important, along with the Criminal Law concept that must be proof to ensure defendant's guilty, or "beyond a reason able doubt", there was legislated in the Criminal Procedure Code, section 227. Thus, the efficiency forensic science is a pathway to protect and reduce violation the rights and freedom in criminal justice system.

Thailand, before the government reformation in 2002. Mission of forensic science was in responsibility of Thai General Police. Besides arrest and investigation, the police had duty to examination evidence or criminalistics. Meanwhile they emphasized in crime control that focusing on prevention and suppression the crime, rather circumspect in the rights and freedom, and check and balance system (Police Administration Development Committee, 2007). The diminution of the rule of law, but concentrate in success the case more than finding the fact such in the three scandal cases that had been occur in Thailand. First, the Sherry Ann Duncan case, the innocence had been arrest and imprison. Second, Srithanakhan case, mother and her child had been killed by officer. And the last, the extra judicial killing to Joe Dan-chang case, do not have the process to proof the fact. These effects become reducing the confidence in criminal justice, no protection the rights and freedom measurement for innocence and defendant. Neither fact finding nor suitable trial, the innocence was punished and the defendant got harder sentence. To resolve the problems and protect the future impact, following the government reformation was set a new forensic unit. The Central Institute of Forensic Science (CIFS) is in the Justice Administrative cluster. The objectives of the CIFS are contribute the standard criteria both practice

and ethics of practitioners and laboratories. These criteria is conform with the Good Governance principle that must be check and balance system, the accuracy and the transparency will give confidence to people and acknowledge in the international level.

However, the missions and responsibilities of the CIFS by the ministerial regulation, forensic standard provision and forensic service, especially the forensic service is overlapping the mission of the forensic police. There are confusions and skeptics in criminal justice system because of the unit have both provision and service, though should be separated.

According to Narong Singprasert (2005) was writing about the contrary opinion of the experts in the case of a politician death by small-bullet gun shot. This case had been autopsy three times for examine the cause of death and manner of death. There was invited the two expert from Scotland and United States but the opinions were different. And another, “Tsunami”, the disaster in southern of Thailand was pulling down a mass living. Mass casualty needs much forensic science and forensic medicine officers to identification the remains. Nevertheless, some volunteer joint to support but didn’t have suitable administration and management along the international approach. There was chaotic situation in all area, including Thailand never have mass casualty and emergency preparing plan (Vitoon Eungprabhanth, 2002). It was some part from many unfair cases. Not only obscure in the result of examination and difference system (Somchai Wongsawat, 2005), but impact to confidential in the forensic experts, a whole justice system, practice conduct, knowledge, administration, check and balance system. Furthermore, a huge budget was not related to realize benefit. The government efforts to resolving previously problems by adjust the administration and structural, but become the new problems until present. The problems are present in 6 issues as:

1. Structural issue – scattering of forensic science units, different policies and mission are not conform to all forensic science unit and criminal justice system. Moreover, Thailand forensic Science units are under government system, lack of independent about opinion result.



2. Administration issue – arising to forensic units are in government structure must be performing under government regulations. Complicated and inflexible conduct cannot adjust to compatible with continual crimes. And there are no check and balance system follow general standard to make confidential justice.

3. Media and Volunteer issue –although media has duty to report information. But, if the forensic science information has not been verified before publishing, it may be made misconceptions in expectation and understanding. And the volunteer never have any procedures for cooperate practice, which may be impact to chain of custody process.

4. Budgetary issue – incompatible and structural system effect to competition in reputation. Enormous budget has been used for human resource development, equipment and building, do not consider in effective and worthwhile.

5. Human Resource and Knowledge issue – because of the need of practitioners of forensic science units, education institutes construct forensic science course. But government condition cannot apply many graduated. Otherwise, the commensuration does not relate to knowledge level and skill. And different understanding of forensic science in criminal justice system is a cause of confliction above. Besides that, there is not responsible host to study and research for concrete development forensic science.

6. Policy and Policy Implementation issue – along with administration and structural issues impact on policy and policy implementation are not conformity. Besides situation of unstable politic, there are always change and transfer high-administrator is broke continual policy before assign new policy.

According to the problems, the government's problem resolving does not suitable management. The impact had expanded on criminal justice system. Including with the problem in criminal justice system, refer to the National Economic and Social Development Plan, 10<sup>th</sup> issue, part 2. The globalization development norm changing, status and vision of Thailand, mention that the criminal justice and the laws cannot serving all around. Meanwhile ineffective check and balance system is result from untimely adjustment in rapid economic, social, and politic changing. Beside the law process give a chance with opinion consideration, no transparency and criteria checking. Ineffective mechanism for check the government authority reduces public

confidential. Institute and professional role has been limited, do not working in-depth, following and network cooperation (The National Economic and Social Development, 10<sup>th</sup> issue, 2007-2011).

Forensic Science problems resolving policy is similar with the criterion management policy (Chumpol Nimmanich, 2004) which for regulate and control all of member formally. Although this approach provide for arrange standard in forensic science practices, but there is no support plan. Particular solving does not concern other part become negative resistance reflect (Piyanath Prayoon, 2005), because the different culture of former unit and the operation of recent unit opposite to objective. Not advance technology will profitable for examination forensic evidences in criminal justice, but legally empowerment for practice and service organization management are necessary. Each country has different criteria and practice conduct depends on environment and situation (National criminal justice development committee, 2008).

As a forensic scientist who's responsible in improving forensic science quality system and standard facilitation, including learning in criminal justice administration, therefore interest in problems resolving approach. In this research was inviting the royal contemplation, "Sufficiency Economy Philosophy", for applying to resolving and development in forensic science system administration. His Majesty the King Rama 9 used the sufficiency economy concept for guiding country development, that covering many parts, merging multi-disciplinary appropriately, counting on middle way as in the Buddhist principle. To explaining, there are realizing in suitable, reasonable and self immunity, and set on knowledge and moral for decision making consistent with the good governance principle (Korkiat Viriyakijpattana, 2007). This concept, not only use for agriculture part or business, but can apply in any section of social. In these research is the application of sufficiency economy for development forensic science system of Thailand which flexible to adaptation in vary branch. Many organizations used to apply this concept to success. If forensic science systems apply this concept, it will render substantially cooperation. Not to speak of valuable and effectively of organization, conformable with the good governance principle. Result of forensic science unit improvement will possible to upraising confidential of criminal justice system.

## **1.2 Objective**

1. To study the royal contemplation, “The Sufficiency Economy Philosophy”, for application in develops forensic science system.
2. To collection and analyze the concept for resolving and development forensic science administration from practitioners, forensic science experts and criminal justice officers in relevant field.
3. To obtain the approach to develop suitable forensic science system administration in Thailand situation.

## **1.3 Research Scope**

Content Scope – Study content in forensic science development related to forensic evidence examination in area of structural, administration, influence, budgetary, human resource and relevant policy.

Population Scope – Collect and analyze quantity and quality data.

1. Quantity Data – Questionnaire collection from the Royal Thai Police and Central Institute of Forensic Science.
2. Quality Data – In-depth interview high level executive and expert in forensic science and criminal justice system.

Timeframe – from October 2009 to September 2010.

## **1.4 Expected Outcome**

1. Understand in the royal contemplation, “The Sufficiency Economy Philosophy”, for application in develops forensic science system.
2. Concept in resolving and development forensic science administration from practitioners, forensic science experts and criminal justice officers in relevant field.
3. The approach to develop suitable forensic science system administration in Thailand situation.

## 1.5 Definition

This research, “The approach to developed suitable administration of forensic science in Thailand through the application of sufficiency economy”, is meaning the key words as following:

### Sufficiency Economy

Sufficiency economy is the direction to administration the organization for effective and suitable benefit depend on situation and environment by planning risk management or circumspect, setting on accuracy knowledge and moral control.

### Moderation

Moderation is knows status and circumstance, including advantage and disadvantage for highly effective working. And balancing management exist resources.

### Reasonable

Reasonable is implementation with information that can be show cause, possible result and future impact.

### Self-immunity

Self-immunity is a step of planning process which must be study the problem and impact, for plan to resolve problem, and prevent lost and wasteful.

### Knowledge

Knowledge is information or academic content related to implementation which should be study to distinctly understand for apply to all steps.

### Moral

Moral is good manner which consistence with responsible and role in working, and must not take bad impact to oneself or others.

### Structure

Structure is organization component which consist of the paths of mission, responsibility, role and connection of each process.

### Media and Volunteer

Media is professional which has mission to report forensic science information to people. And volunteer is people whose helps forensic science officer in crime scene. Both of their roles are affecting to forensic science working.

### Budget

Budget is money which had been assigning to perform with implement planning for providing resources.

### Human Resource and Knowledge

Human Resource and Knowledge is organization staff whose have role, responsibility and knowledge which suitable for any section. And must be continual develop their knowledge and competency.

### Policy

Policy is main direction for implementation which had been determining by high level, such as a government section, the policy had been assign by governor.

### Modern Administrative Management

Modern administrative management is implementation of organization with planning, regulation, objective and evaluation which for resolving, improving and developing to get outcome and higher effective.

### Contingency Theory

Contingency theory is a planning conception for implement in case of uncertainly circumstance and can be suitable adaptation.

### Circumstance Conformation

Circumstance conformation is implementation which can be adapt for every circumstance, and does not reduce effective.

### Internal Conformation

Internal conformation is cooperation between internal sections in organization with smoothly, consistently, convenience, and more effectively.

### Forensic Science

Forensic science is the application of science to law by apply knowledge and skill in various branch of science to analyze, comparison, interpretation that must be keep to the law and criminal justice system.

### Government Administration

Government administration is systemic management for any section can be implementing by focus on objective under the laws and criminal justice.

### Good Governance

Good governance is administration and provision of organization or social, which concentrate in benefit and suitable of objective. Including responsibility and must be accuracy and transparency with check and balance system.

### Forensic Science Administration Development

Forensic science administration development is effective improvement of forensic science administration by lift up all management within organization, from high level to elementary path and necessary to have related specific knowledge.

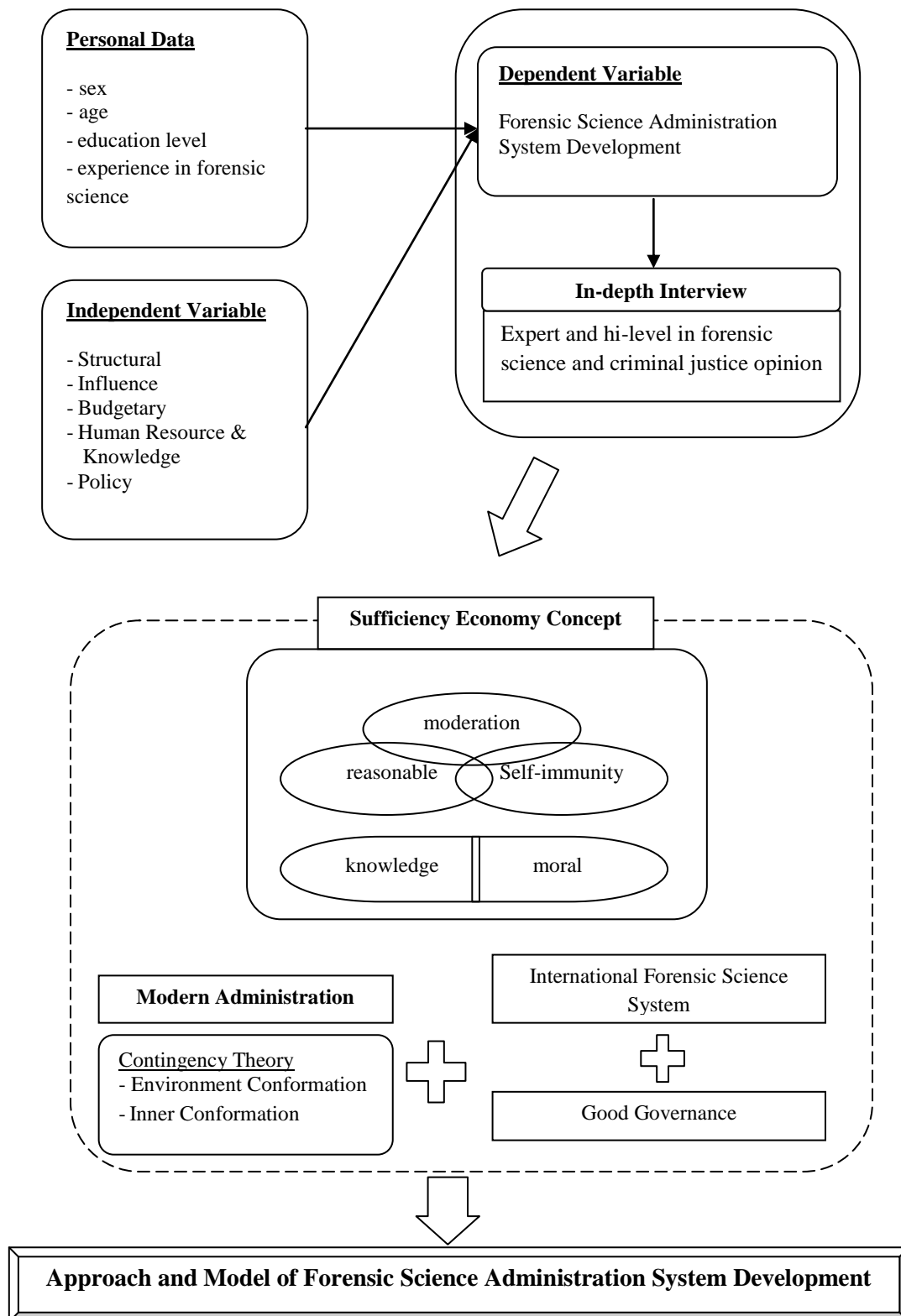
### Criminalistics

Criminalistics is the one of two major branch of forensic science which forensic science consists of criminalistics and forensic medicine. Criminalistics is the physical evidence examination, sometime may be known as “Police Science”. Nowadays, forensic science laboratories may combine criminalistics and forensic medicine together and call “Forensic Science”.

### Criminal Justice

Criminal justice is administration process in study the cause, control, rehabilitate and prevent to remaking crime, that must be used multi-disciplinary such as criminology, law, psychology, public policy and forensic science. And must be concern the relevant, for example social, economic, politic and law.

## 1.6 Conceptual Framework



**Figure 1** The conceptual Framework

## **CHAPTER II**

### **LITERATURE REVIEW**

The study of “The Approach to Develop Suitable Administration of Forensic Science in Thailand through the Application of Sufficiency Economy” consists of knowledge, theories, concept and relevant documents for support this research. It can be divided into seven topics below.

- 2.1 Sufficiency Economy Philosophy
- 2.2 Good Governance and Government Administration
- 2.3 Thailand Forensic Science
- 2.4 International Forensic Science
- 2.5 Forensic Science and Criminal Justice
- 2.6 Administration Management Principles and Concepts
- 2.7 Related Documents and Researches

### **2.1 Sufficiency Economy Philosophy**

#### **2.1.1 The Royal Statements about Sufficiency Economy Philosophy**

Chaiyawat Wibulswasdi, Priyanut Piboonlsravut & Kobsak Pootrakool (2010, p.1-4) had write that His Majesty the King Bhumibol Adulyadej has expounded the concept of Sufficiency Economy to the Thai people through statements, words of advice more than 30 years. In 1999, a working group drew up a formal definition of the Sufficiency Economy Philosophy that the King then approved. According to this formulation consists of four statements.

“Sufficiency Economy is an approach to life and conduct which is applicable at every level from the individual through the family and community to the management and development of the nation.”



The first statement asserts that the philosophy can be applied at all levels of the economy and society: the individual, family, community, and at the organizational and national level.

“It stresses a middle path, especially in developing the economy to keep up with the world in the era of globalization.”

The second statement introduces the concept of the middle path. In other words, we should try to avoid extreme thoughts, behaviors, and actions. The philosophy specially urges the acceptance of the forces of globalization and using knowledge to harness the good forces and mitigate the bad forces.

“Sufficiency has three components: moderation; reasonableness; and the need for built-in resilience against the risks which arise from internal or external change. In addition, the application of theories in planning and implementation requires great care and good judgment at every step.”

The third statement introduces the three core elements of sufficiency economy philosophy: moderation, reasonableness and built-in resilience in the face of changes.

At the same time, all members of the nation – especially public officials, academics, and business people - need to develop their commitment to the importance of knowledge, integrity, and honesty, and to conduct their lives with perseverance, tolerance, wisdom, and insight, so that the country has the strength and balance to respond to the rapid and widespread changes in economy, society, environment, and culture in the world.

The fourth statement emphasizes the two conditions under which the Philosophy will work best:

- First, if it is based on the application of appropriate knowledge.
- Second, if it is enhanced by genuine values, namely honesty, perseverance, tolerance, and the desire to share with others – especially those less privileged than ourselves.

According to the statements, the sufficiency economy philosophy is the guiding to develop in many parts. There will be planning, base on stability which can resolve problems around and sustainable. Additional, His Majesty the King has please to emphasizes on using knowledge, moral, prudential and cooperation with relevant sectors that will implement to effective success and good for all.

### **2.1.2 Sufficiency Economy Principle**

Sumeth Tantivejkul (2002) explained the sufficiency economy consist of three things and one base for guiding country development and administrate organization.

First – Using reason, do not be lustful or fashionable to leading, brave in decision making to choose the right way to develop country, no needs to follow the global current.

Second – Adequately doing, self-potential checking, finding our basic before implement.

Third – All time self-immunizing, we do not know what tomorrow will be. Present situation changing too fast which development lay on thin line, should have vision.

Exceptional, it will be base on ethics, moral and good governance.

Sombat Kusumawadee (2006) summarized the consideration to applying the sufficiency economy philosophy in five parts as:

1. Conceptual Framework – the guiding philosophy for living and suitable perform, can be applying all time and systemic thinking in the dynamic environment to saved from dangerous and critical.
2. Characteristic – sufficiency economy can apply for any level which focusing on middle way and sequencing development.
3. Definition – there must consist of three identities as:

- Adequacy means not too less or more by do not disturb anyone.
  - Reasonable means decision making about level of balancing along with rational by thinking of relevant factors and impact prudentially.
  - Self-immunization means prompt to bear impaction and changing consider in possibility of any situations which will be happening.
4. Condition, decision making and implementation must be on adequate level and depend on knowledge and moral, said that:
- Knowledge condition consist of “Omniscient” about relevant educations, “Prudential” to apply to blending knowledge for planning and “Carefully” in implement period.
  - Moral condition consists of aware of morale, honest, patient, diligence, and wisdom for living.
5. Procedure/expected result from applying sufficiency economy is sustain and balance development provide for all changing such as economic, social, environment, knowledge and technology.

Summarize that, the sufficiency economy principle can be applied for many organization exceptional agricultures or enterprises. Especially, forensic science unit which is one of the main issues of this research can be adapted since practitioners, forensic science organizations to criminal justice organizations respectively.

### **2.1.3 Sufficiency Economy Meaning**

The royal speech of His Majesty the King, which the Office of National Economic and Social Development had got the royal grant and published on 21<sup>th</sup> November 1999. The sufficiency economy is the philosophy which guide to live on from family and community level to state level for development in middle way to

catch up with globalization. The sufficiency means adequately, reasonable and self immunization to protect any impacts from inside and outside changing. Including with knowledge and carefully before adapt the knowledge to planning and implement every steps. While encourage the people especially the civil servant, educator and merchant to recognize moral, integrity and suitable omniscient. The living on patient, assiduity, wisdom and prudential for balancing and prompt to get bare with rapid and widen changing such in matter, social, environment and outside culture.

Umpol Sena-narong (cites in Korkait Viriyakijpattana, 2007, p. 30) described that sufficiency economy means trying to stand on our feet as we can, to get enough rations and properties. If something we cannot produce by ourselves, may buying or using local production, less debt and simple living, content with what have, and do not be extravagant which will conclude that holding on middle way.

Praveth Wasri (cited in Korkait Viriyakijpattana, 2007, p. 31) described that sufficiency economy means the model of middle way economic or “Mujchima bhathi-bhadha [Middle Way Concept]” economic because it can connect economic, mind, social, culture and environment together. It can be realized that the economy is meaning in positive as progression which combine body, soul, social, culture and circumstance together.

Saeree Pongpit (2004, p. 139) concluded the meaning of sufficiency economy as the moral economy, encourage the people, patient, diligent, wisdom and be careful especially the civil servant, educator and businessman concern moral and integrity.

Wirach Wirachnipawan (2007) described sufficiency economy as the sufficiency economy does not only focus on economy, but including a whole of living and working in middle way which consist of adequately, reasonable and self immunization, base on knowledge and moral.

It can summarize that, the meaning of sufficiency economy does not only focus on one side, but consider in content and relative environment, including reasonable balance for the less negative output from process.

#### **2.1.4 Sufficiency Economy Philosophy and Economy Theory**

Korkait Viriyakijpattana (2007, p. 68) wrote that sufficiency economy philosophy and economy theory are related. Previously conclusion, sufficiency economy related to economy theory in many part, but sufficiency economy philosophy is more complicate and more profound. By theory, it can divide three factors of sufficiency economy philosophy into two groups.

1. Sustainable resource creative part in situation without outside impact (Deterministic Optimality) consist of adequacy and reasonable.
2. Effective added resource factor part prompt to catch unpredictable impact (Stochastic Optimality) consist of self-immunization.

Adequacy concept has two directions as moderation by comparing social determined criteria, and moderation by comparing oneself, there are cover optimization utility process.

Reasonable concept, by sufficiency economy norm is identity because of moral factor which supervision and control along with middle way. While economically definition about reasonable such as benefit or expectation and basic knowledge, it cannot completely explain in sufficiency economy norm.

Self-immunization, sufficiency economy and economy theory are almost similar which can explain that, there is risk management, risk distribution, risk prevention, risk reduction and create mechanism for suitable consolidate economic under limited and unstable situation of coming future (Chaiyawat Wibulswasdi et al, 2010).

Sombat Kusumawadee (2006, p. 72) concluded the approach to applying sufficiency economy as this principle trends in oriental philosophy which emphasized the holistic factors analysis thinking and the theory applying may suitable for time and

space adjustment, in the field of philosophy called “Relativism” concept. The relativism concept is the base which rejects the “best” model, but believes in diversity by time, place and focuses on knowledge sharing process, apply for all part of social.

Although, economy principle aim on extreme benefit and sometime limitation are obstruct expectation, but sufficiency economy emphasizes neutrality or suitable and involve self-immunization idea as same as risk management in economy. This is for suitable decision making in administrate organization especially civil unit as specific in the Constitution of the Kingdom of Thailand 2007, part 5, Primary Policy of the State (section 3), the Public Administration Policy (article 78[1]), details are as:

“Public administration is for sustainable social, economy and security development of country, should be promote any implementation conform to sufficiency economy philosophy and must consider in country interest.”

The researcher finds that sufficiency economy philosophy is suitable for consideration with the development forensic science units in order to effective administration, worthy, reduce present problems and prevention of tomorrow problems.

## **2.2 Good Governance and Government Administration**

### **2.2.1 Good Governance Meaning and Conception**

United Nations Economic and Social Commission for Asia and the Pacific [UNESCAP] (2010) explained the good governance that has 8 major issues. There are participatory, consensus, oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. The minor groups are taken into account and the opinion of vulnerable in society must be heard in any decision-making, and also responsible for present and future needs.

Professional Risk Managers' International Association [PRMIA] (2009) which a non-profit organization, has missions to provide independent and open conference to support the risk management standards and practices all over the world, presented the Principle of Good Governance and explained the meaning of good governance as the border of regulation of an organization which emphasizing on objectives and under risk management system.

Saeree Pongpit (2004, p. 80) meant good governance is the process of decision making or policy determining, and implementation of policy or result of decision by public institute which work for public, public resources management and drive for respect in human rights. The good governance is implementation without corruption and respects the laws. The good governance has three bases as economy, politic and administration which related all level of government section, including public social.

Siriwan Saereerat, Somchai Hiranyakitti & Somsak Vanichyaporn (2002) said that good governance is government to obtain advantage and suitable, divided into four levels.

1. Global government
2. Public government
3. Social government
4. Corporate government

Agere (2002) explained the good governance as the concept which use for improve government reformation process and control government mechanism with carefully, aware in expense budget and aim at outcome. The fundament of good governance should be consists of responsibility, transparency, counter corruption, corporate government, and laws and criminal justice efficiency directions. In addition to administrative management improving should be consist of government reformation, efficiency management, cooperation between government units, leaning organization, and set up the laws to be in line with government management planning.

Exceptional, should be determine procedure of government unit both effective and valuable which perform with transparency of check and balance system, effective valuable, and liability.

### **2.2.2 International Good Governance Principle**

The Independent Commission for Good Governance in Public Service (2004) set good governance principle which can be apply for government organization, there is six pillars:

1. Base on objective and result which people will be obtain and reasonable with their taxes.
2. Role, distinctively mission, and effective such in structural, responsibility and cooperative.
3. Valuable and benefit of organization which can recognize by person operation.
4. Report, transparency in policy decision making, checking and risk management planning.
5. Efficiency and competency improving assessment.
6. Giving opportunity for relevant can inspect both formal and informal.

Thailand emphasize the good governance for applying as shown in the Constitution of the Kingdom of Thailand, B.E. 2007, Chapter 5, Directive Principles of Fundamental State Policies, Part 3, Directive Principle of National Administrative Policies (article 78(4),(5)) as:

Article 78 (4) – To develop the State affair systems which emphasize quality, virtue, and ethics of State officials together with the improvement of their working pattern and methods to ensure effectiveness of the administration in State affairs and to encourage State agencies to apply the principle of good governance in their work;



Article 78 (5) – To arrange State affair systems and other works of State agency to ensure expeditious, effective, transparent, and accountable public services by keeping in mind the participation of people;

The researcher observed that all forensic science units in Thailand are government which works for criminal justice. If they apply good governance with policy implement and operations, it will elevate the effective and to be confident in criminal justice and worthwhile using resource. Including cooperative of relevant network, conform to sufficiency economy philosophy and reconcile with economy and social development plan volume 10<sup>th</sup>.

## **2.3 Thailand Forensic Science**

Present, Thailand many organization which authorized in proving forensic evidence both belong to, and does not belong to the Royal Thai Police as below (Criminal Justice Management Development Committee, 2008).

### **2.3.1 Forensic Science Units in Royal Thai Police**

According to the Government Gazette of the Royal Decree of the Royal Thai Police B.E.2009 (2009, September 6<sup>th</sup>) shows content about authority arrangement of the Royal Thai Police. The sections which responsible in forensic science are consist of:

#### The Office of Forensic Science

The Office of Forensic Science have authority and responsibility in administration, supervision and operate about police science, criminalistics, crime scene investigation, criminal profiling, human identification in scientific base, just for investigator police and related in criminal justice or according to the law. Including connection, cooperation with domestic and international organization in area of forensic science and criminalistics, training, research and development in forensic science and criminalistics for standardization, determine and supervision professional and practice standard.

### Scientific Crime Detection Division

Scientific Crime Detection Division is subordinate of the Office of Forensic Science, the Royal Thai Police, which examining forensic evidence such chemical, physical and biological, photo comparison for human identification and crime scene investigation. To support investigator about fact finding, including study, research by science equipment and automatic fingerprint identification. Supervision and control practitioner ethics and moral, interior administration and all any assigned.

### Science Crime Detection Center 1-10

Science Crime Detection Center 1-10 is subordinate of the Office of Forensic Science, the Royal Thai Police, which services in local areas and similarly responsible with the Office of Forensic Science but smaller areas of responsible, because less officers and budget. However, in case of insufficiency proving, it will be sent to central unit.

## **2.3.2 Central Institute of Forensic Science, Ministry of Justice**

According to the Government Gazette of the Ministerial Regulation of Central Institute of Forensic Science, Ministry of Justice B.E.2002 (2002, October 9<sup>th</sup>) shows content about authority arrangement of the Central Institute of Forensic Science which consist of:

### Bureau of Forensic Science Standard

This unit missions to insurance the opinion and practical independent, under forensic science principle, of forensic scientist which conform criteria and standard of practice.

### Bureau of Forensic Science Service

This unit missions to serve for examination and advise which consist of forensic pathology, forensic clinical medicine, crime scene investigation, ballistic, physical evidence, questions document, toxicology, fingerprint comparison, forensic genetic examination and missing person identification.

## **2.3.3 Other Units**

Besides the direct units about evidence examination, some parts distribute in many institute especially in university hospitals which have medical school, or the

Institute of Forensic Medicine (General Police Hospital), these units have major mission about forensic medicine, including autopsy. But they have responsible in criminalistics some paths because Thailand has not enough forensic units to serve all area. And in critical or interested cases, it had been delivery to these units for examination.

## **2.4 International Forensic Science**

### **2.4.1 Forensic Science in United Kingdom [UK]**

A. Jackson & J. Jackson (2004) explained about forensic science in UK that

#### Role and duty of forensic scientist in UK

Forensic Scientist is the important role in criminal prosecution especially violent case, since evidence collection process to trial in court.

#### Forensic science service in Europe

In the investigation process, forensic science starts at crime scene. Thus, the effectively evidence collection is very important, and when the Scene of Crime Officer [SOCOs] entering, classification, packaging, marking and recording will be done before hand over to laboratory. In England, the Forensic Science Service [FSS] and independent forensic scientist are responsible in examination. The examination can identify suspect of crime such as latent fingerprint in crime scene will comparing with national fingerprint data base for arrest the criminal.

#### Supervision system

Forensic science in England and Wales have scientific unit working with police is FSS and independent forensic scientists are functions as

1. Support police affairs as crime scene investigation team, fingerprint comparison, photograph which gather in forensic science support unit.
2. FSS is the greatest forensic science unit of England and there is laboratory distribute in criminal justice process, functions as evidence examination of important cases.

3. There are many independent forensic scientists in private sector which have been employed by defendant, their qualification are same as government officer.

#### Forensic science quality accreditation in UK

According to Hadley & Fereday (2008, p. 7-8). There is no doubt that laboratory accreditation has a vital role to play in ensuring that the laboratory has acceptable procedures in place to carry out its day-to-day work. In the UK, United Kingdom Accreditation Service [UKAS] is the sole national accreditation body recognized by government to assess, against internationally agreed standards, organizations that provide certification, testing, inspection, and calibration services. The UKAS currently assesses and accredits several of the larger providers of forensic science in the UK. The definition of “accreditation” is given in ISO Guide 2 [6] as a “procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific tasks” It does not seem to described competence, and neither does it describe standards. Part of the assessment process involves ensuring that an organization has acceptable procedures in place, that they are followed on a day-to-day basis, and that staff are trained to do the work for which the organization offers a service. But, does it say that staff can do that work competently? Or does it assume that training guarantees competence?

Accreditation is being embraced across Europe, and the European Network of Forensic Science Institutes [ENFSI] requires all of its members to be working toward accreditation by a relevant national or international body.

Including, there is little doubt that the best attempt to date to ensure that practitioners are performing competently in the workplace is the procedure now in use by the relatively newly emerged Council for the Registration of Forensic Practitioners [CRFP] of the UK. Here, ten basic criteria are used to gauge the work of forensic scientists. More will be said about the CRFP registration program later.

Summarized that, forensic science needs standard for highly effective and confidence. Crime scene investigation and laboratory not only specific expert, but should have ethics and obedience to the laws. Importantly, must be connection with criminal justice clearly and accuracy.

### **2.4.2 Forensic Science in United States [US]**

Siegel (2006) describes about forensic science in United States.

#### Role of forensic scientist in United States

There are two kinds of forensic scientist, police and civil, duty on analyze evidence and testify in court. United States criminal justice system, laboratory receives evidence from crime scene unit or investigator. In trial process, forensic scientist will be an expert witness whose have skillful in present fact of evidence and concluding analysis opinion.

#### Forensic science service in United States

United States have more than 400 laboratories, almost belong to government which federal or local support. Their functions are examining all forensic evidence except some unit may specific drugs, weapons and fingerprint. And some laboratory, federal and local government may be watch over by themselves.

#### Federal forensic science laboratory

All 50 states have own laboratory depend on number of populations which may include with federal police, highway patrol or prosecute office. In some area may set in health unit. There are many private laboratories which serving defendant just the same as England. Sometime they will service for plaintiff, cooperate with university or consult in forensic science.

Houck (2008) said that laboratory will distribute to any organization as

- Ministry of Justice have laboratory under supervise of prosecute office that is Federal Bureau of Investigation [FBI] which have research unit and training. FBI laboratory work for request from law enforcement unit. Each year they examine more than million evidences.
- Drug Enforcement Administration [DEA] is responsible in investigation serious case of drug to protect and counter drug imported, there is drug and related laboratory.
- Treasury Department, Alcohol, Tobacco and Firearm [ATF] has laboratory which expertise in fire case and explosion. Including Internal

Revenue Service [IRS] has laboratory of revenue which expertise in questions document.

- Ministry of Interior has aquatic and wildlife animal protection unit, expertise in case of animal death from violation, hunting and illegal trading of remains.
- The Postal has laboratory examination letters and parcel which related to crime such as threaten, bio-hazard or dangerous substances letter, including gambling, deception and swindle letter, etc.

#### Forensic science quality accreditation in US

According to Houck (2009, p. 13-14), in the US, forensic science laboratories can be accredited through two agencies. The first is the American Society of Crime Laboratory Directors [ASCLD] Laboratory Accreditation Board [ASCLD-LAB]. The ASCLD is a professional organization of forensic science laboratory directors; ASCLD-LAB is a separate but related organization. Reaccreditation is required every five years in order to maintain the laboratory's status. The other agency by which forensic laboratories can seek accreditation is the International Standards Organization [ISO]. Including, Inman & Rudin (2000, p. 309-310) presented that, ASCLD/LAB has adopted four official accreditation objectives to define the purpose and nature of the program:

1. To improve the quality of laboratory services provided to the criminal justice system.
2. To develop and maintain criteria which can be used by a laboratory to assess its level of performance and to strengthen its operation.
3. To provide an independent, impartial, and objective system by which laboratories can benefit from a total operational review.
4. To offer to the general public and to users of laboratory services a means of identifying those laboratories which have demonstrated that they meet established standards.

Most recently, other organizations, notably the National Forensic Science Technology Center [NFSTC], headquartered in Florida, have begun to offer

accreditation services. A new challenge will be to normalize the standards proffered by various organizations offering accreditation, and to institute a means of establishing credibility for the accrediting bodies.

To consideration that, forensic science laboratories must not only implement accurate, reliable, and unbiased analyses and interpretations, they must also convince the judicial system and the general public that they hold to the highest possible standard. Although certification and accreditation programs exist to assess the general quality of a forensic work product, case review or evidence reanalysis by a qualified scientist remain the best methods of catching and correcting honest mistakes, as well as intentional falsification of results, before permanent damage is wrought. Additionally, but of no lesser importance, these measures provide a means by which the judicial system and lay public may judge a forensic work product.

#### **2.4.3 Scientific Working Group**

Brenner (2004, p. 248) had described about the Science Working Group [SWG] is a representative group of practitioners in a forensic science specialty assembled to formulate and periodically review consensus standards for the specialty, including training, education, quality assurance, and interpretation of results. Besides this, FBI: Federal Bureau of Investigation (2010) had sponsored SWG to improve discipline practices and create mutual agreement between federal, state, and local forensic community partners. The current working groups include:

- FISWG: Facial Identification Scientific Working Group
- SWGANTH: Scientific Working Group for Forensic Anthropology
- SWGCBRN: Scientific Working Group for the Forensic Analysis of  
Chemical, Biological, Radiological and Nuclear Terrorism
- SWGDM: Scientific Working Group for DNA Analysis Methods
- SWGDE: Scientific Working Group on Digital Evidence
- SWGDOC: Scientific Working Group for Forensic Document  
Examination
- SWGDOG: Scientific Working Group on Dogs and Orthogonal  
Detection Guidelines

|           |   |
|-----------|---|
| SWGDRUG:  | Scientific Working Group for the Analysis of Seized Drugs                 |
| SWGDVI:   | Scientific Working Group on Disaster Victim Identification                |
| SWGFAST:  | Scientific Working Group on Friction Ridge Analysis, Study and Technology |
| SWGFE:    | Scientific Working Group for Fire and Explosives Scenes                   |
| SWGgun:   | Scientific Working Group for Firearms and Toolmarks                       |
| SWGSR:    | Scientific Working Group on Gun Shot Residue                              |
| SWGIT:    | Scientific Working Group on Imaging Technology                            |
| SWGMA:    | Scientific Working Group on Materials Analysis                            |
| SWGSTAIN: | Scientific Working Group on Bloodstain Pattern Analysis                   |
| SWGTOX:   | Scientific Working Group on Toxicology                                    |
| SWGTRD:   | Scientific Working Group on Shoeprint and Tire Tread Evidence             |
| TWGFEX:   | Technical Working Group for Fire and Explosives                           |
| WGIBR:    | Working Group on Illicit Business Records                                 |

Each SWG and TWG is made up of members from within the focus field. The SWGs have a common working framework that is based on the Scientific Working Group Bylaws.

## **2.5 Forensic Science and Criminal Justice**

### **2.5.1 Forensic Science and Criminalistics**

#### **2.5.1.1 Forensic Science**

Vitton Eungprabhanth (2001) had meaning forensic science as the application of sciences for criminal justice and combined with forensic medicine which may conclude that it is integrated all of forensic medicine and all of criminalistics together.

Osterburg & Ward (2000) explain “forensic” derived from Latin, “forum”, means the market arena in ancient period which the place for selling



and argument the law and public matters. As the time changing this place became the court. Now forensic significant to the law, when including with scientific therefore related criminalistics and call “forensic science” which can divide into two part as forensic science medicine and criminalistics.

Brenner (2000) said that forensic means relating to law, is suitable analysis for use in court.

Innes (2005) described that forensic science is relation between science and investigation but except the prosecution. In the law process, expert witnesses give expert opinion to support innocence of defendant under fact of evidences.

Pyrek (2007) presented that the American Academic of Forensic Science observed that “What make forensic scientist different is explaining in trail process which is not only “what and how” of evidence, but should explain in-depth of each evidence.”

Saferstein (2001) explained forensic science meaning in general that the application of science in law. Because of the chaotic social, the members of social must obey the rule, while forensic science will apply knowledge and technology for resolving.

Fisher (2008) explained forensic science is the crime scene investigation by comparing and link evidence to suspect and victim.

#### 2.5.1.2 Criminalistics

Kaye (1995) explained the criminalistics is the applying science to resolving crime.

Brenner (2004) meant criminalistics is the analysis, preserving, identification, and interpretation.

Pyrek (2007) described that criminalistics is science using for classification, collection, identification and interpretation for the law process.

Osterburg & Ward (2000) said that criminalistics is a branch of forensic science which emphasize the record and interpreted the evidence consist of

1. Identified the name of evidences or equipments.
2. Link crime scene evidences with suspect and victim.
3. Reconstruction the crime.
4. Innocence proving in criminal case.
5. Expert testimony.

Saferstein (1995) explained that criminalistics is the method or technique which applied for investigate the crime scene and sometime meant criminalistics laboratory.

Houck (2009, p. 10) explained that, the term *criminalistics* is sometime used to described certain areas of forensic science. *Criminalistics* is a word imported into English from the German *Kriminalistik*. The word was coined to capture the various aspects of applying scientific and technological methods to the investigation and resolution of legal matters. And criminalistics is generally thought of as the branch of forensic science that involves collection and analysis of physical evidence generated by criminal activity. It includes areas such as drugs, firearms and toolmarks, fingerprints, blood and body fluids, footwear, and trace evidence.

Summarized that forensic science and criminalistics are closely, meaning of forensic science is extensive, but criminalistics is more specific. In general, “forensic science” is always widely used.

### **2.5.2 The meaning of criminal justice**

Pornchai Kantee *et al.* (2000) had meaning the criminal justice that the crime control process by relevant unit which begin at crime committed, get into criminal justice until release. The objective of prevention and countering are for peaceful social.

Prathan Watthanavanich (1998) described about criminal justice as there are consist of many correlation sections in criminal justice system which related to all level of law enforcement, punishment, crime prevention and social chaotic, that for peaceful community. Besides this, the criminal justice also protects people's properties, freedom and rights.

Somchai Wongsawat (2005) meaning the criminal justice as international views, it is the command authorized by the laws for provide justice to people. An effect of government authority may be trend to impact the rights and freedom. To protect wrongful power, therefore setting checks and balance system to ensure that government use their power fairly and accurately.

So that, the criminal justice not only emphasizing on managing the crime and criminal, but should be considerate on the other size of impact for peacefulness social.

### **2.5.3 Forensic Science and Laws**

The Criminal Procedure Code of the Kingdom of Thailand (2005) in Division 5, Evidence. Chapter 1, General Provisions in section 226 and section 227. had legislated that

Section 226.- Any material, documentary or oral evidence likely to prove the guilt or the innocence of the accused is admissible, provided it be not obtained through any inducement, promise, threat, deception or other unlawful means: such evidence shall be produced in accordance with the provisions of this Code or other laws governing production of evidence.

Section 227.- The court shall exercise its discretion in considering and weighing all the evidence taken. No judgment of conviction shall be delivered unless and until the Court is fully satisfied that an offence has actually been perpetrated and that the accused has committed that offence.

Where any reasonable doubt exists as to whether or not the accused has committed the offence, the benefit of doubt shall be given to him.

In the United States has the law about expert in the Federal Rules of Evidence (2009), Rule 702. which have details

Rule 702. Testimony by Experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if

- (1) the testimony is based upon sufficient facts or data,
- (2) the testimony is product of reliable principle and methods,  
and
- (3) the witness has applied the principles and methods reliably to the facts of the case.

Eckert (1996, p.78-79) explained about a special test for competence which required with scientific evidence that, the question is whether the science or the scientific tests employed are of such a level of validity as to be allowed into evidence. Historically the test was whether the science was “generally accepted” as being valid. This test of “general acceptance” was first enunciated in 1923 in *Frye v. United States of America*, a criminal case in which the United States wished to introduce polygraph evidence. Evidence of validity included published reports in peer-reviewed journals. In rapidly advancing fields such as so-called “DNA testing”, the delay in publication often threatened to limit truly valid science from trial. The so-called “Frye test”, at least in federal court, has been changed allowing rapidly advancing science to

be introduced. In *Daubert v. Merrell Dow Pharmaceuticals*, the U.S. Supreme Court introduced a four-part test to replace Frye:

1. Whether the type of evidence can be and has been tested by scientific methodology.
2. Whether underlying theory or techniques has been subjected to peer review and has been published in the professional literature (although this is not a sine qua non).
3. How reliable the results are in terms of potential error rate.
4. General acceptance (the old Frye test) can have a bearing on the inquiry.

The laws about the evidence emphasized on receiving and check and balance system which for holding on the 'chain of custody' principle, and just for confidently in criminal justice processes.

#### **2.5.4 The importance of forensic science in the criminal justice**

Vitoon Eungprabhanth (2000, p. 220-221) said that many cases, in the trial process, judge or attorney always neglect important of forensic evidence which become injustice or unresolved controversy. A necessary to suitable employ an expert must clearly understand what knowledge the lawyer should be know, what branch of science can give an accuracy opinion, what related knowledge or limit and training needs for admiration. And must be knows which international organization established for testing or certifying the expert.

As the human rights protection, The Commission on Human Rights had considerate to set up forensic medicine expert and related for voluntary to help for humanity in country which asks for exploring remains and human identification. In case of dubious death may be the victim from breaking the human rights or training the local officer for this operation. The committee asks for the Working Group on Involuntary Disappearances, cooperates with the international non-government organizations and gathering the name of forensic science which welcome for collaborate with this work group. This collaboration will send experts to support this

project in future. The experts will share for protection the human rights such as investigation, examination, training and founding standard of practice.

Somyos Chueothai (1998) described the principle of the modern criminal justice. The philosophy of the law, in part of the law observance said that the thought of natural law is the cause of criminal justice reformation in fundamental rights of human which produce many new law in criminal and civil law such as “no guilty no law [*nullum crimen sine lege*], no punishment no law [*nulla poena sine lege*]”, “beyond a reasonable doubt” and “the principle of publicity and confrontation”, etc.

Preedee Kasemsarp (1998) had presented the modern law as in philosophy of the law. Whenever states or influences whose allege unreasonable to punishing innocence, the people will always flinch from state. In 16 and 17 century, there was indicated that state and ecclesiastical ruling power use widely authority as in trial witch [*witch-hunting*]. The philosopher and lawyer in Europe had breaking this doctrine by improving the law that people should be punished as suitable as their guilty and expose trial within realm of the law. There was presumption that all accused are guiltless until proving their guilty, the trial process do not abused power with accused or defendant to confess, investigation must be use reasonable evidence and repeal the inquiry by using transcendental process such as drown in water, walk through fire, brutal punishment or inhuman method.

Saferstein (1995) remarked about the forensic scientist role as expert witness in court. Because of the concentration for proving innocence or guilt, and has been called for an opinion. There is admissibility of expert witness in court trial process, the expert will be asked for experience and skill. So that, the proficiency and be member in any club or foundation is very important.

It can be conclude that not only knowledge and skill of forensic scientist but they must be understand in criminal justice which to operate forensic science for serve criminal justice system suitably role.

## **2.6 Administrative Management Principles and Concepts**

All Thailand forensic science units are government, the researcher see that the analysis for development should be study about public policy. But the limitations of government system ought to mix principle of administrative management together with development for reduce the limitations and propose the suitable approaches.

### **2.6.1 The meaning of administrative management**

Siriwan Sereerat *at al.* (2002) had meant the administrative management as the management concept which emphasized the mission of organization and manage planning, organizing, leading and control that influence to presently administration.

Virach Virachanipawan (2007) concluded the meaning of administrative management that the approach to implement or practice that member of government or private unit use for changing, development or sustain prosperity creating.

Yuthapong Leelakitpaisarn (2005) explained the meaning of administration as the effort to impel cooperation for catch objective or organization. If we apply for government to serve people, the state must be managed for maximum benefit. In any implements we must ask the officer as mediator for help and politic supporting in order to reach government objective.

### **2.6.2 Administrative management concept**

In addition, the forensic science units are under government system which has five critical principles (Siriwan Sereerat *at al.*, 2002, p. 69).

1. Administrator authority is formal authority which receives by their position as direct command or controlling for the objective achievement.
2. Bureaucracy, one do abiding on position of performance or do not abiding on position because of do not abiding on social standing or personal contact.

3. Extent of formal authority of each position and responsibility, including relationship between other positions in organization must be exactly assignment.
4. Effectiveness of authority in organization, position will be arrange consequently, personnel that who they are reported and who will report to them.
5. Administrator should be set up the good rules just for draw the standard in operation and be the efficiency practice model to control inner organization behavior.

Piroj Sitthipreecha (cited in Thosaporn Sirisamparn, 2003) had presented the managerial roles in the Management by Objectives [MBO] which managing for all relevant to cooperate which stand on objective. The government aim to serve public, the United States used to applying this principle which success effectively. However remark that the government unit always be obstruct in some service which impact to using MBO method as

1. Decision of administrator must in area of the rule and the laws.
2. Officers have less opportunity in assigning objective or target.
3. Govern administration always emphasize seniority more than skill and knowledge in work.

This limitation can reduce if the administrative understand, support and commit to improve. Exceptional should be giving a chance for subordinator present their opinion, problem and development let to consider and review for responding the administrative. Improve and develop more effective output.

### **2.6.3 The public policy concept**

Birkland (2001) observed about policy design which the decision making should be thoroughly consider in issues as:

1. Succession of the policy – should be considering the objective, resolving problem approach



2. Causation model – should be considering the causation model, result prediction and the real output
3. Policy instrument – what are equipment to support?, inside and outside influence, motivation and information
4. Policy target – consider behavior which assist the changing, direct and indirect target, focus population
5. Policy implementation – implement method, systemic planning, top-down or down-top model

Chumpol Nimmanich (2004) explain the meaning of public policy in general that is the approach to operation of government and critical project which government had established by set up objective, target and procedure for success.

Implementation efficiency is the success of policy through objective or target, meanwhile effective policy is the implement which use less more resource per unit or worthwhile. Besides that, there are criteria should be consideration consist of adequacy, equity, responsive and sufficiency.

Using criteria for policy assessment do not mean that all criteria must be used. In real situation may be use one criteria for emphasize the issue of policy to implement. But which policy can include all criteria, note that these policy is value. Thus in the real, just try to use much more criteria beneath adequacy and true situation.

Because the forensic science units are government which public policy as Birkland (2001) had explained that government system or representative administrator which Max Weber called Bureaucracy. Bureaucracy in modern economic social is important to development and sometime may be looked negatively, but Weber had meant in positive as

- Formal regulation is determines clear-cut authority.
- The command line from the top.
- The administrative approach and commander are in clearly writing.
- There are expert, training and transfer knowledge.

- Full-time working.
- The administration depends on regulations and laws.

However, there are some problems such as the civil servants are not politician whose depend on politic party, but depend on skill and competency. So that, the organization which do not responses for the party always be neglected.

Ingram & Mann (1979) has presented about the failure of policy from many causes.

1. Experimental policy implementation – should be assess because sometime implementation may be more disadvantage than do nothing.
2. Impact from circumstance changing – the changing of circumstance may be a cause of incompletely success of policy.
3. Policy which related to other policy – that policy may be considered with other that will be delay.
4. Borderline of power – the power scope of politic such as authority between states may be influent to policy.
5. Needs over more policy – may get over more expectation.
6. Expectation and reality – sometime in the implementation period always be argued about the reasoning of new innovation may let expectation not meet objective.
7. Root cause – if the policy is not set on the real cause of problem, policy will be fail.
8. Impact from policy instrument – ineffective instrument will make policy look like failure, but always it becomes objective determination.
9. Unstable implementation – if the implementation is not clearly, it will be failure.
10. The failure of politic institute – the changing of politic as about the leader or subordinate, may be the cause of policy rescission.

It may shows that if there was misconception in policy assignment, there will be wrongful management and implement especially in forensic science which may be the cause of mistake in criminal justice.

#### **2.6.4 The organization development concept**

Siriwan Sereerat *at al.* (2002, p. 214) concluded the meaning of organization development is

1. the effort to changing by set up previous planning
2. all about system which combining to be organization
3. the application of behavior science infiltrate into any process which related to the changing
4. the objective for advancement of any division in organization
5. the addition of effective and efficiency through the competency of organization to accommodate to external circumstance changing.

Additional Siriwan Sereerat *at al.* (2002, p. 218-219) had shown the process of organization development seven steps as

1. Problem recognition
2. Entry of change agent
3. Data collection and problem diagnosis
4. Development of the plan for change
5. Change implementation
6. Stabilization and institutionalization and
7. Feedback and evaluation.

Wanee T. Trakul (2007) had explain the organization development that the endeavor to changing organization systemically. There is analysis problem, strategic planning and using resource to success or cooperate all to develop system by beginning at hi-administrator to the lower, just for addition effective and systemic development

Besides this, also explained that the systemically organization development should be creating model of changing, must be assessment situation of organization for explore the gap between present situation and expectation. After that must be analyze strength, weakness, opportunity and threat, for using the strength to driven development with certainly control mechanism. The organization development will be considerate what close or open system which organization chooses. If open system, everyone should be responsible to resolving problem by emphasize to objective. Organization structure is extensive style, it will depend on suggestion more than commandment. The employee of this administrative pattern will be integrity and recognize the succession of work more than person, if there is close system it will be hard to development.

Thippawan Lorsuwanrat (2006) described that organization development is the effort which planed to changing for continuous effectiveness and emphasizing on human, by using behavior science support self-assessment culture, prepare for changing and stress on group process or human relation for impact to all and build up cooperative changing norms.

Sukanya Rassamithammachot (2005) explained the needs analysis of organization guild to development by Competency-Based Learning Program [CBL]. Beginning with administrator committing to development and require organization becoming to be sustainable learning organization. The introducing CBL to apply human and organization performance development, which stand by for future changing and will be develop human to work as organization needs.

Concluded that, the forensic science organization should be continual development because the changing of global. If they do nothing, they cannot pursue to catching modern crime.

### **2.6.5 System theory**

Siriwan Sereerat *at al.* (2002, p. 136-137) has explained the system theory that

System is the relation of any parts and relate together harmoniously which for do something to success. Or relevant groups want to achieve at the same point or the groups which reaction between each other and need to have

1. Input factor such as human resource, budget and data
2. Transformation process such as employee activity, administration and procedure
3. Output such as service, result from employee work and client satisfaction
4. Feedback – information of output will let to resolve problem, including the continuous development approach for benefit of organization and client

As time goes by, the system trend to entropy. However organization can use feedback by negative entropy which means the ability to take new input from circumstance. To protect this entropy, the system will reflect the most important to maintain organization which is using advantage from synergy as cooperate reaction of subordinate systems to enhance function better than separation.

The forensic science organizations are not working alone, so that they must be cooperating together systematically. If they still in conflict, it may effect to failure of system.

#### **2.6.6 Contingency theory**

The contingency theory is the concept difference from the past. The old concept always select the best direction or the most effective, switch to select the direction which the most suitable for response resolving problem.

Refer to Thippawan Lorsuwanrat (2006) concluded the fundamental of this theory that

1. There is never the best way to management organization.
2. There is difference efficiency in each management model.
3. The best management must be harmonizes with situation.
4. The organization must be adjusts to fit with its norm.

5. The organization is open system.

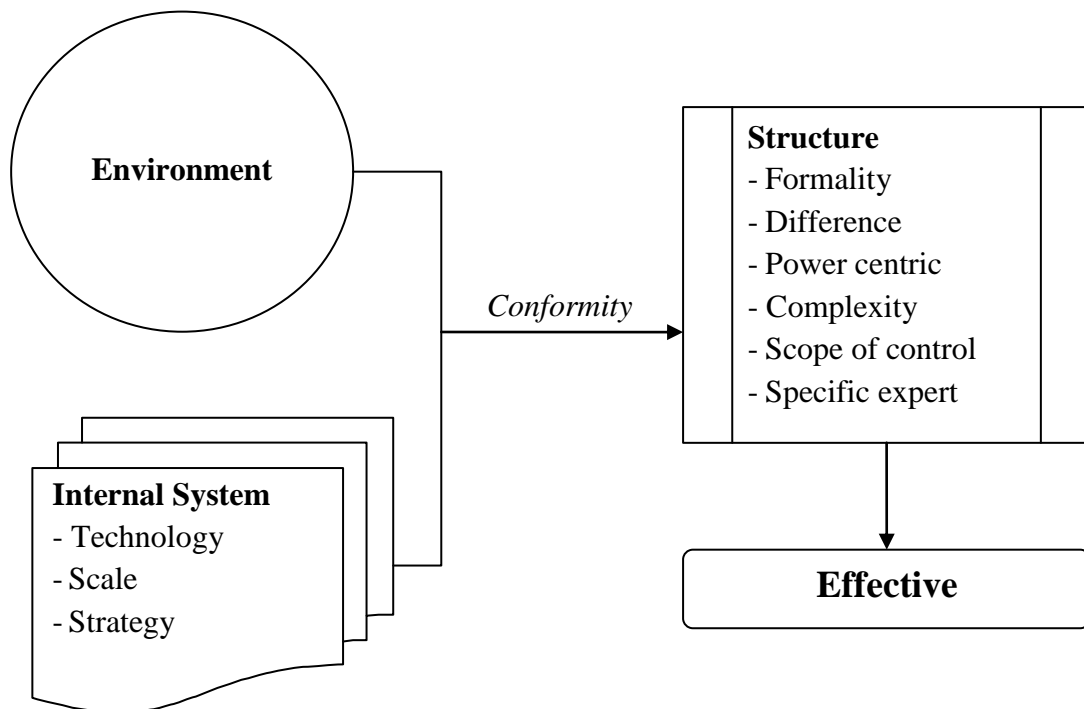
6. The decision maker trend to be reasonable person.

Exceptional, the outline of the contingency theory that the efficiency structure designing must be conform with two important condition are

1. The organization structure should be conforming to outer circumstance.

2. There must be conformation within organization.

The contingency theory illustrated in figure 2 below.



**Figure 2** The general model of the contingency theory

The researcher have to found that, the present public policy and administrative management concept are important to considerate for corrective and development the forensic science administration, and can adjust update with present situation and serve the criminal justice effectively and confidentially.

## 2.7 Related Documents and Researches

Koppl (2007) showed the factor which make forensic science may unconfident and must be adjust are

1. Monopoly – several laboratory always monopoly which depend on only unit, there is never have review check so that the practitioner may be careless or dishonest.
2. Dependant bias – because almost forensic units are law enforcement and receive budget from the same main unit that the cause of dependant.
3. Lack of quality control – some of private laboratory do not enter quality control program.
4. Data leakage – investigator always changing information both suspect and external which forensic scientists may know information and bias.
5. No check and balance system – do not separate system between analyst and interpreter, and do not have standard control unit.
6. Lack of consultation – sometime poverty or defendant do not have consultant about forensic science case.
7. Lack of competition – effective competition enhance for comparing between units and will be the direction to improvement.

Addition to Koppl (2007) had presented the approach to reform forensic science unit by abrogation monopoly system and set up check and balance system which have eight steps as

1. Support competition which court should allow to comparative examination, such as the same evidence send to examination two or three laboratories which the result must be the same.
2. Independent – in general forensic scientist always working with police and have conception like prosecutor so the court should be manage laboratory.

3. Statistics review help for improve quality such as exploring unsuccessful work which should be improve.
4. Confidential – forensic scientist practice should be protected and divide up unrelated information.
5. Poverty consultant – all people should have the equity rights.
6. The poor defendant should have the rights to consult and state providing the fee.
7. The functional structure of analyst and interpreter, the report should be reviewing at least two peers.
8. Private sector – motivation in investment should be promoted and the working system must be confidence.

Becker, Dale, Pavur Jr. & John L. (2010) refer that nowadays administrator face the challenge in examination, budgetary, output, quality, effective and team management. However there is administrator effective enhancing measurement in forensic science six points.

1. Must be indentify in quantitative both tangible and intangible.
2. Must be indentify in qualitative both tangible and intangible.
3. Must be comparing output, effective, cost and quality with the similar units.
4. Must be cooperating output, effective, cost and quality with the similar units.
5. Must be checking and monitoring continual.
6. Must be analysis value, effective and resolving decision sophisticatedly.

Speaker & Fleming (2010) had write about standard benchmarking and budget planning for improving administrating laboratory, forensic laboratory generally never have protection plan to the economic decline situation, while expectation lifting



up will force the laboratory which have many limitation. Thus, there should be considerate internal and external financial, accountant, supervision planning, assessment and internal communication which organization must be considerate the budget with administrative planning.

Including, Paul refer to the advantage of budgetary and financial planning. First, help for preparing to set up suitable structure with performance. Second is to stimulate the administrator and practitioner. And the last is to improve performance and financial controlling.

Emerson (1994) showed idea that, general known that forensic science are in the police units about three percents and use three percent of budget, too. In Scotland, forensic administration budget have been considered lower than reality, but FSS provide budget more than properly. Beside this, some unit receive budget from federal and local state similarly level. However, money is not superabundant so that should not look over unnecessary cost.

There are some observations that forensic science in UK or FSS is direct contact with client and police, and take to examination include consideration effective budget expansion in using any technique or equipment of police. These perform like business system, sometime lack of contingency plan for cost and make uncomfortable to practitioner.

Robertson (1992) presented his concept about forensic science in the future should be analyze by consider from reality base in present as

- Administrative structure
- Independent
- Related laws
- Standard

In the real situation officer is not always have a time to analyze this information notwithstanding this is very important information. If forensic science improve until to use high technology for enhance processing with accuracy data cleverness will help consideration for court. This challenge need to have commitment and ability to planning risk management policy leader.

Becker & Dale (2003) said about strategic of human resource management of laboratory that the laboratory support system should be improve such as salary increasing, infrastructure and related technology. However government emphasize to support resource but complicate of budget providing obstruct to resolve problem.

According to Becker & Dale (2007) said that crisis of human resource make forensic scientists are under pressure. The laboratories has expected to better effective, faster, lower cost, data integrating and apply technology. But many factor as personnel number, cases, recruitment, transfer, personnel effective improvement and expectations.

Fairleigh Dickinson University (2008) has presented forensic science administration by reduce error from work as rearrange structure which study the structure of forensic science in criminal justice. From using social and business administrator equipments and study forensic science in law base and political base find that forensic science shows concept of preparation, skill, unbiased and fairness from examination but nothing exactly direction or method so that the result of study proposed that

1. Understanding adjustment to harmonization forensic science as in legal concept, social, and political.
2. Administration adjustment to harmonization in criminal justice.

Besides that should be cooperating with scholar or educator for research, sharing knowledge, and policy planning.

U.S. Department of Justice (2007) has presented the cooperation which arrange from National Institute of Justice: NIJ about development and assessment the operation of the Office of Justice Program (OJP). NIJ assigned policy of independent, knowledge, equipment for supporting justice system, and public protection. This document focus on

1. Equipment and/or technology for identification, collection, preservation, and analysis to be faster, more trustable, diversity compatible and decreasing cost and personnel.
2. Analysis equipment for assessment in quantitative.
3. Specific and important of forensic science.

Levey, Bergman & Frank (1999) had emphasized on quality system in forensic science. The role of examination is the most important for success in trial. Quality of examination result from laboratory always has attended from forensic scientist for present in court whose not forensic expert. So, it should be build up confident, maintain quality, and high accuracy. There are more factors related to quality system and may not directly relate to equity in criminal justice, but necessary to present in court.

Garrett (2009) said that criminal justice has no suitable direction for protect the presentation in court without forensic evidence, and including only one side forensic evidence presentation. Meanwhile, defendant have a very opportunity to analyze evidence because no support in cost to employ expert.

Horswell & Edwards (cited in Siegal, 1997) had explained the quality assurance of crime scene investigation. Because it is the major entrance of forensic science, if it has been neglected, mistake or do not have good procedure, may be effect to error of laboratory. Thus, suitable knowledge, proficiency testing in quality process should be gathering with implementation plan which for ensure through process, from crime scene to court.

Weinstock et al. (cited in Siegal, 1997) concluded that the ethics in forensic science is complicate and challenge. Because the role which must be using scientific and legal, there are difference in content and target. The legal target must be eliminating conflict and strength through the justice. And the scientific want the conclusion from experiment and forensic science is the application scientific and legal. By the way, there are difference in science and law. The American Association of

Forensic Science: AAFS) has set the code of ethics and conduct for protection malpractice and promote adequate behavior which have important should be consider as

1. How to manage in malpractice case?
2. What are the criteria in supervision?
3. What is the main issue?
4. Important cause for decision the accuracy or adequacy.

Lucas (1989) had advised about the role and responsibility of forensic scientist as law enforcement in accusatorial system which influence to forensic scientist behavior. This must be follow the regulation and rule rigorously. Thus, the professional ethics will identified experience and behavior of practitioner. So that the ethics should be open for external to adjudicating their behavior as same as the ethics of government officer which is the basic performance of all. And the code of conduct must not only general procedure, but should be encouraging their conscious mind.

Hollien (1990) had presented about expert witness issue which may face to the problem of their specific expertise.

1. The comparison with new expert.
2. Lack of expert in the same field which to transfer knowledge to.
3. There are various in characteristic and training of each field.
4. The pressure of oneself in expert role.
5. Conflict interest in each process.

However, there may have some disadvantage and effect to trial, if do not pay attention to these below issues.

1. The expert accusation protection from opposite.
2. The quality accreditation regulation development from expert.
3. Criterion determination in skill for expert authorization.

Heinrick (2006) observed about the issue of forensic science and media that the impact from CSI series in US is clearly explain the real phenomenal. As the jury cannot accuse to the offence because of the process and technique which watched from movie was not use in the case. Max Houck, the director of the forensic science office of West Virginia University, said about the effect from CSI get to misunderstand as “forensic science never mistake.” This phenomenal is the result from media. The effect is spread to all criminal justice units, the prosecutor and the defendant lawyer are over elaborate. Beside this, the USA Today newspaper said that “Some of defendant lawyer said that ‘CSI and similarly series make the jury confident too much in scientific and refuse a few error which can occur from examination and the limit of scientific technology.’ and some prosecutor are aware of this issue and said that CSI get to more complicated for alleging which cannot find enough forensic evidence.

Others problems such as weird technology and imaginary experimental, some juries expect to the using of this technology and overlook the principle of laws “Frye Standard” which the acceptant comparative process in forensic science field. The long effect of CSI hard to expect and forensic science still difficult to work and there are argument from prosecutor and lawyer in CSI which do the case error. So that the media should be realize in moral and social impact.

Buckley (2007) said that the result from CSI series help criminals more sophisticate, intelligent especially in forensic science and even inmate which they are teach each other to sneak away guilty.

*Science Daily* (2008) reported, there may be estimate that the court system in UK has influenced from TV series related to forensic science, mass media, book or journal which impact to trial in court. Besides the present scientific methods is very fast development and sometimes hard to understand in court system.

Summarize that, forensic science in other country have being problem both in operation and administration. However there was difference applying the administrator in each country until success and continuous development. Forensic

science in Thailand is in government. If only apply the government administration, it look rigorous and hard to improvement especially social and economic. Thus should be select modern administration and success of other countries together with the sufficiency economy and rely on good governance, including the cooperation between related units to providing the justice for all.

## **CHAPTER III**

### **METHODOLOGY**

The research “The approach to develop suitable administration of forensic science in Thailand through the application of sufficiency economy” is consists of quantitative and qualitative method which study and collect the opinion of experts. It has collect questionnaires from forensic science practitioners. Data from the questionnaires has analyzed and processing to build the issues for in-depth interview method. And then, to in-depth interview method by interview the experts. Information from interviewing brings to analysis to find out important information and content which related to this research. The last, conclusion and creating the approach and the model for develop forensic science administration.

### **3.1 Sample Groups**

#### **3.1.1 Quantitative sample groups**

Questionnaires samples groups is collect from forensic science practitioners of The General Forensic Police, The Institute of Forensic Medicine, The Central Forensic Police Division and the Central Institute of Forensic Science, total 4 units which operated forensic science related criminalistics, there are 254 officers.

#### Sampling Method

The populations 644 officers are calculating by Taro Yamane formula as

$$n = N / (1 + Ne^2)$$

The calculation result is 247, but in this research had set the number of samples 254 and then divides in interval type for grouping in each unit.

Number of groups

|  |            |
|--|------------|
| 1. General Forensic Police, Royal Thai Police          | 139        |
| 2. Central Forensic Police Division, Royal Thai Police | 56         |
| 3. Institute of Forensic Medicine, Royal Thai Police   | 9          |
| 4. Central Institute of Forensic Science               | 50         |
| <i>The total number of sample groups is</i>            | <b>254</b> |

**3.1.2 Qualitative sample groups [in-depth interview]**

The method of sampling qualitative sample groups is the snowball sampling method like network selection style. The first, interviewing with high level expert in criminal justice, and then this expert introducing the next one who was similarly qualified. The qualitative sample groups consist of judge, prosecutor, general forensic police, central forensic police division, and forensic medicine totally 17 experts.

**3.2 Research Instrument****3.2.1 Questionnaire**

Questionnaire is primary information for summarizing keys concept which effect to forensic science administration development, including the application of sufficiency economy. And result of this questionnaire brings to construct important questions for in-depth interviewing. The questionnaires issues consist of

1. Administrative management
2. Structure
3. Media and Volunteer
4. Budget
5. Human resource and knowledge
6. Policy and implementation

The questionnaires use likert scale 5 levels as

- |   |   |                     |
|---|---|---------------------|
| 1 | = | the least agreement |
| 2 | = | less agreement      |



|   |   |                    |
|---|---|--------------------|
| 3 | = | moderate agreement |
| 4 | = | more agreement     |
| 5 | = | the most agreement |

### **3.2.2 Validity and reliability of questionnaire**

Validity of questionnaire has been considerate and improvement by competent scholars, Assistant Professor Chankanit Kritaya Suriyamanee and Assistant Professor Sunee Kanyajit. And then reliability test with pilot group 34 persons whose have characteristic like sample group. Reliability calculation, coefficient  $\alpha = 0.859$ .

### **3.2.3 In-depth interview**

The matter of in-depth interview is the important issues which effect to forensic science development and conform to the research objective, for proposing the suitable approach and model of forensic science administration through the application of the sufficiency economy philosophy.

### **3.2.4 Validity and reliability of in-depth interview**

Validity of in-depth interview has been considerate and improvement by competent scholars, Assistant Professor Chankanit Kritaya Suriyamanee and Assistant Professor Sunee Kanyajit. And then this question use for interviewing the sample group.

## **3.3 Data Analysis**

### **3.3.1 Quantitative research data analysis**

1. Personal data is explain general characteristic of sample consist of sex, age, education, experience in forensic science which use descriptive statistic that is frequency, ratio, mean and standard deviation (S.D.).
2. Important data which related to development forensic science administration consist of structure, influence, budget, human resource

and knowledge, and policy. The level of agreement to forensic science administration show as:

lower than  $\bar{X} - S.D.$  = low level agreement

between  $\bar{X} - S.D.$  and  $\bar{X} + S.D.$  = moderate level agreement

more than  $\bar{X} + S.D.$  = high level agreement

3. The difference analysis between personal and forensic science administration development is using one-way Analysis of Variance and t-test.
4. The difference analysis between administrative management and forensic science administration development is using one-way analysis of variance.

### **3.3.2 In-depth interview**

Information result from in-depth interview brings to analyzing in content and important matters, explaining together with quantitative data for conclusion the objective of research. Summarize the development approach and model of forensic science for proposing to improvement the organization.

## **CHAPTER IV**

### **RESULT**

The research “The approach to develop suitable administration of forensic science in Thailand through the application of sufficiency economy” has collected data two parts as quantitative data and qualitative data. The quantitative data is collect from forensic science officer in criminalistics from General Forensic Police, Central Forensic Police Division, Institute of Forensic Medicine, and Central Institute of Forensic Science total 254 persons. And the qualitative data from judges, prosecutors, forensic police, and forensic medicine total 17 persons which had been analyze and show as

#### 4.1 Quantitative data analysis

- 4.1.1 Personal data of sample groups was explained general characteristic consist of sex, age, education, and experience in forensic science using descriptive statistic such frequency, ration, mean, and standard deviation.
- 4.1.2 Forensic science administration development data such structure, media and volunteer, budget, human resource and knowledge, and policy which show as the level of agreement opinion within organization.
- 4.1.3 Different analysis between personal data and forensic science administration using statistics one-way analysis of variance and t-test
- 4.1.4 Different analysis between general management and forensic science administration development using statistic one-way analysis of variance.

#### 4.2 Qualitative data analysis

The key problems for in-depth interview are

- The understanding of the sufficiency economy and administrative management.
- The forensic science problem and criminal justice impaction.
- The approach to reveal forensic information to public.
- The human resource and knowledge development.
- The policy planning and implementation.
- The structure and administrative management improving.
- The application of sufficiency economy in forensic science.

## **4.1 Quantitative Data Analysis**

### **4.1.1 Personal data of sample groups**

The populations of this research are forensic science who's responsible in criminalistics in any forensic units are from The Office of Forensic Science, Institute of Forensic Medicine, and Central Institute of Forensic Science total 254 persons. There are female 133 persons (52.4%), male 121 (47.6%), age 21-30 years old 124 persons (48.8%), 31-40 years old 92 persons (36.2%), 41-50 years old 30 persons (11.8%), and 51-60 years old 8 persons (3.2%). Education level of sample groups are bachelor degree 132 persons (52.0%), master degree and more 112 persons (44.1%), and lower than bachelor degree 10 persons (3.9%). Experience in forensic science of sample groups are 1-5 years 124 persons (48.8%), 6-10 years 66 persons (26.0%), more than 15 years 35 persons (13.8%), and 10-15 years 29 persons (11.4%) as shown in table 1

**Table 1** Personal Data*Amount 254 persons*

| <b>Personal Data</b>             | <b>Amount</b> | <b>Percentage</b> |
|----------------------------------|---------------|-------------------|
| - Sex                            |               |                   |
| Male                             | 121           | 47.6              |
| Female                           | 133           | 52.4              |
| - Age                            |               |                   |
| 21-30 years                      | 124           | 48.8              |
| 31-40 years                      | 92            | 36.2              |
| 41-50 years                      | 30            | 11.8              |
| 51-60 years                      | 8             | 3.2               |
| - Education                      |               |                   |
| Lower than bachelor degree       | 10            | 3.9               |
| Bachelor degree                  | 132           | 52.0              |
| Master degree and more           | 112           | 44.1              |
| - Experience in Forensic Science |               |                   |
| 1-5 years                        | 124           | 48.8              |
| 6-10 years                       | 66            | 26.0              |
| 11-15 years                      | 29            | 11.4              |
| More than 15 years               | 35            | 13.8              |

#### 4.1.2 Forensic science administration development data

The agreement level in related issues of forensic science administration development was classified with considerate  $\bar{X}$  and S.D. as shown below.

|            |                                     |   |                          |
|------------|-------------------------------------|---|--------------------------|
| Lower than | $\bar{X}$ -S.D.                     | = | low level agreement      |
| Between    | $\bar{X}$ -S.D. and $\bar{X}$ +S.D. | = | moderate level agreement |
| More than  | $\bar{X}$ +S.D.                     | = | high level agreement     |
|            | by $\bar{X}$                        | = | average agreement        |
|            | S.D.                                | = | standard deviation       |

The research found that forensic science officer whose responsible criminalistics areas in any forensic science unit agree with the structure effect to administration development issue is moderate level amount 190 persons (74.8%), high level amount 36 persons (14.2%), and 28 persons (11.0%) are low level. The structural issue consists of the opinion related to

- All of forensic science units must be under one major organization.
- The forensic science unit should be operating under government regulation.
- There is central unit for directing quality control of forensic practitioners and laboratories.

The agreement level had shown in table 2

**Table 2** Shown numbers and percentage of sample groups classify by level of agreement related to administrative management on structural issue.

| <b>The levels of agreement related to administrative management on structural issue.</b> | <b>Amount</b> | <b>Percentage</b> |
|--|---------------|-------------------|
| Low level  | 28            | 11.0              |
| Moderate level   | 190           | 74.8              |
| High level   | 36            | 14.2              |
| Total  | 254           | 100.0             |
| $\bar{X}=18.53$ S.D.=3.76 Max=25 Min=5   |               |                   |

The research found that forensic science officer whose responsible criminalistics areas is any forensic science unit agree with the media and volunteer effect to administration development issue in moderate level amount 197 persons

(77.6%), high level 37 persons (14.6%), and 20 persons (11.0%) are low level. The media and volunteer issues consist of opinion related to

- Recognition and understand about forensic science operation through the media.
- Over expectation in forensic science operation through the media.
- Distort expectation in forensic science operation through the media.
- The code of conduct in public communication.
- The regulation of cooperation volunteers.

The agreement level had shown in table 3

**Table 3** Shows numbers and percentage of sample groups classify by level of agreement related to administrative management on media and volunteer issue.

| <b>The levels of agreement related to administrative management on media and volunteer issue.</b> | <b>Amount</b> | <b>Percentage</b> |
|---|---------------|-------------------|
| Low level   | 20            | 7.9               |
| Moderate level  | 197           | 77.6              |
| High level  | 37            | 14.6              |
| Total   | 254           | 100.0             |
| $\bar{X}$ =20.29 S.D.=3.79 Max=25 Min=5   |               |                   |

The research found that forensic science officer whose responsible criminalistics areas in any forensic science unit agree with the budgetary effect to administration development issue is moderate level amount 195 persons (76.8%), high level 43 (16.9%), and 16 persons (6.3%) are low level. The budgetary issue consists of opinion related to

- Sharing data for planning.
- Value assessment in using budget each period.
- Providing equipment for forensic science unit sufficiently.
- Sharing equipment between forensic science units.
- Using statistics considerate with budgetary planning.

The agreement level had shown in table 4

**Table 4** Shows numbers and percentage of sample groups classify by level of agreement related to administrative management on budgetary issue.

| <b>The levels of agreement related to administrative management on budgetary issue.</b> | <b>Amount</b> | <b>Percentage</b> |
|---|---------------|-------------------|
| Low level   | 16            | 6.3               |
| Moderate level  | 195           | 76.8              |
| High level  | 43            | 16.9              |
| Total   | 254           | 100.0             |
| $\bar{X}=19.93$ S.D.=3.77 Max=25 Min=6  |               |                   |

The research found that forensic science officer whose responsible criminalistics areas in any forensic science unit agree with the human resource and knowledge effect to administration development issue is moderate level amount 238 persons (93.7%), low level 16 persons (6.3%), and nothing high level. The budgetary issue consists of opinion related to

- Balance of escalating forensic science persons and organization receiving.
- Criminal justice knowledge.
- Skill and knowledge testing.
- Commensurate increasing.
- Knowledge and training sharing.



The agreement level had shown in table 5

**Table 5** Shows numbers and percentage of sample groups classify by level of agreement related to administrative management on human resource and knowledge issues.

| <b>The levels of agreement related to administrative management on human resource and knowledge issue.</b> | <b>Amount</b> | <b>Percentage</b> |
|--|---------------|-------------------|
| Low level  | 16            | 6.3               |
| Moderate level   | 238           | 93.7              |
| High level   | -             | -                 |
| Total  | 254           | 100.0             |
| $\bar{X}$ =21.69 S.D.=3.04 Max=25 Min=6  |               |                   |

The research found that forensic science officer whose responsible criminalistics areas in any forensic science unit agree with the policy planning and implementation to administration development issue is moderate level amount 188 persons (74.0%), high level 46 persons (18.1%), and 20 persons (7.9%) are low level. The policy planning and implementation issue consists of opinion related to

- The law or regulation about authority in operation.
- Continuation of policy implementation.
- Flexibility and adaptation of policy planning.
- Operation under criminal justice system.
- Application of sufficiency economy for forensic science

system.

The agreement level had shown in table 6

**Table 6** Shows numbers and percentage of sample groups classify by level of agreement related to administrative management on policy planning and implementation issue.

| <b>The levels of agreement related to administrative management on policy planning and implementation issue.</b> | <b>Amount</b> | <b>Percentage</b> |
|--|---------------|-------------------|
| Low level  | 20            | 7.9               |
| Moderate level   | 188           | 74.0              |
| High level   | 46            | 18.1              |
| Total  | 254           | 100.0             |
| $\bar{X}=21.38$ S.D.=3.33 Max=25 Min=6   |               |                   |

#### **4.1.3 Differentiation analysis between personal data and forensic science administration development.**

The differentiation analysis between personal data and forensic science administration development is comparative analysis the difference of means and classifying by personal factor such as sex, age, education, and experience in forensic science, using descriptive statistic such as frequency, percentage, mean, and standard deviation which using one-way analysis of variance and difference between groups (t-test).

The differentiation analysis between personal data and forensic science administration development of forensic science officer who responsible in criminalistics areas in any forensic science units found that sex, age, and education are not statistical different.

The differentiation analysis between personal data and forensic science administration development of forensic science officer who responsible in

criminalistics areas in any forensic science units found that the difference experience officers have significant difference agreement in forensic science administration development at 0.01 (sig 0.000) as shown in table 7.

**Table 7** Shows the differentiation analysis between personal data and forensic science administration development.

| <b>Variable</b>            | <b>Mean<br/>(<math>\bar{X}</math>)</b> | <b>Standard<br/>deviation (S.D.)</b> | <b>Amount<br/>(N)</b> | <b>Probability<br/>(P-Value)</b> |
|----------------------------|--|--------------------------------------|-----------------------|----------------------------------|
| <b>Sex</b>                 |  |                                      |                       | 0.393                            |
| Male                       | 21.67                                  | 3.57                                 | 121                   |                                  |
| Female                     | 20.56                                  | 3.32                                 | 133                   |                                  |
| <b>Age</b>                 |  |                                      |                       | 0.758                            |
| 21-30 years                | 21.22                                  | 2.88                                 | 124                   |                                  |
| 31-40 years                | 20.95                                  | 4.47                                 | 92                    |                                  |
| 41-50 years                | 21.27                                  | 2.43                                 | 30                    |                                  |
| 51-60 years                | 20.00                                  | 2.07                                 | 8                     |                                  |
| <b>Education level</b>     |  |                                      |                       | 0.038                            |
| Lower than bachelor degree | 19.40                                  | 2.27                                 | 10                    |                                  |
| Bachelor degree            | 20.74                                  | 4.15                                 | 132                   |                                  |
| Master degree and more     | 21.64                                  | 2.47                                 | 112                   |                                  |
| <b>Experience</b>          |  |                                      |                       | 0.000*                           |
| 1-5 years                  | 21.56                                  | 2.54                                 | 124                   |                                  |
| 6-10 years                 | 21.79                                  | 3.27                                 | 66                    |                                  |
| 11-15 years                | 16.83                                  | 5.37                                 | 29                    |                                  |
| More than 16 years         | 21.60                                  | 2.20                                 | 35                    |                                  |

#### **4.1.4 Differentiation analysis between general management and forensic science administration development**

The differentiation analysis between structural issues and forensic science administration development using one-way analysis of variance found that forensic science officers whose responsible criminalistics areas in difference forensic science units whose inform difference agreement in structural issue are difference agreement forensic science administration development, significant at 0.01 (sig 0.000).

The differentiation analysis between media and volunteer issues and forensic science administration development using one-way analysis of variance found that forensic science officers whose responsible criminalistics areas in difference forensic science units whose inform difference agreement in media and volunteer issue are difference agreement forensic science administration development, significant at 0.01 (sig 0.000).

The differentiation analysis between budgetary issues and forensic science administration development using one-way analysis of variance found that forensic science officers whose responsible criminalistics areas in difference forensic science units whose inform difference agreement in budgetary issue are difference agreement forensic science administration development, significant at 0.01 (sig 0.000).

The differentiation analysis between human resource and knowledge issues and forensic science administration development using one-way analysis of variance found that forensic science officers whose responsible criminalistics areas in difference forensic science units whose inform difference agreement in human resource and knowledge issue are difference agreement forensic science administration development, significant at 0.01 (sig 0.000).

The differentiation analysis between policy planning and implement issues and forensic science administration development using one-way analysis of variance found that forensic science officers whose responsible criminalistics areas in difference forensic science units whose inform difference agreement in planning and

implement budgetary issue are difference agreement forensic science administration development, significant at 0.01 (sig 0.000). And all of analysis above has shown in table 8.

**Table 8** Shows different analysis between general management and forensic science administration development.

| Variable                                  | Mean<br>( $\bar{X}$ ) | Standard<br>deviation (S.D.) | Amount<br>(N) | Probability<br>(P-Value) |
|---|-----------------------|------------------------------|---------------|--------------------------|
| 1. Structural issue                       |                       |                              |               | 0.000*                   |
| Low level                                 | 18.93                 | 6.27                         | 28            |                          |
| Moderate level                            | 20.97                 | 2.59                         | 190           |                          |
| High level                                | 23.39                 | 3.40                         | 36            |                          |
| 2. Media and volunteer issue              |                       |                              |               | 0.000*                   |
| Low level                                 | 15.85                 | 6.02                         | 20            |                          |
| Moderate level                            | 21.27                 | 2.54                         | 197           |                          |
| High level                                | 22.92                 | 3.44                         | 37            |                          |
| 3. Budgetary issue                        |                       |                              |               | 0.000*                   |
| Low level                                 | 17.19                 | 8.00                         | 16            |                          |
| Moderate level                            | 20.94                 | 2.70                         | 195           |                          |
| High level                                | 23.21                 | 2.40                         | 43            |                          |
| 4. Human resource and<br>knowledge issue  |                       |                              |               | 0.000*                   |
| Low level                                 | 14.69                 | 5.87                         | 16            |                          |
| Moderate level                            | 21.52                 | 2.78                         | 238           |                          |
| High level                                | -                     | -                            | -             |                          |
| 5. Policy planning and<br>implement issue |                       |                              |               | 0.000*                   |
| Low level                                 | 14.75                 | 5.12                         | 20            |                          |
| Moderate level                            | 20.99                 | 2.55                         | 188           |                          |
| High level                                | 24.22                 | 1.36                         | 46            |                          |

## 4.2 Qualitative Data (In-depth Interview)

The in-depth interviewing with experts and administrator in forensic science and criminal justice had related issues in

- Understanding about the sufficiency economy and administration principle.
- Problems in the forensic science system and the impaction to criminal justice system.
- The approach to reveal forensic information to public.
- The human resource and knowledge development.
- The policy planning and implementation.
- The structure and administrative management improving.
- The application of sufficiency economy in forensic science.

The important informant consist of 5 judges, 4 prosecutor, 4 polices in forensic science field, and 4 forensic medicine physicians. The interview result had distributed into additional issues and separated in each expert group as below.

### 4.2.1 The understanding about the sufficiency economy and administration principle issue.

#### The judge group

Majority of the judge group emphasized to budget and resource providing to highly benefit, extremely worthwhile, self estimation, reasonable in any perform, and adaptation needs to clearly understand all around. Because of sufficiency economy does not focus only one specific side, but pay attention at balancing and consideration together with present circumstance. As a judge said about the understanding in sufficiency economy and its application to administration as

“It should be focusing on worthwhile in any project for serve people or choosing the best utility in manages budget as necessary and mission of organization.”

Another one explain about the worthwhile that

“The meaning of sufficiency economy is investment for provided resource in any project implementation. We think it’s just the cost for support what project. If it’s valuable and important, the factor of the cost will exactly worthwhile.”

Hold with another judge who said that

...sufficiency economy in administration sight both in public management and business, all can apply sufficiency economy. Such in government side, I am responsible in technology management which someone say that government only skill on buying for themselves and maintenance just within a few years, and later the government must be self maintenance. For worthwhile views, if we assessing the cost we can change concept that we may hire or using multi-function system. In my understanding the sufficiency economy is the cost and resource management for administration all system worthily...

Besides that, there was some opinion about luxuries which contrast the sufficiency economy and said that.

The understanding in sufficiency economy is the using money adapting for forensic administration not over luxurious or over need. Some part do not expend budget over need, but do suitable with economic, social of Thailand, and highly benefit. The not only sufficiency economy principle, but must be suitable for effective which we will get, too.

A judge had observed about the clearly understanding in sufficiency economy for extremely benefit that

We was over using the word ‘sufficiency economy’ until didn’t know the origin, but in management view the sufficiency economy means the saving and focus on highly factor, saving on personal, money, budget, and equipments. But in our meaning we cannot understand in overview. According to the application of sufficiency economy and forensic science, if we can see the destination, it will be luxury because we have overlap

units. Commonly, it should have only one forensic science unit because it is scientific. The scientific never change the fact, must be close by scientific method

Not to speak of above, there was an opinion about adaptation the international administration that.

“In the government status, we should be admit that the world had changing, there are international innovation which must be suitable adapt for our country and consider our base factors, cannot use like a whole.”

#### The prosecutor group

The informants from prosecutor group, mainly gave opinion about the sufficiency economy that focusing on awareness, adequacy, not emphasize only one side until leave other side. And they was explained on the reference of sufficiency economy with balancing, utility and do not expect only output but must be consider on outcome or valuable adaptation of its result. One of prosecutors had described the adaptation of sufficiency economy for administration that

It is the awareness on every working and having adequacy, reasonable which is not over beyond, just this mean. In the criminal justice sight, it is reasonable analysis, do not unreasonable believe. Should be listen to peers, I believe that sufficiency economy have one thing is deliberation, listening other difference thought. The sufficiency economy can adapt for all dimensions such in administrative dimension. I see in widely view, especially in administration which should be thinks about adequacy, balancing or enough. And to be based upon social problems and then moving forward equilibrium between economic, person and etc.

Another prosecutor explained by comparing sufficiency economy with the Dhamma principle in Buddhism about the middle-way living that

Sufficiency economy has been definite in many ways. In my opinion is meaning in middle-way living which consist of three principles are adequacy, reasonable and self immunization, and they are depend on



knowledge and moral. For the first principle “*moderation*” means the finding the balancing between supply and demand or production need conform to consuming need. Second is reasonable means what we want must be reasonable with itself. And the last is self immunization means we can live in changing or failure situation. The indicators to judgment three principles are the knowledge and the moral, the knowledge is the wisdom which can consideration what should or should not be done. Meanwhile the moral is subjective conception, said that if I am student and become to prosecutor. One day my former teacher committed a crime. It occur conflict of interest. I should be a grateful or do the right thing, this is moral. These are abstract which depend on middle-way living and backing up with knowledge and moral.

Besides that he had explained about the application of the sufficiency economy should be think about related factors, said that

If we said about adaptation to administration, it is the right way. Because today Thailand just begin using foreign direction which should considerate in four dimensions, effectively, customer satisfaction, efficiency and internal administration. There has adopted in business and government. The effective of government means the mechanism of operation should be fast, accuracy and precision get along with principle as in process. While service quality is the second dimension consider on customer satisfaction. If we link this issue to forensic science and criminal justice, the client must be satisfaction as possibility. The third is efficiency means output and outcome. The next is internal administration means there must be improve personal quality as in human resource and equipment this is the main idea. See that the internal administration, how it can harmonize link to sufficiency economy? The sufficiency economy is the middle-way performing. Exactly, something hidden behind that is adequacy. Really principle, it depends on situation, circumstance. Summarize that it is general principle for contingency adaptation, which is not deadly fix.

The forensic science police group

The informant of forensic science group mainly gave opinion about the understanding in the sufficiency economy as compare with the examination which needs knowledge, skill for choosing saving method with the same result, including the using limit resource for worthwhile budget. A police said that

We can separate into two points are the living and working. The living is maintaining life, adequacy expending money, do not have any dept, abstain from drinking or gamblers, do not destroy resource, and do not break the law. The working is the applying of theory such as reasonable in examination expense which need to using equipment, chemical or solution. We calculate for each method, some of its slowly but low price such as the human identification is many methods and similar confident, if we select highly price method as DNA when compare with fingerprint it saver than hundred times. If we can choose the cheaper, we should, except we cannot then choose higher. As buying equipment, do not select the most expensive or the highest technology, it is not meaning that is the highest quality. If they are different circle of operation but the same quality, we should be considerate our personal. The sufficiency economy may be means preparing human resource prompt for multi-functional such as they can replace the job each other which we do not use too much persons. And we should suitable person. And sharing resource between forensic science units is important because some equipments too expensive, should not possession for only one but for all. And may give opportunity for private sector to use, including officer training must be teach them about valuable resource and saving.

Another one police said like above that

In my comprehensive, the sufficiency economy is satisfaction in what we have. I am just known in general that we should to do upon our resource, providing just our needs. For example, if we have fingerprint comparison method, may not use DNA method that's enough. And if we want to set up

standard, must be collect evidence as much as we can, the more examination method will done. Thus, in criminal case we cannot say it's luxury, but we must to classify and management which do not focus on only money such as in crime scene we collect enough latent fingerprint but it was not belong to criminal. The criminal may leave some evidence which can bring to examining by DNA identification. The sufficiency economy view not focuses only saving, but should be emphasizing to worthwhile. In the administration view should be focus on personal effective to have analysis thinking and accuracy collection evidence method.

For operation section, one of forensic science police emphasize in the application of the sufficiency economy to maintain his underling live for convince in reasonable adequacy, he said that

Extremely effective in using equipments and persons does not mean expensive, can adaptation such as some examination we can use simple equipment but the result is similar expensive equipment. Because we have provided budget not too much, sometime we adapt local equipment for work such as bullet path measurement or we still use simple compass not electronic compass as well. For maintaining their live I always tell them to arrange money in suitable way, because of low income, the sufficiency economy is appropriate for them.

And one of police focuses on worthwhile and one standard for every unit's operation. He said that

We must be standing on worthwhile, extremely effective. Although our work is scientific and if we want to adapt the sufficiency economy we should to enhance person to work for extremely utility and serve people with accuracy and quality which is not focus only money. The criminalistics have many method which use resource and money in almost steps. So that, we must planning and accuracy knowledge for use suitable

method, the standard can help us. The standard must be conformity, extent to upcountry, similar method and clearly.

#### **4.2.2 The forensic science problem and criminal justice impactation.**

##### The judge group

The informant of judge group identifies the problem by focusing on confliction become development obstruction, luxurious. The competition between forensic science units has two sides. Negative side is just for reputation, positive side is indirect drive to improvement. As the CIFS establishing, the judge group see that it is the mechanism to lift up to be international standard and for people can accessing to criminal justice system easily more than in the past. Including they saw that confidential must be improve, this problem may impact to lately trial which said that

The establishing of CIFS should be setting accuracy standard and better improvement, but it became unity deficiency furious competition, and luxurious. I think that the competition should be push to improvement, but may be snatching budget which could be provide for all, that is luxury. For example, expensive equipment each unit providing for, even though it should be sharing because it may be rarely used. However, in my thought the competition is improvement such as in court, they are still competition between unit and help for improvement. There are observing from another court, that just the advantage more than disadvantage. For about budget I think it depends on policy making and cooperative, it should be sharing resource and equipment which will be saving.

...CIFS in my knowledge should be lifting up criminal justice administration, as in evidence searching to be standard. Do not duty in searching evidence but to be coaching, advice, providing some equipment for local unit and integrating data which can link forensic science data between units such as identification, I agree. However the police may not be done, cut CIFS can do such as missing person mission which I think it well opening...

A judge said about the impact in positive to criminal justice that

I think it is positive impact because at least the evidence which cannot prove such as there are not eye witness, but in forensic science can do. For example, what's happen in the case, who is suspect, and how? In many cases the evidence cannot link to criminal, when we have forensic science we can link to criminal and more precision than police officer such as DNA identification...

In opposition, the negative impact a judge explain that

There may be not convenient, late result which effect to trial process. If we can do faster, the client will receive fairness faster. Besides the accuracy and precision, time is important because something decay so quickly. Otherwise the criminal may be escape...

Another one describe that perception of people in forensic science service having advantage and disadvantage

Formerly forensic science was in Thai Police responsibility which people cannot access to know the scientific process such as forensic medicine or forensic science. And then separation people easy to access, just by media broadcasting or real science which can be proved or mixing flavor by public relation for someone or some unit. In my opinion a mass group of people mistrust and doubtful in forensic science process, media cause which is not real scientific. People expect especially 'root grass' citizen may be absolutely believe that CIFS is confidence, there are advantage and disadvantage.

The confidential problem must be emphasize in system more than person, if there are trustable system practitioner will improvement trustworthy, as a judge said that

...Conflict and unity problems?, I think it probably confidential problem. Question that, why people believe only one person, one institute. Notwithstanding there have three institute in Bangkok. Even though the

criminal justice personal are in dubious how they are operate. Some question, in critical situation why having one a woman, if she become a high administrator or some position else or retire, does institute are confidence? I think that the important of criminal justice is trustworthy, we should be make confidence for our organization and do not grasp only person. The country mechanism must depend on organization because person exactly changing in position. Reason why, may be from insufficiency knowledge or difference comprehension. Before crisis, people do not have helper just to have one person happen. What can indentify our unknown? For example, other country people may don't have forensic science knowledge. I'm not sure Thailand or USA, UK or any else, their people may not have knowledge. I think it is the confidence issue that our organization has relationship problem with other or not. Or we expect to only one woman.

#### The prosecutor group

The informant from prosecutor group gave opinions about the impact of forensic science problem to criminal justice which overlap and assessment. However the informant had emphasized in the rule of law because forensic evidence may helps innocence or to free the criminal which should be focusing on mechanism of evidence management including with knowledge, coordination and standard procedure. A prosecutor said that

I think that there no matter problem about overlap unit, it make us see in different view. The lawyer must be admit when we found forensic evidence it all technical that seem criminal justice will rely on forensic science and who will adjudicating do not understand, that may be right or wrong. Just like sometime forensic evidence can be judge the case but the real it has errors. If there is another unit to review, that is check and balance by proving on scientific base.

Forensic science is important to law enforcement and its impact is from using science which has disadvantage that is obstruction and advantage that is opportunity for development, one of them said that

Forensic science in law enforcement mission is one major in evidence principle. Disadvantage, external factor is they use to have opportunity but do nothing. Obstruction is person, because we used only eyewitness for simple crime. But when the social changed and complexity, till we change to focusing on scientific evidence and become opportunity. Turn to consider internal as advantage and disadvantage, and analyze organization and person. Advantage, we have knowledge and external factor is the criminal procedure code in 2008 which is oral evidence, material evidence, and today having forensic science evidence. It is knowledge and standard by law to reduce obstruction. But opposition side, there is barrier because internal criminal justice officer do not have enough forensic science knowledge and more than two hundred laws have been improving. The problem to considerate is what we know, can we use it or what we know, how we can develop. The important is how we can sharing and cooperate together.

Besides above a prosecutor had emphasize to the evidence collecting process which must rely on the rule of law, if it is not clarify or do not have standard may be effect to the trial, he said that

Exactly, the problem in forensic science will impact to criminal justice system because the material evidence will be interpreted from criminal justice. Thus, the forensic science will give the primary evidence and secondary evidence which is opinion and interpretation. In forensic science the primary evidence may become problem, if it is not clearly mechanism in collecting system which should have standard, our country do not have clarify standard. And next, the participation in collecting evidence which forensic scientist always follow investigator because he called for them, it may be contaminated. And the last is the knowledge of forensic scientist

just related to their work that is standard problem. As the collecting standard and interpretation standard sometime like a thin border line that how suitable to reveal its origin. So that, just only forensic science, it is not reliable but its processes are making believable.

#### The forensic science police group

The informant from the forensic science police group give opinion about the competition of reputation by using mass media which effect to the confidential problem before judgment and difference unit work similarly operation problem may be effect to overlap, if they have good administrative system, it will be the suitable check and balance system, a police said that

The structural view, there are not unity, snatching resource, robbing media for reputation that become negative for criminal justice such as revealing the examination before other, all around reporters and journalists but it is not good for trial. Some issue should be cover confidentially such as the problem in southern of Thailand which has shown like a documentary. If the criminal had known, they can protect themselves from arresting. The criminal justice is not like a super star, but it is fairness and protecting crime to impact citizens.

One of them said about supervision unit that

The competition may be checking system. Now the problem may come from Royal Thai Police and Central Institute of Forensic Science which in overlap operation and always sarcastically talking. The forensic police work by investigator call for and public want to reveal the examination that may effect to the case, if it is the checking system may be suitable. But if CIFS will supervision about forensic science standard, should not be service. Because it is not adequate or it will be separate into two parts, difference responsibility.

A police give an opinion that forensic police hard to work because of the unit and personal still in the Royal Thai Police, some people do not confident in unbiased examination.



Because we are police, the past had only forensic police and today having CIFS. Many people think that this is balance system. But the forensic police having balance system (by investigator), someone do not accepted, because the examination may not satisfy to people which they may think that forensic police help the investigator. But in many case we can say that what the real is. Although harder work, but today there are many connection channel such as internet which something real or not. We should be scrutinizing the fact because scientific cannot lie...

#### The forensic medicine physician

The informant from the forensic medicine physician give opinion in general view that it had develop the criminal justice because from forensic evidence had been used more than the past, focusing on oral witness which trend to distort the fact and emphasize the important of evidence collecting process by the rule of law. One of them said that

Today forensic science separated, before that it belonged to the police, but now in Ministry of Justice, many skillful had transfer to there. There is training for who graduate in scientific field and other, police are much because police unit lack of forensic science police in local area. An important issue is there used to have forensic science society, later it does not anxiety become silence and closed.

#### **4.2.3 The code of conduct in revealing to public**

One reason of confliction in forensic science system is using mass media to expose information which audient especially difference understanding people are difference expectation over fact or distort. It effect to difficulty work. From the quantitative analysis found that mainly officer agree in moderate level. And in-depth interview with experts and administrators in forensic science and criminal justices which gave an important information about the code of conduct in revealing to public that

The judge group

The informant from the judge group give information in the reveal to public issues that should be expose the mission and knowledge more than open the case data especially the case which in trial process or not finished. There may influence the judgment and making conflict between units that must have ethics principle to be the guideline for control, one of judge said that

“The exposing information to public probably makes them understand in mission and believe in operation of officer. The media is a chance for people to know and understand. In citizen status, I see that there never been present the mission or how examination operates.”

“The conflict which saw in media is the contrast in consideration or controversy opinion in result of examination that may be bias. For this issue I think that in general it can be occur. So, if we do confidentially or highly standard and precious, it is very important.”

A judge said about the level of exposing information that

The media, I see that people are understanding follow the unit present. If unit want to present role and mission about protection the rights and the criminal case in collecting evidence step which is the investigation responsibility. Our country is accusation system, defendant have the right to refusing, so that government part should not reveal the evidence. Sometime had been talk in media which may be influence to misunderstanding. Thus, should have direction of report to public...

Code of ethics issue, one of them had opinion that

...There should have ethics in media, but may be hard to control. In the criminal justice should be resolving direction and supervision our officer behaving on ethics. Police, prosecutor, court are all have their ethics and have committee to control. They can present to media, but must be rely on the fact. If it is not fact, may have been sanction, it is the responsible...

And another one saw that should be give information to public but must not be effect to the case, and should be gathering the forensic science into only one organization.

“The expert is only one to report, but there are two units fighting together in media that make unconfident. If we gathering into one unit which expert knowledge, so that we assign the expert to report information. It will be distinction and not impact to the case.”

#### The prosecutor group

The informant from the prosecutor group gave opinion about information revealing to public which emphasize in ethics of practitioner. The revealing, if there is knowledge the people should be receiving. For criminal case, if the case is in the trial process. A prosecutor said that

We cannot restrain the media exposing, but revealing untrue should be supervision. The first, I'm not sure that they have any society or not. It is very important. Thus, they are difference standard. The committee is not identify right or wrong, they just supervision the method of examination and all unit must be accept. Just like a case of politician, they argument about the direction of blood, posture of shooting because of the standard had not determined for analysis or origin. There was always shown in media at that time. Sometime there was not assign responsibility. The physician should responsible on cause of death, and evidence management is belonging to crime scene officer, and manner of case is belonging to investigator. If we often mistake, investigate what we don't know that not standard for manage the responsibility. If we leave too long, it should be unsuitable procedure just we frequency seeing the over responsibility.

For publish information, if it is knowledge, no problem. But should be aware the private rights. For the government information, the law assigned what can publish or cannot which may be ethics, we never reviewed, never consider. The confidential data in the case must be careful, but the forensic science evidence must be revealed...

...Really, there are the laws about information and interviewing, the code of civil servant. The information publishing has been enforcing but do not seriously done. It could have the level of open. The finished case can be present, but unfinished cannot. General knowledge can be sharing because no law for that, but must be relying on the good governance...

A prosecutor said that, beside the knowledge, should be sharing knowledge between criminal justice units for understanding cooperate.

The suitable of expose information I think that it should be considerate level of adequacy, level of revealing. Primary may be the knowledge until the case was finished, we can report. Today, there is less in knowledge sharing for people, although within their unit. The competition make them cannot join together, cannot link data. Sometime same data may be difference understanding that is the leakage of the law system. Resolving we can but we do not, such as death investigation there are police, prosecutor, physician but less cooperation. They have own regulation, why do not set up central procedure that we can improvement together.

#### The forensic science police group

The informant from forensic science police mainly opinion is worry about the information which criminal may use to destroy evidence that difficult to investigation. So that the revealing should tells only step of examination. However, should have the level of revealing up to regulation, one of them said that

“It is not right to give information like a doctor reveals the patient information, the case like the patient, if the expert exposing, the criminal may know and destroy evidence.”

In general we cannot speak about the case because it is investigator responsible. Only the step of examination which can tell, but what we found cannot tell, because in manner should not uncover especially the opposite. One thing should be careful is the law of CIFS mandate in collecting evidence passes over investigator and can reveal information.

Today must emphasize in accuracy operation and precision. If we can do, the truth will appear. We want media and admitted persons to recognize and change their mind that the Forensic Police Division support people not police. The media help too much in making understand to public that we accuracy and precision operation rely on scientific. This point is too hard because if we give more information the examination, the officers are difficult working that is dilemma because criminal will known collecting evidence method and how to prove it. We can tell to media, which step and how trust but should not tell the technical. In case information we can tell to media just when the case finished.

A police gave opinion along with mainly and addition in the code of ethics that

The information reveal is good but the cast should not do. Because the suspect may be escapes and troubled to decision which right or wrong. At this time we should not give information until case has finished or the criminal has arrested. If there reports more news about examination before arresting, it hard for investigator. There should have level of revealing and set to forensic standard. The code of conduct should be assign in overview about suitable manner and information. Or may be consulting with high commander or commander may be reporter.

#### The forensic medicine physician group

The informant from forensic medicine physician had shared ideas in the information revealing issue that should be careful in unfinished case and if necessary, who was presenting must have knowledge and suitable decision manner because there may be effect in positive and negative that need to have an organization to supervision, one of them said that

Receiving information of people has advantage that they know the transparency and accuracy operation. But unfinished case will have negative effect to investigation, so that the understanding of forensic

science is important for people perception. Exactly knowledge exposing is important but not case data...

“The knowledge sometimes dilemma, but the law allows to uncover information which not limit, but must not bad impact to other. Thus, for forensic science information should have responsible unit, monitor, resolving approach and code of practice.”

“There is direction in its process. Misconduct information reveal will be problem to misunderstanding. The head office must be control and sanction because it is malpractice in the law and forensic process which something must be cover.”

Beside this, a physician said about the approach to revealing information, refer to the one of Thai famous forensic medicine who initiated the forensic science and said about pro and con for reveal to public that

There are many aspect, for example of Professor Songkran said about reporting to media that ‘we tell as we do, silence as don’t or unfinished.’ The problem is the need of expose. If we read mass media theory said that information reveal is necessary. Next, how much we can talk, must have criteria. The major problem is the presenter no knowledge or don’t know the principle. There have two aspect are positive as information which people interest and negative as more over or less over speaking. The less over talk will have scandal impact to the case, or the rights. Thus, there should have balancing. Should be study and research, its result can be apply to be the code of practice.

#### **4.2.4 Human resource and knowledge development**

The quantitative sample group had moderate level of agreement for this issue. There must be developing human resource and knowledge for enhancing forensic science administration, including with in-depth interview which presented below

##### The Judge group

The informant from the judge group described that necessary to have central unit in training and support information and related knowledge and saw that the CIFS is suitable for responsible above and knowledge and moral must be join together.

The CIFS should be mentor in gathering the standard knowledge which may be training host, consultation or support other unit in code of practice or equipment. The harmony operation should have the same standard otherwise the opposite may have not confidential...

The role of CIFS, the new organization status. I see that academic, structure and systemic planning are all important. The academic view should be study the development planning of other country and how was they arrangement and management in each administration. The organization value should focus in the academic path and produce experts in related part or find who qualified to be committee board which for complete operation as semi-public unit. For example, if we want to elevate the DNA examining although we have expert but we can provide external expert to be committee.

According to the judge group, they had shared opinion that should be training to escalate the officer as domestic and foreign. In case of increasing personal such as the course of forensic science master degree which opens in several universities but the government cannot hold them. There should be sharing personal to work in local areas.

Because our country does not have many experts like in USA, so after we start up a unit should be investment in sent officer to training for take back skill and knowledge. Then later may build up institute or any unit to sharing knowledge. The training may be study master or doctoral degree. Unbalancing issue about graduated more over than forensic scientist position which depends on government budget. I agreed with setting up unit in local region or local hub which can provide position to support the graduated, this is the personnel expanding method.

The prosecutor group

In informant from the prosecutor group had gave opinion that except the knowledge, the officer manner controlling should be reminded. And every unit should have academic seminar, sharing update knowledge and give opportunity to train in foreign.

The personnel expanding, increasing budget and should be set training course in related knowledge, thus the forensic science is the new one which must be sent their persons to training continual but should be recognized that junior person always slip down on experience and senior may slowly in new technology, both of them must be meet between two side...

There should have obviously and diversity knowledge. I am sure that knowledge easy to find out because many experts were graduated from aboard and they are skillful and up to date. But there not have the system to control professional manner that may be the cause of negative contradiction and make unfaithful which impact to criminal justice system especially if the result of examination cannot admitted by criminal justice such as judge doesn't believe because the evidence conflict with the witness.

There should be continual seminar to sharing knowledge to make similar understanding. About the applying knowledge from foreign country, I used to known that there was adopt in many section because of economic and social change by time. This adaptation have advantage every part but may not copy all because their difference. The better if we hurry to changing because the fast of technology, which one not prompt, not complete should be improving. Because every unit tries to catch international standard, I very agree to improvement...

Another one saw that the knowledge development should be cultivating basic knowledge for harmony understanding in their operation such as the contradiction case in the media from the influence issue.



This is the time to start for development and forensic science is wider than forensic medicine which should be reviewing the old to be considerate weak point for improvement and create. The coordination and cultivate basic knowledge, the Ministry of Justice should be the host. The forensic science is the fact that on one rejects this logic.

#### The forensic science police group

The informant from the forensic police group had opinion like the judge group which must have the main institute for training, obviously standard and other units should be do the research, said that

Training and human resource development, there is problem that we do not have main unit to produce expert who have suitable manner and must be start with value creating. The problem is lack of continuous, on the job training, must be standard organization and very important of research...

“Knowledge development must be continual development because there is new technology and new crime and technical development. The cooperation within police unit sometime obstructed which should be cooperating to sharing knowledge and building network.”

#### The forensic medicine physician group

The informant from the forensic medicine physician group shared the opinion in human resource development that should be continual development and should have central unit. Including the issue of the need to produce and lack of personnel and the budget problem is still remain which said that

“Exactly the important, when graduated master degree probably should be study abroad for international knowledge and just come back must be develop other and continual knowledge development.”

Because forensic science is apply science. Who enter to work forensic science no need to study forensic science, many skillful do not graduate forensic science. So that finding the well knowledge is the first and the second is practice in forensic science must have basic and experience, and

accuracy train. The problem is who will control the standard of this training and should have professional organization and registration.

#### **4.2.5 The policy planning issue**

The quantitative data in policy planning issue, mainly had agreement in moderate level and the important information in-depth interview from expert and administrator saw that the politic had impact to policy implement and lack of continual which they gave opinion as below.

##### The judge group

The informant from the judge group saw in this issue that should be determining the major policy and strategic to be the approach to long-term implementation and manor policy or short-term policy which flexible implement and conform with objective, a judge said that

...I see that it is the problem about continual policy implement. It may separate into two parts as major policy is long-term policy and minor policies which can change according to time depend on administrator era. I think that this is normal because the flexible is suitable for short-term policy but should be recognized that long-term policy must be continuous...

The policy, I see that every organization must have direction and drive by strategic planning or operation procedure. And strategic aspect, I ensure that CIFS have this plan, but this is not factor to identify the person or administrator can follow the plan completely. Because there are many factor but the vision will be the pusher...

Another one suggest to pushing the legislation of the forensic science act and pass on knowledge to people about the forensic science mission for more obviously operation which he said that

We must be pushing the legislation of the forensic science act. As long as the politic still to dissolve a parliament this act will been withdrawn, waste time. A choice is public relation like an advertisement which means

sharing knowledge with people for realizing in the important of forensic science. If all emphasize in forensic science, it will be indirect force for faster legislation including the accuracy of knowledge.

#### The prosecutor group

The informant from the prosecutor group had opinion conform to the judge group in the long-term and short-term policy planning and cooperation between forensic science organizations which said that

That's very hard, because we cannot manage by ourselves, it must be taking to politic process such as improving the laws must propose into each step. If the politic policy has change, everything will change because it is related to authority level. The minor policy adjustment should be get along with the major policy. If we change only minor plan but do not change major plan, it has not usefulness. The cooperation policy we should be think about how we can connection, how we can transfer information, how we can cooperate and support instead of competition. I think that if the top level is not good relationship, the base level may be able to change step by step and connection together.

A prosecutor observe that the cooperation should set the meeting or seminar for standard of practice which he said that

“The first thing, any expert should be seminar until get conclusion. The scholar should been taken into this seminar such as lawyer or administrator. Meanwhile standards in forensic science are similarly, that easy to develop. If they are still in conflict, development and advancement will not occur.”

#### The forensic science police group

The informant from the forensic science police group gave opinion for the impact of policy to the administration system because there was frequency changing and not stabilized politic in our country make the implement lack of continual. One of them said that

The administrative management must consider the pathway to development, how we can climb to the target and what we want such as place, personal, equipment, and budget must be concluding all. If we have equipment but do not have expert to use it that may be the problem. There should be set long-term plan but our culture not familiar. So that we always start in every plan, that the waste investment...

...It's hard to resolve because our country changing all policy all time. Such as police commander change every year if they change, the policy will change too, that impact to our work such as we have plan to buy a lab machine, when the policy change, our plan was canceled. Recently, we just adjustment organization structure, new policy and new plan had been set to replace the former.

There is difference in some ideas which explained that the impact was effect just only administration. A police said that

The policy that flows from politic may impact to some part of administration but rarely effect to our operation because our job is specific the effect may be touch on our budget. If the CIFS has own act, may affect more because it is related to the forensic science examination process.

#### The forensic medicine physician group

This group emphasized the policy should develop in education and sharing knowledge between unit, including realize the effective. One of them said that

It is depends on the administrator who authorized forensic science unit should be find out what our problem, what is not worthwhile or ineffective. What will we testing, meeting or sharing? Could have annual conference or forum for to find the knowledge or research and what we can apply effectively.

“The policy should focus on effective previously. The valuable is not only focus on money, sometime the criminal justice may use much money but we must considerate the accuracy and effective altogether.”

Another physician gave an opinion in policy about the role and responsibility assignment of each unit should be clearly that

The forensic science knowledge unit must be independent. Should be recognizing about overlap operation and researching about the need of our country. Summarize that the problem is if there is only one person, he can find the problem less more than several persons. Should not be competition the reputation. We cannot compare with USA, they have local and FBI because they have obviously law for state and local, local and FBI were respect each other. But our country has the same mission and two unit, there is the question that why was setting up the new unit. If the examination result was contrast, it will be conflict and if not contrast, it will be wasteful.

#### **4.2.6 The structural and administrative improvement issue**

According to the quantitative analysis, the forensic scientist group had agreement in moderate level about the structural and administrative improvement and the result in-depth interview shown below.

##### The judge group

The informant group from had account for the structural and administrative issue that the CIFS should be responsible in training and management the academic which said that

...I think that CIFS could be host or mentor support other unit such as sharing knowledge, suggestion, training or equipment. All should be managed into system and sufficiency, and what special equipment will share as possible as they can. This is the sufficiency economy philosophy...

One of the judge group advised that there should be determine the role and responsibility of each unit especially both CIFS and forensic police which for avoid overlap and interfere problems.

Since the formation of the CIFS I believe that structure, vision and target are obviously but they were not clearly in administration. So that, the legal viewpoint is not necessary for improved, the portion of government structure should be adapted to fit the role, mission and objective. If the CIFS concentrate in service, they must having much more experts but if they concentrate in academic, research or special cases, the less experts. If possible, some unit may work parallel with the old one. Obviously, it should be setting for check and balance, not much experts but for special complicated cases that be expert of experts. For this point the sufficiency economy can be analyze that which unit can hold the major mission and who is better or who is support. In the case of same mission two units, the last is no one better. If compare in investment view it is wasteful and confusion. My idea is the government units should not overlap but should be separate responsibility and support each other...

Overview I agree with check and balance system but do not interfere or interrupt. The problem may be from power scramble to oppose other operation which makes our country had been break development. Because the paradigm of our country was holding on oneself that is the development obstruction. The forensic acts are very slow, if it has legislated, everyone must be respect and enforcement.

And another judge has said about the combining forensic units into only one that

It should be combined forensic unit of police and Ministry of Justice together and managed into one unit, separation like present is not right. It should be latent in the criminal justice unit such in court, prosecutor, police or correction because they are major process. Or could be independent but in the criminal justice process.

Besides that there was opinion about the confidential important more than structure. A judge said that

I think the structural improvement cannot resolve this problem. Important is confident. Although we improve many things but lack of confident, it's just empty. It is very difficult for pull back of unconfident. The impact is not effect only individual but to forensic institute and may extend to the criminal justice. I suggest that it should be transfer administrator, find new one who can be reengineering, promote the good looking and fair accuracy. Making the people recognized in systemic, if there is administrator had changed, the standard system is still.

#### The prosecutor group

The informant from the prosecutor group was seen the structural and administrative improvement that the related unit should be cooperate and making understand both administration and academic. A prosecutor said that

It should be obviously separation about what major unit to manage forensic science examination is and which case for which unit. Now we have two units, the Forensic Police is under Royal Thai Police and CIFS is under Ministry of Justice. If sometime, someone unsatisfied examination result of a unit, and then required for another one, that may be discriminate to administration and confliction. If the conflict let to beating in their theory that will be problem. The problem is not budget issue I rely on their talking together. The causes of failure cooperation are knowledge and understand of people about the forensic science examination and if the scientist does not talk together for conclusion, the suspicious still remain.

The first, each unit must be improve oneself, good attitude, learning within own unit including within criminal justice and participation from people. The highest administrator distributes the policy to below while operation officer should be cooperation together. At least should have main host, now I think the Ministry of Justice is suitable because the administrative management is not only enforcement but I worry more in the conflict between CIFS and police.

A prosecutor saw that should have effective check and balance system, may be a central director unit with empower related law.

The administrative management, the first is personnel providing, the second is independent and do not interrupt by anyone and the third is enough budget, up to date equipment and auditing system. If we don't want to have overlap problem, we must be overhaul. Central unit is auditor that will increase confidence, must be improve the law for determined responsibility. Now, as I see that each unit was working apart, if they have a general regulation or law, it will have a clearly border of responsibility.

#### The forensic science police group

A police described for improvement that should be dividing into two parts and set up professional society.

It must be divided, one is closing investigator, to investigation, suppression if working not on time, the evidence will disappear that the reason why using command system. Another one is expertise, analyzing evidence, should be independent, don't worry about impact to anyone, not under influence and must rely on only justice concept and researching. Thus, there are the law enforcement officer and scientist, but do not isolated, must be the linkage about development of law officer to be scientist and understand role and responsibility, basic tuning to understand the limitation and mission of each other.

According to above, one had explained that service unit and approving unit should not be in one organization or may be central unit responsible in the case which is not clearly conclusion. He said that

The standard superintendence unit should be independent from police or others including criminal justice unit. Whatever should be separate service and controlling apart such as the Ministry of Industrial have the Office of Industrial Standard which responsible to superintend but our forensic science is very confusing, it should have mediator for making decision just like the Medical Council which have committees to inspection the case of



malpractice, they do not service but their committees are experts from many units.

And another one had emphasized to coordination and holding objective of criminal justice, said that

The benefit of several units is for approving like a court system. The high administrator should be have more relationship, cooperation, sharing information and if there is oppose result, it will have mediation unit to making decision. The conception of forensic science is to arrest the criminal, how can catch him and to provide justice to victim...

#### The forensic medicine physician group

The informant of the forensic medicine physician group had opinion for this issue that should have the society of supervision officer and improve the law to suitable for operation.

It must have forensic science organization, at least forensic science society which has members from all area and committees to resolve the problems, to support training, this society will enhance the administration. The CIFS should be control and if the law has legislated, DNA laboratory may be in control. But the independent is also important and has approving system which must be more scrutinized.

For Thailand, it should be arrangement the related system, improving the law obviously and suitable for forensic science. Building knowledge, accuracy understanding, and check and balance system. Probably, independently setting organization or unit will protect the influence.

Beside that, a physician said that should be changing, since policy level to clearly position and responsibility. The check and balance system may apply from USA which unnecessary to use the law but depend on expert's credit.

The first, the government should be determining the policy to providing equity forensic science operation and then to assign the strategy and

finding related resources. When we setting plan, sometime mainly think for legislation the law, it is not necessary because something had existing and we do not want to face with overlap problem as right now. The law which mandating a unit to control another may be conflict. In my concept, systemic thinking is the first then to providing resource, strategic planning and equipment. So that, the equality forensic technology and knowledge administrative management that must be a government unit. The modern administration principle try to decentralize the authority, control with policy and coordination, not use one unit and top-down management...

...Should be careful the management of approving standard, as I said that USA does not enforce by the law but approving by recommendation. For example, there has a criteria which all scientist accepted, court may trust or not but count for it had been approved. In case of using forensic science evidence, the court had a principle "*frye principle*" which explains how to determine about the court admissibility for a new test. This is the basic rule of court for admissibility.

#### **4.2.7 The application of sufficiency economy in forensic science.**

All informants agreed with the application of sufficiency economy in forensic science administration. They focus on consideration circumstance factor to making decision with reasonable and knowledge information which they present as below.

##### The judge group

The informants from the judge group had gave conformity opinion in this issue that should be remind the extreme interest and worthwhile of the criminal justice system.

"I see that the sufficiency economy philosophy can apply for all organization, if we have to exactly applying, we will use resource, personnel with highly benefit, I am agree with this application."

Absolutely agree, as I said that the factor of administration is the cost of production. The less or unsuitable cost may produce low quality product, not well administration and cannot reach the target. So that, my meaning of “Sufficiency” is must be enough for all context. If we want to manage an important project, we must be scrutinizing the cost and value. Every topic reconcile with sufficiency economy because it must be get the properly administration previously. And next, save time, faster and effective, if we had analyzed, we can set the method for administrating. If a project is not worthwhile and we do not analyze, obstinate implementation become unconformity with the sufficiency economy, it's too over cost or waste.

“The sufficiency economy must be implement with analyzing, management and integrity, it's mean the policy must not stand over the reasonable which not to be in line with sufficiency economy because it was not stand on the scrutinized information base.”

A judge observed that the cause unsuccessful of this applying is the administrator does not recognized and over spending the budget. He said that

It is possible to apply the sufficiency economy, but there is obstacle about the budgetary provider or high commander who's greedy, not enough. As I said that, some equipment is rarely using which unnecessary to buy, we can share from other. The matter is ‘Does the administrator or budgetary manager know that?’, if he knows, it may not need to buy, and this is the application of sufficiency economy for forensic science. However we still obstinate to provide for self interest, it cannot resolve.

#### The prosecutor group

The informant from the prosecutor group explained for this issue that should rely on reasonable, knowledge and balancing.

It is difficult to apply, but if we understand the sufficiency economy which can understand in many idea. My thought is the reasonable implementation, not to be negligence. This negligence means do not

snatching because sufficiency is maturity, self recognized, and other recognized, and do not over capability and imbalance. If everyone listen to each other, it will be easier to cooperation.

Forensic science in the sufficiency economy view, we are subunit. The applying concept from foreign country should not concentrate more because there are many related factors. We must be improving our service, it will be better because it has dynamic. The person is the first to resolving because the system is not complicatedly problem. We should be emphasizing the willing more than forcing. The budgetary must be considerate the effectiveness and worthwhile of all part and focus on objective.

A prosecutor said about the recognizing of outcome and applying of administration from foreign country that

The sufficiency economy is not focus on output, but outcome. I'm agree with this principle, but it's may difficult because the sufficiency economy is the principle to answer about economic question, it may not clearly to adopt for forensic science. And another, there is a bound of application, do not copy all from other country. We must think about that forensic science is academic theory, so that the selection for adaptation must rely on reasonable knowledge, not using sense. Sometime, someone, nonsense talking and wisdom cannot distinguish, we must be obviously separation. The sufficiency economy had emphasized in knowledge, so the selection of any method must hold the reason which all accepted.

#### The forensic science police group

The informant from the forensic science police group gave opinion that the applying should be deliberately planning to implementation for all related.

There is probably to have central unit which absolutely not government or private to planning the system. Researching to set objective and setting agenda for success, look around every parts. Always someone had been train to be skillful expert, and then become to be administrator that will

leave their knowledge. How we can promote to growth in their expertise, welfare system and sufficiency economy should be fulfilling in every subjects.

Slattern budget expending, if there is coordination between units to sharing information and knowledge will making decision for suitable implementation. A police said that

Although some possible parts and must to do. Because the limited of budget, should have similar standard equipment and not too expensive and step up development. The focused issue is cooperation which hard to implement. We should set up a society for academic or meeting for more independent idea and knowledge, including ethics promotion and relationship between units. The peak of forensic science target is criminal arresting for peaceful society.

“We should be applying all equipment extremely usefulness. Before providing equipment must be planning and analyze the necessary, and valuable. The statistic reviewing helps for valuable and extremely benefit.”

#### The forensic medicine physician group

The informant from the forensic medicine physician group suggested that applying of sufficiency economy should be assessment all resources and valuable adaptation, including reasonable consideration of needs. They said that

“Exactly, we have much equipment which can adapt to use, unnecessary to buy new one. Administrator must know which one can be apply and consider about maintenance and user.”

The applying sufficiency economy is doing nothing because we have former unit for operation, just improving. We should use existing and increasing effective, do not take over the other responsibility into only one unit. We can take ISO system to apply for elevated quality to increasing confidence, cooperation and accuracy understanding that just enough.

The sufficiency economy means self recognizing and does as we have. Previously, we should study the resource demand. The forensic science demand must be known how we can provide for arrange our resource. If we do not study and copy from other, our insufficiency situation, 'is it necessary?'

The researcher had realized to the quantitative analyzing in each issue as structural, media and volunteer, budgetary, human resource and knowledge, and policy. The informants from forensic science practitioner who answered the questionnaires mainly agreed for all issue in moderate level. And the personal data, the informants who had more experience had agreed significantly. These informants are directly responsible in forensic science, so that all information had important for creating the in-depth interview questions.

In-depth interview to the experts and administrator in forensic science and criminal justice about related issue of the application of forensic science administration through the sufficiency economy which the informants had shared ideas that the sufficiency economy is not specific concentrate only one side, but should be considerate all overview and using each factor with reasonable. And it should have a central organization to superintendence and approving standard practice, including control manner and ethics of practitioners. In case of lacking central unit, every units should be coordinate and sharing resources or equipment which use in rare case and/or very expensive. The administrative planning should be standing on the base of reasonable information and knowledge. And worthwhile assessment issue, the informants had conformity idea that should not only focus on money, but should be realizing in interest for criminal justice and public.

It can be summarized that the application of the sufficiency economy is possible for adaptation to develop forensic science administration, and conform internal and external units. However, the related from the administrator to the worker must be recognized, understand and scrutinized learning for suitable applying to mission, responsibility and organization structure which to be in line of operation and cooperation for balancing the benefit in every parts.

## **CHAPTER V**

### **DESCRIPTION**

According to the research result both quantitative and qualitative analysis of “The approach to develop suitable administration of forensic science in Thailand through the application of sufficiency economy” hereafter description as

#### **5.1 Quantitative Result Description**

##### **5.1.1 Personal data**

The personal data about sex factor found that the numbers of sample groups are closely. Age factor, found that mainly are between 21-30 years that just the period between graduated and starting to work. Education factor, found that mainly are bachelor degree, master degree and higher than master degree respectively, shown that this sample group had to pay attention to learning and intend to self improvement. And forensic science experience, mainly had experience between 1-5 years, and 11-15 years respectively, because the last ten years, there was extending working area of forensic science and increasing of personnel that the cause of highly in this sample group. And distinctive analysis of personal data and administration development found that the difference experience had difference agreement.

##### **5.1.2 Structural issue**

Mainly sample group had agreed to the structural issue in moderate level, and high level respectively. Nowadays forensic science units had been distributed into any organization, there is not approval standard unit and does not have a superintendent host. Following above which always be the related standard problem. Structural arrangement should be enforce under government system, though some sections may be adapted to independent in the future which correspond to Robertson

(1992) had concept about future of forensic science system should be independent and standard procedure. However it should rely on government supervision because of forensic science is a part of criminal justice which necessary to authorizing in law enforcement. If this independent is more over adequacy, it may be complicatedly administration consistent with Somchai Wongsawat (2005) described the important of criminal justice which protect the people's freedom and rights.

### **5.1.3 Media and Volunteer issue**

Mainly sample group had agreed to media and volunteer issue in moderate level and high level later. Because of mass media had used for reveal forensic science information, but there was not adequacy direction that become to confliction problem. Furthermore there was distortion and over expectation to public which correspond to *Science Daily* (2008) reported about the impact of mass media to court.

Besides that, there are volunteers whose supporting in crime scene operation, but they have not been authorized and their operation directions are difference. Thus, it should be determining area of responsibility and regulations as in reveal information and cooperation of forensic science officer which for standard operation and consistent with the rule of law, consistent with Horswell and Edwards (cited in Siegal, 1997) recommended the quality of crime scene investigation effect to effective or mistake of laboratory .

### **5.1.4 Budgetary issue**

Mainly sample group had agreed to budgetary issue in moderate level. Because of the forensic science units were not united, so that the budget had been planed apart and wasteful implementation as in personnel and equipments. It should be cooperation for planning the budget between related units. And must be manage the internal equipment providing and external equipment sharing especially expensively and occasionally equipment. Exceptional, the statistic is important to support the tendency crime analysis which for valuable and effectively planning and implement the budget or related matters consistent with Koppl (2007) suggested to reviewing organization statistic for improve quality and Becker, Dale and Pavur Jr. (2010) writing about improving effective should be analyzing worthwhile by administrator.



And according to Speaker and Fleming (2010) talking about advantage of budgetary planning will be support structure preparing for fit in every unit.

#### **5.1.5 Human resource and knowledge**

Mainly sample group had agreed to human resource and knowledge issue in moderate level. Herewith consideration of the graduated in forensic science increasing and highly demand of forensic science officers but the limitation of government policy becomes imbalance problem consistent with Piroj Sitpreecha (cited in Thossaporn Sirisampun, 2003) described the management by objective that government always obstruct by high level about listening opinion from every path. The personnel knowledge, the practitioner needs to have knowledge and understand about criminal justice for harmonious cooperation within criminal justice system. It should be training and competency testing continuously because the technology is rapidly development, the practitioner needs to learning for understands and can be apply for their work. The special cost should be adding because of facing to the direct and indirect risk. The direct risk, such as operation in dangerous or not saving area, and indirect risk, such as in case which may tend to alleged. Furthermore, every unit should have training and/or seminar together for harmonize the understanding which can be cooperation well done, correspond to Becker and Dale (2007) presented forensic science administration principle to reduce error and should emphasize academic and research.

#### **5.1.6 Policy and policy implementation issue**

Mainly sample group had agreed to the policy and policy implementation issue in moderate level, because the politic situation is unstable which effect to the implementation of policy especially the law that unclearly regulation about responsibility assignment was became to the cause of authority contradiction. Withal the policy implementation, there is rapidly take turn of government which effect to changing or transferring high administrator in forensic science units, after one does not continue the old policy or the old one necessary to adjust policy correspond with new governor which consistent with Ingram and Mann (1979) explained the reason of policy failure from circumstance changing. However the policy implementation must

be rely on reasonable, accuracy needs within the base of root cause and fact. Besides that should be recognized to providing the justice for people, and must be effective outcome, valuable, and extremely benefit. According to Birkland (2001) observed the policy implementation should considerate objective, successful and outcome, and Chumpol Nimpanich (2004) explained about policy effectiveness must be success conform objective.

## **5.2 Qualitative Result Description**

According to the result of quantitative analysis for create in-depth interview questions to interviewing with the experts. The result of interviewing can be explain hereafter

### **5.2.1 The understanding of the sufficiency economy and administrative management.**

The experts gave opinion to this issue with emphasizing in effective operation which consist of worthwhile, not worthy in money but must be consistent to the interest for all and the whole balance consistent with Yuthapong Leelakitpisarn (2005) explained the government administration that should be administrate to extremely effective and Chumpol Nimpanich (2004) said that, in the real situation may necessary to use many criterions for administration to objective achievement.

Wherever, the successive administration and consistent with the sufficiency economy organization necessary to define obviously objective, and the operation must be correspond to the objective. Herein about the resource, should be use extremely benefit depend on circumstance and existing factor especially the human resource must have basic forensic science knowledge, development, and continuously training skill. And it should be managing to put the right man on the right job and encourage to recognizing in moral and ethics, and accurate in other impaction which let to confliction, conform to Siriwan Saereerat *at al.* (2002) explained government administration principle that should be assign responsibility distinctly.

However, if there is cooperation, exchanging, sharing resources and knowledge with other unit, improving to accuracy operation and higher standard

procedure, including with risk management planning to protect the mistake that may be occurring, it will be reduce unnecessary wasteful of any resources.

### **5.2.2 The forensic science problem and criminal justice impaction.**

For this issue, can be explain hereinafter

Confidence – the forensic science confliction effect to suspicious from public, other unit, and officer about capability in accuracy and standard operation of each unit which impact to confidence in forensic science and may be including criminal justice, because they are related consistent with Levey, Pinchase and Frank (1999) emphasized on quality system in forensic science effected to success in trial.

Justice afford – as the forensic science units which cannot be coordination and operation linkage will be the obstacle to success in adequacy period and drag on afford the justice to public consistent with Fairleigh Dickinson University (2008) recommended compromising understanding in the laws, social and politic issues. And Siriwan Saereerat *at al.* (2002) said about systemic theory that must be rely on majority benefit and working connection.

Knowledge – because of forensic science is the application of specific in scientific, whose do not have basic knowledge will hard to understand especially people who had received information from public media, even though the officer in criminal justice as lawyers, attorney or prosecutor which may be unclearly understanding. The result of unclearly understanding and lack of related knowledge will be impact to procedure both direct and indirect. Besides this, there was not institute or host unit responsible for sharing and training in forensic science consistent with Fairleigh Dickinson University (2008) recommended administrative adjustment conform to criminal justice, Horswell and Edward (cited in Siegal, 1997) said about conformity working within criminal justice and Weinstock *at al.* (cited in Siegal, 1997) said about objective of criminal justice to get rid of conflict in social.

Check and balance system – nowadays forensic science does not have central unit which responsible for approve, operation supervision, and standard administrative control, consistent with Lucas (1989) explained about role and

responsibility of forensic science officer need to supervision by professional ethics, and Koppl (2007) offered to set up check and balance system in forensic science operation.

Accessibility – almost the forensic science service unit has pooled in Bangkok and upcountry principle provinces, and other only have forensic science police where have a few officer and equipment, it become inequity in service accessible that effect to trial process, may be bias. According to Somchai Wongsawat (2005) described the general principle of criminal justice which must be provide fairness to all people.

### **5.2.3 The approach to reveal forensic information to public.**

The experts had shared their ideas with this issue that would be dividing into two parts as knowledge information and case information. The knowledge is necessary to reveal to public, but should be aware of some examination techniques which are dilemma, the criminals operate their job easier. And the case information, it can be reveal if the case has finished, but the case in trial processing, the law is not allow to reveal. And it can reveal about forensic science only which step of examination such as in the analyzing period or the analyzing had finished, that to protection the trial guidance, consistent with Heinrick (2006) observed about CSI series which made misunderstand and negative effect to trial in court.

Whatever, it should have the code of ethic or procedure for information revealing to the public and sanction for malpractice consistent with Koppl (2007) referred to protection and information filtration in forensic science system. Importantly, there is lack of public relation about mission and responsibility of forensic science to public.

### **5.2.4 The human resource and knowledge development.**

For effectively operation, it needs to cooperation between forensic science units. The experts gave opinion that it should be planning the standard knowledge for tuning basic knowledge to similarly understanding both within forensic science and criminal justice such as the law should learning of another, and if possible should be

training abroad to bring the knowledge back for applying. And should be understand the limit of responsibility and other, including the recognized in moral which for control the practitioner have suitable manner, consistent with Fairleigh Dickinson University (2008) emphasized on forensic science knowledge and cooperation.

The lack of practitioner especially in rural area, although there are many institute had set up forensic science course for increasing graduated, but the forensic science unit within government cannot fully receiving into their unit.

#### **5.2.5 The policy planning and implementation.**

The opinion of experts had shown that the policy will be the guideline for operation, and unstable politic is effect both direct and indirect. Each unit must be determined their mission and responsibility as in long-term and short-term.

Long-term policy must be the main objective, and short-term is flexible, and adaptation whereas do not oppose to the main policy, like Speaker and Fleming (2010) observe that laboratories not always set up fluctuated economic protection planning. Exceptional, the expert had suggest to assignment the important policy such about mission, knowledge, cooperation, and standard procedure which all unit should be cooperate for implement, consistent with Thippawan Lohsuwanrat (2006) said that the best organization administration must be conform to present situation and self-immunity of sufficiency economy.

The experts had worried about the attitude in old concept of identical dignity of government administrator which do not implement in the way of old administrator, and new assignment policy always not searching for advantage and disadvantage of old policy, and do not assessment and analyze the root cause problem.

#### **5.2.6 The structure and administrative management improving.**

The experts had sharing idea for this issue hereinafter

1. The forensic science organizations must be independent especially in their academic opinion consistent with Robertson (1992) presented his opinion that forensic science should be independent especially in scholar opinion, and should be establish the professional society or set up committee to supervise the practitioners operation and ethics.

2. It should have an organization responsible to approving and control the standard of operation of practitioners and units, however this organization should not service, consistent with Levey, Bergman and Frank (1999) that emphasized on making confidence in quality system in forensic science.
3. It should be clearly assignment the mission of each unit which for prevent overlap problem. The expert observed that if the results of examination are the same, it will be wasteful, but if the results are difference, it will be contradiction. According to Koppl (2007) recommended about competition between forensic units but should be aware of independent of each unit.
4. The crime scene section should be in law enforcement unit such as police, and the experts or laboratories should be divided into independent. However, both of them should be training and learning for understand each other.
5. Because any equipment is expensive, should be planning for operation. Some of them may not necessary standby in every units especially the one expensive or occasionally use, should be sharing for saving cost that is from citizen tax, consistent with Speaker and Fleming (2010) recommended to planning budget which necessary to considerate with organization administration planning for mission achievement.
6. The experts are in accord that the administrators should be changing their paradigm, cooperate and recognizing in extremely benefit to public, correspond to Becker, Dale and Pavur Jr. (2010) presented increasing administrator effective measurement must be analyze worthwhile and making decision rely on wisdom and scrutinizing.

#### **5.2.7 The application of sufficiency economy in forensic science.**

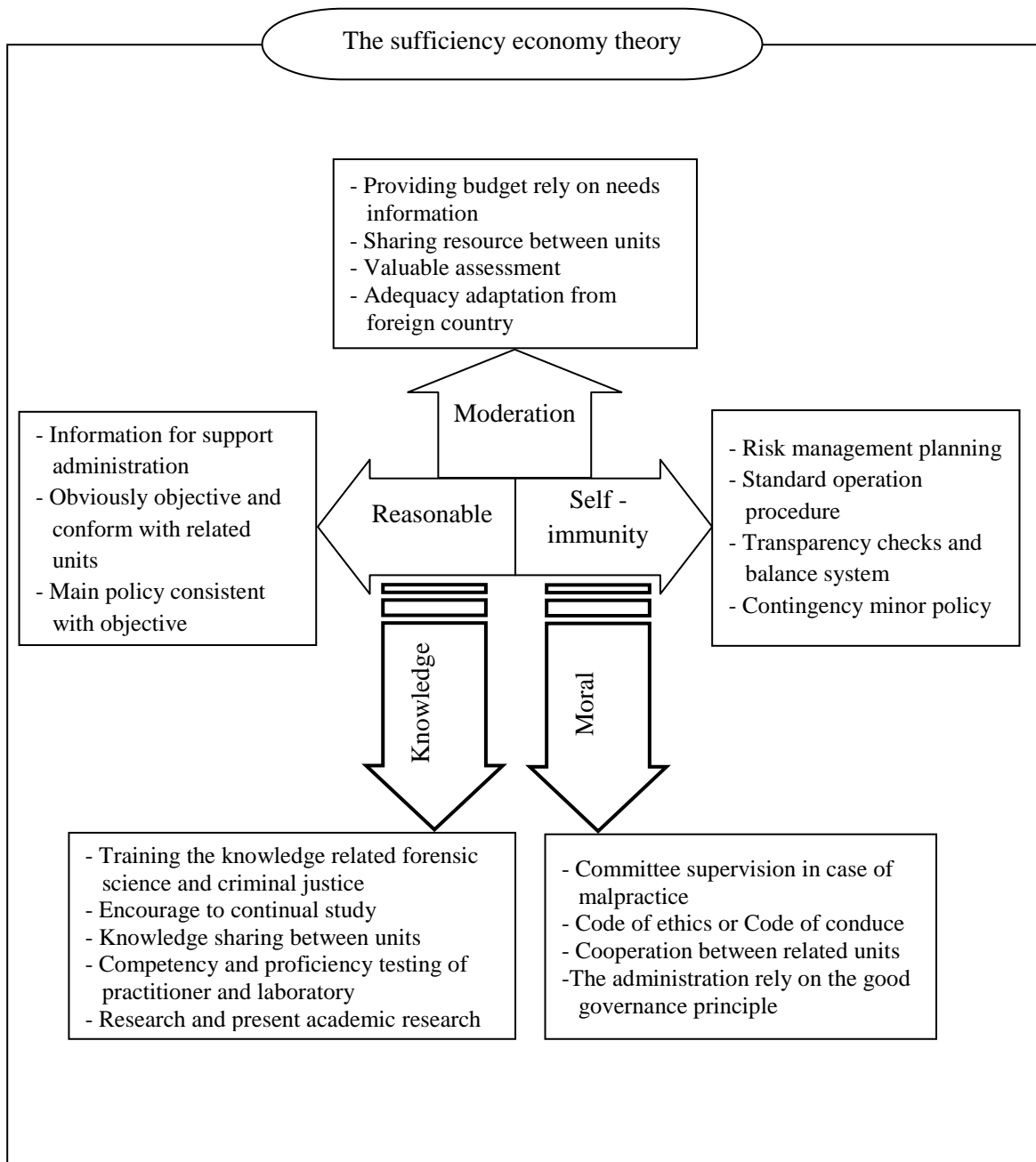
The implementation in forensic science which for consistent with the sufficiency economy, the expert had suggest for the approach as

- The forensic science units must be performing self assessment as in administration system and personnel, planning to work to consistent

with objective for highly effective and worthwhile. If necessary to overstep in procedure for reducing time or resource, must be keep in mind that the effective will not reduce which conform to the identity in moderation.

- The forensic science units must be analyze the root cause problem for providing necessary resource to resolving and improving, and planning or determining the policy must rely on reasonable with consideration the problem information, this is consistent with the identity in reasonable.
- The forensic science units should be continuous development which for ready to facing the problem or any obstacle that may be happening in the future. It should be coordination with related units or cooperate in development which is consistent with the identity in self immunization or risk management.
- Besides the operation development, the knowledge is important which should be conference, seminar for sharing and need to set up the unit that responsible in training and researching about forensic science which is consistent with the knowledge base.
- The code of ethics is the manner guidelines which every profession has recognized especially the forensic science practitioner whose work in criminal justice must be keep in mind all time. Because this work can take either positive or negative to people, if lack of ethics and concentrate only self interest, it may be harmful result to oneself and criminal justice system. This approach is consistent with the moral base.

According to the research conceptual framework, it can be shown the relation of the application of sufficiency economy in administration as in Figure 3.



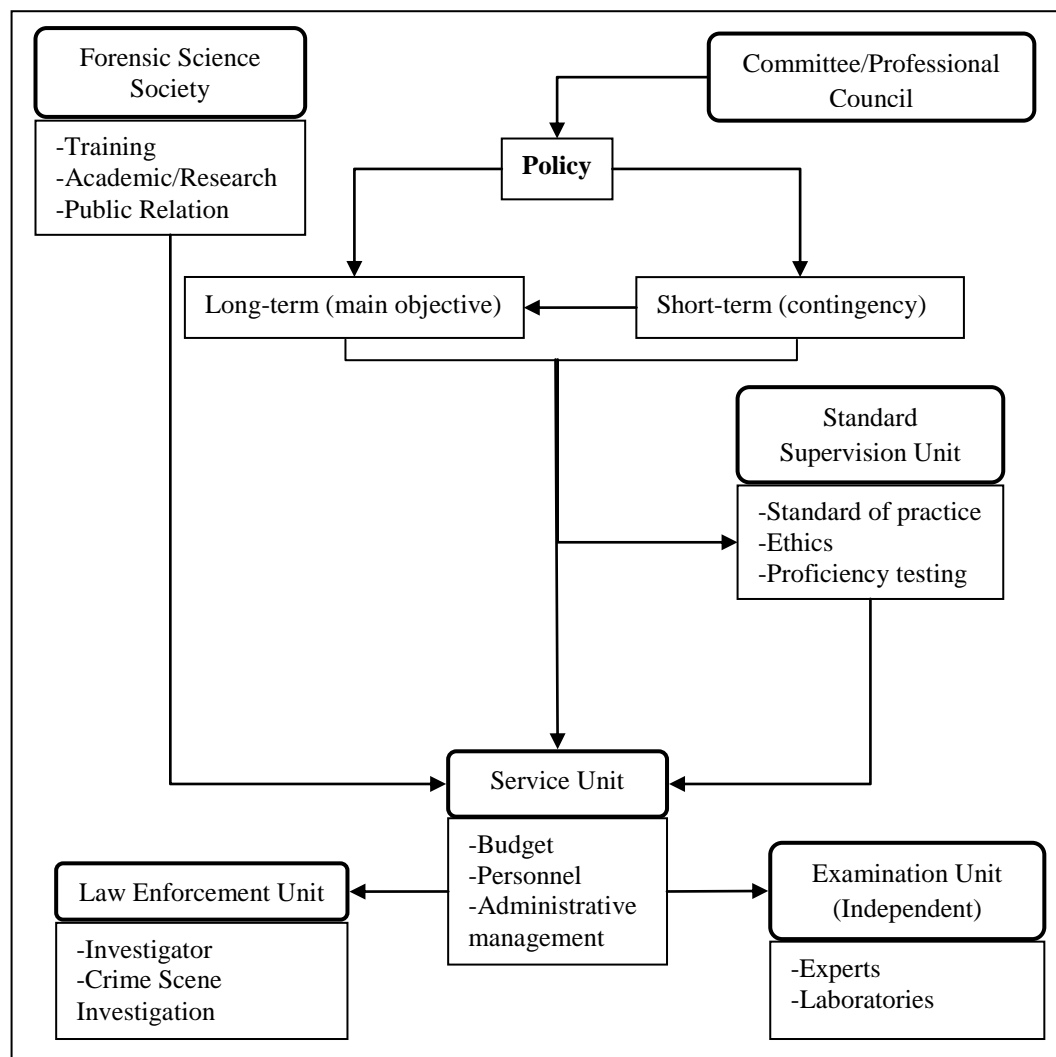
**Figure 3** shown the relation of the application of sufficiency economy in forensic science administration



### 5.3 The Structural Model of Forensic Science System

According to the research result which can be presenting the structural model of forensic science system into two models as the emphasized on committee model and the emphasized on professional society model. The first one is depend on legislation process and formally control system which needs to use more time. The second one is emphasizing on cooperation between existing laboratory and setting up professional society, this model can be apply faster than the first and preparing for every unit to be transfer to the emphasized on committee model.

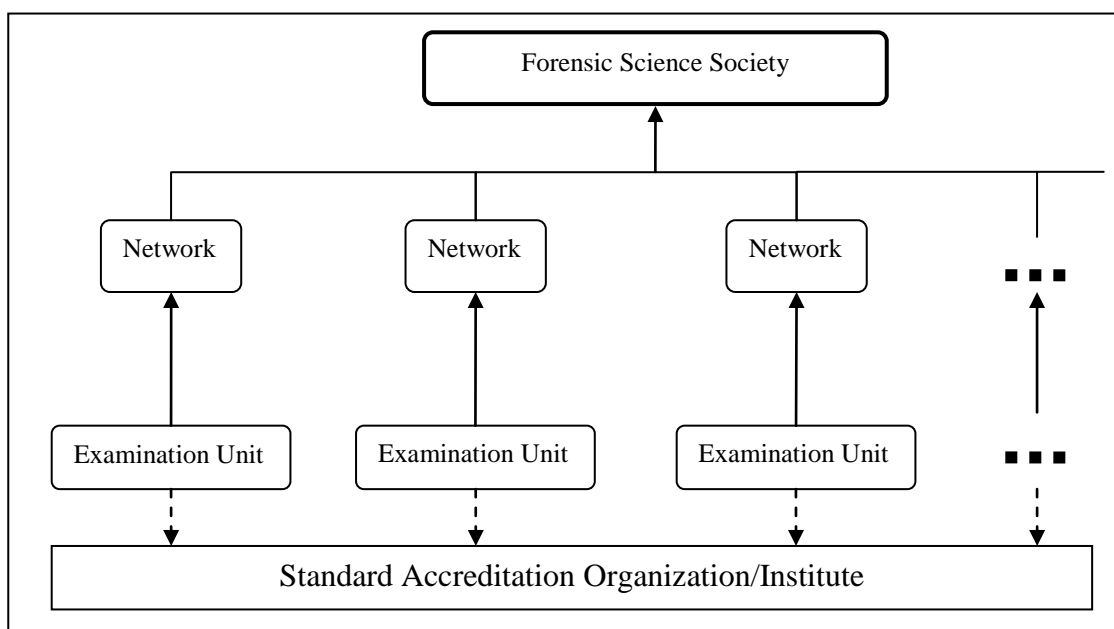
#### 5.3.1 The emphasized on committee model



**Figure 4** shown the structural model of forensic science system which emphasized on committee model

According to figure 4 the structural model which focus on committee, needs to legislate the law for establishing unit and ordination committee that will be setting policy agenda both long-term and short-term. It consists of the standard supervision unit which responsible in practice standard, ethics, and proficiency testing for practitioner and laboratories prompt to operation all time, and the service unit, not only standard, but must be also conform with policy both long-term and short-term. And the service unit has been dividing into two units as the law enforcement section which consists of crime scene operation and cooperated with investigator duty, and the examination section consists of experts and laboratories. This examination section is independent in reporting of the examination result and opinion, do not keep under control from politic and administrator. Both of them must rely on professional ethics that supervised by committees. Besides that, the units should be set up their professional society which members are come from forensic science practitioner. The society responsible for academic development such as training, researching and will be the coordination center of related networks.

### 5.3.2 The emphasized on professional society model



**Figure 5** Shown the structural model of forensic science system which emphasized on professional society model

According to Figure 5 the structural model which focus on professional society, because the previously model is necessary depend on the law process that is slowly, including with unstable politic and become to uncertainly implement. Thus, the professional society model is an alternative choice for primary improvement. As this time, forensic science units in any organization have setting up many related network. It should be encourage them to formally coordination and cooperate between networks to setting up professional society which to be the main unit for knowledge development and coordination center. Besides that, it should be motivate all units to get into international standard accreditation. The coordination is not only knowledge development or operation, but for sharing the techniques and measurements to resolving the problem which used to happened, and creating directions for valuable and effectively development.

Although the present situation of Thailand is not ready to build up the structural as committee model, but the professional society model is a choice to beginning apply and seriously cooperation that will make all unit ready to tuning to be the committee model later, and enhancing the forensic science of Thailand to be durable knowledge, skillful operation with accuracy effective and valuable for the criminal justice and social.

## **CHAPTER VI**

### **CONCLUSION AND SUGGESTION**

#### **6.1 Conclusion**

The research “The approach to develop suitable administration of forensic science in Thailand through the application of sufficiency economy” have objective to study the royal contemplation, “*The Sufficiency Economy Philosophy*”, for application in develops forensic science system, collection and analyzing the method for resolving and development forensic science administration from practitioners, experts in forensic science and relevant criminal justice, and planning the approach to develop suitable forensic science system administration in Thailand. There was collection quantitative and qualitative data, the quantitative collection is distributed the questionnaire to 254 forensic science officer from the CIFS and the Royal Thai Police, and qualitative collection is in-depth interview method which interview with 17 person whose are experts in forensic science and criminal justice consist of judges, prosecutors, forensic medicine physicians, and forensic science police.

According to the research objective, data analyzing and synthesizing can summarize hereafter:

##### **6.1.1 Application of the sufficiency economy philosophy to develop forensic science administration system**

1. The sample group had understood the sufficiency economy principle in similarly direction and consistent with the general as revealed which are suitable of apply in administrative management for worthwhile and effective development.
2. The sample group acknowledged the problem in forensic science and aware of its impact, and asked for all related coordination to resolving because this impact will effect to the main stream of criminal justice system.

3. The sample group had agreed with planning and direction for improves personnel and knowledge implementation to elevate beside as international standard.
4. The application of the sufficiency economy for the forensic science administration, the sample group was agreed with this application and suggest that should not focus only money or property because forensic science is the one of criminal justice which must be focus on accuracy and justice for all, besides that should be rely on knowledge base and moral base.

#### **6.1.2 Resolving and development concept for forensic science administration system**

1. The sample group saw that the mass media which reveal the forensic science information was inadequate and become problems, it should be assigned a code of conduct or ethics supervising their manner.
2. The sample group approved for the problem of politic effect to the forensic science policy implementation, should be set up long-term policy for major plan, and short-term policy which flexible and adjustable, but will be in line with major plan for reduce the problem. However the critical matter is the high administrator of each unit must be sincerity cooperation.
3. The structural improvement issue, the sample group saw that nowadays there is overlap operation, should be obviously determine the responsibility, supervision and check and balance system, including legislation the law about authority, ethics and independent in reporting opinion of analyze. Importantly, should be establishing the professional society or set up committee to administrate malpractice.

### **6.1.3 Suitable approach for develop forensic science administration system**

According to the summarizing above, it can be presenting the approach model to improving and development which can divided into two models, the emphasized on committee and the emphasized on professional society model. The first, it must be depend on legislation process which is formally control, and another one do not have committee, but providing the cooperation between network and establish the professional society to inspecting the practitioners and laboratories which for prepare to transfer to formally model which had been administrated by committee for higher effective and more confidence.

Although, may the future possible to improving the administration and structure for stability, unity and universal standard. However, if every unit promote to applying the sufficiency economy for develop administration as in structure, regulation, personnel development, knowledge development, and policy, it will be support improving and development to be moderation, reasonable and preventing mistake, including development the basic knowledge and moral for support investigation and providing the justice to public effectively.

## **6.2 Suggestion**

The experts and practitioners opinion consistent to the forensic science administration should be cooperation, standard elevation, and structural improving, but there are some obstacles and notices which should be resolving for development and further research hereinafter.

### **6.2.1 Policy approach**

1. Complicated and sluggish legislation system, make the law which necessary to be improved or authorized cannot be fluently legislation. And the law related forensic science should be promoted operation and academic development.

2. Ministry of Justice must be forcing to legislate the law or regulation about the operation and supervision in forensic science for distinctive mission and responsibility of each related unit.
3. The Royal Thai Police should be enhancing efficiency all of the Science Crime Detection Center to be closely to the Scientific Crime Detection Division, which for elevating the effective and reducing the cases of central unit. Otherwise, for increasing admission forensic science graduated to work in forensic science units.
4. Should have the national organization role in cooperation and data exchange such as budgetary data or equipment providing which for worthwhile and necessary.
5. Should have a channel for private sector cooperation such as some evidence in rare case which should be using special method. It may be cheaper and more suitable than operating by government unit.
6. Should be study with academic institute about the real demand of forensic science officer for balancing of supply and demand.

#### **6.2.2 Practical approach**

1. The related officers in criminal justice do not understand forensic science operation, including plenty cases may be the limitation to learning for understanding in short time.
2. Should have an institute or academic organization which responsible on providing knowledge and research to study about problem and development for forensic science. Exceptional, should be support training for forensic scientists and criminal justice officers.
3. The previously conflict cannot resolved appropriately, especially the problem of coordination between administrators of each still remain.
4. Should have project for forensic scientist exchange between forensic science units for learning the mission of each unit and conformity cooperation.

### **6.2.3 Further research**

1. Distinctive mission and responsibility of forensic practitioners should been studied or researched, to prevent operation overlap and interfere between unit.
2. Should be researching about boundary of forensic science role and responsibility in criminal justice process, for understanding mission and limitation of forensic science in criminal justice system.
3. Forensic science and mass media corporate research should be done for accuracy and appropriately revealing, does not effect to anyone or criminal justice.
4. Should be study the role and responsibility of volunteer for set up suitable guideline, consistent with major unit and lawful operation.
5. Should be study and research about operation planning in disaster crisis; personal responsibility and others unit connection.



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## **APPENDICES**

## APPENDIX A

### IMPORTANT INFORMATION FROM IN-DEPTH INTERVIEW

สรุปข้อมูลสำคัญจากการสัมภาษณ์เชิงลึกผู้เชี่ยวชาญ และ ผู้บริหาร ด้านนิติวิทยาศาสตร์และ  
กระบวนการยุติธรรม จำนวน 17 ท่าน

| ประเด็นคำถามการสัมภาษณ์เชิงลึก                                 | ความเห็นโดยสรุป   |
|--|---|
| 1.ความเข้าใจในหลักเศรษฐกิจพอเพียงกับการบริหารจัดการ            | <ul style="list-style-type: none"> <li>-การวางแผนและการใช้งบประมาณอย่างมีประสิทธิภาพ</li> <li>-การใช้ทรัพยากรอย่างคุ้มค่าและเกิดประโยชน์สูงสุด</li> <li>-การคิดเชิงระบบ</li> <li>-ความรอบคอบ ไม่ประมาท</li> <li>-การไม่โน้มเอียงหรือให้ความสำคัญด้านใดด้านหนึ่งมากเกินไป</li> <li>-ความประหยัดอย่างมีเหตุผล</li> </ul>  |
| 2.ปัญหาของงานด้านนิติวิทยาศาสตร์และผลกระทบต่อกระบวนการยุติธรรม | <p><b>ปัญหา</b></p> <ul style="list-style-type: none"> <li>-ความขัดแย้ง</li> <li>-ความฟุ่มเฟือย</li> <li>-การแข่งขันเพื่อชื่อเสียงมากกว่าประสิทธิภาพ</li> <li>-ขาดระบบตรวจสอบ</li> <li>-สื่อมีอิทธิพลต่อความเข้าใจที่คลาดเคลื่อน</li> </ul> <p><b>ผลกระทบ</b></p> <ul style="list-style-type: none"> <li>-ความเชื่อมั่นต่อกระบวนการยุติธรรม</li> <li>-เกิดความล่าช้าในกระบวนการยุติธรรม</li> <li>-ความเสมอภาคและเป็นธรรมของการเข้าถึงการรับบริการด้านนิติวิทยาศาสตร์</li> </ul> |
| 3.แนวปฏิบัติในการให้ข้อมูลต่อสาธารณะ                           | <ul style="list-style-type: none"> <li>-ควรมีการนำเสนอภารกิจและองค์ความรู้ด้านนิติวิทยาศาสตร์ให้ประชาชนทราบ</li> <li>-ควรมีลำดับขั้นของการเปิดเผยข้อมูล</li> <li>-ผู้ปฏิบัติงานควรมีจรรยาบรรณในการเปิดเผยข้อมูลและมีองค์กรหรือกรรมการในการกำกับ ดูแล</li> <li>-ควรมีพิจารณาข้อมูลทางคดีและองค์ความรู้ก่อนมีการเผยแพร่ต่อสาธารณะ</li> </ul>  |

| ประเด็นคำถามการสัมภาษณ์เชิงลึก  | ความเห็นโดยสรุป  |
|---------------------------------|--|
| 4.การพัฒนาบุคลากรและองค์ความรู้ | <ul style="list-style-type: none"> <li>-ควรมีหน่วยงานกลางเพื่อการฝึกอบรมหรือด้านวิชาการ</li> <li>-ควรมีการปรับพื้นความรู้ความเข้าใจในงานนิติวิทยาศาสตร์ให้ตรงกัน</li> <li>-มีการพัฒนาองค์ความรู้อย่างต่อเนื่อง</li> <li>-การจัดสรรบุคลากรให้ปฏิบัติงานอย่างเหมาะสมกับความสามารถแต่ละตำแหน่ง</li> <li>-ผู้ปฏิบัติงานด้านนิติวิทยาศาสตร์จำเป็นต้องมีองค์ความรู้ด้านกระบวนการยุติธรรมประกอบด้วย</li> </ul>  |
| 5.การวางแผนด้านนโยบาย           | <ul style="list-style-type: none"> <li>-มีแผนหลักในการดำเนินการระยะยาวและมีแผนรองในการดำเนินการระยะสั้น</li> <li>-มีการประสานความร่วมมือระหว่างหน่วยงานที่เกี่ยวข้อง</li> <li>-มีมาตรฐานการปฏิบัติงานด้านต่างๆในแบบเดียวกันทุกหน่วยงาน</li> <li>-การเมืองมีผลต่อความต่อเนื่องในการดำเนินนโยบาย</li> </ul>  |
| 6.การปรับปรุงโครงสร้าง          | <ul style="list-style-type: none"> <li>-สถาบันนิติวิทยาศาสตร์ควมมีภารกิจที่เน้นในด้านวิชาการมากกว่าการให้บริการ</li> <li>-ควรกำหนดบทบาทหน้าที่ของแต่ละหน่วยงานให้ชัดเจน</li> <li>-ควรมีองค์กรในการกำกับดูแลมาตรฐาน การปฏิบัติงานของบุคลากรและห้องปฏิบัติการ</li> <li>-หน่วยตรวจสอบที่เกิดเหตุควรอยู่กับหน่วยงานบังคับใช้กฎหมาย ส่วนห้องปฏิบัติการและผู้เชี่ยวชาญควรมีความเป็นอิสระ</li> <li>-ควรมีการจัดตั้งสมาคมวิชาชีพ</li> <li>-ควรมีการบัญญัติกฎหมายที่เกี่ยวกับการปฏิบัติงาน</li> </ul> |



| ประเด็นคำถามการสัมภาษณ์เชิงลึก                                       | ความเห็นโดยสรุป  |
|--|--|
| 7.การนำหลักเศรษฐกิจพอเพียงมาปรับใช้ในการบริหารงานด้านนิติวิทยาศาสตร์ | <ul style="list-style-type: none"> <li>-การมุ่งผลประโยชน์ส่วนรวม</li> <li>-ความคุ้มค่าที่มากกว่าเฉพาะวัตถุหรือเงินทองทรัพย์สิน</li> <li>-การรับรู้และตระหนักถึงปัญหาและการแก้ไขของผู้บริหาร</li> <li>-การรับฟังเหตุผลซึ่งกันและกัน</li> <li>-มองประโยชน์ที่จะเกิดจากผลลัพธ์</li> <li>-มีการวางแผนอย่างรอบคอบและรัดกุม</li> <li>-มีการแบ่งปันทรัพยากรและความร่วมมือในการปฏิบัติงาน</li> </ul> |

## APPENDIX B

### QUESTIONNAIRE

แบบสอบถามการวิจัยเรื่อง แนวทางการพัฒนาระบบการบริหารจัดการงานด้านนิติวิทยาศาสตร์ที่เหมาะสมสำหรับประเทศไทย โดยการปรับใช้ปรัชญาเศรษฐกิจพอเพียง

#### ข้อมูลส่วนบุคคล

- เพศ ☐ ชาย ☐ หญิง
- อายุ 21-30 ปี 31-40 ปี 41-50 ปี 51-60 ปี
- การศึกษา ☐ ต่ำกว่า ป.ตรี ☐ ป.ตรี ☐ ป.โทและสูงกว่า
- ประสบการณ์ทำงานในด้านนิติวิทยาศาสตร์
- ☐ 1-5 ปี ☐ 6-10 ปี ☐ 11-15 ปี 15 ปีขึ้นไป

#### ข้อมูลด้านองค์ประกอบสำคัญในการพัฒนาระบบการบริหารจัดการงานด้านนิติวิทยาศาสตร์

กรุณาใส่เครื่องหมาย ✓ ในช่องระดับความเห็นของท่าน โดย

ระดับ 1 หมายถึง เห็นด้วยน้อยที่สุด

ระดับ 2 หมายถึง เห็นด้วยน้อย

ระดับ 3 หมายถึง เห็นด้วยปานกลาง

ระดับ 4 หมายถึง เห็นด้วยมาก

ระดับ 5 หมายถึง เห็นด้วยมากที่สุด

| <u>-ประเด็นด้านโครงสร้าง</u>   | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| 1. ในกรณีที่หน่วยงานนิติวิทยาศาสตร์กระจายอยู่ตามหน่วยงานต่างๆ ทุกหน่วยงานควรอยู่ภายใต้การบังคับบัญชาหรือสังกัดองค์กรใดองค์กรหนึ่งเพียงองค์กรเดียว  |   |   |   |   |   |
| 2. หน่วยงานนิติวิทยาศาสตร์ไม่ควรกระจายตัวตามองค์กรต่างๆ ควรมีหน่วยงานที่รับผิดชอบการปฏิบัติงานเพียงหน่วยงานเดียว เช่น สำนักงานตำรวจแห่งชาติ หรือ กระทรวงยุติธรรม หรือ กระทรวงสาธารณสุข เป็นต้น |   |   |   |   |   |
| 3. หน่วยงานนิติวิทยาศาสตร์ควรเป็นหน่วยงานราชการ  |   |   |   |   |   |
| 4. หน่วยงานนิติวิทยาศาสตร์ควรเป็นองค์กรอิสระหรือองค์การมหาชน   |   |   |   |   |   |
| 5. ควรมีองค์กรกลางในการกำกับดูแลด้านคุณภาพและมาตรฐานการปฏิบัติงานด้านนิติวิทยาศาสตร์   |   |   |   |   |   |

| -ประเด็นเกี่ยวกับผู้มีผลกระทบต่อการปฏิบัติงาน<br>(สื่อมวลชน และ/หรือ มูลนิธิและอาสาสมัคร)  | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| 1. การรับรู้จากสื่อมวลชน เกี่ยวกับ ความรู้และความเข้าใจในการปฏิบัติงานด้านนิติวิทยาศาสตร์ มีผลกระทบต่อการปฏิบัติงานและการพัฒนางานด้านนิติวิทยาศาสตร์                     |   |   |   |   |   |
| 2. การรับรู้จากสื่อมวลชนเกี่ยวกับงานนิติวิทยาศาสตร์ ส่งผลให้เกิดความคาดหวังในความสำเร็จที่สูงเกินความเป็นจริง  |   |   |   |   |   |
| 3. การรับรู้จากสื่อมวลชนเกี่ยวกับงานนิติวิทยาศาสตร์ ส่งผลให้เกิดความคาดหวังบิดเบือนจากความเป็นจริง   |   |   |   |   |   |
| 4. งานด้านนิติวิทยาศาสตร์ควรมีระเบียบหรือแนวปฏิบัติในการคัดกรองข้อมูลข่าวสารการปฏิบัติงานด้านนิติวิทยาศาสตร์ ก่อนการเผยแพร่ออกสู่สาธารณะ                                 |   |   |   |   |   |
| 5. งานด้านนิติวิทยาศาสตร์ ควรมีระเบียบหรือแนวปฏิบัติในการให้เจ้าหน้าที่มูลนิธิหรืออาสาสมัคร เข้าช่วยเหลือการปฏิบัติหน้าที่ของเจ้าหน้าที่ที่ปฏิบัติงานด้านนิติวิทยาศาสตร์ |   |   |   |   |   |

| -ประเด็นด้านงบประมาณ   | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| 1. การจัดทำงบประมาณการปฏิบัติงานด้านนิติวิทยาศาสตร์แต่ละแห่งควรมีการประสานแลกเปลี่ยนข้อมูลและหารือระหว่างหน่วยงานที่ปฏิบัติงานในลักษณะเดียวกันหรือคล้ายกัน |   |   |   |   |   |
| 2. การจัดทำงบประมาณการปฏิบัติงานด้านนิติวิทยาศาสตร์แต่ละแห่งควรมีการประเมินความคุ้มค่าและ นำงบประมาณปีก่อนหน้ามาร่วมพิจารณา                                |   |   |   |   |   |
| 3. หน่วยงานด้านนิติวิทยาศาสตร์แต่ละแห่งควรมีหรือจัดหาอุปกรณ์หรือเครื่องมือให้มีจำนวนเพียงพอและเหมาะสมตามความจำเป็น   |   |   |   |   |   |
| 4. ในกรณีมีความจำเป็นต้องใช้อุปกรณ์บางชนิดที่มีการใช้งานนานๆ ครั้ง ควรพิจารณาถึงความเป็นไปได้ในการขอยืมจากหน่วยงานที่มีอุปกรณ์ดังกล่าวก่อนเป็นอันดับแรก    |   |   |   |   |   |
| 5. สถิติข้อมูลอาชญากรรม สามารถช่วยในการวางแผนการจัดทำงบประมาณได้อย่างคุ้มค่ามากขึ้น  |   |   |   |   |   |

| -ประเด็นด้านทรัพยากรบุคคลและองค์ความรู้   | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. สถาบันการศึกษาที่เปิดการศึกษาด้านนิติวิทยาศาสตร์ควรคำนึงถึงจำนวนนักศึกษากับปริมาณความต้องการของหน่วยงานนิติวิทยาศาสตร์ที่สามารถรองรับได้   |   |   |   |   |   |
| 2. ความรู้พื้นฐานด้านกระบวนการยุติธรรมเป็นสิ่งจำเป็นสำคัญ ที่นักนิติวิทยาศาสตร์ควรมีนอกเหนือจากนิติวิทยาศาสตร์  |   |   |   |   |   |
| 3. ผู้ปฏิบัติงานด้านนิติวิทยาศาสตร์ควรได้รับการทดสอบความรู้และทักษะตามรอบระยะเวลา   |   |   |   |   |   |
| 4. บุคลากรด้านนิติวิทยาศาสตร์ควรได้รับค่าตอบแทนพิเศษหรืออัตราเงินเดือนที่เพิ่มจากปกติ เนื่องจากมีความเสี่ยงทั้งทางตรง และ/หรือ ทางอ้อมที่เกิดจากการปฏิบัติหน้าที่และกระบวนการยุติธรรม |   |   |   |   |   |
| 5. ควรมีการประสานงานและแลกเปลี่ยนความรู้ระหว่างหน่วยงานด้านนิติวิทยาศาสตร์และหน่วยงานในกระบวนการยุติธรรม  |   |   |   |   |   |

| -ประเด็นด้านนโยบายและการดำเนินนโยบาย  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. ควรมีกฎหมายหรือระเบียบเกี่ยวกับอำนาจหน้าที่การปฏิบัติงานของหน่วยงานและผู้ปฏิบัติงานด้านนิติวิทยาศาสตร์   |   |   |   |   |   |
| 2. การปรับเปลี่ยน โยกย้าย ตำแหน่งผู้บริหารระดับสูงของหน่วยงานด้านนิติวิทยาศาสตร์ ของไทยตามระบบราชการทำให้นโยบายขาดความต่อเนื่องและการดำเนินนโยบายไม่ประสบความสำเร็จ ส่งผลต่อการพัฒนาด้านนิติวิทยาศาสตร์ |   |   |   |   |   |
| 3. การดำเนินนโยบายในการพัฒนาการบริหารจัดการด้านนิติวิทยาศาสตร์ ควรมีความยืดหยุ่นและปรับตัวได้ ตามสภาพแวดล้อมและสถานการณ์และยอมรับการเรียนรู้เทคโนโลยีในปัจจุบัน   |   |   |   |   |   |
| 4. แนวทางการพัฒนางานด้านนิติวิทยาศาสตร์ นั้นต้องยึดหลักของความถูกต้อง เหมาะสมและอยู่บนพื้นฐานข้อเท็จจริง เพื่อตอบสนองต่อกระบวนการยุติธรรมและประชาชน   |   |   |   |   |   |
| 5. หลักธรรมาภิบาลและหลักเศรษฐกิจพอเพียง มีความเหมาะสมที่จะนำมาปรับใช้ในการพัฒนาการบริหารจัดการด้านนิติวิทยาศาสตร์ ให้มีประสิทธิภาพและสอดคล้องกับสภาพเศรษฐกิจและสังคมไทย                                 |   |   |   |   |   |

| <u>-ประเด็นด้านการบริหารจัดการ</u>  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. ควรมีการนำหลักการบริหารจัดการสมัยใหม่ มาร่วมปรับใช้ในการบริหาร<br>หน่วยงานด้านนิติวิทยาศาสตร์ แทนการใช้การบริหารในรูปแบบระบบ<br>ราชการเพียงอย่างเดียว    |   |   |   |   |   |
| 2. การบริหารจัดการของงานด้านนิติวิทยาศาสตร์ ควรลดทอนระดับการ<br>บังคับบัญชา เน้นการแลกเปลี่ยนความรู้ความสามารถและการกระจายอำนาจ                             |   |   |   |   |   |
| 3. ควรมีการนำระบบบริหารจัดการของงานด้านนิติวิทยาศาสตร์ ต่างประเทศ<br>มาปรับใช้กับงานด้านนิติวิทยาศาสตร์ ของประเทศไทย  |   |   |   |   |   |
| 4. หน่วยงานด้านนิติวิทยาศาสตร์ควรมีแนวทางการบริหารจัดการ ระเบียบ<br>กฎเกณฑ์และ แนวทางการปฏิบัติงานที่มีความสอดคล้องและเป็นไปใน<br>ทิศทางเดียวกัน            |   |   |   |   |   |
| 5. ควรมีระบบการตรวจสอบ ถ่วงดุล ที่มีประสิทธิภาพ โปร่งใส สามารถ<br>ตรวจสอบย้อนกลับหรือตรวจสอบซ้ำได้ และเปิดโอกาสให้ประชาชนมีส่วน<br>ร่วมในการตรวจสอบดังกล่าว |   |   |   |   |   |

## APPENDIX C

### IN-DEPTH INTERVIEW QUESTIONS

#### แนวประเด็นคำถามการสัมภาษณ์เชิงลึก

1. ท่านมีความเข้าใจเกี่ยวกับความหมายของหลักเศรษฐกิจพอเพียงอย่างไร และควรมีแนวทางในการนำมาปรับใช้ในการบริหารจัดการในลักษณะใด
2. ท่านมีความเห็นว่าสภาพปัญหาของงานด้านนิติวิทยาศาสตร์ที่เกิดขึ้นมีผลกระทบต่อกระบวนการยุติธรรมอย่างไร
3. ท่านมีความเห็นว่าควรมีแนวปฏิบัติในการเผยแพร่ข้อมูลต่อสาธารณะหรือไม่ อย่างไร
4. ท่านมีความเห็นว่าควรมีแนวทางในการพัฒนาบุคลากรและองค์ความรู้ในงานด้านนิติวิทยาศาสตร์อย่างไรบ้าง
5. ท่านเห็นว่างานด้านนิติวิทยาศาสตร์ควรมีแนวทางในการวางแผนด้านนโยบายและการดำเนินนโยบายอย่างไรบ้าง
6. ท่านเห็นว่าระบบโครงสร้างและการบริหารจัดการในงานด้านนิติวิทยาศาสตร์ของประเทศไทยควรมีการปรับปรุงและพัฒนาอย่างไร
7. จากหลักการของปรัชญาเศรษฐกิจพอเพียง ท่านเห็นว่าควรมีการนำมาปรับใช้ในการพัฒนางานด้านนิติวิทยาศาสตร์ได้อย่างไร

## APPENDIX D

### IN-DEPTH INTERVIEW INFORMANTS

รายชื่อผู้ทรงคุณวุฒิ ผู้ให้ข้อมูลสำคัญในการสัมภาษณ์เชิงลึก

#### ผู้พิพากษา

1. นายเกริกฤทธิ์ อัฐรัตน์

ตำแหน่ง เลขานุการศาลอาญา

2. นายชนะชัย ผดุงศิริ

ตำแหน่ง ผู้พิพากษาศาลชั้นต้นประจำสำนักประธานศาลฎีกา

3. นายชัยวัฒน์ ศรีวิภาสถิตย์

ตำแหน่ง ผู้พิพากษาศาลชั้นต้นประจำสำนักประธานศาลฎีกา

4. นายประสงค์ มหาสิทธิ์กุล

ตำแหน่ง ผู้พิพากษาศาลชั้นต้นประจำสำนักประธานศาลฎีกา

5. นางสาวเปรมรัตน์ วิจารณ์ญาณ

ตำแหน่ง ผู้พิพากษาศาลชั้นต้นประจำสำนักประธานศาลฎีกา

#### เจ้าพนักงานอัยการ

6. ร้อยตำรวจโทธานี วุฒากร

ตำแหน่ง รองอธิบดีอัยการฝ่ายคดีอาญา

7. นายวันชัย สร้อยทอง

ตำแหน่ง ผู้ตรวจราชการอัยการ

8. นายภัทรศักดิ์ สิทธิไทรย์

ตำแหน่ง อัยการพิเศษฝ่ายอำนวยการความยุติธรรมชั้นสอบสวน

9. นายชนภัทร วันยวัฒน์

ตำแหน่ง อัยการจังหวัดประจำกรม สำนักงานอัยการสูงสุด

### เจ้าหน้าที่ตำรวจด้านนิติวิทยาศาสตร์

#### 10. พลตำรวจตรีประพัฒน์ คนตรง

ตำแหน่ง รองผู้บัญชาการ สำนักงานพิสูจน์หลักฐานตำรวจ

#### 11. พันตำรวจเอกวิชชัย เมฆประเสริฐสุข

ตำแหน่ง รองผู้บังคับการ กองพิสูจน์หลักฐานกลาง สำนักงานพิสูจน์หลักฐานตำรวจ

#### 12. พันตำรวจเอกฉัตรชัย นันทมงคล

ตำแหน่ง นักวิทยาศาสตร์(สบ 4) กลุ่มงานตรวจอาวุธและเครื่องกระสุนปืน

กองพิสูจน์หลักฐานกลาง สำนักงานพิสูจน์หลักฐานตำรวจ

#### 13. พันตำรวจเอกณัฐพล สามเสน

ตำแหน่ง นักวิทยาศาสตร์ (สบ 4) กลุ่มงานตรวจทางเคมีและฟิสิกส์

กองพิสูจน์หลักฐานกลาง สำนักงานพิสูจน์หลักฐานตำรวจ

### แพทย์นิติเวช

#### 14. ศาสตราจารย์คลินิกนายแพทย์สมชาย ผลเอี่ยมเอก

ตำแหน่ง นายกสมาคมแพทย์นิติเวชแห่งประเทศไทย

#### 15. ศาสตราจารย์คลินิกนายแพทย์ณรงค์ สิงห์ประเสริฐ

ตำแหน่ง อาจารย์ผู้เชี่ยวชาญพิเศษ ภาควิชานิติเวชศาสตร์ คณะแพทยศาสตร์ศิริราชพยาบาล

#### 16. รองศาสตราจารย์นายแพทย์วิสูตร ฟองศิริไพบูลย์

ตำแหน่ง หัวหน้าภาควิชานิติเวชศาสตร์ คณะแพทยศาสตร์ศิริราชพยาบาล

#### 17. นายแพทย์นิติกร โปริสวานิชย์

ตำแหน่ง อาจารย์ประจำภาควิชานิติเวชศาสตร์ คณะแพทยศาสตร์ศิริราชพยาบาล



## **BIOGRAPHY**

|                              |  |
|------------------------------|--|
| <b>NAME</b>                  | Mr. Chaichan Chairangsinant  |
| <b>DATE OF BIRTH</b>         | 16 May 1975  |
| <b>PLACE OF BIRTH</b>        | Nan, Thailand  |
| <b>INSTITUTIONS ATTENDED</b> | King Mongkut's Institute of Technology North<br>Bangkok, 1994-1997<br>Bachelor of Science<br>(Industrial Physics and Medical<br>Instrumentation)<br>Mahidol University, 1999-2001<br>Master of Science (Forensic Science)<br>Mahidol University, 2011<br>Doctor of Philosophy (Criminology,<br>Justice Administration and Society) |
| <b>HOME ADDRESS</b>          | 125/175 Sailom (Soi 4), Chaengwattana Rd.,<br>Parkkred, Nonthaburi, 11120<br>Tel. 089 456 0907<br>E-mail: jig_chou@hotmail.com   |
| <b>EMPLOYMENT ADDRESS</b>    | Central Institute of Forensic Science,<br>Ministry of Justice, The Government<br>Complex (Building B), Chaengwattana Rd.,<br>Thung Song Hong, Laksi District, Bangkok<br>10210   |